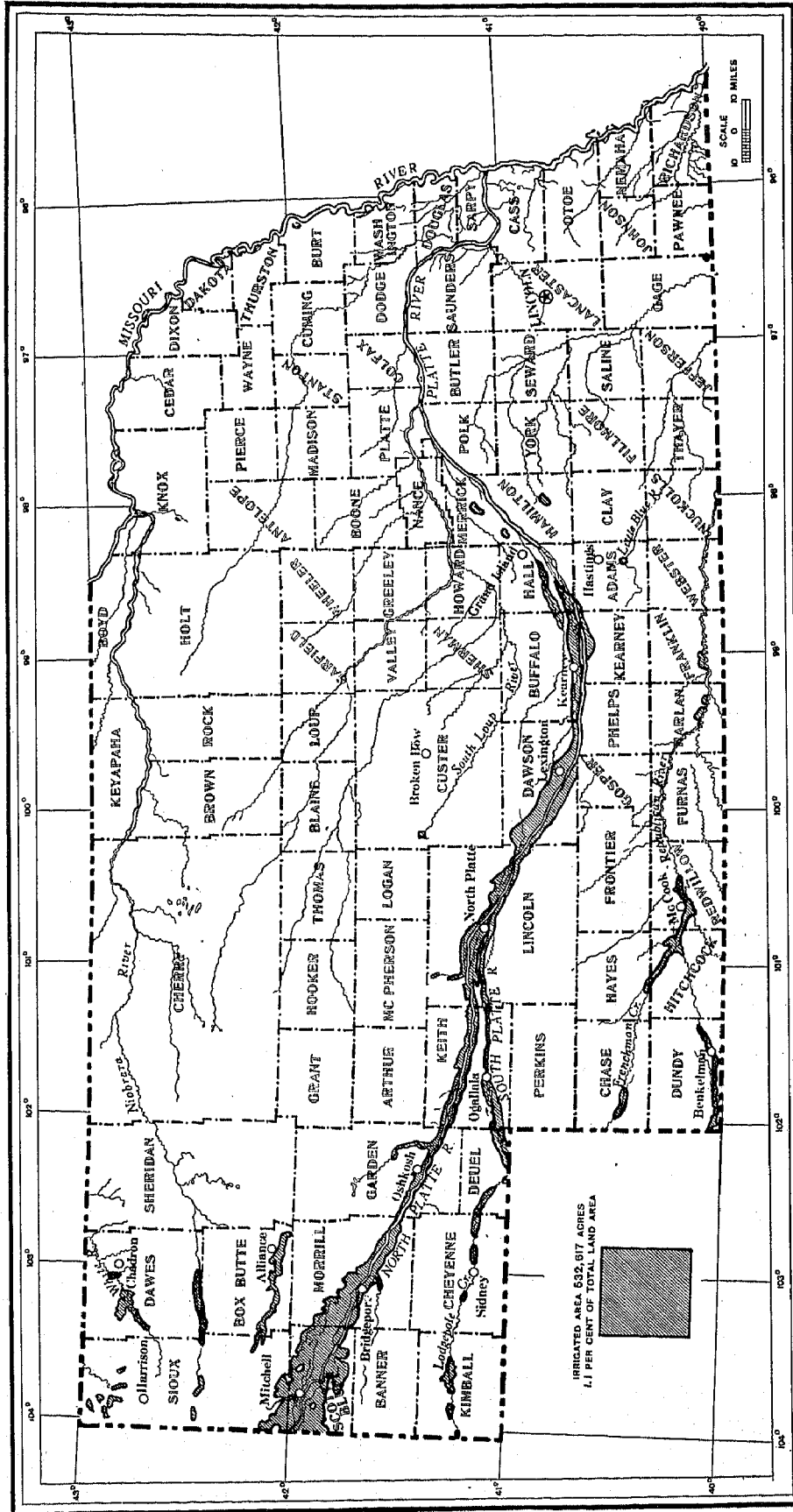


NEBRASKA

APPROXIMATE LOCATION AND EXTENT OF IRRIGATED LAND



NEBRASKA

INTRODUCTION

Statistics are presented in the following pages on farms irrigated and area irrigated, investment and cost of maintenance and operation of irrigation enterprises, cost of preparing land for irrigation, drainage of irrigated land, quantity of water used, and distribution of irrigation works, with specialized information relating to dams, pipe lines, and pumping equipment. Data on area irrigated, investment, and irrigation works are given in detail by drainage basins. Classifications of irrigated farms by type of farm, size of farm, and value of farm products; and the acreage, yield, and value of the principal crops grown on irrigated land, for all irrigation States, are shown in Parts III and IV, pages 257 and 325, respectively, of this volume.

Statistics for area irrigated and for cost of maintenance and operation of irrigation works relate to the year 1929; all other items relate to 1930.

For purposes of comparison, statistics for the census of 1920 are shown, where available; and for the purpose of showing the historical development of irrigation certain data are presented from censuses previous to that of 1920.

Data on number, area, and value of wholly and partly irrigated farms with the tenure of the operators of these farms were collected in 1930 on the general farm schedule; in 1920 only the number of irrigated farms was obtained in this way. All other statistics, in both censuses, were collected on special schedules for irrigation enterprises.

STATE TABLE 1.—SUMMARY FOR THE STATE: 1930 AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—		INCREASE	
	1930	1920	Amount	Per cent
All farms.....	129,458	124,417	5,041	4.1
All land in farms.....	44,708,565	42,225,475	2,483,090	5.9
Approximate land area of State.....	49,157,120	49,157,120		
Farms irrigated.....	4,602	3,021	1,581	52.3
Area irrigated.....	532,617	442,090	89,927	20.3
Area enterprises were capable of supplying with water.....	703,641	562,468	141,173	25.1
Area in enterprises ¹	763,039	766,768		
Proportion irrigated:				
All farms.....	3.6	2.4		
All land in farms.....	1.2	1.0		
Approximate land area of State.....	1.1	0.9		
Excess of area enterprises were capable of supplying with water over area irrigated.....	171,024	119,778	51,246	42.8
Excess of area in enterprises ¹ over area irrigated.....	230,422	324,078		
Area in enterprises available, or to be available, for settlement.....	10,113			
Value of irrigated farms [land, buildings (including dwellings), and implements and machinery].....	91,773,733	(?)		
Investment in irrigation enterprises.....	21,386,310	13,900,185	7,477,134	53.8
Average, per acre, based on area enterprises were capable of supplying with water.....	30.89	24.73	5.66	22.9
Estimated final cost of existing enterprises.....	21,465,772	18,030,154	3,435,618	19.1
Average, per acre, based on area in enterprises ¹	28.13	23.51		
Average annual cost, per acre, for maintenance and operation of irrigation works.....	1.54	1.48	0.06	4.1

¹ Irrigable area, 1930; total area, 1920.

² Figures not available.

STATE TABLE 2.—FARMS AND SPECIFIED FARM VALUES, BY TENURE OF FARM OPERATOR, 1930

ITEM (See definitions in Introduction)	FARMS		SPECIFIED FARM VALUES					
	Number	Area	Land and buildings		Land alone		Implements and machinery	
			Total	Per acre	Total	Per acre	Total	Per acre
All farms.....	129,458	44,708,565	2,495,203,071	55.81	2,048,663,849	45.82	150,925,108	3.38
Owners and managers.....	68,438	27,179,553	1,395,480,141	51.34			86,934,828	3.20
Tenants.....	61,020	17,529,012	1,099,722,930	62.74			63,990,280	3.65
Irrigated farms.....	4,602	1,648,339	85,097,442	51.63	70,533,599	42.79	6,676,291	4.05
Owners and managers.....	2,276	1,080,501	46,944,404	43.45	37,900,736	35.08	3,591,261	3.32
Tenants.....	2,326	567,838	38,153,038	67.19	32,632,863	57.47	3,085,030	5.43
Wholly irrigated farms.....	2,434	462,402	32,441,535	70.16	25,987,010	56.16	3,217,486	6.96
Owners and managers.....	1,126	242,943	15,302,456	63.23	11,653,191	47.99	1,546,456	6.37
Tenants.....	1,308	219,459	17,079,079	77.82	14,333,819	65.20	1,671,030	7.61
Partly irrigated farms.....	2,168	1,185,937	52,655,907	44.40	44,566,589	37.58	3,458,805	2.92
Owners and managers.....	1,150	337,558	31,581,848	37.71	26,242,545	31.33	2,044,805	2.44
Tenants.....	1,018	848,379	21,073,959	60.49	18,324,044	52.60	1,414,000	4.06
Farms not irrigated.....	124,856	43,060,226	2,410,105,629	55.97	1,978,130,250	45.94	144,248,817	3.35

FARMS AND AREA IRRIGATED

In State Table 3 and in other tables "Number of farms irrigated" is equivalent to "Number of irrigators" used in census reports previous to 1910.

STATE TABLE 3.—FARMS AND AREA IRRIGATED: 1890 TO 1930

CENSUS YEAR	FARMS IRRIGATED			AREA IRRIGATED			
	Number	In-crease ¹	Pro-portion of all farms	Area	In-crease ¹	Pro-portion of total land area of State	Pro-portion of land in all farms
1930.....	4,602	52.3	3.6	532,617	20.3	1.1	1.2
1920.....	3,021	63.1	2.4	442,090	73.0	0.9	1.0
1910.....	1,852	-4.1	1.4	255,950	72.3	0.5	0.7
1900.....	1,932	802.8	1.6	148,538	-----	0.3	0.5
1890.....	214	-----	0.2	11,744	-----	(²)	0.1

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² Less than one-tenth of 1 per cent.

STATE TABLE 4.—AREA, BY DATE OF BEGINNING OF ENTERPRISES SUPPLYING WATER FOR IRRIGATION

DATE OF BEGINNING (See definitions in Introduction)	Enter-prises, 1930	AREA IRRIGATED IN 1929		Area enter-prises were capable of supplying with water, 1930	Irrigable area in enter-prises, 1930
		Area	Pro-portion of irri-gable area in enter-prises		
Total.....	721	532,617	69.8	703,641	763,039
Before 1860.....	1	10	50.0	20	20
1870-1879.....	2	166	64.3	106	258
1880-1889.....	40	104,675	87.2	119,565	120,036
1890-1899.....	94	201,222	60.3	206,065	333,578
1900-1904.....	19	2,308	49.9	3,921	4,629
1905-1909.....	12	154,778	80.5	188,290	192,317
1910-1914.....	36	10,892	62.4	22,935	27,056
1915-1919.....	19	3,525	67.3	4,280	5,240
1920-1924.....	70	9,930	66.3	14,669	14,985
1925-1929.....	347	31,893	56.2	45,585	56,732
Not reported.....	81	7,228	88.3	8,145	8,188

STATE TABLE 5.—AREA, BY SOURCE OF WATER SUPPLY: 1929 AND 1919

SOURCE OF SUPPLY	AREA IRRIGATED				Area enter-prises were capable of supplying with water, 1930	Irrigable area in enter-prises, 1930
	1929	1919	Increase ¹			
			Area	Per cent		
Total.....	Acres 532,617	Acres 442,690	Acres 89,927	20.3	Acres 703,641	Acres 763,039
Streams, gravity.....	501,105	435,507	65,628	15.1	658,863	715,006
Streams, pumped.....	2,458	1,115	1,343	120.4	5,495	6,340
Streams, gravity and pumped.....	-----	850	-850	-100.0	-----	-----
Wells, pumped.....	23,452	546	22,906	-----	30,922	33,172
Lakes, pumped.....	255	-----	255	-----	540	540
Lakes, gravity.....	81	-----	81	-----	81	81
Springs.....	414	2,050	-1,636	-79.8	414	414
Stored storm water ²	1,245	1,200	45	3.8	2,570	2,570
City water.....	-----	7	-7	-100.0	-----	-----
Sewage.....	-----	120	-120	-100.0	-----	-----
Streams, gravity and wells, pumped.....	70	115	-45	-39.1	70	220
Other mixed.....	2,259	1,120	1,139	101.7	3,503	3,508
Not reported.....	1,383	-----	1,383	-----	1,383	1,388

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² In reservoirs filled from channels which carry water only during storms and are not classed as streams.

AREA, BY CHARACTER OF ENTERPRISE

No Carey Act or United States Bureau of Indian Affairs enterprises were reported in either 1930 or 1920.

The areas credited to the United States Bureau of Reclamation include the Gering-Fort Laramie, the Northport, and the Pathfinder irrigation districts, but do not include other areas partly served by Government works in both 1929 and 1919 by water carried through private canals under Warren Act or other water-service contracts.

The areas reported under "State" represent institutions and not development enterprises.

STATE TABLE 6.—AREA, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

[For number of enterprises by classes, see State Table 12]

ITEM AND CHARACTER (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Area	Per cent
AREA IRRIGATED				
Total.....	Acres 532,617	Acres 442,690	Acres 89,927	20.3
Individual and partnership.....	57,472	68,140	-10,668	-15.7
Cooperative.....	54,811	55,408	-597	-1.1
Irrigation district.....	219,590	206,206	13,384	6.5
Commercial.....	53,574	25,335	28,239	111.5
United States Bureau of Reclamation.....	147,026	87,558	59,468	67.9
State.....	134	-----	134	-----
Other.....	10	43	-33	-76.7
AREA ENTERPRISES WERE CAPABLE OF SUPPLYING WITH WATER				
Total.....	703,641	562,468	141,173	25.1
Individual and partnership.....	77,206	96,405	-19,199	-19.9
Cooperative.....	77,324	102,242	-24,918	-24.4
Irrigation district.....	254,033	220,859	33,174	15.0
Commercial.....	114,361	27,332	87,029	318.4
United States Bureau of Reclamation.....	180,458	115,487	64,971	66.3
State.....	149	-----	149	-----
Other.....	20	83	-63	-75.9
AREA IN ENTERPRISES²				
Total.....	763,039	766,768	-----	-----
Individual and partnership.....	82,193	124,098	-----	-----
Cooperative.....	88,361	145,444	-----	-----
Irrigation district.....	264,327	244,383	-----	-----
Commercial.....	165,763	76,925	-----	-----
United States Bureau of Reclamation.....	182,185	175,820	-----	-----
State.....	200	-----	-----	-----
Other.....	20	98	-----	-----

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² Irrigable area, 1930; total area, 1920.

AREA, BY CHARACTER OF WATER RIGHTS

STATE TABLE 7.—AREA IRRIGATED, BY CHARACTER OF RIGHTS UNDER WHICH WATER IS RECEIVED: 1929 AND 1919

WATER RIGHTS (See definitions in Introduction)	1929		1919	
	Area	Pro-portion of total	Area	Pro-portion of total
Total.....	Acres 532,617	Per cent 100.0	Acres 442,690	Per cent 100.0
Appropriation and use.....	22,700	4.3	42,141	9.5
Notice filed and posted.....	21,622	4.0	16,517	3.7
Adjudicated by court.....	118,916	22.3	9,280	2.1
Permit from State.....	276,807	52.0	234,805	53.0
Certificate or license from State.....	64,472	12.1	117,960	26.6
Riparian.....	-----	-----	618	0.1
Underground.....	23,452	4.4	546	0.1
Other and mixed.....	1,666	0.3	13	(¹)
Not reported.....	2,983	0.6	20,809	4.7

¹ Less than one-tenth of 1 per cent.

IRRIGATION—NEBRASKA

AREA, BY DRAINAGE BASIN

STATE TABLE 8.—AREA, BY DRAINAGE BASIN: 1929 AND 1919

DRAINAGE BASIN (See definitions in Introduction)	AREA IRRIGATED			Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹		
	Acres	Acres	Per cent		
Total (Missouri River).....	532,617	442,690	20.3	703,641	763,039
White River.....	8,078	8,008	8.4	13,106	13,701
Niobrara River.....	3,498	5,093	-38.0	4,195	4,198
Platte River and tributaries.....	496,867	400,623	24.0	656,966	713,400
Platte River direct.....	71,290	37,532	90.0	140,456	179,011
North Platte River and tributaries.....	373,692	326,045	14.0	450,970	465,531
North Platte River direct.....	352,480	291,736	20.8	421,121	435,442
Other tributaries.....	21,212	34,309	-38.2	29,849	30,089
South Platte River and tributaries.....	26,841	35,290	-23.0	32,813	34,240
South Platte River direct.....	13,975	17,061	-18.1	15,745	16,590
Lodgepole Creek.....	11,830	18,229	-35.1	15,486	15,978
Other tributaries.....	1,036	1,777	-75.3	1,582	1,672
Loup River.....	291	1,177	-75.3	672	732
Other tributaries of Platte River.....	24,753	570		32,056	33,976
Kansas River and tributaries.....	21,340	25,428	-16.1	25,952	27,903
Republican River.....	19,523	25,409	-23.2	23,641	25,441
Other tributaries.....	1,817	10		2,411	2,462
Other tributaries of Missouri River.....	2,234	2,938	-24.0	3,422	3,657

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

INVESTMENT, AND COST OF MAINTENANCE AND OPERATION

STATE TABLE 9.—INVESTMENT IN ENTERPRISES: 1890 TO 1930

CENSUS YEAR	INVESTMENT		AVERAGE, PER ACRE ¹	
	Amount	Increase ²	Amount	Increase
	Dollars	Per cent	Dollars	Per cent
1930.....	21,386,319	53.8	30.39	22.9
1920.....	13,909,185	78.4	24.73	36.1
1910.....	7,798,310	495.0	18.17	106.0
1900.....	1,310,698		8.82	116.7
1890.....	47,708		4.07	

¹ Based on area enterprises were capable of supplying with water.
² Per cent not shown when more than 1,000.
³ Based on average for "subhumid" region. Average for Nebraska not shown separately in 1890.
⁴ "Subhumid" region.

STATE TABLE 10.—INVESTMENT, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	INVESTMENT		
	Amount	Proportion of total	Average, per acre ¹
	Dollars	Per cent	Dollars
Total.....	21,386,319	100.0	30.39
Before 1860.....	1,000	(²)	50.00
1870-1879.....	600	(²)	3.61
1880-1889.....	3,088,645	14.4	25.83
1890-1899.....	2,483,796	11.6	8.39
1900-1904.....	37,875	0.2	9.06
1905-1909.....	13,805,197	64.6	73.32
1910-1914.....	405,745	1.9	17.69
1915-1919.....	133,235	0.6	31.13
1920-1924.....	519,107	2.4	35.39
1925-1929.....	776,754	3.6	17.04
Not reported.....	134,365	0.6	16.50

¹ Based on area enterprises were capable of supplying with water in 1930.
² Less than one-tenth of 1 per cent.

STATE TABLE 11.—INVESTMENT, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929; BY SOURCE OF WATER SUPPLY
 (When water is pumped, cost of maintenance and operation includes cost of fuel and attendance)

SOURCE OF SUPPLY	INVESTMENT, 1930			MAINTENANCE AND OPERATION, 1929	
	Amount	Proportion of total	Average, per acre	Irrigated area reporting	Average, per acre ¹
	Dollars	Per cent	Dollars	Acres	Dollars
Total.....	21,386,319	100.0	30.39	524,260	1.54
Streams, gravity.....	20,531,922	96.2	31.24	495,260	1.41
Streams, pumped.....	71,933	0.3	13.11	2,248	3.85
Wells, pumped.....	616,939	2.9	19.95	22,432	4.03
Lakes, pumped.....	5,000	(²)	9.26	255	5.88
Lakes, gravity.....	17,000	0.1	209.88	81	2.94
Springs.....	6,460	(²)	15.60	413	2.42
Stored storm water.....	33,555	0.2	13.06	1,245	2.87
Streams, gravity and wells, pumped.....	2,330	(²)	33.29	70	2.86
Other mixed.....	21,470	0.1	6.12	2,257	1.20
Not reported.....	29,700	0.1	25.00		

¹ Based on area irrigated in 1929 reporting cost.
² Less than one-tenth of 1 per cent.

STATE TABLE 12.—INVESTMENT, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

CHARACTER OF ENTERPRISE (See definitions in Introduction)	Enterprises, 1930	INVESTMENT		INCREASE ¹	
		1930	1920	Amount	Per cent
		Dollars	Dollars	Dollars	
Total.....	721	21,386,319	13,909,185	7,477,134	53.8
Individual and partnership.....	655	1,041,547	1,146,227	-104,680	-9.1
Cooperative.....	20	751,302	547,104	204,198	37.3
Irrigation district.....	31	5,082,306	2,811,474	2,270,892	80.8
Commercial.....	10	899,054	729,560	172,494	28.7
United States Bureau of Reclamation.....	1	13,603,668	8,674,250	4,929,318	56.8
State.....	3	7,482		7,482	
Other.....	1	1,000	3,570	-2,570	-72.0

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

STATE TABLE 13.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE ¹	
	1930	1920	Amount	Per cent
	Dollars	Dollars	Dollars	
Total (Missouri River).....	21,386,319	13,909,185	7,477,134	53.8
White River.....	478,185	183,319	294,866	160.8
Niobrara River.....	23,775	349,874	-326,099	-93.2
Platte River and tributaries.....	20,372,920	12,894,088	7,478,832	58.0
Platte River direct.....	989,656	488,642	501,014	102.5
North Platte River and tributaries.....	18,288,605	11,934,733	6,353,872	53.2
North Platte River direct.....	18,037,289	11,661,937	6,375,352	54.7
Other tributaries.....	251,316	272,796	-21,480	-7.9
South Platte River and tributaries.....	501,300	444,413	56,887	12.8
South Platte River direct.....	147,400	87,712	59,688	68.0
Lodgepole Creek.....	322,405	356,701	-34,296	-9.6
Other tributaries.....	31,495		31,495	
Loup River.....	10,000	21,300	-11,300	-33.1
Other tributaries of Platte River.....	585,359	5,000	579,359	
Kansas River and tributaries.....	479,214	396,631	82,583	20.8
Republican River.....	421,664	395,006	26,658	6.7
Other tributaries.....	57,550	1,625	55,925	
Other tributaries of Missouri River.....	32,225	85,243	-53,018	-62.2

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

COST OF PREPARING LAND FOR IRRIGATION

The costs shown in State Table 14 represent estimates of expenditures already made on areas reporting, and include clearing and grading land, and building farm laterals and farm irrigation structures.

STATE TABLE 14.—ESTIMATED COST OF PREPARING LAND, 1930

ITEM	1930
Area reporting.....acres.....	473, 213
Estimated cost reported.....dollars.....	4, 637, 353
Average per acre.....dollars.....	9.80

DRAINAGE OF IRRIGATED LAND

The areas in State Table 15 relate only to lands within the boundaries of irrigation enterprises. "Additional area needing drainage" represents all lands so reported by the owners of the enterprises and includes lands producing partial crops as well as those wholly unproductive.

STATE TABLE 15.—AREA WITHIN IRRIGATION ENTERPRISES FOR WHICH DRAINS HAVE BEEN INSTALLED AND ADDITIONAL AREA IN NEED OF DRAINAGE: 1930 AND 1920

ITEM	1930	1920
Enterprises reporting land drained or needing drainage.....number.....	40	24
Area ¹ in enterprises reporting land drained or needing drainage.....acres.....	434, 969	376, 518
Area for which drains have been installed.....acres.....	122, 101	10, 793
Additional area needing drainage.....acres.....	51, 505	26, 006
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises reporting drainage.....per cent.....	28.1	2.9
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises.....per cent.....	10.0	1.4
Proportion that area for which drains have been installed plus that needing drainage is of area ¹ in all irrigation enterprises.....per cent.....	22.8	4.0

¹ Irrigable area, 1930; total area, 1920.

QUANTITY OF WATER USED

The quantity of water used was reported on only part of the irrigation schedules, and all areas reporting "quantity of water entering canals" did not also report "quantity delivered to irrigators." In order that proper values may be assigned to the figures given, those representing measurements and those representing estimates are reported separately in State Table 16.

Some irrigation enterprises carry water to individual farms, but others only to laterals which serve several farms. The "total quantity of water delivered to irrigators," shown in State Table 16, is the quantity reported in answer to the question preceded by the inquiry: "Average head of water delivered per individual irrigator."

STATE TABLE 16.—WATER USED: 1929 AND 1919

ITEM (See definitions in Introduction)	TOTAL		MEASURED		NOT MEASURED	
	1929	1919	1929	1919	1929	1919
Average flow of water entering canals.....sec.-ft.....	5, 817	2, 655	5, 698	2, 154	119	501
Area irrigated.....acres.....	384, 900	171, 080	371, 623	136, 500	13, 277	35, 580
Average, per second-foot.....acres.....	66	64	66	63	112	71
Total quantity of water entering canals.....ac.-ft.....	1, 583, 615	975, 071	1, 569, 187	804, 316	24, 428	80, 755
Area irrigated.....acres.....	384, 900	232, 620	371, 623	199, 650	13, 277	92, 970
Average quantity per acre.....ac.-ft.....	4.1	4.2	4.2	4.5	1.8	2.4
Total quantity of water delivered to irrigators.....ac.-ft.....	704, 085	445, 585	668, 636	188, 089	35, 449	257, 466
Area irrigated.....acres.....	233, 244	185, 795	213, 512	76, 987	19, 732	108, 808
Average quantity per acre.....ac.-ft.....	3.0	2.4	3.1	2.4	1.8	2.4

IRRIGATION WORKS

STATE TABLE 17.—DAMS, BY MATERIAL, 1930

MATERIAL	DAMS		MATERIAL	DAMS	
	Diver-sion	Storage		Diver-sion	Storage
Total.....	Number 185	Number 28	Earth and rock.....	Number 1, 102	Number 20
Concrete or masonry.....	61	3	Other and mixed.....	4	2
Timber.....	18		Not reported.....		3

¹ Principally temporary dams, replaced annually.

STATE TABLE 18.—LENGTH OF PIPE LINES, BY MATERIAL AND SIZE, 1930

MATERIAL AND SIZE (DIAMETER)	Length	MATERIAL AND SIZE (DIAMETER)	Length
Total.....	Miles 27.5	Wood:	Miles
Concrete:		1 to 12 inches.....	1.2
13 to 30 inches.....	3.0	13 to 30 inches.....	0.8
More than 30 inches.....	3.6	More than 30 inches.....	5.5
Metal:		Clay (vitrified):	
1 to 12 inches.....	2.3	13 to 30 inches.....	9.5
13 to 30 inches.....	1.0		
More than 30 inches.....	0.6		

STATE TABLE 19.—PUMPING EQUIPMENT, BY KIND OF POWER AND PUMP, 1930

ITEM	ENGINES OR MOTORS		PUMPS				
	Capacity	Pro-portion of total	Number	Pro-portion of total	Capacity	Pro-portion of total	Average lift
KIND OF POWER	H. p.	Per cent		Per cent	G. p. m.	Per cent	Feet
Total.....	10, 991	100.0	636	100.0	539, 752	100.0	29
Electricity.....	1, 837	16.7	81	12.7	90, 469	16.9	28
Internal combustion.....	8, 948	81.4	530	83.3	435, 803	81.2	29
Steam.....	20	0.2	1	0.2	1, 000	0.2	25
Wind.....	6	0.1	6	0.9	70	(¹)	13
Electricity and—							
Internal combustion.....	83	0.8	7	1.1	4, 400	0.8	28
Wind.....	5	(¹)	1	0.2	100	(¹)	(²)
Internal combustion and—							
Wind.....	4	(¹)	2	0.3	10	(¹)	20
Steam.....	23	0.2	1	0.2	2, 200	0.4	28
Not reported.....	65	0.6	7	1.1	2, 610	0.5	(²)
KIND OF PUMP							
Centrifugal.....	9, 814	89.3	564	88.7	455, 297	90.4	28
Rotary.....	777	7.1	44	6.9	34, 795	6.5	39
Turbine.....	228	2.1	11	1.7	10, 100	1.9	39
Bucket.....	38	0.3	3	0.5	1, 000	0.3	10
Centrifugal and turbine.....	45	0.4	2	0.3	2, 200	0.4	36
Other and not reported.....	89	0.8	12	1.9	2, 760	0.5	34

¹ Less than one-tenth of 1 per cent.

² Not reported.

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STATE TABLE 20.—IRRIGATION WORKS, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	DAMS		MAIN CANALS		Lateral canals, length	RESERVOIRS		Pipe lines, length	PUMPED WELLS		PUMPING PLANTS			
	Diver-sion	Stor-age	Capacity	Length		Number	Capacity		Number	Capacity	Number	Engine or motor capacity	Pumps	
	Number	Number	Sec.-ft.	Miles	Miles	Ac.-ft.	Miles	G. p. m.	Number	II. p.	Number	Capacity		
Total.....	185	28	13,108	1,432	2,033	199,185	27.5	537	428,058	610	10,991	636	536,752	
Before 1800.....	1		2	2										
1870-1879.....			1	1										
1880-1889.....	38	1	2,706	252	357	52		1	2,480	1	20	1	2,480	
1890-1899.....	71	0	5,208	657	569	324		1		1	20	1	925	
1900-1904.....	16	1	83	27	11	1		2	1,000	4	84	4	8,350	
1905-1909.....	6	5	3,440	284	950	77,620	18.0							
1910-1914.....	17	5	302	85	20	8,780	0.2	19	13,000	20	809	21	15,740	
1915-1919.....	2	1	8	8	1	2		30	37,550	38	1,050	30	40,400	
1920-1924.....	11	6	205	81	20	112,003	5.9	70	53,080	80	1,123	82	63,660	
1925-1929.....	12	3	1,040	64	68	384	3.3	335	274,058	396	7,301	418	352,007	
Not reported.....	11		41	21	1		0.1	62	44,490	70	1,078	70	52,290	

STATE TABLE 21.—IRRIGATION WORKS, BY CHARACTER OF ENTERPRISE, 1930

CHARACTER OF ENTERPRISE (See definitions in Introduction)	DAMS		MAIN CANALS		Lateral canals, length	RESERVOIRS		Pipe lines, length	PUMPED WELLS		PUMPING PLANTS			
	Diver-sion	Stor-age	Capacity	Length		Number	Capacity		Number	Capacity	Number	Engine or motor capacity	Pumps	
	Number	Number	Sec.-ft.	Miles	Miles	Ac.-ft.	Miles	G. p. m.	Number	II. p.	Number	Capacity		
Total.....	185	28	13,108	1,432	2,033	199,185	27.5	537	428,058	610	10,991	636	536,752	
Individual and partnership.....	141	18	620	248	59	3,417	3.4	517	405,058	588	10,235	613	508,302	
Cooperative.....	15		2,181	180	108					1	25	1	4,000	
Irrigation district.....	22	4	4,587	607	592	18,000	5.5							
Commercial.....	6	2	2,480	137	284	100,108		17	22,100	17	646	17	22,100	
United States Bureau of Reclamation.....		4	3,225	251	980	77,600	18.0							
State.....			4	1			0.6	3	900	4	85	5	2,350	
Other.....	1		2	2										

STATE TABLE 22.—IRRIGATION WORKS, BY DRAINAGE BASIN, 1930

DRAINAGE BASIN (See definitions in Introduction)	DAMS		MAIN CANALS		Lateral canals, length	RESERVOIRS		Pipe lines, length	PUMPED WELLS		PUMPING PLANTS			
	Diver-sion	Stor-age	Capacity	Length		Number	Capacity		Number	Capacity	Number	Engine or motor capacity	Pumps		Average lift
	Number	Number	Sec.-ft.	Miles	Miles	Ac.-ft.	Miles	G. p. m.	Number	II. p.	Number	Capacity		
Total (Missouri River).....	185	28	13,108	1,432	2,033	199,185	27.5	537	428,058	610	10,991	636	536,752	Feet
White River.....	21	3	98	52	24	12,000	5.5							
Niobrara River.....	16		37	35	7									
Platte River and tributaries.....	119	17	12,540	1,212	1,990	180,803	20.7	491	306,068	528	9,032	551	450,023	20
Platte River direct.....	3	2	3,375	159	334	189	1.0	4	990	6	37	6	3,290	0
North Platte River and tributaries.....	63	6	8,641	924	1,680	178,655	18.0	9	950	5	21	5	1,000	21
North Platte River direct.....	26	4	8,056	805	1,002	77,950	18.0							
Other tributaries.....	37	2	585	119	28	101,705								
South Platte River and tributaries.....	40	5	516	126	26	6,710	0.5	9	950	5	21	5	1,000	21
South Platte River direct.....	4		308	34	4			40	32,850	42	674	44	42,850	27
Lodgepole Creek.....		5						3	2,760	3	50	3	2,750	23
Other tributaries.....	45		210	92	21			4	5,300	9	139	9	14,300	33
Loup River.....		1			1		0.5	23	24,800	30	485	32	26,800	26
Other tributaries of Platte River.....	4	3	8	3	1	221	1.2	438	361,878	409	8,745	490	404,758	30
Kansas River and tributaries.....	21	2	330	105	3	46	1.1	42	27,980	76	1,237	78	73,350	27
Republican River.....	10	1	354	93	3	45	0.6	38	23,485	60	1,018	61	50,650	28
Other tributaries.....	5	1	26	12	1	1	0.5	4	4,505	16	210	17	16,800	23
Other tributaries of Missouri River.....	9	6	53	28	9	336	0.2	4	3,400	0	122	7	3,770	20

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COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1929; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929

ITEM (See definitions in Introduction)		THE STATE	Box Butte	Buffalo	Chase	Cheyenne	Dawes	Dawson	
FARMS AND FARM OPERATORS									
1	All farms.....	1930.....number..	129,458	914	2,429	769	1,116	870	2,085
2	Irrigated farms.....	1930.....number..	4,692	6	260	19	17	60	781
3	Operated by.....								
4	Owners and managers.....	number..	2,276	6	149	11	13	35	363
5	Tenants.....	number..	2,320	101	8	4	25	418	418
6	Irrigated farms.....	1929.....number..	3,921	5	29	15	8	58	330
	Increase, 1929-1930.....	per cent..	52.3	20.0	762.1	26.7	112.5	3.4	136.7
FARM AREA AND TOTAL LAND AREA									
7	Approximate land area.....	1930.....acres..	49,157,120	688,640	604,800	575,360	764,160	897,280	639,400
8	Land in all farms.....	1930.....acres..	44,708,565	675,210	581,408	502,705	646,466	830,224	593,020
9	Land in irrigated farms.....	1930.....acres..	1,648,339	55,435	47,871	19,067	18,896	66,062	214,966
10	Average, per farm.....	acres..	358.2	9,405.8	101.5	1,050.0	1,111.5	1,116.0	275.2
11	Operated by owners and managers.....	acres..	1,084,501	56,435	28,708	16,447	15,546	53,837	114,881
12	Average, per farm.....	acres..	474.7	9,405.8	102.7	1,495.2	1,197.4	1,538.2	316.5
13	Operated by tenants.....	acres..	567,838	10,975	10,163	3,520	3,330	13,225	190,085
14	Average, per farm.....	acres..	244.1	189.7	440.0	832.5	525.0	239.4	
15	Area irrigated.....	1929.....acres..	532,617	2,400	12,236	2,069	1,601	9,611	69,792
16	Increase, 1919-1929.....	per cent..	442,699	2,162	3,019	2,292	5,247	9,095	33,790
17	Area enterprises were capable of supplying with water.....	1930.....acres..	20.3	11.0	305.3	-10.1	-63.8	19.1	106.8
18	Increase, 1929-1930.....	per cent..	703,641	3,740	24,019	2,135	2,664	14,694	134,986
19	Increase, 1929-1930.....	per cent..	592,498	3,062	3,059	4,311	5,778	19,052	44,725
20	Increase, 1929-1930.....	per cent..	25.1	22.1	685.2	-60.5	-53.0	-22.0	108.0
21	Irrigable area in enterprises.....	1930.....acres..	763,639	3,740	33,227	2,135	2,664	15,379	173,775
22	Total area in enterprises.....	1929.....acres..	796,768	3,892	6,419	4,491	5,958	24,329	141,610
23	Area in enterprises available, or to be available, for settlement.....	1930.....acres..	10,113				20		60
IRRIGATION WORKS									
24	Enterprises.....	1930.....number..	2,733	5	175	4	18	23	55
25	Increase, 1929-1930.....	number..	470	5	4	13	36	88	13
26	Main canals.....	1930.....length, miles..	1,432	20	33	18	17	61	133
27	Increase, 1929-1930.....	length, miles..	1,780	19	16	36	46	149	152
28	Average, per farm.....	capacity, sec.-ft..	13,198	42	690	31	21	111	2,575
29	Increase, 1929-1930.....	capacity, sec.-ft..	11,663	86	160	107	78	282	1,145
30	Laterals.....	1930.....length, miles..	2,033	10	14		10	27	332
31	Increase, 1929-1930.....	length, miles..	1,545	6		4	48	82	39
32	Reservoirs.....	1930.....number..	40	1	1				4
33	Increase, 1929-1930.....	number..	59	2	2	4		17	
34	Average, per farm.....	capacity, ac.-ft..	109,185	1,700	48		12,000		340
35	Increase, 1929-1930.....	capacity, ac.-ft..	107,680		800	152	95	1,302	
36	Wells, pumped.....	1930.....number..	537		205	1	4		33
37	Increase, 1929-1930.....	number..	34		1			2	8
38	Average, per farm.....	capacity, g. p. m..	428,058		169,664	2,480	5,300		23,855
39	Increase, 1929-1930.....	capacity, g. p. m..	24,701		450	300	2,200		3,991
40	Pumping plants.....	1930.....number..	610		221		6		50
41	Increase, 1929-1930.....	number..	61		3	2		3	9
42	Average, per farm.....	engine capacity, h. p..	10,961		3,484	20	83		847
43	Increase, 1929-1930.....	engine capacity, h. p..	650		18	40		53	97
44	Average, per farm.....	pump capacity, g. p. m..	530,752		174,544	2,480	5,300		48,065
45	Increase, 1929-1930.....	pump capacity, g. p. m..	73,686		830	6,300	4,000		5,430
46	Average, per farm.....	average lift, feet..	29		39	18	40		18
47	Increase, 1929-1930.....	average lift, feet..	24		23	19		25	39
VALUES OF FARMS, 1930									
48	Land and buildings, all farms.....	dollars..	2,405,203,071	20,092,425	38,867,234	13,468,734	22,612,817	15,852,472	40,342,548
49	Land and buildings, irrigated farms.....	dollars..	85,097,442	599,290	5,754,422	480,250	571,240	1,896,485	20,674,925
50	Operated by.....								
51	Owners and managers.....	dollars..	46,944,404	599,290	3,547,762	340,650	415,840	1,429,085	10,534,860
52	Tenants.....	dollars..	38,153,038		2,206,660	145,600	467,400	10,040,065	10,040,065
53	Average, land and buildings, per farm.....	dollars..	18,491.40	99,881.67	23,017.09	25,692.11	33,602.35	31,608.08	26,544.33
54	Increase, 1929-1930.....	dollars..	51.63	10.02	120.21	24.36	30.23	28.32	95.71
55	Land (excluding buildings).....	dollars..	76,533,539	543,209	4,776,237	428,400	490,040	1,629,085	17,063,914
56	Buildings (including dwellings).....	dollars..	14,563,843	60,080	978,186	67,850	80,600	270,400	2,893,011
57	Implements and machinery, irrigated farms.....	dollars..	6,676,291	17,450	314,782	28,060	39,885	167,077	1,189,186
58	Average, per farm.....	dollars..	1,450.74	2,908.33	1,259.13	1,507.89	2,346.18	2,617.95	1,522.64
	Increase, 1929-1930.....	dollars..	4.05	0.31	0.58	1.43	2.11	2.35	5.53
INVESTMENT IN IRRIGATION ENTERPRISES									
59	Investment to Jan. 1, 1930.....	dollars..	21,396,319	36,676	315,314	62,550	24,000	484,760	866,645
60	Increase, 1929-1930.....	dollars..	13,909,185	32,410	301,760	39,095	49,137	211,145	170,435
61	Increase, 1929-1930.....	per cent..	53.8	13.2	4.6	60.0	-49.0	129.0	468.5
62	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....	dollars..	30.30	9.81	13.13	20.30	9.23	32.99	6.42
63	Increase, 1929-1930.....	dollars..	24.73	10.58	98.64	9.07	8.50	11.08	2.63
64	Estimated final investment in existing enterprises, 1930.....	dollars..	21,465,772	36,676	300,817	62,550	24,600	484,760	866,895
65	Increase, 1929-1930.....	dollars..	18,959,151	32,410	301,760	41,095	49,437	243,245	170,435
66	Increase, 1929-1930.....	per cent..	19.1	13.2	21.4	52.2	-50.3	99.3	220.0
67	Average, per acre, based on estimated final investment and irrigable area, 1930.....	dollars..	28.13	9.81	11.02	20.30	9.13	31.52	4.99
68	Average, per acre, based on estimated final investment and total area, 1929.....	dollars..	23.51	8.52	47.01	0.15	8.30	10.00	1.91
COST OF MAINTENANCE AND OPERATION, 1929									
69	Irrigated area for which cost was reported.....	acres..	524,260	1,550	12,025	2,060	769	6,441	69,617
70	Average, per acre, based on area reporting.....	dollars..	1.54	2.32	3.02	0.93	3.24	1.08	1.51

1 A minus sign (-) denotes decrease.

2 Includes 11 intercounty projects counted in this table as 23 independent enterprises; corresponding figures for 1929 not available. For actual number of enterprises see State Tables 4 and 12.

IRRIGATION—NEBRASKA

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Deuel	Dundy	Garden	Hall	Hitchcock	Kearney	Keith	Kimball
FARMS AND FARM OPERATORS									
1	All farms.....1930.....number.....	500	709	710	1,028	942	1,249	779	600
2	Irrigated farms.....1930.....number.....	40	22	146	91	118	19	119	63
3	Operated by—								
4	Owners and managers.....number.....	21	14	73	51	68	11	65	34
5	Tenants.....number.....	19	8	73	40	50	8	54	29
6	Irrigated farms.....1920.....number.....	40	27	97	(1)	96	(1)	111	60
6	Increase, ¹ 1920-1930.....per cent.....		-18.5	50.5		22.9		7.2	26.0
FARM AREA AND TOTAL LAND AREA									
7	Approximate land area.....1930.....acres.....	280,980	593,280	1,079,680	337,920	463,360	330,240	683,520	613,120
8	Land in all farms.....1930.....acres.....	262,035	532,857	949,215	324,551	438,366	307,845	634,220	478,372
9	Land in irrigated farms.....1930.....acres.....	20,803	22,512	125,595	19,044	32,757	6,543	148,871	39,540
10	Average, per farm.....acres.....	521.6	1,023.3	860.2	209.3	277.6	344.4	1,261.0	627.6
11	Operated by owners and managers.....acres.....	11,772	14,686	104,200	10,892	18,579	8,172	127,614	15,715
12	Average, per farm.....acres.....	560.6	1,049.0	1,428.6	213.6	273.2	288.4	1,963.3	463.2
13	Operated by tenants.....acres.....	9,091	7,826	21,395	8,152	14,178	3,371	21,257	23,825
14	Average, per farm.....acres.....	478.5	978.2	201.8	203.8	283.6	421.4	393.6	821.6
15	Area irrigated.....1929.....acres.....	6,857	3,470	24,077	6,425	10,974	860	23,141	7,422
16	1919.....acres.....	10,317	9,045	20,438	(1)	9,786	(1)	25,832	9,101
17	Increase, ² 1919-1929.....per cent.....	-33.5	-61.6	17.5		12.1		-10.4	-18.4
18	Area enterprises were capable of supplying with water.....1930.....acres.....	8,150	4,770	28,111	9,114	11,794	1,445	20,812	9,345
19	1920.....acres.....	11,755	10,918	25,554	(1)	10,226	(1)	31,406	11,117
20	Increase, ² 1920-1930.....per cent.....	-30.7	-56.3	10.7		15.3		-14.8	-15.9
21	Irrigable area in enterprises.....1930.....acres.....	8,240	5,470	28,112	10,012	12,507	1,445	27,597	9,807
22	Total area in enterprises.....1920.....acres.....	13,155	14,118	26,714	(1)	10,576	(1)	33,974	11,224
23	Area in enterprises available, or to be available, for settlement.....1930.....acres.....								
IRRIGATION WORKS									
24	Enterprises.....1930.....number.....	34	4	19	92	7	19	28	18
25	1920.....number.....	21	12	31	(1)	3	(1)	35	16
26	Main canals.....1930.....length, miles.....	26	17	114		43		81	57
27	1920.....length, miles.....	39	40	128	(1)	33	(1)	111	64
28	1930.....capacity, sec.-ft.....	38	77	525		168		530	156
29	1920.....capacity, sec.-ft.....	296	203	480	(1)	160	(1)	722	174
30	Laterals.....1930.....length, miles.....	6		32				8	5
31	1920.....length, miles.....	35	16	37	(1)		(1)	40	11
32	Reservoirs.....1930.....number.....	1		1	3			2	5
33	1920.....number.....	2		2	(1)		(1)	1	7
34	1930.....capacity, ac.-ft.....	1		100,000	8			7	6,706
35	1920.....capacity, ac.-ft.....	3		100,000	(1)		(1)	5	7,058
36	Wells, pumped.....1930.....number.....	19			126	2	30	12	
37	1920.....number.....				(1)	(1)	(1)	3	
38	1930.....capacity, g. p. m.....	15,950			109,839	2,000	25,000	10,150	
39	1920.....capacity, g. p. m.....	2,450			(1)	(1)	(1)	1,500	
40	Pumping plants.....1930.....number.....	20			124	3	30	10	
41	1920.....number.....	4		3	(1)	1	(1)	2	
42	1930.....engine capacity, h. p.....	337			2,860	66	560	155	
43	1920.....engine capacity, h. p.....	78		64	(1)	25	(1)	35	
44	1930.....pump capacity, g. p. m.....	24,950			109,520	3,400	25,000	10,150	
45	1920.....pump capacity, g. p. m.....	8,182		5,500	(1)	2,500	(1)	2,400	
46	1930.....average lift, feet.....	28			36	38	20	21	
47	1920.....average lift, feet.....	16		9		10		13	
VALUES OF FARMS, 1930									
48	Land and buildings, all farms.....dollars.....	10,799,280	11,836,877	13,998,538	31,017,516	16,534,132	23,716,296	18,075,989	12,396,873
49	Land and buildings, irrigated farms.....dollars.....	1,057,690	613,400	2,828,977	2,122,384	2,392,090	522,500	3,923,806	1,081,503
50	Operated by—								
51	Owners and managers.....dollars.....	626,830	501,400	1,795,677	1,217,834	1,381,590	289,000	2,785,410	608,480
52	Tenants.....dollars.....	430,860	112,000	1,033,300	904,550	1,010,500	233,500	1,138,396	413,023
53	Average, land and buildings, per farm.....dollars.....	26,442.25	27,881.82	19,376.55	23,322.90	20,271.95	27,500.00	32,073.16	17,166.71
54	per acre.....dollars.....	50.70	27.25	22.52	111.45	73.02	79.86	26.36	27.35
55	Land (excluding buildings).....dollars.....	877,590	498,400	2,308,907	1,747,531	1,944,815	425,600	3,358,531	848,063
56	Buildings (including dwellings).....dollars.....	180,100	115,000	460,070	374,853	447,775	96,900	565,275	232,550
57	Implements and machinery, irrigated farms.....dollars.....	85,050	42,125	186,241	120,401	184,480	35,400	289,115	115,886
58	Average, per farm.....dollars.....	2,126.25	1,914.77	1,275.02	1,389.02	1,563.39	1,863.16	2,429.54	1,839.46
58	per acre.....dollars.....	4.08	1.87	1.48	6.64	5.63	5.41	1.94	2.93
INVESTMENT IN IRRIGATION ENTERPRISES									
59	Investment to Jan. 1, 1930.....dollars.....	111,715	60,010	252,706	218,000	185,905	33,050	320,040	279,790
60	1920.....dollars.....	59,613	111,800	229,001	(1)	162,500	(1)	205,734	270,500
61	Increase, ³ 1920-1930.....per cent.....	87.4	-38.3	10.4		14.4		58.5	3.4
62	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars.....	13.71	14.47	8.99	23.92	15.76	22.87	12.16	29.94
63	1920.....dollars.....	5.07	10.24	8.96	(1)	15.89	(1)	6.54	24.33
64	Estimated final investment in existing enterprises, 1930.....dollars.....	111,715	60,010	252,706	218,350	189,905	33,200	320,040	279,790
65	1920.....dollars.....	59,613	112,300	270,201	(1)	162,500	(1)	221,334	270,500
66	Increase, ³ 1920-1930.....per cent.....	87.4	-38.5	-6.0		16.9		43.7	3.4
67	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars.....	13.56	12.62	8.99	21.81	16.18	22.98	11.92	28.53
68	Average, per acre, based on estimated final investment and total area, 1920.....dollars.....	4.53	7.95	10.11	(1)	15.36	(1)	6.51	24.10
COST OF MAINTENANCE AND OPERATION, 1929									
69	Irrigated area for which cost was reported.....acres.....	6,719	3,400	24,077	6,053	10,974	860	22,552	6,231
70	Average, per acre, based on area reporting.....dollars.....	1.24	0.74	0.49	3.35	1.44	6.02	0.80	1.32

¹ Included in "All other counties."

² A minus sign (-) denotes decrease.

IRRIGATION—NEBRASKA

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COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

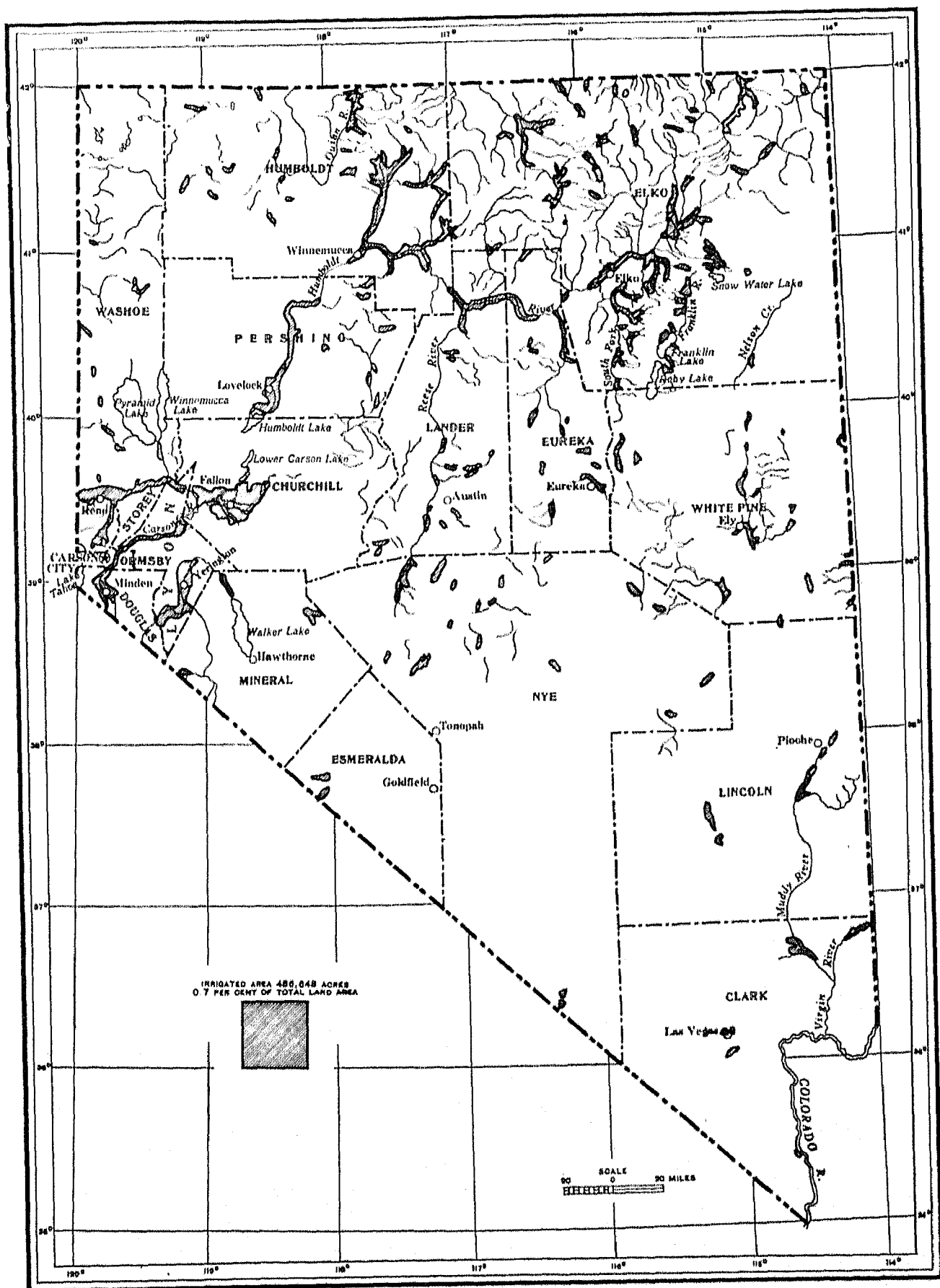
ITEM (See definitions in Introduction)		Lincoln	Merrick	Morrill	Red- willow	Scotts Bluff	Sioux	All other counties	
FARMS AND FARM OPERATORS									
1	All farms.....	1930.....number..	2,180	1,300	1,081	1,180	1,703	785	105,733
2	Irrigated farms.....	1930.....number..	282	16	616	46	1,609	275	108
	Operated by.....								
3	Owners and managers.....	number.....	164	12	206	26	719	153	82
4	Tenants.....	number.....	118	4	309	20	890	122	26
5	Irrigated farms.....	1920.....number..	203	(1)	397	33	1,166	312	44
6	Increase, 1920-1930.....	per cent.....	38.9		20.7	30.4	38.0	-11.0	145.5
FARM AREA AND TOTAL LAND AREA									
7	Approximate land area.....	1930.....acres..	1,623,040	266,320	906,880	460,800	462,720	1,315,200	35,540,440
8	Land in all farms.....	1930.....acres..	1,391,310	288,877	756,857	429,830	378,683	1,024,615	32,681,235
9	Land in irrigated farms.....	1930.....acres..	98,384	5,770	184,802	10,187	282,751	188,472	37,091
10	Average, per farm.....	acres.....	348.0	360.0	359.0	221.5	175.7	685.4	343.4
11	Operated by owners and managers.....	acres.....	53,617	4,539	100,394	5,244	147,451	147,251	20,411
12	Average, per farm.....	acres.....	320.0	378.2	487.3	261.7	205.1	662.4	358.7
13	Operated by tenants.....	acres.....	44,767	1,231	84,468	4,943	135,300	41,221	7,680
14	Average, per farm.....	acres.....	379.4	307.8	273.4	247.2	152.0	337.0	295.4
15	Area irrigated.....	1929.....acres..	35,768	835	87,306	3,256	103,916	25,578	4,682
16	1919.....acres..		35,216	(1)	56,216	4,013	173,252	29,790	5,180
17	Increase, 1919-1929.....	per cent.....	1.3		58.1	-18.0	11.0	-14.2	-0.6
18	Area enterprises were capable of supplying with water.....	1930.....acres..	42,288	1,285	111,077	4,267	210,255	36,576	7,118
19	1920.....acres..		41,811	(1)	76,045	4,700	160,229	39,793	8,207
20	Increase, 1920-1930.....	per cent.....	1.1		67.2	-9.2	11.7	-8.1	-13.0
21	Irrigable area in enterprises.....	1930.....acres..	42,609	1,292	112,458	4,267	223,182	36,970	8,215
22	Total area in enterprises.....	1930.....acres..	46,421	(1)	100,588	4,928	251,047	47,307	20,510
23	Area in enterprises available, or to be available, for settlement.....	1930.....acres..			16,660		33		
IRRIGATION WORKS									
24	Enterprises.....	1930.....number..	21	16	24	12	26	34	99
25	1920.....number..		10	(1)	48	9	28	64	44
26	Main canals.....	1930.....length, miles..	102		266	10	314	100	11
27	1920.....length, miles..		103	(1)	225	21	401	125	63
28	1930.....capacity, sec.-ft..		1,142		2,008	92	4,201	776	50
29	1920.....capacity, sec.-ft..		710	(1)	1,380	66	4,754	558	298
30	Laterals.....	1930.....length, miles..	162		409		616	168	3
31	1920.....length, miles..		107	(1)	343	8	635	107	27
32	Reservoirs.....	1930.....number..	1				5	8	7
33	1920.....number..		1	(1)	2	1	4	8	0
34	1930.....capacity, ac.-ft..		1				77,650	330	70
35	1920.....capacity, ac.-ft..		4	(1)	4	10	75,165	132	13,100
36	Wells, pumped.....	1930.....number..	19	20		14	9		43
37	1920.....number..			(1)		11			6
38	1930.....capacity, g. p. m..		8,050	23,530		11,030	950		20,280
39	1920.....capacity, g. p. m..			(1)		4,700			9,200
40	Pumping plants.....	1930.....number..	16	17		11	4		97
41	1920.....number..		1	(1)		7			16
42	1930.....engine capacity, h. p..		276		280	263	16		1,736
43	1920.....engine capacity, h. p..		10	(1)		312			227
44	1930.....pump capacity, g. p. m..		8,940	53,330		14,560	950		85,604
45	1920.....pump capacity, g. p. m..		600	(1)		18,403			10,545
46	1930.....average lift, feet..		29	16		33	21		26
47	1920.....average lift, feet..		35			28			
VALUES OF FARMS, 1930									
48	Land and buildings, all farms.....	dollars.....	33,427,434	27,384,210	13,367,123	10,427,445	23,406,180	10,766,420	2,078,232,460
49	Land and buildings, irrigated farms.....	dollars.....	5,477,965	578,200	5,008,634	660,580	21,841,785	3,418,891	2,486,505
	Operated by.....								
50	Owners and managers.....	dollars.....	3,120,065	442,800	2,481,505	526,100	9,992,760	2,160,801	2,038,505
51	Tenants.....	dollars.....	2,348,900	135,400	3,427,029	434,480	11,849,025	1,249,030	448,000
52	Average, land and buildings, per farm.....	dollars.....	16,425.20	36,137.50	11,473.08	20,880.43	13,574.76	12,432.33	23,024.75
53	per acre.....	dollars.....	55.68	106.21	31.96	91.20	77.25	18.14	67.04
54	Land excluding buildings.....	dollars.....	4,448,265	472,200	4,851,234	754,350	17,636,610	2,747,867	2,006,740
55	Buildings (including dwellings).....	dollars.....	1,029,700	106,000	1,057,400	206,150	4,205,175	671,024	479,825
56	Implements and machinery, irrigated farms.....	dollars.....	288,293	34,950	550,060	69,555	2,367,812	304,063	158,120
57	Average, per farm.....	dollars.....	1,022.38	2,184.38	1,069.89	1,512.67	1,471.60	1,436.23	1,464.07
58	per acre.....	dollars.....	2.93	6.66	2.98	6.83	8.37	2.10	4.26
INVESTMENT IN IRRIGATION ENTERPRISES									
59	Investment to Jan. 1, 1930.....	dollars.....	489,895	18,080	3,804,028	107,550	11,960,785	1,595,659	143,562
60	1920.....dollars.....		330,481	(1)	2,502,018	74,450	7,037,085	1,078,842	143,189
61	Increase, 1920-1930.....	per cent.....	48.2		52.0	44.5	70.0	-10.4	0.3
62	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....	dollars.....	11.58	14.07	34.25	25.21	54.55	43.63	20.17
63	1920.....dollars.....		7.90	(1)	35.42	15.84	35.86	40.73	17.32
64	Estimated final investment in existing enterprises, 1930.....	dollars.....	489,895	18,080	3,804,528	109,850	11,067,485	1,595,659	154,762
65	1920.....dollars.....		330,481	(1)	3,020,213	76,450	6,585,622	2,727,020	247,539
66	Increase, 1920-1930.....	per cent.....	48.2		25.6	46.6	68.8	-41.5	-37.5
67	Average, per acre, based on estimated final investment and irrigable area, 1930.....	dollars.....	11.52	13.99	33.83	25.74	53.02	43.15	18.84
68	Average, per acre, based on estimated final investment and total area, 1930.....	dollars.....	7.28	(1)	30.12	15.31	38.00	57.04	12.07
COST OF MAINTENANCE AND OPERATION, 1929									
69	Irrigated area for which cost was reported.....	acres.....	34,580	610	87,027	3,250	193,816	25,362	3,311
70	Average, per acre, based on area reporting.....	dollars.....	1.25	4.34	1.47	2.21	1.60	1.60	3.69

1 Included in "All other counties."

2 A minus sign (-) denotes decrease.

NEVADA

APPROXIMATE LOCATION AND EXTENT OF IRRIGATED LAND



NEVADA

INTRODUCTION

Statistics are presented in the following pages on farms irrigated and area irrigated, investment and cost of maintenance and operation of irrigation enterprises, cost of preparing land for irrigation, drainage of irrigated land, quantity of water used, and distribution of irrigation works, with specialized information relating to dams, pipe lines, and pumping equipment. Data on area irrigated, investment, and irrigation works are given in detail by drainage basins. Classifications of irrigated farms by type of farm, size of farm, and value of farm products; and the acreage, yield, and value of the principal crops grown on irrigated land, for all irrigation States, are shown in Parts III and IV, pages 257 and 325, respectively, of this volume.

Statistics for area irrigated and for cost of maintenance and operation of irrigation works relate to the year 1929; all other items relate to 1930.

For purposes of comparison, statistics for the census of 1920 are shown, where available; and for the purpose of showing the historical development of irrigation certain data are presented from censuses previous to that of 1920.

Data on number, area, and value of wholly and partly irrigated farms with the tenure of the operators of these farms were collected in 1930 on the general farm schedule; in 1920 only the number of irrigated farms was obtained in this way. All other statistics, in both censuses, were collected on special schedules for irrigation enterprises.

STATE TABLE 1.—SUMMARY FOR THE STATE: 1930 AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—		INCREASE ¹		
	1930	1920	Amount	Per cent	
All farms.....	number.....	3, 442	3, 163	279	8.8
All land in farms.....	acres.....	4, 080, 906	2, 357, 103	1, 723, 743	73.1
Approximate land area of State.....	acres.....	70, 285, 440	70, 285, 440		
Farms irrigated.....	number.....	3, 031	2, 718	313	11.5
Area irrigated.....	acres.....	486, 048	561, 447	-74, 799	-13.3
Area enterprises were capable of supplying with water.....	acres.....	736, 249	704, 708	31, 541	4.5
Area in enterprises ²	acres.....	983, 717	1, 382, 030		
Proportion irrigated:					
All farms.....	per cent.....	88.0	85.9		
All land in farms.....	per cent.....	11.9	23.8		
Approximate land area of State.....	per cent.....	0.7	0.8		
Excess of area enterprises were capable of supplying with water over area irrigated.....	acres.....	249, 601	143, 261	106, 340	74.2
Excess of area in enterprises ² over area irrigated.....	acres.....	497, 069	820, 539		
Area in enterprises available, or to be available, for settlement.....	acres.....	92, 926	139, 352	-46, 426	-33.3
Value of irrigated farms [land, buildings (including dwellings), and implements and machinery].....	dollars.....	63, 998, 051	(3)		
Investment in irrigation enterprises.....	dollars.....	15, 457, 931	14, 764, 280	708, 651	4.8
Average, per acre, based on area enterprises were capable of supplying with water.....	dollars.....	21.00	20.94	0.06	0.3
Estimated final cost of existing enterprises.....	dollars.....	18, 489, 603	22, 648, 747	-4, 159, 144	-18.4
Average, per acre, based on area in enterprises ²	dollars.....	18.80	16.39		
Average annual cost, per acre, for maintenance and operation of irrigation works.....	dollars.....	0.91	0.79	0.12	15.2

¹ A minus sign (-) denotes decrease.

² Irrigable area, 1930; total area, 1920.

³ Figures not available.

STATE TABLE 2.—FARMS AND SPECIFIED FARM VALUES, BY TENURE OF FARM OPERATOR, 1930

ITEM (See definitions in Introduction)	FARMS		SPECIFIED FARM VALUES					
	Number	Area	Land and buildings		Land alone		Implements and machinery	
			Total	Per acre	Total	Per acre	Total	Per acre
All farms.....	3, 442	Acres 4, 080, 906	Dollars 64, 111, 000	Dollars 15.71	Dollars 53, 665, 477	Dollars 13.15	Dollars 4, 218, 855	Dollars 1.03
Owners and managers.....	2, 997	3, 081, 915	56, 001, 778	18.17			3, 370, 987	1.26
Tenants.....	445	998, 991	8, 109, 222	8.12			347, 868	0.35
Irrigated farms.....	3, 031	3, 102, 085	59, 956, 787	19.33	50, 145, 484	16.16	4, 041, 264	1.30
Owners and managers.....	2, 656	2, 858, 819	53, 688, 915	18.78	44, 721, 792	15.64	3, 707, 756	1.30
Tenants.....	375	243, 266	6, 267, 872	25.76	5, 423, 692	22.30	333, 508	1.37
Wholly irrigated farms.....	2, 089	2, 851, 819	58, 668, 644	20.57	48, 970, 041	17.17	3, 989, 478	1.40
Owners and managers.....	2, 617	2, 609, 323	52, 425, 272	20.09	43, 568, 340	16.70	3, 656, 115	1.40
Tenants.....	372	242, 496	6, 243, 372	25.75	6, 401, 692	22.28	333, 363	1.37
Partly irrigated farms.....	42	250, 266	1, 288, 143	5.15	1, 175, 443	4.70	51, 791	0.21
Owners and managers.....	39	249, 496	1, 263, 643	5.06	1, 153, 443	4.62	51, 641	0.21
Tenants.....	3	770	24, 500	31.82	22, 000	28.67	150	0.19
Farms not irrigated.....	411	978, 821	4, 154, 213	4.24	3, 519, 993	3.60	177, 591	0.18

FARMS AND AREA IRRIGATED

In State Table 3 and in other tables "Number of farms irrigated" is equivalent to "Number of irrigators" used in census reports previous to 1910.

STATE TABLE 3.—FARMS AND AREA IRRIGATED: 1890 TO 1930

CENSUS YEAR	FARMS IRRIGATED			AREA IRRIGATED			
	Number	In-crease	Proportion of all farms	Area	In-crease ¹	Pro-portion of total land area of State	Pro-portion of land in all farms
1930.....	3,031	11.5	88.0	486,648	-13.3	0.7	11.0
1920.....	2,715	13.0	85.0	561,447	-20.0	0.8	23.8
1910.....	2,406	26.2	80.5	701,833	39.2	1.0	25.9
1900.....	1,906	63.3	87.3	504,168	124.7	0.7	19.7
1890.....	1,167		91.4	224,403		0.3	13.5

¹ A minus sign (-) denotes decrease.

STATE TABLE 4.—AREA, BY DATE OF BEGINNING OF ENTERPRISES SUPPLYING WATER FOR IRRIGATION

DATE OF BEGINNING (See definitions in Introduction)	Enter-prises, 1930	AREA IRRIGATED IN 1929		Area enter-prises were capable of supplying with water, 1930	Irrigable area in enter-prises, 1930
		Area	Proportion of irrigable area in enter-prises		
Total.....	Number 1,245	Acres 486,648	Per cent 49.5	Acres 736,249	Acres 983,717
Before 1860.....	34	11,278	48.2	22,868	23,398
1860-1869.....	107	85,491	56.4	147,140	151,470
1870-1879.....	211	100,892	63.1	148,847	150,794
1880-1889.....	97	34,416	32.6	52,063	105,678
1890-1900.....	60	12,493	77.9	15,099	16,047
1905-1909.....	56	69,019	41.3	118,478	167,286
1910-1914.....	59	8,988	39.0	14,700	23,051
1915-1919.....	105	14,370	38.2	31,450	37,582
1920-1924.....	90	10,581	33.6	25,139	31,224
1925-1929.....	68	75,297	41.6	79,093	181,143
Not reported.....	65	4,600	30.3	13,062	15,177
	257	59,223	82.3	68,314	71,067

STATE TABLE 5.—AREA, BY SOURCE OF WATER SUPPLY: 1929 AND 1919

SOURCE OF SUPPLY	AREA IRRIGATED				Area enter-prises were capable of supplying with water, 1930	Irrigable area in enter-prises, 1930
	1929	1919	Increase ¹			
			Area	Per cent		
Total.....	Acres 486,648	Acres 501,447	Acres -74,799	-13.3	Acres 736,249	Acres 983,717
Streams, gravity.....	394,415	466,812	-72,397	-15.5	603,186	821,947
Streams, pumped.....	821	2,047	-1,826	-69.0	1,026	1,486
Streams, gravity and pumped.....		720	-720	-100.0		
Wells, pumped.....	2,117	295	1,822	617.6	7,071	7,734
Wells, flowing.....	1,132	811	321	30.6	1,491	2,302
Wells, pumped and flowing.....	177	65	112	172.3	189	256
Lakes, gravity.....		445	-445	-100.0		
Springs.....	61,987	21,987	40,000	181.9	68,754	78,232
Stored storm water ²	20	17,348	-17,328	-99.9	20	20
City water.....		14	-14	-100.0		
Sewage.....		88	-88	-100.0		
Streams, gravity and wells, pumped.....	2,260	4,957	-2,697	-54.4	17,045	17,045
Streams, gravity and wells, flowing.....	2,274	82	2,192		4,935	5,111
Other mixed.....	21,152	45,176	-24,024	-53.2	32,232	49,284
Not reported.....	293		293		300	300

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² In reservoirs filled from channels which carry water only during storms and are not classed as streams.

AREA, BY CHARACTER OF ENTERPRISE

Two irrigation districts were reported in the census of 1930. In State Table 6 the acreage of Truckee-Carson irrigation district is credited to the United States Bureau of Reclamation. To avoid disclosure, the second irrigation district, a Carey Act enterprise reported in 1930, and a city enterprise reported in 1920, are included in the classification "Other."

The areas reported under "State" represent institutions and not development enterprises.

STATE TABLE 6.—AREA, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

[For number of enterprises by classes, see State Table 12]

ITEM AND CHARACTER (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Area	Per cent
AREA IRRIGATED				
Total.....	Acres 486,648	Acres 561,447	Acres -74,799	-13.3
Individual and partnership.....	316,018	355,901	-38,883	-11.0
Cooperative.....	32,267	69,877	-37,610	-53.8
Commercial.....	5,855	5,990	-135	-2.2
United States Bureau of Indian Affairs.....	6,148	5,321	827	15.5
United States Bureau of Reclamation.....	54,040	44,324	9,716	21.9
State.....	220	12	208	
Other.....	71,200	80,022	-8,822	-11.0
AREA ENTERPRISES WERE CAPABLE OF SUPPLYING WITH WATER				
Total.....	736,249	704,708	31,541	4.5
Individual and partnership.....	502,308	453,900	48,408	10.7
Cooperative.....	56,891	86,483	-29,592	-33.4
Commercial.....	5,855	7,240	-1,385	-19.1
United States Bureau of Indian Affairs.....	6,665	8,195	1,470	17.0
United States Bureau of Reclamation.....	90,000	69,850	20,150	28.8
State.....	330	12	318	
Other.....	71,200	80,028	-8,828	-11.0
AREA IN ENTERPRISES²				
Total.....	983,717	1,382,036		
Individual and partnership.....	587,571	807,045		
Cooperative.....	64,596	93,253		
Commercial.....	5,855	14,240		
United States Bureau of Indian Affairs.....	25,855	15,390		
United States Bureau of Reclamation.....	137,500	192,000		
State.....	340	80		
Other.....	162,000	260,028		

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² Irrigable area, 1930; total area, 1920.

AREA, BY CHARACTER OF WATER RIGHTS

In State Table 7 the classification "Other and mixed" includes areas of enterprises holding rights of more than one of the listed classes.

Riparian rights are not recognized in Nevada.

STATE TABLE 7.—AREA IRRIGATED, BY CHARACTER OF RIGHTS UNDER WHICH WATER IS RECEIVED: 1929 AND 1919

WATER RIGHTS (See definitions in Introduction)	1929		1919	
	Area	Proportion of total	Area	Proportion of total
Total.....	486,648	100.0	561,447	100.0
Appropriation and use.....	181,315	27.0	200,556	35.7
Notice filed and posted.....	5,663	1.2	52,027	9.3
Adjudicated by court.....	161,920	33.3	161,175	28.7
Permit from State.....	115,837	23.8	106,857	19.0
Certificate or license from State.....	8,727	1.8	6,866	1.2
Underground.....	2,192	0.4	1,244	0.2
Other and mixed.....	59,500	11.6	1,705	0.3
Not reported.....	4,464	0.9	31,217	5.6

AREA, BY DRAINAGE BASIN

STATE TABLE 8.—AREA, BY DRAINAGE BASIN: 1929 AND 1919

DRAINAGE BASIN (See definitions in Introduction)	AREA IRRIGATED			Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹		
	Acres	Acres	Per cent		
Total.....	486,048	561,447	-13.3	736,249	983,717
Goose Creek.....	980	26,000		980	980
Owyhee River.....	33,639	67,632	-41.6	35,005	45,055
Bruneau River.....	3,119	1,207	140.5	3,279	4,866
Salmon Falls River.....	9,710	(?)		12,307	12,487
Humboldt River and tributaries.....	138,426	197,778	-30.0	287,501	343,563
Humboldt River direct.....	27,731	69,186	-59.9	120,367	126,501
East Fork of Humboldt River.....	380	33,473	-93.9	380	380
Lamoille Creek.....	16,557	22,278	-25.7	17,651	17,800
North Fork of Humboldt River.....	9,090	7,940	14.5	7,682	9,311
South Fork of Humboldt River.....	33,796	33,052	2.2	37,442	37,442
Pine Creek.....	2,703	3,250	-16.8	4,359	4,419
Reese River.....	2,952	11,178	-73.6	3,324	3,364
Little Humboldt River.....	3,785	6,350	-40.4	31,370	31,370
Other tributaries.....	41,433	11,071	274.2	64,926	112,976
Truckee River and tributaries.....	30,028	20,002	95.1	43,424	47,770
Truckee River direct.....	30,417	14,606	108.3	34,625	38,971
Steamboat Creek.....	3,214	3,152	2.0	3,230	3,230
Other tributaries.....	5,397	2,244	140.5	5,569	5,569
Carson River and tributaries.....	72,872	70,980	2.7	121,784	167,851
Carson River direct.....	16,062	4,860	230.5	30,220	31,042
West Fork of Carson River.....	2,984	7,463	-60.0	2,984	2,984
East Fork of Carson River.....	3,205	11,028	-70.9	4,133	4,213
Other tributaries.....	50,621	47,629	6.3	84,447	129,602
Walker River and tributaries.....	75,869	113,364	-33.1	78,305	175,788
Walker River direct.....	72,057	94,240	-23.5	74,000	170,420
Tributaries.....	3,812	19,124	-80.1	4,305	5,368
Colorado River and tributaries.....	12,308	8,546	44.0	14,849	21,292
Colorado River direct.....	240			415	915
Virgin River.....	2,970	7,865	-73.7	2,280	2,780
Other tributaries.....	9,098	681		12,154	17,597
Independent streams.....	100,688	66,848	50.6	138,815	164,095
Quinn River.....	8,518	9,935	-14.3	10,927	11,090
Steptoe Creek.....	4,657	3,703	22.0	7,468	8,279
Other.....	87,613	53,205	64.7	120,420	144,756

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² Included in Goose Creek.

INVESTMENT, AND COST OF MAINTENANCE AND OPERATION OF IRRIGATION ENTERPRISES

STATE TABLE 9.—INVESTMENT IN ENTERPRISES: 1890 TO 1930

CENSUS YEAR	INVESTMENT		AVERAGE, PER ACRE ¹	
	Amount	Increase ²	Amount	Increase ²
1930.....	Dollars 15,457,931	Per cent 4.8	Dollars 21.00	Per cent 0.3
1920.....	14,754,280	119.5	20.94	102.1
1910.....	6,721,924	337.2	7.90	162.0
1900.....	1,537,559	-9.6	3.05	-59.8
1890.....	1,700,976		7.58	

¹ Based on area enterprises were capable of supplying with water.
² A minus sign (-) denotes decrease.

STATE TABLE 10.—INVESTMENT, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	INVESTMENT		
	Amount	Proportion of total	Average, per acre ¹
	Dollars	Per cent	Dollars
Total.....	15,457,931	100.0	21.00
Before 1860.....	220,902	1.4	9.66
1860-1869.....	1,068,561	6.9	7.26
1870-1879.....	1,631,683	10.6	10.96
1880-1889.....	475,127	3.1	9.13
1890-1899.....	171,907	1.1	11.39
1900-1904.....	7,901,291	51.1	66.69
1905-1909.....	509,861	3.3	34.68
1910-1914.....	811,241	5.3	25.79
1915-1919.....	391,590	2.6	16.58
1920-1924.....	1,450,906	9.4	18.34
1925-1929.....	175,325	1.1	13.43
Not reported.....	649,557	4.2	9.51

¹ Based on area enterprises were capable of supplying with water in 1930.

STATE TABLE 11.—INVESTMENT, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929; BY SOURCE OF WATER SUPPLY

[When water is pumped, cost of maintenance and operation includes cost of fuel and attendance]

SOURCE OF SUPPLY	INVESTMENT, 1930			MAINTENANCE AND OPERATION, 1929	
	Amount	Proportion of total	Average, per acre	Irrigated area reporting	Average, per acre ¹
	Dollars	Per cent	Dollars	Acres	Dollars
Total.....	15,457,931	100.0	21.00	474,422	0.91
Streams, gravity.....	13,710,031	88.7	22.73	386,499	0.85
Streams, pumped.....	45,000	0.3	43.86	821	7.01
Wells, pumped.....	142,761	0.9	20.19	2,075	4.82
Wells, flowing.....	147,612	0.9	99.00	942	5.26
Wells, pumped and flowing.....	10,760	0.1	56.93	177	4.08
Springs.....	614,206	4.0	8.93	59,664	0.77
Stored storm water.....	2,100	(?)	105.00	20	2.50
Streams, gravity and wells, pumped.....	110,903	0.8	7.03	1,940	2.20
Streams, gravity and wells, flowing.....	45,975	0.3	9.32	2,104	0.77
Other mixed.....	618,477	4.0	19.19	10,887	1.36
Not reported.....	1,106	(?)	3.69	293	3.34

¹ Based on area irrigated in 1929 reporting cost.
² Less than one-tenth of 1 per cent.

STATE TABLE 12.—INVESTMENT, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

CHARACTER OF ENTERPRISE (See definitions in Introduction)	Enterprises, 1930	INVESTMENT		INCREASE ¹	
		1930	1920	Amount	Per cent
		Number	Dollars	Dollars	Dollars
Total.....	1,245	15,457,931	14,754,280	703,651	4.8
Individual and partnership.....	1,198	4,530,708	4,014,670	516,138	12.0
Cooperative.....	32	936,400	1,019,047	-82,647	-8.1
Commercial.....	3	227,000	340,550	-113,550	-33.3
United States Bureau of Indian Affairs.....	6	360,214	178,536	181,678	101.8
United States Bureau of Reclamation ²	1	7,767,759	7,953,637		
State.....	3	11,000		10,000	1,000.0
Other ³	2	1,624,850	1,247,031	377,819	30.3

¹ A minus sign (-) denotes decrease.
² Part of 1930 investment reported in California.
³ Number and 1930 investment include one irrigation district and one Carey Act enterprise; 1920 investment includes one irrigation district and one city enterprise (see text for State Table 6, p. 165).

STATE TABLE 13.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE ¹	
	1930	1920	Amount	Per cent
	Dollars	Dollars	Dollars	
Total.....	15,457,931	14,754,280	703,651	4.8
Goose Creek.....	100	893,755	-393,655	
Owyhee River.....	323,880	192,772	130,108	67.5
Bruneau River.....	48,867	42,210	6,657	15.8
Salmon Falls River.....	81,345	(?)	81,345	
Humboldt River and tributaries.....	2,559,497	1,751,660	807,831	46.1
Humboldt River direct.....	1,216,626	789,995	426,631	34.9
East Fork of Humboldt River.....	2,850	202,071	-199,221	-68.7
Lamoille Creek.....	160,475	91,280	69,195	75.8
North Fork of Humboldt River.....	20,145	87,403	-37,258	-64.9
South Fork of Humboldt River.....	345,400	288,162	57,238	19.9
Pine Creek.....	20,262	2,809	17,453	621.0
Reese River.....	42,975	79,120	-36,145	-45.7
Little Humboldt River.....	40,740	2,544	38,196	
Other tributaries.....	710,231	288,182	422,049	146.5
Truckee River and tributaries.....	1,814,600	594,187	1,220,503	205.4
Truckee River direct.....	1,572,525	485,900	1,086,625	228.6
Steamboat Creek.....	161,400	42,070	119,330	253.6
Other tributaries.....	80,765	66,217	14,548	22.0
Carson River and tributaries.....	7,208,111	8,024,900	-816,189	-10.2
Carson River direct.....	242,470	61,055	181,415	297.1
West Fork of Carson River.....	11,907	14,169	-2,262	-16.0
East Fork of Carson River.....	38,275	48,786	-10,511	-21.5
Other tributaries.....	6,915,459	7,900,290	-984,831	-12.5

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² Included in Goose Creek.

STATE TABLE 13.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920—Continued

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE	
	1930	1920	Amount	Per cent
	Dollars	Dollars	Dollars	
Walker River and tributaries.....	1,476,954	1,601,484	--184,530	--11.1
Walker River direct.....	1,446,454	1,406,880	--20,436	--1.4
Tributaries.....	30,500	194,604	--164,096	--84.3
Colorado River and tributaries.....	223,631	415,953	--192,322	--46.2
Colorado River direct.....	37,850	37,850	.....	.....
Virgin River.....	41,000	357,642	--316,642	--88.5
Other tributaries.....	144,781	68,411	86,370	147.0
Independent streams.....	1,721,850	1,078,053	43,803	2.6
Quinn River.....	68,858	50,548	18,310	36.2
Stoptoe Creek.....	222,870	180,080	32,894	17.3
Other.....	1,430,128	1,437,510	-7,301	-0.5

COST OF PREPARING LAND FOR IRRIGATION

The following table shows estimated cost of clearing and grading land, and building farm laterals and farm irrigation structures.

STATE TABLE 14.—ESTIMATED COST OF PREPARING LAND, 1930

ITEM	1930
Area reporting.....acres.....	634,005
Estimated cost reported.....dollars.....	20,876,751
Average, per acre.....dollars.....	32.93

DRAINAGE OF IRRIGATED LAND

The areas in State Table 15 relate only to lands within the boundaries of irrigation enterprises reporting.

STATE TABLE 15.—AREA WITHIN IRRIGATION ENTERPRISES FOR WHICH DRAINS HAVE BEEN INSTALLED AND ADDITIONAL AREA NEEDING DRAINAGE: 1930 AND 1920

ITEM	1930	1920
Enterprises reporting land drained or needing drainage.....number.....	41	58
Area ¹ in enterprises reporting land drained or needing drainage.....acres.....	353,238	537,417
Area for which drains have been installed.....acres.....	126,249	34,175
Additional area needing drainage.....acres.....	26,348	98,249
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises reporting drainage.....per cent.....	35.7	6.4
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises.....per cent.....	12.8	2.5
Proportion that area for which drains have been installed plus that needing drainage is of area ¹ in all irrigation enterprises.....per cent.....	15.5	6.6

¹ Irrigable area, 1930; total area, 1920.

QUANTITY OF WATER USED

The quantity of water used was reported on only part of the irrigation schedules, and all areas reporting "quantity of water entering canals" did not also report "quantity delivered to irrigators." In order that proper values may be assigned to the figures given, those representing measurements and those for estimates are reported separately in State Table 16.

Some irrigation enterprises carry water to individual farms, but others only to laterals which serve several farms. The "total quantity of water delivered to irrigators," shown in State Table 16, is the quantity reported in answer to a question preceded by the inquiry: "Average head of water delivered per individual irrigator."

STATE TABLE 16.—WATER USED: 1929 AND 1919

ITEM (See definitions in Introduction)	TOTAL		MEASURED		NOT MEASURED	
	1929	1919	1929	1919	1929	1919
	Average flow of water entering canals.....second-foot.....	1,477	2,328	1,423	1,623	54	705
Area irrigated.....acres.....	168,306	204,526	154,530	111,017	3,857	93,509
Average, per second-foot.....acres.....	107	88	109	68	71	133
Total quantity of water entering canals.....acre-foot.....	626,580	926,308	598,020	727,037	28,560	199,271
Area irrigated.....acres.....	156,588	212,323	150,417	122,027	6,171	89,006
Average quantity per acre.....acre-foot.....	4.0	4.4	4.0	5.9	4.6	2.2
Total quantity of water delivered to irrigators.....acre-foot.....	221,035	170,911	211,435	157,638	12,600	13,273
Area irrigated.....acres.....	72,380	60,044	68,306	49,494	3,984	10,550
Average quantity per acre.....acre-foot.....	3.1	2.8	3.1	3.2	3.2	1.3

IRRIGATION WORKS

STATE TABLE 17.—DAMS, BY MATERIAL, 1930

MATERIAL	DAMS	
	Diversion	Storage
	Number	Number
Total.....	1,040	118
Concrete or masonry.....	132	20
Timber.....	148	71
Earth and rock.....	.....	22
Other and mixed.....	1,132	5
Not reported.....	39	5

¹ Principally temporary dams, replaced annually.

STATE TABLE 18.—LENGTH OF PIPE LINES, BY MATERIAL AND SIZE, 1930

MATERIAL AND SIZE (DIAMETER)	Length	MATERIAL AND SIZE (DIAMETER)	Length
Total.....	Miles 90.6	Wood:	Miles 10.2
Concrete:		1 to 12 inches.....	10.2
1 to 12 inches.....	9.5	13 to 30 inches.....	0.5
13 to 30 inches.....	1.0	Clay:	
More than 30 inches.....	0.5	Terra cotta, 1 to 12 inches.....	7.8
Metal:		Vitrified, 1 to 12 inches.....	0.5
1 to 12 inches.....	54.2	Not segregated:	
13 to 30 inches.....	3.0	Concrete and metal.....	0.2
More than 30 inches.....	1.0	Metal and wood.....	1.1
		Material not specified.....	0.5

STATE TABLE 19.—PUMPING EQUIPMENT, BY KIND OF POWER AND PUMP, 1930

ITEM	ENGINES OR MOTORS		PUMPS				
	Capacity	Proportion of total	Number	Proportion of total	Capacity	Proportion of total	Average lift
	H. p.	Per cent		Per cent	G. p. m.	Per cent	Feet
Total.....	2,071	100.0	173	100.0	115,048	100.0	31
Electricity.....	1,236	46.3	37	21.4	44,160	38.2	29
Internal combustion.....	927	34.7	76	43.9	29,948	25.9	32
Wind.....	38	1.4	13	7.5	407	0.4	36
Internal combustion and Electricity.....	280	10.8	7	4.0	33,960	29.3	22
Wind.....	111	4.2	25	14.5	3,830	3.3	35
Other and not reported.....	70	2.6	15	8.7	3,343	2.9	22
KIND OF PUMP							
Centrifugal.....	1,814	67.9	80	51.4	91,556	79.2	27
Turbine.....	448	15.8	18	10.4	11,200	9.7	46
Reciprocating.....	20	0.7	9	5.2	362	0.3	40
Plunger.....	25	0.9	8	4.6	222	0.2	23
Rotary.....	123	4.0	4	2.3	5,010	4.3	31
Centrifugal and plunger.....	69	2.5	7	4.1	3,150	2.7	22
Other and not reported.....	176	6.6	38	22.0	4,148	3.6	63

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STATE TABLE 20.—IRRIGATION WORKS, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS		Pipe lines, length	FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diver- sion	Stor- age	Capacity	Length	Lateral canals, length	Num- ber	Capacity		Num- ber	Capacity	Num- ber	Capacity	Num- ber	Engine or motor capac- ity	Pumps	
															Num- ber	Capacity
Total.....	1,640	118	16,986	3,341	814	209	529,369	90.6	274	19,131	147	54,162	157	2,671	173	115,048
Before 1860.....	40	4	324	97	6	2	13,000	5.0	5	76	9	370	4	37	11	3,370
1860-1869.....	289	5	2,407	657	46	6	1,913	4.2	5	175	2	3,030	6	144	6	6,215
1870-1879.....	346	9	3,195	773	73	18	2,035	7.3	10	2,300	10	3,925	13	240	12	9,225
1880-1889.....	227	5	856	289	48	13	15,311	3.0	10	1,100	5	110	5	15	5	110
1890-1899.....	98	20	263	144	13	31	5,092	10.8	20	500	3	2,260	2	225	4	3,750
1900-1904.....	74	5	6,197	213	487	6	300,006	13.0	11	230	1	50	6	288	7	33,310
1905-1909.....	55	9	235	92	14	13	46,010	5.1	3	10	3	1,850	4	100	5	4,850
1910-1914.....	120	13	629	212	6	24	49,528	15.2	16	1,038	10	3,503	18	370	20	12,898
1915-1919.....	81	17	435	128	82	19	710	8.6	40	1,283	22	4,005	23	204	24	5,471
1920-1924.....	66	11	1,347	289	4	20	92,982	4.3	34	1,754	16	5,050	14	137	15	6,150
1925-1929.....	27	6	229	53	2	18	2,367	8.1	15	1,260	33	21,395	32	694	32	22,185
Not reported.....	217	14	864	394	33	39	415	6.0	105	9,415	33	8,024	30	217	32	8,114

STATE TABLE 21.—IRRIGATION WORKS, BY CHARACTER OF ENTERPRISE, 1930

CHARACTER OF ENTERPRISE (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS		Pipe lines, length	FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diver- sion	Stor- age	Capacity	Length	Lateral canals, length	Num- ber	Capacity		Num- ber	Capacity	Num- ber	Capacity	Num- ber	Engine or motor capac- ity	Pumps	
															Num- ber	Capacity
Total.....	1,640	118	16,986	3,341	814	209	529,369	90.6	274	19,131	147	54,162	157	2,671	173	115,048
Individual and partnership.....	1,539	93	8,212	2,693	123	189	61,064	76.3	274	19,131	147	54,162	152	2,386	168	82,348
Cooperative.....	45	16	1,285	228	88	15	52,300	1.0								
Commercial.....	3		142	34												
Bureau of Indian Affairs.....	11		361	41	112			0.8								
Bureau of Reclamation.....	2	1	5,750	104	485	1	294,000	10.0					5	285	5	33,300
State.....	2		3	2				1.9								
Other.....	38	3	1,233	239	6	1	122,000									

¹ Includes 1 irrigation district and 1 Carey Act enterprise (see text for State Table 6, p. 165).

STATE TABLE 22.—IRRIGATION WORKS, BY DRAINAGE BASIN, 1930

DRAINAGE BASIN (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS		Pipe lines, length	FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS				
	Diver- sion	Stor- age	Capac- ity	Length	Lateral canals, length	Num- ber	Capacity		Num- ber	Capac- ity	Num- ber	Capacity	Num- ber	Engine or motor capac- ity	Pumps		Aver- age lift
															Num- ber	Capacity	
Total.....	1,640	118	16,986	3,341	814	209	529,369	90.6	274	19,131	147	54,162	157	2,671	173	115,048	31
Goose Creek.....	1																
Owyhee River.....	214	1	539	133	25	1	1,200	0.1									
Bruneau River.....	60		117	40	2	1	100	0.5			1	20	1	20	1	30	10
Salmon Falls River.....	21		366	108	4												
Humboldt River and tributaries.....	618	13	5,263	1,198	105	21	105,611	15.3	4	65	28	13,035	28	627	29	11,770	31
Humboldt River direct.....	105	6	2,670	202	53	8	59,000	1.8	4	65	26	12,960	26	623	27	11,695	25
East Fork of Humboldt River.....	1		5	5				0.5									
Lamoille Creek.....	78		276	107		1	487	0.5									
North Fork of Humboldt River.....	51		83	41													
South Fork of Humboldt River.....	30	1	587	287	13	2	2,150										
Pine Creek.....	23	2	76	71		3	4	1.5									
Reese River.....	27		67	23		1	200	4.2									
Little Humboldt River.....	27	1	260	41		1	50	1.0									
Other tributaries.....	276	3	1,340	421	39	5	43,600	3.8			2	75	2	4	2	75	94
Truckee River and tributaries.....	65	5	3,137	225	125	2	1,100	0.7	3	81	2	1,125	3	47	3	1,350	20
Truckee River direct.....	31		2,939	181	125			0.6			1	225	2	22	2	450	10
Steamboat Creek.....	3	2	45	5			1,000										
Other tributaries.....	31	3	153	39		1	100	0.1	3	81	1	900	1	25	1	900	40
Carson River and tributaries.....	52	14	4,247	219	448	10	296,913	21.3	34	244	13	18,910	31	1,130	32	73,465	32
Carson River direct.....	29	4	557	97	3	4	1,105	6.4	11	110	9	12,225	16	571	17	24,430	37
West Fork of Carson River.....	9		66	15				1.8	1	100			4	59	4	5,300	13
East Fork of Carson River.....	5	8	100	11		8	1,800		1	10	3	6,600	3	140	3	6,600	40
Other tributaries.....	9	2	3,524	96	445	4	294,008	13.1	21	24	1	85	8	360	8	37,135	22
Walker River and tributaries.....	43	2	1,315	253	12	3	92,002	2.7	16	576							
Walker River direct.....	38	2	1,250	247	12	2	92,000	0.2	16	576							
Tributaries.....	5		65	6		1	2	2.5									
Colorado River and tributaries.....	51	9	179	91	53	15	2,442	4.1	15	2,911	1	112	5	39	5	4,562	14
Colorado River direct.....			5	3		2	4	0.1	6	661			4	35	4	4,450	14
Virgin River.....	2		68	10	17												
Other tributaries.....	49	9	116	78	36	13	2,438	4.0	9	2,250	1	112	1	4	1	112	
Independent streams.....	515	74	1,833	1,065	40	150	29,941	45.9	202	15,254	102	20,960	89	808	103	24,471	34
Quinn River.....	65	2	306	74		2	1,003	4.4			4	850	3	51	3	1,700	43
Stoptoe Creek.....	63	13	68	66	3	26	56	5.8	2	33	16	6,298	13	242	16	6,338	22
Other.....	387	59	1,459	925	37	122	28,882	35.7	200	15,221	82	13,842	73	515	84	16,433	36

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COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929

ITEM (See definitions in Introduction)		THE STATE	Churchill	Clark	Douglas	Elko	Esmeralda
FARMS AND FARM OPERATORS							
1	All farms.....1930.....number.....	3,442	614	294	135	518	24
2	Irrigated farms.....1930.....number.....	3,031	581	248	128	453	14
3	Operated by—						
4	Owners and managers.....number.....	2,056	487	216	123	418	14
5	Tenants.....number.....	375	94	32	5	35	—
6	Irrigated farms.....1920.....number.....	2,718	448	149	124	450	10
	Increase, ¹ 1920-1930.....per cent.....	11.5	20.7	66.4	3.2	-1.3	40.0
FARM AREA AND TOTAL LAND AREA							
7	Approximate land area.....1930.....acres.....	70,285,440	3,232,000	5,148,800	469,120	10,017,760	2,184,320
8	Land in all farms.....1930.....acres.....	4,080,006	88,621	40,641	146,338	2,004,716	13,473
9	Land in irrigated farms.....1930.....acres.....	3,102,085	86,431	22,714	145,986	1,300,804	11,903
10	Average, per farm.....acres.....	1,023.5	148.8	91.6	1,140.5	2,885.0	854.5
11	Operated by owners and managers.....acres.....	2,858,819	73,235	19,329	145,061	1,238,786	11,903
12	Average, per farm.....acres.....	1,076.4	150.4	89.5	1,179.4	2,093.6	854.5
13	Operated by tenants.....acres.....	243,266	13,196	3,385	925	68,108	—
14	Average, per farm.....acres.....	648.7	140.4	105.8	185.0	1,945.9	—
15	Area irrigated.....1929.....acres.....	486,048	50,900	8,051	17,516	172,337	1,449
16	.....1919.....acres.....	501,447	41,739	5,206	23,412	202,724	1,685
17	Increase, ¹ 1919-1929.....per cent.....	-13.3	22.2	54.6	-25.2	-15.0	-14.0
18	Area enterprises were capable of supplying with water.....1930.....acres.....	736,240	85,534	9,478	20,132	180,756	1,749
19	.....1920.....acres.....	704,708	65,661	6,282	24,472	233,403	2,290
20	Increase, ¹ 1920-1930.....per cent.....	4.5	30.3	50.9	-17.7	-20.1	-23.6
21	Irrigable area in enterprises.....1930.....acres.....	983,717	131,082	15,877	20,519	248,137	1,946
22	Total area in enterprises.....1920.....acres.....	1,382,036	171,681	10,512	43,191	434,582	9,310
23	Area in enterprises available, or to be available, for settlement.....1930.....acres.....	92,926	79,500	4,591	000	—	—
IRRIGATION WORKS							
24	Enterprises.....1930.....number.....	1,247	24	67	47	378	13
25	.....1920.....number.....	1,015	14	37	78	307	7
26	Main canals.....1930.....length, miles.....	3,341	95	48	68	1,250	23
27	.....1920.....length, miles.....	3,123	79	47	88	1,428	5
28	.....1930.....capacity, sec.-ft.....	16,986	3,507	117	457	3,446	24
29	.....1920.....capacity, sec.-ft.....	10,554	3,141	110	400	1,207	31
30	Laterals.....1930.....length, miles.....	814	445	52	2	94	—
31	.....1920.....length, miles.....	1,245	302	70	5	370	—
32	Reservoirs.....1930.....number.....	209	2	22	0	15	7
33	.....1920.....number.....	134	8	13	7	21	—
34	.....1930.....capacity, acre-ft.....	529,369	294,100	135	2,800	54,595	5
35	.....1920.....capacity, acre-ft.....	504,428	360,009	214	—	40,008	—
36	Wells, flowing.....1930.....number.....	274	29	62	5	2	2
37	.....1920.....number.....	123	0	53	2	2	—
38	.....1930.....capacity, g. p. m.....	19,131	1,035	8,272	120	—	1,550
39	.....1920.....capacity, g. p. m.....	21,942	615	18,879	22	—	—
40	Wells, pumped.....1930.....number.....	147	0	2	0	8	11
41	.....1920.....number.....	129	—	2	—	9	—
42	.....1930.....capacity, g. p. m.....	54,162	1,515	2,132	17,125	495	305
43	.....1920.....capacity, g. p. m.....	6,798	—	475	—	645	—
44	Pumping plants.....1930.....number.....	157	11	13	20	8	9
45	.....1920.....number.....	64	1	3	7	0	—
46	.....1930.....engine capacity, h. p.....	2,671	315	90	704	40	35
47	.....1920.....engine capacity, h. p.....	409	6	41	108	32	—
48	.....1930.....pump capacity, g. p. m.....	115,648	34,810	6,883	34,070	505	370
49	.....1920.....pump capacity, g. p. m.....	35,266	—	4,633	—	1,720	—
50	.....1930.....average lift, feet.....	31	15	13	28	35	42
51	.....1920.....average lift, feet.....	22	6	28	16	23	—
VALUES OF FARMS, 1930							
52	Land and buildings, all farms.....dollars.....	64,111,000	7,100,642	2,441,720	6,028,860	14,067,831	380,850
53	Land and buildings, irrigated farms.....dollars.....	59,956,787	7,015,662	2,118,255	5,980,960	12,462,411	357,375
54	Operated by—						
55	Owners and managers.....dollars.....	53,688,915	5,884,962	1,720,385	5,864,400	11,692,557	357,375
56	Tenants.....dollars.....	6,267,872	1,130,700	888,370	116,500	769,854	—
57	Average, land and buildings, per farm.....dollars.....	19,781.19	12,075.15	8,541.35	46,726.26	27,510.84	25,526.78
58	.....per acre.....dollars.....	19.33	81.17	93.28	40.97	9.54	29.87
59	Land (excluding buildings).....dollars.....	50,145,484	5,845,329	1,820,425	4,850,928	10,640,793	306,440
60	Buildings (including dwellings).....dollars.....	9,811,303	1,170,333	297,830	1,121,032	1,821,048	50,935
61	Implements and machinery, irrigated farms.....dollars.....	4,041,264	532,917	152,814	394,343	832,500	22,910
62	Average, per farm.....dollars.....	1,333.31	917.24	616.18	3,080.80	1,837.75	1,639.43
63	.....per acre.....dollars.....	1.30	6.16	6.73	2.70	0.64	1.92
INVESTMENT IN IRRIGATION ENTERPRISES							
64	Investment to Jan. 1, 1930.....dollars.....	15,457,931	6,909,969	262,097	177,602	2,053,491	38,550
65	.....1920.....dollars.....	14,754,280	7,774,129	352,332	94,311	1,447,201	26,849
66	Increase, ¹ 1920-1930.....per cent.....	4.8	-11.1	-25.6	88.3	41.9	43.6
67	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars.....	21.00	80.79	27.65	8.82	11.00	22.04
68	.....1920.....dollars.....	20.94	118.40	56.09	3.85	5.49	11.72
69	Estimated final investment in existing enterprises, 1930.....dollars.....	13,489,603	7,834,849	537,762	177,602	2,273,641	40,550
70	.....1920.....dollars.....	22,648,747	13,809,936	515,332	109,311	1,475,376	26,849
71	Increase, ¹ 1920-1930.....per cent.....	-18.4	-43.3	4.4	62.5	54.1	51.0
72	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars.....	18.80	59.77	33.87	8.66	9.16	20.84
73	.....1920.....dollars.....	16.39	80.44	49.02	2.53	3.39	2.88
COST OF MAINTENANCE AND OPERATION, 1929							
74	Irrigated area for which cost was reported.....acres.....	474,422	50,990	7,646	12,779	171,841	939
	Average, per acre, based on area reporting.....dollars.....	0.91	2.41	4.23	0.95	0.30	1.12

¹ A minus sign (-) denotes decrease.

² Includes 1 intercounty project counted in this table as 3 independent enterprises; corresponding figures for 1920 not available. For actual number of enterprises see State Tables 4 and 12.

IRRIGATION—NEVADA

STATE TABLE 20.—IRRIGATION WORKS, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diver- sion	Stor- age	Capacity	Length	Lateral canals, length	Num- ber	Capacity	Pipe lines, length	Num- ber	Capacity	Num- ber	Capacity	Num- ber	Engine or motor capac- ity	Pumps	
	Number	Number	Sec.-ft.	Miles	Miles		Ac.-ft.	Miles		G. p. m.		G. p. m.		H. p.	Number	Capacity
Total.....	1,640	118	16,986	3,341	814	209	529,369	90.6	274	19,131	147	54,162	157	2,671	173	115,048
Before 1860.....	40	4	324	97	6	2	13,000	5.0	5	76	9	370	4	37	11	3,370
1860-1869.....	289	5	2,407	657	46	6	1,913	4.2	5	175	2	3,030	6	144	6	0,215
1870-1879.....	346	9	3,195	773	73	18	2,036	7.3	10	2,300	10	3,925	13	240	12	9,225
1880-1889.....	227	5	856	289	48	13	15,311	3.0	10	1,100	5	110	5	15	5	110
1890-1899.....	98	20	268	144	13	31	5,092	10.8	20	500	3	2,250	2	225	4	3,760
1900-1904.....	74	5	6,197	213	487	6	300,006	13.0	11	230	1	50	6	288	7	33,310
1905-1909.....	55	9	235	92	14	13	45,010	5.1	3	10	3	1,850	4	100	5	4,860
1910-1914.....	120	13	629	212	6	24	49,528	15.2	16	1,038	10	3,503	15	370	20	12,898
1915-1919.....	81	17	435	128	82	19	710	8.6	40	1,283	22	4,005	23	204	24	5,471
1920-1924.....	66	11	1,347	289	4	20	92,982	4.3	34	1,764	16	5,050	14	137	15	6,160
1925-1929.....	27	6	229	53	2	18	2,307	8.1	15	1,260	33	21,395	32	694	32	22,186
Not reported.....	217	14	804	394	33	39	415	6.0	105	9,415	33	8,024	30	217	32	8,114

STATE TABLE 21.—IRRIGATION WORKS, BY CHARACTER OF ENTERPRISE, 1930

CHARACTER OF ENTERPRISE (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diver- sion	Stor- age	Capacity	Length	Lateral canals, length	Num- ber	Capacity	Pipe lines, length	Num- ber	Capacity	Num- ber	Capacity	Num- ber	Engine or motor capac- ity	Pumps	
	Number	Number	Sec.-ft.	Miles	Miles		Ac.-ft.	Miles		G. p. m.		G. p. m.		H. p.	Number	Capacity
Total.....	1,640	118	16,986	3,341	814	200	529,369	90.6	274	19,131	147	54,162	157	2,671	173	115,048
Individual and partnership.....	1,539	98	8,212	2,693	123	189	61,064	76.3	274	19,131	147	54,162	152	2,386	168	82,348
Cooperative.....	45	16	1,285	228	88	15	82,300	1.6								
Commercial.....	3		142	34												
Bureau of Indian Affairs.....	11		361	41	112			0.8								
Bureau of Reclamation.....	2	1	5,750	104	485	1	294,000	10.0					5	285	5	33,300
State.....	2		3	2		1	5	1.9								
Other ¹	33	3	1,233	239	6	3	122,000									

¹ Includes 1 irrigation district and 1 Carey Act enterprise (see text for State Table 6, p. 165).

STATE TABLE 22.—IRRIGATION WORKS, BY DRAINAGE BASIN, 1930

DRAINAGE BASIN (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS					
	Diver- sion	Stor- age	Capacity	Length	Lateral canals, length	Num- ber	Capacity	Pipe lines, length	Num- ber	Capacity	Num- ber	Capacity	Num- ber	Engine or motor capac- ity	Pumps		Average lift	
	Number	Number	Sec.-ft.	Miles	Miles		Ac.-ft.	Miles		G. p. m.		G. p. m.		H. p.	Number	Capacity	Feet	
Total.....	1,640	118	16,986	3,341	814	209	529,369	90.6	274	19,131	147	54,162	157	2,671	173	115,048	31	
Goose Creek.....	1																	
Owyhee River.....	214	1	539	133	25	1	1,200	0.1										
Bruneau River.....	60		117	49	2	1	160	0.5										
Salmon Falls River.....	21		366	108	4													30
Humboldt River and tributaries.....	618	13	5,253	1,198	105	21	105,611	15.3	4	65	28	13,035	28	627	29	11,770	31	
Humboldt River direct.....	105	6	2,570	202	53	8	59,000	1.8	4	65	26	12,960	26	623	27	11,095	25	
East Fork of Humboldt River.....	1		5	5														
Lamoille Creek.....	78		275	107				0.5										
North Fork of Humboldt River.....	51		83	41		1	487	0.5										
South Fork of Humboldt River.....	30	1	587	287	13	2												
Pine Creek.....	23	2	76	71		3	2,150											
Reese River.....	27		57	23		1	200	1.5										
Little Humboldt River.....	27	1	280	41		1	50	6.2										
Other tributaries.....	276	3	1,340	421	39	5	43,600	1.0										
Truckee River and tributaries.....	65	5	3,137	225	125	2	1,000	0.7										94
Truckee River direct.....	31		2,939	181	125			0.6	3	81	2	1,125	3	47	3	1,350	20	
Steamboat Creek.....	3	2	45	5		1	1,000											10
Other tributaries.....	31	3	153	39		1	100	0.1	3	81	1	900	1	25	1	900		
Carson River and tributaries.....	52	14	4,247	219	448	10	296,913	21.3	34	244	13	18,910	31	1,130	32	73,405	32	
Carson River direct.....	29	4	557	97	3	4	1,105	0.4	11	110	9	12,225	16	571	17	24,430	37	
West Fork of Carson River.....	9		69	15		1	100	1.8	1	100	4	50	4	50	4	5,300	13	
East Fork of Carson River.....	5		100	11		8	294,008	13.1	21	24	3	6,600	3	140	3	6,600	40	
Other tributaries.....	9	2	3,524	96	445	4			1	24	1	85	8	360	8	37,135	22	
Walker River and tributaries.....	43	2	1,315	253	12	3	92,002	2.7	16	576								
Walker River direct.....	38	2	1,250	247	12	2	92,000	0.2	16	576								
Tributaries.....	5		65	6		1	2	2.6										
Colorado River and tributaries.....	51	9	179	91	53	15	2,442	4.1	15	2,911	1	112	5	39	5	4,562	14	
Colorado River direct.....	2		58	3		2	4	0.1	6	601			4	35	4	4,450	14	
Virgin River.....	2		68	10	17													
Other tributaries.....	49	9	116	78	36	18	2,438	4.0	9	2,250	1	112	1	4	1	112		
Independent streams.....	515	74	1,833	1,065	40	150	29,941	45.9	202	15,254	102	20,960	89	808	103	24,471	24	
Quinn River.....	65	2	306	74		2	1,003	4.4	4	350	3	51	3	51	3	1,700	43	
Stepoea Creek.....	63	13	68	60	3	26	56	5.8	2	33	16	6,268	13	242	16	6,338	22	
Other.....	387	59	1,459	925	37	122	28,882	35.7	200	15,221	82	13,342	73	515	84	16,433	36	

IRRIGATION—NEVADA

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929

ITEM (See definitions in Introduction)		THE STATE	Churchill	Clark	Douglas	Elko	Esmeralda
FARMS AND FARM OPERATORS							
1	All farms..... 1930..... number.....	3,442	614	291	135	618	24
2	Irrigated farms..... 1930..... number.....	3,031	581	248	128	453	14
3	Operated by—						
4	Owners and managers..... number.....	2,056	487	216	123	418	14
5	Tenants..... number.....	975	94	32	5	35	—
6	Irrigated farms..... 1920..... number.....	2,718	448	149	124	459	10
7	Increase, ¹ 1920-1930..... per cent.....	11.5	29.7	66.4	3.2	-1.3	46.0
FARM AREA AND TOTAL LAND AREA							
8	Approximate land area..... 1930..... acres.....	70,285,410	3,232,000	5,148,800	460,120	10,917,700	2,184,320
9	Land in all farms..... 1930..... acres.....	4,080,000	88,921	40,631	146,538	2,004,710	13,473
10	Land in irrigated farms..... 1930..... acres.....	3,102,085	80,431	22,714	145,986	1,300,894	11,963
11	Average, per farm..... acres.....	1,023.5	148.8	91.6	1,140.5	2,885.0	854.5
12	Operated by owners and managers..... acres.....	2,858,810	73,235	10,329	145,001	1,238,780	11,963
13	Average, per farm..... acres.....	1,076.4	150.4	89.5	1,170.4	2,063.0	854.5
14	Operated by tenants..... acres.....	233,275	13,106	3,385	925	19,018	—
15	Average, per farm..... acres.....	648.7	140.4	105.8	185.0	1,945.0	—
16	Area irrigated..... 1920..... acres.....	486,648	50,990	8,051	17,516	172,337	1,449
17	Increase, ¹ 1919-1920..... per cent.....	561,447	41,739	5,200	23,412	202,724	1,685
18	Area enterprises were capable of supplying with water..... 1930..... acres.....	736,249	85,534	9,478	20,132	186,750	1,740
19	Increase, ¹ 1920-1930..... per cent.....	704,708	65,661	6,282	21,472	263,403	2,200
20	Increase, ¹ 1920-1930..... per cent.....	4.5	30.3	60.9	-29.1	-17.7	-23.0
21	Irrigable area in enterprises..... 1930..... acres.....	983,717	131,082	16,877	20,519	248,137	1,940
22	Total area in enterprises..... 1920..... acres.....	1,382,036	171,681	10,512	43,191	434,582	9,316
23	Area in enterprises available, or to be available, for settlement..... 1930..... acres.....	92,926	79,500	4,591	600	—	—
IRRIGATION WORKS							
24	Enterprises..... 1930..... number.....	1,247	24	67	47	378	13
25	1920..... number.....	1,016	14	37	78	367	7
26	Main canals..... 1930..... length, miles.....	3,341	95	48	68	1,250	23
27	1920..... length, miles.....	3,123	70	47	88	1,428	5
28	1930..... capacity, sec.-ft.....	16,980	3,767	117	457	9,446	24
29	1920..... capacity, sec.-ft.....	10,554	3,141	110	460	1,267	31
30	Laterals..... 1930..... length, miles.....	814	445	62	2	94	—
31	1920..... length, miles.....	1,216	362	79	5	970	—
32	Reservoirs..... 1930..... number.....	269	2	22	9	15	7
33	1920..... number.....	134	8	13	7	21	—
34	1930..... capacity, acre-ft.....	529,369	294,100	135	2,800	54,563	6
35	1920..... capacity, acre-ft.....	504,428	350,069	214	—	40,088	—
36	Wells, flowing..... 1930..... number.....	274	29	62	5	—	2
37	1920..... number.....	123	6	53	2	—	—
38	1930..... capacity, g. p. m.....	19,131	1,035	8,272	120	—	1,650
39	1920..... capacity, g. p. m.....	21,942	616	18,872	22	—	—
40	Wells, pumped..... 1930..... number.....	147	9	8	0	8	11
41	1920..... number.....	129	—	2	—	—	—
42	1930..... capacity, g. p. m.....	64,162	1,515	2,132	17,125	495	365
43	1920..... capacity, g. p. m.....	6,798	—	475	—	645	—
44	Pumping plants..... 1930..... number.....	127	11	13	20	8	9
45	1920..... number.....	64	1	3	7	9	—
46	1930..... engine capacity, h. p.....	2,671	315	96	794	40	35
47	1920..... engine capacity, h. p.....	409	6	41	108	32	—
48	1930..... pump capacity, g. p. m.....	115,648	34,810	6,883	34,670	565	370
49	1920..... pump capacity, g. p. m.....	35,200	—	4,633	—	1,720	—
50	1930..... average lift, feet.....	31	15	13	28	35	42
51	1920..... average lift, feet.....	22	6	28	16	23	—
VALUES OF FARMS, 1930							
52	Land and buildings, all farms..... dollars.....	64,111,000	7,106,642	2,441,720	6,028,660	14,957,831	350,850
53	Land and buildings, irrigated farms..... dollars.....	59,956,787	7,015,662	2,118,255	5,980,960	12,462,411	357,376
54	Operated by—						
55	Owners and managers..... dollars.....	53,688,015	5,884,062	1,729,385	5,864,460	11,692,557	357,376
56	Tenants..... dollars.....	6,268,772	1,230,780	388,870	116,500	769,854	—
57	Average, land and buildings, per farm..... dollars.....	10,781.19	12,075.18	8,541.35	46,726.25	27,510.84	26,526.78
58	Land (excluding buildings)..... dollars.....	10.33	81.17	63.26	40.67	9.51	29.87
59	Buildings (including dwellings)..... dollars.....	69,145,494	5,845,329	1,820,425	4,869,928	10,649,703	306,440
60	Buildings (including dwellings)..... dollars.....	9,811,363	1,170,343	297,830	1,121,032	1,821,648	50,935
61	Average, per farm..... dollars.....	4,611,294	632,917	162,814	394,343	832,500	22,910
62	Average, per farm..... dollars.....	1,333.31	917.24	616.18	3,080.89	1,837.75	1,635.43
63	Average, per acre..... dollars.....	1.30	0.16	0.73	2.70	0.64	1.92
INVESTMENT IN IRRIGATION ENTERPRISES							
64	Investment to Jan. 1, 1930..... dollars.....	15,457,631	6,909,969	262,087	177,602	2,053,491	38,550
65	1920..... dollars.....	14,754,280	7,774,129	352,332	94,311	1,447,201	26,849
66	Increase, ¹ 1920-1930..... per cent.....	4.8	-11.1	-25.0	88.3	41.9	43.6
67	Average, per acre, based on area enterprises were capable of supplying with water, 1930..... dollars.....	21.00	80.79	27.65	8.82	11.00	22.04
68	1920..... dollars.....	20.94	118.40	66.00	3.85	5.49	11.72
69	Estimated final investment in existing enterprises, 1930..... dollars.....	18,489,693	7,831,849	637,762	177,602	2,273,641	40,550
70	1920..... dollars.....	23,648,747	13,889,936	515,352	169,311	1,475,376	26,849
71	Increase, ¹ 1920-1930..... per cent.....	-18.4	4.4	22.6	62.6	54.1	51.0
72	Average, per acre, based on estimated final investment and irrigable area, 1930..... dollars.....	18.80	59.77	33.87	8.60	9.16	20.84
73	Average, per acre, based on estimated final investment and total area, 1920..... dollars.....	10.39	80.44	40.02	2.53	3.39	2.88
COST OF MAINTENANCE AND OPERATION, 1929							
74	Irrigated area for which cost was reported..... acres.....	474,422	50,000	7,646	12,779	171,841	939
75	Average, per acre, based on area reporting..... dollars.....	0.91	2.41	4.23	0.95	0.30	1.12

¹ A minus sign (-) denotes decrease.

² Includes 1 intercounty project counted in this table as 3 independent enterprises; corresponding figures for 1920 not available. For actual number of enterprises see State Tables 4 and 12.

IRRIGATION—NEVADA

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Eureka	Humboldt	Lander	Lincoln	Lyon	Mineral
FARMS AND FARM OPERATORS							
1	All farms..... 1930..... number.....	76	195	44	155	339	88
2	Irrigated farms..... 1930..... number.....	60	159	40	134	321	79
3	Operated by—						
4	Owners and managers..... number.....	54	140	36	121	259	66
5	Tenants..... number.....	6	19	4	13	62	13
6	Irrigated farms..... 1920..... number.....	52	93	54	131	275	89
7	Increase, 1920-1930..... per cent.....	15.4	71.0	-25.9	2.3	16.7	-11.2
FARM AREA AND TOTAL LAND AREA							
7	Approximate land area..... 1930..... acres.....	2,660,480	6,274,560	3,661,440	6,727,040	965,760	2,572,160
8	Land in all farms..... 1930..... acres.....	260,439	391,827	118,655	31,276	187,732	25,566
9	Land in irrigated farms..... 1930..... acres.....	187,033	327,738	113,381	27,253	166,610	21,405
10	Average, per farm..... acres.....	2,617.2	2,061.2	2,959.5	203.4	519.0	270.9
11	Operated by owners and managers..... acres.....	134,270	301,453	100,418	26,978	151,853	20,040
12	Average, per farm..... acres.....	2,480.5	2,153.2	2,780.4	214.7	580.3	303.6
13	Operated by tenants..... acres.....	22,703	17,285	17,963	1,275	14,767	1,365
14	Average, per farm..... acres.....	3,793.8	1,383.4	4,490.8	98.1	238.0	105.0
15	Area irrigated..... 1929..... acres.....	15,836	35,688	10,333	8,771	31,361	2,507
16	1919..... acres.....	5,080	27,884	10,400	5,826	10,902	5,212
17	Increase, 1919-1929..... per cent.....	211.4	28.0	-0.6	50.5	-26.6	-51.9
18	Area enterprises were capable of supplying with water..... 1930..... acres.....	31,080	103,375	22,145	10,099	95,972	7,661
19	1920..... acres.....	5,134	31,695	10,245	10,762	136,475	7,662
20	Increase, 1920-1930..... per cent.....	505.4	226.2	116.2	-6.1	-29.7	(?)
21	Irrigable area in enterprises..... 1930..... acres.....	31,439	109,608	22,475	13,344	139,835	14,281
22	Total area in enterprises..... 1920..... acres.....	5,404	45,331	28,637	20,366	332,810	12,937
23	Area in enterprises available, or to be available, for settlement, 1930..... acres.....					8,000	
IRRIGATION WORKS							
24	Enterprises..... 1930..... number.....	60	141	43	36	28	9
25	1920..... number.....	24	63	41	40	40	23
26	Main canals..... 1930..... length, miles.....	186	352	98	82	297	18
27	1920..... length, miles.....	3	69	194	82	421	77
28	1930..... capacity, sec.-ft.....	601	1,692	319	113	2,210	50
29	1920..... capacity, sec.-ft.....	18	307	39	47	1,097	289
30	Laterals..... 1930..... length, miles.....		4				12
31	1920..... length, miles.....		29	10	3	40	14
32	Reservoirs..... 1930..... number.....	3	16	1	10	2	1
33	1920..... number.....		16		6	3	2
34	1930..... capacity, acre-ft.....	4	14,231	200	3,923	92,000	2
35	1920..... capacity, acre-ft.....		7,452		354	1,500	5
36	Wells, flowing..... 1930..... number.....		32	4		10	
37	1920..... number.....		20	1		26	
38	1930..... capacity, g. p. m.....		1,750	65		576	
39	1920..... capacity, g. p. m.....		400	25		242	
40	Wells, pumped..... 1930..... number.....		19	1		2	6
41	1920..... number.....		13	5		21	53
42	1930..... capacity, g. p. m.....		10,980	30	5	1,650	1,460
43	1920..... capacity, g. p. m.....		1,050	10	230	5	26
44	Pumping plants..... 1930..... number.....		19	3		2	5
45	1920..... number.....		7	4	5	3	1
46	1930..... engine capacity, h. p.....		427	21		68	58
47	1920..... engine capacity, h. p.....		22	10	31	2	
48	1930..... pump capacity, g. p. m.....		11,830	415		1,050	1,400
49	1920..... pump capacity, g. p. m.....		20,200	10	245		25
50	1930..... average lift, feet.....		37	10		34	50
51	1920..... average lift, feet.....		26		16	10	17
VALUES OF FARMS, 1930							
52	Land and buildings, all farms..... dollars.....	1,898,430	3,841,801	1,131,000	1,045,310	7,421,050	540,269
53	Land and buildings, irrigated farms..... dollars.....	1,710,800	3,431,761	1,120,400	979,730	7,248,745	504,694
54	Operated by—						
55	Owners and managers..... dollars.....	1,462,800	3,153,861	1,019,900	917,955	6,332,775	439,241
56	Tenants..... dollars.....	248,000	277,900	109,500	61,825	916,970	65,453
57	Average, land and buildings, per farm..... dollars.....	28,513.33	21,683.40	26,010.22	7,311.79	22,681.76	6,388.53
58	Land (excluding buildings)..... dollars.....	10.89	10.47	0.46	35.95	43.51	23.58
59	Buildings (including dwellings)..... dollars.....	1,463,800	2,976,039	947,969	773,605	6,002,169	432,669
60	Implements and machinery, irrigated farms..... dollars.....	247,000	455,726	172,440	206,175	1,246,586	72,025
61	Average, per farm..... dollars.....	138,400	241,170	53,300	92,805	447,798	59,589
62	Average, per acre..... dollars.....	2,308.27	1,516.79	1,332.50	692.57	1,865.01	764.29
63	Average, per acre..... dollars.....	0.88	0.74	0.45	3.41	2.09	2.78
INVESTMENT IN IRRIGATION ENTERPRISES							
63	Investment to Jan. 1, 1930..... dollars.....	248,337	470,805	137,450	72,329	2,048,900	166,854
64	1920..... dollars.....	25,211	271,719	79,332	124,536	1,740,337	208,132
65	Increase, 1920-1930..... dollars.....	855.0	78.3	73.2	-41.9	17.7	-19.3
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930..... dollars.....	7.99	4.55	6.21	7.16	21.35	21.78
67	1920..... dollars.....	4.91	8.67	7.74	11.58	12.78	27.16
68	Estimated final investment in existing enterprises, 1930..... dollars.....	251,287	463,667	138,550	103,329	2,532,900	698,404
69	1920..... dollars.....	25,211	314,719	79,332	141,936	2,934,907	213,182
70	Increase, 1920-1930..... dollars.....	896.7	56.8	74.6	-27.2	-13.7	227.7
71	Average, per acre, based on estimated final investment and irrigable area, 1930..... dollars.....	7.99	4.50	6.16	7.74	13.34	48.00
72	Average, per acre, based on estimated final investment and total area, 1920..... dollars.....	4.67	6.94	2.77	6.97	8.82	16.47
COST OF MAINTENANCE AND OPERATION, 1929							
73	Irrigated area for which cost was reported..... acres.....	15,836	34,688	10,333	8,064	81,361	2,472
74	Average, per acre, based on area reported..... dollars.....	0.62	0.71	0.85	2.03	0.44	2.85

1 A minus sign (-) denotes decrease.

2 Less than one-tenth of 1 per cent.

IRRIGATION—NEVADA

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Nye	Ormsby	Pershing	Storey	Washoe	White Pine
FARMS AND FARM OPERATORS							
1	All farms.....1930.....number..	142	33	119	9	474	183
2	Irrigated farms.....1930.....number..	111	28	104	8	303	170
3	Operated by—						
4	Owners and managers.....number..	105	22	91	6	347	151
5	Tenants.....number.....	6	6	13	2	46	19
6	Irrigated farms.....1920.....number..	110	37	109	12	381	185
7	Increase, 1 1920-1930.....per cent..	0.9	-24.3	-4.6	-33.3	3.1	-8.1
FARM AREA AND TOTAL LAND AREA							
8	Approximate land area.....1930.....acres..	11,708,160	90,840	3,873,920	100,640	4,000,640	5,628,800
9	Land in all farms.....1930.....acres..	83,062	14,260	111,261	1,504	434,877	120,659
10	Land in irrigated farms.....1930.....acres..	72,200	0,237	90,872	1,344	413,252	122,772
11	Average, per farm.....acres.....	650.4	320.9	873.8	108.0	1,051.5	722.2
12	Operated by owners and managers.....acres..	60,163	8,283	85,105	694	305,485	110,613
13	Average, per farm.....acres.....	573.0	370.5	930.2	115.7	1,053.3	772.3
14	Operated by tenants.....acres.....	12,037	964	5,677	650	47,767	0,159
15	Average, per farm.....acres.....	2,000.2	150.0	436.7	325.0	1,038.4	324.2
16	Area irrigated.....1920.....acres..	12,522	1,417	6,753	281	43,705	17,071
17	Increase, 1 1919-1920.....1919.....acres..	11,354	3,146	53,628	172	28,801	24,270
18	Increase, 1 1919-1920.....per cent..	10.3	-55.0	-87.4	63.4	62.0	-20.7
19	Area enterprises were capable of supplying with water.....1930.....acres..	20,046	1,635	63,160	281	48,727	22,410
20	Increase, 1 1920-1930.....1920.....acres..	14,160	4,718	61,940	268	31,010	27,632
21	Increase, 1 1920-1930.....per cent..	83.8	-65.3	2.0	4.8	64.2	-10.7
22	Irrigable area in enterprises.....1930.....acres..	29,734	1,650	70,304	281	51,758	25,387
23	Total area in enterprises.....1920.....acres..	70,601	7,410	62,705	348	78,274	47,841
24	Area in enterprises available, or to be available, for settlement.....1930.....acres..	235					
IRRIGATION WORKS							
25	Enterprises.....1930.....number..	108	11	47	4	126	105
26	1920.....number.....	95	20	16	4	87	60
27	Main canals.....1930.....length, miles..	185	8	97	15	304	215
28	1920.....length, miles.....	156	5	60	1	255	153
29	1930.....capacity, sec.-ft.....	235	135	1,368	1,520	930	217
30	1920.....capacity, sec.-ft.....	423	133	200	2	2,012	282
31	Laterals.....1930.....length, miles..	20	1	43		85	3
32	1920.....length, miles.....	13	25	66	1	61	57
33	Reservoirs.....1930.....number.....	17	5	16		20	63
34	1920.....number.....	13	5	3	1	29	7
35	1930.....capacity, acre-ft.....	12,097	13	40,072		3,145	3,107
36	1920.....capacity, acre-ft.....	1,354	50,060	32,003		10,620	4,783
37	Wells, flowing.....1930.....number.....	27	27			67	3
38	1920.....number.....	0	1				
39	1930.....capacity, g. p. m.....	2,595	121			2,294	753
40	1920.....capacity, g. p. m.....	410					1,350
41	Wells, pumped.....1930.....number.....	20	2	15		12	25
42	1920.....number.....	7	2	2		1	10
43	1930.....capacity, g. p. m.....	1,710	135	7,100		2,905	6,500
44	1920.....capacity, g. p. m.....	360	50	910		250	2,788
45	Pumping plants.....1930.....number.....	14	2	13		15	23
46	1920.....number.....	8	3	2		2	9
47	1930.....engine capacity, h. p.....	112	8	312		182	298
48	1920.....engine capacity, h. p.....	35	20	17		12	73
49	1930.....pump capacity, g. p. m.....	1,945	95	5,450		8,045	6,020
50	1920.....pump capacity, g. p. m.....	350	1,050	915		1,850	3,068
51	1930.....average lift, feet.....	28	66	28		21	43
52	1920.....average lift, feet.....	19	10	78		11	21
VALUES OF FARMS, 1930							
53	Land and buildings, all farms.....dollars..	1,521,630	435,100	3,995,196	134,500	9,139,715	2,987,187
54	Land and buildings, irrigated farms.....dollars..	1,368,107	381,100	3,807,141	132,500	8,422,055	2,915,932
55	Operated by—						
56	Owners and managers.....dollars.....	1,230,607	320,100	3,565,841	52,500	6,944,355	2,792,232
57	Tenants.....dollars.....	128,500	52,000	241,300	80,000	1,477,700	212,800
58	Average, land and buildings, per farm.....dollars..	12,325.29	13,610.71	36,607.12	10,562.50	21,430.10	17,147.25
59	per acre.....dollars.....	18.95	41.20	41.00	98.50	20.38	23.74
60	Land (excluding buildings).....dollars.....	1,143,752	278,350	3,281,016	101,000	6,921,551	2,350,092
61	Buildings (including dwellings).....dollars.....	224,355	102,750	620,125	31,500	1,500,504	564,340
62	Implements and machinery, irrigated farms.....dollars..	101,286	37,025	228,970	0,700	435,513	269,128
63	Average, per farm.....dollars.....	912.40	1,322.32	2,201.63	1,212.60	1,108.18	1,530.16
64	per acre.....dollars.....	1.40	4.01	2.52	7.22	1.05	2.12
INVESTMENT IN IRRIGATION ENTERPRISES							
65	Investment to Jan. 1, 1930.....dollars.....	311,118	42,900	805,697	267,000	1,108,347	336,485
66	1920.....dollars.....	260,220	54,777	550,952	6,229	658,775	1,079,188
67	Increase, 1 1920-1930.....per cent..	16.6	-21.7	46.2		68.2	-68.8
68	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars..	11.94	26.24	12.76	950.18	22.75	15.01
69	1920.....dollars.....	18.37	11.61	8.89	23.24	20.84	38.64
70	Estimated final investment in existing enterprises, 1930.....dollars..	346,268	42,900	810,697	267,000	1,529,392	419,805
71	Increase, 1 1920-1930.....1920.....dollars..	303,445	55,777	554,952	9,819	832,725	1,245,988
72	per cent.....	14.1	-23.1	46.1		82.0	-66.3
73	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars..	11.64	26.00	10.02	950.18	20.38	16.54
74	Average, per acre, based on estimated final investment and total area, 1920.....dollars.....	4.30	7.53	8.84	28.22	10.04	26.04
COST OF MAINTENANCE AND OPERATION, 1929							
75	Irrigated area for which cost was reported.....acres..	9,238	1,407	6,753	281	43,455	16,339
76	Average, per acre, based on area reporting.....dollars..	1.45	1.65	1.80	9.80	1.29	1.80

1 A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

NEW MEXICO

INTRODUCTION

Statistics are presented in the following pages on farms irrigated and area irrigated, investment and cost of maintenance and operation of irrigation enterprises, cost of preparing land for irrigation, drainage of irrigated land, quantity of water used, and distribution of irrigation works, with specialized information relating to dams, pipe lines, and pumping equipment. Data on area irrigated, investment, and irrigation works are given in detail by drainage basins. Classifications of irrigated farms by type of farm, size of farm, and value of farm products; and the acreage, yield, and value of the principal crops grown on irrigated land, for all irrigation States, are shown in Parts III and IV, pages 257 and 325, respectively, of this volume.

Statistics for area irrigated and for cost of maintenance and operation of irrigation works relate to the year 1929; all other items relate to 1930.

For purposes of comparison, statistics for the census of 1920 are shown, where available; and for the purpose of showing the historical development of irrigation certain data are presented from censuses previous to that of 1920.

Data on number, area, and value of wholly and partly irrigated farms with the tenure of the operators of these farms were collected in 1930 on the general farm schedule; in 1920 only the number of irrigated farms was obtained in this way. All other statistics, in both censuses, were collected on special schedules for irrigation enterprises.

STATE TABLE 1.—SUMMARY FOR THE STATE: 1930 AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Amount	Per cent
All farms.....number.....	31,404	29,844	1,560	5.2
All land in farms.....acres.....	30,822,034	24,409,633	6,412,401	26.3
Approximate land area of State.....acres.....	78,401,920	78,401,920		
Farms irrigated.....number.....	14,347	11,390	2,957	26.0
Area irrigated.....acres.....	527,033	538,377	-11,344	-2.1
Area enterprises were capable of supplying with water.....acres.....	659,669	696,119	-36,450	-5.7
Area in enterprises ².....acres.....	741,245	901,879		
Proportion irrigated:				
All farms.....per cent.....	45.7	38.2		
All land in farms.....per cent.....	1.7	2.2		
Approximate land area of State.....per cent.....	0.7	0.7		
Excess of area enterprises were capable of supplying with water over area irrigated.....acres.....	129,636	157,742	-28,106	-17.8
Excess of area in enterprises ² over area irrigated.....acres.....	214,212	423,502		
Area in enterprises available, or to be available, for settlement.....acres.....	42,811	66,470	-23,659	-35.6
Value of irrigated farms [land, buildings (including dwellings), and implements and machinery].....dollars.....	93,160,485	(³)		
Investment in irrigation enterprises.....dollars.....	19,834,380	18,210,412	1,623,968	8.9
Average, per acre, based on area enterprises were capable of supplying with water.....dollars.....	30.20	26.18	4.04	15.4
Estimated final cost of existing enterprises.....dollars.....	21,942,450	20,440,646	1,501,804	7.3
Average, per acre, based on area in enterprises ².....dollars.....	29.60	21.25		
Average annual cost, per acre, for maintenance and operation of irrigation works.....dollars.....	2.15	2.41	-0.26	-10.8

¹ A minus sign (-) denotes decrease.

² Irrigable area, 1930; total area, 1920.

³ Figures not available.

STATE TABLE 2.—FARMS AND SPECIFIED FARM VALUES, BY TENURE OF FARM OPERATOR, 1930

ITEM (See definitions in Introduction)	FARMS		SPECIFIED FARM VALUES					
	Number	Area Acres	Land and buildings		Land alone		Implements and machinery	
			Total Dollars	Per acre Dollars	Total Dollars	Per acre Dollars	Total Dollars	Per acre Dollars
All farms.....	31,404	30,822,034	207,859,492	6.74	180,721,208	5.86	12,996,727	0.42
Owners and managers.....	25,074	27,207,208	167,385,290	6.15			10,385,999	0.38
Tenants.....	6,330	3,614,826	40,474,202	11.20			2,610,728	0.72
Irrigated farms.....	14,347	5,024,868	87,868,916	17.40	73,030,223	14.65	5,291,599	1.05
Owners and managers.....	11,477	4,701,640	69,372,388	14.75	57,243,166	12.18	4,187,965	0.89
Tenants.....	2,870	323,228	18,496,528	57.22	16,387,057	50.70	1,103,634	3.41
Wholly irrigated farms.....	12,804	4,037,892	79,528,880	19.70	66,595,356	16.49	4,747,293	1.18
Owners and managers.....	10,094	3,775,144	61,040,625	16.41	50,999,507	13.51	3,700,374	0.98
Tenants.....	2,710	262,748	17,682,355	63.92	15,595,849	59.36	1,046,919	3.98
Partly irrigated farms.....	1,543	986,976	8,340,036	8.45	7,034,867	7.13	544,276	0.55
Owners and managers.....	1,383	926,496	7,425,863	8.01	6,243,659	6.74	487,591	0.53
Tenants.....	160	60,480	914,173	15.12	791,208	13.08	56,685	0.94
Farms not irrigated.....	17,057	25,797,166	119,990,576	4.65	107,090,985	4.15	7,705,158	0.30

FARMS AND AREA IRRIGATED

In State Table 3 and in other tables "Number of farms irrigated" is equivalent to "Number of irrigators" used in census reports previous to 1910.

STATE TABLE 3.—FARMS AND AREA IRRIGATED: 1890 TO 1930

CENSUS YEAR	FARMS IRRIGATED			AREA IRRIGATED			
	Number	In-crease ¹	Proportion of all farms	Area	In-crease ¹	Proportion of total land area of State	Proportion of land in all farms
1890.....	14,847	26.0	45.7	527,033	-2.1	0.7	1.7
1920.....	11,390	-11.0	38.2	538,377	16.6	0.7	2.2
1910.....	12,795	40.2	35.9	461,718	126.5	0.6	4.1
1900.....	9,128	195.9	74.1	203,893	122.2	0.3	4.0
1890.....	3,085		69.2	91,745		0.1	11.6

¹ A minus sign (-) denotes decrease.

STATE TABLE 4.—AREA, BY DATE OF BEGINNING OF ENTERPRISES SUPPLYING WATER FOR IRRIGATION

DATE OF BEGINNING (See definitions in Introduction)	Enter-prises, 1930	AREA IRRIGATED IN 1929				Irrigable area in enterprises, 1930
		Area	Proportion of irrigable area in enterprises	Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930	
Total.....	1,905	527,033	71.1	656,069	741,245	
Before 1860.....	301	113,047	73.7	136,027	153,347	
1860-1869.....	58	18,039	96.2	18,975	18,758	
1870-1879.....	70	16,773	80.0	20,144	20,795	
1880-1889.....	163	57,087	78.0	68,769	73,946	
1890-1899.....	60	37,771	82.0	44,402	46,055	
1900-1904.....	95	13,880	71.6	17,798	19,394	
1905-1909.....	242	158,477	77.6	198,457	204,275	
1910-1914.....	104	27,014	58.2	38,927	47,951	
1915-1919.....	114	10,484	40.9	28,972	38,040	
1920-1924.....	68	8,304	19.7	10,953	42,221	
1925-1929.....	195	20,038	56.2	29,955	36,801	
Not reported.....	345	37,903	85.0	43,030	44,667	

STATE TABLE 5.—AREA, BY SOURCE OF WATER SUPPLY: 1929 AND 1919

SOURCE OF SUPPLY	AREA IRRIGATED				Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹			
			Area	Per cent		
Total.....	527,033	538,377	-11,344	-2.1	656,069	741,245
Streams, gravity.....	430,099	432,478	-2,379	-0.6	540,170	619,872
Streams, pumped.....	6,856	1,890	4,966	202.8	10,071	11,094
Wells, pumped.....	30,425	15,709	14,716	93.7	33,864	35,026
Wells, flowing.....	21,838	30,030	-8,192	-27.3	23,361	23,568
Wells, pumped and flowing.....	5,855	6,556	-701	-10.7	6,879	6,879
Lakes, pumped.....	15	15			65	65
Lakes, gravity.....	370	1,945	-1,575	-81.0	520	870
Springs.....	5,595	10,701	-5,106	-48.2	7,091	8,143
Stored storm water ²	1,720	6,448	-4,728	-73.3	3,720	3,760
City water.....	157	40	117	262.5	157	157
Streams, gravity and wells, pumped.....	665	1,341	-686	-51.2	935	935
Streams, gravity and wells, flowing.....	360	685	-325	-47.4	800	860
Other mixed.....	19,501	29,787	-10,286	-34.5	25,939	29,379
Other.....		677	-677	-100.0		
Not reported.....	3,537		3,537		3,537	3,537
Supplemental from pumped streams ³	20				20	20

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² In reservoirs filled from channels which carry water only during storms and are not classed as streams.
³ Not considered in totals because included in enterprises reporting other sources of supply listed above.

AREA, BY CHARACTER OF ENTERPRISE

The areas classified as "Cooperative," in State Table 6, largely represent the "community acequias" peculiar to sections of the Southwest. The community acequia, or ditch, is the oldest type of irrigation organization in the United States.

Areas classified as "Irrigation district" do not include a conservancy district organized since 1920 for flood control and to drain and irrigate about 129,000 acres of land in the middle portion of Rio Grande Valley, because it is not yet prepared to render irrigation service. The areas involved are included principally in the "Cooperative" and "United States Bureau of Indian Affairs" groups.

STATE TABLE 6.—AREA, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

[For number of enterprises by classes, see State Table 12]

ITEM AND CHARACTER (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Area	Per cent
	Acres	Acres	Acres	Per cent
AREA IRRIGATED	527,033	538,377	-11,344	-2.1
Total.....	527,033	538,377	-11,344	-2.1
Individual and partnership.....	130,738	151,351	-20,613	-13.6
Cooperative.....	233,286	264,610	-31,324	-11.8
Irrigation district.....	22,000	15,008	6,992	46.6
Carey Act.....	863	863		
Commercial.....	16,192	19,871	-3,679	-18.5
United States Bureau of Indian Affairs.....	20,824	9,072	11,752	129.5
United States Bureau of Reclamation.....	103,110	77,678	25,432	32.7
State.....	(?)	77	-77	-100.0
City.....		600	-600	-100.0
Other.....	20	110	-90	-81.8
AREA ENTERPRISES WERE CAPABLE OF SUPPLYING WITH WATER	656,069	696,119	-39,450	-5.7
Total.....	656,069	696,119	-39,450	-5.7
Individual and partnership.....	155,802	215,618	-59,816	-27.7
Cooperative.....	270,681	305,540	-28,959	-9.5
Irrigation district.....	37,000	24,308	12,192	49.1
Carey Act.....	6,000	7,500	-1,500	-20.0
Commercial.....	28,212	33,743	-5,531	-16.4
United States Bureau of Indian Affairs.....	41,089	11,372	30,617	269.2
United States Bureau of Reclamation.....	111,055	96,751	14,304	14.8
State.....	(?)	77	-77	-100.0
City.....		600	-600	-100.0
Other.....	30	110	-80	-72.7
AREA IN ENTERPRISES³	741,245	961,879	-220,634	-23.1
Total.....	741,245	961,879	-220,634	-23.1
Individual and partnership.....	165,264	313,170	-147,906	-47.2
Cooperative.....	324,300	404,028	-79,728	-19.7
Irrigation district.....	43,500	28,520	14,980	52.5
Carey Act.....	6,000	7,500	-1,500	-20.0
Commercial.....	33,392	67,050	-33,658	-48.9
United States Bureau of Indian Affairs.....	55,704	13,570	42,134	309.9
United States Bureau of Reclamation.....	113,055	127,226	-14,171	-11.2
State.....	(?)	77	-77	-100.0
City.....		600	-600	-100.0
Other.....	30	138	-108	-78.3

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² Acreage (20 acres) included in figures for United States Bureau of Reclamation.
³ Irrigable area, 1930; total area, 1920.

STATE TABLE 7.—AREA IRRIGATED, BY CHARACTER OF RIGHTS UNDER WHICH WATER IS RECEIVED: 1929 AND 1919

WATER RIGHTS (See definitions in Introduction)	1929		1919	
	Area	Proportion of total	Area	Proportion of total
	Acres	Per cent	Acres	Per cent
Total.....	527,033	100.0	538,377	100.0
Appropriation and use.....	248,888	47.2	152,746	28.4
Notice filed and posted.....	10,855	2.1	54,356	10.1
Adjudicated by court.....	92,335	17.5	91,897	17.1
Permit from State.....	93,511	17.8	103,459	19.2
Certificate or license from State.....	29,284	5.6	20,096	3.7
Riparian.....			400	0.1
Underground.....	44,820	8.5	52,325	9.7
Other.....	182	(¹)	8	(¹)
Mixed.....	1,208	0.2		
Not reported.....	5,950	1.1	63,180	11.7

¹ Less than one-tenth of 1 per cent.

AREA, BY DRAINAGE BASIN

STATE TABLE 8.—AREA, BY DRAINAGE BASIN: 1929 AND 1919

DRAINAGE BASIN (See definitions in Introduction)	AREA IRRIGATED			Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹		
	Acres	Acres	Per cent		
Total.....	527, 033	538, 377	-2.1	656, 669	741, 245
Canadian River and tributaries.....	68, 665	90, 185	-23.0	108, 297	115, 022
Canadian River direct.....	1, 360	1, 680	-19.0	1, 440	1, 440
Cimarron River.....	16, 007	31, 967	-49.9	31, 677	34, 357
Vernon River.....	8, 574	23, 678	-63.8	15, 704	15, 704
Ocate Creek.....	1, 102	4, 861	-77.3	5, 800	5, 800
Mora River.....	34, 956	17, 057	104.9	43, 056	44, 071
Ute Creek.....	250	77	224.7	350	350
Other tributaries.....	6, 410	10, 865	-40.9	10, 270	13, 300
Cimarron River.....	2, 670	5, 757	-53.6	4, 464	4, 484
Trinchera River.....	381	389	-2.0	381	381
Rio Grande and tributaries.....	380, 444	360, 246	3.0	450, 452	525, 307
Rio Grande direct.....	136, 114	103, 844	31.1	158, 486	104, 672
Rio Costilla.....	4, 003	4, 417	-9.4	7, 606	10, 112
Pueblo River.....	15, 856	11, 780	34.6	16, 730	21, 352
Rio Chama.....	25, 950	26, 166	-0.8	30, 450	35, 049
Rio Santa Cruz.....	8, 405	9, 171	-8.4	10, 094	12, 604
Testuque Creek.....	3, 588	3, 012	19.1	4, 873	5, 496
Rio Puerco.....	15, 202	14, 309	6.2	22, 245	35, 128
Pecos River and tributaries.....	120, 121	119, 040	8.5	151, 588	154, 203
Pecos River direct.....	45, 508	62, 430	-27.1	56, 271	57, 094
Gallinas River.....	4, 078	4, 097	-0.5	4, 177	4, 177
Hondo River.....	25, 010	20, 561	21.6	27, 201	27, 682
Penasco River.....	6, 833	13, 375	-48.9	7, 993	7, 993
Other tributaries.....	47, 692	18, 677	156.7	65, 946	67, 257
Other tributaries of Rio Grande.....	42, 205	77, 507	-45.5	48, 380	86, 691
Tributaries of Colorado River.....	55, 310	53, 808	2.8	71, 495	74, 081
Gila River and tributaries.....	9, 373	9, 983	-6.1	10, 442	10, 847
Gila River direct.....	7, 824	6, 424	21.8	8, 539	8, 539
San Francisco River.....	1, 442	3, 162	-54.4	1, 611	1, 716
Other tributaries.....	107	397	-73.0	292	592
San Juan River and tributaries.....	40, 253	43, 825	-8.2	51, 703	53, 384
San Juan River direct.....	9, 772	12, 026	-18.7	15, 075	15, 881
Los Pinos River.....	160	1, 260	-87.3	160	160
Animas River.....	24, 425	23, 355	4.6	27, 325	27, 425
La Plata River.....	4, 222	5, 830	-27.6	5, 408	5, 628
Other tributaries.....	1, 674	1, 354	23.6	3, 675	4, 290
Tributaries of Little Colorado River.....	5, 684			9, 350	9, 850
Independent streams.....	19, 563	18, 992	3.0	21, 580	21, 970
Fresal River.....	1, 835	1, 798	2.0	1, 870	1, 884
Rio Tularosa.....	2, 500	4, 547	-45.0	2, 500	2, 500
Rio Mimbres.....	6, 042	12, 557	-28.0	10, 240	10, 457
Other.....	6, 186	60		6, 970	7, 123

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

INVESTMENT, AND COST OF MAINTENANCE AND OPERATION OF IRRIGATION ENTERPRISES

STATE TABLE 9.—INVESTMENT IN ENTERPRISES: 1890 TO 1930

CENSUS YEAR	INVESTMENT		AVERAGE, PER ACRE ¹	
	Amount	Increase	Amount	Increase ²
	Dollars	Per cent	Dollars	Per cent
1930.....	19, 834, 380	8.9	30.20	15.4
1920.....	18, 210, 412	98.9	26.16	84.4
1910.....	9, 154, 897	119.8	14.19	-30.5
1900.....	4, 165, 312	713.6	20.43	266.1
1890.....	511, 937		6.58	

¹ Based on area enterprises were capable of supplying with water.
² A minus sign (-) denotes decrease.

STATE TABLE 10.—INVESTMENT, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	INVESTMENT		
	Amount	Proportion of total	Average, per acre ¹
	Dollars	Per cent	Dollars
Total.....	19, 834, 380	100.0	30.20
Before 1860.....	930, 501	4.7	6.88
1860-1869.....	127, 641	0.7	6.87
1870-1879.....	116, 315	0.6	5.77
1880-1889.....	1, 014, 762	5.1	14.76
1890-1899.....	374, 513	1.9	8.42
1900-1904.....	939, 135	4.7	52.77
1905-1909.....	11, 154, 454	56.2	50.21
1910-1914.....	1, 842, 280	9.3	47.33
1915-1919.....	715, 230	3.6	24.09
1920-1924.....	305, 781	1.6	33.40
1925-1929.....	1, 514, 513	7.6	50.56
Not reported.....	733, 243	3.7	10.81

¹ Based on area enterprises were capable of supplying with water in 1930.

STATE TABLE 11.—INVESTMENT, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929; BY SOURCE OF WATER SUPPLY

(When water is pumped, cost of maintenance and operation includes cost of fuel and attendance)

SOURCE OF SUPPLY	INVESTMENT, 1930			MAINTENANCE AND OPERATION, 1929	
	Amount	Proportion of total	Average, per acre	Irrigated area reporting	Average, per acre ¹
	Dollars	Per cent	Dollars	Acres	Dollars
Total.....	19, 834, 380	100.0	30.20	493, 229	2.15
Streams, gravity.....	16, 314, 802	82.2	30.20	419, 677	1.87
Streams, pumped.....	334, 111	1.7	33.18	6, 848	2.01
Wells, pumped.....	1, 312, 306	6.6	38.75	27, 686	6.44
Wells, flowing.....	877, 281	4.4	37.55	4, 648	2.17
Wells, pumped and flowing.....	251, 893	1.3	36.61	5, 855	3.00
Lakes, pumped.....	500	(²)	7.69	15	5.00
Lakes, gravity.....	30, 300	0.2	58.27	370	4.14
Springs.....	70, 155	0.4	9.89	4, 013	1.55
Stored storm water.....	56, 421	0.3	15.17	1, 650	1.91
City water.....	375	(²)	2.39		
Streams, gravity and wells, pumped.....	86, 301	0.4	92.30	655	1.13
Streams, gravity and wells, flowing.....	2, 500	(²)	6.94	360	0.83
Other mixed.....	458, 825	2.3	17.76	17, 723	1.65
Not reported.....	33, 550	0.2	9.22	3, 529	3.62
Supplemental from pumped streams.....	5, 000	(²)	250.00	³ 20	38.15

¹ Based on area irrigated in 1929 reporting cost.

² Less than one-tenth of 1 per cent.

³ Not considered in total because included in enterprises reporting other sources of supply listed above.

STATE TABLE 12.—INVESTMENT, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

CHARACTER OF ENTERPRISE (See definitions in Introduction)	Enterprises, 1930	INVESTMENT		INCREASE ¹	
		1930	1920	Amount	Per cent
		Dollars	Dollars	Dollars	
Total.....	Number 1, 965	19, 834, 380	18, 210, 412	1, 623, 968	8.9
Individual and partnership.....	1, 463	3, 814, 458	5, 580, 372	-1, 774, 914	-31.8
Cooperative.....	402	3, 016, 075	3, 558, 863	-542, 788	-15.3
Irrigation district.....	5	1, 280, 180	914, 470	374, 701	41.0
Carey Act.....	1	250, 000	262, 713	-12, 713	-4.8
Commercial.....	5	1, 543, 000	1, 877, 842	-334, 842	-17.8
United States Bureau of Indian Affairs.....	25	1, 231, 028	691, 194	540, 784	78.2
United States Bureau of Reclamation.....	2	8, 084, 489	5, 020, 230	3, 064, 259	73.0
State.....	1	5, 000	18, 544	-13, 544	-73.0
City.....			270, 299	-270, 299	-100.0
Other.....	1	250	870	-620	-71.5

¹ A minus sign (-) denotes decrease.

STATE TABLE 13.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE ¹	
	1930	1920	Amount	Per cent
	Dollars	Dollars	Dollars	
Total.....	19,834,380	18,210,412	1,623,968	8.9
Canadian River and tributaries.....	1,880,565	5,039,780	-3,159,215	-62.6
Canadian River direct.....	20,400	32,625	-12,225	-37.5
Cimarron River.....	719,700	2,188,908	-1,469,208	-67.1
Vermejo River.....	340,995	1,248,537	-907,542	-72.7
Ocate Creek.....	230,350	319,520	-89,170	-27.9
Mora River.....	236,645	262,575	-25,930	-9.9
Ute Creek.....	23,500	7,000	16,500	235.7
Other tributaries.....	314,975	980,606	-665,631	-67.9
Cimarron River.....	61,005	308,147	-246,542	-80.0
Trinchera River.....	18,750	3,513	15,237	433.7
Rio Grande and tributaries.....	15,510,569	10,421,511	5,089,058	48.8
Rio Grande direct.....	7,892,453	3,005,725	4,886,728	118.9
Rio Costilla.....	910,360	11,471	898,889	
Pueblo River.....	78,379	19,982	58,397	204.8
Rio Chama.....	133,858	141,891	-8,033	-5.7
Rio Santa Cruz.....	510,745	18,281	492,464	
Tesuque Creek.....	80,842	10,804	69,978	379.4
Rio Puerco.....	548,233	88,109	460,124	522.2
Pecos River and tributaries.....	4,977,130	5,203,454	-226,324	-5.4
Pecos River direct.....	2,002,793	3,204,504	-1,201,711	-39.2
Gallinas River.....	43,850	519,590	-475,740	-91.6
Hondo River.....	621,688	678,094	-56,406	-7.5
Penasco River.....	107,645	222,693	-115,048	-51.7
Other tributaries.....	2,201,254	648,597	1,552,657	239.4
Other tributaries of Rio Grande.....	378,939	1,265,734	-886,795	-69.9
Tributaries of Colorado River.....	1,719,587	1,786,290	-66,703	-3.7
Gila River and tributaries.....	121,940	70,423	51,517	73.2
Gila River direct.....	102,050	47,182	54,868	116.3
San Francisco River.....	19,315	9,809	9,506	96.9
Other tributaries.....	575	13,432	-12,857	-95.7
San Juan River and tributaries.....	966,516	1,715,867	-749,351	-48.7
San Juan River direct.....	423,504	807,700	-384,196	-47.6
Los Pinos River.....	1,500	3,000	-1,500	-50.0
Animas River.....	451,420	824,450	-373,030	-45.2
La Plata River.....	52,595	47,975	4,620	9.6
Other tributaries.....	37,497	32,742	4,755	14.5
Tributaries of Little Colorado River.....	631,131		631,131	
Independent streams.....	637,304	651,171	-13,867	-2.1
Fresnal River.....	57,370	207,724	-150,354	-80.7
Rio Tularosa.....	20,000	33,000	-13,000	-41.0
Rio Mimbres.....	260,971	318,062	-57,091	-18.2
Other.....	209,803	1,485	208,318	

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

COST OF PREPARING LAND FOR IRRIGATION

The costs shown in State Table 14 represent estimates of expenditures already made on the areas reporting, and include clearing and grading land, and building farm laterals and farm irrigation structures. They therefore represent expenditures additional to the investment in irrigation enterprises shown in State Tables 9 to 13, inclusive.

STATE TABLE 14.—ESTIMATED COST OF PREPARING LAND, 1930

ITEM	1930
Area reporting.....acres.....	424,115
Estimated cost reported.....dollars.....	10,010,087
Average, per acre.....dollars.....	23.60

DRAINAGE OF IRRIGATED LAND

The areas in State Table 15 relate only to lands within the boundaries of irrigation enterprises. "Additional area needing drainage" represents lands partly productive as well as those wholly unproductive.

STATE TABLE 15.—AREA WITHIN IRRIGATION ENTERPRISES FOR WHICH DRAINS HAVE BEEN INSTALLED AND ADDITIONAL AREA IN NEED OF DRAINAGE: 1930 AND 1920

ITEM	1930	1920
Enterprises reporting land drained or needing drainage.....number.....	237	203
Area ¹ in enterprises reporting land drained or needing drainage.....acres.....	225,730	212,353
Area for which drains have been installed.....acres.....	60,907	74,783
Additional area needing drainage.....acres.....	49,572	60,277
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises reporting drainage.....per cent.....	27.0	35.2
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises.....per cent.....	8.2	7.8
Proportion that area for which drains have been installed plus that needing drainage is of area ¹ in all irrigation enterprises.....per cent.....	14.9	14.0

¹ Irrigable area, 1930; total area, 1920.

QUANTITY OF WATER USED

Some irrigation enterprises carry water to individual farms, but others only to laterals which serve several farms. The "total quantity of water delivered to irrigators," shown in State Table 16, is the quantity reported in answer to a question preceded by the inquiry: "Average head of water delivered per individual irrigator."

The quantity of water used was reported on only part of the irrigation schedules, and all areas reporting "quantity of water entering canals" did not also report "quantity delivered to irrigators." In order that proper values may be assigned to the figures given, those representing measurements and those representing estimates are reported separately in State Table 16.

STATE TABLE 16.—WATER USED: 1929 AND 1919

ITEM (See definitions in Introduction)	TOTAL		MEASURED		NOT MEASURED	
	1929	1919	1929	1919	1929	1919
Average flow of water entering canals.....sec.-ft.....	4,019	4,041	2,377	1,306	1,642	2,735
Area irrigated.....acres.....	215,828	184,253	121,552	105,922	94,276	78,331
Average, per second-foot.....acres.....	54	46	51	81	57	29
Total quantity of water entering canals.....ac.-ft.....	1,306,639	1,007,575	750,545	688,428	556,094	819,147
Area irrigated.....acres.....	224,878	199,859	120,532	126,090	104,346	73,769
Average quantity per acre.....ac.-ft.....	5.8	5.0	6.2	5.5	5.3	4.3
Total quantity of water delivered to irrigators.....ac.-ft.....	266,413	274,740	263,413	212,369	3,000	62,387
Area irrigated.....acres.....	127,984	100,996	125,784	119,013	2,200	41,983
Average quantity per acre.....ac.-ft.....	2.1	1.7	2.1	1.8	1.4	1.5

IRRIGATION--NEW MEXICO

STATE TABLE 22.—IRRIGATION WORKS, BY DRAINAGE BASIN, 1930

DRAINAGE BASIN (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS		Pipe lines, length	FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS					
	Diver- sion	Stor- age	Capac- ity	Length	Lateral canals, length	Num- ber	Capac- ity		Num- ber	Capac- ity	Num- ber	Capac- ity	Num- ber	Engin- or mo- tor ca- pacity	Pumps		Aver- age lift	
															Number 665	Number 69		Sec.-ft. 17,479	Miles 3,405	Miles 1,061	240	Ac.-ft. 2,945,220	Miles 15.2	340	G. p. m. 223,257	080	G. p. m. 481,898	702	H. p. 14,483	738	G. p. m. 555,063	Feet 40
	Number	Capacity																
Total.....	Number 665	Number 69	Sec.-ft. 17,479	Miles 3,405	Miles 1,061	240	Ac.-ft. 2,945,220	Miles 15.2	340	G. p. m. 223,257	080	G. p. m. 481,898	702	H. p. 14,483	738	G. p. m. 555,063	Feet 40	
Canadian River and tributaries.....	85	22	5,600	353	205	28	147,048	3.0										
Canadian River direct.....	2		22	10														
Cimarron River.....	9	4	989	52	93	4	96,400											
Vermejo River.....	4	9	3,012	46	70	9	18,340	1.0										
Ocate Creek.....	2		117	25	10													
Mora River.....	58	4	1,060	201	11	3	24,800											
Ute Creek.....	2	1	5	5	1	2	380											
Other tributaries.....	8	4	295	14	20	5	7,123	2.0										
Cimarron River.....	3	2	84	28	1	2	926											
Trinchera River.....	4	3	6	6														
Rio Grande and tributaries.....	424	27	0,816	2,448	707	143	2,785,028	11.6	339	222,257	330	252,720	354	7,475	382	324,703	29	
Rio Grande direct.....	23	1	4,349	728	276	3	2,638,866	0.5										
Rio Costilla.....	4	1	270	19	20	1	15,739											
Pueblo River.....	18		348	132	2													
Rio Chama.....	91	2	780	293	54	3	601											
Rio Santa Cruz.....	10	1	106	64	38	1	10,000											
Tesuque Creek.....	15		98	74	1			1.7										
Rio Puerco.....	39	8	537	237	25	6	53,130											
Pecos River and tributaries.....	159	6	2,017	504	258	122	54,955	2.3	339	222,257	319	252,271	338	7,405	369	322,234	20	
Pecos River direct.....	20	2	1,071	146	174	3	50,400	0.4	2	1,800	2	4,900	26	709	26	50,688	17	
Gallinas River.....	15	1	243	44	2		70											
Hondo River.....	75		317	181	49	5	204	0.3	76	46,707	111	81,081	111	1,073	130	80,131	24	
Penasco River.....	24		167	47	8													
Other tributaries.....	25	3	219	86	27	112	4,281	1.6	261	173,760	205	105,740	200	4,043	212	100,815	29	
Other tributaries of Rio Grande.....	65	8	1,242	397	93	7	11,737	7.1			11	449	14	24	11	449	86	
Tributaries of Colorado River.....	102	10	1,830	470	74	8	11,194	0.3										
Gila River and tributaries.....	57	3	639	129	3	1	601											
Gila River direct.....	23		537	81														
San Francisco River.....	33	2	94	43	3	1	601											
Other tributaries.....	1	1	8	5														
San Juan River and tributaries.....	40	3	1,115	310	41	3	2,096	0.3										
San Juan River direct.....	10		345	89	5													
Los Pinos River.....	2		3	2														
Animas River.....	10		563	157	33			0.3										
La Plata River.....	14	1	136	39	3	1	150											
Other tributaries.....	6	2	63	23		2	1,946											
Tributaries of Little Colorado River.....	5	4	85	31	30	4	8,497											
Independent streams.....	47	5	234	100	14	64	1,029	0.3	1	1,000	350	229,178	348	7,008	356	230,300	50	
Fresnal River.....	5		20	27	2													
Rio Tularosa.....	1		40	4	10													
Rio Mimbres.....	38	1	153	59	2	58	1,005				154	68,096	152	3,115	150	69,978	67	
Other.....	3	4	21	10		6	24	0.3	1	1,000	196	101,082	196	3,893	107	100,322	38	

IRRIGATION—NEW MEXICO

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930; AND COST OF MAINTENANCE

ITEM (See definitions in Introduction)		THE STATE	Bernalillo	Catron ¹	Chaves	Colfax	De Baca	Dona Ana
FARMS AND FARM OPERATORS								
1	All farms.....1930.....number	31,404	1,248	438	883	798	352	2,120
2	Irrigated farms.....1930.....number	14,347	874	66	587	280	86	2,000
3	Operated by—							
4	Owners and managers.....number	11,477	798	54	362	168	50	1,154
5	Tenants.....number	2,870	76	12	225	112	30	840
6	Irrigated farms.....1920.....number	11,390	504	—	319	305	51	975
6	Increase, ⁴ 1920-1930.....per cent	26.0	73.4	—	84.0	-8.2	68.6	105.1
FARM AREA AND TOTAL LAND AREA								
7	Approximate land area.....1930.....acres	78,401,020	776,960	4,506,880	3,866,880	2,430,720	1,536,000	2,445,440
8	Land in all farms.....1930.....acres	30,822,034	84,876	648,805	2,314,115	1,926,848	1,524,101	426,555
9	Land in irrigated farms.....1930.....acres	5,024,868	42,600	41,642	351,983	1,140,340	13,442	167,841
10	Average, per farm.....acres	350.2	48.6	630.9	599.6	4,072.6	156.3	83.9
11	Operated by owners and managers.....acres	4,701,640	40,831	40,565	322,149	1,071,219	11,461	133,941
12	Average, per farm.....acres	409.7	51.2	751.2	889.0	6,376.3	204.7	116.1
13	Operated by tenants.....acres	323,228	1,669	1,077	29,834	69,121	1,981	33,900
14	Average, per farm.....acres	112.6	22.0	89.8	132.6	617.2	66.0	40.1
15	Area irrigated.....1920.....acres	527,933	15,718	1,474	51,302	33,414	3,144	75,275
16	1919.....acres	538,377	14,636	—	42,259	66,187	3,035	52,265
17	Increase, ⁴ 1919-1920.....per cent	-2.1	8.1	—	21.4	-49.5	3.6	44.0
18	Area enterprises were capable of supplying with water.....1930.....acres	666,669	19,323	1,073	68,623	64,346	8,160	77,500
19	1920.....acres	695,119	15,218	—	47,433	90,881	6,928	65,057
20	Increase, ⁴ 1920-1930.....per cent	-5.7	27.0	—	23.6	-29.2	17.0	10.1
21	Irrigable area in enterprises.....1930.....acres	741,245	19,861	1,778	59,739	70,026	8,150	79,000
22	Total area in enterprises.....1920.....acres	961,879	19,056	—	57,785	117,715	9,128	88,023
23	Area in enterprises available, or to be available, for settlement.....1930.....acres	42,811	3,594	—	—	—	—	5,000
IRRIGATION WORKS								
24	Enterprises.....1930.....number	1,069	21	45	359	30	2	2
25	1920.....number	2,391	44	—	339	80	3	12
26	Main canals.....1930.....length, miles	3,465	118	43	109	144	15	67
27	1920.....length, miles	4,469	172	—	374	18	—	53
28	1930.....capacity, sec.-ft.	17,479	486	94	292	4,376	120	1,650
29	1920.....capacity, sec.-ft.	23,432	137	—	830	5,889	153	1,231
30	Laterals.....1930.....length, miles	1,061	8	3	56	189	9	263
31	1920.....length, miles	1,463	56	—	93	238	13	—
32	Reservoirs.....1930.....number	240	1	1	77	18	—	1
33	1920.....number	323	10	—	74	38	—	0
34	1930.....capacity, ac.-ft.	2,945,220	1	601	1,220	121,933	—	5
35	1920.....capacity, ac.-ft.	2,960,718	1,001	—	313	65,668	—	6
36	Wells, flowing.....1930.....number	340	—	—	223	—	—	—
37	1920.....number	566	—	—	318	—	—	—
38	1930.....capacity, g. p. m.	223,257	—	—	162,277	—	—	—
39	1920.....capacity, g. p. m.	376,222	—	—	228,855	—	—	—
40	Wells, pumped.....1930.....number	680	—	—	285	—	—	—
41	1920.....number	461	13	—	143	—	—	—
42	1930.....capacity, g. p. m.	481,898	—	—	212,231	2	1	8
43	1920.....capacity, g. p. m.	265,618	6,261	—	99,328	—	1,500	1,575
44	Pumping plants.....1930.....number	702	—	—	267	—	—	1
45	1920.....number	472	12	—	146	2	1	8
46	1930.....engine capacity, h. p.	14,483	—	—	5,972	—	—	45
47	1920.....engine capacity, h. p.	8,488	126	—	2,810	60	15	109
48	1930.....pump capacity, g. p. m.	555,063	—	—	250,756	—	—	2,000
49	1920.....pump capacity, g. p. m.	304,789	6,361	—	135,605	1,500	1,500	2,277
50	1930.....average lift, feet	40	—	—	26	—	—	53
51	1920.....average lift, feet	40	37	—	26	61	10	42
VALUES OF FARMS, 1930								
52	Land and buildings, all farms.....dollars	207,859,492	5,155,594	2,695,734	11,931,006	14,376,712	3,538,175	20,317,086
53	Land and buildings, irrigated farms.....dollars	87,868,916	4,597,803	251,142	3,109,266	8,430,967	515,050	10,783,886
54	Operated by—							
55	Owners and managers.....dollars	69,372,388	4,191,623	199,967	6,019,886	7,627,117	348,950	13,895,657
56	Tenants.....dollars	18,496,528	406,180	51,175	2,149,380	812,850	166,100	5,888,229
57	Average, land and buildings, per farm.....dollars	6,124.55	5,260.64	3,805.18	3,916.98	30,142.74	5,088.95	9,891.94
58	per acre.....dollars	17.49	108.18	6.03	23.21	7.40	88.32	117.87
59	Land (excluding buildings).....dollars	73,630,223	3,479,342	213,864	6,841,731	7,658,767	429,636	17,271,490
60	Buildings (including dwellings).....dollars	14,238,693	1,118,461	37,278	1,327,635	781,200	85,416	2,512,390
61	Implements and machinery, irrigated farms.....dollars	5,291,569	297,017	14,252	544,100	177,613	52,983	981,227
62	Average, per farm.....dollars	368.83	339.84	215.94	926.92	634.33	616.03	400.61
62	per acre.....dollars	1.05	6.99	0.34	1.55	0.16	3.94	5.85
INVESTMENT IN IRRIGATION ENTERPRISES								
63	Investment to Jan. 1, 1930.....dollars	19,834,380	118,277	19,315	1,971,272	1,046,780	101,100	6,517,241
64	1920.....dollars	18,210,412	165,784	—	1,323,948	4,526,888	66,512	2,485,908
65	Increase, ⁴ 1920-1930.....per cent	8.9	-28.7	—	48.9	-63.6	—	162.2
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars	30.20	6.12	11.55	33.63	25.59	12.40	84.00
67	1920.....dollars	26.16	10.89	—	27.91	49.81	9.60	38.21
68	Estimated final investment in existing enterprises, 1930.....dollars	21,942,450	118,277	19,915	1,971,772	1,776,780	101,100	6,676,241
69	1920.....dollars	20,440,640	165,784	—	1,334,688	4,626,888	92,112	2,485,908
70	Increase, ⁴ 1920-1930.....per cent	7.3	-28.7	—	47.7	-61.6	9.8	168.2
71	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars	29.60	5.96	11.20	33.01	25.37	12.40	84.51
72	1920.....dollars	21.25	8.70	—	23.10	39.30	10.09	28.28
COST OF MAINTENANCE AND OPERATION, 1929								
73	Irrigated area for which cost was reported.....acres	498,229	15,277	1,474	43,157	32,209	3,144	75,275
74	Average, per acre, based on area reporting.....dollars	2.15	3.17	2.80	3.13	1.44	3.21	2.76

¹ Organized from part of Socorro in 1921.
² Part taken to form part of Harding in 1921.
³ Included in "All other counties."
⁴ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
Includes 4 intercounty projects counted in this table as 8 independent enterprises; corresponding figures for 1920 not available. For actual number of enterprises see State Tables 4 and 12.

IRRIGATION—NEW MEXICO

1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, AND OPERATION, 1929

Eddy	Grant	Guadalupe	Hidalgo	Lincoln	Luna	McKinley	Mora ²	Otero	Rio Arriba	Roosevelt	Sandoval	San Juan	San Miguel	
1,054	576	596	335	569	235	996	1,318	537	2,492	1,570	1,309	1,422	1,070	1
860	233	160	84	184	124	238	658	178	1,748	186	908	750	517	2
285	123	143	61	130	100	237	599	143	1,704	118	909	557	442	3
575	110	26	23	54	24	1	50	35	44	68	29	202	75	4
555	166	275	64	194	168	263	437	220	1,478	(*)	957	584	470	5
55.0	40.4	-38.5	31.3	-5.2	-26.2	-0.5	50.6	-10.1	18.3	(*)	4.3	30.0	10.0	6
2,716,800	2,547,840	1,930,840	2,206,080	3,058,560	1,904,640	3,523,840	1,186,560	4,280,960	3,757,440	1,591,680	2,477,440	3,504,640	3,132,160	7
1,532,301	1,327,076	641,088	753,947	1,316,403	591,752	857,423	917,400	213,308	722,305	1,282,244	238,128	131,401	1,908,753	8
346,468	263,874	10,314	9,481	260,704	56,852	108,728	300,052	33,120	173,081	23,020	140,032	70,150	228,362	9
402.9	1,132.5	114.3	112.9	1,406.1	446.4	456.8	547.2	186.1	90.4	123.8	150.2	62.4	441.7	10
288,618	258,339	16,755	8,673	265,033	51,713	108,368	348,523	30,000	106,118	18,568	148,363	49,669	205,474	11
1,012.7	2,102.3	117.2	142.2	2,038.7	517.1	457.2	581.8	209.9	97.5	157.4	153.1	89.1	404.9	12
57,850	5,535	2,559	808	4,731	3,639	360	11,529	3,111	7,593	4,452	1,569	20,541	22,888	13
100.6	50.3	98.4	35.1	87.6	151.6	360.0	195.4	88.0	171.9	65.5	54.1	101.7	305.2	14
52,422	6,732	3,431	3,023	4,781	6,937	5,084	26,137	5,349	41,440	4,823	19,621	38,421	22,823	15
51,363	6,987	3,266	2,840	6,128	11,323	9,919	17,833	7,550	46,036	(*)	23,214	42,470	16,505	16
2.1	-3.3	7.0	27.6	-22.3	-38.7	-17.8	46.0	-20.2	-10.0	(*)	-15.5	-0.5	37.8	17
60,579	7,592	3,796	3,823	4,804	8,071	9,350	30,139	5,644	40,081	5,248	26,015	40,555	28,454	18
59,784	7,243	4,800	2,940	6,341	21,143	7,229	20,749	8,565	50,247	(*)	26,659	48,195	43,277	19
1.3	4.8	-20.9	30.0	-24.2	-01.8	29.3	1.3	-34.1	-2.3	(*)	-2.4	-34.3	20	
61,870	7,935	3,936	3,823	4,842	8,245	9,850	31,184	5,658	50,220	5,808	32,460	51,236	28,484	21
87,661	7,781	5,102	3,340	11,899	34,786	9,057	37,673	12,117	68,601	(*)	32,988	68,515	68,800	22
8,000			2,000			3,070			973		6,042	5,004		23
181	69	10	5	64	130	8	55	30	235	150	60	52	60	24
240	70	16	5	102	153	15	102	96	274	(*)	82	54	101	25
94	104	52	23	120	20	31	150	45	465	1	237	296	162	26
266	100	66	20	142	41	35	231	155	454	(*)	337	255	213	27
1,045	496	85	159	117	51	85	925	77	1,217	2	551	1,071	545	28
1,215	331	82	47	193	3,171	120	1,081	570	1,626	(*)	363	1,371	1,459	29
172	2	7				30	11	14	74		5	40	12	30
323	8	22	8	124	7	39	45	77	87	(*)	9	85	33	31
40				2	60	4	2		6		3	1	5	32
27	10			3	16	11	16	13	10	(*)	5	2	21	33
53,264				1	1,024	8,497	14,060		2,647		470	150	11,270	34
81,855	55			12	37	6,685	672	110	763	(*)	44,049	150	38,410	36
116										1				36
230										(*)				37
59,980										1,000				38
146,330					75	845				(*)				39
64	5		1	2	155			3		(*)	106			40
48	4			2	156		1	4		(*)				41
40,040	920		50	100	74,391			375		(*)	140,400			42
27,118	400	800	18	95,300			3,300	419		(*)			3	43
71	5		1	2	158			3			166			44
52	8	1	4	4	153		2	2		(*)			2	46
1,433	41		1	21	3,176			22		3,528				46
843	32	60	8	8	3,471		5	9		(*)				47
62,478	1,070		60	190	75,123			375		146,000				48
30,033	800	800	118	91,010				419		(*)			3	49
23	59		40	14	67			35			35			50
28	35	20		82	57		170	35					62	51
10,343,915	6,427,528	2,188,380	2,411,475	4,340,498	2,872,721	2,186,932	5,088,530	2,711,324	6,624,087	13,598,049	3,195,010	3,483,482	8,037,500	52
8,330,520	2,332,928	244,383	500,800	1,668,312	1,080,565	433,580	3,054,793	1,672,630	4,256,064	1,475,735	2,074,560	3,097,217	2,305,717	53
3,862,000	1,991,453	192,391	441,090	1,321,034	954,480	431,730	2,373,675	1,568,630	4,151,555	983,435	2,505,174	2,052,097	1,857,850	54
4,468,460	341,475	51,902	119,770	340,628	135,035	1,800	181,118	164,000	104,509	492,300	109,395	1,045,150	447,807	55
9,686,65	10,012,57	1,446,05	6,076,90	9,006,01	8,789,81	1,821,76	4,642,54	9,396,50	2,434,82	7,934,06	2,079,93	4,080,65	4,459,80	56
24.04	8.84	12.65	59.16	0.18	19.63	3.99	8.48	50.50	24.51	64.11	17.84	44.15	10.10	57
7,352,212	1,900,056	185,203	495,315	1,431,307	871,715	314,225	2,069,823	1,367,005	3,166,130	1,216,685	2,147,817	2,232,502	1,933,679	58
978,308	432,872	59,150	65,545	237,005	217,850	119,355	384,970	304,725	1,099,934	259,050	520,752	864,715	372,038	59
673,036	110,305	23,897	42,190	92,582	110,830	36,018	124,067	69,951	305,423	158,323	185,241	315,822	143,592	60
782.66	473.41	141.40	502.26	893.70	151.34	188.55	392.98	392.98	174.73	851.20	185.61	416.10	277.74	61
1.94	0.42	1.24	4.45	0.34	2.00	0.33	0.34	2.11	1.76	6.88	1.24	4.50	0.63	62
2,642,110	50,305	121,450	69,850	31,080	261,101	631,131	132,700	150,015	404,181	1,22,433	107,152	941,116	226,343	63
2,952,707	54,162	87,195	31,936	51,939	422,450	907,280	316,097	361,284	245,425	(*)	108,410	1,066,875	777,482	64
-10.5	-7.1	30.3	118.7	-38.4	-38.4	-0.5	-58.0	-58.8	04.7		81.8	-43.5	-40.0	65
43.01	6.63	31.99	18.27	6.60	32.36	67.50	4.40	27.04	8.23	34.76	7.58	18.99	7.95	66
49.39	7.48	18.17	10.86	8.19	10.98	96.40	10.63	42.18	4.88		4.07	34.59	17.97	67
2,693,860	50,360	121,450	69,850	36,180	261,101	881,851	135,700	156,076	447,885	182,683	199,002	943,910	229,463	68
3,593,207	56,967	93,195	46,935	52,014	490,350	702,280	327,786	364,489	259,670	(*)	124,939	2,716,875	788,502	69
-24.06	-11.7	30.3	48.8	-30.4	-30.3	25.0	-58.6	-57.2	72.5		50.8	-65.3	-70.0	70
43.06	6.34	30.85	18.27	7.47	31.03	89.63	4.35	27.59	7.07	34.42	6.13	18.41	8.06	71
39.96	7.32	18.27	14.05	4.37	12.37	77.64	8.70	30.08	3.78		3.70	30.05	11.46	72
42,961	6,322	3,431	3,620	4,716	4,399	3,574	26,045	5,135	33,084	4,823	10,013	37,751	21,262	73
2.50	1.80	2.57	1.93	2.22	0.30	2.00	0.44	2.18	1.10	6.89	1.33	2.07	0.70	74

IRRIGATION—NEW MEXICO

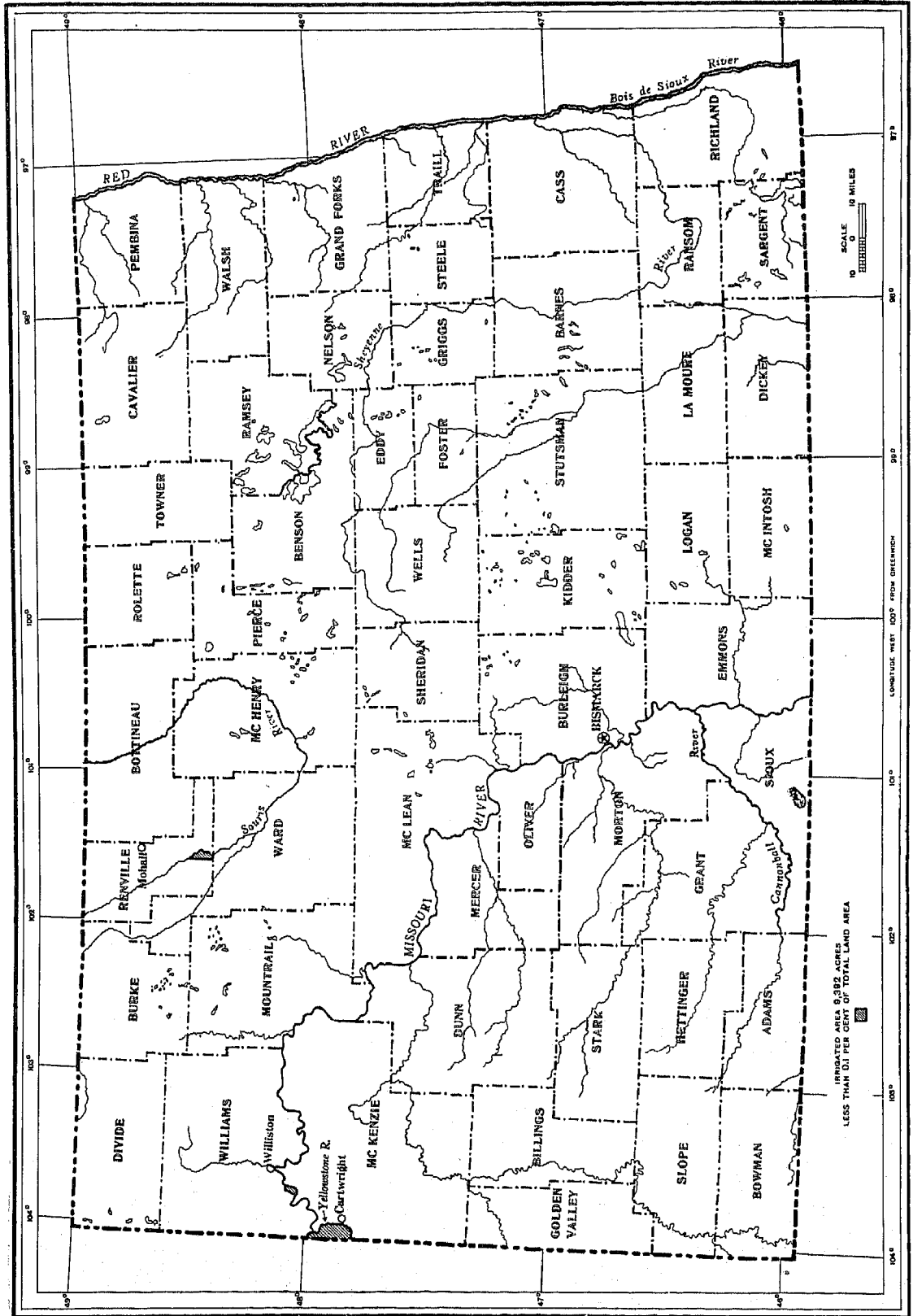
COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Santa Fe	Sierra	Socorro ¹	Taos	Torrance	Union ²	Valencia	All other counties
FARMS AND FARM OPERATORS									
1	All farms.....1930.....number..	687	449	840	1,423	1,055	1,454	1,274	3,677
2	Irrigated farms.....1930.....number..	483	278	377	1,225	20	29	959	142
3	Operated by—								
4	Owners and managers.....number..	480	223	341	1,179	18	24	802	117
5	Tenants.....number.....	8	65	36	46	2	5	67	25
6	Irrigated farms.....1920.....number..	529	240	567	1,022	41	47	839	120
7	Increase, ³ 1920-1930.....per cent..	-7.8	15.8	-33.5	19.9	-51.2	-38.3	14.3	18.3
FARM AREA AND TOTAL LAND AREA									
8	Approximate land area.....1930.....acres..	1,262,720	1,995,520	5,137,920	1,441,280	2,156,160	2,481,280	3,621,760	6,013,920
9	Land in all farms.....1930.....acres..	441,895	886,399	917,770	147,247	1,207,071	1,945,856	625,768	5,291,100
10	Land in irrigated farms.....1930.....acres..	54,778	264,474	45,628	79,334	5,601	255,383	90,843	350,781
11	Average, per farm.....acres.....	112.2	951.3	121.0	64.8	280.0	8,806.3	94.7	2,533.7
12	Operated by owners and managers.....acres..	54,411	267,525	43,703	77,133	5,201	263,273	83,776	342,280
13	Average, per farm.....acres.....	113.4	1,164.8	128.2	65.4	288.9	10,563.0	93.9	2,925.5
14	Operated by tenants.....acres.....	367	6,949	1,925	2,201	400	2,110	7,067	17,492
15	Average, per farm.....acres.....	45.9	126.3	58.5	47.8	200.0	422.0	105.5	699.7
16	Area irrigated.....1929.....acres..	12,612	6,451	7,828	47,428	477	2,525	27,288	353
17	Increase, ³ 1919-1929.....per cent..	10,532	8,491	11,110	50,607	1,085	6,774	19,241	775
18	Area enterprises were capable of supplying with water.....1930.....acres..	10.2	-24.0	-34.0	-20.4	-50.0	-62.7	41.8	-54.4
19	Increase, ³ 1920-1930.....per cent..	15,160	11,884	8,960	56,878	477	4,620	36,226	680
20	Increase, ³ 1920-1930.....per cent..	10,858	9,533	13,356	67,061	1,165	17,989	32,666	1,805
21	Irrigable area in enterprises.....1930.....acres..	30.6	24.7	-32.9	-15.2	-50.0	-74.3	10.9	-01.8
22	Total area in enterprises.....1920.....acres..	17,043	12,854	9,729	99,626	478	4,649	46,468	787
23	Area in enterprises available, or to be available, for settlement.....1930.....acres..	12,244	18,432	29,780	88,265	1,550	20,056	48,780	2,649
24	Area in enterprises available, or to be available, for settlement.....1930.....acres..	952			6,495			1,675	
IRRIGATION WORKS									
25	Enterprises.....1930.....number..	78	48	22	110	8	17	45	55
26	1920.....number.....	102	66	95	168	7	70	46	43
27	Main canals.....1930.....length, miles..	176	111	104	318	5	32	302	2
28	1920.....length, miles.....	142	119	289	326	30	132	278	4
29	1930.....capacity, sec.-ft.....	324	600	339	1,475	6	85	1,201	5
30	1920.....capacity, sec.-ft.....	226	523	814	1,268	2	407	360	45
31	Laterals.....1930.....length, miles..	32	1		104		6	25	
32	1920.....length, miles.....	11	15	18	50	10	58	30	4
33	Reservoirs.....1930.....number..	1	3		5		3	4	4
34	1920.....number.....	8	14	11	3	1	11	6	12
35	1930.....capacity, ac.-ft.....	10,000	2,638,363		27,073		1,126	53,054	5
36	1920.....capacity, ac.-ft.....	160	2,638,862	80,003	1,735	75	76	14	8
37	Wells, flowing.....1930.....number..			1					1
38	1920.....number.....								
39	1930.....capacity, g. p. m.....			20	7				60
40	1920.....capacity, g. p. m.....			13		4			12
41	Wells, pumped.....1930.....number..	2	11	8			4		50
42	1920.....number.....								
43	1930.....capacity, g. p. m.....		479			7			6,315
44	1920.....capacity, g. p. m.....		1,269	3,600			47		24,680
45	Pumping plants.....1930.....number..	17				4			12
46	1920.....number.....	1	15	11			5	2	41
47	1930.....engine capacity, h. p.....		26			4			214
48	1920.....engine capacity, h. p.....	2	59	94			33	20	727
49	1930.....pump capacity, g. p. m.....		549			7			5,965
50	1920.....pump capacity, g. p. m.....		2,839	3,875			544	2,000	24,495
51	1930.....average lift, feet.....		74	27		212			33
52	1920.....average lift, feet.....	1	31				50	52	111
VALUES OF FARMS, 1930									
53	Land and buildings, all farms.....dollars..	2,488,020	3,015,472	2,574,115	2,976,870	4,634,553	14,140,699	3,332,347	42,392,860
54	Land and buildings, irrigated farms.....dollars..	1,423,281	1,834,792	698,273	2,630,281	77,305	1,292,348	2,375,644	2,583,005
55	Operated by—								
56	Owners and managers.....dollars.....	1,389,081	1,646,551	635,728	2,500,507	73,205	1,280,398	1,988,380	2,408,005
57	Tenants.....dollars.....	34,200	188,241	62,545	129,774	4,100	31,950	387,255	176,000
58	Average, land and buildings, per farm.....dollars..	2,916.56	6,599.97	1,852.18	2,147.17	3,805.25	44,668.72	2,477.21	18,190.18
59	per acre.....dollars.....	25.95	6.94	15.30	33.15	13.80	5.06	26.15	7.18
60	Land (excluding buildings).....dollars.....	953,461	1,620,377	508,875	2,099,817	69,655	1,163,398	1,762,323	2,363,214
61	Buildings (including dwellings).....dollars.....	469,820	214,415	189,698	620,464	7,650	128,950	613,321	219,791
62	Implements and machinery, irrigated farms.....dollars..	134,213	80,858	42,616	200,317	10,295	34,060	219,021	111,680
63	Average, per farm.....dollars.....	275.03	290.86	115.04	163.52	514.75	1,174.14	223.38	786.48
64	per acre.....dollars.....	2.45	0.30	0.93	2.52	1.84	0.13	2.41	0.31
INVESTMENT IN IRRIGATION ENTERPRISES									
65	Investment to Jan. 1, 1930.....dollars.....	482,182	796,179	101,025	1,217,794	6,625	66,620	725,208	16,805
66	1920.....dollars.....	69,975	758,484	235,051	160,886	21,100	363,939	194,471	64,216
67	Increase, ³ 1920-1930.....per cent..	599.1	5.0	-57.0	656.9	-68.6	-81.7	272.9	-73.8
68	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars.....	31.81	67.00	11.28	21.41	13.89	14.39	20.02	24.39
69	1920.....dollars.....	6.44	79.56	17.00	2.40	18.11	20.23	6.95	35.58
70	Estimated final investment in existing enterprises, 1930.....dollars.....	482,182	797,479	101,025	2,691,979	6,725	66,620	735,458	18,055
71	1920.....dollars.....	69,975	1,060,459	259,361	177,176	23,600	382,389	227,991	64,616
72	Increase, ³ 1920-1930.....per cent..	599.1	-24.8	-61.0		-82.6		22.6	-72.0
73	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars.....	28.29	62.04	10.38	27.02	14.07	14.33	15.88	22.94
74	1920.....dollars.....	5.72	57.53	8.71	2.01	15.23	19.07	4.67	24.39
COST OF MAINTENANCE AND OPERATION, 1929									
75	Irrigated area for which cost was reported.....acres..	11,837	6,893	7,320	46,292	454	2,069	26,907	285
76	Average, per acre, based on area reporting.....dollars..	0.76	4.51	3.78	0.72	0.62	3.70	3.23	9.00

¹ Part taken to form Catron in 1921. ² Part taken to form part of Harding in 1921. ³ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

NORTH DAKOTA

APPROXIMATE LOCATION AND EXTENT OF IRRIGATED LAND



NORTH DAKOTA

INTRODUCTION

Statistics are presented in the following pages on farms irrigated and area irrigated, investment and cost of maintenance and operation of irrigation enterprises, cost of preparing land for irrigation, drainage of irrigated land, quantity of water used, and distribution of irrigation works, with specialized information relating to dams, pipe lines, and pumping equipment. Data on area irrigated, investment, and irrigation works are given in detail by drainage basins. Classifications of irrigated farms by type of farm, size of farm, and value of farm products; and the acreage, yield, and value of the principal crops grown on irrigated land, for all irrigation States, are shown in Parts III and IV, pages 257 and 325, respectively, of this volume.

Statistics for area irrigated and for cost of maintenance and operation of irrigation works relate to the year 1929; all other items relate to 1930.

For purposes of comparison, statistics for the census of 1920 are shown, where available; and for the purpose of showing the historical development of irrigation certain data are presented from censuses previous to that of 1920.

Date on number, area, and value of wholly and partly irrigated farms with the tenure of the operators of these farms were collected in 1930 on the general farm schedule; in 1920 only the number of irrigated farms was obtained in this way. All other statistics, in both censuses, were collected on special schedules for irrigation enterprises.

STATE TABLE 1.—SUMMARY FOR THE STATE: 1930 AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Amount	Per cent
All farms.....number.....	77,975	77,690	285	0.4
All land in farms.....acres.....	38,657,894	36,214,751	2,443,143	6.7
Approximate land area of State.....acres.....	44,917,120	44,917,120		
Farms irrigated.....number.....	113	340	-227	-66.8
Area irrigated.....acres.....	9,302	12,072	-2,680	-22.2
Area enterprises were capable of supplying with water.....acres.....	24,008	34,235	-10,220	-29.9
Area in enterprises ².....acres.....	24,800	57,470		
Proportion irrigated:				
All farms.....per cent.....	0.1	0.4		
All land in farms.....per cent.....	(3)	(3)		
Approximate land area of State.....per cent.....	(3)	(3)		
Excess of area enterprises were capable of supplying with water over area irrigated.....acres.....	14,614	22,163	-7,549	-34.1
Excess of area in enterprises ² over area irrigated.....acres.....	15,468	45,404		
Value of irrigated farms (land, buildings (including dwellings), and implements and machinery).....dollars.....	1,452,335	(4)		
Investment in irrigation enterprises.....dollars.....	1,267,314	1,857,118	-589,804	-31.8
Average, per acre, based on area enterprises were capable of supplying with water.....dollars.....	52.79	54.25	-1.46	-2.7
Estimated final cost of existing enterprises.....dollars.....	1,843,011	2,072,766	-728,855	-35.2
Average, per acre, based on area in enterprises ².....dollars.....	54.06	36.06		
Average annual cost, per acre, for maintenance and operation of irrigation works.....dollars.....	1.97	5.50	-3.53	-64.2

¹ A minus sign (-) denotes decrease.

² Irrigable area, 1930; total area, 1920.

³ Less than one-tenth of 1 per cent.

⁴ Figures not available.

STATE TABLE 2.—FARMS AND SPECIFIED FARM VALUES, BY TENURE OF FARM OPERATOR, 1930

ITEM (See definitions in Introduction)	FARMS		SPECIFIED FARM VALUES					
	Number	Area	Land and buildings		Land alone		Implements and machinery	
			Total	Per acre	Total	Per acre	Total	Per acre
		<i>Acres</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
All farms.....	77,975	38,657,894	951,225,446	24.61	720,076,817	18.63	118,743,521	3.07
Owners and managers.....	50,575	26,802,172	647,832,540	24.17			84,213,252	3.14
Tenants.....	27,400	11,855,722	303,392,906	25.69			34,530,269	2.91
Irrigated farms.....	113	56,054	1,304,150	23.02	948,396	16.74	148,185	2.62
Owners and managers.....	85	49,707	1,088,400	21.86	772,906	15.55	132,035	2.66
Tenants.....	28	6,947	217,750	31.34	175,400	25.25	16,150	2.32
Wholly irrigated farms.....	70	14,753	595,770	40.88	424,820	28.78	62,740	4.25
Owners and managers.....	48	11,196	458,470	41.17	319,720	28.71	53,710	4.82
Tenants.....	22	3,617	137,300	37.96	104,900	29.00	9,030	2.50
Partly irrigated farms.....	43	41,901	708,380	16.91	523,776	12.50	85,445	2.04
Owners and managers.....	37	38,571	627,930	16.28	453,276	11.75	78,325	2.03
Tenants.....	6	3,330	80,450	24.16	70,500	21.17	7,120	2.14
Farms not irrigated.....	77,862	38,601,240	949,921,296	24.61	719,128,421	18.63	118,505,336	3.07

FARMS AND AREA IRRIGATED

In State Table 3 and in other tables "Number of farms irrigated" is equivalent to "Number of irrigators" used in census reports previous to 1910.

STATE TABLE 3.—FARMS AND AREA IRRIGATED: 1890 TO 1930

CENSUS YEAR	FARMS IRRIGATED			AREA IRRIGATED			
	Number	Increase ¹	Proportion of all farms	Area	Increase ¹	Proportion of total land area of State	Proportion of land in all farms
1930.....	113	-66.8	0.1	9,392	-22.2	(2)	(2)
1920.....	340	392.8	0.4	12,072	17.8	(2)	(2)
1910.....	60	27.8	0.1	10,248	110.3	(2)	(2)
1900.....	54	671.4	0.1	4,872	994.8	(2)	(2)
1890.....	7		(2)	445		(2)	(2)

¹ A minus sign (-) denotes decrease.
² Less than one-tenth of 1 per cent.

STATE TABLE 4.—AREA, BY DATE OF BEGINNING OF ENTERPRISES SUPPLYING WATER FOR IRRIGATION

DATE OF BEGINNING (See definitions in Introduction)	Enterprises, 1930	AREA IRRIGATED IN 1929		Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
		Area	Proportion of irrigable area in enterprises		
Total.....	23	9,392	37.8	24,006	24,800
1880-1889.....	1	600	57.7	1,040	1,040
1890-1899.....	1	300	90.0	400	400
1900-1904.....	2	85	24.3	135	350
1905-1909.....	1	6,089	30.0	20,000	20,319
1915-1919.....	1	30	100.0	30	30
1920-1924.....	4	178	69.6	196	256
1925-1929.....	5	164	49.8	319	329
Not reported.....	8	1,886	88.3	1,886	2,136

STATE TABLE 5.—AREA, BY SOURCE OF WATER SUPPLY: 1929 AND 1919

SOURCE OF SUPPLY	AREA IRRIGATED				Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹			
			Area	Per cent		
Total.....	9,392	12,072	-2,680	-22.2	24,006	24,800
Streams, gravity.....	6,584	9,030	-2,446	-27.1	20,603	21,137
Streams, pumped.....	1,669	2,469	-800	-32.4	1,824	1,894
Springs.....	8	8	8	8	8	8
Stored storm water ²	600	608	92	18.1	1,040	1,040
Mixed.....		65	-65	-100.0		
Not reported.....	531		531		531	781

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² In reservoirs filled from channels which carry water only during storms and are not classed as streams.

AREA, BY CHARACTER OF ENTERPRISE

In State Table 6, the areas credited to the United States Bureau of Reclamation include Lower Yellowstone Irrigation District No. 2; this was the only active irrigation district in the State in 1930.

No Carey Act segregations have been made in North Dakota.

STATE TABLE 6.—AREA, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

[For number of enterprises by classes, see State Table 12]

ITEM AND CHARACTER (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Area	Per cent
AREA IRRIGATED				
Total.....	9,392	12,072	-2,680	-22.2
Individual and partnership.....	3,303	3,306	-3	-0.1
U. S. Bureau of Reclamation.....	6,089	8,766	-2,677	-30.5
AREA ENTERPRISES WERE CAPABLE OF SUPPLYING WITH WATER				
Total.....	24,006	34,235	-10,229	-29.9
Individual and partnership.....	4,006	7,997	-3,991	-49.9
U. S. Bureau of Reclamation.....	20,000	26,238	-6,238	-23.8
AREA IN ENTERPRISES ²				
Total.....	24,800	57,476		
Individual and partnership.....	4,541	11,445		
U. S. Bureau of Reclamation.....	20,319	46,031		

¹ A minus sign (-) denotes decrease. ² Irrigable area, 1930; total area, 1920.

AREA, BY CHARACTER OF WATER RIGHTS

STATE TABLE 7.—AREA IRRIGATED, BY CHARACTER OF RIGHTS UNDER WHICH WATER IS RECEIVED: 1929 AND 1919

WATER RIGHTS (See definitions in Introduction)	1929		1919	
	Area	Proportion of total	Area	Proportion of total
	Acres	Per cent	Acres	Per cent
Total.....	9,392	100.0	12,072	100.0
Appropriation and use.....	1,404	15.0	6,348	52.6
Notice filed and posted.....	6,089	64.9	2,328	19.3
Adjudicated by court.....	660	10.2		
Permit from State.....	30	0.3	2,936	24.3
Certificate or license from State.....	180	1.9		
Not reported.....	609	7.1	460	3.8

AREA, BY DRAINAGE BASIN

STATE TABLE 8.—AREA, BY DRAINAGE BASIN: 1929 AND 1919

DRAINAGE BASIN (See definitions in Introduction)	AREA IRRIGATED			Area enterprises were capable of supplying, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹		
	Acres	Acres	Per cent		
Total.....	9,392	12,072	-22.2	24,006	24,800
Missouri River and tributaries.....	7,203	12,072	-30.6	21,007	22,451
Red River tributaries.....	2,009			2,009	2,409
Souris River and tributaries.....	1,453			1,453	1,453
Other tributaries.....	646			646	956

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

INVESTMENT, AND COST OF MAINTENANCE AND OPERATION OF IRRIGATION ENTERPRISES

STATE TABLE 9.—INVESTMENT IN ENTERPRISES: 1890 TO 1930

CENSUS YEAR	INVESTMENT		AVERAGE, PER ACRE ¹	
	Amount	Increase ²	Amount	Increase ²
	Dollars	Per cent	Dollars	Per cent
1930.....	1,267,314	-31.8	52.79	-2.7
1920.....	1,857,118	122.0	54.25	42.1
1910.....	836,482		38.17	993.7
1900.....	16,980		3.49	
1890.....	(³)			

¹ Based on area enterprises were capable of supplying with water.
² A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
³ Not reported.

STATE TABLE 10.—INVESTMENT, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	INVESTMENT		
	Amount	Proportion of total	Average, per acre ¹
Total.....	Dollars 1,267,314	Per cent 100.0	Dollars 52.79
1830-1889.....	20,000	1.6	19.23
1890-1899.....	4,025	0.3	10.06
1900-1904.....	6,525	0.5	48.33
1905-1909.....	1,212,223	95.7	60.61
1915-1919.....	1,500	0.1	50.00
1920-1924.....	2,925	0.2	14.93
1925-1929.....	3,040	0.2	9.53
Not reported.....	17,075	1.4	9.05

¹ Based on area enterprises were capable of supplying with water in 1930.

STATE TABLE 11.—INVESTMENT, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929; BY SOURCE OF WATER SUPPLY
(When water is pumped, cost of maintenance and operation includes cost of fuel and attendance)

SOURCE OF SUPPLY	INVESTMENT, 1930			MAINTENANCE AND OPERATION, 1929	
	Amount	Proportion of total	Average, per acre	Irrigated area reporting	Average, per acre ¹
Total.....	Dollars 1,267,314	Per cent 100.0	Dollars 52.79	Acres 8,773	Dollars 1.97
Streams, gravity.....	1,223,603	96.5	59.39	6,584	2.22
Streams, pumped.....	10,340	0.8	5.67	1,589	1.59
Springs.....	96	(²)	12.00		
Stored storm water.....	20,000	1.6	19.23	600	0.25
Not reported.....	13,275	1.0	25.00		

¹ Based on area irrigated in 1929 reporting cost.
² Less than one-tenth of 1 per cent.

STATE TABLE 12.—INVESTMENT, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

CHARACTER OF ENTERPRISE (See definitions in Introduction)	Enterprises, 1930	INVESTMENT		INCREASE ¹	
		1930	1920	Amount	Per cent
Total.....	Number 23	Dollars 1,267,314	Dollars 1,857,118	Dollars -589,804	-31.8
Individual and partnership.....	22	55,091	81,693	-26,602	-32.6
U. S. Bureau of Reclamation.....	1	1,212,223	1,775,425	-563,202	-31.7

¹ A minus sign (-) denotes decrease.

STATE TABLE 13.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE ¹	
	1930	1920	Amount	Per cent
Total.....	Dollars 1,267,314	Dollars 1,857,118	Dollars -589,804	-31.8
Missouri River and tributaries.....	1,246,389	1,857,118	-610,729	-32.9
Red River tributaries.....	20,925		20,925	
Souris River and tributaries.....	5,775		5,775	
Other tributaries.....	15,150		15,150	

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

COST OF PREPARING LAND FOR IRRIGATION

State Table 14 shows estimated cost of clearing and grading land, and building farm laterals and farm irrigation structures.

STATE TABLE 14.—ESTIMATED COST OF PREPARING LAND, 1930

ITEM	1930
Area reporting.....	21,012 acres
Estimated cost reported.....	326,095 dollars
Average, per acre.....	14.88 dollars

DRAINAGE OF IRRIGATED LAND

The areas in State Table 15 relate only to lands within the boundaries of irrigation enterprises. "Additional area needing drainage" represents lands partly productive and those wholly unproductive.

STATE TABLE 15.—AREA WITHIN IRRIGATION ENTERPRISES FOR WHICH DRAINS HAVE BEEN INSTALLED AND ADDITIONAL AREA IN NEED OF DRAINAGE: 1930 AND 1920

ITEM	1930	1920
Enterprises reporting land drained or needing drainage.....	number 2	8
Area ¹ in enterprises reporting land drained or needing drainage.....	20,359 acres	40,581 acres
Area for which drains have been installed.....	3,040 acres	1,613 acres
Additional area needing drainage.....	2,000 acres	650 acres
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises reporting drainage.....	14.0 per cent	3.3 per cent
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises.....	12.2 per cent	2.8 per cent
Proportion that area for which drains have been installed plus that needing drainage is of area ¹ in all irrigation enterprises.....	20.3 per cent	4.0 per cent

¹ Irrigable area, 1930; total area, 1920.

QUANTITY OF WATER USED

The quantities of water shown in State Table 16 include only those reported by the United States Bureau of Reclamation. The quantities were measured in both 1929 and 1919.

STATE TABLE 16.—WATER USED: 1929 AND 1919

ITEM (See definitions in Introduction)	1929	1919
Average flow of water entering canals.....	100 sec.-ft.	130 sec.-ft.
Area irrigated.....	6,089 acres	8,766 acres
Average, per second-foot.....	61 acres	67 acres
Total quantity of water entering canals.....	37,025 ac.-ft.	28,100 ac.-ft.
Area irrigated.....	6,089 acres	8,766 acres
Average quantity per acre.....	6.1 ac.-ft.	3.2 ac.-ft.
Total quantity of water delivered to irrigators.....	0,778 ac.-ft.	11,636 ac.-ft.
Area irrigated.....	6,089 acres	8,766 acres
Average quantity per acre.....	1.6 ac.-ft.	1.3 ac.-ft.

IRRIGATION WORKS

STATE TABLE 17.—DAMS, BY MATERIAL, 1930

MATERIAL	DAMS	
	Division	Storage
Total.....	Number 9	Number 10
Concrete or masonry.....	1	2
Earth and rock.....	8	8

IRRIGATION—NORTH DAKOTA

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929

ITEM (See definitions in Introduction)		THE STATE	McKenzie	Williams	All other counties
FARMS AND FARM OPERATORS					
1	All farms.....1930.....number..	77,975	1,738	2,288	73,949
2	Irrigated farms.....1930.....number..	113	89	7	17
3	Operated by—				
4	Owners and managers.....number..	85	65	6	14
5	Tenants.....number.....	28	24	1	3
6	Irrigated farms.....1920.....number..	340	150	184	
	Increase, ¹ 1920-1930.....per cent..	-66.8	-42.9	-96.2	
FARM AREA AND TOTAL LAND AREA					
7	Approximate land area.....1930.....acres..	44,917,120	1,822,080	1,368,320	41,726,720
8	Land in all farms.....1930.....acres..	38,657,894	1,210,957	1,110,323	36,336,614
9	Land in irrigated farms.....1930.....acres..	56,654	20,674	6,120	29,800
10	Average, per farm.....acres.....	501.4	232.3	874.3	1,766.5
11	Operated by owners and managers.....acres..	49,707	16,887	5,120	27,700
12	Average, per farm.....acres.....	584.8	269.8	853.3	1,978.6
13	Operated by tenants.....acres.....	6,947	3,787	1,000	2,160
14	Average, per farm.....acres.....	248.1	157.8	1,000.0	720.0
15	Area irrigated.....1929.....acres..	9,392	6,097	1,085	2,210
16	1919.....acres.....	12,072	6,630	5,442	
17	Increase, ¹ 1919-1929.....per cent..	-22.2	-8.0	-80.1	
18	Area enterprises were capable of supplying with water.....1930.....acres..	24,006	20,008	1,633	2,305
19	1920.....acres.....	34,235	14,720	10,500	
20	Increase, ¹ 1920-1930.....per cent..	-29.9	35.0	-91.6	
21	Irrigable area in enterprises.....1930.....acres..	24,800	20,327	1,848	2,085
22	Total area in enterprises.....1920.....acres..	57,476	21,424	36,052	
IRRIGATION WORKS					
23	Enterprises.....1930.....number..	23	2	6	15
24	1920.....number.....	30	4	26	
25	Main canals.....1930.....length, miles..	18	6	10	2
26	1920.....length, miles.....	58	26	32	
27	1930.....capacity, sec.-ft.....	1,072	830	228	14
28	1920.....capacity, sec.-ft.....	830	276	660	
29	Laterals.....1930.....length, miles..	69	65	4	
30	1920.....length, miles.....	93	34	69	
31	Reservoirs.....1930.....number..	8		6	2
32	1920.....number.....	9	1	8	
33	1930.....capacity, acre-ft.....	1,406		983	483
34	1920.....capacity, acre-ft.....	1,110	400	710	
35	Pumping plants.....1930.....number..	13		1	12
36	1920.....number.....	4		1	
37	1930.....engine capacity, h. p.....	216		40	106
38	1920.....engine capacity, h. p.....	2,068		2,068	
39	1930.....pump capacity, g. p. m.....	24,900		1,000	23,900
40	1920.....pump capacity, g. p. m.....	51,250		51,250	
41	1930.....average lift, feet.....	24		100	10
42	1920.....average lift, feet.....	38		38	
VALUES OF FARMS, 1930					
43	Land and buildings, all farms.....dollars..	951,225,446	12,653,773	10,403,350	910,078,914
44	Land and buildings, irrigated farms.....dollars..	1,304,150	761,000	132,080	410,170
45	Operated by—				
46	Owners and managers.....dollars..	1,080,400	615,700	107,530	363,170
47	Tenants.....dollars.....	217,750	145,300	25,450	47,000
48	Average, land and buildings, per farm.....dollars..	11,541.15	8,550.55	18,097.14	24,127.65
49	Land (excluding buildings).....dollars..	23.02	36.81	21.73	13.74
50	Buildings (including dwellings).....dollars..	948,896	530,700	120,280	288,416
51	Buildings (including dwellings).....dollars..	355,754	221,300	12,700	121,754
52	Implement and machinery, irrigated farms.....dollars..	148,185	98,555	17,580	32,050
53	Average, per farm.....dollars.....	1,311.37	1,107.36	2,511.43	1,895.29
	per acre.....dollars.....	2.62	4.77	2.87	1.07
INVESTMENT IN IRRIGATION ENTERPRISES					
54	Investment to Jan. 1, 1930.....dollars..	1,267,314	1,212,310	32,400	22,695
55	1920.....dollars.....	1,857,118	1,235,209	621,000	
56	Increase, ¹ 1920-1930.....per cent..	-31.8	-1.8	-94.8	
57	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars..	52.79	60.59	10.84	0.55
58	1920.....dollars.....	54.25	83.88	31.88	
59	Estimated final investment in existing enterprises, 1930.....dollars..	1,343,911	1,285,816	32,000	25,195
60	1920.....dollars.....	2,072,766	1,321,457	751,300	
61	Increase, ¹ 1920-1930.....per cent..	-35.2	-2.7	-95.6	
62	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars..	54.06	63.26	17.80	0.35
63	1920.....dollars.....	36.08	61.68	20.84	
COST OF MAINTENANCE AND OPERATION, 1929					
64	Irrigated area for which cost was reported.....acres..	8,773	6,089	1,085	1,699
65	Average, per acre, based on area reporting.....dollars..	1.97	2.34	0.56	1.54

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

OKLAHOMA

INTRODUCTION

Statistics are presented in the following pages on farms irrigated and area irrigated, investment and cost of maintenance and operation of irrigation enterprises, cost of preparing land for irrigation, drainage of irrigated land, quantity of water used, and distribution of irrigation works, with specialized information relating to dams, pipe lines, and pumping equipment. Data on area irrigated, investment, and irrigation works are given in detail by drainage basins. Classifications of irrigated farms by type of farm, size of farm, and value of farm products; and the acreage, yield, and value of the principal crops grown on irrigated land, for all irrigation States, are shown in Parts III and IV, pages 257 and 325, respectively, of this volume.

Statistics for area irrigated and for cost of maintenance and operation of irrigation works relate to the year 1929; all other items relate to 1930.

For purposes of comparison, statistics for the census of 1920 are shown, where available; and for the purpose of showing the historical development of irrigation certain data are presented from censuses previous to that of 1920.

Data on number, area, and value of wholly and partly irrigated farms with the tenure of the operators of these farms were collected in 1930 on the general farm schedule; in 1920 only the number of irrigated farms was obtained in this way. All other statistics, in both censuses, were collected on special schedules for irrigation enterprises.

STATE TABLE 1.—SUMMARY FOR THE STATE:1930 AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Amount	Per cent
All farms.....number..	203,866	191,988	11,878	6.2
All land in farms.....acres..	33,790,817	31,951,034	1,838,883	5.8
Approximate land area of State.....acres..	44,424,900	44,424,900		
Farms irrigated.....number..	99	78	26	35.6
Area irrigated.....acres..	1,573	2,009	-1,300	-47.0
Area enterprises were capable of supplying with water.....acres..	7,331	0,072	-2,341	-24.2
Area in enterprises ².....acres..	7,344	11,742		
Proportion irrigated:				
All farms.....per cent..	(³)	(³)		
All land in farms.....per cent..	(³)	(³)		
Approximate land area of State.....per cent..	(³)	(³)		
Excess of area enterprises were capable of supplying with water over area irrigated.....acres..	5,758	6,703	-945	-14.1
Excess of area in enterprises ² over area irrigated.....acres..	5,771	8,773		
Value of irrigated farms [land, buildings (including dwellings), and implements and machinery].....dollars..	1,771,383	(⁴)		
Investment in irrigation enterprises.....dollars..	100,099	151,325	8,774	5.8
Average, per acre, based on area enterprises were capable of supplying with water.....dollars..	21.84	15.05	0.10	30.6
Estimated final cost of existing enterprises.....dollars..	107,909	102,775	5,134	3.2
Average, per acre, based on area in enterprises ².....dollars..	22.86	13.86		
Average annual cost, per acre, for maintenance and operation of irrigation works.....dollars..	7.62	2.92	4.70	161.0

¹ A minus sign (-) denotes decrease.

² Irrigable area, 1930; total area, 1920.

³ Less than one-tenth of 1 per cent.

⁴ Figures not available.

STATE TABLE 2.—FARMS AND SPECIFIED FARM VALUES, BY TENURE OF FARM OPERATOR, 1930

ITEM (See definitions in Introduction)	FARMS		SPECIFIED FARM VALUES					
	Number	Area	Land and buildings		Land alone		Implements and machinery	
			Total	Per acre	Total	Per acre	Total	Per acre
		<i>Acres</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
All farms.....	203,866	33,790,817	1,242,723,526	36.78	1,031,251,403	30.52	92,867,996	2.75
Owners and managers.....	78,537	17,457,781	636,596,885	36.46			53,942,366	3.09
Tenants.....	125,329	16,333,036	606,126,641	37.11			38,915,540	2.38
Irrigated farms.....	99	57,367	1,671,856	29.14	1,215,461	21.19	99,517	1.73
Owners and managers.....	69	52,107	1,355,220	26.03	959,995	17.68	83,127	1.00
Tenants.....	30	5,260	315,646	60.01	278,466	62.94	10,390	3.12
Wholly irrigated farms.....	25	1,941	296,675	152.85	153,850	70.20	12,045	6.20
Owners and managers.....	19	1,456	277,525	186.70	139,500	98.20	10,950	7.37
Tenants.....	6	485	19,150	42.09	15,350	33.74	1,095	2.41
Partly irrigated farms.....	74	55,426	1,375,191	24.81	1,061,611	19.15	87,472	1.58
Owners and managers.....	50	50,621	1,078,995	21.81	798,495	15.77	72,177	1.42
Tenants.....	24	4,805	296,496	61.70	263,116	54.76	15,295	3.18
Farms not irrigated.....	203,767	33,733,450	1,241,051,060	36.79	1,030,035,942	30.53	92,758,389	2.75

FARMS AND AREA IRRIGATED

STATE TABLE 3.—FARMS AND AREA IRRIGATED: 1900 TO 1930

CENSUS YEAR	FARMS IRRIGATED			AREA IRRIGATED			
	Number	Increase ¹	Proportion of all farms	Area	Increase ¹	Proportion of total land area of State	Proportion of land in all farms
1930.....	99	35.6	(?)	1,573	-47.0	(?)	(?)
1920.....	73	-46.7	(?)	2,969	-32.3	(?)	(?)
1910.....	137	10.5	0.1	4,358	59.0	(?)	(?)
1900.....	124		0.1	2,759		(?)	(?)

¹ A minus sign (-) denotes decrease. ² Less than one-tenth of 1 per cent.

STATE TABLE 4.—AREA, BY DATE OF BEGINNING OF ENTERPRISES SUPPLYING WATER FOR IRRIGATION

DATE OF BEGINNING (See definitions in Introduction)	Enterprises, 1930	AREA IRRIGATED IN 1929		Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
		Area	Proportion of irrigable area in enterprises		
Total.....	Number 77	Acres 1,573	Per cent 21.4	Acres 7,331	Acres 7,344
1890-1899.....	1	25	100.0	25	25
1905-1909.....	5	372	7.1	5,207	5,219
1910-1914.....	4	66	10.5	628	628
1915-1919.....	2	40	57.1	70	70
1920-1924.....	1	17	42.5	40	40
1925-1929.....	9	217	43.5	499	469
Not reported.....	55	836	96.6	864	865

STATE TABLE 5.—AREA, BY SOURCE OF WATER SUPPLY: 1929 AND 1919

SOURCE OF SUPPLY	AREA IRRIGATED				Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929		1919			
	Acres	Acres	Acres	Per cent		
Total.....	1,573	2,969	-1,396	-47.0	7,331	7,344
Streams, gravity.....	355	2,522	-2,167	-85.9	5,140	5,140
Streams, pumped.....	320	188	132	70.2	630	630
Wells, flowing.....	63	107	-44	-41.1	66	79
Lakes, pumped.....	35	18	-18	-100.0		
Lakes, gravity.....	19				35	35
Springs.....	5	6	-1	-16.7	19	19
City water.....	235	3	232		505	505
Mixed.....	40	125	-85	-68.0	235	235
Not reported.....	501		501		200	200

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

AREA, BY DRAINAGE BASIN

STATE TABLE 6.—AREA, BY DRAINAGE BASIN: 1929 AND 1919

DRAINAGE BASIN (See definitions in Introduction)	AREA IRRIGATED			Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹		
Total.....	Acres 1,573	Acres 2,969	Per cent -47.0	Acres 7,331	Acres 7,344
Tributaries of Arkansas River.....	954	2,843	-89.4	5,974	5,987
Canadian River.....	319	251	27.1	556	
Cimarron River.....	293	2,588	-85.7	5,076	5,088
Other tributaries.....	342	4		342	343
Red River and tributaries.....	619	126	391.3	1,367	1,367

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

AREA, BY CHARACTER OF ENTERPRISE

The area of an irrigation district, organized in 1917 in anticipation of the construction of a project by the United States Bureau of Reclamation, is not included in State Table 7 because the project was not built. Oklahoma has not accepted the conditions of the Carey Act.

STATE TABLE 7.—AREA, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

[For number of enterprises by classes, see State Table 12]

ITEM AND CHARACTER (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Area	Per cent
AREA IRRIGATED	Acres	Acres	Acres	
Total.....	1,573	2,969	-1,396	-47.0
Individual and partnership.....	1,463	909	484	49.0
Cooperative.....	120	2,000	-1,880	-94.0
AREA ENTERPRISES WERE CAPABLE OF SUPPLYING WITH WATER				
Total.....	7,331	9,072	-2,341	-24.2
Individual and partnership.....	2,531	2,072	450	22.2
Cooperative.....	4,800	7,600	-2,800	-36.8
AREA IN ENTERPRISES²				
Total.....	7,344	11,742		
Individual and partnership.....	2,544	4,142		
Cooperative.....	4,800	7,600		

¹ A minus sign (-) denotes decrease. ² Irrigable area, 1930; total area, 1920.

AREA, BY CHARACTER OF WATER RIGHTS

STATE TABLE 8.—AREA IRRIGATED, BY CHARACTER OF RIGHTS UNDER WHICH WATER IS RECEIVED: 1929 AND 1919

WATER RIGHTS (See definitions in Introduction)	1929		1919	
	Area	Proportion of total	Area	Proportion of total
Total.....	Acres 1,573	Per cent 100.0	Acres 2,969	Per cent 100.0
Appropriation and use.....	282	17.9	35	1.2
Notices filed and posted.....			215	7.2
Adjudicated by court.....			2,200	74.1
Permit from State.....	340	21.6	310	10.4
Certificate or license from State.....	120	7.6		
Riparian.....	17	1.1	80	2.7
Underground.....	78	5.0	120	4.0
Other.....	235	14.9	3	0.1
Not reported.....	501	31.9	6	0.2

INVESTMENT, AND COST OF MAINTENANCE AND OPERATION OF IRRIGATION ENTERPRISES

STATE TABLE 9.—INVESTMENT IN ENTERPRISES: 1900 TO 1930

CENSUS YEAR	INVESTMENT		AVERAGE, PER ACRE ¹	
	Amount	Increase	Amount	Increase ²
1930.....	Dollars 160,099	Per cent 5.8	Dollars 21.84	Per cent 39.0
1920.....	161,325	220.6	15.65	112.1
1910.....	47,200	115.8	7.38	-6.9
1900.....	21,372		7.93	

¹ Based on area enterprises were capable of supplying with water. ² A minus sign (-) denotes decrease.

STATE TABLE 10.—INVESTMENT, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	INVESTMENT		
	Amount	Proportion of total	Average, per acre ¹
Total.....	Dollars 160,099	Per cent 100.0	Dollars 21.84
1890-1899.....	5,000	3.1	200.00
1905-1909.....	98,625	61.6	18.94
1910-1914.....	17,500	10.9	27.96
1915-1919.....	1,300	0.8	18.57
1920-1924.....	1,000	0.6	25.00
1925-1929.....	13,846	8.7	27.74
Not reported.....	22,829	14.3	20.42

¹ Based on area enterprises were capable of supplying with water in 1930.

STATE TABLE 11.—INVESTMENT, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929; BY SOURCE OF WATER SUPPLY [When water is pumped, cost of maintenance and operation includes cost of fuel and attendance]

SOURCE OF SUPPLY	INVESTMENT, 1930			MAINTENANCE AND OPERATION, 1929	
	Amount	Proportion of total	Average, per acre	Irrigated area reporting	Average, per acre ¹
Total.....	Dollars 160,099	Per cent 100.0	Dollars 21.84	Acres 935	Dollars 7.62
Streams, gravity.....	101,950	63.7	19.83	255	15.00
Streams, pumped.....	9,670	6.0	15.35	320	3.00
Wells, pumped.....	12,225	7.6	185.23	61	14.30
Lakes, pumped.....	1,000	0.6	28.57		
Lakes, gravity.....	1,000	0.6	52.03	19	5.26
Springs.....	19,000	11.9	37.62	5	3.00
City water.....	229	0.2	0.97	235	4.89
Mixed.....	2,500	1.6	12.50	40	5.00
Not reported.....	12,525	7.8	25.00		

¹ Based on area irrigated in 1929 reporting cost.

STATE TABLE 12.—INVESTMENT, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

CHARACTER OF ENTERPRISE (See definitions in Introduction)	Enterprises, 1930	INVESTMENT		INCREASE ¹	
		1930	1920	Amount	Percent
Total.....	Number 77	Dollars 160,099	Dollars 161,325	Dollars 8,774	5.8
Individual and partnership.....	76	85,099	110,668	-25,559	-23.1
Cooperative.....	1	75,000	40,667	34,333	84.4

¹ A minus sign (-) denotes decrease.

STATE TABLE 13.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE ¹	
	1930	1920	Amount	Percent
Total.....	Dollars 160,099	Dollars 161,325	Dollars 8,774	5.8
Tributaries of Arkansas River.....	134,045	142,597	-8,552	-6.0
Canadian River.....	13,195	46,234	-33,039	-71.5
Cimarron River.....	102,750	93,157	9,593	10.3
Other tributaries.....	18,100	3,206	14,894	464.6
Red River and tributaries.....	26,054	8,728	17,326	198.5

¹ A minus sign (-) denotes decrease.

COST OF PREPARING LAND FOR IRRIGATION

The costs shown in State Table 14 represent estimates of expenditures already made on the areas reporting, and include clearing and grading land, and building farm laterals and farm irrigation structures.

STATE TABLE 14.—ESTIMATED COST OF PREPARING LAND, 1930

ITEM	1930
Area reporting.....	Acres 6,636
Estimated cost reported.....	Dollars 61,000
Average, per acre.....	Dollars 10.26

DRAINAGE OF IRRIGATED LAND

The areas in State Table 15 relate only to lands within the boundaries of irrigation enterprises. "Additional area needing drainage" represents all lands so reported by the owners of the enterprises and includes lands producing partial crops as well as those wholly unproductive.

STATE TABLE 15.—AREA WITHIN IRRIGATION ENTERPRISES FOR WHICH DRAINS HAVE BEEN INSTALLED AND ADDITIONAL AREA IN NEED OF DRAINAGE: 1930 AND 1920

ITEM	1930	1920
Enterprises reporting land drained or needing drainage.....	number 4	3
Area in enterprises reporting land drained or needing drainage.....	Acres 180	1,000
Area for which drains have been installed.....	Acres 95	
Additional area needing drainage.....	Acres 50	1,820
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises reporting drainage.....	per cent 50.3	
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises.....	per cent 1.3	
Proportion that area for which drains have been installed plus that needing drainage is of area ¹ in all irrigation enterprises.....	per cent 2.0	15.5

¹ Irrigable area, 1930; total area, 1920.

IRRIGATION WORKS

STATE TABLE 16.—PUMPING EQUIPMENT, BY KIND OF POWER AND PUMP, 1930

ITEM	ENGINES OR MOTORS		PUMPS				
	Capacity	Proportion of total	Number	Proportion of total	Capacity	Proportion of total	Average lift
KIND OF POWER	H. p.	Per cent		Per cent	G. p. m.	Per cent	Feet
Total.....	229	100.0	30	100.0	8,855	100.0	33
Electricity.....	55	24.0	6	20.0	1,020	11.5	48
Internal combustion.....	140	61.2	16	50.0	6,745	76.2	30
Wind.....	9	3.9	5	16.7	90	1.0	20
Wind and internal combustion.....	25	10.9	4	13.3	1,000	11.3	60
KIND OF PUMP							
Centrifugal.....	207	90.4	23	76.7	8,235	93.0	33
Rotary.....	10	4.4	1	3.3	500	5.6	45
Plunger.....	12	5.2	6	20.0	120	1.4	54

IRRIGATION—OKLAHOMA

STATE TABLE 17.—IRRIGATION WORKS, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			PUMPED WELLS		PUMPING PLANTS			
	Diver- sion ¹	Stor- age ²	Capac- ity	Length	Lateral canals, length	Num- ber	Capac- ity	Pipe lines, ³ length	Num- ber	Capacity	Num- ber	Engine or motor capac- ity	Pumps	
													Num- ber	Capac- ity
Total.....	Number 4	Number 3	Sec.-ft. 77	Miles 23	Miles 1	7	Ac.-ft. 293	Miles 0.7	18	G. p. m. 2,715	25	H. p. 229	30	G. p. m. 8,855
1800-1899.....						1	0		4	1,000	1	25	4	1,000
1905-1909.....	2	1	62	18		2	210		2	510	4	29	4	2,510
1910-1914.....	1	1	7	1	1	1	12		3	50	4	25	5	650
1915-1919.....			3	1		1	60				1	20	1	1,000
1920-1924.....	1		1	1				0.2			1	20	3	150
1925-1929.....	1		2	1				0.5	7	1,095	12	104	11	3,185
Not reported.....		1	2	1		2	2		2	60	2	6	2	60

¹ Material: Earth.

² Material: 2 concrete or masonry; 1 earth and rock.

³ Material and size (diameter): Metal, 1 to 12 inches.

STATE TABLE 18.—IRRIGATION WORKS, BY CHARACTER OF ENTERPRISE, 1930

CHARACTER OF ENTERPRISE (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			PUMPED WELLS		PUMPING PLANTS			
	Diver- sion ¹	Stor- age ²	Capac- ity	Length	Lateral canals, length	Num- ber	Capac- ity	Pipe lines, ³ length	Num- ber	Capacity	Num- ber	Engine or motor capac- ity	Pumps	
													Num- ber	Capac- ity
Total.....	Number 4	Number 3	Sec.-ft. 77	Miles 23	Miles 1	7	Ac.-ft. 293	Miles 0.7	18	G. p. m. 2,715	25	H. p. 229	30	G. p. m. 8,855
Individual and partnership.....	3	3	17	7	1	7	293	0.7	18	2,715	25	229	30	8,855
Cooperative.....	1		60	16										

¹ Material: Earth.

² Material: 2 concrete or masonry; 1 earth and rock.

³ Material and size (diameter): Metal, 1 to 12 inches.

STATE TABLE 19.—IRRIGATION WORKS, BY DRAINAGE BASIN, 1930

DRAINAGE BASIN (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			PUMPED WELLS		PUMPING PLANTS				
	Diver- sion ¹	Stor- age ²	Capac- ity	Length	Lateral canals, length	Num- ber	Capac- ity	Pipe lines, ³ length	Num- ber	Capacity	Num- ber	Engine or motor capac- ity	Pumps		Aver- age lift
													Num- ber	Capacity	
Total.....	Number 4	Number 3	Sec.-ft. 77	Miles 23	Miles 1	7	Ac.-ft. 293	Miles 0.7	18	G. p. m. 2,715	25	H. p. 229	30	G. p. m. 8,855	Feet 33
Tributaries of Arkansas River.....	2	2	68	21		6	281	0.4	16	2,625	16	145	21	3,425	35
Canadian River.....		1	2	1		1	1	0.2	3	645	6	45	5	1,295	45
Cimarron River.....	2	1	66	20		4	271	0.2	4	530	4	31	7	680	24
Other tributaries.....						1	9		9	1,450	6	69	9	1,450	32
Red River and tributaries.....	2	1	9	2	1	1	12	0.3	2	90	9	84	9	5,430	30

¹ Material: Earth.

² Material: 2 concrete or masonry; 1 earth and rock.

³ Material and size (diameter): Metal, 1 to 12 inches.

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COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929

ITEM (See definitions in Introduction)		THE STATE	Cimarron	Jackson	All other counties
FARMS AND FARM OPERATORS					
1	All farms..... 1930..... number.....	203,866	887	2,840	200,130
2	Irrigated farms..... 1930..... number.....	99	8	8	83
Operated by—					
3	Owners and managers..... number.....	69	8	3	58
4	Tenants..... number.....	30	—	5	25
5	Irrigated farms..... 1920..... number.....	73	17	(1)	50
6	Increase, ¹ 1920-1930..... per cent.....	35.6	-62.0	—	48.2
FARM AREA AND TOTAL LAND AREA					
7	Approximate land area..... 1930..... acres.....	44,424,900	1,183,300	497,020	42,743,080
8	Land in all farms..... 1930..... acres.....	33,790,817	1,067,542	455,047	32,268,228
9	Land in irrigated farms..... 1930..... acres.....	57,367	39,447	954	16,000
10	Average, per farm..... acres.....	571.5	4,030.0	119.2	204.4
11	Operated by owners and managers..... acres.....	52,107	30,447	121	21,530
12	Average, per farm..... acres.....	755.2	4,030.9	49.3	216.2
13	Operated by tenants..... acres.....	5,260	—	833	4,427
14	Average, per farm..... acres.....	175.3	—	168.6	177.1
15	Area irrigated..... 1929..... acres.....	1,573	140	420	1,007
16	..... 1919..... acres.....	2,900	315	(1)	2,654
17	Increase, ¹ 1919-1929..... per cent.....	-47.0	-53.0	—	-62.0
18	Area enterprises were capable of supplying with water..... 1930..... acres.....	7,331	226	585	6,520
19	..... 1920..... acres.....	9,672	905	(1)	8,767
20	Increase, ¹ 1920-1930..... per cent.....	-24.2	-75.0	—	-25.6
21	Irrigable area in enterprises..... 1930..... acres.....	7,344	226	585	6,533
22	Total area in enterprises..... 1920..... acres.....	11,742	2,265	(1)	9,487
IRRIGATION WORKS					
23	Enterprises..... 1930..... number.....	77	5	7	65
24	..... 1920..... number.....	33	0	(1)	27
25	Main canals..... 1930..... length, miles.....	23	3	—	20
26	..... 1920..... length, miles.....	38	14	(1)	24
27	..... 1930..... capacity, sec.-ft.....	77	5	—	72
28	..... 1920..... capacity, sec.-ft.....	344	123	(1)	221
29	Laterals..... 1930..... length, miles.....	1	—	—	1
30	..... 1920..... length, miles.....	19	1	(1)	18
31	Reservoirs..... 1930..... number.....	7	4	—	3
32	..... 1920..... number.....	8	—	(1)	8
33	..... 1930..... capacity, ac.-ft.....	293	271	—	22
34	..... 1920..... capacity, ac.-ft.....	52	—	(1)	52
35	Wells, flowing ² 1920..... number.....	1	—	(1)	1
36	..... 1920..... capacity, g. p. m.....	100	—	(1)	100
37	Wells, pumped..... 1930..... number.....	18	3	—	15
38	..... 1920..... number.....	19	1	(1)	18
39	..... 1930..... capacity, g. p. m.....	2,715	30	—	2,685
40	..... 1920..... capacity, g. p. m.....	3,043	1,000	(1)	2,043
41	Pumping plants..... 1930..... number.....	25	2	5	18
42	..... 1920..... number.....	22	1	(1)	21
43	..... 1930..... engine capacity, h. p.....	229	3	60	106
44	..... 1920..... engine capacity, h. p.....	184	8	(1)	179
45	..... 1930..... pump capacity, g. p. m.....	8,855	30	3,000	4,925
46	..... 1920..... pump capacity, g. p. m.....	7,668	600	(1)	7,068
47	..... 1930..... average lift, feet.....	33	26	19	38
48	..... 1920..... average lift, feet.....	59	16	—	62
VALUES OF FARMS, 1930					
49	Land and buildings, all farms..... dollars.....	1,242,723,526	14,718,920	26,428,018	1,201,570,588
50	Land and buildings, irrigated farms..... dollars.....	1,671,866	212,500	100,500	1,352,866
Operated by—					
51	Owners and managers..... dollars.....	1,356,220	212,500	30,500	1,113,220
52	Tenants..... dollars.....	315,646	—	70,000	239,646
53	Average, land and buildings, per farm..... dollars.....	10,887.54	26,562.50	13,312.50	10,209.50
54	Average, per acre..... dollars.....	29.14	5.39	111.64	70.74
55	Land (excluding buildings)..... dollars.....	1,215,461	176,175	81,500	957,786
56	Buildings (including dwellings)..... dollars.....	456,405	36,325	25,000	395,080
57	Implements and machinery, irrigated farms..... dollars.....	69,517	6,785	5,000	88,882
58	Average, per farm..... dollars.....	1,005.22	841.88	737.50	1,046.77
59	Average, per acre..... dollars.....	1.73	0.17	6.18	6.12
INVESTMENT IN IRRIGATION ENTERPRISES					
60	Investment to Jan. 1, 1930..... dollars.....	100,090	20,125	4,504	129,470
61	..... 1920..... dollars.....	151,325	33,680	(1)	117,645
62	Increase, ¹ 1920-1930..... per cent.....	5.8	-22.4	—	10.0
63	Average, per acre, based on area enterprises were capable of supplying with water, 1930..... dollars.....	21.84	115.00	7.70	19.86
64	..... 1920..... dollars.....	15.65	37.22	—	13.42
65	Estimated final investment in existing enterprises, 1930..... dollars.....	167,909	26,125	4,504	137,280
66	..... 1920..... dollars.....	162,775	42,680	(1)	120,095
67	Increase, ¹ 1920-1930..... per cent.....	3.2	-38.8	—	14.3
68	Average, per acre, based on estimated final investment and irrigable area, 1930..... dollars.....	22.86	115.00	7.70	21.01
69	Average, per acre, based on estimated final investment and total area, 1920..... dollars.....	13.86	18.93	—	12.66
COST OF MAINTENANCE AND OPERATION, 1929					
70	Irrigated area for which cost was reported..... acres.....	935	144	420	371
71	Average, per acre, based on area reporting..... dollars.....	7.62	2.43	3.45	14.34

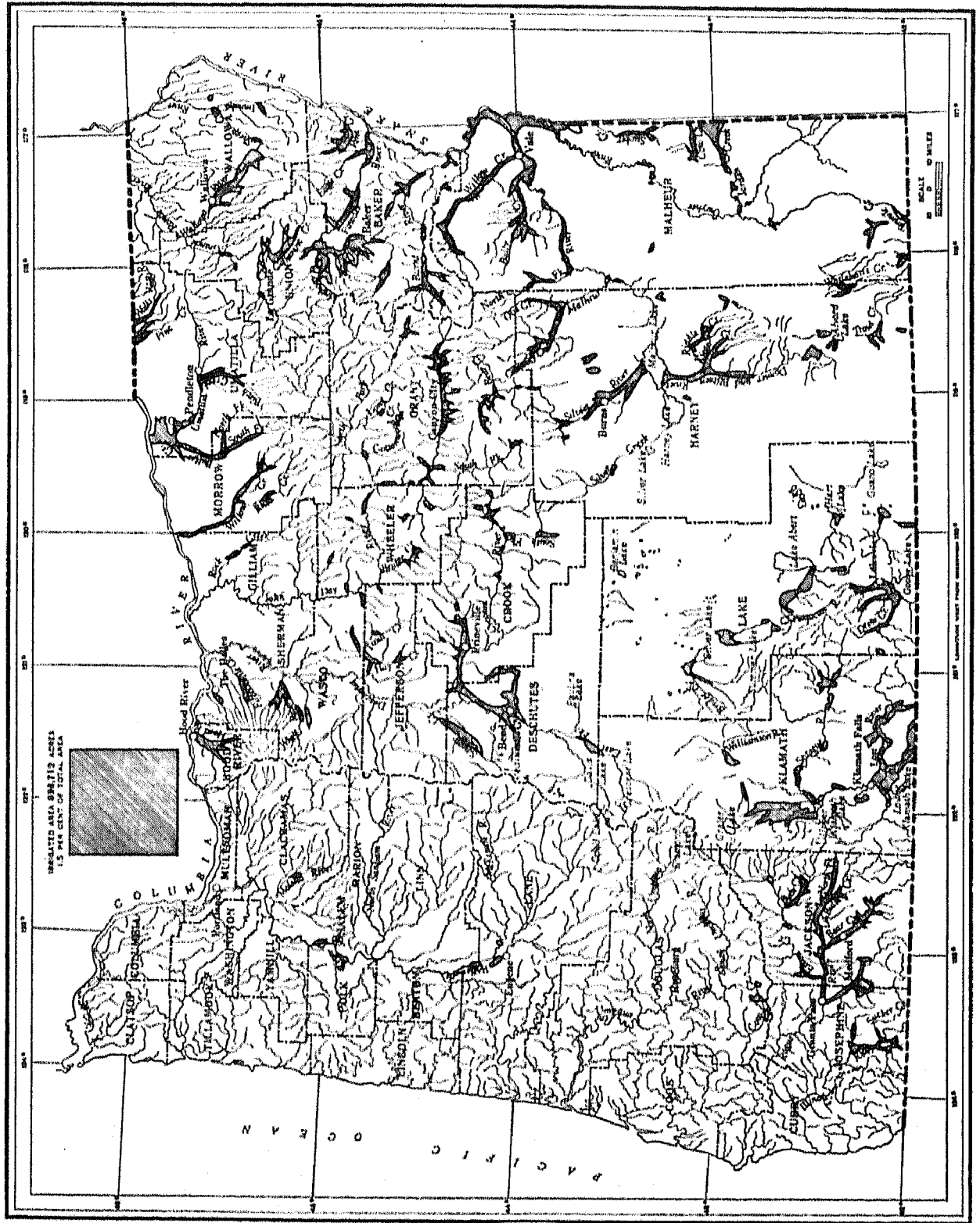
¹ Included in "All other counties."

² A minus sign (—) denotes decrease.

³ None for 1930.

OREGON

APPROXIMATE LOCATION AND EXTENT OF IRRIGATED LAND



OREGON

INTRODUCTION

Statistics are presented in the following pages on farms irrigated and area irrigated, investment and cost of maintenance and operation of irrigation enterprises, cost of preparing land for irrigation, drainage of irrigated land, quantity of water used, and distribution of irrigation works, with specialized information relating to dams, pipe lines, and pumping equipment. Data on area irrigated, investment, and irrigation works are given in detail by drainage basins. Classifications of irrigated farms by type of farm, size of farm, and value of farm products; and the acreage, yield, and value of the principal crops grown on irrigated land, for all irrigation States, are shown in Parts III and IV, pages 257 and 325, respectively, of this volume.

Statistics for area irrigated and for cost of maintenance and operation of irrigation works relate to the year 1929; all other items relate to 1930.

For purposes of comparison, statistics for the census of 1920 are shown, where available; and for the purpose of showing the historical development of irrigation certain data are presented from censuses previous to that of 1920.

Data on number, area, and value of wholly and partly irrigated farms with the tenure of the operators of these farms were collected in 1930 on the general farm schedule; in 1920 only the number of irrigated farms was obtained in this way. All other statistics, in both censuses, were collected on special schedules for irrigation enterprises.

STATE TABLE 1.—SUMMARY FOR THE STATE: 1930 AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Amount	Per cent
All farms.....number.....	55,153	50,200	4,947	0.8
All land in farms.....acres.....	10,548,678	13,542,318	3,006,360	22.2
Approximate land area of State.....acres.....	61,188,480	61,188,480		
Farms irrigated.....number.....	11,387	0,154	2,233	24.4
Area irrigated.....acres.....	898,713	980,162	-87,449	-8.9
Area enterprises were capable of supplying with water.....acres.....	1,158,210	1,344,046	-185,836	-13.8
Area in enterprises ².....acres.....	1,478,128	1,925,987		
Proportion irrigated:				
All farms.....per cent.....	20.6	18.2		
All land in farms.....per cent.....	5.4	7.3		
Approximate land area of State.....per cent.....	1.5	1.0		
Excess of area enterprises were capable of supplying with water over area irrigated.....acres.....	250,497	357,884	-98,387	-27.5
Excess of area in enterprises ² over area irrigated.....acres.....	579,415	939,825		
Area in enterprises available, or to be available, for settlement.....acres.....	330,475	98,009	231,806	235.1
Value of irrigated farms [land, buildings (including dwellings), and implements and machinery].....dollars.....	171,019,001	(*)		
Investment in irrigation enterprises.....dollars.....	38,754,548	28,020,151	9,825,397	34.0
Average, per acre, based on area enterprises were capable of supplying with water.....dollars.....	33.46	21.52	11.94	55.5
Estimated final cost of existing enterprises.....dollars.....	60,030,039	41,585,742	18,454,197	44.4
Average, per acre, based on area in enterprises ².....dollars.....	40.62	21.50		
Average annual cost, per acre, for maintenance and operation of irrigation works.....dollars.....	1.41	1.10	0.22	18.5

¹ A minus sign (-) denotes decrease.

² Irrigable area, 1930; total area, 1920.

³ Figures not available.

STATE TABLE 2.—FARMS AND SPECIFIED FARM VALUES, BY TENURE OF FARM OPERATOR, 1930

ITEM (See definitions in Introduction)	FARMS		SPECIFIED FARM VALUES					
	Number	Area	Land and buildings		Land alone		Implements and machinery	
			Total	Per acre	Total	Per acre	Total	Per acre
All farms.....	55,153	10,548,678	630,827,927	38.12	501,946,834	30.33	42,585,751	2.57
Owners and managers.....	45,303	13,716,712	509,582,528	37.15			34,331,550	2.51
Tenants.....	9,790	2,831,966	121,245,399	42.81			8,204,201	2.90
Irrigated farms.....	11,387	6,306,825	160,937,926	25.52	130,246,175	20.65	10,981,075	1.74
Owners and managers.....	9,339	5,606,140	136,987,981	24.44	109,695,700	19.62	9,309,718	1.66
Tenants.....	2,048	700,685	23,949,945	34.18	20,250,475	28.90	1,671,357	2.38
Wholly irrigated farms.....	8,750	3,437,666	109,138,116	31.75	87,255,140	25.38	7,593,905	2.21
Owners and managers.....	7,125	3,025,760	91,706,186	30.31	72,640,575	24.01	6,335,117	2.09
Tenants.....	1,625	411,906	17,431,930	42.32	14,608,565	35.46	1,258,788	3.06
Partly irrigated farms.....	2,637	2,869,159	51,799,810	18.05	42,691,035	14.98	3,387,170	1.18
Owners and managers.....	2,214	2,530,330	45,281,795	17.55	37,340,125	14.47	2,976,001	1.15
Tenants.....	423	288,779	6,518,015	22.67	5,041,010	19.54	410,569	1.42
Farms not irrigated.....	43,766	10,241,853	469,890,001	45.88	371,700,659	36.29	31,604,676	3.08

FARMS AND AREA IRRIGATED

STATE TABLE 3.—FARMS AND AREA IRRIGATED: 1890 TO 1930

CENSUS YEAR	FARMS IRRIGATED			AREA IRRIGATED			
	Number	In-crease	Pro-portion of all farms	Area	In-crease ¹	Pro-portion of total land area of State	Pro-portion of land in all farms
1930	11,387	21.4	20.6	808,713	-8.9	1.5	5.4
1920	9,154	37.3	18.2	986,162	43.7	1.6	7.3
1910	6,669	43.0	14.7	686,129	70.7	1.1	5.9
1900	4,636	47.2	12.0	388,310	118.2	0.6	3.9
1890	3,150		12.3	177,914		0.4	2.6

¹ A minus sign (-) denotes decrease.

STATE TABLE 4.—AREA, BY DATE OF BEGINNING OF ENTERPRISES SUPPLYING WATER FOR IRRIGATION

DATE OF BEGINNING (See definitions in Introduction)	Enter-prises, 1930	AREA IRRIGATED IN 1920			Area enter-prises were capable of supplying with water, 1930	Irrigable area in enter-prises, 1930
		Area	Proportion of irrigable area in enter-prises	Acres		
Total	Number 4,066	Acres 808,713	Per cent 60.8	Acres 1,158,210	Acres 1,478,128	
Before 1800	30	4,327	61.2	7,067	7,071	
1800-1869	225	40,805	82.1	48,868	49,783	
1870-1879	392	84,066	88.4	93,898	96,062	
1880-1889	636	162,278	61.5	216,254	264,018	
1890-1899	473	85,015	78.4	99,878	108,544	
1900-1909	303	160,557	70.2	138,217	150,016	
1910-1919	204	175,637	69.6	215,301	252,370	
1920-1929	324	63,624	42.0	90,283	151,314	
1930-1934	290	71,530	71.4	95,898	104,182	
1915-1919	315	41,421	39.2	66,847	105,631	
1920-1924	475	21,041	16.4	33,108	135,468	
1925-1929	423	37,513	69.0	52,501	53,659	

STATE TABLE 5.—AREA, BY SOURCE OF WATER SUPPLY: 1920 AND 1919

SOURCE OF SUPPLY	AREA IRRIGATED				Area enter-prises were capable of supplying with water, 1930	Irrigable area in enter-prises, 1930
	1920	1919	Increase ¹			
			Area	Percent		
Total	Acres 808,713	Acres 986,162	Acres -87,449	-8.9	Acres 1,158,210	Acres 1,478,128
Streams, gravity	674,306	786,351	-111,045	-14.2	853,434	1,098,060
Streams, pumped	50,637	64,576	-13,939	-21.7	83,624	91,416
Streams, gravity and pumped	14,630	253	14,383		14,636	17,636
Wells, pumped	3,804	1,093	1,811	60.9	4,179	4,671
Wells, flowing	87	72	15	20.8	121	127
Wells, pumped and flowing		340	-340	-100.0		
Lakes, pumped	6,092	1,020	4,472	276.0	10,354	10,698
Lakes, gravity	10,400	5,750	4,740	82.4	18,176	31,815
Springs	6,973	9,584	-2,611	-27.2	11,278	11,840
Stored storm water ²	1,501	3,763	-2,262	-60.1	2,476	3,260
City water	4	268	-264	-98.4	4	4
Sewage	36	10	25	250.0	35	36
Streams, gravity and wells, pumped	904	105	800	816.7	1,168	1,174
Streams, gravity and wells, flowing	2,328	206	2,128		2,408	2,408
Other mixed	124,002	111,137	12,865	11.6	133,472	202,061
Other	767	147	620	421.8	789	794
Not reported	2,067		2,067		2,067	2,067
Supplemental ³ from—						
Pumped streams	7,887				11,074	12,050
Pumped wells	612				612	612

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² In reservoirs filled from channels which carry water only during storms and are not classed as streams.
³ Not considered in totals because included in enterprises reporting other sources of supply listed above.

AREA, BY CHARACTER OF ENTERPRISE

All except 1 of the Carey Act enterprises reported in 1920 have been reorganized, and their statistics are included in the 1930 "Irrigation district" classification in State Table 6 and other tables. This enterprise has not legally passed from the control of the Carey Act company, but its irrigation system is operated by the water users; hence its statistics are included in the 1930 "Cooperative" classification.

The area credited to the United States Bureau of Reclamation includes the Big Bend, Hermiston, West Extension, Langell Valley, and Horsefly irrigation districts, but excludes areas partly served by Government works in both 1929 and 1919 with water carried through private canals under Warren Act or other water service contracts.

The 1930 classification "Other" represents 3 enterprises organized since 1920 as drainage districts, but which operate irrigation as well as drainage systems.

STATE TABLE 6.—AREA, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

[For number of enterprises by classes, see State Table 12]

ITEM AND CHARACTER (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Area	Per cent
AREA IRRIGATED	Acres 808,713	Acres 986,162	Acres -87,449	-8.9
Individual and partnership	450,811	609,026	-158,215	-23.7
Cooperative	2184,040	186,037	-1,067	-0.3
Irrigation district	160,974	12,084	68,863	74.8
Carey Act		30,665	-30,665	-100.0
Commercial	12,610	27,338	-14,719	-53.8
United States Bureau of Indian Affairs	4,135	4,660		3.4
United States Bureau of Reclamation	61,829	64,681	6,848	12.4
State	325	300	25	8.3
City		340	-340	-100.0
Other	23,050	104	22,946	
AREA ENTERPRISES WERE CAPABLE OF SUPPLYING WITH WATER	Acres 1,158,210	Acres 1,344,046	Acres -185,836	-13.8
Individual and partnership	559,063	689,723	-130,660	-21.7
Cooperative	2222,180	230,171	-13,982	-5.7
Irrigation district	240,010	168,540	41,470	20.0
Carey Act		67,680	-67,680	-100.0
Commercial	21,517	67,163	-45,646	-68.0
United States Bureau of Indian Affairs	13,345	7,690	6,745	75.0
United States Bureau of Reclamation	85,012	76,525	6,487	11.9
State	325	300	25	8.3
City		340	-340	-100.0
Other	35,300	104	35,196	
AREA IN ENTERPRISES²	Acres 1,478,128	Acres 1,925,987		
Individual and partnership	624,617	828,471		
Cooperative	2288,948	320,311		
Irrigation district	270,570	271,172		
Carey Act		104,970		
Commercial	29,567	150,280		
United States Bureau of Indian Affairs	15,345	9,600		
United States Bureau of Reclamation	182,050	171,444		
State	325	300		
City		340		
Other	60,800	110		

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² Includes 1 Carey Act enterprise (see explanation in text).
³ Irrigable area, 1930; total area, 1920.

AREA, BY CHARACTER OF WATER RIGHTS

STATE TABLE 7.—AREA IRRIGATED, BY CHARACTER OF RIGHTS UNDER WHICH WATER IS RECEIVED: 1920 AND 1919

WATER RIGHTS (See definitions in Introduction)	1920		1919	
	Area	Proportion of total	Area	Proportion of total
	Acres	Per cent	Acres	Per cent
Total	808,713	100.0	986,162	100.0
Appropriation and use	57,060	6.4	148,523	15.1
Notice filed and posted	66,804	7.4	150,332	15.3
Adjudicated by court	300,451	44.4	203,013	20.8
Permit from State	118,367	13.2	131,540	13.3
Certificate or license from State	112,970	12.0	217,228	22.0
Riparian	92,546	10.3	14,277	1.5
Underground	3,963	0.4	5,235	0.5
Other	14,112	1.6	12,160	1.2
Mixed	28,628	3.2		
Not reported	4,366	0.5	14,965	1.6

As indicated in State Table 7, riparian rights are recognized in Oregon, although legislation and court decisions have limited vested rights of this character "to the extent of their actual application to beneficial use."

In 1927 the State adopted a law providing that underground waters in counties east of the Cascade summit might be appropriated upon application to the State engineer, under the procedure adopted for appropriation of surface waters, but the operation of this law is too recent to affect materially the comparisons in the table.

AREA, BY DRAINAGE BASIN

STATE TABLE 8.—AREA, BY DRAINAGE BASIN: 1929 AND 1919

DRAINAGE BASIN (See definitions in Introduction)	AREA IRRIGATED			Area enter-prises were capable of supplying with water, 1930	Irrigable area in enter-prises, 1930
	1929	1919	In-crease ¹		
Total.....	Acres 808,713	Acres 986,162	Per cent -8.9	Acres 1,158,210	Acres 1,478,128
Columbia River and tributaries.....	504,950	638,223	-20.9	658,449	880,067
Columbia River direct.....		92	-100.0		
Snake River and tributaries.....	288,928	394,205	-26.7	370,026	614,972
Snake River direct.....	31,814	22,199	43.3	35,881	39,347
Owyhee River.....	18,165	36,295	-50.0	27,133	114,389
Malheur River.....	32,122	62,850	-39.2	77,574	103,463
Burnt River.....	18,519	34,287	-46.0	20,076	40,686
Powder River.....	104,089	146,036	-28.7	116,492	120,742
Fine Creek.....	12,409	12,636	-1.8	13,658	14,278
Imnaha River.....	6,838	4,828	41.6	8,190	8,628
Grande Ronde River.....	67,665	79,191	-27.2	63,174	65,227
Other tributaries.....	7,317	6,884	24.4	7,843	8,317
Walla Walla River.....	11,123	17,514	-36.5	11,526	14,359
Umatilla River.....	35,736	43,571	-17.8	48,284	57,038
Willow Creek.....	5,382	5,553	-3.1	6,080	6,265
John Day River.....	40,495	36,141	12.0	44,384	46,211
Deschutes River.....	94,015	111,916	-16.0	130,444	181,445
Hood River.....	22,370	19,765	13.2	28,352	31,240
Willamette River.....	4,260	2,892	47.0	7,022	25,919
Other tributaries of Columbia River.....	2,598	0,574	-80.5	3,351	3,618
Rogue River and tributaries.....	58,960	38,500	52.9	74,651	81,714
Rogue River direct.....	11,931	3,256	260.4	14,836	20,123
Little Butte Creek.....	14,892	6,700	74.8	12,171	12,247
Bear Creek.....	1,215	1,538	-8.8	20,293	20,425
Evans Creek.....	9,266	10,659	-13.1	11,482	11,617
Applegate River.....	4,328	4,961	-12.8	5,836	6,079
Illinois River.....	5,692	3,535	68.9	8,162	8,703
Klamath River and tributaries.....	126,105	90,670	39.2	169,699	198,432
Klamath River direct.....	1,841	3,185	-42.2	3,672	4,777
Lost River.....	60,450	58,568	3.2	75,857	77,170
Sprague River.....	7,587	7,800	-2.7	13,616	15,871
Other tributaries.....	59,227	21,017	167.6	76,564	100,614
Other Pacific Ocean streams.....	1,733	2,134	-18.8	3,226	3,610
Independent streams.....	206,959	216,666	-4.5	252,185	314,305
Deep Creek.....	1,906	1,906		1,937	1,937
Donner and Blitzen River.....	79,000	21,356	269.9	84,500	109,500
Silvies River.....	28,727	64,842	-55.7	35,523	59,977
Other.....	97,326	128,562	-24.3	132,225	142,871

¹ A minus sign (-) denotes decrease.

INVESTMENT, AND COST OF MAINTENANCE AND OPERATION OF IRRIGATION ENTERPRISES

STATE TABLE 9.—INVESTMENT IN ENTERPRISES: 1890 TO 1930

CENSUS YEAR	INVESTMENT		AVERAGE, PER ACRE ¹	
	Amount	Increase	Amount	Increase
	Dollars	Per cent	Dollars	Per cent
1930.....	38,754,548	34.0	33.46	65.5
1920.....	28,929,161	126.7	21.52	40.1
1910.....	12,760,214	592.1	15.36	223.4
1900.....	1,843,771	123.3	4.75	2.4
1890.....	825,060		4.64	

¹ Based on area enterprises were capable of supplying with water.

STATE TABLE 10.—INVESTMENT, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	INVESTMENT		
	Amount	Proportion of total	Average, per acre ¹
	Dollars	Per cent	Dollars
Total.....	38,754,548	100.0	33.40
Before 1860.....	153,436	0.4	21.71
1860-1869.....	284,627	0.7	5.82
1870-1879.....	684,075	1.8	7.28
1880-1889.....	2,835,443	7.3	13.11
1890-1899.....	1,509,875	3.9	15.12
1900-1904.....	3,262,984	8.4	23.61
1905-1909.....	11,231,203	29.0	62.16
1910-1914.....	4,163,700	10.7	46.11
1915-1919.....	5,870,210	15.2	61.21
1920-1924.....	3,367,774	8.7	60.38
1925-1929.....	4,030,056	12.7	148.53
Not reported.....	400,269	1.2	8.77

¹ Based on area enterprises were capable of supplying with water in 1930.

STATE TABLE 11.—INVESTMENT, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929; BY SOURCE OF WATER SUPPLY

[When water is pumped, cost of maintenance and operation includes cost of fuel and attendance]

SOURCE OF SUPPLY	INVESTMENT, 1930			MAINTENANCE AND OPERATION, 1929	
	Amount	Proportion of total	Average, per acre	Irrigated area reporting	Average, per acre ¹
	Dollars	Per cent	Dollars	Acres	Dollars
Total.....	38,754,548	100.0	33.46	893,685	1.41
Streams, gravity.....	23,940,310	61.8	28.05	645,238	0.90
Streams, pumped.....	4,468,284	11.5	53.43	50,014	5.72
Streams, gravity and pumped	347,967	0.9	23.77	12,376	1.54
Wells, pumped.....	246,833	0.6	59.06	3,711	10.72
Wells, flowing.....	7,972	(?)	65.88	87	0.63
Lakes, pumped.....	185,600	0.5	17.92	6,061	2.16
Lakes, gravity.....	245,802	0.6	13.52	10,490	0.57
Springs.....	89,648	0.2	7.95	0,543	1.00
Stored storm water.....	39,785	0.1	16.07	1,501	0.30
City water.....	30	(?)	7.50	4	7.50
Sewage.....	10	(?)	0.28		
Streams, gravity and wells, pumped.....	32,292	(?)	27.89	994	5.58
Streams, gravity and wells, flowing.....	6,425	(?)	2.67	2,328	0.14
Other mixed.....	8,893,200	22.9	67.95	123,586	1.04
Other.....	11,413	(?)	14.40	752	1.80
Not reported.....	7,768	(?)	3.75		
Supplemental from—					
Pumped streams.....	229,080	0.6	20.74	3,787	2.48
Pumped wells.....	1,460	(?)	2.38	612	0.29

¹ Based on area irrigated in 1929 reporting cost.

² Less than one-tenth of 1 per cent.

³ Not considered in total because included in enterprises reporting other sources of supply listed above.

STATE TABLE 12.—INVESTMENT, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

CHARACTER OF ENTERPRISE (See definitions in Introduction)	Enter-prises, 1930	INVESTMENT		INCREASE ¹	
		1930	1920	Amount	Per cent
		Dollars	Dollars	Dollars	
Total.....	Number 4,066	38,754,548	28,929,151	9,825,397	34.0
Individual and partnership.....	3,861	4,871,362	6,684,382	-1,713,020	-26.0
Cooperative.....	150	6,280,247	3,143,698	3,136,549	100.0
Irrigation district.....	35	13,983,818	6,313,753	7,670,065	121.5
Carey Act.....			3,231,293	-3,231,298	-100.0
Commercial.....	4	1,606,957	3,281,034	-1,674,077	-51.0
United States Bureau of Indian Affairs.....	4	257,317	230,038	27,279	11.8
United States Bureau of Reclamation.....	5	11,408,297	5,956,950	5,451,347	91.5
State.....	3	9,550	16,107	-6,557	-40.7
City.....			171,068	-171,068	-100.0
Other.....	3	331,000	823	330,177	

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

² Includes 1 Carey Act enterprise (see explanation in text for State Table 6).

STATE TABLE 13.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE ¹	
	1930	1920	Amount	Per cent
Total.....	Dollars 38,764,548	Dollars 28,020,151	Dollars 9,825,397	34.0
Columbia River and tributaries.....	23,037,568	18,480,008	5,457,498	29.5
Columbia River direct.....		11,150	-11,150	-100.0
Snake River and tributaries.....	11,004,581	7,093,052	4,900,029	60.1
Snake River direct.....	1,100,580	900,478	200,111	28.6
Owyhee River.....	2,838,013	1,154,185	1,684,728	140.0
Malheur River.....	5,512,044	2,027,083	3,485,201	171.0
Burnt River.....	255,100	630,491	-384,202	-60.1
Powder River.....	1,200,723	1,552,087	-202,204	-16.0
Pine Creek.....	152,140	97,522	54,618	56.0
Imnaha River.....	203,301	206,378	-3,077	-1.5
Grande Ronde River.....	380,750	471,430	-84,077	-18.0
Other tributaries.....	185,013	34,492	150,521	436.4
Walla Walla River.....	195,702	280,034	-85,232	-30.3
Umatilla River.....	3,752,200	4,308,802	-556,602	-12.0
Willow Creek.....	70,547	60,139	10,408	32.3
John Day River.....	430,402	510,248	-73,750	-14.4
Deschutes River.....	6,040,877	5,078,030	968,241	19.1
Hood River.....	957,875	807,260	150,600	18.0
Willamette River.....	311,911	100,561	211,350	210.2
Other tributaries of Columbia River.....	102,381	228,587	-66,206	-29.0
Rogue River and tributaries.....	5,144,002	1,783,080	3,361,003	188.4
Rogue River direct.....	1,605,192	105,065	1,450,527	808.0
Little Butte Creek.....	1,219,880	604,704	615,092	101.7
Bear Creek.....	1,475,733	015,878	850,856	130.6
Evans Creek.....	22,604	40,830	-18,332	-44.0
Applegate River.....	160,053	180,804	-13,041	-7.7
Illinois River.....	203,421	87,000	115,455	131.2
Other tributaries.....	451,303	37,950	363,347	413.1
Klamath River and tributaries.....	5,238,420	3,811,032	1,426,404	37.4
Klamath River direct.....	61,700	43,141	18,559	43.0
Lost River.....	4,205,740	3,451,383	844,357	24.5
Sprague River.....	250,900	32,308	227,532	703.0
Other tributaries.....	621,080	285,040	330,040	117.0
Other Pacific Ocean streams.....	85,055	101,200	-105,245	-55.0
Independent streams.....	4,347,600	4,601,052	-314,353	-6.7
Coop Creek.....	6,275	0,829	-1,654	-22.8
Donner and Blitzen River.....	1,804,000	131,750	1,672,250	.....
Silvies River.....	80,114	1,005,852	-925,748	-92.0
Other.....	2,456,220	3,517,521	-1,059,301	-30.1

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

COST OF PREPARING LAND FOR IRRIGATION

The costs shown in State Table 14 represent estimates of expenditures already made on the areas reporting, and include clearing and grading land, and building farm laterals and farm irrigation structures.

STATE TABLE 14.—ESTIMATED COST OF PREPARING LAND, 1930

ITEM	1930
Area reporting.....acres.....	040,302
Estimated cost reported.....dollars.....	25,007,620
Average, per acre.....dollars.....	27.20

DRAINAGE OF IRRIGATED LAND

The areas in State Table 15 relate only to lands within the boundaries of irrigation enterprises. "Additional area needing drainage" represents all lands so

reported by the owners of the enterprises and includes lands producing partial crops as well as those wholly unproductive.

STATE TABLE 15.—AREA WITHIN IRRIGATION ENTERPRISES FOR WHICH DRAINS HAVE BEEN INSTALLED AND ADDITIONAL AREA IN NEED OF DRAINAGE: 1930 AND 1920

ITEM	1930	1920
Enterprises reporting land drained or needing drainage.....number.....	182	176
Area ¹ in enterprises reporting land drained or needing drainage.....acres.....	436,425	347,750
Area for which drains have been installed.....acres.....	230,413	03,799
Additional area needing drainage.....acres.....	94,800	40,115
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises reporting drainage.....per cent.....	52.8	27.0
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises.....per cent.....	15.0	4.0
Proportion that area for which drains have been installed plus that needing drainage is of area ¹ in all irrigation enterprises.....per cent.....	22.0	7.3

¹ Irrigable area, 1930; total area, 1920.

QUANTITY OF WATER USED

The quantity of water used was reported on only part of the irrigation schedules, and all areas reporting "quantity of water entering canals" did not also report "quantity delivered to irrigators." In order that proper values may be assigned to the figures given, those representing measurements and those representing estimates are reported separately in State Table 16.

Some irrigation enterprises carry water to individual farms, but others only to laterals which serve several farms. The "total quantity of water delivered to irrigators," shown in State Table 16, is the quantity reported in answer to a question preceded by the inquiry: "Average head of water delivered per individual irrigator."

STATE TABLE 16.—WATER USED: 1920 AND 1919

ITEM (See definitions in Introduction)	TOTAL		MEASURED		NOT MEASURED	
	1920	1919	1920	1919	1920	1919
Average flow of water entering canals.....sec.-ft.....	6,340	8,311	4,563	2,920	1,777	5,385
Area irrigated.....acres.....	351,510	440,013	251,011	180,022	100,505	205,092
Average, per second-foot.....acres.....	55	54	55	02	50	40
Total quantity of water entering canals.....ac.-ft.....	1,715,553	2,237,727	1,111,084	1,016,713	603,880	1,221,014
Area irrigated.....acres.....	360,007	408,843	212,078	212,100	147,320	286,743
Average quantity per acre.....ac.-ft.....	4.8	4.6	5.2	4.8	4.1	4.3
Total quantity of water delivered to irrigators.....ac.-ft.....	572,347	458,880	525,430	159,036	45,008	299,845
Area irrigated.....acres.....	180,108	200,448	160,210	109,320	10,083	97,122
Average quantity per acre.....ac.-ft.....	3.1	2.2	3.2	1.5	2.3	3.1

IRRIGATION—OREGON

IRRIGATION WORKS

STATE TABLE 17.—DAMS, BY MATERIAL, 1930

MATERIAL	DAMS	
	Diversion	Storage
Total.....	Number 3,806	Number 167
Concrete or masonry.....	422	24
Timber.....	529	61
Earth and rock.....	1,754	73
Other and mixed.....	101	9
Not reported.....		

¹ Principally temporary dams, replaced annually.

STATE TABLE 18.—LENGTH OF PIPE LINES, BY MATERIAL AND SIZE, 1930

MATERIAL AND SIZE (DIAMETER)	Length	
	Miles	Feet
Total.....	225.3	
Concrete:		
1 to 12 inches.....	30.6	
13 to 30 inches.....	27.1	
More than 30 inches.....	3.8	
Metal:		
1 to 12 inches.....	72.9	
13 to 30 inches.....	5.8	
More than 30 inches.....	2.0	
Wood:		
1 to 12 inches.....	41.0	
13 to 30 inches.....	19.4	
More than 30 inches.....	8.0	
Not segregated by size.....	2.0	
Clay:		
1 to 12 inches.....	0.9	
Not segregated by material:		
1 to 12 inches.....	5.2	
13 to 30 inches.....	6.6	

STATE TABLE 19.—PUMPING EQUIPMENT, BY KIND OF POWER AND PUMP, 1930

ITEM	ENGINES OR MOTORS		PUMPS				Average lift
	Capacity	Proportion of total	Number	Proportion of total	Capacity	Proportion of total	
KIND OF POWER	H. p.	Per cent		Per cent	G. p. m.	Per cent	Feet
Total.....	21,257	100.0	1,157	100.0	1,022,213		27
Electricity.....	15,896	74.8	602	52.0	700,376	68.5	34
Internal combustion.....	3,733	17.6	432	37.3	234,607	23.0	19
Steam.....	70	0.3	2	0.2	6,150	0.6	35
Water.....	1,279	6.0	58	5.0	63,820	6.2	23
Electricity and—							
Internal combustion.....	212	1.0	48	4.2	14,398	1.4	24
Water.....	20	(1)	4	0.4	800	(1)	95
Internal combustion and water.....	41	0.2	6	0.5	2,260	0.2	24
Other.....	6	(1)	5	0.4	302	(1)	47
KIND OF PUMP							
Centrifugal.....	13,951	65.6	833	76.3	806,971	78.9	24
Rotary.....	2,464	11.6	58	5.0	40,170	3.9	22
Turbine.....	3,951	18.6	21	1.8	38,070	3.7	72
Reciprocating.....	90	0.4	23	2.0	2,078	0.2	51
Plunger.....	248	1.2	84	7.3	14,566	1.4	61
Screw.....	265	1.2	5	0.4	95,425	9.3	5
Water wheels and rams.....	122	0.6	52	4.5	12,448	1.2	53
Centrifugal and—							
Rotary.....	74	0.3	12	1.0	8,718	0.9	15
Plunger.....	48	0.2	0	0.8	1,173	0.1	59
Water wheels.....	37	0.2	4	0.3	2,160	0.2	24
Rotary and plunger.....	2	(1)	3	0.3	300	(1)	12
Other.....	5	(1)	3	0.3	125	(1)	42

¹ Less than one-tenth of 1 per cent.

STATE TABLE 20.—IRRIGATION WORKS, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	DAMS		MAIN CANALS		Lateral canals, length	RESERVOIRS		Pipe lines, length	FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diversion	Storage	Capacity	Length		Number	Capacity		Number	Capacity	Number	Capacity	Number	Engine or motor capacity	Pumps	
	Number	Number	Sec.-ft.	Miles		Miles	Acre-feet		Miles	G. p. m.	G. p. m.	G. p. m.	H. p.	Number	Capacity	
Total.....	3,806	167	25,906	5,839	2,338	120	1,698,428	225.3	59	6,535	558	136,069	1,091	21,257	1,157	1,022,213
Before 1860.....	37		238	100	7			0.4					1	3	1	450
1860-1869.....	318	8	1,179	354	34	7	9,603	3.8			4	2,454	8	215	9	5,519
1870-1879.....	640	5	1,971	720	99	10	2,029	15.0					3	47	3	4,800
1880-1889.....	928	15	5,499	1,179	136	8	283,272	5.7	3	3,000	3	370	15	1,152	16	105,672
1890-1899.....	535	22	3,501	789	185	14	5,396	26.0	2	81	0	2,295	23	607	24	40,102
1900-1904.....	317	10	3,884	544	806	9	81,691	5.7			9	2,288	42	230	43	16,109
1905-1909.....	167	15	2,632	552	431	13	690,007	37.1	3	435	18	4,190	47	1,115	54	141,690
1910-1914.....	222	13	2,413	464	197	11	82,484	34.6	29	1,318	89	17,954	137	5,093	156	93,204
1915-1919.....	171	36	1,709	535	388	28	150,561	15.3	3	373	64	12,887	146	2,872	159	186,266
1920-1924.....	133	20	1,337	274	216	12	38,760	31.6	3	202	117	34,699	214	5,815	206	156,909
1925-1929.....	185	20	1,033	188	33	7	336,325	43.4	9	936	203	49,436	302	3,463	324	234,171
Not reported.....	153	8	510	190	6	1	18,500	3.7	7	190	45	10,096	153	636	162	37,321

STATE TABLE 21.—IRRIGATION WORKS, BY CHARACTER OF ENTERPRISE, 1930

CHARACTER OF ENTERPRISE (See definitions in Introduction)	DAMS		MAIN CANALS		Lateral canals, length	RESERVOIRS		Pipe lines, length	FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diversion	Storage	Capacity	Length		Number	Capacity		Number	Capacity	Number	Capacity	Number	Engine or motor capacity	Pumps	
	Number	Number	Sec.-ft.	Miles		Miles	Acre-feet		Miles	G. p. m.	G. p. m.	G. p. m.	H. p.	Number	Capacity	
Total.....	3,806	167	25,906	5,839	2,338	120	1,698,428	225.3	59	6,535	558	136,069	1,091	21,257	1,157	1,022,213
Individual and partnership.....	3,595	140	12,381	4,040	338	97	199,814	109.7	34	5,779	552	132,874	1,030	8,366	1,060	564,723
Cooperative ¹	132	10	4,270	707	359	7	75,014	22.3	1	750	5	1,995	27	4,203	41	132,090
Irrigation district.....	46	12	4,967	675	1,272	10	408,600	47.8			1	1,800	27	8,158	47	203,550
Commercial.....	16	2	985	100	51	2	69,000	1.9								
United States Bureau of Indian Affairs.....	4		360	25	15			0.5								
United States Bureau of Reclamation.....	9	3	2,162	214	284	4	946,000	42.1					4	340	6	104,100
State.....			1	1				1.0					2	90	2	750
Other.....	4		780	77	30				24	6			1	100	1	17,000

¹ Includes 1 Carey Act enterprise (see explanation in text for State Table 6).

IRRIGATION—OREGON

STATE TABLE 22.—IRRIGATION WORKS, BY DRAINAGE BASIN, 1930

DRAINAGE BASIN (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS		Pipe lines, length	FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS				
	Diver- sion	Stor- age	Capac- ity	Length	Lat- eral canals, length	Num- ber	Capacity		Num- ber	Capac- ity	Num- ber	Capac- ity	Num- ber	Engino or motor capac- ity	Pumps		Aver- age lift
															Number	Capacity	
Total.....	Number 3,800	Number 107	Sec.-ft. 25,000	Miles 6,830	Miles 2,338	120	Acre-ft. 1,608,428	Miles 225.3	59	C. p. m. 0,535	558	C. p. m. 130,000	1,091	H. p. 21,257	1,157	C. p. m. 1,022,213	Feet 27
Tributaries of Columbia River.....	2,700	118	17,120	4,104	1,647	80	987,123	204.2	15	2,005	535	121,217	931	12,000	978	600,215	27
Snake River and tributaries.....	1,304	73	0,200	2,241	393	58	783,260	32.0	6	1,505	93	31,714	266	7,028	202	292,378	22
Snake River direct.....	2	2	554	85	27	1	6,000	15.4			3	1,375	78	5,978	101	188,085	27
Owyhee River.....	65	14	535	166	43	14	301,053	1.5			1		76	540	77	36,804	15
Malheur River.....	331	11	2,042	348	72	10	234,323	4.3	2	290	1	25	12	652	12	20,420	25
Burnt River.....	184	9	458	269	9	5	104,120	1.1	1	75	1	150	1	2	1	14	14
Powder River.....	342	22	2,722	800	143	10	3,314	6.7	3	1,150	30	10,020	32	377	33	14,025	25
Pine Creek.....	62	5	343	122	15	3	2,004	0.1									
Imnaha River.....	70		212	67	8								1	6	1	300	20
Grande Ronde River.....	175	10	1,551	271	52	5	41,706				58	20,144	67	367	67	23,604	18
Other tributaries.....	53		192	60	24	1	20	2.0									
Walla Walla River.....	27		261	81	14			2.4	1	125	178	42,462	100	860	100	40,204	28
Umatilla River.....	179	0	1,804	317	90	3	52,412	43.4			11	2,400	25	208	27	13,700	25
Wiflow Creek.....	117	1	171	101				0.1			2	2	2	4	2	2	65
John Day River.....	712	6	952	601	28	5	1,600	1.0					30	385	30	40,420	10
Deschutes River.....	224	10	4,166	556	87	8	148,820	12.4			1	13	26	823	26	30,331	27
Hood River.....	30	3	432	71	137			44.4					3	3	3	271	32
Willamette River.....	68	15	72	36	2	3	1,010	43.6	4	150	187	50,307	202	2,032	311	160,740	22
Other tributaries of Columbia River.....	30	4	53	40	17	3	3	24.0	4	225	63	4,100	96	363	97	10,010	57
Rogue River and tributaries.....	339	14	1,710	707	422	11	45,924	10.0	1	2	13	6,292	70	4,501	70	73,234	30
Rogue River direct.....	8	2	322	85	52	1	5	6.4			1	1,800	30	4,132	31	40,045	30
Little Butte Creek.....	30	2	172	114	202	2	21,000	2.1			2	540	3	7	3	550	38
Bear Creek.....	46	3	327	117	52	3	24,226	0.6			6	3,780	17	79	16	6,510	16
Evans Creek.....	13		40	16									5	63	5	1,150	43
Applegate River.....	110	6	461	186	15	5	604	1.3			1	75	8	175	8	12,825	38
Illinois River.....	90	1	237	106				0.3									
Other tributaries.....	42		142	83	101			0.3	1	2	3	97	7	45	7	2,544	23
Klamath River and tributaries.....	67	10	3,040	481	275	9	501,106	3.5	25	41			56	3,620	73	300,280	30
Klamath River direct.....	6		114	22				0.1					17	440	19	34,147	33
Lost River.....	13	3	1,008	217	210	2	500,000	2.2					28	2,480	38	207,742	33
Sprague River.....	9	6	327	35	3	0	1,002	0.5									
Other tributaries.....	39	1	1,600	207	53	1	44	0.7	23	41			13	700	10	67,400	19
Other Pacific Ocean streams.....	66	6	103	58	1	5	24	0.3					21	316	22	26,585	19
Independent streams.....	634	19	3,924	489	93	15	104,251	1.3	18	4,487	10	6,160	13	154	14	12,000	22
Deep Creek.....	12		5	3													
Donnor and Blitzen River.....	4		304	42	17												
Sivies River.....	102	4	622	91	7						0	2,400	6	66	7	2,050	23
Other.....	516	15	2,993	353	69	15	104,251	1.3	18	4,487	4	6,700	7	88	7	9,050	21

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND COST OF MAINTENANCE

ITEM (See definitions in Introduction)		THE STATE	Baker	Benton	Clackamas	Crook	Deschutes
FARMS AND FARM OPERATORS							
1	All farms..... 1930..... number..	55,163	1,383	1,340	4,747	489	824
2	Irrigated farms..... 1930..... number..	11,387	1,113	21	51	324	712
3	Operated by—						
4	Owners and managers..... number..	9,339	824	16	41	237	584
5	Tenants..... number..	2,048	289	5	10	87	128
6	Irrigated farms..... 1920..... number..	9,154	1,102	(¹)	(¹)	301	560
	Increase, ¹ 1920-1930..... per cent..	24.4	1.0			7.6	20.4
FARM AREA AND TOTAL LAND AREA							
7	Approximate land area..... 1930..... acres..	61,188,480	1,975,040	440,320	1,195,520	1,877,760	1,061,600
8	Land in all farms..... 1930..... acres..	16,548,078	672,006	222,253	290,573	634,002	155,432
9	Land in irrigated farms..... 1930..... acres..	6,306,825	562,849	3,276	2,492	450,619	95,032
10	Average, per farm..... acres..	553.9	505.7	155.0	48.0	1,300.8	133.5
11	Operated by owners and managers..... acres..	5,606,140	478,024	2,589	2,122	392,230	76,800
12	Average, per farm..... acres..	600.3	580.1	161.8	51.8	1,055.0	131.5
13	Operated by tenants..... acres..	700,685	84,825	687	370	58,389	18,232
14	Average, per farm..... acres..	342.1	293.5	137.4	37.0	671.1	142.4
15	Area irrigated..... 1920..... acres..	898,718	110,478	171	560	35,810	48,066
16	1919..... acres..	986,162	171,490	(¹)	(¹)	42,708	57,293
17	Increase, ¹ 1919-1920..... per cent..	-8.9	-30.3			-16.2	-16.1
18	Area enterprises were capable of supplying with water..... 1930..... acres..	1,158,210	134,621	238	680	44,829	82,984
19	1920..... acres..	1,344,046	218,671	(¹)	(¹)	52,767	106,246
20	Increase, ¹ 1920-1930..... per cent..	-13.8	-38.4			-15.0	-21.9
21	Irrigable area in enterprises..... 1930..... acres..	1,478,128	159,981	380	999	47,088	94,336
22	Total area in enterprises..... 1920..... acres..	1,925,987	250,361	(¹)	(¹)	62,449	176,387
23	Area in enterprises available, or to be available, for settlement..... 1930..... acres..	330,475	2,863		666	5,200	15,884
IRRIGATION WORKS							
24	Enterprises..... 1930..... number..	4,071	561	15	20	104	30
25	1920..... number..	4,710	825	(¹)	(¹)	168	38
26	Main canals..... 1930..... length, miles..	5,839	1,081	4	8	213	233
27	1920..... length, miles..	7,115	1,461	(¹)	(¹)	313	255
28	1930..... capacity, sec.-ft..	25,906	3,193	5	15	1,254	2,638
29	1920..... capacity, sec.-ft..	28,897	3,925	(¹)	(¹)	784	2,898
30	Laterals..... 1930..... length, miles..	2,338	166	1	1	208	468
31	1920..... length, miles..	1,956	201	(¹)	(¹)	111	142
32	Reservoirs..... 1930..... number..	120	27		1	2	1
33	1920..... number..	266	53	(¹)	(¹)	3	4
34	1930..... capacity, ac.-ft..	1,698,428	110,088		2	47,628	100
35	1920..... capacity, ac.-ft..	1,905,037	36,145	(¹)	(¹)	47,101	5,123
36	Wells, flowing..... 1930..... number..	59	4		4		
37	1920..... number..	65	8	(¹)	(¹)		
38	1930..... capacity, g. p. m..	6,636	1,225		150		
39	1920..... capacity, g. p. m..	11,968	315	(¹)	(¹)		
40	Wells, pumped..... 1930..... number..	558	31	5	8		
41	1920..... number..	208	13	(¹)	(¹)	2	
42	1930..... capacity, g. p. m..	136,669	10,170	725	323		
43	1920..... capacity, g. p. m..	47,026	4,780	(¹)	(¹)	371	
44	Pumping plants..... 1930..... number..	1,091	35	9	15		3
45	1920..... number..	673	19	(¹)	(¹)	11	1
46	1930..... engine capacity, h. p..	21,257	405	95	80	181	601
47	1920..... engine capacity, h. p..	13,769	1,668	(¹)	(¹)	430	200
48	1930..... pump capacity, g. p. m..	1,022,213	14,900	5,905	1,449	16,324	10,602
49	1920..... pump capacity, g. p. m..	600,045	71,297	(¹)	(¹)	23,121	7,600
50	1930..... average lift, feet..	27	26	13	47	18	77
51	1920..... average lift, feet..	28	31	(¹)	(¹)	32	120
VALUES OF FARMS, 1930							
52	Land and buildings, all farms..... dollars..	630,827,927	16,214,053	13,068,565	38,732,175	5,812,009	5,509,871
53	Land and buildings, irrigated farms..... dollars..	160,937,926	14,961,656	216,361	621,075	4,924,004	4,988,126
54	Operated by—						
55	Owners and managers..... dollars..	186,987,981	11,251,335	183,961	530,500	4,012,144	4,091,826
56	Tenants..... dollars..	23,949,945	3,710,321	32,400	91,175	917,950	896,300
57	Average, land and buildings, per farm..... dollars..	14,133.48	13,442.64	10,302.00	12,189.70	15,197.82	7,005.70
58	Land (excluding buildings)..... dollars..	26.52	26.58	66.04	249.47	10.93	52.49
59	Buildings (including dwellings)..... dollars..	180,246,175	12,202,567	147,013	393,115	4,137,340	3,770,787
60	1920..... dollars..	80,691,751	2,750,089	60,348	228,560	786,754	1,217,339
61	Implements and machinery, irrigated farms..... dollars..	10,981,076	987,292	15,317	45,751	361,517	463,099
62	Average, per farm..... dollars..	964.35	887.05	729.38	897.08	1,115.79	650.42
	per acre..... dollars..	1.74	1.75	4.68	18.36	0.80	4.87
INVESTMENT IN IRRIGATION ENTERPRISES							
63	Investment to Jan. 1, 1930..... dollars..	38,754,648	1,533,692	8,215	20,230	2,859,630	2,025,021
64	1920..... dollars..	28,929,151	2,153,639	(¹)	(¹)	1,789,917	2,758,084
65	Increase, ¹ 1920-1930..... per cent..	34.0	-28.8			60.8	-4.8
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930..... dollars..	33.46	11.39	34.52	20.62	63.79	31.63
67	1920..... dollars..	21.52	9.85	(¹)	(¹)	33.93	25.06
68	Estimated final investment in existing enterprises, 1930..... dollars..	60,039,939	1,722,042	9,415	26,580	3,061,630	2,652,421
69	1920..... dollars..	41,585,742	2,941,539	(¹)	(¹)	2,115,043	4,747,115
70	Increase, ¹ 1920-1930..... per cent..	44.4	-41.4			44.8	-44.1
71	Average, per acre, based on estimated final investment and irrigable area, 1930..... dollars..	40.02	10.76	24.78	20.61	65.02	28.12
72	1920..... dollars..	21.50	11.34	(¹)	(¹)	33.87	26.91
COST OF MAINTENANCE AND OPERATION, 1929							
73	Irrigated area for which cost was reported..... acres..	863,685	110,214	170	479	34,990	47,641
74	Average, per acre, based on area reporting..... dollars..	1.41	0.60	4.82	5.12	1.56	1.92

¹ Included in "All other counties."

¹ A minus sign (—) denotes decrease.

IRRIGATION—OREGON

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Polk	Umatilla	Union	Wallowa	Wasco	Wheeler	All other counties ¹
FARMS AND FARM OPERATORS								
1	All farms..... 1930..... number	1,882	2,265	1,276	952	1,076	284	17,334
2	Irrigated farms..... 1930..... number	12	1,160	491	459	293	122	200
3	Operated by—							
4	Owners and managers..... number	9	962	398	339	241	114	144
5	Tenants..... number	3	204	93	120	52	8	50
6	Irrigated farms..... 1920..... number	(?)	1,149	469	427	267	137	24
5	Increase, ² 1920-1930..... per cent.		1.5	4.7	7.5	9.7	-10.9	733.3
FARM AREA AND TOTAL LAND AREA								
7	Approximate land area..... 1930..... acres	453,120	2,049,920	1,284,480	2,028,160	1,499,520	1,090,560	7,571,200
8	Land in all farms..... 1930..... acres	245,363	1,377,484	457,981	569,759	892,555	688,050	2,228,226
9	Land in irrigated farms..... 1930..... acres	4,454	482,635	160,079	246,806	200,892	400,690	19,659
10	Average, per farm..... acres	371.2	413.9	326.0	537.7	685.0	3,776.2	98.3
11	Operated by owners and managers..... acres	3,324	427,830	123,770	212,984	180,785	437,494	16,897
12	Average, per farm..... acres	389.3	444.7	323.5	628.3	775.0	3,837.7	117.3
13	Operated by tenants..... acres	1,130	54,805	31,309	33,822	14,107	23,202	2,762
14	Average, per farm..... acres	376.7	268.6	336.6	281.8	271.3	2,900.2	49.3
15	Area irrigated..... 1929..... acres	635	39,908	38,379	43,146	9,559	6,351	953
16	Increase, ³ 1919-1929..... acres	(?)	50,050	53,183	52,445	9,382	7,475	7,402
17	..... per cent.		-28.7	-27.8	-17.7	1.0	-15.0	-87.1
18	Area enterprises were capable of supplying with water..... 1930..... acres	775	49,550	40,874	47,642	11,536	7,413	1,119
19	Increase, ³ 1920-1930..... acres	(?)	91,543	61,444	56,001	13,611	8,692	9,015
20	..... per cent.		-45.9	-33.5	-18.8	-15.2	-14.7	-87.6
21	Irrigable area in enterprises..... 1930..... acres	933	60,932	41,846	49,222	40,044	7,691	1,386
22	Total area in enterprises..... 1930..... acres	(?)	104,015	69,414	64,513	48,742	11,005	9,689
23	Area in enterprises available, or to be available, for settlement..... 1930..... acres		16,569		3,051			
IRRIGATION WORKS								
24	Enterprises..... 1930..... number	12	489	241	157	171	132	77
25	..... 1920..... number	(?)	497	311	230	148	156	101
26	Main canals..... 1930..... length, miles		336	264	237	130	188	8
27	..... 1920..... length, miles	(?)	416	404	337	160	179	48
28	..... 1930..... capacity, ac.-ft.		1,639	827	1,293	225	128	7
29	..... 1920..... capacity, ac.-ft.	(?)	1,932	1,351	1,398	328	271	161
30	Laterals..... 1930..... length, miles		85	31	31	92	13	1
31	..... 1920..... length, miles	(?)	176	97	87	99	16	8
32	Reservoirs..... 1930..... number	3	3	3	3	6	1	2
33	..... 1920..... number	(?)	8	1	7	10	1	7
34	..... 1930..... capacity, ac.-ft.		52,412	36	41,760	20,503	1,600	21
35	..... 1920..... capacity, ac.-ft.	(?)	69,700	20	205,430	1	2,400	3
36	Wells, flowing..... 1930..... number		1			4		
37	..... 1920..... number	(?)	3			1		
38	..... 1930..... capacity, g. p. m.		125			225		
39	..... 1920..... capacity, g. p. m.	(?)				70		
40	Wells, pumped..... 1930..... number	12	189	58		57		16
41	..... 1920..... number	(?)	94	20		20		19
42	..... 1930..... capacity, g. p. m.		3,600	44,922	20,144	3,357		3,051
43	..... 1920..... capacity, g. p. m.	(?)	19,496	4,203		516		1,794
44	Pumping plants..... 1930..... number	14	216	66	3	80	15	46
45	..... 1920..... number	(?)	103	34	5	41	21	41
46	..... 1930..... engine capacity, h. p.		264	1,128	357	325	188	267
47	..... 1920..... engine capacity, h. p.	(?)	582	186	25	273	266	318
48	..... 1930..... pump capacity, g. p. m.		73,625	60,054	23,454	1,150	15,879	14,425
49	..... 1920..... pump capacity, g. p. m.	(?)	23,671	10,578	605	8,974	14,195	10,531
50	..... 1930..... average lift, feet.		20	27	19	25	63	23
51	..... 1920..... average lift, feet.	(?)	26	12	32	49	18	26
VALUES OF FARMS, 1930								
52	Land and buildings, all farms..... dollars.	21,762,871	59,016,114	18,552,998	10,848,356	14,824,452	4,501,775	178,333,611
53	Land and buildings, irrigated farms..... dollars.	806,286	14,656,855	7,194,642	6,850,806	3,898,558	2,852,733	2,449,088
54	Operated by—							
55	Owners and managers..... dollars.	795,086	12,557,775	5,527,745	5,200,296	3,437,633	2,709,733	1,794,880
56	Tenants..... dollars.	71,200	2,099,080	1,666,897	1,650,510	460,925	143,000	654,708
57	Average, land and buildings, per farm..... dollars.	72,190.60	12,570.20	14,653.04	14,925.50	13,305.66	23,383.06	12,245.44
58	..... per acre..... dollars.	194.50	30.37	44.94	27.76	19.41	6.19	124.58
59	Land (excluding buildings)..... dollars.	629,877	11,742,435	5,697,882	5,546,071	3,096,946	2,445,913	1,837,198
59	Buildings (including dwellings)..... dollars.	236,409	2,914,420	1,496,760	1,304,735	801,612	406,820	611,890
60	Implements and machinery, irrigated farms..... dollars.	100,638	895,175	481,968	496,762	307,150	202,355	167,189
61	Average, per farm..... dollars.	8,386.50	767.73	981.60	1,082.27	1,048.29	1,658.65	835.70
62	..... per acre..... dollars.	22.59	1.85	3.01	2.01	1.53	0.44	8.50
INVESTMENT IN IRRIGATION ENTERPRISES								
63	Investment to Jan. 1, 1930..... dollars.	46,042	3,012,147	286,335	486,513	600,910	103,899	58,990
64	..... 1920..... dollars.	(?)	3,309,599	260,912	497,791	486,627	159,590	293,396
65	Increase, ³ 1920-1930..... per cent.		-9.0	9.7	-2.3	23.5	-34.9	-79.9
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930..... dollars.	59.41	60.79	7.00	10.21	52.09	14.02	52.72
67	..... 1920..... dollars.	(?)	36.15	4.28	8.79	35.75	18.36	32.55
68	Estimated final investment in existing enterprises, 1930..... dollars.	56,442	3,555,772	291,385	492,403	717,140	103,899	66,595
69	..... 1920..... dollars.	(?)	4,423,916	262,522	618,521	998,752	167,495	314,746
70	Increase, ³ 1920-1930..... per cent.		-19.7	11.0	-20.2	-28.2	-38.0	-78.8
71	Average, per acre, based on estimated final investment and irrigable area, 1930..... dollars.	60.50	58.36	6.06	10.00	17.91	13.51	48.05
72	Average, per acre, based on estimated final investment and total area, 1920..... dollars.	(?)	42.58	3.78	9.59	20.49	15.22	32.49
COST OF MAINTENANCE AND OPERATION, 1929								
73	Irrigated area for which cost was reported..... acres.	635	37,240	38,348	42,778	6,986	6,351	809
74	Average, per acre, based on area reporting..... dollars.	4.94	2.06	0.44	0.58	3.31	1.81	14.84

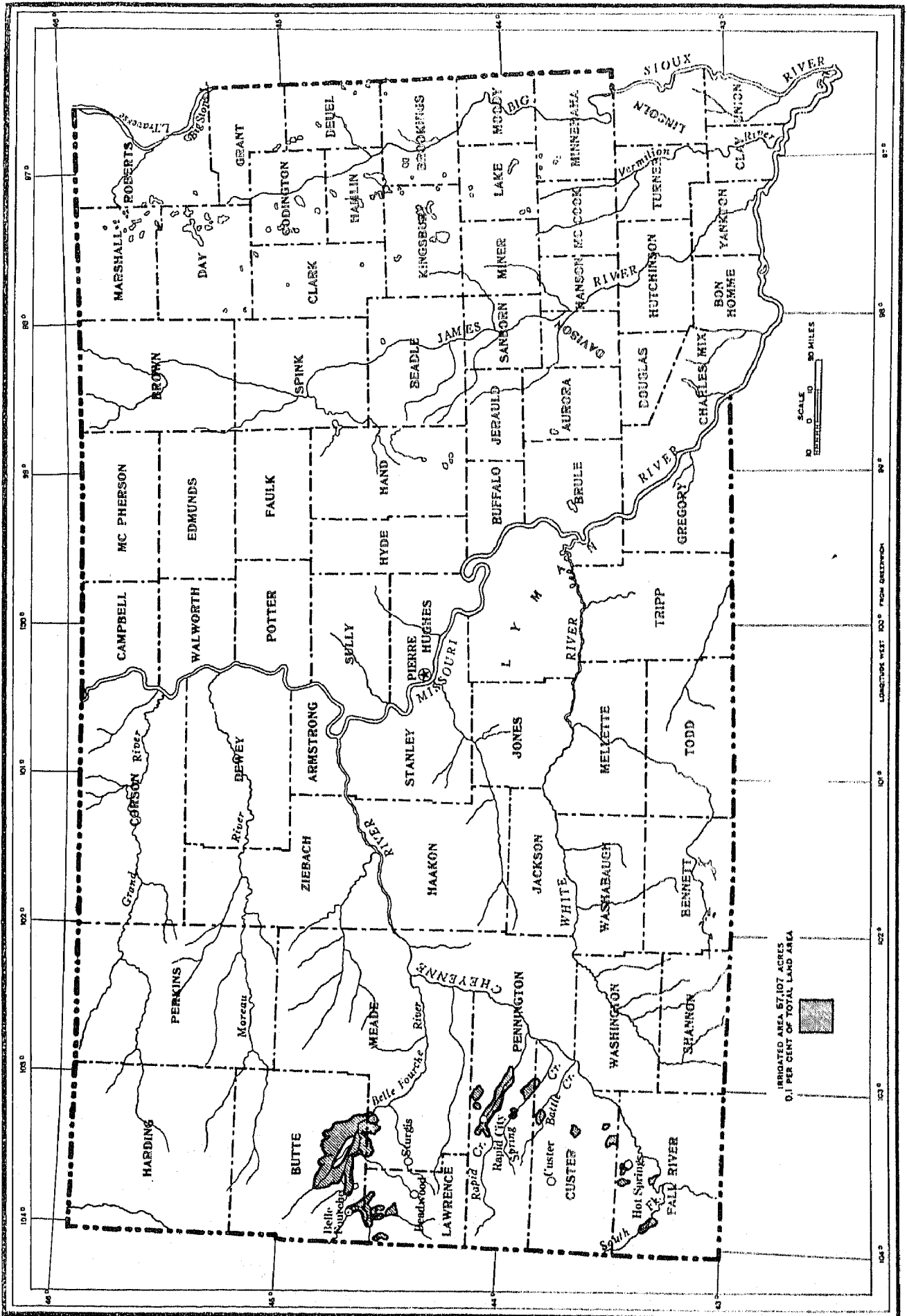
¹ Curry County only reported no irrigation, 1930.

² Included in "All other counties."

³ A minus sign (-) denotes decrease.

SOUTH DAKOTA

APPROXIMATE LOCATION AND EXTENT OF IRRIGATED LAND



SOUTH DAKOTA

INTRODUCTION

Statistics are presented in the following pages on farms irrigated and area irrigated, investment and cost of maintenance and operation of irrigation enterprises, cost of preparing land for irrigation, drainage of irrigated land, quantity of water used, and distribution of irrigation works, with specialized information relating to dams, pipe lines, and pumping equipment. Data on area irrigated, investment, and irrigation works are given in detail by drainage basins. Classifications of irrigated farms by type of farm, size of farm, and value of farm products; and the acreage, yield, and value of the principal crops grown on irrigated land, for all irrigation States, are shown in Parts III and IV, pages 257 and 325, respectively, of this volume.

Statistics for area irrigated and for cost of maintenance and operation of irrigation works relate to the year 1929; all other items relate to 1930.

For purposes of comparison, statistics for the census of 1920 are shown, where available; and for the purpose of showing the historical development of irrigation certain data are presented from censuses previous to that of 1920.

Data on number, area, and value of wholly and partly irrigated farms with the tenure of the operators of these farms were collected in 1930 on the general farm schedule; in 1920 only the number of irrigated farms was obtained in this way. All other statistics, in both censuses, were collected on special schedules for irrigation enterprises.

STATE TABLE 1.—SUMMARY FOR THE STATE: 1930 AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Amount	Per cent
All farms..... number.....	83, 157	74, 637	8, 520	11. 4
All land in farms..... acres.....	36, 470, 083	34, 036, 401	1, 833, 592	5. 3
Approximate land area of State..... acres.....	49, 195, 520	49, 195, 520		
Farms irrigated..... number.....	763	1, 198	-435	-36. 3
Area irrigated..... acres.....	67, 107	100, 682	-33, 575	-33. 3
Area enterprises were capable of supplying with water..... acres.....	109, 550	150, 914	-41, 364	-27. 4
Area in enterprises ² acres.....	122, 510	188, 382		
Proportion irrigated:				
All farms..... per cent.....	0. 9	1. 6		
All land in farms..... per cent.....	0. 2	0. 3		
Approximate land area of State..... per cent.....	0. 1	0. 2		
Excess of area enterprises were capable of supplying with water over area irrigated..... acres.....	42, 443	50, 232	-7, 789	-15. 5
Excess of area in enterprises ² over area irrigated..... acres.....	55, 403	87, 700		
Area in enterprises available, or to be available, for settlement..... acres.....	5, 000	(3)		
Value of irrigated farms [land, buildings (including dwellings), and implements and machinery]..... dollars.....	11, 576, 300	(4)		
Investment in irrigation enterprises..... dollars.....	4, 502, 117	5, 466, 248	-964, 131	-17. 6
Average, per acre, based on area enterprises were capable of supplying with water..... dollars.....	41. 10	36. 21	4. 89	13. 6
Estimated final cost of existing enterprises..... dollars.....	5, 174, 417	5, 500, 748	-326, 331	-5. 9
Average, per acre, based on area in enterprises ² dollars.....	42. 24	29. 20		
Average annual cost, per acre, for maintenance and operation of irrigation works..... dollars.....	1. 33	1. 26	0. 07	5. 6

¹ A minus sign (-) denotes decrease.

² Irrigable area, 1930; total area, 1920.

³ Not reported.

⁴ Figures not available.

STATE TABLE 2.—FARMS AND SPECIFIED FARM VALUES, BY TENURE OF FARM OPERATOR, 1930

ITEM (See definitions in Introduction)	FARMS		SPECIFIED FARM VALUES					
	Number	Area	Land and buildings		Land alone		Implements and machinery	
			Total	Per acre	Total	Per acre	Total	Per acre
All farms.....	83, 157	36, 470, 083	1, 285, 153, 538	35. 24	1, 032, 288, 321	28. 33	107, 343, 678	2. 94
Owners and managers.....	46, 063	23, 435, 146	738, 617, 232	31. 52			64, 762, 923	2. 76
Tenants.....	37, 094	13, 034, 937	546, 536, 306	41. 93			42, 580, 755	3. 27
Irrigated farms.....	703	379, 270	10, 520, 455	27. 74	8, 312, 305	21. 92	1, 055, 845	2. 78
Owners and managers.....	453	267, 826	6, 417, 810	23. 96	4, 996, 210	18. 65	661, 125	2. 47
Tenants.....	310	111, 444	4, 102, 645	36. 81	3, 316, 095	29. 76	394, 720	3. 54
Wholly irrigated farms.....	469	122, 816	5, 232, 170	42. 60	4, 020, 795	32. 74	552, 255	4. 50
Owners and managers.....	256	70, 041	2, 794, 345	39. 90	2, 073, 520	29. 60	302, 220	4. 31
Tenants.....	213	52, 775	2, 437, 825	46. 19	1, 947, 275	36. 90	250, 035	4. 74
Partly irrigated farms.....	294	256, 454	5, 288, 285	20. 62	4, 291, 510	16. 73	503, 590	1. 96
Owners and managers.....	197	197, 785	3, 623, 465	18. 32	2, 922, 690	14. 78	358, 905	1. 81
Tenants.....	97	58, 669	1, 664, 820	28. 38	1, 368, 820	23. 33	144, 685	2. 47
Farms not irrigated.....	82, 394	36, 090, 813	1, 274, 633, 083	35. 22	1, 024, 976, 016	28. 40	106, 287, 833	2. 94

FARMS AND AREA IRRIGATED

In State Table 3 and in other tables "Number of farms irrigated" is equivalent to "Number of irrigators" used in census reports previous to 1910.

STATE TABLE 3.—FARMS AND AREA IRRIGATED: 1890 TO 1930

CENSUS YEAR	FARMS IRRIGATED			AREA IRRIGATED			
	Number	In-crease ¹	Pro-portion of all farms	Area	In-crease ¹	Pro-portion of total land area of State	Pro-portion of land in all farms
1930.....	763	-36.3	0.0	67,107	-33.3	0.1	0.2
1920.....	1,108	130.0	1.0	100,682	50.2	0.2	0.3
1910.....	500	-17.5	0.6	63,248	44.8	0.1	0.2
1900.....	608	220.0	1.2	43,070	177.0	0.1	0.2
1890.....	189		0.4	15,717		(?)	0.1

¹ A minus sign (-) denotes decrease.
² Less than one-tenth of 1 per cent.

STATE TABLE 4.—AREA, BY DATE OF BEGINNING OF ENTERPRISES SUPPLYING WATER FOR IRRIGATION

DATE OF BEGINNING (See definitions in Introduction)	Enter-prises, 1930	AREA IRRIGATED IN 1929		Area enterprises were capable of supplying with water, 1930	Irriga-ble area in enterprises, 1930
		Area	Pro-portion of irrigable area in enterprises		
Total.....	Number 121	Acres 67,107	Per cent 64.8	Acres 100,550	Acres 122,510
1870-1879.....	31	0,742	63.1	7,242	7,242
1880-1889.....	30	14,233	84.0	15,503	10,753
1890-1899.....	12	3,988	80.3	4,301	4,001
1900-1904.....	5	36,438	44.7	74,880	81,600
1905-1909.....	7	3,815	89.3	4,198	4,273
1910-1914.....	10	766	12.1	2,231	6,331
1915-1919.....	3	102	100.0	102	102
1920-1924.....	4	232	100.0	232	232
1925-1929.....	7	262	90.3	270	260
Not reported.....	12	531	72.1	531	736

STATE TABLE 5.—AREA, BY SOURCE OF WATER SUPPLY: 1929 AND 1919

SOURCE OF SUPPLY	AREA IRRIGATED				Area enterprises were capable of supplying with water, 1930	Irriga-ble area in enterprises, 1930
	1929	1919	Increase ¹			
			Area	Per cent		
Total.....	Acres 67,107	Acres 100,682	-33,575	-33.3	Acres 100,550	Acres 122,510
Streams, gravity.....	65,855	92,491	-26,636	-28.8	107,867	120,002
Streams, pumped.....	61	869	-808	-93.0	246	251
Wells, flowing.....	528	130	398	306.2	533	548
Lakes, gravity.....		170	-170	-100.0		
Springs.....	25	326	-301	-92.3	25	25
Stored storm water ²	150	2,312	-2,162	-93.5	301	301
Streams, gravity and wells, pumped.....		500	-500	-100.0		
Streams, gravity and wells, flowing.....	160	20	140	700.0	160	100
Other mixed.....		3,804	-3,804	-100.0		
Not reported.....	328		328		328	533

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² In reservoirs filled from channels which carry water only during storms and are not classed as streams.

AREA, BY CHARACTER OF ENTERPRISE

The areas credited, in State Table 6, to the United States Bureau of Reclamation are included in Belle Fourche irrigation district, an enterprise organized since 1920 with the eventual purpose of taking over the Belle Fourche project, which was built and is now operated by the Federal Government. This is the only irrigation district in South Dakota.

No Carey Act enterprises were reported in either 1930 or 1920, although South Dakota accepted the conditions of the Carey Act in 1909.

STATE TABLE 6.—AREA, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

(For number of enterprises by classes, see State Table 11)

ITEM AND CHARACTER (See definitions in Introduction)	CENSUS OF		INCREASE ¹	
	1930	1920	Area	Per cent
AREA IRRIGATED				
Total.....	Acres 67,107	Acres 100,682	-33,575	-33.3
Individual and partnership.....	11,268	31,604	-20,336	-64.4
Cooperative.....	10,648	10,080	568	5.4
Commercial.....	2,280	2,280	0	0.0
United States Bureau of Indian Affairs.....	20	20	0	0.0
United States Bureau of Reclamation.....	36,163	50,638	-20,445	-36.1
AREA ENTERPRISES WERE CAPABLE OF SUPPLYING WITH WATER				
Total.....	109,550	160,014	-41,364	-27.4
Individual and partnership.....	14,174	56,032	-41,858	-74.7
Cooperative.....	20,876	10,015	10,861	106.7
Commercial.....	1,600	1,600	0	0.0
United States Bureau of Indian Affairs.....	75	75	0	0.0
United States Bureau of Reclamation.....	74,500	82,502	-8,002	-9.6
AREA IN ENTERPRISES²				
Total.....	122,510	188,382		
Individual and partnership.....	10,634	76,683		
Cooperative.....	22,276	11,410		
Commercial.....	2,280	2,280		
United States Bureau of Indian Affairs.....	75	75		
United States Bureau of Reclamation.....	81,200	97,634		

¹ A minus sign (-) denotes decrease. ² Irrigable area, 1930; total area, 1920.

AREA, BY CHARACTER OF WATER RIGHTS

STATE TABLE 7.—AREA IRRIGATED, BY CHARACTER OF RIGHTS UNDER WHICH WATER IS RECEIVED: 1929 AND 1919

WATER RIGHTS (See definitions in Introduction)	1929		1919	
	Area	Pro-portion of total	Area	Pro-portion of total
Total.....	Acres 67,107	Per cent 100.0	Acres 100,682	Per cent 100.0
Appropriation and use.....	443	0.6	1,774	1.8
Notice filed and posted.....	38,382	57.2	62,054	61.6
Adjudicated by court.....	11,605	17.4	7,051	7.0
Permit from State.....	6,885	8.8	17,500	17.4
Certificate or license from State.....	2,034	4.4	8,012	8.5
Riparian.....	3,305	5.0	1,590	1.6
Underground.....	629	0.8	130	0.1
Mixed.....	3,480	5.2	1,190	1.2
Not reported.....	404	0.6	1,172	1.2

¹ "Other and mixed."

IRRIGATION—SOUTH DAKOTA

AREA, BY DRAINAGE BASIN

STATE TABLE 8.—AREA, BY DRAINAGE BASIN: 1929 AND 1919

DRAINAGE BASIN (See definitions in Introduction)	AREA IRRIGATED			Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹		
	Acres	Acres	Per cent		
Total.....	67,107	100,682	-33.3	100,550	122,510
Missouri River and tributaries.....	67,107	100,682	-33.3	100,550	122,510
Missouri River direct.....	5			8	18
Cheyenne River and tributaries.....	66,031	99,333	-33.5	108,324	120,984
Cheyenne River direct.....		99,333			
North Fork (Belle Fourche River).....	51,842			90,350	97,159
South Fork.....	14,678			17,864	23,624
Other tributaries.....	11			101	201
Little Missouri River.....		640	-100.0		
Moreau River.....	60	305	-80.3	60	60
White River.....	4			4	4
Other tributaries.....	1,007	404	59.9	1,154	1,449

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² Includes Belle Fourche River.

INVESTMENT, AND COST OF MAINTENANCE AND OPERATION OF IRRIGATION ENTERPRISES

STATE TABLE 9.—INVESTMENT IN ENTERPRISES: 1890 TO 1930

CENSUS YEAR	INVESTMENT		AVERAGE, PER ACRE ¹	
	Amount	Increase ²	Amount	Increase
	Dollars	Per cent	Dollars	Per cent
1930.....	4,502,117	-17.6	41.10	13.5
1920.....	5,465,248	79.6	36.21	52.8
1910.....	3,043,140	968.7	23.69	263.3
1900.....	284,747	345.1	6.52	60.2
1890.....	63,968		4.07	

¹ Based on area enterprises were capable of supplying with water.
² A minus sign (-) denotes decrease.

STATE TABLE 10.—INVESTMENT, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	INVESTMENT		
	Amount	Proportion of total	Average, per acre ¹
	Dollars	Per cent	Dollars
Total.....	4,502,117	100.0	41.10
1870-1879.....	60,714	1.5	9.21
1880-1889.....	221,416	4.9	14.28
1890-1899.....	55,914	1.2	12.82
1900-1904.....	4,070,440	90.4	54.36
1905-1909.....	19,910	0.4	4.74
1910-1914.....	49,163	1.1	22.04
1915-1919.....	1,550	(?)	15.20
1920-1924.....	4,100	0.1	17.07
1925-1929.....	2,810	0.1	10.41
Not reported.....	10,100	0.2	19.02

¹ Based on area enterprises were capable of supplying with water in 1930.
² Less than one-tenth of 1 per cent.

STATE TABLE 11.—INVESTMENT, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

CHARACTER OF ENTERPRISE (See definitions in Introduction)	Enterprises, 1930	INVESTMENT		INCREASE ¹	
		1930	1920	Amount	Per cent
		Dollars	Dollars	Dollars	
Total.....	Number 121	4,502,117	5,465,248	-963,131	-17.6
Individual and partnership.....	105	237,424	743,880	-506,456	-68.1
Cooperative.....	15	190,953	240,030	-49,077	-17.9
Commercial.....			15,058	-15,058	-100.0
United States Bureau of Indian Affairs.....			1,500	-1,500	-100.0
United States Bureau of Reclamation.....	1	4,067,740	4,464,780	-397,040	-8.9

¹ A minus sign (-) denotes decrease.

STATE TABLE 12.—INVESTMENT, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929; BY SOURCE OF WATER SUPPLY

(When water is pumped, cost of maintenance and operation includes cost of fuel and attendance)

SOURCE OF SUPPLY	INVESTMENT, 1930			MAINTENANCE AND OPERATION, 1929	
	Amount	Proportion of total	Average, per acre	Irrigated area reporting	Average, per acre ¹
	Dollars	Per cent	Dollars	Acres	Dollars
Total.....	4,502,117	100.0	41.10	65,783	1.33
Streams, gravity.....	4,460,744	99.3	41.44	64,945	1.34
Streams, pumped.....	11,423	0.2	40.43	60	8.17
Wells, flowing.....	6,000	0.1	11.26	460	0.33
Springs.....	725	(?)	29.00	8	6.88
Stored storm water.....	4,150	0.1	10.61	150	0.70
Streams, gravity and wells, flowing.....	1,600	(?)	10.00	160	0.69
Not reported.....	8,475	0.2	25.84		

¹ Based on area irrigated in 1929 reporting cost.
² Less than one-tenth of 1 per cent.

STATE TABLE 13.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE ¹	
	1930	1920	Amount	Per cent
	Dollars	Dollars	Dollars	
Total.....	4,502,117	5,465,248	-963,131	-17.6
Missouri River and tributaries.....	4,502,117	5,465,248	-963,131	-17.6
Missouri River direct.....	600	3,512	-2,912	-82.9
Cheyenne River and tributaries.....	4,476,175	5,277,782	-801,607	-16.2
Cheyenne River direct.....		5,277,782	-5,277,782	
North Fork (Belle Fourche River).....	4,273,434		4,273,434	
South Fork.....	196,491		196,491	
Other tributaries.....	6,250		6,250	
Little Missouri River.....		55,818	-55,818	-100.0
Moreau River.....	60	40,927	-40,867	-99.8
White River.....	207		207	
Other tributaries.....	25,075	37,209	-62,134	-71.2

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² Includes Belle Fourche River.

COST OF PREPARING LAND FOR IRRIGATION

The costs shown in State Table 14 represent estimates of expenditures already made on the areas reporting, and include clearing and grading land, and building farm laterals and farm irrigation structures. They therefore comprise costs additional to those included in the "investment in irrigation enterprises" shown in State Tables 9 to 13, inclusive.

STATE TABLE 14.—ESTIMATED COST OF PREPARING LAND, 1930

ITEM	1930
Area reporting.....acres..	88,048
Estimated cost reported.....dollars..	1,017,617
Average, per acre.....dollars..	21.60

QUANTITY OF WATER USED

The quantity of water used was reported on only part of the irrigation schedules, and all areas reporting "quantity of water entering canals" did not also report "quantity delivered to irrigators." In order that proper values may be assigned to the figures given, those representing measurements and those representing estimates are reported separately in State Table 15. While the data are incomplete, the reports represent sufficient acreage to serve as bases for reliable averages.

Some irrigation enterprises carry water to individual farms, but others only to laterals which serve several farms. The "total quantity of water delivered to irrigators," shown in State Table 15, is the quantity reported in answer to a question preceded by the inquiry: "Average head of water delivered per individual irrigator."

STATE TABLE 15.—WATER USED: 1929 AND 1930

ITEM (See definitions in Introduction)	TOTAL		MEASURED		NOT MEASURED	
	1929	1930	1929	1930	1929	1930
	Average flow of water entering canals.....sec.-ft..	625	531	535	171	00	410
Area irrigated.....acres..	47,035	60,230	43,769	56,638	3,266	12,348
Average, per second-foot.....acres..	75	110	82	333	36	30
Total quantity of water entering canals.....ac.-ft..	176,844	168,186	157,604	121,487	19,240	46,600
Area irrigated.....acres..	47,035	67,366	43,769	56,638	3,266	10,728
Average quantity per acre.....ac.-ft..	3.8	2.5	3.6	2.1	5.9	4.4
Total quantity of water delivered to irrigators.....ac.-ft..	46,520	83,674	.....	81,668	40,520	2,006
Area irrigated.....acres..	36,193	59,018	.....	56,638	30,193	2,980
Average quantity per acre.....ac.-ft..	1.3	1.4	.....	1.4	1.3	0.7

DRAINAGE OF IRRIGATED LAND

The areas in State Table 16 relate only to lands within the boundaries of irrigation enterprises. "Additional area needing drainage" represents all lands so reported by the owners of the enterprises and includes lands producing partial crops as well as those wholly unproductive.

STATE TABLE 16.—AREA WITHIN IRRIGATION ENTERPRISES FOR WHICH DRAINS HAVE BEEN INSTALLED AND ADDITIONAL AREA IN NEED OF DRAINAGE: 1930 AND 1929

ITEM	1930	1929
Enterprises reporting land drained or needing drainage.....number..	0	17
Area ¹ in enterprises reporting land drained or needing drainage.....acres..	79,729	106,129
Area for which drains have been installed.....acres..	4,353	2,169
Additional area needing drainage.....acres..	0,100	4,714
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises reporting drainage.....per cent..	5.4	2.0
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises.....per cent..	3.6	1.1
Proportion that area for which drains have been installed plus that needing drainage is of area ¹ in all irrigation enterprises.....per cent..	8.5	3.6

¹ Irrigable area, 1930; total area, 1929.

IRRIGATION WORKS

STATE TABLE 17.—DAMS, BY MATERIAL, 1930

MATERIAL	DAM	
	Diversion	Storage
	Number	Number
Total.....	91	10
Concrete or masonry.....	3	.....
Timber.....	4	.....
Earth and rock.....	.....	0
Other and mixed.....	143	.....
Not reported.....	41	1

¹ Principally temporary dams, replaced annually.

STATE TABLE 18.—LENGTH OF PIPE LINES, BY MATERIAL AND SIZE, 1930

MATERIAL AND SIZE (DIAMETER)	Length
Total.....	Miles 8.9
Concrete:	
More than 30 inches.....	1.1
1 to 12 inches.....	2.0
More than 30 inches.....	0.7
Wood:	
More than 30 inches.....	1.8
Clay:	
1 to 12 inches.....	2.3
13 to 30 inches.....	0.1

STATE TABLE 19.—PUMPING EQUIPMENT, BY KIND OF POWER AND PUMP, 1930

ITEM	ENGINES OR MOTORS		PUMPS				
	Capacity	Proportion of total	Number	Proportion of total	Capacity	Proportion of total	Average lift
KIND OF POWER	H. p.	Per cent		Per cent	G. p. m.	Per cent	Feet
Total.....	92	100.0	8	100.0	4,627	100.0	27
Internal combustion.....	91	98.9	7	87.5	3,980	99.1	24
Wind.....	1	1.1	1	12.5	37	0.9	48
KIND OF PUMP							
Centrifugal.....	88	95.6	5	62.5	3,780	93.9	24
Rotary.....	2	2.2	1	12.5	160	4.0	35
Reciprocating.....	1	1.1	1	12.5	60	1.2	12
Plunger.....	1	1.1	1	12.5	37	0.9	48

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STATE TABLE 20.—IRRIGATION WORKS, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diver- sion	Stor- age	Capacity	Length	Lateral canals, length	Number	Capacity	Pipe lines, length	Number	Capac- ity	Number	Capac- ity	Number	En- gine or motor capac- ity	Pumps	
															Number	Capac- ity
Number	Number	Sec.-ft.	Miles	Miles	5	Ac.-ft.	Miles	13	G.p.m.	1	G.p.m.	8	H. p.	8	G.p.m.	
Total.....	91	10	1,995	354	728	5	203,124	8.9	13	4,825	1	375	8	92	8	4,027
1870-1879.....	35	1	321	101	107											
1880-1889.....	27		293	95	47				1	500						
1890-1899.....	10		250	32	2			0.2								
1900-1904.....	4	1	971	95	567	1	203,000	5.9	3	30			1	20	1	1,000
1905-1909.....	4	1	114	13	3	1	120	0.1	1	1,200			1	20	1	1,400
1910-1914.....	4	7	33	13		3		0.5	3	1,175			1	2	1	100
1915-1919.....								1.0	1	60		1	375	1	1	37
1920-1924.....	2		2	2	2			0.8	1	30						
1925-1929.....	1							0.4	2	1,380						
Not reported.....	4		11	3					1	450			4	49	4	1,430

STATE TABLE 21.—IRRIGATION WORKS, BY CHARACTER OF ENTERPRISE, 1930

CHARACTER OF ENTERPRISE (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diver- sion	Stor- age	Capacity	Length	Lateral canals, length	Number	Capacity	Pipe lines, length	Number	Capac- ity	Number	Capac- ity	Number	En- gine or motor capac- ity	Pumps	
															Number	Capac- ity
Number	Number	Sec.-ft.	Miles	Miles	5	Ac.-ft.	Miles	13	G.p.m.	1	G.p.m.	8	H. p.	8	G.p.m.	
Total.....	91	10	1,995	354	728	5	203,124	8.9	13	4,825	1	375	8	92	8	4,027
Individual and partnership.....	77	9	544	164	152											
Cooperative.....	13		511	100	12	4	124	3.0	10	4,795	1	375	8	92	8	4,027
United States Bureau of Reclamation.....	1	1	940	90	564	1	203,000	5.9	3	30						

STATE TABLE 22.—IRRIGATION WORKS, BY DRAINAGE BASIN, 1930

DRAINAGE BASIN (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS				
	Diver- sion	Stor- age	Capac- ity	Length	Lat- eral canals, length	Number	Capacity	Pipe lines, length	Number	Capac- ity	Number	Capac- ity	Number	En- gine or motor capac- ity	Pumps		Aver- age lift
															Number	Capac- ity	
Number	Number	Sec.-ft.	Miles	Miles	5	Ac.-ft.	Miles	13	G.p.m.	1	G.p.m.	8	H. p.	8	G.p.m.	Feet	
Total.....	91	10	1,995	354	728	5	203,124	8.9	13	4,825	1	375	8	92	8	4,027	27
Missouri River and tributaries.....	91	10	1,995	354	728	5	203,124	8.9	13	4,825	1	375	8	92	8	4,027	27
Missouri River direct.....													2	7	2	110	8
Cheyenne River and tributaries.....	85	9	1,939	351	726	4	203,121	8.4	8	2,885			4	64	4	2,480	39
North Fork (Belle Fourche River).....	52	2	1,469	253	714	1	203,000	7.2	7	2,855			2	22	2	1,360	35
South Fork.....	32	4	469	97	12	3	121	0.2	1	30			2	42	2	1,120	41
Other tributaries.....	1	8	1	1				1.0									
Moreau River.....	1																
White River.....	1		2	1													
Other tributaries.....	4	1	54	2	2	1	3	0.5	5	1,040	1	375	2	21	2	1,437	27

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COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929

ITEM (See definitions in Introduction)		THE STATE	Butte	Custer	Fall River	Lawrence	Meade	Pennington	All other counties
FARMS AND FARM OPERATORS									
1	All farms.....1930.....number..	83,157	982	620	821	411	1,819	1,303	77,192
2	Irrigated farms.....1930.....number..	763	524	13	18	87	22	78	21
3	Operated by—								
4	Owners and managers.....number..	453	276	10	13	65	10	55	15
5	Tenants.....number..	310	248	3	5	22	3	23	6
6	Irrigated farms.....1920.....number..	1,198	603	34	22	114	39	395	30
6	Increase, 1920-1930.....per cent..	-36.3	-7.1	-61.8	-18.2	-23.7	-43.0	-80.2	-30.0
FARM AREA AND TOTAL LAND AREA									
7	Approximate land area.....1930.....acres..	49,195,520	1,464,060	1,006,720	1,123,840	510,680	2,234,240	1,786,880	41,068,800
8	Land in all farms.....1930.....acres..	36,470,083	863,100	621,180	692,242	148,320	1,201,220	801,005	32,001,041
9	Land in irrigated farms.....1930.....acres..	370,270	202,767	22,123	22,126	28,654	11,909	58,079	33,022
10	Average, per farm.....acres..	497.1	380.0	1,701.8	1,220.2	329.4	543.3	752.3	1,672.5
11	Operated by owners and managers.....acres..	267,820	130,087	20,109	18,936	18,586	10,780	40,506	28,070
12	Average, per farm.....acres..	591.2	473.5	2,016.9	1,456.2	285.9	567.8	738.1	1,871.3
13	Operated by tenants.....acres..	111,444	72,680	1,014	3,190	10,068	1,129	18,083	4,952
14	Average, per farm.....acres..	359.5	290.6	651.3	630.2	467.6	373.3	780.3	825.3
15	Area irrigated.....1920.....acres..	67,107	43,410	3,715	1,388	6,708	1,125	0,575	1,087
16	Increase, 1910-1920.....per cent..	100,682	57,856	5,527	2,891	0,219	9,969	10,994	1,226
17	Increase, 1910-1920.....per cent..	-33.3	-25.0	-32.8	-62.0	9.3	-88.7	-43.6	-11.3
18	Area enterprises were capable of supplying with water.....1930.....acres..	109,550	79,091	3,715	3,314	7,108	4,160	10,835	1,327
19	Increase, 1920-1930.....per cent..	150,914	82,073	9,018	7,358	8,510	15,233	22,029	6,687
20	Increase, 1920-1930.....per cent..	-27.4	-3.0	-68.8	-55.0	-16.5	-72.7	-60.2	-11.3
21	Irrigable area in enterprises.....1930.....acres..	122,510	85,701	4,065	7,424	7,298	4,160	12,135	1,727
22	Total area in enterprises.....1920.....acres..	188,382	89,363	11,080	11,778	14,261	26,873	23,760	11,287
23	Area in enterprises available, or to be available, for settlement, 1930.....acres..	5,000	5,000						
IRRIGATION WORKS									
24	Enterprises.....1930.....number..	1,122	10	8	13	51	1	18	21
25	Increase, 1920-1930.....number..	292	21	61	24	48	43	40	65
26	Main canals.....1930.....length, miles..	354	128	17	23	115	10	57	4
27	Increase, 1920-1930.....length, miles..	633	181	81	68	73	80	96	84
28	Increase, 1920-1930.....capacity, sec.-ft..	1,095	820	50	84	353	200	335	57
29	Increase, 1920-1930.....capacity, sec.-ft..	6,427	1,008	317	107	322	655	1,094	214
30	Laterals.....1930.....length, miles..	728	567	10	2	142	6	2	2
31	Increase, 1920-1930.....length, miles..	605	348	51	25	13	00	54	24
32	Reservoirs.....1930.....number..	5	1	1	1	1	1	1	1
33	Increase, 1920-1930.....number..	119	13	10	10	3	19	4	3
34	Increase, 1920-1930.....capacity, ac.-ft..	263,121	203,000		120				
35	Increase, 1920-1930.....capacity, ac.-ft..	212,264	204,380	630	180	46	204	87	6,323
36	Wells, flowing.....1930.....number..	13	3	1	1	4			5
37	Increase, 1920-1930.....number..	4				4			
38	Increase, 1920-1930.....capacity, g. p. m..	4,825	30	30		2,825			1,040
39	Increase, 1920-1930.....capacity, g. p. m..	2,750				2,750			
40	Wells, pumped.....1930.....number..	1							1
41	Increase, 1920-1930.....number..	1							
42	Increase, 1920-1930.....capacity, g. p. m..	375							375
43	Increase, 1920-1930.....capacity, g. p. m..	800							800
44	Pumping plants.....1930.....number..	8	1		2	1			4
45	Increase, 1920-1930.....number..	25	3	3	2	2	2	4	11
46	Increase, 1920-1930.....engine capacity, h. p..	92	20		42	2			28
47	Increase, 1920-1930.....engine capacity, h. p..	498	21	28	30		30	64	325
48	Increase, 1920-1930.....pump capacity, g. p. m..	4,027	1,200		1,129	160			1,547
49	Increase, 1920-1930.....pump capacity, g. p. m..	23,320	1,750	2,170	1,000		1,000	2,730	13,770
50	Increase, 1920-1930.....average lift, feet..	27	14		41	35			20
51	Increase, 1920-1930.....average lift, feet..	21	16	14	28		12	13	
VALUES OF FARMS, 1930									
52	Land and buildings, all farms.....dollars..	1,285,153,538	9,637,208	6,450,105	6,423,883	4,685,405	18,737,471	15,282,343	1,224,930,073
53	Land and buildings, irrigated farms.....dollars..	10,520,455	5,410,470	293,400	256,040	1,519,016	261,975	2,270,105	503,450
54	Operated by—								
55	Owners and managers.....dollars..	6,417,810	3,015,815	298,000	216,840	1,072,015	210,075	1,336,815	417,750
56	Tenants.....dollars..	4,102,645	2,394,655	54,800	39,200	547,000	42,000	930,290	85,700
57	Average, land and buildings, per farm.....dollars..	13,784,28	10,325,32	22,500,23	14,223,44	17,450,04	11,907,65	29,180,83	23,073,81
58	Average, land and buildings, per acre.....dollars..	27.74	20.68	13.20	11.57	53.01	22.60	38.70	15.24
59	Land (excluding buildings).....dollars..	8,312,305	4,165,005	204,600	216,540	1,076,915	214,025	1,053,360	421,050
59	Buildings (including dwellings).....dollars..	2,208,150	1,244,475	28,800	40,500	442,100	47,950	322,725	81,500
60	Implement and machinery, irrigated farms.....dollars..	1,055,845	710,085	22,200	18,200	112,510	38,400	118,300	35,190
61	Average, per farm.....dollars..	1,383,81	1,356,89	1,707,69	1,011,11	1,293,22	1,745,45	1,517,44	1,675,71
62	Average, per acre.....dollars..	2.78	8.51	1.00	0.82	8.93	3.22	2.02	1.07
INVESTMENT IN IRRIGATION ENTERPRISES									
63	Investment to Jan. 1, 1930.....dollars..	4,502,117	3,080,174	0,150	56,735	57,540	220,720	130,606	32,192
64	Increase, 1920.....dollars..	5,465,248	4,349,000	118,501	107,076	70,704	453,344	182,314	183,610
65	Increase, 1920-1930.....per cent..	-17.6	-8.3	-62.3	-47.0	-18.6	-60.0	-28.4	-82.5
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars..	41.10	50.44	2.40	17.12	8.10	54.50	12.05	24.26
67	Increase, 1920.....dollars..	30.21	63.00	13.14	14.65	8.30	20.70	8.28	27.46
68	Estimated final investment in existing enterprises, 1930.....dollars..	5,174,417	4,648,174	0,150	66,735	57,540	220,720	130,606	35,492
69	Increase, 1920.....dollars..	5,500,748	4,350,849	127,051	107,270	70,704	460,894	185,264	197,810
70	Increase, 1920-1930.....per cent..	-5.9	6.8	-62.8	-37.8	-18.6	-60.8	-29.5	-82.1
71	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars..	42.24	54.18	2.25	8.90	7.98	54.50	10.70	20.55
72	Average, per acre, based on estimated final investment and total area, 1920.....dollars..	29.20	48.09	11.55	9.11	4.96	17.16	7.80	17.53
COST OF MAINTENANCE AND OPERATION, 1929									
73	Irrigated area for which cost was reported.....acres..	65,783	43,410	3,430	1,381	6,469	1,125	0,395	564
74	Average, per acre, based on area reporting.....dollars..	1.33	1.70	0.22	0.40	0.29	2.11	0.48	1.37

1 A minus sign (-) denotes decrease. 2 Includes 1 intercounty project counted in this table as 2 independent enterprises; corresponding figures for 1920 not available. For actual number of enterprises see State Tables 4 and 11.

TEXAS

APPROXIMATE LOCATION AND EXTENT OF IRRIGATED LAND



TEXAS

INTRODUCTION

Statistics are presented in the following pages on farms irrigated and area irrigated, investment and cost of maintenance and operation of irrigation enterprises, cost of preparing land for irrigation, drainage of irrigated land, quantity of water used, and distribution of irrigation works, with specialized information relating to dams, pipe lines, and pumping equipment. Data on area irrigated, investment, and irrigation works are given in detail by drainage basins. Classifications of irrigated farms by type of farm, size of farm, and value of farm products; and the acreage, yield, and value of the principal crops grown on irrigated land, for all irrigation States, are shown in Parts III and IV, pages 257 and 325, respectively, of this volume.

Statistics for area irrigated and for cost of maintenance and operation of irrigation works relate to the year 1929; all other items relate to 1930.

For purposes of comparison, statistics for the census of 1920 are shown, where available; and for the purpose of showing the historical development of irrigation certain data are presented from censuses previous to that of 1920.

Data on number, area, and value of wholly and partly irrigated farms with the tenure of the operators of these farms were collected in 1930 on the general farm schedule; in 1920 only the number of irrigated farms was obtained in this way. All other statistics, in both censuses, were collected on special schedules for irrigation enterprises.

STATE TABLE 1.—SUMMARY FOR THE STATE: 1930 AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Amount	Per cent
All farms.....number.....	495,489	436,033	59,456	13.6
All land in farms.....acres.....	124,707,130	114,020,621	10,686,509	9.4
Approximate land area of State.....acres.....	167,934,720	167,934,720		
Farms irrigated.....number.....	10,861	5,974	4,887	81.8
Area irrigated.....acres.....	798,917	586,120	212,797	36.3
Area enterprises were capable of supplying with water.....acres.....	1,177,415	1,150,542	26,873	2.3
Area in enterprises ².....acres.....	1,560,876	1,687,447		
Proportion irrigated:				
All farms.....per cent.....	2.2	1.4		
All land in farms.....per cent.....	0.6	0.5		
Approximate land area of State.....per cent.....	0.5	0.3		
Excess of area enterprises were capable of supplying with water over area irrigated.....acres.....	378,498	584,422	-185,924	-32.9
Excess of area in enterprises ² over area irrigated.....acres.....	767,959	1,101,327		
Area in enterprises available, or to be available, for settlement.....acres.....	80,328	346,446	-266,123	-76.8
Value of irrigated farms [land, buildings (including dwellings), and implements and machinery].dollars.....	190,141,304	(³)		
Investment in irrigation enterprises.....dollars.....	49,022,164	35,072,739	13,949,425	30.8
Average, per acre, based on area enterprises were capable of supplying with water.....dollars.....	41.84	30.48	11.10	36.6
Estimated final cost of existing enterprises.....dollars.....	59,555,624	39,869,871	19,685,753	49.4
Average, per acre, based on area in enterprises ².....dollars.....	38.01	23.62		
Average annual cost, per acre, for maintenance and operation of irrigation works.....dollars.....	4.74	6.02	-2.18	-31.5

¹ A minus sign (-) denotes decrease.

² Irrigable area, 1930; total area, 1920.

³ Figures not available.

STATE TABLE 2.—FARMS AND SPECIFIED FARM VALUES, BY TENURE OF FARM OPERATOR, 1930

ITEM (See definitions in Introduction)	FARMS		SPECIFIED FARM VALUES					
	Number	Area	Land and buildings		Land alone		Implements and machinery	
			Total	Per acre	Total	Per acre	Total	Per acre
All farms.....	495,489	124,707,130	3,697,406,086	28.85	3,062,869,535	24.56	182,180,809	1.46
Owners and managers.....	163,829	83,307,403	2,009,059,557	24.12			105,704,087	1.27
Tenants.....	301,660	41,399,727	1,588,347,429	38.37			76,476,722	1.85
Irrigated farms.....	10,861	1,899,240	180,145,621	94.85	159,716,101	84.09	9,995,783	5.29
Owners and managers.....	6,056	1,475,014	129,362,099	87.70	112,940,008	76.57	7,117,843	4.83
Tenants.....	4,805	424,226	50,783,512	119.71	46,776,093	110.26	2,877,940	6.78
Wholly irrigated farms.....	9,701	1,331,699	153,014,819	114.90	136,213,732	102.29	8,210,477	6.17
Owners and managers.....	5,311	993,155	107,753,143	107.95	94,249,750	94.42	5,745,003	5.78
Tenants.....	4,390	338,544	45,261,676	135.70	41,963,982	125.81	2,465,474	7.39
Partly irrigated farms.....	1,160	567,541	27,130,792	47.80	23,502,369	41.41	1,785,306	3.15
Owners and managers.....	745	476,859	21,008,886	45.32	18,690,258	39.19	1,372,840	2.88
Tenants.....	415	90,682	5,521,836	60.89	4,812,111	53.07	412,466	4.55
Farms not irrigated.....	484,628	122,807,890	3,417,261,465	27.83	2,903,153,434	23.64	172,191,026	1.40

FARMS AND AREA IRRIGATED

STATE TABLE 3.—FARMS AND AREA IRRIGATED: 1900 TO 1930

CENSUS YEAR	FARMS IRRIGATED			AREA IRRIGATED			
	Number	Increase	Proportion of all farms	Area	Increase	Proportion of total land area of State	Proportion of land in all farms
1930.....	10,861	81.8	2.2	798,917	36.3	0.5	0.6
1920.....	5,974	14.1	1.4	586,120	29.9	0.3	0.5
1910.....	5,238	295.3	1.3	451,130	808.6	0.3	0.4
1900.....	1,325		0.4	49,652		(1)	(1)

¹ Less than one-tenth of 1 per cent.

STATE TABLE 4.—AREA, BY DATE OF BEGINNING OF ENTERPRISES SUPPLYING WATER FOR IRRIGATION

DATE OF BEGINNING (See definitions in Introduction)	Enterprises, 1930	AREA IRRIGATED IN 1929		Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
		Area	Proportion of irrigable area in enterprises		
Total.....	Number 1,728	Acres 798,917	Per cent 51.0	Acres 1,177,415	Acres 1,566,876
Before 1800.....	1	800	80.0	1,000	1,000
1860-1869.....	3	542	72.8	745	745
1870-1879.....	7	7,209	94.4	7,639	7,639
1880-1889.....	6	3,826	77.7	3,923	4,923
1890-1899.....	17	62,555	17.8	101,123	351,481
1900-1904.....	40	84,528	41.9	188,237	201,691
1905-1909.....	91	325,962	69.7	430,983	467,849
1910-1914.....	217	89,586	59.3	138,344	151,092
1915-1919.....	200	76,353	55.6	116,117	137,372
1920-1924.....	168	53,074	78.1	64,592	67,930
1925-1929.....	345	48,471	43.2	70,007	112,161
Not reported.....	643	46,012	73.0	54,706	62,093

STATE TABLE 5.—AREA, BY SOURCE OF WATER SUPPLY: 1929 AND 1919

SOURCE OF SUPPLY	AREA IRRIGATED				Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹			
			Area	Percent		
Total.....	Acres 798,917	Acres 586,120	Acres 212,797	36.3	Acres 1,177,415	Acres 1,566,876
Streams, gravity.....	108,246	73,982	94,204	127.4	243,341	396,847
Streams, pumped.....	527,700	421,538	100,162	25.2	801,502	1,011,091
Streams, gravity and pumped.....	3,200	350	2,850	814.3	4,700	7,200
Wells, pumped.....	60,793	39,483	21,310	54.0	82,296	97,800
Wells, flowing.....	1,831	3,250	-1,425	-43.8	2,384	3,038
Wells, pumped and flowing.....		1,727	-1,727	-100.0		
Lakes, pumped.....	1,861	597	1,264	211.7	2,592	3,013
Springs.....	0,328	8,686	642	7.4	10,525	10,525
Stored storm water ²	298	11,572	-11,274	-97.4	332	402
Sewage.....	2,070	260	1,810	696.2	2,070	2,070
Streams, gravity and wells, pumped.....	850	454	396	87.2	860	920
Streams, gravity and wells, flowing.....		45	-45	-100.0		
Other mixed.....	19,247	24,170	-4,923	-20.4	23,300	30,408
Not reported.....	3,493		3,493		3,493	3,493
Supplemental from pumped streams ³	254				1,700	1,700

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² In reservoirs filled from channels which carry water only during storms and are not classed as streams.
³ Not considered in totals because included in enterprises reporting other sources of supply listed above.

AREA, BY CHARACTER OF ENTERPRISE

"Irrigation district" areas shown in State Table 6 include those of various "water-improvement" districts.

The Federal Carey Act does not apply to Texas, and the United States Bureau of Indian Affairs operates no irrigation systems in the State.

STATE TABLE 6.—AREA, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

[For number of enterprises by classes, see State Table 11]

ITEM AND CHARACTER (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Area	Per cent
AREA IRRIGATED	Acres 798,917	Acres 586,120	Acres 212,797	36.3
Total.....				
Individual and partnership.....	132,291	110,680	21,611	19.5
Cooperative.....	58,091	103,378	-44,687	-43.2
Irrigation district.....	462,461	88,571	369,890	410.8
Commercial.....	80,090	282,892	-172,806	-55.8
United States Bureau of Reclamation.....	65,442	20,284	45,158	222.0
State.....	36	95	-29	-44.6
City.....		250	-250	-100.0
AREA ENTERPRISES WERE CAPABLE OF SUPPLYING WITH WATER	1,177,415	1,150,542	26,873	2.3
Total.....				
Individual and partnership.....	159,730	216,351	-26,612	-12.3
Cooperative.....	117,815	250,304	-138,480	-54.0
Irrigation district.....	604,595	170,548	434,047	254.5
Commercial.....	100,230	481,809	-282,600	-58.7
United States Bureau of Reclamation.....	66,000	25,070	40,930	163.3
State.....	36	120	-84	-70.0
City.....		250	-250	-100.0
AREA IN ENTERPRISES ²	1,566,876	1,687,447		
Total.....				
Individual and partnership.....	219,877	328,401		
Cooperative.....	184,047	204,761		
Irrigation district.....	728,286	206,674		
Commercial.....	367,030	735,685		
United States Bureau of Reclamation.....	67,000	58,106		
State.....	36	120		
City.....		640		

¹ A minus sign (-) denotes decrease. ² Irrigable area, 1930; total area, 1920.

AREA, BY DRAINAGE BASIN

STATE TABLE 7.—AREA, BY DRAINAGE BASIN: 1929 AND 1919

DRAINAGE BASIN (See definitions in Introduction)	AREA IRRIGATED			Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹		
Total.....	Acres 798,917	Acres 586,120	Per cent 36.3	Acres 1,177,415	Acres 1,566,876
Rio Grande and tributaries.....	537,327	315,093	70.2	682,547	806,036
Rio Grande direct.....	459,557	254,186	80.8	574,817	620,605
Pecos River.....	46,077	57,418	-18.7	72,054	132,061
Other tributaries.....	31,093	4,089	600.4	35,676	53,369
Other tributaries of Gulf of Mexico.....	222,520	203,464	-15.5	440,048	704,973
Nueces River.....	38,737	13,763	182.0	45,708	62,859
San Antonio River.....	9,656	13,179	-26.5	35,146	46,838
Colorado River.....	61,888	71,278	-13.2	140,620	224,363
Brazos River.....	21,500	7,535	186.1	30,061	47,417
Trinity River.....	15,724	42,770	-63.2	35,131	36,248
Neches River.....	28,225	64,000	-66.5	60,263	126,203
Sabine River.....	162	12,822	-98.7	8,106	8,106
Other.....	46,488	37,227	24.0	84,047	104,814
Canadian River.....	460	440	5.9	706	706
Red River.....	38,604	0,523	491.3	54,054	54,202

¹ A minus sign (-) denotes decrease.

AREA, BY CHARACTER OF WATER RIGHTS

STATE TABLE 8.—AREA IRRIGATED, BY CHARACTER OF RIGHTS UNDER WHICH WATER IS RECEIVED: 1929 AND 1919

WATER RIGHTS (See definitions in Introduction)	1929		1919	
	Area	Proportion of total	Area	Proportion of total
	Acres	Per cent	Acres	Per cent
Total.....	798,017	100.0	589,120	100.0
Appropriation and use.....	77,055	9.7	69,334	11.8
Notice filed and posted.....	6,956	0.9	105,009	17.9
Adjudicated by court.....	49,097	6.2	2,755	0.5
Permit from State.....	450,738	56.4	229,753	39.2
Certificate or license from State.....	53,277	6.7	11,898	2.0
Riparian.....	48,008	6.0	72,390	12.4
Underground.....	61,744	7.7	44,649	7.6
Other.....	14,500	1.8	1,594	0.1
Not reported.....	30,942	4.6	49,672	8.5

¹ "Other and mixed."

INVESTMENT, AND COST OF MAINTENANCE AND OPERATION OF IRRIGATION ENTERPRISES

STATE TABLE 9.—INVESTMENT IN ENTERPRISES: 1900 TO 1930

CENSUS YEAR	INVESTMENT		AVERAGE, PER ACRE ¹	
	Amount	Increase ²	Amount	Increase ²
	Dollars	Per cent	Dollars	Per cent
1930.....	49,022,164	39.8	41.64	36.6
1920.....	35,072,739	100.0	30.45	50.1
1910.....	13,487,847		19.52	-5.7
1900.....	1,027,008		20.70	

¹ Based on area enterprises were capable of supplying with water.

² A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

STATE TABLE 10.—INVESTMENT, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	INVESTMENT		
	Amount	Proportion of total	Average, per acre ¹
	Dollars	Per cent	Dollars
Total.....	49,022,164	100.0	41.64
Before 1860.....	8,000	(²)	8.00
1860-1869.....	5,320	(²)	7.14
1870-1879.....	40,075	0.1	5.25
1880-1889.....	57,470	0.1	14.65
1890-1899.....	3,890,770	7.9	38.48
1900-1904.....	4,150,382	8.5	22.05
1905-1909.....	19,705,225	40.2	45.72
1910-1914.....	6,630,453	13.5	47.93
1915-1919.....	3,533,222	7.2	30.43
1920-1924.....	5,540,233	11.3	85.77
1925-1929.....	2,906,126	5.9	41.51
Not reported.....	2,554,888	5.2	46.70

¹ Based on area enterprises were capable of supplying with water in 1930.

² Less than one-tenth of 1 per cent.

STATE TABLE 11.—INVESTMENT, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

CHARACTER OF ENTERPRISE (See definitions in Introduction)	Enter-prises, 1930	INVESTMENT		INCREASE ¹	
		1930	1920	Amount	Per cent
		Number	Dollars	Dollars	Dollars	Per cent
Total.....	1,728	49,022,164	35,072,739	13,949,425	39.8
Individual and partnership.....	1,643	9,371,780	8,258,568	1,115,212	13.5
Cooperative.....	25	3,459,486	3,821,844	-362,358	-9.5
Irrigation district.....	32	26,643,073	5,449,142	21,093,931	387.1
Commercial.....	20	3,404,080	13,825,409	-10,421,329	-75.4
United States Bureau of Reclamation.....	1	6,238,245	3,673,476	2,564,769	69.8
State.....	2	5,500	6,802	-1,302	-19.1
City.....			39,493	-39,498	-100.0

¹ A minus sign (-) denotes decrease.

STATE TABLE 12.—INVESTMENT, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929; BY SOURCE OF WATER SUPPLY

(When water is pumped, cost of maintenance and operation includes cost of fuel and attendance)

SOURCE OF SUPPLY	INVESTMENT, 1930			MAINTENANCE AND OPERATION, 1929	
	Amount	Proportion of total	Average, per acre	Irrigated area reporting	Average, per acre ¹
	Dollars	Per cent	Dollars	Acres	Dollars
Total.....	49,022,164	100.0	41.64	772,160	4.74
Streams, gravity.....	16,330,367	33.3	67.13	164,199	3.14
Streams, pumped.....	20,286,985	53.0	32.80	524,847	4.96
Streams, gravity and pumped.....	229,067	0.5	48.74	200	8.00
Wells, pumped.....	3,879,881	7.9	47.15	40,053	8.50
Wells, flowing.....	206,672	0.4	86.69	828	0.83
Lakes, pumped.....	51,737	0.1	20.19	1,836	3.69
Springs.....	376,015	0.8	35.73	9,106	1.70
Stored storm water.....	18,400	(²)	48.17		
Sewage.....	101,000	0.2	48.79	2,010	2.05
Streams, gravity and wells, pumped.....	43,887	0.1	51.03	847	8.84
Other mixed.....	1,350,425	2.8	57.96	10,234	4.61
Not reported.....	139,720	0.3	40.00		
Supplemental from pumped streams.....	2,008	(²)	1.18	³ 254	7.87

¹ Based on area irrigated in 1929 reporting cost.

² Less than one-tenth of 1 per cent.

³ Not considered in total because included in enterprises reporting other sources of supply listed above.

STATE TABLE 13.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE ¹	
	1930	1920	Amount	Per cent
	Dollars	Dollars	Dollars	Per cent
Total.....	49,022,164	35,072,739	13,949,425	39.8
Rio Grande and tributaries.....	30,690,311	18,925,769	11,764,542	62.2
Rio Grande direct.....	27,068,049	16,208,058	10,859,991	67.0
Pecos River.....	2,243,187	2,219,695	23,502	1.1
Other tributaries.....	1,379,075	498,116	880,959	176.9
Other tributaries of Gulf of Mexico.....	13,135,548	15,707,698	-2,572,150	-16.4
Nueces River.....	3,071,489	1,320,555	1,744,934	131.6
San Antonio River.....	3,038,635	5,087,642	-2,048,907	-40.3
Colorado River.....	1,914,643	3,500,910	-1,646,273	-46.2
Brazos River.....	657,555	569,643	88,012	15.5
Trinity River.....	480,470	1,743,621	-1,263,151	-72.4
Neches River.....	2,695,128	1,599,770	1,095,358	68.8
Sabine River.....	112,960	345,935	-232,975	-67.3
Other.....	1,164,603	1,476,816	-312,148	-21.1
Canadian River.....	17,800	69,472	-51,672	-74.4
Red River.....	5,178,505	369,800	4,808,706	

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

COST OF PREPARING LAND FOR IRRIGATION

The costs shown in State Table 14 include clearing and grading land, and building farm laterals and farm irrigation structures.

STATE TABLE 14.—ESTIMATED COST OF PREPARING LAND, 1930

ITEM	1930
Area reporting.....	acres..... 908,182
Estimated cost reported.....	dollars..... 29,016,848
Average, per acre.....	dollars..... 31.95

DRAINAGE OF IRRIGATED LAND

The areas in State Table 15 relate only to lands within the boundaries of irrigation enterprises. "Additional area needing drainage" represents all lands so reported by the owners of the enterprises and includes lands producing partial crops as well as those wholly unproductive.

STATE TABLE 15.—AREA WITHIN IRRIGATION ENTERPRISES FOR WHICH DRAINS HAVE BEEN INSTALLED AND ADDITIONAL AREA IN NEED OF DRAINAGE: 1930 AND 1920

ITEM	1930	1920
Enterprises reporting land drained or needing drainage.....number..	150	160
Area ¹ in enterprises reporting land drained or needing drainage.....acres..	814, 833	650, 822
Area for which drains have been installed.....acres..	345, 926	272, 437
Additional area needing drainage.....acres..	135, 936	154, 532
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises reporting drainage.....per cent..	42.5	41.0
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises.....per cent..	22.1	16.1
Proportion that area for which drains have been installed plus that needing drainage is of area ¹ in all irrigation enterprises.....per cent..	30.8	25.3

¹ Irrigable area, 1930; total area, 1920.

QUANTITY OF WATER USED

The quantity of water used was reported on only part of the irrigation schedules, and all areas reporting "quantity of water entering canals" did not also report "quantity delivered to irrigators." In order that proper values may be assigned to the figures, those representing measurements and those representing estimates are reported separately in State Table 16.

Some irrigation enterprises carry water to individual farms, but others only to laterals which serve several farms. The "total quantity of water delivered to irrigators" is the quantity reported in answer to a question preceded by the inquiry: "Average head of water delivered per individual irrigator."

STATE TABLE 16.—WATER USED: 1929 AND 1919

ITEM (See definitions in Introduction)	TOTAL		MEASURED		NOT MEASURED	
	1929	1919	1929	1919	1929	1919
Average flow of water entering canals.....sec.-ft..	4, 449	5, 895	1, 810	817	2, 639	5, 018
Area irrigated.....acres..	453, 658	171, 710	181, 852	46, 001	270, 806	126, 715
Average, per second-foot.....acres..	103	20	100	55	105	25
Total quantity of water entering canals.....ac.-ft..	1, 078, 388	1, 586, 840	897, 623	204, 919	730, 765	1, 381, 021
Area irrigated.....acres..	501, 558	247, 619	185, 952	47, 326	315, 606	200, 294
Average quantity per acre.....ac.-ft..	3.3	6.4	4.8	4.3	2.5	6.9
Total quantity of water delivered to irrigators.....ac.-ft..	723, 768	385, 540	197, 185	100, 869	523, 583	284, 671
Area irrigated.....acres..	427, 419	167, 005	75, 138	48, 533	352, 281	118, 472
Average quantity per acre.....ac.-ft..	1.7	2.3	2.6	2.1	1.5	2.4

IRRIGATION WORKS

STATE TABLE 17.—DAMS, BY MATERIAL, 1930

MATERIAL	DAMS	
	Diversion	Storage
	Number	Number
Total.....	107	168
Concrete or masonry.....	43	60
Timber.....	4	
Earth and rock.....		75
Other and mixed.....	155	14
Not reported.....	5	19

¹ Principally temporary dams, replaced annually.

STATE TABLE 18.—LENGTH OF PIPE LINES, BY MATERIAL AND SIZE, 1930

MATERIAL AND SIZE (DIAMETER)	Length
	Miles
Total.....	310.0
Concrete:	
1 to 12 inches.....	24.0
13 to 30 inches.....	105.4
More than 30 inches.....	13.4
Not segregated by size.....	7.0
Metal:	
1 to 12 inches.....	53.9
13 to 30 inches.....	4.7
Wood:	
1 to 12 inches.....	25.2
13 to 30 inches.....	30.5
More than 30 inches.....	0.2
Clay:	
1 to 12 inches.....	1.6
Not segregated.....	53.0

STATE TABLE 19.—PUMPING EQUIPMENT, BY KIND OF POWER AND PUMP, 1930

ITEM	ENGINES OR MOTORS		PUMPS				
	Capacity	Proportion of total	Number	Proportion of total	Capacity	Proportion of total	Average lift
	H. p.	Per cent		Per cent	G. p. m.	Per cent	Feet
Total.....	95, 633	100.0	2, 028	100.0	3, 494, 900	100.0	55
Electricity.....	21, 272	22.2	609	30.0	1, 300, 437	21.4	73
Internal combustion.....	34, 673	36.1	1, 121	55.3	1, 458, 301	22.6	49
Steam.....	14, 405	15.0	44	2.2	500, 700	15.4	43
Water.....	45	(¹)	2	0.1	1, 375	(¹)	40
Wind.....	104	0.1	51	2.5	2, 370	(¹)	51
Electricity and—							
Steam.....	11, 170	11.6	29	1.4	1, 270, 000	10.6	30
Internal combustion.....	7, 430	7.8	105	5.2	831, 165	12.8	64
Wind.....	70	0.1	18	0.9	948	(¹)	81
Internal combustion and—							
Steam.....	2, 290	2.4	10	0.5	371, 025	5.7	10
Water.....	41	(¹)	1	(¹)	600	(¹)	38
Wind.....	482	0.5	28	1.4	11, 064	0.2	21
Electricity, internal combustion, and—							
Steam.....	3, 000	4.1	4	0.2	150, 000	2.3	50
Wind.....	4	(¹)	3	0.1	400	(¹)	35
Not reported.....	47	(¹)	3	0.1	578	(¹)	30
KIND OF PUMP							
Centrifugal.....	75, 004	78.2	1, 462	72.1	5, 313, 754	81.8	41
Rotary.....	8, 483	8.8	209	13.3	149, 311	2.3	113
Turbine.....	1, 230	1.3	43	2.1	31, 809	0.5	88
Reciprocating.....	809	0.8	42	2.1	19, 557	0.3	73
Plunger.....	629	0.6	111	5.5	10, 250	0.2	93
Screw.....	5, 000	5.2	8	0.4	440, 000	6.5	31
Air lift.....	604	0.6	26	1.3	4, 740	0.1	47
Centrifugal and—							
Rotary.....	2, 705	2.8	21	1.0	399, 100	6.1	72
Turbine.....	200	0.2	7	0.3	8, 000	0.1	80
Plunger.....	5	(¹)	4	0.2	100	(¹)	20
Screw.....	900	0.9	6	0.3	115, 000	1.3	17
Air lift.....	74	0.1	4	0.2	1, 500	(¹)	40
Rotary and—							
Plunger.....	52	0.1	8	0.4	700	(¹)	133
Turbine.....	12	(¹)	2	(¹)	1, 000	(¹)	25
Air lift and—							
Plunger.....	20	(¹)	2	(¹)	290	(¹)	50
Turbine.....	250	0.3	10	0.5	2, 250	(¹)	70
Not reported.....	47	(¹)	3	0.1	578	(¹)	30

¹ Less than one-tenth of 1 per cent.

IRRIGATION—TEXAS

STATE TABLE 20.—IRRIGATION WORKS, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diver-sion	Storage	Capac-ity	Length	Lateral canals, length	Number	Capac-ity	Pipe lines, length	Number	Capac-ity	Number	Capac-ity	Number	Engine or motor capac-ity	Pumps	
															Number	Capacity
Total.....	Number 107	Number 168	Sec.-ft. 21,626	Miles 1,643	Miles 3,236	325	Acre-ft. 935,085	Miles 319.0	61	G. p. m. 36,020	1,102	G. p. m. 614,395	1,828	H. p. 95,933	2,028	G. p. m. 6,494,999
Before 1860.....	1	---	20	4	---	---	---	---	---	---	---	---	---	---	---	---
1860-1869.....	2	---	16	4	---	---	---	---	---	---	---	---	---	---	---	---
1870-1879.....	5	1	179	28	21	1	4	---	---	---	---	---	1	20	1	1,500
1880-1889.....	4	2	55	25	16	1	105	---	---	---	---	---	---	---	---	---
1890-1899.....	6	---	2,424	187	352	3	6,010	1.4	---	---	2	---	1	10	1	1,000
1900-1904.....	8	8	2,419	372	436	10	9,164	16.8	---	---	10	110	14	7,807	30	843,835
1905-1909.....	9	4	10,123	404	1,209	31	24,264	90.8	1	1,500	40	4,915	45	10,874	62	1,280,184
1910-1914.....	14	47	2,065	115	566	78	266,597	114.7	25	20,708	189	21,980	120	22,508	148	1,645,200
1915-1919.....	25	25	1,144	169	303	35	9,375	24.5	8	3,640	105	97,133	271	16,145	300	899,749
1920-1924.....	8	20	1,216	91	167	33	601,879	14.3	7	3,330	119	62,946	205	8,155	227	832,146
1925-1929.....	16	36	1,846	216	163	56	15,159	33.2	14	4,537	204	105,093	173	3,875	189	174,304
Not reported.....	9	25	119	28	3	77	2,528	18.3	6	2,305	426	231,449	605	10,970	644	392,237

STATE TABLE 21.—IRRIGATION WORKS, BY CHARACTER OF ENTERPRISE, 1930

CHARACTER OF ENTERPRISE (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diver-sion	Storage	Capac-ity	Length	Lateral canals, length	Number	Capac-ity	Pipe lines, length	Number	Capac-ity	Number	Capac-ity	Number	Engine or motor capac-ity	Pumps	
															Number	Capacity
Total.....	Number 107	Number 168	Sec.-ft. 21,626	Miles 1,643	Miles 3,236	325	Acre-ft. 935,085	Miles 319.0	61	G. p. m. 36,020	1,102	G. p. m. 614,395	1,828	H. p. 95,933	2,028	G. p. m. 6,494,999
Individual and partnership..	77	133	2,027	281	120	276	16,399	105.9	61	36,020	1,088	607,650	1,699	43,876	1,805	1,455,129
Cooperative.....	6	10	4,225	103	245	4	111	10.5	---	---	13	6,045	28	6,880	47	777,895
Irrigation district.....	15	16	10,631	672	2,343	34	904,930	197.7	---	---	---	---	70	26,720	126	2,909,950
Commercial.....	8	8	3,023	407	331	10	13,512	4.8	---	---	1	700	29	18,407	48	1,351,725
United States Bureau of Reclamation State.....	1	1	1,720	60	197	1	133	0.1	---	---	---	---	2	50	2	300

STATE TABLE 22.—IRRIGATION WORKS, BY DRAINAGE BASIN, 1930

DRAINAGE BASIN (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS				
	Diver-sion	Storage	Capac-ity	Length	Lateral canals, length	Number	Capac-ity	Pipe lines, length	Number	Capac-ity	Number	Capac-ity	Number	Engine or motor capac-ity	Pumps		Average lift
															Number	Capacity	
Total.....	Number 107	Number 168	Sec.-ft. 21,626	Miles 1,643	Miles 3,236	325	Acre-ft. 935,085	Miles 319.0	61	G. p. m. 36,020	1,102	G. p. m. 614,395	1,828	H. p. 95,933	2,028	G. p. m. 6,494,999	Feet 55
Rio Grande and tributaries.....	40	41	12,669	821	2,275	74	52,572	273.6	11	15,000	50	10,283	279	38,386	358	3,325,623	49
Rio Grande direct.....	16	34	10,218	555	1,941	64	21,280	264.9	---	---	3	2,320	216	37,142	282	3,077,125	50
Pecos River.....	19	4	1,603	230	183	5	30,688	0.1	11	15,000	23	10,275	26	369	35	14,100	45
Other tributaries.....	5	3	548	36	151	5	604	8.6	---	---	24	3,688	37	875	41	234,398	46
Other tributaries of Gulf of Mexico.....	64	123	7,941	759	828	247	282,511	44.8	50	21,020	982	538,312	1,477	55,109	1,595	3,109,422	57
Nueces River.....	17	30	46	33	21	163	6,340	8.1	30	16,173	407	155,378	445	12,553	435	217,182	97
San Antonio River.....	4	4	711	53	232	13	263,261	6.6	6	3,520	27	16,647	39	982	42	34,267	32
Colorado River.....	15	53	1,791	409	322	33	8,828	7.9	13	1,255	117	26,143	374	17,507	414	1,308,649	38
Brazos River.....	2	20	393	38	4	20	3,534	6.1	1	72	171	121,854	212	8,829	219	268,076	54
Trinity River.....	1	2	2,257	46	15	1	1	9.2	---	---	65	9,772	60	2,461	60	326,717	19
Neches River.....	---	---	1,072	45	175	---	---	---	---	---	---	---	3	2,526	13	395,087	65
Sabine River.....	4	---	106	15	---	---	---	0.4	---	---	---	---	4	361	4	26,500	12
Other.....	21	14	1,566	120	54	17	27	0.5	---	---	195	208,518	340	9,890	349	532,945	34
Canadian River.....	1	1	16	2	---	1	1	---	---	---	9	1,060	9	125	9	1,060	200
Red River.....	2	8	1,000	61	138	3	800,091	0.6	---	---	61	58,740	63	2,313	66	58,394	45

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COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929

ITEM (See definitions in Introduction)		THE STATE	Atascosa	Bailey	Bexar	Brazoria	Brewster	Cameron ¹
FARMS AND FARM OPERATORS								
1	All farms.....1930.....number	495,489	1,816	768	3,497	2,103	287	2,936
2	Irrigated farms.....1930.....number	10,861	45	17	159	15	57	2,395
3	Operated by—							
4	Owners and managers.....number	6,066	20	13	90	8	42	1,258
5	Tenants.....number	4,805	16	4	69	7	15	1,137
6	Irrigated farms.....1920.....number	5,974	94	24	174	3	17	871
	Increase, ² 1920-1930.....per cent.	81.8	-62.1	-20.2	-10.3	400.0	235.3	175.0
FARM AREA AND TOTAL LAND AREA								
7	Approximate land area.....1930.....acres	167,934,720	869,120	659,200	808,320	857,600	3,798,400	537,600
8	Land in all farms.....1930.....acres	124,707,130	582,615	396,623	554,209	452,027	3,530,524	134,006
9	Land in irrigated farms.....1930.....acres	1,890,240	6,504	5,013	11,841	4,221	84,778	104,939
10	Average, per farm.....acres	174.9	144.5	204.9	75.9	281.4	1,437.3	48.8
11	Operated by owners and managers.....acres	1,475,014	5,432	4,080	10,166	2,260	83,233	57,602
12	Average, per farm.....acres	243.6	187.3	313.8	113.0	282.0	1,981.7	46.7
13	Operated by tenants.....acres	424,226	1,072	933	1,675	1,965	1,545	47,437
14	Average, per farm.....acres	88.3	67.0	233.3	26.4	230.7	103.0	41.7
15	Area irrigated.....1920.....acres	798,917	1,462	597	5,039	3,700	.779	155,804
16	.....1919.....acres	586,120	2,312	2,195	12,933	350	596	90,008
17	Increase, ² 1919-1920.....per cent.	36.3	-37.2	-72.8	-61.0	934.0	30.7	159.0
18	Area enterprises were capable of supplying with water.....1930.....acres	1,177,415	2,260	2,525	30,499	5,548	1,342	210,093
19	.....1920.....acres	1,160,542	4,007	3,555	57,736	1,000	873	120,948
20	Increase, ² 1920-1930.....per cent.	2.3	-44.5	-20.0	-47.2	454.8	53.7	73.7
21	Irrigable area in enterprises.....1930.....acres	1,566,870	2,370	2,525	41,152	5,948	1,604	237,308
22	Total area in enterprises.....1920.....acres	1,687,447	6,445	4,080	59,056	1,000	1,087	178,414
23	Area in enterprises available, or to be available, for settlement.....1930.....acres	80,323						17,828
IRRIGATION WORKS								
24	Enterprises.....1930.....number	³ 1,736	45	23	36	14	35	25
25	.....1920.....number	1,371	35	24	43	1	16	17
26	Main canals.....1930.....length, miles	1,043	4	28	28	1.5	7	241
27	.....1920.....length, miles	1,524	44	24	53	2	6	140
28	.....1930.....capacity, sec.-ft.	21,626	7	7	86	138	22	4,160
29	.....1920.....capacity, sec.-ft.	23,261	25	50	1,702	1	132	3,435
30	Laterals.....1930.....length, miles	3,236	2	164	1	1	1	801
31	.....1920.....length, miles	2,949	16	20	74	1	1	450
32	Reservoirs.....1930.....number	325	31	11	11	1	3	14
33	.....1920.....number	368	21	11	11	1	16	3
34	.....1930.....capacity, ac.-ft.	935,085	51	8,631	8,631	30	13,080	18,080
35	.....1920.....capacity, ac.-ft.	392,999	46	200,316	6	15	1,501	1,501
36	Wells, flowing.....1930.....number	61	27	6	6	1	1	1
37	.....1920.....number	135	40	23	23	1	1	1
38	.....1930.....capacity, g. p. m.	30,020	14,233	3,520	3,520	60	80	80
39	.....1920.....capacity, g. p. m.	62,364	16,540	15,410	15,410	6	8	8
40	Wells, pumped.....1930.....number	1,102	20	24	25	6	8	1
41	.....1920.....number	901	10	27	22	15	1	1
42	.....1930.....capacity, g. p. m.	614,365	8,610	18,809	16,147	5,962	163	25
43	.....1920.....capacity, g. p. m.	538,565	7,700	24,150	10,820	10	994	68
44	Pumping plants.....1930.....number	1,828	20	24	36	10	13	23
45	.....1920.....number	1,369	11	24	31	608	140	7,231
46	.....1930.....engine capacity, h. p.	95,933	553	520	893	126	153	6,847
47	.....1920.....engine capacity, h. p.	80,511	141	585	693	51,477	7,788	1,224,300
48	.....1930.....pump capacity, g. p. m.	6,494,989	8,060	18,806	32,767	12,000	6,589	887,212
49	.....1920.....pump capacity, g. p. m.	6,825,988	8,900	24,150	14,220	34	23	21
50	.....1930.....average lift, feet	65	12	22	34	23	53	15
51	.....1920.....average lift, feet	45	51	24	31	14	46	15
VALUES OF FARMS, 1930								
52	Land and buildings, all farms.....dollars	3,597,406,986	14,054,128	10,367,350	44,794,973	15,328,264	14,416,700	48,006,482
53	Land and buildings, irrigated farms.....dollars	180,145,521	560,020	288,520	2,516,400	250,125	1,004,205	40,346,213
54	Operated by—							
55	Owners and managers.....dollars	129,362,009	447,845	246,800	2,083,950	123,075	1,022,810	25,854,638
56	Tenants.....dollars	50,783,512	102,175	41,720	432,450	127,050	41,395	14,491,580
57	Average, land and buildings, per farm.....dollars	10,586.46	12,232.67	10,971.76	16,130.77	10,675.00	18,070.20	16,846.02
58	per acre.....dollars	94.85	84.57	57.55	212.52	60.26	12.55	384.47
59	Land (excluding buildings).....dollars	159,716,101	482,570	246,870	2,140,450	227,475	940,510	36,484,157
60	Buildings (including dwellings).....dollars	20,429,420	67,450	41,650	376,950	22,650	133,695	3,862,056
61	Implements and machinery, irrigated farms.....dollars	9,995,783	43,154	36,850	88,309	34,855	32,202	2,004,778
62	Average, per farm.....dollars	920.34	958.98	2,108.82	560.08	2,323.07	564.95	837.07
	per acre.....dollars	5.26	6.63	7.15	7.46	8.20	0.38	10.10
INVESTMENT IN IRRIGATION ENTERPRISES								
63	Investment to Jan. 1, 1930.....dollars	49,022,164	187,816	30,100	650,050	102,485	42,675	7,198,289
64	.....1920.....dollars	35,072,730	142,168	73,900	4,946,566	10,010	80,955	3,108,459
65	Increase, ² 1920-1930.....per cent.	39.8	32.1	-59.3	-86.9	923.8	-47.3	131.6
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars	41.64	83.25	11.92	21.31	18.47	31.80	84.26
67	.....1920.....dollars	30.45	34.96	20.79	85.68	10.01	92.73	25.70
68	Estimated final investment in existing enterprises, 1930.....dollars	59,555,624	199,815	30,100	653,050	103,735	81,175	11,563,289
69	.....1920.....dollars	30,860,871	146,218	73,900	5,446,566	10,010	90,656	4,098,459
70	Increase, ² 1920-1930.....per cent.	49.4	36.7	-59.3	-88.0	936.3	-43.5	182.1
71	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars	38.01	84.31	11.92	15.87	17.44	31.90	48.73
72	Average, per acre, based on estimated final investment and total area, 1920.....dollars	23.62	22.69	15.79	92.23	10.01	83.40	22.97
COST OF MAINTENANCE AND OPERATION, 1929								
73	Irrigated area for which cost was reported.....acres	772,160	925	504	5,027	3,796	502	154,754
74	Average, per acre, based on area reporting.....dollars	4.74	5.12	4.63	10.38	4.99	0.04	4.46

¹ Reorganized in 1921 from territory embraced in Cameron, Hidalgo, and Willacy.

² A minus sign (-) denotes decrease.

³ Includes 7 intercounty projects counted in this table as 15 independent enterprises; corresponding figures for 1920 not available. For actual number of enterprises see State Tables 4 and 11.

IRRIGATION—TEXAS

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930; AND COST OF MAINTENANCE

ITEM (See definitions in Introduction)		Chambers	Colorado	DeafSmith	Dimmit	El Paso	Floyd	Fort Bend
FARMS AND FARM OPERATORS								
1	All farms..... 1930..... number..	577	2,589	630	241	1,263	1,671	4,258
2	Irrigated farms..... 1930..... number..	22	42	18	106	1,150	32	25
Operated by—								
3	Owners and managers..... number..	10	24	15	79	770	9	5
4	Tenants..... number..	12	18	3	27	371	23	26
5	Irrigated farms..... 1920..... number..	146	120	43	256	476	47	-----
6	Increase, ¹ 1920-1930..... per cent..	-84.9	-65.0	-58.1	-58.6	141.6	-31.9	-----
FARM AREA AND TOTAL LAND AREA								
7	Approximate land area..... 1930..... acres..	395,520	622,080	991,360	870,400	590,720	647,040	500,880
8	Land in all farms..... 1930..... acres..	260,437	441,294	443,225	170,480	261,185	539,983	448,442
9	Land in irrigated farms..... 1930..... acres..	12,661	22,266	9,035	26,491	78,473	4,809	21,705
10	Average, per farm..... acres..	575.5	530.9	501.9	249.9	68.2	153.1	868.2
11	Operated by owners and managers..... acres..	6,992	14,469	8,750	24,347	59,997	1,359	11,266
12	Average, per farm..... acres..	699.2	602.9	583.3	303.2	77.0	151.0	2,253.2
13	Operated by tenants..... acres..	5,669	7,827	285	2,144	18,556	3,540	10,430
14	Average, per farm..... acres..	472.4	434.8	95.0	79.4	49.9	153.9	522.0
15	Area irrigated..... 1929..... acres..	1,444	18,727	637	13,694	65,442	1,733	13,895
16	Increase, ¹ 1919..... acres..	29,200	15,321	6,483	5,397	20,259	1,497	-----
17	Increase, ¹ 1919..... per cent..	-95.1	22.2	-91.7	153.7	223.0	15.8	-----
18	Area enterprises were capable of supplying with water..... 1930..... acres..	15,000	50,495	6,680	15,986	66,000	1,736	18,501
19	Increase, ¹ 1920..... acres..	38,700	19,378	11,345	10,480	25,005	4,877	-----
20	Increase, ¹ 1920-1930..... per cent..	-61.2	160.6	-41.1	52.5	163.9	-64.4	-----
21	Irrigable area in enterprises..... 1930..... acres..	18,000	135,250	6,823	18,614	67,000	1,736	34,401
22	Total area in enterprises..... 1920..... acres..	72,200	45,287	13,341	19,792	58,005	5,585	-----
23	Area in enterprises available, or to be available, for settlement..... 1930..... acres..					5,000		30,000
IRRIGATION WORKS								
24	Enterprises..... 1930..... number..	1	17	32	147	1	29	9
25	Increase, ¹ 1920..... number..	4	31	43	146	2	47	-----
26	Main canals..... 1930..... length, miles..	34	57	-----	4	60	-----	26
27	Increase, ¹ 1920..... length, miles..	55	36	43	3	40	48	-----
28	Average, per farm..... capacity, sec.-ft..	300	356	-----	9	1,720	-----	350
29	Laterals..... 1930..... capacity, sec.-ft..	865	523	94	39	774	94	-----
30	Increase, ¹ 1920..... length, miles..	11	170	-----	-----	107	-----	3
31	Reservoirs..... 1930..... number..	66	42	70	2	-----	47	-----
32	Increase, ¹ 1920..... number..	1	1	-----	54	-----	-----	3
33	Average, per farm..... capacity, ac.-ft..	1	-----	-----	153	-----	-----	-----
34	Wells, flowing..... 1930..... capacity, ac.-ft..	25,000	6,000	-----	5,047	-----	-----	1,800
35	Increase, ¹ 1920..... number..	-----	-----	-----	1,690	-----	-----	-----
36	Average, per farm..... capacity, g. p. m..	-----	-----	2	27	-----	-----	-----
37	Wells, pumped..... 1930..... number..	-----	15	2,500	6,025	-----	-----	-----
38	Increase, ¹ 1920..... number..	-----	39	34	199	-----	-----	9
39	Average, per farm..... capacity, g. p. m..	-----	28,875	39,700	63,425	-----	27,500	18,550
40	Pumping plants..... 1930..... number..	2	25,850	40,250	48,450	-----	43,250	-----
41	Increase, ¹ 1920..... number..	7	18	34	193	-----	29	11
42	Average, per farm..... engine capacity, h. p..	1,600	8,333	1,735	5,920	-----	2,165	1,068
43	Increase, ¹ 1920..... engine capacity, h. p..	4,672	4,164	2,840	3,851	-----	2,950	-----
44	Average, per farm..... pump capacity, g. p. m..	120,000	556,675	37,530	66,615	-----	27,700	119,050
45	Increase, ¹ 1920..... pump capacity, g. p. m..	309,200	328,750	48,750	74,900	-----	43,250	-----
46	Average, per farm..... average lift, feet..	42	76	95	129	-----	64	27
47	Increase, ¹ 1920..... average lift, feet..	25	50	79	39	-----	91	-----
VALUES OF FARMS, 1930								
52	Land and buildings, all farms..... dollars..	4,584,961	12,757,497	14,474,803	5,183,885	19,881,204	22,230,036	30,192,407
53	Land and buildings, irrigated farms..... dollars..	308,962	691,465	611,100	2,685,190	18,833,544	450,150	1,373,620
Operated by—								
54	Owners and managers..... dollars..	173,782	494,640	473,100	2,452,340	14,508,385	142,000	868,620
55	Tenants..... dollars..	135,180	196,825	38,000	232,850	4,327,159	808,150	504,700
56	Average, land and buildings, per farm..... dollars..	14,043.73	16,463.45	28,394.44	25,331.98	16,376.99	14,037.19	54,044.80
57	Average, per acre..... dollars..	24.40	31.01	56.57	101.36	240.00	91.59	31.29
58	Land (excluding buildings)..... dollars..	264,237	602,815	404,600	2,371,120	15,845,623	378,850	1,344,620
59	Buildings (including dwellings)..... dollars..	44,725	88,650	106,500	314,070	2,988,021	71,300	29,000
60	Implements and machinery, irrigated farms..... dollars..	74,095	98,095	51,200	150,165	993,852	27,000	134,375
61	Average, per farm..... dollars..	3,395.23	2,355.60	2,844.44	1,416.65	864.22	843.75	5,375.00
62	Average, per acre..... dollars..	5.90	4.40	5.67	5.67	12.66	5.51	6.19
INVESTMENT IN IRRIGATION ENTERPRISES								
63	Investment to Jan. 1, 1930..... dollars..	85,000	485,700	225,500	1,130,625	6,238,245	104,800	241,000
64	Increase, ¹ 1920..... dollars..	1,008,802	523,925	290,300	578,670	3,670,550	154,100	-----
65	Average, per acre, based on area enterprises were capable of supply- ing with water, 1930..... per cent..	-91.0	-7.3	-22.3	95.4	70.0	-32.3	-----
66	Estimated final investment in existing enterprises, 1930..... dollars..	5.67	9.62	33.76	70.73	94.52	60.08	13.03
67	Increase, ¹ 1920..... dollars..	26.07	27.04	25.59	55.22	146.79	31.60	-----
68	Average, per acre, based on estimated final investment and irrigable area, 1930..... dollars..	85,000	535,700	225,500	1,277,125	6,566,245	104,800	291,000
69	Increase, ¹ 1920..... dollars..	1,008,802	523,925	290,300	611,720	5,310,550	154,100	-----
70	Average, per acre, based on estimated final investment and total area, 1930..... per cent..	-91.6	2.2	-22.3	108.8	23.6	-32.3	-----
71	Average, per acre, based on estimated final investment and total area, 1920..... dollars..	4.72	3.96	33.05	68.61	98.00	60.08	8.46
72	Average, per acre, based on estimated final investment and total area, 1920..... dollars..	13.97	11.57	21.76	30.91	91.55	27.59	-----
COST OF MAINTENANCE AND OPERATION, 1929								
73	Irrigated area for which cost was reported..... acres..	1,444	18,727	422	8,961	65,442	1,733	13,405
74	Average, per acre, based on area reporting..... dollars..	20.66	6.83	9.35	10.15	2.44	2.57	5.09

¹ Reorganized in 1921 from territory embraced in Cameron, Hidalgo, and Willacy.
² Included in "All other counties."
³ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

IRRIGATION—TEXAS

1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, AND OPERATION, 1929—Continued

Frio	Hale	Harris	Hidalgo ¹	Hudspeth	Irion	Jackson	Jeff Davis	Jefferson	Kerr	La Salle	Liberty	Mata-gorda	Maverick	
943	1,729	4,181	4,321	194	160	1,042	99	1,012	591	627	1,535	1,073	52	1
18	59	32	3,150	115	87	12	23	112	53	36	31	26	19	2
11	18	22	2,039	45	24	5	19	40	33	29	12	11	13	3
7	41	10	1,111	70	13	7	4	72	15	7	19	15	6	4
24	59	60	1,181	64	64	45	18	274	(?)	65	12	120	36	5
-25.0		-46.7	178.5		-42.2	-73.3	27.8	-59.1		-44.6	168.3	-79.4	-47.2	6
719,360	663,040	1,058,500	995,200	2,957,440	638,720	571,520	1,448,320	588,800	730,880	999,040	742,400	727,040	300,640	7
559,808	595,056	478,104	548,166	1,174,773	480,985	376,300	1,807,407	251,806	474,261	332,437	156,282	442,375	497,046	8
5,910	18,061	9,940	175,950	23,513	43,475	7,725	30,716	60,862	17,029	17,064	30,398	25,508	14,076	9
323.3	321.4	310.6	55.9	204.5	1,175.0	643.8	1,335.5	543.4	321.3	474.0	981.1	740.8	740.8	10
4,453	7,444	5,376	115,534	15,085	41,822	4,344	29,910	30,317	13,640	15,721	22,015	19,149	13,151	11
404.8	413.6	244.4	50.7	334.8	1,742.6	868.8	1,574.7	757.9	358.9	542.1	1,834.6	1,740.8	1,011.0	12
1,457	11,517	4,504	60,416	8,448	1,653	3,381	797	30,545	3,389	1,343	3,383	6,359	925	13
208.1	280.9	456.4	54.4	120.7	127.2	483.0	190.3	424.2	225.9	191.0	441.2	423.9	154.2	14
1,101	3,687	4,421	229,806	14,010	1,798	2,650	385	37,002	338	2,410	15,000	12,884	1,082	15
656	3,335	8,000	180,532	2,133	2,133	6,074	1,210	74,002	(?)	2,581	13,500	33,510	2,058	16
68.1	10.6	-44.7	43.2		-16.7	-56.4	-68.2	-40.9		-4.4	11.1	-61.6	-25.3	17
1,429	6,344	5,044	284,407	14,500	1,908	3,180	385	80,315	568	2,812	34,000	55,960	3,135	18
1,247	8,728	11,000	388,538		2,062	6,749	1,351	97,100	(?)	5,292	14,000	66,200	3,013	19
14.6	-27.3	-54.1	-26.8		-7.5	-52.9	-71.5	-17.3		-46.0	142.9	-15.5	-10.9	20
2,406	7,922	7,560	307,671	18,290	1,928	3,989	385	146,815	727	3,215	35,000	55,960	4,037	21
3,369	10,162	16,000	424,538		2,417	8,584	2,034	174,000	(?)	6,574	24,000	164,575	6,513	22
			5,000											23
27	61	22	17	9	15	9	17	23	42	39	2	3	9	24
24	58	1	9		15	44	12	18	(?)	38	2	15	5	25
		4	160	34	7	1	3	70	2		45	227	9	26
1	52	5	141		22	7	3	57	(?)	2	22	111	5	27
		30	3,702	204	17	2	3	1,954	2		2,253	695	532	28
10	113	266	3,191		59	315	10	1,936	(?)	3	167	1,772	60	29
		2	1,005	5	1			208			15	128	8	30
1	50	35	795		15	9		89	(?)		30	105	32	31
14		1	8						2		17			32
17	1		3		1		8	1	(?)	3	0	1		33
74		1	6,335								77			34
23	800		3,400					500	(?)		13	3		35
1											2			36
4									(?)		2			37
530										1,410		2		38
1,500									(?)	1,000		120		39
33	76	25	4		3	8	14	1	13	16				40
37	68				1	48	7		(?)			8		41
10,530	68,520	29,961	3,480		1,813	14,560	1,765	2,000	618	2,030				42
7,995	62,797				1,600	40,600	3,180		(?)		8,700			43
26	72	24	31	12	14	9	14	26	37	50	3	3	10	44
27	65	1	10		12	44	11	19	(?)	43	3	20	7	45
352	3,023	1,177	23,133	222	102	725	71	4,023	333	757	2,074	3,100	455	46
306	3,212	2,400	11,110		181	1,808	148	6,770	(?)	1,184	3,000	4,676	540	47
11,465	70,050	35,893	1,833,980	22,025	12,338	26,460	2,290	531,700	11,453	24,205	314,000	241,800	24,050	48
8,045	62,985	120,000	1,366,576		17,800	54,100	4,450	2,039,600	(?)	45,250	195,000	442,700	15,600	49
84	73	65	22	10	10	24	27	13		51	39	36	52	50
63	76	50	21	19	19	58	70	15		23	56	26	50	51
11,993,593	20,420,156	44,440,034	70,335,234	5,893,907	14,051,036	14,562,570	14,214,227	12,672,730	12,628,410	6,831,426	4,442,929	12,288,691	2,359,903	52
445,550	1,453,425	807,265	55,422,336	3,223,617	1,307,400	261,800	583,110	3,241,685	574,840	973,430	540,335	826,745	324,315	53
357,600	581,275	416,870	42,567,468	2,120,797	1,173,360	108,700	555,610	1,919,110	462,340	848,080	381,525	540,600	279,195	54
87,950	872,150	390,395	12,865,370	1,102,820	134,050	153,100	27,500	1,322,575	112,500	125,350	168,810	277,085	45,120	55
24,752.78	24,634.32	25,227.03	17,594.55	28,031.45	35,335.14	21,316.97	25,352.51	28,043.62	10,846.04	27,039.72	17,430.16	31,797.88	17,069.21	56
75.39	76.65	81.21	314.99	137.10	30.07	33.80	18.98	53.26	33.76	57.05	17.78	32.41	23.04	57
380,750	1,208,175	741,059	50,465,347	3,067,767	1,192,900	242,900	483,360	2,962,935	463,915	758,490	480,178	767,465	271,065	58
64,800	245,250	66,206	4,957,489	105,850	114,500	18,900	94,250	278,750	110,925	214,970	60,167	59,280	53,250	59
29,835	137,050	73,240	2,151,651	134,107	44,065	73,900	25,550	347,117	28,170	81,483	126,166	66,425	42,975	60
1,657.50	2,322.88	2,288.75	653.06	1,601.45	1,207.16	6,153.33	1,110.87	3,099.20	531.51	2,263.42	4,067.04	2,554.81	2,261.84	61
5.05	7.23	7.87	12.23	7.83	1.03	9.57	0.83	5.70	1.65	4.78	4.15	2.60	3.05	62
158,880	317,260	170,920	12,789,728	314,951	36,190	39,750	15,262	2,922,744	38,872	351,322	405,208	332,918	68,710	63
147,800	280,630	150,000	8,024,550		53,400	236,189	59,098	1,785,400	(?)	155,450	732,779	1,323,342	68,078	64
7.5	13.1	13.9	59.4		-32.2	-33.2	-74.2	63.7		120.0	-44.7	-74.8	-6.4	65
111.18	50.01	33.89	44.97	21.50	18.97	12.50	39.64	36.39	69.66	124.94	11.92	5.95	20.32	66
118.52	32.15	13.64	20.65		25.90	35.00	43.74	18.39		29.37	52.34	19.99	17.40	67
158,880	321,910	175,920	18,029,728	314,951	41,180	39,760	15,262	2,947,744	38,872	351,322	455,208	332,918	63,710	68
149,800	280,630	150,000	9,349,550		53,000	236,189	59,098	1,815,400	(?)	155,450	732,779	1,323,342	68,078	69
6.4	14.7	17.3	92.8		-23.2	-23.2	-74.2	62.4		120.0	-37.9	-74.9	-6.4	70
64.48	43.96	23.27	58.60	17.22	21.36	9.90	39.64	20.08	53.47	109.23	13.01	5.95	15.78	71
44.32	27.62	9.38	22.02		22.18	27.52	29.06	10.43		23.65	30.53	8.03	10.45	72
1,014	2,467	3,567	220,788	13,930	1,548	2,510	195	36,462	297	1,919	15,000	12,884	1,732	73
6.47	3.99	6.13	4.36	4.60	9.04	7.53	4.97	5.18	17.52	31.83	7.88	7.06	4.11	74

¹ The excess of farm acreage over approximate land area is due to the fact that the entire acreage of a farm is tabulated as in the county in which the headquarters are located, even though a part of the farm may be situated in an adjoining county.

IRRIGATION—TEXAS

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930; AND COST OF MAINTENANCE

ITEM (See definitions in Introduction)		Medina	Menard	Mills	Nueces	Pecos	Presidio	Real
FARMS AND FARM OPERATORS								
1	All farms.....1930.....number..	1,500	401	1,484	1,969	385	532	263
2	Irrigated farms.....1930.....number..	67	42	15	38	212	417	16
Operated by—								
3	Owners and managers.....number..	38	27	10	22	88	80	11
4	Tenants.....number..	29	15	5	16	124	337	5
5	Irrigated farms.....1920.....number..	(1)	85	(1)	(1)	134	31	87
6	Increase, ² 1920-1930.....per cent..		-50.6			68.2		-56.8
FARM AREA AND TOTAL LAND AREA								
7	Approximate land area.....1930.....acres..	865,920	584,960	445,440	496,000	2,645,760	2,439,680	390,160
8	Land in all farms.....1930.....acres..	684,743	387,525	420,512	378,905	2,386,064	957,332	341,187
9	Land in irrigated farms.....1930.....acres..	6,847	45,202	5,904	4,349	64,842	41,924	12,631
10	Average, per farm.....acres..	102.2	1,078.4	393.6	114.4	305.9	100.5	789.4
11	Operated by owners and managers.....acres..	4,341	43,679	1,919	3,321	56,772	33,278	8,071
12	Average, per farm.....acres..	114.2	1,617.7	191.9	161.0	645.1	416.0	788.3
13	Operated by tenants.....acres..	2,506	1,613	3,985	1,028	8,070	8,646	3,960
14	Average, per farm.....acres..	86.4	107.5	797.0	64.3	65.1	25.7	792.0
15	Area irrigated.....1929.....acres..	4,600	3,481	371	3,798	16,166	3,959	890
16	.....1919.....acres..	(1)	5,003	(1)	(1)	22,312	2,150	452
17	Increase, ² 1919-1929.....per cent..		-30.4			-27.5	84.1	96.9
18	Area enterprises were capable of supplying with water.....1930.....acres..	4,600	3,744	458	4,400	29,688	4,734	910
19	.....1920.....acres..	(1)	6,564	(1)	(1)	60,463	1,850	3,227
20	Increase, ² 1920-1930.....per cent..		-43.0			-50.9	155.9	-71.8
21	Irrigable area in enterprises.....1930.....acres..	4,600	3,866	458	4,400	44,990	5,169	910
22	Total area in enterprises.....1920.....acres..	(1)	7,120	(1)	(1)	68,663	2,550	3,274
23	Area in enterprises available, or to be available, for settlement.....1930.....acres..							
IRRIGATION WORKS								
24	Enterprises.....1930.....number..	1	22	10	1	8	31	8
25	.....1920.....number..	(1)	55	(1)	(1)	16	3	10
26	Main canals.....1930.....length, miles..	24	9	1	12	112	47	7
27	.....1920.....length, miles..	(1)	28	(1)	(1)	135	13	24
28	.....1930.....capacity, sec.-ft..	600	40	1	12	434	148	12
29	.....1920.....capacity, sec.-ft..	(1)	254	(1)	(1)	1,372	28	28
30	Laterals.....1930.....length, miles..	08	2	16	14	43	3	3
31	.....1920.....length, miles..	(1)	428	(1)	(1)	212	5	7
32	Reservoirs.....1930.....number..	2	1	1	3	3		
33	.....1920.....number..	(1)	1	(1)	(1)	3		
34	.....1930.....capacity, ac.-ft..	254,650	20	10		24,500		
35	.....1920.....capacity, ac.-ft..	(1)	100	(1)	(1)	56,000		
36	Wells, flowing.....1930.....number..	(1)				10		
37	.....1920.....number..	(1)				9		
38	.....1930.....capacity, g. p. m..					13,500		
39	.....1920.....capacity, g. p. m..	(1)				7,200		
40	Wells, pumped.....1930.....number..	2	3	1	1	3		
41	.....1920.....number..	(1)	3	(1)	(1)	10		
42	.....1930.....capacity, g. p. m..	2,470				10	2,300	
43	.....1920.....capacity, g. p. m..	(1)	1,040	(1)	(1)	1,200		
44	Pumping plants.....1930.....number..	2	23	1	27	27		3
45	.....1920.....number..	(1)	50	(1)	(1)	1		1
46	.....1930.....engine capacity, h. p..	511	192	675	15	402		20
47	.....1920.....engine capacity, h. p..	(1)	967	(1)	(1)	20		3
48	.....1930.....pump capacity, g. p. m..	30,189	7,400	15,000	510	37,880		1,100
49	.....1920.....pump capacity, g. p. m..	(1)	30,095	(1)	(1)	1,200		250
50	.....1930.....average lift, feet..	23	47	85	138	14		32
51	.....1920.....average lift, feet..	24			42			40
VALUES OF FARMS, 1930								
52	Land and buildings, all farms.....dollars..	17,441,265	14,563,500	8,797,728	43,811,000	16,775,436	5,505,840	4,058,890
53	Land and buildings, irrigated farms.....dollars..	831,400	1,061,195	232,660	588,750	2,461,240	1,400,603	182,214
Operated by—								
54	Owners and managers.....dollars..	541,775	900,020	147,510	420,300	1,692,740	638,728	123,904
55	Tenants.....dollars..	289,625	161,175	85,150	168,450	768,500	761,875	58,220
56	Average, land and buildings, per farm.....dollars..	12,408.96	25,260.55	15,510.67	15,493.42	11,609.62	3,355.70	11,388.38
57	per acre.....dollars..	121.43	23.43	30.41	135.38	37.96	33.41	14.43
58	Land (excluding buildings).....dollars..	748,385	937,795	217,460	526,290	2,091,440	1,268,011	160,714
59	Buildings (including dwellings).....dollars..	83,015	123,400	62,460	369,800	131,992	131,992	21,500
60	Implements and machinery, irrigated farms.....dollars..	60,915	42,475	8,175	42,045	255,025	141,785	5,700
61	Average, per farm.....dollars..	909.18	1,011.31	545.05	1,106.45	1,202.95	340.01	366.25
62	per acre.....dollars..	8.90	0.94	1.38	9.67	3.93	3.38	0.45
INVESTMENT IN IRRIGATION ENTERPRISES								
63	Investment to Jan. 1, 1930.....dollars..	2,380,000	38,465	13,912	211,204	1,169,035	91,850	5,395
64	.....1920.....dollars..	(1)	106,273	(1)	(1)	1,180,335	10,300	13,700
65	Increase, ² 1920-1930.....per cent..		-63.8			-1.0	791.7	-60.6
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars..	517.39	10.27	30.38	48.00	39.38	19.40	5.93
67	.....1920.....dollars..		16.19			19.52	5.57	4.25
68	Estimated final investment in existing enterprises, 1930.....dollars..	2,380,000	42,025	13,912	211,204	1,219,035	101,850	5,395
69	.....1920.....dollars..	(1)	108,273	(1)	(1)	1,298,535	10,300	13,700
70	Increase, ² 1920-1930.....per cent..		-61.2			-6.1	888.8	-60.6
71	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars..	517.39	10.87	30.38	48.00	27.13	19.70	5.87
72	Average, per acre, based on estimated final investment and total area, 1920.....dollars..		15.21			18.91	4.04	4.18
COST OF MAINTENANCE AND OPERATION, 1930								
73	Irrigated area for which cost was reported.....acres..	4,600	3,334	359	3,798	16,030	3,725	856
74	Average, per acre, based on area reporting.....dollars..	4.32	1.04	5.10	4.71	2.03	4.41	1.69

¹ Included in "All other counties."
² A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
³ The excess of farm acreage over approximate land area is due to the fact that the entire acreage of a farm is tabulated as in the county in which the headquarters are located, even though a part of the farm may be situated in an adjoining county.

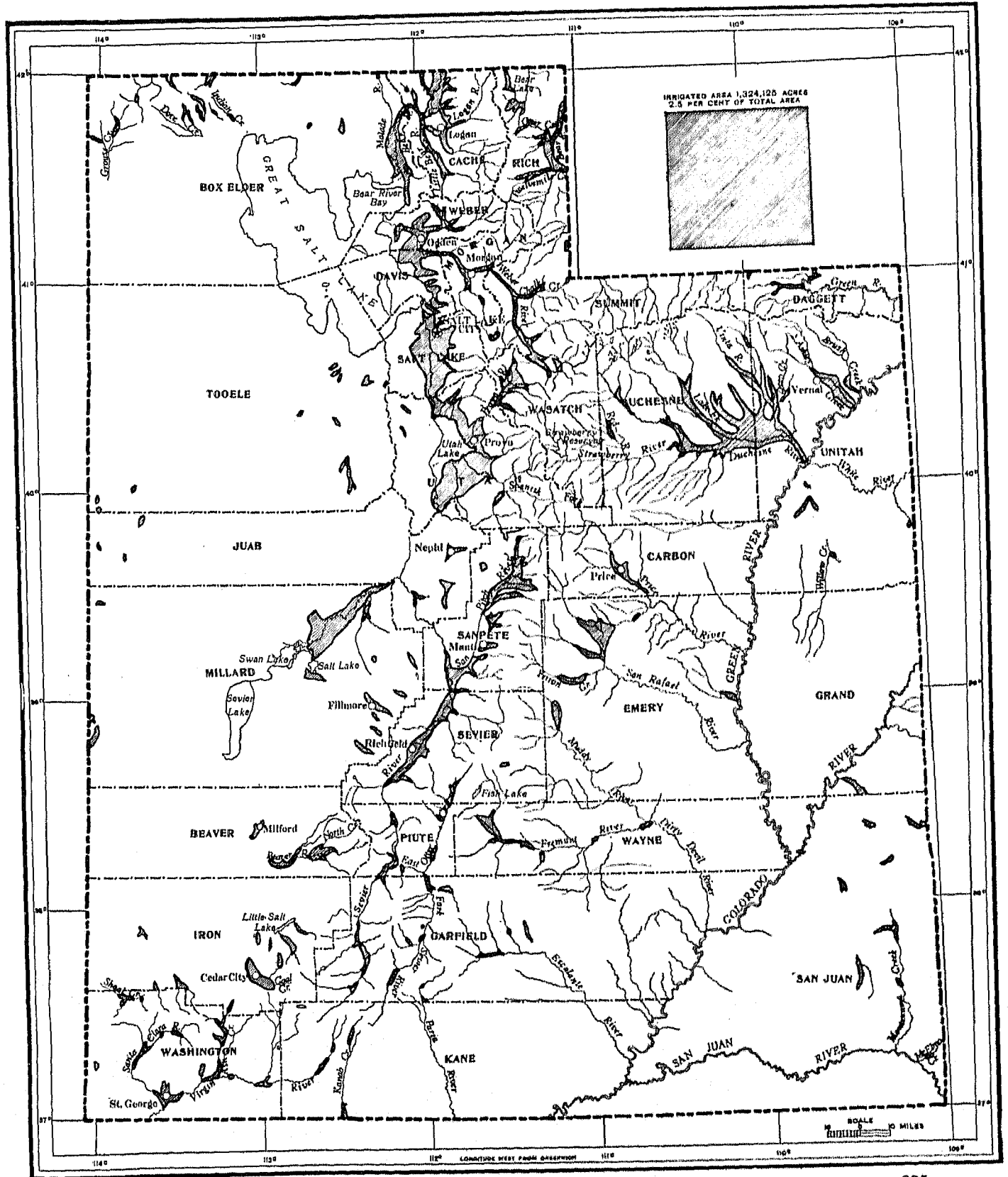
IRRIGATION—TEXAS

1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, AND OPERATION, 1929—Continued

Reeves	Runnels	San Saba	Swisher	Tom Green	Uvalde	Waller	Ward	Webb	Wharton	Wichita	Zavala	All other counties	
327	2,544	1,424	1,021	1,234	761	1,463	303	522	3,965	1,432	304	432,210	1
277	41	103	7	182	15	5	237	70	106	500	76	632	2
77	20	47	3	105	11	3	46	56	54	200	41	430	3
200	21	56	4	77	7	2	191	14	52	300	35	202	4
153	18	45		107	4		182	87	146		228	520	5
81.0	127.8	128.9		70.1	114.3		30.2	-19.5	-27.4		-66.7	19.5	6
1,779,840	693,120	714,240	574,720	930,560	1,016,960	332,160	529,280	2,060,160	711,680	386,560	862,720	123,073,000	7
621,118	595,202	654,887	535,006	692,894	915,686	196,000	521,148	1,320,512	483,481	318,682	401,581	94,238,084	8
88,108	7,065	36,316	5,182	48,252	8,582	1,483	84,183	73,527	42,691	49,684	30,852	367,543	9
318.1	172.3	352.6	740.3	265.1	572.1	336.6	355.2	1,060.4	405.6	99.4	399.4	581.0	10
61,468	3,554	29,189	4,377	38,085	5,109	1,331	76,002	61,828	23,943	18,054	23,818	348,546	11
798.3	177.7	621.0	1,459.0	362.7	404.5	443.7	1,631.8	1,104.1	443.4	04.8	580.9	810.0	12
26,640	3,511	7,127	805	10,167	3,473	352	9,121	11,699	19,048	30,730	6,534	18,997	13
193.2	167.2	127.3	201.3	182.0	868.3	176.0	47.8	835.6	366.3	102.4	186.7	94.0	14
16,169	1,548	3,539	830	10,569	1,093	577	13,900	13,208	30,898	35,612	13,126	13,601	15
13,286	467	95		7,103	484		20,000	7,480	19,510	10,510	1,642	21,444	16
21.7	231.5			48.8	249.8		-30.5	70.6	58.3		699.4	-37.0	17
17,064	2,103	4,291	830	11,575	1,886	1,097	24,800	19,188	40,874	42,970	15,364	26,111	18
20,553	901	2,221		10,040	2,032		37,000	13,143	40,023		4,645	43,146	19
-17.0	133.4	93.2		15.3	-7.2		-33.0	40.0	0.0		230.8	-36.5	20
18,154	2,421	4,416	1,213	11,583	2,119	1,097	69,295	25,891	109,533	42,970	18,691	27,055	21
26,066	1,535	2,395		14,718	2,032		71,500	31,736	75,612		5,933	60,366	22
							22,495						23
14	40	86	7	136	22	5	3	80	68	2	83	309	24
28	17	31		50	5		3	58	138		30	202	25
45	11	1		30	2		69	11	97	61		60	26
53	5	10		53	9		61	12	45		8	140	27
215	9	7		62	1		1,250	60	802	1,000		444	28
399	22	30		348	18		925	1,066	1,076		85	1,430	29
111	1	4		25	4		58	6	25	138		82	30
47	1	3		25	25		52	41	41		12	168	31
1	1			24	4			49		2	80	39	32
1	5			11	11			45	1		18	30	33
6,155	60			1,462	3			2,562		600,000	1,486	3,038	34
6,155	931			6,760				20,248	100		65	9,343	35
1							1					13	36
5									1		8	11	37
1,600												1,255	38
1,850						72						8,169	39
7		1	7	90	21	4		31	76	1,000	100	197	40
22				7	1			9	192		37	76	41
8,400		200	8,900	7,086	17,395	4,000		1,633	115,300		51,925	33,383	42
16,465				632	50			2,975	160,817		7,942	15,513	43
9	40	83	7	138	24	4		122	165		103	268	44
17	16	32		48	2			68	173		37	235	45
258	781	1,459	480	2,033	456	181		6,281	5,700		3,697	3,363	46
450	262	616		1,105	20			3,885	6,531		809	5,918	47
11,200	52,230	84,956	8,900	104,611	19,545	4,600		129,178	332,700		65,885	150,055	48
18,065	9,850	16,870		57,020	410			89,950	185,442		20,692	320,416	49
39	24	37	100	46	37	117		85	33		101	20	50
41	29	40		29	29			72	38		91		51
4,844,994	28,668,744	14,574,068	19,465,013	21,111,276	15,143,833	5,151,838	5,027,066	13,213,411	24,086,310	17,466,720	8,623,419	2,707,130,000	52
2,115,204	419,105	1,432,648	252,178	2,844,676	381,995	44,020	1,349,290	2,977,636	1,660,740	5,805,815	2,529,017	11,718,868	53
1,191,279	221,010	990,938	196,278	2,024,049	346,214	37,740	662,005	2,070,836	991,500	2,381,390	1,806,717	10,085,128	54
923,925	198,095	441,710	53,900	820,627	35,781	6,280	687,285	306,800	609,240	3,423,925	633,200	1,633,740	55
7,636,12	10,222,07	13,900,20	30,025.43	15,630.09	25,466.33	8,804.00	5,693.21	42,537.66	15,667.36	11,010.63	33,288.38	18,542.51	56
24.01	59.32	39.45	48.36	53.95	44.51	26.16	16.03	40.50	38.03	116.84	83.36	31.88	57
1,884,189	345,055	1,169,298	228,779	2,443,284	338,545	28,520	1,200,210	2,651,649	1,399,390	4,623,010	2,348,742	9,850,192	58
231,015	74,050	233,350	23,399	401,392	43,450	15,500	149,030	325,987	261,350	1,182,305	181,175	1,850,709	59
123,300	32,290	110,585	28,300	192,094	15,930	9,035	73,010	367,347	285,480	177,600	278,166	565,662	60
445.13	787.56	1,073.64	4,042.86	1,055.46	1,062.00	1,807.00	308.66	5,247.81	2,693.21	355.20	3,600.08	805.03	61
1.40	4.57	3.05	5.46	3.93	1.86	5.37	0.87	5.00	6.64	3.57	9.10	1.54	62
446,550	50,749	106,385	42,000	261,359	47,060	28,500	604,500	1,317,254	795,175	4,848,645	916,548	668,070	63
581,475	41,050	117,256		401,194	28,550		370,000	1,098,040	1,543,808		100,850	1,813,557	64
-23.2	21.8	-9.3		-34.9	64.8		63.4	19.9	-48.5		469.8	-46.6	65
26.17	24.13	24.79	50.60	22.58	24.05	25.98	24.38	68.65	19.45	112.84	50.60	37.08	66
28.20	46.23	52.79		39.96	14.05		10.00	83.50	38.00		34.63	42.03	67
446,550	51,639	106,995	42,000	261,359	47,060	28,500	604,500	1,350,354	795,175	4,848,645	1,030,548	995,470	68
537,575	41,850	117,271		402,194	28,550		370,000	1,139,702	1,574,608		169,850	1,868,212	69
-24.0	23.4	-8.8		-35.0	64.8		63.4	18.5	-49.5		540.7	-46.7	70
24.60	21.33	24.23	34.62	22.56	22.21	25.98	8.72	52.16	7.20	112.84	50.96	36.00	71
22.54	27.26	48.96		27.33	14.05		5.17	35.91	20.82		27.11	28.16	72
15,899	1,459	3,286	830	8,948	1,288	565	13,900	11,275	28,178	35,612	13,016	0,101	73
2.78	5.72	3.04	2.20	2.79	4.94	9.03	1.92	12.27	6.06	3.27	7.36	8.02	74

UTAH

APPROXIMATE LOCATION AND EXTENT OF IRRIGATED LAND



UTAH

INTRODUCTION

Statistics are presented in the following pages on farms irrigated and area irrigated, investment and cost of maintenance and operation of irrigation enterprises, cost of preparing land for irrigation, drainage of irrigated land, quantity of water used, and distribution of irrigation works, with specialized information relating to dams, pipe lines, and pumping equipment. Data on area irrigated, investment, and irrigation works are given in detail by drainage basins. Classifications of irrigated farms by type of farm, size of farm, and value of farm products; and the acreage, yield, and value of the principal crops grown on irrigated land, for all irrigation States, are shown in Parts III and IV, pages 257 and 325, respectively, of this volume.

Statistics for area irrigated and for cost of maintenance and operation of irrigation works relate to the year 1929; all other items relate to 1930.

For purposes of comparison, statistics for the census of 1920 are shown, where available; and for the purpose of showing the historical development of irrigation certain data are presented from censuses previous to that of 1920.

Data on number, area, and value of wholly and partly irrigated farms with the tenure of the operators of these farms were collected in 1930 on the general farm schedule; in 1920 only the number of irrigated farms was obtained in this way. All other statistics, in both censuses, were collected on special schedules for irrigation enterprises.

STATE TABLE 1.—SUMMARY FOR THE STATE: 1930 AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Amount	Per cent
All farms..... number	27,159	25,662	1,497	5.8
All land in farms..... acres	5,613,101	5,050,410	562,691	11.1
Approximate land area of State..... acres	52,597,760	52,597,700		
Farms irrigated..... number	23,847	22,218	1,629	7.3
Area irrigated..... acres	1,324,125	1,371,651	-47,526	-3.5
Area enterprises were capable of supplying with water..... acres	1,542,475	1,700,550	-158,075	-9.3
Area in enterprises ² acres	1,739,869	2,359,244		
Proportion irrigated:				
All farms..... per cent	87.8	86.6		
All land in farms..... per cent	23.0	27.2		
Approximate land area of State..... per cent	2.5	2.6		
Excess of area enterprises were capable of supplying with water over area irrigated..... acres	218,350	328,899	-110,549	-33.6
Excess of area in enterprises ² over area irrigated..... acres	415,744	987,593		
Area in enterprises available, or to be available, for settlement..... acres	199,449	189,563	9,886	5.2
Value of irrigated farms [land, buildings (including dwellings), and implements and machinery]..... dollars	212,258,249	(*)		
Investment in irrigation enterprises..... dollars	35,669,819	32,037,851	3,632,468	11.3
Average, per acre, based on area enterprises were capable of supplying with water..... dollars	23.13	18.84	4.29	22.7
Estimated final cost of existing enterprises..... dollars	37,857,011	33,835,641	4,021,370	11.9
Average, per acre, based on area in enterprises ² dollars	21.76	14.34		
Average annual cost, per acre, for maintenance and operation of irrigation works..... dollars	1.00	1.08	-0.08	-7.4

¹ A minus sign (-) denotes decrease.

² Irrigable area, 1930; total area, 1920.

³ Figures not available.

STATE TABLE 2.—FARMS AND SPECIFIED FARM VALUES, BY TENURE OF FARM OPERATOR, 1930

ITEM (See definitions in Introduction)	FARMS		SPECIFIED FARM VALUES					
	Number	Area	Land and buildings		Land alone		Implements and machinery	
			Total	Per acre	Total	Per acre	Total	Per acre
		Acres	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All farms.....	27,159	5,613,101	221,223,172	39.41	174,341,305	31.06	13,636,571	2.43
Owners and managers.....	23,838	5,108,732	195,801,035	38.34			12,272,614	2.40
Tenants.....	3,321	504,369	25,362,137	50.28			1,363,957	2.70
Irrigated farms.....	23,847	4,137,021	199,983,735	48.34	157,832,148	38.15	12,274,514	2.97
Owners and managers.....	20,886	3,779,080	176,941,680	46.82	138,337,170	36.61	11,026,957	2.92
Tenants.....	2,961	357,941	23,042,055	64.37	19,494,978	54.46	1,247,557	3.48
Wholly irrigated farms.....	20,823	3,076,374	163,055,410	53.00	127,356,065	41.40	9,907,228	3.22
Owners and managers.....	18,130	2,773,330	142,783,541	51.48	110,257,641	39.76	8,803,581	3.17
Tenants.....	2,693	303,044	20,271,869	66.80	17,099,024	56.42	1,103,647	3.64
Partly irrigated farms.....	3,024	1,060,647	36,928,325	34.82	30,475,483	28.73	2,367,286	2.23
Owners and managers.....	2,756	1,005,750	34,158,139	33.96	28,079,529	27.92	2,223,376	2.21
Tenants.....	268	54,897	2,770,186	50.46	2,395,954	43.64	143,910	2.62
Farms not irrigated.....	3,312	1,476,080	21,239,437	14.30	16,509,157	11.18	1,362,057	0.92

FARMS AND AREA IRRIGATED

STATE TABLE 3.—FARMS AND AREA IRRIGATED: 1890 TO 1930

CENSUS YEAR	FARMS IRRIGATED			AREA IRRIGATED			
	Number	Increase	Proportion of all farms	Area	Increase ¹	Proportion of total land area of State	Proportion of land in all farms
1890.....	23,847	7.3	87.8	1,324,125	-3.5	2.5	23.6
1920.....	22,218	12.7	86.6	1,371,651	37.2	2.6	27.2
1910.....	19,709	10.0	90.9	999,410	58.8	1.9	29.4
1900.....	17,924	84.3	92.5	629,293	138.8	1.2	15.3
1890.....	9,724		92.5	263,473		0.5	20.0

¹ A minus sign (-) denotes decrease.

STATE TABLE 4.—AREA, BY DATE OF BEGINNING OF ENTERPRISES SUPPLYING WATER FOR IRRIGATION

DATE OF BEGINNING (See definitions in Introduction)	Enterprises, 1930	AREA IRRIGATED IN 1929		Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
		Area	Proportion of irrigable area in enterprises		
Total.....	Number 2,714	Acres 1,324,125	Per cent 76.1	Acres 1,542,475	Acres 1,739,869
Before 1860.....	154	122,723	93.9	126,686	130,741
1860-1869.....	301	157,706	84.5	182,966	186,711
1870-1879.....	265	203,785	87.0	218,409	234,301
1880-1889.....	309	258,518	76.8	281,433	336,550
1890-1899.....	241	147,748	72.6	161,235	203,412
1900-1904.....	144	40,762	66.3	60,527	61,452
1905-1909.....	126	200,320	68.2	271,768	293,489
1910-1914.....	246	92,590	69.3	114,428	133,681
1915-1919.....	191	40,739	53.2	54,945	76,586
1920-1924.....	143	11,695	53.7	13,514	21,791
1925-1929.....	181	9,084	64.0	11,162	14,198
Not reported.....	418	35,455	81.9	45,402	46,957

STATE TABLE 5.—AREA, BY SOURCE OF WATER SUPPLY: 1929 AND 1919

SOURCE OF SUPPLY	AREA IRRIGATED				Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹			
Total.....	Acres 1,324,125	Acres 1,371,651	Acres -47,526	Per cent -3.6	Acres 1,542,475	Acres 1,739,869
Streams, gravity.....	962,568	1,105,691	-143,123	-12.9	1,122,362	1,271,686
Streams, pumped.....	63,809	10,389	53,420	514.2	65,303	90,584
Streams, gravity and pumped.....	14,200	50	14,150		14,200	14,200
Wells, pumped.....	10,283	7,308	2,975	40.7	12,092	14,814
Wells, flowing.....	8,974	4,068	4,906	82.8	9,383	9,841
Wells, pumped and flowing.....	398	178	220	123.6	518	623
Lakes, pumped.....	49,451	11,400	38,051	333.8	62,615	63,615
Lakes, gravity.....	5,944	15,218	-9,274	-64.9	7,845	9,345
Springs.....	49,593	41,310	8,283	20.0	52,454	54,099
Stored storm water ²	3,030	977	2,053	210.1	3,545	3,545
City water.....	26	25	1	4.0	26	26
Sewage.....	10		10		20	20
Streams, gravity and wells, pumped.....	20	125	-105	-84.0	20	20
Streams, gravity and wells, flowing.....	3,500	537	2,963	551.8	5,000	5,000
Other mixed.....	150,671	173,495	-22,824	-13.2	184,637	199,336
Other.....	855				1,042	1,302
Not reported.....	1,893	40	2,208		1,413	1,813
Supplemental ³ from—						
Pumped streams.....	75				118	118
Pumped wells.....	816				816	816
Flowing wells.....	81				81	81

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² In reservoirs filled from channels which carry water only during storms and are not classed as streams.
³ Not considered in totals because included in enterprises reporting other sources of supply listed above.

AREA, BY CHARACTER OF ENTERPRISE

One Carey Act enterprise reported in both 1920 and 1930, has not yet been turned over to the water users. For this reason, and to avoid disclosure, it is included, in State Table 6, in the classification "Commercial."

The areas credited to the United States Bureau of Reclamation include the lands of a water-users' association now operating the Government-built Strawberry Valley project, but do not include other areas partly served by Government works, in 1929 and 1919, with water carried through private canals under Warren Act or other water-service contracts.

STATE TABLE 6.—AREA, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

[For number of enterprises by classes, see State Table 12]

ITEM AND CHARACTER (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Area	Per cent
AREA IRRIGATED				
Total.....	Acres 1,324,125	Acres 1,371,651	Acres -47,526	-3.5
Individual and partnership.....	172,240	166,887	5,353	3.2
Cooperative.....	934,680	1,014,649	-79,969	-7.9
Irrigation district.....	8,125	21,143	-13,018	-61.6
Commercial ²	99,834	86,911	12,923	14.9
United States Bureau of Indian Affairs.....	54,619	25,270	29,349	116.1
United States Bureau of Reclamation.....	40,000	29,285	10,715	36.6
City.....	14,627	24,206	-9,579	-39.6
Other.....		3,300	-3,300	-100.0
AREA ENTERPRISES WERE CAPABLE OF SUPPLYING WITH WATER				
Total.....	1,542,475	1,700,550	-158,075	-9.3
Individual and partnership.....	202,147	195,858	6,289	3.2
Cooperative.....	1,069,593	1,225,084	-155,491	-12.7
Irrigation district.....	8,100	24,023	-15,923	-66.3
Commercial ²	128,509	126,833	1,676	1.3
United States Bureau of Indian Affairs.....	79,474	40,870	38,604	59.4
United States Bureau of Reclamation.....	40,000	50,030	-10,030	-20.0
City.....	14,652	25,552	-10,900	-42.6
Other.....		3,300	-3,300	-100.0
AREA IN ENTERPRISES ³				
Total.....	1,739,869	2,350,244		
Individual and partnership.....	216,067	281,720		
Cooperative.....	1,211,365	1,736,563		
Irrigation district.....	18,872	27,933		
Commercial ²	157,139	185,933		
United States Bureau of Indian Affairs.....	79,644	55,870		
United States Bureau of Reclamation.....	42,130	60,030		
City.....	14,652	27,595		
Other.....		3,300		

¹ A minus sign (-) denotes decrease.
² Includes 1 Carey Act enterprise (see explanation in text).
³ Irrigable area, 1930; total area, 1920.

AREA, BY CHARACTER OF WATER RIGHTS

STATE TABLE 7.—AREA IRRIGATED, BY CHARACTER OF RIGHTS UNDER WHICH WATER IS RECEIVED: 1929 AND 1919

WATER RIGHTS (See definitions in Introduction)	1929		1919	
	Area	Proportion of total	Area	Proportion of total
Total.....	Acres 1,324,125	Per cent 100.0	Acres 1,371,651	Per cent 100.0
Appropriation and use.....	244,887	18.5	469,944	34.3
Notice filed and posted.....	21,684	1.6	171,955	12.5
Adjudicated by court.....	650,811	49.2	581,080	42.4
Permit from State.....	133,371	10.1	56,061	4.1
Certificate or license from State.....	155,091	11.7	66,778	4.9
Underground.....	19,608	1.5	8,631	0.6
Other.....	9,826	0.7	4,077	0.3
Mixed.....	82,817	6.2	4,077	0.3
Not reported.....	6,130	0.5	13,125	0.9

AREA, BY DRAINAGE BASIN

STATE TABLE 8.—AREA, BY DRAINAGE BASIN: 1929 AND 1919

DRAINAGE BASIN (See definitions in Introduction)	AREA IRRIGATED			Area enterprises were capable of supplying with water, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹		
	Acres	Acres	Per cent		
Total.....	1,324,125	1,371,651	-3.5	1,542,475	1,739,809
Tributaries of Great Salt Lake.....	593,029	570,868	3.9	642,662	710,008
Bear River and tributaries.....	210,726	202,681	4.0	222,787	247,782
Bear River direct.....	99,735	104,731	-4.8	100,149	119,000
Little Bear River.....	41,889	40,541	-10.0	44,940	48,221
Mald River.....	662	1,189	-44.3	668	693
Other tributaries.....	68,440	50,220	36.3	77,030	78,068
Weber River and tributaries.....	109,827	97,589	12.5	113,906	135,546
Weber River direct.....	66,179	44,726	48.0	66,388	86,389
Ogden River.....	20,581	21,584	-6.0	23,931	24,229
East Canyon Creek.....	5,652	6,202	-9.9	6,028	6,108
Other tributaries.....	17,415	24,777	-29.7	17,649	18,825
Jordan River and Utah Lake and tributaries.....	272,476	270,598	0.7	305,879	326,675
Jordan River direct.....	54,562	48,052	13.5	68,103	77,008
Big Cottonwood Creek.....	7,101	10,991	-35.4	7,751	7,751
Little Cottonwood Creek.....	17,045	12,144	40.4	17,625	17,625
American Fork River.....	17,787	19,146	-7.1	17,500	18,419
Provo River.....	57,408	54,782	4.8	65,822	68,322
Hobble Creek.....	6,786	5,620	20.4	7,040	7,343
Spanish Fork River.....	71,782	61,434	18.8	72,701	74,836
Other tributaries.....	40,025	58,429	-31.5	49,337	54,876
Sevier River and tributaries.....	258,020	325,718	-20.5	303,767	336,471
Sevier River direct.....	135,783	171,976	-21.0	167,674	184,164
San Pitch River.....	65,276	77,616	-15.9	74,003	82,052
Otter Creek.....	7,237	7,289	-0.7	7,782	7,782
Other tributaries.....	50,033	69,337	-26.4	54,308	62,673
Colorado River and tributaries.....	347,452	362,576	-4.2	439,165	518,846
Colorado River direct.....	1,280	9,740	-86.8	1,286	1,561
Fremont River (Dirty Devil River).....	28,655	26,513	8.1	29,284	44,794
Virgin River.....	19,873	27,106	-26.7	20,089	32,710
San Juan River.....	9,868	9,554	3.3	14,480	14,080
Green River and tributaries.....	278,072	280,877	-1.0	351,500	400,701
Green River direct.....	1,908	2,541	-24.9	2,958	4,408
Ashley Fork River.....	23,314	26,787	-13.0	20,519	37,519
Duchesne River.....	167,022	138,446	20.6	222,094	255,834
Price River.....	18,050	23,811	-24.2	22,953	24,691
San Rafael River.....	53,538	77,290	-30.7	55,963	66,259
Other tributaries.....	14,231	12,002	18.6	18,013	20,990
Other tributaries of Colorado River.....	9,698	8,786	10.4	13,526	15,400
Tributaries of Snake River.....	4,724	(²)	-----	5,504	7,059
Raft River.....	4,471	(²)	-----	5,251	6,806
Goose Creek.....	253	(²)	-----	253	253
Independent streams.....	119,991	112,480	-----	151,387	167,290
Beaver River.....	25,291	28,732	-12.0	31,132	33,260
Coal Creek.....	14,488	27,206	-46.7	21,108	21,258
Deep Creek.....	2,147	1,983	8.3	2,172	2,362
Grouse Creek.....	2,408	3,409	-30.6	2,578	2,578
Other.....	75,657	51,099	-----	94,397	107,882

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000
² Reported as "Grand River and tributaries."
³ Included in "Other independent streams."

INVESTMENT, AND COST OF MAINTENANCE AND OPERATION OF IRRIGATION ENTERPRISES

STATE TABLE 9.—INVESTMENT IN ENTERPRISES: 1890 TO 1930

CENSUS YEAR	INVESTMENT		AVERAGE, PER ACRE ¹	
	Amount	Increase	Amount	Increase ²
	Dollars	Per cent	Dollars	Per cent
1930.....	35,669,819	11.3	23.13	22.7
1920.....	32,037,351	128.4	18.84	67.9
1910.....	14,028,717	139.2	11.22	20.4
1900.....	5,865,302	111.0	9.32	-11.7
1890.....	2,780,000	-----	10.55	-----

¹ Based on area enterprises were capable of supplying with water.
² A minus sign (-) denotes decrease.

STATE TABLE 10.—INVESTMENT, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	INVESTMENT		
	Amount	Proportion of total	Average, per acre ¹
	Dollars	Per cent	Dollars
Total.....	35,669,819	100.0	23.13
Before 1860.....	1,854,552	5.2	14.04
1860-1869.....	2,701,021	7.0	14.76
1870-1879.....	2,730,453	7.7	12.50
1880-1889.....	6,304,580	17.8	22.61
1890-1899.....	2,473,081	7.0	15.37
1900-1904.....	1,797,385	5.0	20.70
1905-1909.....	5,829,704	16.3	21.45
1910-1914.....	5,721,115	16.0	50.00
1915-1919.....	1,661,474	4.7	30.24
1920-1924.....	1,058,204	3.0	79.04
1925-1929.....	2,901,842	8.1	259.98
Not reported.....	561,608	1.6	12.37

¹ Based on area enterprises were capable of supplying with water in 1930.

STATE TABLE 11.—INVESTMENT, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929; BY SOURCE OF WATER SUPPLY

(When water is pumped, cost of maintenance and operation includes cost of fuel and attendance)

SOURCE OF SUPPLY	INVESTMENT, 1930			MAINTENANCE AND OPERATION, 1929	
	Amount	Proportion of total	Average, per acre	Irrigated area reporting	Average, per acre ¹
	Dollars	Per cent	Dollars	Acres	Dollars
Total.....	35,669,819	100.0	23.13	1,301,098	1.00
Streams, gravity.....	24,181,708	67.8	21.54	951,071	0.82
Streams, pumped.....	4,355,987	12.2	66.70	63,740	1.20
Streams, gravity and pumped.....	105,050	0.3	7.44	14,200	1.73
Wells, pumped.....	418,016	1.2	34.64	9,931	3.58
Wells, flowing.....	292,817	0.8	31.21	5,823	1.04
Wells, pumped and flowing.....	20,870	(²)	40.29	368	3.49
Lakes, pumped.....	1,317,256	3.7	21.04	49,451	2.00
Lakes, gravity.....	41,044	0.1	5.23	5,344	0.48
Springs.....	739,489	2.1	14.10	46,591	0.65
Stored storm water.....	523,300	1.5	147.62	2,950	1.75
City water.....	100	(²)	3.85	26	0.38
Sewage.....	800	(²)	40.00	-----	-----
Streams, gravity and wells, pumped.....	3,500	(²)	175.00	20	19.00
Streams, gravity and wells, flowing.....	130,000	0.4	26.00	3,500	1.43
Other mixed.....	3,400,511	9.5	18.42	145,642	1.32
Other.....	94,181	0.3	90.38	808	7.15
Not reported.....	20,385	(²)	14.43	1,033	1.70
Supplemental from—					
Pumped streams.....	1,505	(²)	12.75	15	5.00
Pumped wells.....	21,500	(²)	26.35	693	2.09
Flowing wells.....	300	(²)	3.70	2	2.50

¹ Based on area irrigated in 1929 reporting cost.
² Less than one-tenth of 1 per cent.
³ Not considered in total because included in enterprises reporting other sources of supply listed above.

STATE TABLE 12.—INVESTMENT, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

CHARACTER OF ENTERPRISE (See definitions in Introduction)	Enterprises, 1930	INVESTMENT		INCREASE ¹	
		1930	1920	Amount	Per cent
		Dollars	Dollars	Dollars	Per cent
Total.....	2,714	35,669,819	32,037,351	3,632,468	11.3
Individual and partnership.....	2,030	3,482,497	2,730,804	745,693	27.2
Cooperative.....	656	16,763,420	20,254,212	-3,490,792	-17.2
Irrigation district.....	4	1,896,590	205,484	1,691,106	614.4
Commercial ²	10	7,220,629	3,698,770	3,521,859	95.2
United States Bureau of Indian Affairs.....	5	927,202	765,354	161,848	21.1
United States Bureau of Reclamation.....	2	5,181,980	3,507,057	1,674,923	45.3
City.....	7	197,501	729,090	-531,589	-27.0
Other.....	-----	-----	20,580	-20,580	-100.0

¹ A minus sign (-) denotes decrease.
² Includes 1 Carey Act enterprise (see explanation in text for State Table 6, p. 227).

STATE TABLE 13.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE ¹	
	1930	1920	Amount	Per cent
	Dollars	Dollars	Dollars	
Total.....	35,609,819	32,037,351	3,632,468	11.3
Tributaries of Great Salt Lake.....	19,407,237	14,102,393	5,304,844	37.6
Bear River and tributaries.....	5,016,351	3,430,603	1,585,688	46.2
Bear River direct.....	3,446,098	2,150,603	1,295,495	60.2
Little Bear River.....	703,436	720,363	-16,927	-2.3
Malad River.....	23,384	18,097	5,287	29.2
Other tributaries.....	843,433	541,600	301,833	55.7
Weber River and tributaries.....	4,955,709	2,106,048	2,849,721	135.3
Weber River direct.....	3,713,175	1,353,323	2,359,852	174.4
Ogden River.....	925,756	423,755	502,001	118.5
East Canyon Creek.....	45,485	74,010	-28,525	-38.5
Other tributaries.....	271,353	254,900	16,393	6.4
Jordan River and Utah Lake and tributaries.....	9,435,117	8,565,682	869,435	10.2
Jordan River direct.....	1,897,577	746,836	1,150,741	154.1
Big Cottonwood Creek.....	173,453	315,563	-142,110	-45.0
Little Cottonwood Creek.....	217,178	226,221	-9,043	-4.0
American Fork River.....	62,000	302,449	-240,449	-79.5
Provo River.....	1,694,118	985,079	708,139	71.8
Hobble Creek.....	225,712	41,024	184,688	450.2
Spanish Fork River.....	3,837,653	4,126,999	-289,346	-7.0
Other tributaries.....	1,327,426	1,820,611	-493,185	-27.1
Sevier River and tributaries.....	6,793,638	9,509,836	-2,716,198	-28.6
Sevier River direct.....	4,539,682	7,374,975	-2,835,293	-38.4
San Pitch River.....	1,005,530	1,142,510	-136,980	-12.0
Other Creek.....	225,470	151,850	73,620	48.5
Other tributaries.....	1,022,956	840,501	182,455	21.7
Colorado River and tributaries.....	6,734,361	6,577,352	157,009	2.4
Colorado River direct.....	10,300	2,219,489	-200,189	-91.2
Fremont River (Dirty Devil River).....	294,065	567,050	-272,985	-48.0
Virgin River.....	650,176	1,257,931	-607,805	-48.3
San Juan River.....	274,632	206,458	68,174	33.0
Green River and tributaries.....	5,360,798	4,154,690	1,206,108	30.0
Green River direct.....	440,025	376,325	63,700	16.9
Ashley Fork River.....	402,000	374,140	28,460	7.6
Duchesne River.....	2,977,463	2,428,174	549,289	22.6
Pioche River.....	1,140,078	468,725	681,353	148.5
San Rafael River.....	258,800	288,100	-29,300	-10.2
Other tributaries.....	141,832	229,196	-87,364	-38.1
Other tributaries of Colorado River.....	134,490	171,714	-37,224	-21.7
Tributaries of Snake River.....	34,526	(³)	34,526	-----
Raft River.....	33,326	(³)	33,326	-----
Goose Creek.....	1,200	(³)	1,200	-----
Independent streams.....	2,700,057	1,847,770	852,287	46.1
Beaver River.....	793,337	842,305	-48,968	-5.8
Coal Creek.....	182,140	179,171	2,969	1.6
Deep Creek.....	12,277	8,844	3,433	38.8
Grouse Creek.....	27,700	28,338	-638	-2.2
Other.....	1,684,603	789,112	895,491	113.5

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² Reported as "Grand River and tributaries."
³ Included in "Other independent streams."

COST OF PREPARING LAND FOR IRRIGATION

The costs shown in State Table 14 represent estimates of expenditures already made on the areas reporting, and include clearing and grading land, and building farm laterals and farm irrigation structures.

STATE TABLE 14.—ESTIMATED COST OF PREPARING LAND, 1930

ITEM	1930
Area reporting.....	acres..... 1,129,338
Estimated cost reported.....	dollars..... 23,786,844
Average, per acre.....	dollars..... 21.06

DRAINAGE OF IRRIGATED LAND

The areas in State Table 15 relate only to lands within the boundaries of irrigation enterprises. "Additional area needing drainage" represents all lands so reported by the owners of the enterprises and includes lands producing partial crops as well as those wholly unproductive.

STATE TABLE 15.—AREA WITHIN IRRIGATION ENTERPRISES FOR WHICH DRAINS HAVE BEEN INSTALLED AND ADDITIONAL AREA IN NEED OF DRAINAGE: 1930 AND 1920

ITEM	1930	1920
Enterprises reporting land drained or needing drainage.....	number..... 226	148
Area in enterprises reporting land drained or needing drainage.....	acres..... 388,607	503,212
Area for which drains have been installed.....	acres..... 68,656	85,448
Additional area needing drainage.....	acres..... 88,338	91,076
Proportion that area for which drains have been installed is of area in all irrigation enterprises reporting drainage.....	per cent..... 17.7	17.0
Proportion that area for which drains have been installed is of area in all irrigation enterprises.....	per cent..... 3.0	3.0
Proportion that area for which drains have been installed plus that needing drainage is of area in all irrigation enterprises.....	per cent..... 9.0	7.5

¹ Irrigable area, 1930; total area, 1920.

QUANTITY OF WATER USED

Some irrigation enterprises carry water to individual farms, but others only to laterals which serve several farms. The "total quantity of water delivered to irrigators," shown in State Table 16, is the quantity reported in answer to a question preceded by the inquiry: "Average head of water delivered per individual irrigator."

The quantity of water used was reported on only part of the irrigation schedules, and all areas reporting "quantity of water entering canals" did not also report "quantity delivered to irrigators." In order that proper values may be assigned to the figures given, those representing measurements and those representing estimates are reported separately in State Table 16.

STATE TABLE 16.—WATER USED: 1929 AND 1919

ITEM (See definitions in Introduction)	TOTAL		MEASURED		NOT MEASURED	
	1929	1919	1929	1919	1929	1919
Average flow of water entering canals.....	sec.-ft..... 10,205	48,620	7,317	15,100	2,948	33,523
Area irrigated.....	acres..... 843,128	937,243	661,833	720,715	181,205	216,528
Average, per second-foot.....	acres..... 82	19	90	48	61	0
Total quantity of water entering canals.....	ac.-ft..... 3,248,945	3,554,233	1,416,475	2,708,631	1,832,470	845,802
Area irrigated.....	acres..... 925,100	952,514	517,459	770,348	407,641	212,166
Average quantity per acre.....	ac.-ft..... 3.5	3.6	2.7	3.5	4.5	4.0
Total quantity of water delivered to irrigators.....	ac.-ft..... 430,873	1,718,709	320,441	720,300	101,432	989,409
Area irrigated.....	acres..... 175,423	353,424	136,414	188,406	30,000	165,018
Average quantity per acre.....	ac.-ft..... 2.4	4.9	2.4	3.9	2.0	6.0

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IRRIGATION WORKS

STATE TABLE 17.—DAMS, BY MATERIAL, 1930

MATERIAL	DAMS	
	Diversion	Storage
	Number 1,717	Number 287
Total.....	314	19
Concrete or masonry.....	135	180
Timber.....	1,237	81
Earth and rock.....	31	7
Other and mixed.....		
Not reported.....		

¹ Principally temporary dams, replaced annually.

STATE TABLE 18.—LENGTH OF PIPE LINES, BY MATERIAL AND SIZE, 1930

MATERIAL AND SIZE (DIAMETER)	Length	MATERIAL AND SIZE (DIAMETER)	Length
	Miles		Miles
Total.....	159.0	Wood:	
Concrete:		1 to 12 inches.....	28.4
1 to 12 inches.....	9.0	13 to 30 inches.....	2.1
13 to 30 inches.....	15.0	More than 30 inches.....	1.8
Metal:		Clay:	
1 to 12 inches.....	42.9	1 to 12 inches.....	54.2
13 to 30 inches.....	6.1	13 to 30 inches.....	0.3
More than 30 inches.....	0.2	Not segregated by size.....	1.0

STATE TABLE 19.—PUMPING EQUIPMENT, BY KIND OF POWER AND PUMP, 1930

ITEM	ENGINES OR MOTORS		PUMPS				
	Capacity	Proportion of total	Number	Proportion of total	Capacity	Proportion of total	Average lift
Total.....	11,381	100.0	460	100.0	877,942	100.0	36
Electricity.....	9,060	79.6	334	72.6	794,944	90.5	39
Internal combustion.....	1,243	10.9	99	21.5	64,653	7.4	30
Steam.....	61	0.5	4	0.9	6,450	0.7	15
Water.....	930	8.2	3	0.7	8,100	0.9	28
Wind.....	12	0.1	13	2.8	545	(¹)	28
Electricity and internal combustion.....	25	0.2	5	1.1	2,250	0.3	22
Internal combustion and wind.....	50	0.5	2	0.4	1,000	0.1	50
Kind of Pump							
Centrifugal.....	9,195	80.8	386	83.9	311,877	35.5	34
Turbine.....	475	4.1	38	8.3	18,302	2.1	49
Rotary.....	362	3.2	18	3.9	20,850	2.4	43
Reciprocating.....	34	0.3	4	0.9	583	(¹)	52
Plunger.....	5	(¹)	4	0.9	530	(¹)	35
Centrifugal and turbine.....	10	(¹)	2	0.4	800	(¹)	30
Screw.....	1,300	11.4	8	1.7	525,000	59.8	8

¹ Less than one-tenth of 1 per cent.

STATE TABLE 20.—IRRIGATION WORKS, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	DAMS		MAIN CANALS		Lateral canals, length	RESERVOIRS		Pipe lines, length	FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diversion	Storage	Capacity	Length		Number	Capacity		Number	Capacity	Number	Capacity	Number	Engine or motor capacity	Pumps	
	Number 1,717	Number 287	Sec.-ft. 30,648	Miles 5,614	Miles 3,623	413	Ac.-ft. 1,093,252	Miles 159.0	1,663	G. p. m. 104,070	346	G. p. m. 120,333	429	H. p. 11,381	460	G. p. m. 877,942
Total.....	104	30	2,947	480	653	20	2,432	25.8	3	280	2	228	6	248	10	5,700
Before 1800.....	287	18	3,500	605	402	16	10,175	11.9	2	20	1	450	4	72	4	2,475
1800-1879.....	342	34	4,912	830	357	39	65,879	18.3	42	1,575	1	350	3	1,314	10	526,350
1880-1889.....	308	48	4,920	834	318	40	41,743	5.0	97	7,405	1	200	3	104	5	13,700
1890-1899.....	152	36	3,741	721	277	57	99,567	6.5	181	8,893	4	625	6	156	7	2,475
1900-1904.....	70	11	1,098	182	224	22	275,887	39.7	204	12,577	8	1,130	10	120	11	5,775
1905-1909.....	84	23	5,308	752	876	27	137,053	7.7	114	6,037	15	2,325	14	2,342	19	33,210
1910-1914.....	80	34	2,236	446	307	54	303,072	20.8	319	14,037	51	7,653	62	3,208	69	82,338
1915-1919.....	68	13	752	202	71	31	30,170	14.7	204	8,993	29	10,095	58	818	59	43,419
1920-1924.....	24	12	208	85	23	21	4,568	2.8	99	6,713	51	17,810	61	892	65	51,495
1925-1929.....	22	14	357	74	15	30	97,171	2.7	131	7,544	109	54,840	116	1,304	116	76,615
Not reported.....	86	14	669	307	40	47	11,935	8.5	207	30,088	74	24,882	36	805	85	34,390

STATE TABLE 21.—IRRIGATION WORKS, BY CHARACTER OF ENTERPRISE, 1930

CHARACTER OF ENTERPRISE (See definitions in Introduction)	DAMS		MAIN CANALS		Lateral canals, length	RESERVOIRS		Pipe lines, length	FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diversion	Storage	Capacity	Length		Number	Capacity		Number	Capacity	Number	Capacity	Number	Engine or motor capacity	Pumps	
	Number 1,717	Number 287	Sec.-ft. 30,648	Miles 5,614	Miles 3,623	413	Ac.-ft. 1,093,252	Miles 159.0	1,863	G. p. m. 104,070	346	G. p. m. 120,333	429	H. p. 11,381	460	G. p. m. 877,942
Individual and partnership.....	908	128	4,271	1,683	277	239	27,918	62.2	1,577	97,457	343	113,933	400	4,762	403	201,453
Cooperative.....	740	126	20,334	8,456	2,349	142	602,786	92.8	80	7,213	3	6,400	23	2,149	36	550,080
Irrigation district.....	3	2	235	33	10	1	50,000	0.8					1	300	4	18,600
Commercial ¹	15	16	2,616	224	233	17	116,448	3.2					5	4,170	17	97,900
United States Bureau of Indian Affairs.....	33		1,737	160	488											
United States Bureau of Reclamation.....	3	3	770	27	105	2	295,000									
City.....	15	12	685	31	101	12	1,100									

¹ Includes 1 Carey Act enterprise (see explanation in text for State Table 6, p. 227).

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STATE TABLE 22.—IRRIGATION WORKS, BY DRAINAGE BASIN, 1930

DRAINAGE BASIN (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS				
	Diver- sion	Stor- age	Capac- ity	Length	Lateral canals, length	Num- ber	Capacity	Pipe lines, length	Num- ber	Capac- ity	Num- ber	Capac- ity	Num- ber	En- gine or motor capac- ity	Pumps		Av- erage lift
															Num- ber	Capac- ity	
	Num- ber	Num- ber	Sec. ft	Miles	Miles	413	Acre-ft.	Miles	1,663	G. p. m.	346	G. p. m.	420	H. p.	460	G. p. m.	Feet
1,717	287	30,048	5,614	3,023	1,093,252	159.0	104,070	120,333	11,381	877,942	30						
Total.....																	
Tributaries of Great Salt Lake.....																	
	805	112	13,465	2,099	1,532	128	373,106	63.2	698	34,775	102	31,180	173	8,106	204	746,160	41
Bear River and tributaries.....																	
	235	25	3,856	540	400	35	6,306	8.0	90	3,795	83	20,320	131	1,785	130	82,715	43
Bear River direct.....																	
	16	1	2,058	120	121	1	50	1.9					27	780	30	47,334	30
Little Bear River.....																	
	99	3	970	189	173	4	168	1.7	53	1,829	1	300	7	104	7	4,755	28
Malad River.....																	
	4		24	16	1	2	2,001										
Other tributaries.....																	
	116	21	809	215	105	25	4,087	4.4	37	1,900	82	20,026	97	901	90	30,026	40
Weber River and tributaries.....																	
	314	38	3,029	578	277	34	77,358	20.5	85	4,081	10	7,335	24	370	20	24,005	20
Weber River direct.....																	
	102	3	2,003	228	90	5	74,301	0.3					8	142	9	0,545	17
Ogden River.....																	
	55	6	450	132	159	1	1	7.6	9	1,780	3	500	2	13	3	500	32
East Canyon Creek.....																	
	24	1	180	32	1	1	9										
Other tributaries.....																	
	135	28	306	186	27	27	3,047	12.6	70	2,295	7	6,885	14	221	14	14,560	20
Jordan River and Utah Lake and tributaries.....																	
	256	40	6,580	981	855	59	289,442	34.7	523	26,899	9	3,475	18	6,085	42	638,840	56
Jordan River direct.....																	
	13	1	1,412	169	52	1	8	0.5	2	60			4	1,632	14	545,000	82
Big Cottonwood Creek.....																	
	10		189	38	43	1	10	1.3									
Little Cottonwood Creek.....																	
	21	2	395	48	67	1	500	12.0									
American Fork River.....																	
	6		210	38	72	1	3		2	225	1	500	2	215	6	4,325	65
Provo River.....																	
	101	13	1,731	268	176	22	14,918	0.4	6	130			2	1,370	5	23,400	145
Hobble Creek.....																	
	24		83	36	18	2	3		4	250							
Spanish Fork River.....																	
	16	4	1,312	184	268	2	250,750		1	40							
Other tributaries.....																	
	65	29	1,248	250	159	20	23,265	20.5	508	26,194	8	2,975	10	2,818	17	66,115	25
Sevier River and tributaries.....																	
	184	51	6,088	974	513	47	511,227	5.1	106	10,423	3	2,170	8	122	5	5,770	27
Sevier River direct.....																	
	50	12	3,427	449	300	9	386,860		64	6,188			3	45	1	1,500	10
San Pitch River.....																	
	49	14	1,091	267	137	14	7,508	0.1	1	900	1	1,000	2	25	1	1,100	40
Otter Creek.....																	
	12	2	534	32	6	3	63,800										
Other tributaries.....																	
	73	23	1,036	226	70	21	53,059	5.0	41	3,335	2	1,170	3	52	3	3,170	20
Colorado River and tributaries.....																	
	345	64	7,873	1,683	1,120	76	125,536	3.9	2	70	1	1,380	12	1,080	13	19,320	25
Colorado River direct.....																	
			38	15									3	55	3	6,350	15
Fremont River (Dirty Devil River).....																	
	31	10	477	119	8	11	4,370										
Virgin River.....																	
	118	23	732	242	61	21	1,761	3.1	1	40	1	1,380	1	40	1	1,500	82
San Juan River.....																	
	9		200	95													
Green River and tributaries.....																	
	167	28	6,264	1,136	1,021	30	112,587	0.7	1	30			8	901	9	11,470	22
Green River direct.....																	
	2		71	20									7	951	8	10,120	24
Ashley Fork River.....																	
	8		646	77	1												
Duchesne River.....																	
	60	14	4,066	672	911	24	39,745	0.6	1	30							
Price River.....																	
	21	7	353	108	18	6	50,685						1	40	1	1,350	0
San Rafael River.....																	
	13	4	830	106	49	4	17,007										
Other tributaries.....																	
	57	3	298	153	42	5	5,150	0.1									
Other tributaries of Colorado River.....																	
	20	3	162	76	39	4	6,812	0.1									
Tributaries of Snake River.....																	
	58	2	43	26	7	3	367	0.7									
Raft River.....																	
	44	1	34	20	1	3	367	0.7									
Goose Creek.....																	
	14	1	9	6	6												
Independent streams.....																	
	325	58	3,179	832	442	160	83,016	86.1	857	50,402	240	85,597	236	1,977	238	106,602	33
Beaver River.....																	
	57	7	794	149	89	5	31,995	1.7	9	81	90	32,062	89	523	89	33,412	28
Coal Creek.....																	
	14	1	467	39	53	4	50		1	55	13	6,989	12	179	12	7,139	38
Deep Creek.....																	
	1	1	37	37		2	1										
Grouse Creek.....																	
	12	2	26	33	2	2	462										
Other.....																	
	241	47	1,855	574	298	147	50,598	84.4	847	59,280	137	45,646	135	1,270	137	66,141	30

IRRIGATION—UTAH

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929

ITEM (See definitions in Introduction)		THE STATE	Beaver	Box Elder	Cache	Carbon	Daggett	Davis
FARMS AND FARM OPERATORS								
1	All farms..... 1930..... number..	27,159	395	1,977	2,372	285	52	1,481
2	Irrigated farms..... 1930..... number..	23,847	366	1,623	1,992	235	47	1,340
3	Operated by—							
4	Owners and managers..... number..	20,886	313	1,389	1,805	186	38	1,120
5	Tenants..... number..	2,961	83	234	187	49	9	220
6	Irrigated farms..... 1920..... number..	22,218	343	1,538	1,999	181	36	1,096
6	Increase, 1920-1930..... per cent..	7.3	6.7	5.5	1.2	29.8	30.6	22.8
FARM AREA AND TOTAL LAND AREA								
7	Approximate land area..... 1930..... acres..	52,597,700	1,702,400	3,484,160	744,960	951,680	544,000	176,000
8	Land in all farms..... 1930..... acres..	5,613,101	67,075	657,895	392,068	30,869	24,832	162,357
9	Land in irrigated farms..... 1930..... acres..	4,137,021	62,784	365,458	226,237	24,487	24,280	84,404
10	Average, per farm..... acres..	173.5	224.2	113.6	104.2	616.6	63.0	63.0
11	Operated by owners and managers..... acres..	3,779,080	56,523	334,701	210,904	17,535	22,291	74,243
12	Average, per farm..... acres..	180.9	180.6	241.0	116.8	94.3	58.6	63.3
13	Operated by tenants..... acres..	357,941	6,261	30,757	15,393	6,952	1,989	10,221
14	Average, per farm..... acres..	120.9	118.1	131.4	82.0	141.9	221.0	46.4
15	Area irrigated..... 1929..... acres..	1,324,125	25,291	76,324	94,952	18,248	7,543	45,646
16	Increase, 1919-1929..... per cent..	1,371,651	28,103	86,734	94,705	21,676	6,872	19,468
17	Increase, 1919-1929..... per cent..	-3.5	-10.0	-12.0	0.3	-15.8	14.8	134.5
18	Area enterprises were capable of supplying with water..... 1930..... acres..	1,542,475	31,132	81,266	105,605	23,198	9,043	50,092
19	Increase, 1920-1930..... per cent..	1,700,550	45,829	100,633	96,619	22,458	10,599	19,536
20	Increase, 1920-1930..... per cent..	-9.3	-32.1	-19.2	0.3	3.3	-0.2	150.4
21	Irrigable area in enterprises..... 1930..... acres..	1,739,869	33,260	103,008	109,861	24,936	12,443	68,138
22	Total area in enterprises..... 1920..... acres..	2,359,244	52,180	145,465	100,507	33,351	10,600	20,375
23	Area in enterprises available, or to be available, for settlement..... 1930..... acres..	199,449	8,630	73,355	2,000			
IRRIGATION WORKS								
24	Enterprises..... 1930..... number..	2,731	147	219	162	83	9	280
25	Increase, 1920-1930..... number..	2,403	95	220	133	40	8	187
26	Main canals..... 1930..... length, miles..	5,614	149	201	319	135	39	137
27	Increase, 1920-1930..... length, miles..	6,343	207	401	344	141	28	72
28	Increase, 1920-1930..... capacity, sec.-ft..	30,948	794	1,092	1,591	307	133	1,145
29	Increase, 1920-1930..... capacity, sec.-ft..	29,447	750	1,411	1,820	546	153	114
30	Laterals..... 1930..... length, miles..	3,623	89	151	244	18	33	82
31	Increase, 1920-1930..... length, miles..	5,334	229	76	229	24	5	72
32	Reservoirs..... 1930..... number..	413	5	39	6	5	2	41
33	Increase, 1920-1930..... number..	476	46	6	6	2		72
34	Increase, 1920-1930..... capacity, ac.-ft..	1,093,252	31,905	5,952	1,784	50,660	6	3,719
35	Increase, 1920-1930..... capacity, ac.-ft..	1,600,505	40,461	3,597	1,509	1,248		23,135
36	Wells, flowing..... 1930..... number..	1,663	9	32	58			642
37	Increase, 1920-1930..... number..	1,266	1	32	32			370
38	Increase, 1920-1930..... capacity, g. p. m..	104,070	81	876	2,919			31,713
39	Increase, 1920-1930..... capacity, g. p. m..	96,371		1,880	3,287			8,185
40	Wells, pumped..... 1930..... number..	346	90	82	1			48
41	Increase, 1920-1930..... number..	192	11	61				54
42	Increase, 1920-1930..... capacity, g. p. m..	120,335	32,902	20,026	300			5,885
43	Increase, 1920-1930..... capacity, g. p. m..	39,059	3,610	12,932				4,319
44	Pumping plants..... 1930..... number..	429	89	94	35	1		54
45	Increase, 1920-1930..... number..	260	9	71	27		2	50
46	Increase, 1920-1930..... engine capacity, h. p..	11,381	528	944	787	40		620
47	Increase, 1920-1930..... engine capacity, h. p..	11,392	91	762	1,664		13	179
48	Increase, 1920-1930..... pump capacity, g. p. m..	877,942	33,412	45,576	37,099	1,350		31,095
49	Increase, 1920-1930..... pump capacity, g. p. m..	783,588	4,010	25,205	76,200		965	5,253
50	Increase, 1920-1930..... average lift, feet..	36	28	45	36		6	40
51	Increase, 1920-1930..... average lift, feet..	25	21	46			11	9
VALUES OF FARMS, 1930								
52	Land and buildings, all farms..... dollars..	221,223,172	3,095,781	21,521,026	24,049,060	1,513,530	481,615	15,162,142
53	Land and buildings, irrigated farms..... dollars..	199,983,735	2,991,751	17,212,403	20,807,088	1,403,500	473,110	13,753,991
54	Operated by—							
55	Owners and managers..... dollars..	176,941,680	2,532,460	15,084,333	19,029,728	1,092,300	424,010	11,502,431
56	Tenants..... dollars..	23,042,055	409,291	2,128,070	1,777,355	311,200	48,500	2,251,600
57	Average, land and buildings, per farm..... dollars..	8,386.12	8,174.18	10,605.30	10,445.32	5,972.34	10,066.17	10,284.17
58	Average, land and buildings, per acre..... dollars..	48.34	47.65	47.10	91.97	57.32	19.48	162.84
59	Land (excluding buildings)..... dollars..	187,832,148	2,503,441	13,931,455	16,210,760	1,103,628	404,310	10,715,079
60	Buildings (including dwellings)..... dollars..	42,151,537	488,310	3,280,943	4,596,323	299,872	68,800	3,083,012
61	Implements and machinery, irrigated farms..... dollars..	12,274,514	175,417	1,231,601	1,087,665	111,722	45,630	846,579
62	Average, per farm..... dollars..	514.72	479.28	758.84	549.02	475.41	970.85	631.78
63	Average, per acre..... dollars..	2.97	2.79	3.37	4.81	4.56	1.88	10.02
INVESTMENT IN IRRIGATION ENTERPRISES								
64	Investment to Jan. 1, 1930..... dollars..	35,669,810	793,337	3,483,384	1,479,508	1,146,628	73,200	1,987,062
65	Increase, 1920-1930..... dollars..	32,037,351	831,344	1,808,363	1,436,207	420,075	112,698	522,313
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930..... per cent..	11.3	-4.0	92.8	3.0	173.0	-35.0	280.4
67	Increase, 1920-1930..... dollars..	23.13	25.48	42.86	14.01	49.43	7.36	39.67
68	Increase, 1920-1930..... dollars..	18.84	18.14	17.95	14.86	18.70	10.63	26.74
69	Estimated final investment in existing enterprises, 1930..... dollars..	37,857,011	795,087	3,497,084	1,510,598	1,157,128	93,200	2,009,954
70	Increase, 1920-1930..... dollars..	33,836,641	869,444	2,084,003	1,472,007	420,075	112,698	545,313
71	Average, per acre, based on estimated final investment and irrigable area, 1930..... per cent..	11.9	-7.5	67.8	2.0	175.4	-17.3	283.0
72	Average, per acre, based on estimated final investment and total area, 1920..... dollars..	21.76	23.90	33.96	13.75	46.40	7.49	29.50
73	Average, per acre, based on estimated final investment and total area, 1920..... dollars..	14.34	16.47	14.08	14.65	12.58	10.63	26.76
COST OF MAINTENANCE AND OPERATION, 1929								
74	Irrigated area for which cost was reported..... acres..	1,301,098	25,066	72,565	93,904	17,713	7,543	45,392
74	Average, per acre, based on area reporting..... dollars..	1.00	1.05	1.03	1.24	1.36	0.54	1.32

1 A minus sign (-) denotes decrease.

2 Includes 13 intercounty projects counted in this table as 30 independent enterprises; corresponding figures for 1920 not available. For actual number of enterprises see State Tables 4 and 12.

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Duchesne	Emery	Garfield	Grand	Iron	Juab	Kane
FARMS AND FARM OPERATORS								
1	All farms.....1930.....number..	1,050	758	513	157	509	400	200
2	Irrigated farms.....1930.....number..	1,002	732	462	111	409	381	157
3	Operated by—							
4	Owners and managers.....number..	808	608	308	94	430	347	157
5	Tenants.....number..	104	124	54	17	33	34	10
6	Irrigated farms.....1920.....number..	1,188	727	410	80	512	305	172
6	Increase, ¹ 1920-1930.....per cent..	-15.6	0.7	10.2	24.7	-8.4	24.0	-2.0
FARM AREA AND TOTAL LAND AREA								
7	Approximate land area.....1930.....acres..	2,090,240	2,849,020	3,340,700	2,362,880	2,083,840	2,170,040	2,697,000
8	Land in all farms.....1930.....acres..	173,600	115,007	111,421	33,128	354,223	150,555	112,752
9	Land in irrigated farms.....1930.....acres..	170,138	107,880	91,400	22,031	241,070	117,298	94,008
10	Average, per farm.....acres..	160.8	147.4	202.3	108.5	615.3	307.8	508.7
11	Operated by owners and managers.....acres..	145,014	84,081	73,453	20,054	235,892	110,353	84,089
12	Average, per farm.....acres..	179.5	130.3	184.0	213.0	541.0	318.0	541.3
13	Operated by tenants.....acres..	25,124	23,208	18,007	1,977	5,778	0,915	0,979
14	Average, per farm.....acres..	129.5	187.2	333.5	110.3	175.1	203.4	097.0
15	Area irrigated.....1920.....acres..	108,213	65,078	23,074	2,747	20,088	13,207	4,170
16	Average, per farm.....acres..	100.435	91.145	27,097	6,865	32,000	10,008	4,088
17	Increase, ¹ 1919-1920.....per cent..	10.0	-28.0	-12.0	-3.2	-0.5	32.0	2.0
18	Area enterprises were capable of supplying with water.....1930.....acres..	143,542	98,412	27,375	3,882	40,280	18,068	5,210
19	Average, per farm.....acres..	140,100	98,033	27,353	9,064	38,858	12,372	4,409
20	Increase, ¹ 1920-1930.....per cent..	2.4	-30.8	0.1	-50.8	3.7	53.3	10.0
21	Irrigable area in enterprises.....1930.....acres..	171,259	90,708	35,840	4,302	40,701	25,506	0,210
22	Total area in enterprises.....1920.....acres..	225,950	112,943	54,998	11,010	98,475	14,707	7,114
23	Area in enterprises available, or to be available, for settlement.....1930.....acres..	14,490	27,990	200		13,040	5,070	2,000
IRRIGATION WORKS								
24	Enterprises.....1930.....number..	70	21	62	17	115	30	20
25	.....1920.....number..	71	31	82	37	80	27	25
26	Main canals.....1930.....length, miles..	438	120	193	23	132	74	40
27	.....1920.....length, miles..	350	227	221	70	164	07	40
28	.....1930.....capacity, sec.-ft..	2,804	1,034	535	59	730	702	53
29	.....1920.....capacity, sec.-ft..	1,688	1,001	404	150	1,242	150	80
30	Laterals.....1930.....length, miles..	547	39	45	2	93	135	11
31	.....1920.....length, miles..	658	626	57	8	67	58	8
32	Reservoirs.....1930.....number..	21	8	4	2	50	9	1
33	.....1920.....number..	7	9	5	3	60	3	0
34	.....1930.....capacity, ac.-ft..	13,745	17,083	23,072	232	11,914	254,351	0,480
35	.....1920.....capacity, ac.-ft..	41,871	8,876	24,521	2,752	9,908	3,100	218
36	Wells, flowing.....1930.....number..	1				24	10	
37	.....1920.....number..					139	11	
38	.....1930.....capacity, g. p. m..	30				550	1,070	
39	.....1920.....capacity, g. p. m..					10,061	342	
40	Wells, pumped.....1930.....number..					82		
41	.....1920.....number..					41	1	
42	.....1930.....capacity, g. p. m..					12,322		
43	.....1920.....capacity, g. p. m..					10,500	28	
44	Pumping plants.....1930.....number..		1		7	70		
45	.....1920.....number..	1	2		11	21	3	
46	.....1930.....engine capacity, h. p..		900		77	1,069		
47	.....1920.....engine capacity, h. p..		425		227	272	28	
48	.....1930.....pump capacity, g. p. m..		6,000		7,020	55,110		
49	.....1920.....pump capacity, g. p. m..	27,000	8,000		17,812	10,400	2,408	
50	.....1930.....average lift, feet..		50		17	40		
51	.....1920.....average lift, feet..	70	46		18	50	40	
VALUES OF FARMS, 1930								
52	Land and buildings, all farms.....dollars..	5,247,800	3,147,182	2,339,510	520,164	5,501,317	4,243,748	1,185,025
53	Land and buildings, irrigated farms.....dollars..	5,100,058	3,070,452	2,168,131	478,784	4,035,200	3,403,750	1,008,320
54	Operated by—							
55	Owners and managers.....dollars..	4,401,030	2,530,022	1,875,731	399,084	4,408,550	3,145,055	983,145
56	Tenants.....dollars..	705,028	545,700	202,400	79,700	226,050	318,095	85,175
57	Average, land and buildings, per farm.....dollars..	5,150.34	4,202.80	4,790.75	4,313.37	9,883.10	9,091.21	0,307.12
58	.....per acre.....dollars..	30.37	28.51	23.70	21.73	19.18	20.54	11.25
59	Land (excluding buildings).....dollars..	4,309,543	2,434,342	1,800,220	353,459	4,001,310	3,113,805	840,355
59	Buildings (including dwellings).....dollars..	857,115	642,110	277,905	125,325	633,800	340,945	221,005
60	Implements and machinery, irrigated farms.....dollars..	419,759	257,883	177,815	22,076	216,420	267,250	73,710
61	Average, per farm.....dollars..	418.02	352.31	393.40	198.87	491.45	701.44	441.38
62	.....per acre.....dollars..	2.47	2.39	1.94	1.00	0.90	2.28	0.78
INVESTMENT IN IRRIGATION ENTERPRISES								
63	Investment to Jan. 1, 1930.....dollars..	1,844,346	717,200	365,971	51,725	773,550	698,527	92,725
64	.....1920.....dollars..	1,432,832	781,800	430,199	107,511	854,295	562,067	150,188
65	Increase, ¹ 1920-1930.....per cent..	28.7	-8.3	-14.9	-60.1	-9.4	24.1	-38.3
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars..	12.85	10.48	13.37	13.32	19.20	36.83	17.80
67	.....1920.....dollars..	10.23	7.90	16.73	17.83	21.90	45.48	33.01
68	Estimated final investment in existing enterprises, 1930.....dollars..	1,953,140	702,200	526,071	56,725	852,000	703,230	92,725
69	.....1920.....dollars..	1,848,675	871,800	430,199	218,211	882,370	564,067	152,088
70	Increase, ¹ 1920-1930.....per cent..	5.6	-9.1	22.3	-74.0	-3.4	24.5	-30.3
71	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars..	11.40	8.73	14.07	13.18	18.24	27.51	14.93
72	Average, per acre, based on estimated final investment and total area, 1920.....dollars..	8.18	7.72	7.82	19.82	8.96	38.30	21.46
COST OF MAINTENANCE AND OPERATION, 1929								
73	Irrigated area for which cost was reported.....acres..	107,470	65,078	23,359	2,538	20,542	13,207	4,150
74	Average, per acre, based on area reporting.....dollars..	1.00	0.08	0.80	2.74	0.64	0.92	2.01

¹A minus sign (-) denotes decrease.

IRRIGATION—UTAH

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Millard	Morgan	Piute	Rich	Salt Lake	San Juan	Sanpete	Sevier
FARMS AND FARM OPERATORS									
1	All farms.....1930.....number.....	1,243	247	220	273	2,932	442	1,703	1,088
2	Irrigated farms.....1930.....number.....	1,186	229	219	201	2,443	181	1,558	971
Operated by—									
3	Owners and managers.....number.....	1,043	198	208	185	2,135	167	1,363	849
4	Tenants.....number.....	143	31	10	10	308	14	195	122
5	Irrigated farms.....1920.....number.....	941	232	224	204	1,564	203	1,046	1,069
6	Increase, ¹ 1920-1930.....per cent.....	26.0	-1.3	-2.2	-1.5	56.2	-10.8	-5.3	-9.2
FARM AREA AND TOTAL LAND AREA									
7	Approximate land area.....1930.....acres.....	4,190,040	400,640	488,320	659,840	483,840	4,967,040	1,034,240	1,265,920
8	Land in all farms.....1930.....acres.....	265,666	126,685	40,132	381,236	134,582	110,477	466,208	121,721
9	Land in irrigated farms.....1930.....acres.....	257,032	106,852	39,621	235,657	117,422	47,401	400,751	105,769
10	Average, per farm.....acres.....	216.7	466.6	180.9	1,172.4	48.1	201.9	257.2	108.9
11	Operated by owners and managers.....acres.....	234,764	91,199	34,996	231,710	103,147	43,973	372,408	94,709
12	Average, per farm.....acres.....	225.1	460.6	172.4	1,252.5	43.3	263.3	273.3	111.6
13	Operated by tenants.....acres.....	22,268	15,663	4,625	3,947	14,275	3,428	28,283	11,000
14	Average, per farm.....acres.....	155.7	504.9	289.1	246.7	46.3	244.8	145.0	90.2
15	Area irrigated.....1929.....acres.....	90,638	11,534	15,475	54,825	93,633	10,895	89,120	65,025
16	1919.....acres.....	137,980	12,242	8,514	42,913	102,051	13,469	90,153	68,838
17	Increase, ¹ 1919-1929.....per cent.....	-34.3	-6.8	81.8	27.8	-8.2	-19.1	1.1	-4.7
18	Area enterprises were capable of supplying with water.....1930.....acres.....	123,229	11,977	16,845	56,035	113,002	15,507	67,702	67,901
19	1920.....acres.....	209,694	13,506	10,258	43,603	125,194	23,283	91,885	69,178
20	Increase, ¹ 1920-1930.....per cent.....	-41.2	-11.3	59.3	28.8	-9.7	-33.4	6.3	-1.7
21	Irrigable area in enterprises.....1930.....acres.....	125,448	12,460	17,047	56,622	120,477	15,982	112,117	72,281
22	Total area in enterprises.....1920.....acres.....	373,926	18,809	10,938	50,238	176,122	40,511	127,708	81,548
23	Area in enterprises available, or to be available, for settlement.....1930.....acres.....	12,300	28			5,925	157	7,200	3,700
IRRIGATION WORKS									
24	Enterprises.....1930.....number.....	90	84	33	35	135	23	80	64
25	1920.....number.....	66	95	22	37	135	42	91	82
26	Main canals.....1930.....length, miles.....	285	125	97	132	355	106	358	259
27	1920.....length, miles.....	439	156	75	180	520	134	429	312
28	1930.....capacity, sec.-ft.....	1,714	483	865	1,308	2,501	231	1,605	1,907
29	1920.....capacity, sec.-ft.....	3,560	748	722	1,205	2,530	475	1,150	1,970
30	Laterals.....1930.....length, miles.....	321	10	17	15	225		154	61
31	1920.....length, miles.....	384	26	35	30	926	63	407	274
32	Reservoirs.....1930.....number.....	9	4	5	7	11		19	16
33	1920.....number.....	21	3	3	4	14	14	23	16
34	1930.....capacity, ac.-ft.....	58,602	28,110	141,372	2,457	1,350		29,420	21,113
35	1920.....capacity, ac.-ft.....	672,617	104	55,000	52	3,051	11,885	30,708	87,770
36	Wells, flowing.....1930.....number.....	136				51		15	40
37	1920.....number.....	178				20	2	33	40
38	1930.....capacity, g. p. m.....	26,517				1,728		1,688	2,885
39	1920.....capacity, g. p. m.....	28,955				222	90	605	9,395
40	Wells, pumped.....1930.....number.....	6						2	
41	1920.....number.....	1				1		1	1
42	1930.....capacity, g. p. m.....	2,600						1,470	
43	1920.....capacity, g. p. m.....							150	
44	Pumping plants.....1930.....number.....	9			2	5		3	1
45	1920.....number.....	1			2	9		1	3
46	1930.....engine capacity, h. p.....	105			54	2,592		32	30
47	1920.....engine capacity, h. p.....				46	4,323		5	84
48	1930.....pump capacity, g. p. m.....	5,700			40	541,400		1,570	1,800
49	1920.....pump capacity, g. p. m.....	11,250			3,300	524,000		450	4,150
50	1930.....average lift, feet.....	21			50	61		24	33
51	1920.....average lift, feet.....				40	34		4	32
VALUES OF FARMS, 1930									
52	Land and buildings, all farms.....dollars.....	9,130,078	2,770,750	1,602,520	3,650,239	27,050,232	1,241,477	13,200,789	8,056,298
53	Land and buildings, irrigated farms.....dollars.....	9,009,204	2,620,990	1,591,855	2,751,346	24,091,772	782,293	12,472,047	7,812,397
Operated by—									
54	Owners and managers.....dollars.....	7,785,230	2,248,089	1,479,855	2,651,796	20,989,672	732,993	11,103,587	6,843,840
55	Tenants.....dollars.....	1,223,974	372,901	112,000	99,550	3,102,100	49,300	1,869,060	968,557
56	Average, land and buildings, per farm.....dollars.....	7,590.29	11,445.37	7,268.74	13,688.29	9,861.55	4,322.06	8,005.55	8,045.72
57	per acre.....dollars.....	35.05	24.53	40.18	11.08	205.17	16.50	31.12	73.86
58	Land (excluding buildings).....dollars.....	7,467,494	1,981,203	1,360,305	2,334,551	17,288,312	671,203	10,568,059	6,764,027
59	Buildings (including dwellings).....dollars.....	1,541,710	639,787	241,550	416,795	6,803,460	111,090	1,904,588	1,048,370
60	Implements and machinery, irrigated farms.....dollars.....	576,522	179,827	117,073	195,009	1,193,036	62,285	700,846	497,060
61	Average, per farm.....dollars.....	486.11	785.27	534.80	970.19	488.35	344.12	453.69	512.52
62	per acre.....dollars.....	2.24	1.68	2.95	0.83	10.16	1.31	1.76	4.70
INVESTMENT IN IRRIGATION ENTERPRISES									
63	Investment to Jan. 1, 1930.....dollars.....	1,961,754	324,394	1,684,471	200,735	2,405,028	287,032	1,487,022	959,465
64	1920.....dollars.....	5,148,282	147,278	253,688	319,225	2,096,530	259,287	1,288,433	2,083,537
65	Increase, 1920-1930.....per cent.....	-61.9	120.2	564.0	-8.9	14.7	10.7	15.5	-54.0
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars.....	15.92	27.08	103.06	5.19	21.28	18.51	15.23	14.11
67	1920.....dollars.....	24.55	10.90	24.73	7.34	16.75	11.14	14.02	30.12
68	Estimated final investment in existing enterprises, 1930.....dollars.....	1,989,899	331,194	1,685,476	291,785	2,450,328	290,032	1,553,222	962,465
69	1920.....dollars.....	5,210,932	147,378	255,168	319,225	2,154,030	319,162	1,346,933	2,208,437
70	Increase, 1920-1930.....per cent.....	-62.2	124.7	560.5	-8.6	13.8	-9.1	15.3	-56.4
71	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars.....	15.70	26.56	98.87	5.15	20.34	18.15	13.85	13.32
72	1920.....dollars.....	13.94	10.67	23.33	6.35	12.23	7.88	10.55	27.08
COST OF MAINTENANCE AND OPERATION, 1929									
73	Irrigated area for which cost was reported.....acres.....	89,041	10,898	15,475	53,325	93,581	10,448	88,334	65,055
74	Average, per acre, based on area reporting.....dollars.....	0.87	0.61	0.46	0.18	1.92	0.86	0.65	0.94

¹A minus sign (-) denotes decrease.

IRRIGATION—UTAH

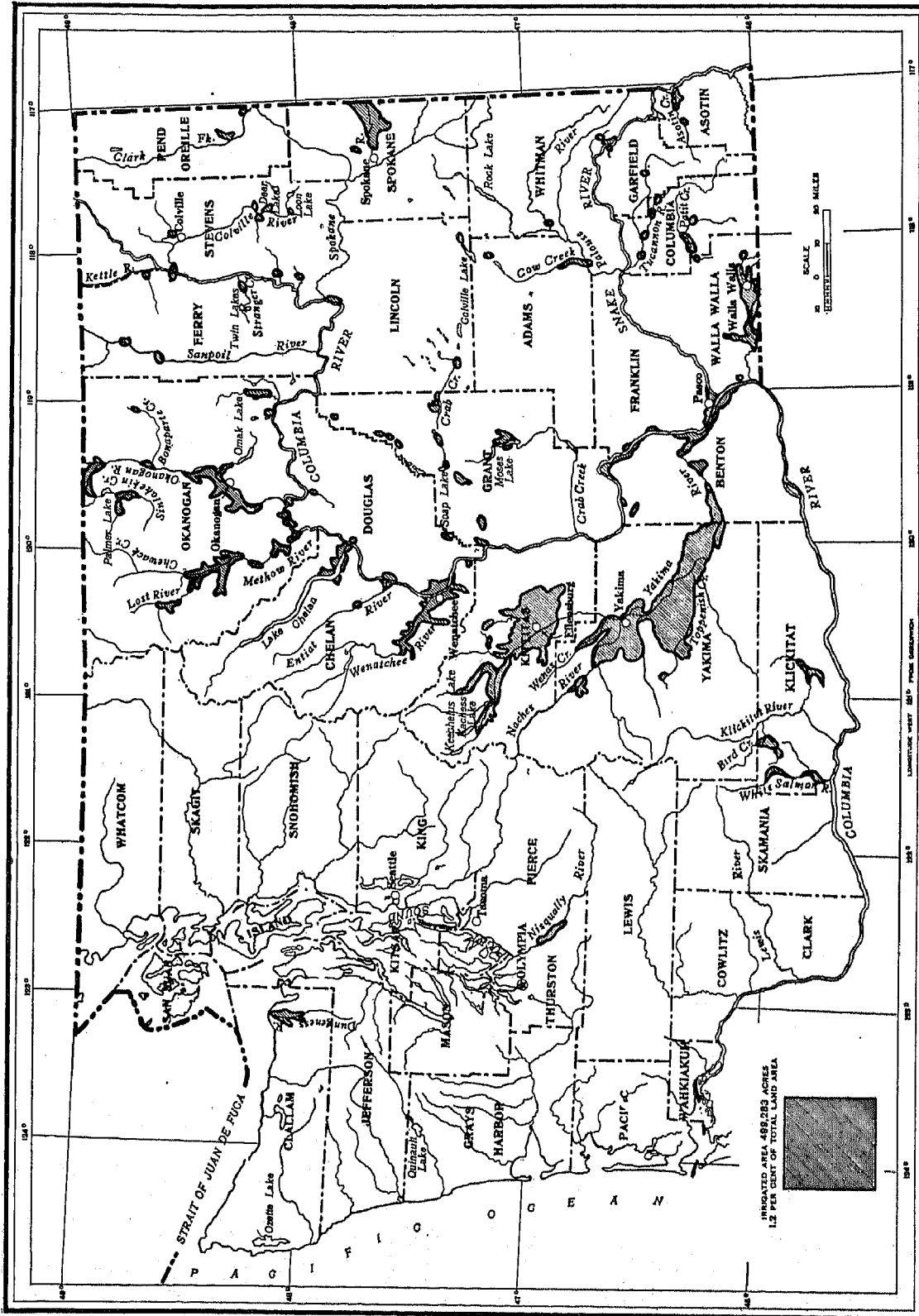
COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Summit	Tooele	Uintah	Utah	Wasatch	Washington	Wayne	Weber
FARMS AND FARM OPERATORS									
1	All farms.....1930.....number..	509	484	1,076	3,561	450	656	256	1,776
2	Irrigated farms.....1930.....number..	480	349	1,001	3,191	428	619	243	1,631
3	Operated by—								
4	Owners and managers.....number..	420	318	825	2,874	384	580	228	1,406
5	Tenants.....number..	60	31	176	317	44	30	16	225
6	Irrigated farms.....1920.....number..	485	305	805	2,990	487	667	264	1,660
6	Increase, 1920-1930.....per cent..	-1.0	14.4	24.3	6.7	-12.1	-7.2	-8.0	4.2
FARM AREA AND TOTAL LAND AREA									
7	Approximate land area.....1930.....acres..	1,106,800	4,383,360	2,748,160	1,301,760	746,880	1,577,600	1,584,000	340,240
8	Land in all farms.....1930.....acres..	202,823	138,134	150,107	469,485	131,547	120,751	36,475	310,164
9	Land in irrigated farms.....1930.....acres..	100,021	118,330	141,746	330,252	80,558	111,427	35,115	170,333
10	Average, per farm.....acres..	397.1	339.0	141.6	103.5	200.2	180.0	144.5	108.1
11	Operated by owners and managers.....acres..	177,266	104,889	119,170	306,936	85,888	109,107	33,380	164,795
12	Average, per farm.....acres..	422.0	329.8	144.4	106.8	223.7	185.2	146.4	117.2
13	Operated by tenants.....acres..	13,365	13,441	22,576	23,316	3,670	2,320	1,735	11,538
14	Average, per farm.....acres..	222.8	433.6	128.3	73.6	83.4	77.3	115.7	51.3
15	Area irrigated.....1929.....acres..	28,451	11,052	88,231	146,436	23,501	18,747	16,890	44,894
16	1919.....acres..	32,139	9,652	80,789	138,148	22,797	20,838	16,198	50,973
17	Increase, 1919-1929.....per cent..	-11.5	14.5	9.2	5.3	3.1	-10.0	4.3	-21.2
18	Area enterprises were capable of supplying with water.....1930.....acres..	28,494	11,217	115,631	158,110	24,567	27,695	17,510	48,552
19	1920.....acres..	32,394	11,453	127,787	173,487	22,892	20,977	18,600	70,846
20	Increase, 1920-1930.....per cent..	-12.0	-2.1	-9.5	-8.9	7.3	-4.8	-6.3	-31.5
21	Irrigable area in enterprises.....1930.....acres..	28,544	11,484	130,161	165,723	26,337	35,356	22,020	55,560
22	Total area in enterprises.....1920.....acres..	34,795	17,405	147,608	203,065	24,883	43,387	19,600	105,897
23	Area in enterprises available, or to be available, for settlement.....1930.....acres..	530		4,400	10,857		7,338		236
IRRIGATION WORKS									
24	Enterprises.....1930.....number..	163	126	60	259	60	134	31	173
25	1920.....number..	132	69	42	210	48	126	20	135
26	Main canals.....1930.....length, miles..	222	117	300	458	145	240	95	208
27	1920.....length, miles..	232	144	265	381	101	226	97	212
28	1930.....capacity, sec.-ft..	914	145	2,051	3,263	745	745	251	791
29	1920.....capacity, sec.-ft..	665	140	906	2,725	700	627	174	1,517
30	Laterals.....1930.....length, miles..	29	23	374	537	90	83	4	191
31	1920.....length, miles..	23	40	187	624	80	80	19	60
32	Reservoirs.....1930.....number..	10	36	5	26	18	25	6	23
33	1920.....number..	18	16		32	16	18	10	33
34	1930.....capacity, ac.-ft..	54,462	369	26,030	273,193	11,573	17,660	3,800	2,934
35	1920.....capacity, ac.-ft..	1,810	21		527,715	3,581	10,654	4,003	30,280
36	Wells, flowing.....1930.....number..	242			312				85
37	1920.....number..	80			220				33
38	1930.....capacity, g. p. m..	15,106			15,426				4,081
39	1920.....capacity, g. p. m..	4,362			27,729				1,368
40	Wells, pumped.....1930.....number..	17			7		1		10
41	1920.....number..	7		1	4		3		6
42	1930.....capacity, g. p. m..	3,683			3,400		300		7,385
43	1920.....capacity, g. p. m..	200		1,360	2,830		1,560		1,640
44	Pumping plants.....1930.....number..	1	16	2	9		1		23
45	1920.....number..	1	4		8		2		22
46	1930.....engine capacity, h. p..	6	72	29	3,150		6		370
47	1920.....engine capacity, h. p..	6	92		2,919		30		226
48	1930.....pump capacity, g. p. m..	1,000	4,190	2,250	78,225		300		23,605
49	1920.....pump capacity, g. p. m..	900		3,350	30,830		900		26,245
50	1930.....average lift, feet..	10	26	20	42		40		20
51	1920.....average lift, feet..	12		20	43		20		17
VALUES OF FARMS, 1930									
52	Land and buildings, all farms.....dollars..	4,920,208	3,279,151	5,942,769	27,039,285	3,648,367	3,483,564	1,267,645	16,931,914
53	Land and buildings, irrigated farms.....dollars..	4,746,078	3,018,902	5,748,234	25,217,351	3,345,794	3,352,540	1,245,600	15,477,590
54	Operated by—								
55	Owners and managers.....dollars..	4,050,158	2,727,952	4,835,839	22,008,857	3,058,434	3,210,989	1,181,300	13,667,940
56	Tenants.....dollars..	695,920	290,950	912,395	2,308,494	287,360	135,560	64,300	1,809,650
57	Average, land and buildings, per farm.....dollars..	9,887.66	8,650.15	5,742.49	7,902.65	7,817.28	5,416.07	5,125.92	9,486.63
58	per acre.....dollars..	24.90	25.51	40.55	70.36	37.36	30.09	35.47	87.77
59	Land (excluding buildings).....dollars..	3,730,648	2,304,232	4,064,094	18,794,070	2,487,539	2,555,148	1,076,825	11,979,825
59	Buildings (including dwellings).....dollars..	1,015,430	714,970	1,084,140	6,423,281	858,255	797,401	109,775	3,500,795
60	Implements and machinery, irrigated farms.....dollars..	290,858	206,840	455,988	1,514,728	218,577	211,068	105,373	800,288
61	Average, per farm.....dollars..	605.95	592.66	455.53	474.69	510.69	340.98	433.63	496.10
62	per acre.....dollars..	1.52	1.75	3.22	4.50	2.44	1.89	3.00	4.59
INVESTMENT IN IRRIGATION ENTERPRISES									
63	Investment to Jan. 1, 1930.....dollars..	2,248,199	267,806	1,578,349	5,871,480	311,377	639,386	191,115	1,714,137
64	1920.....dollars..	229,639	136,263	1,485,111	5,880,832	410,198	576,824	453,000	1,750,652
65	Increase, 1920-1930.....per cent..	879.0	52.5	6.1	-0.2	-24.1	10.8	-57.9	-2.4
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars..	78.90	18.52	13.65	37.14	12.67	23.09	10.91	35.30
67	1920.....dollars..	7.09	11.90	11.55	33.90	17.92	19.84	24.27	24.30
68	Estimated final investment in existing enterprises, 1930.....dollars..	3,373,977	207,806	1,845,224	5,874,286	330,877	723,341	203,765	1,718,207
69	1920.....dollars..	242,839	136,263	1,711,468	6,010,982	450,198	628,774	467,200	1,764,392
70	Increase, 1920-1930.....per cent..		52.5	7.8	-2.3	-25.2	15.0	-50.4	-2.6
71	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars..	118.20	18.10	14.18	35.45	12.79	20.40	9.25	30.92
72	Average, per acre, based on estimated final investment and total area, 1920.....dollars..	6.98	7.83	11.59	29.88	18.09	14.40	23.73	16.66
COST OF MAINTENANCE AND OPERATION, 1929									
73	Irrigated area for which cost was reported.....acres..	28,451	10,744	87,281	139,444	23,501	18,510	15,840	43,637
74	Average, per acre, based on area reporting.....dollars..	0.58	1.19	0.84	1.02	0.91	1.95	0.64	1.00

1 A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

WASHINGTON

APPROXIMATE LOCATION AND EXTENT OF IRRIGATED LAND



WASHINGTON

INTRODUCTION

Statistics are presented in the following pages on farms irrigated and area irrigated, investment and cost of maintenance and operation of irrigation enterprises, cost of preparing land for irrigation, drainage of irrigated land, quantity of water used, and distribution of irrigation works, with specialized information relating to dams, pipe lines, and pumping equipment. Data on area irrigated, investment, and irrigation works are given in detail by drainage basins. Classifications of irrigated farms by type of farm, size of farm, and value of farm products; and the acreage, yield, and value of the principal crops grown on irrigated land, for all irrigation States, are shown in Parts III and IV, pages 257 and 325, respectively, of this volume.

Statistics for area irrigated and for cost of maintenance and operation of irrigation works relate to the year 1929; all other items relate to 1930.

For purposes of comparison, statistics for the census of 1920 are shown, where available; and for the purpose of showing the historical development of irrigation certain data are presented from censuses previous to that of 1920.

Data on number, area, and value of wholly and partly irrigated farms with the tenure of the operators of these farms were collected in 1930 on the general farm schedule; in 1920 only the number of irrigated farms was obtained in this way. All other statistics, in both censuses, were collected on special schedules for irrigation enterprises.

STATE TABLE 1.—SUMMARY FOR THE STATE: 1930 AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Amount	Per cent
All farms..... number.....	70,904	66,318	4,586	6.9
All land in farms..... acres.....	13,532,778	13,219,053	314,725	2.4
Approximate land area of State..... acres.....	42,775,040	42,775,040		
Farms irrigated..... number.....	15,949	13,271	2,678	20.2
Area irrigated..... acres.....	499,283	529,899	-30,616	-5.8
Area enterprises were capable of supplying with water..... acres.....	631,511	637,151	-5,640	-0.9
Area in enterprises ² acres.....	915,379	830,795		
Proportion irrigated:				
All farms..... per cent.....	22.5	20.0		
All land in farms..... per cent.....	3.7	4.0		
Approximate land area of State..... per cent.....	1.2	1.2		
Excess of area enterprises were capable of supplying with water over area irrigated..... acres.....	132,228	107,252	24,976	23.3
Excess of area in enterprises ² over area irrigated..... acres.....	416,006	306,896		
Area in enterprises available, or to be available, for settlement..... acres.....	195,041	61,733	133,303	215.9
Value of irrigated farms [land, buildings (including dwellings), and implements and machinery]..... dollars.....	208,738,027	(³)		
Investment in irrigation enterprises..... dollars.....	40,561,895	29,209,011	11,262,884	38.4
Average, per acre, based on area enterprises were capable of supplying with water..... dollars.....	64.23	45.98	18.25	39.7
Estimated final cost of existing enterprises..... dollars.....	53,232,477	37,684,591	15,547,886	41.3
Average, per acre, based on area in enterprises ² dollars.....	58.15	45.03		
Average annual cost, per acre, for maintenance and operation of irrigation works..... dollars.....	4.14	3.45	0.69	20.0

¹ A minus sign (-) denotes decrease.

² Irrigable area, 1930; total area, 1920.

³ Figures not available.

STATE TABLE 2.—FARMS AND SPECIFIED FARM VALUES, BY TENURE OF FARM OPERATOR, 1930

ITEM (See definitions in Introduction)	FARMS		SPECIFIED FARM VALUES					
	Number	Area	Land and buildings		Land alone		Implements and machinery	
			Total	Per acre	Total	Per acre	Total	Per acre
All farms.....	70,904	Acres 13,533,778	Dollars 778,662,602	Dollars 57.17	Dollars 608,373,376	Dollars 44.95	Dollars 50,511,853	Dollars 3.73
Owners and managers.....	58,829	9,939,261	598,202,649	60.18			39,204,707	3.94
Tenants.....	12,075	3,594,517	175,459,953	48.81			11,307,146	3.14
Irrigated farms.....	15,949	1,923,337	195,394,180	101.69	154,326,847	80.24	13,343,847	9.60
Owners and managers.....	13,129	1,639,945	168,250,045	102.69	131,481,935	80.17	11,600,542	7.07
Tenants.....	2,820	283,392	27,144,135	95.78	22,844,912	80.61	1,743,305	6.15
Wholly irrigated farms.....	14,685	1,262,015	175,736,953	139.25	138,451,075	109.71	12,114,091	9.60
Owners and managers.....	12,078	1,043,375	161,170,538	144.89	117,771,513	112.88	10,522,395	10.08
Tenants.....	2,607	218,640	24,566,415	112.36	20,679,557	94.58	1,592,596	7.28
Partly irrigated farms.....	1,264	661,322	19,657,227	29.72	15,875,772	24.01	1,228,856	1.86
Owners and managers.....	1,051	596,570	17,076,507	28.63	13,710,417	22.98	1,078,147	1.81
Tenants.....	213	64,752	2,577,720	39.81	2,165,355	33.44	150,709	2.33
Farms not irrigated.....	54,955	11,610,441	578,288,422	49.80	454,046,529	39.11	37,168,006	3.20

FARMS AND AREA IRRIGATED

STATE TABLE 3.—FARMS AND AREA IRRIGATED: 1890 TO 1930

CENSUS YEAR	FARMS IRRIGATED			AREA IRRIGATED			
	Number	In-crease	Pro-portion of all farms	Area	In-crease ¹	Pro-portion of total land area of State	Pro-portion of land in all farms
1930.....	15,049	20.2	22.5	490,283	-5.8	1.2	3.7
1920.....	13,271	73.2	20.0	529,899	58.5	1.2	4.0
1910.....	7,664	118.2	18.6	334,378	146.8	0.8	2.9
1890.....	8,513	235.9	10.6	135,470	177.6	0.3	1.6
1900.....	1,046		5.8	48,799		0.1	1.2

¹ A minus sign (-) denotes decrease.

STATE TABLE 4.—AREA, BY DATE OF BEGINNING OF ENTERPRISES SUPPLYING WATER FOR IRRIGATION

DATE OF BEGINNING (See definitions in Introduction)	Enter-prises, 1930	AREA IRRIGATED IN 1929			Area enter-prises were capable of supplying with water, 1930	Irrigable area in enter-prises, 1930
		Area	Pro-portion of irrigable area in enter-prises	Per cent		
Total.....	2,986	490,283	54.5	631,511	915,379	
Before 1860.....	5	475	82.6	525	575	
1860-1869.....	18	2,773	94.1	2,947	2,947	
1870-1879.....	56	19,290		16,776	17,031	
1880-1889.....	145	65,346	85.8	74,805	76,156	
1890-1899.....	183	123,653	68.6	167,626	180,308	
1900-1909.....	156	38,442	88.4	41,865	43,462	
1905-1909.....	164	33,600	59.7	40,513	50,235	
1910-1914.....	259	20,677	57.4	27,584	36,005	
1915-1919.....	248	135,097	60.2	147,655	268,852	
1920-1924.....	382	26,746	25.6	44,539	104,470	
1925-1929.....	616	13,326	14.9	28,623	89,297	
Not reported.....	754	19,859	49.6	29,053	40,041	

¹ Includes areas irrigable after 1929 by an enterprise begun in 1929.

STATE TABLE 5.—AREA, BY SOURCE OF WATER SUPPLY: 1929 AND 1919

SOURCE OF SUPPLY	AREA IRRIGATED				Area enter-prises were capable of supplying with water, 1930	Irrigable area in enter-prises, 1930
	1929	1919	Increase ¹			
			Area	Per cent		
Total.....	490,283	529,899	-30,616	-5.8	631,511	915,379
Streams, gravity.....	306,185	352,199	-46,014	-13.1	400,680	550,610
Streams, pumped.....	139,738	26,244	113,494	432.4	155,943	288,626
Streams, gravity and pumped.....	4,144	92,702	-88,558	-95.5	4,979	4,979
Wells, pumped.....	19,456	17,504	1,952	11.2	21,712	23,906
Wells, flowing.....	1,436	1,671	-235	-14.1	2,025	2,134
Wells, pumped and flowing.....	103	1,490	-1,387	-93.1	1,017	1,017
Lakes, pumped.....	3,895	4,662	-1,267	-27.2	3,717	4,109
Lakes, gravity.....	3,107	3,442	-335	-9.7	4,415	4,466
Springs.....	4,033	7,869	-3,836	-48.7	10,364	11,291
Stored storm water ²	625	129	496	384.5	698	778
City water.....	46	42	4	9.5	46	46
Sewage.....	35		35		35	35
Streams, gravity and wells, pumped.....	708	2,415	-1,707	-70.7	965	1,072
Streams, gravity and wells, flowing.....		441	-441	-100.0		
Other mixed.....	16,155	19,872	-2,872	-15.1	18,797	22,102
Not reported.....	117	62	55	88.7	117	118
Supplemental ⁴ from—						
Pumped streams.....	4,600				4,933	4,987
Pumped wells.....	157				157	197
Flowing wells.....	2				14	14

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² In reservoirs filled from channels which carry water only during storms and are not classed as streams.
³ Tabulated as "Other and not reported."
⁴ Not considered in totals because included in enterprises reporting other sources of supply listed above.

AREA, BY CHARACTER OF ENTERPRISE

A land-settlement plan, initiated in 1921, involved the construction of irrigation pumping plants by the State and the sale of the irrigated tracts to individual farmers, but its operation terminated before 1930; hence these enterprises are included in the "Individual and partnership" group in State Table 6. The small acreages credited to the State therefore represent institutions and not development enterprises.

No segregations have been made in Washington under the Carey Act.

The areas credited to the United States Bureau of Reclamation include 8 active irrigation districts in the Yakima and Okanogan projects, but do not include lands partly served by Government works in both 1929 and 1919 with water carried through private canals under Warren Act or other water-service contracts.

STATE TABLE 6.—AREA, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

[For number of enterprises by classes, see State Table 13]

ITEM AND CHARACTER (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Area	Per cent
	Acres	Acres	Acres	
Total.....	490,283	529,899	-30,616	-5.8
Individual and partnership.....	88,015	142,215	-54,200	-38.1
Cooperative.....	92,743	93,192	-449	-0.5
Irrigation district.....	97,772	79,918	17,854	22.3
Commercial.....	6,474	21,705	-15,231	-50.4
United States Bureau of Indian Affairs.....	92,367	90,510	2,857	32.0
United States Bureau of Reclamation.....	118,607	122,890	-4,283	-3.4
State.....	245	200	45	22.5
Other.....		290	-290	-100.0
AREA ENTERPRISES WERE CAPABLE OF SUPPLYING WITH WATER				
Total.....	631,511	637,151	-5,640	-0.9
Individual and partnership.....	106,200	169,457	-63,157	-37.3
Cooperative.....	112,501	104,699	7,802	7.4
Irrigation district.....	122,006	118,009	3,997	3.4
Commercial.....	20,201	31,652	-11,451	-36.2
United States Bureau of Indian Affairs.....	132,080	77,710	54,370	71.1
United States Bureau of Reclamation.....	137,288	135,119	2,169	1.6
State.....	245	200	45	22.5
Other.....		305	-305	-100.0
AREA IN ENTERPRISES ²				
Total.....	915,379	836,705		
Individual and partnership.....	121,044	220,671		
Cooperative.....	115,884	118,539		
Irrigation district.....	133,088	134,641		
Commercial.....	32,618	75,292		
United States Bureau of Indian Affairs.....	196,000	128,200		
United States Bureau of Reclamation.....	315,600	162,047		
State.....	245	200		
Other.....		305		

¹ A minus sign (-) denotes decrease. ² Irrigable area, 1930; total area, 1920.

AREA, BY CHARACTER OF WATER RIGHTS

STATE TABLE 7.—AREA IRRIGATED, BY CHARACTER OF RIGHTS UNDER WHICH WATER IS RECEIVED: 1929 AND 1919

WATER RIGHTS (See definitions in Introduction)	1929		1919	
	Area	Pro-portion of total	Area	Pro-portion of total
	Acres	Per cent	Acres	Per cent
Total.....	490,283	100.0	529,899	100.0
Appropriation and use.....	56,053	11.2	106,700	37.1
Notice filed and posted.....	130,310	27.3	169,831	32.0
Adjudicated by court.....	74,907	15.0	56,309	10.6
Permit from State.....	131,129	26.3	30,608	7.5
Certificate or license from State.....	20,977	4.2	17,406	3.3
Riparian.....	29,265	5.9	17,005	3.2
Underground.....	17,369	3.5	20,859	3.9
Other.....	22,633	4.5	235	(¹)
Mixed.....	3,972	0.8	320	0.1
Not reported.....	6,698	1.3	11,530	2.2

¹ Less than one-tenth of 1 per cent.

AREA, BY DRAINAGE BASIN

STATE TABLE 8.—AREA, BY DRAINAGE BASIN: 1929 AND 1919

DRAINAGE BASIN (See definitions in Introduction)	AREA IRRIGATED			Area enter- prises were capable of supplying with water, 1930	Irriga- ble area in enter- prises, 1930
	1929	919	In- crease ¹		
	Acres 499, 283	Acres 529, 800	Per cent -5. 8		
Total.....	499, 283	529, 800	-5. 8	631, 511	915, 379
Columbia River and tributaries..	481, 019	521, 462	-7. 8	601, 824	882, 074
Columbia River direct.....	10, 035	24, 471	-59. 0	13, 678	22, 546
Clark Fork.....	896	306	192. 8	2, 705	3, 334
Colville River.....	2, 176	6, 960	-68. 7	2, 447	3, 622
Spokane River.....	18, 422	16, 453	12. 0	30, 482	38, 220
Okanogan River and tributa- ries.....	21, 462	20, 583	4. 3	27, 790	29, 000
Okanogan River direct.....	3, 895	2, 357	65. 2	4, 652	5, 142
Tributaries.....	17, 567	18, 226	-3. 6	23, 238	23, 858
Methow River.....	11, 720	12, 579	-6. 8	17, 346	19, 674
Entiat River.....	1, 912	2, 054	-6. 9	2, 135	2, 154
Wenatchee River.....	24, 006	23, 734	3. 7	25, 717	27, 548
Crab Creek.....	1, 761	6, 088	-71. 1	1, 885	1, 983
Yakima River and tributaries..	325, 299	337, 293	-3. 6	399, 726	630, 343
Yakima River direct.....	257, 220	254, 202	1. 2	317, 165	507, 193
Ahtanum Creek.....	29, 956	19, 804	50. 8	30, 286	30, 514
Other tributaries.....	8, 172	9, 287	-12. 0	8, 936	8, 996
Snake River and tributaries..	29, 951	53, 880	-44. 4	43, 230	89, 400
Snake River direct.....	8, 715	11, 783	-26. 1	9, 894	10, 375
Asotin Creek.....	1, 040	4, 047	-59. 5	1, 659	1, 719
Palouse River.....	3, 513	3, 051	15. 1	4, 341	4, 341
Other tributaries.....	980	1, 735	-43. 5	1, 160	1, 200
Walla Walla River.....	2, 682	2, 955	-12. 6	2, 744	2, 995
Klickitat River.....	18, 508	22, 270	-16. 9	20, 000	21, 729
White Salmon River.....	6, 797	12, 332	-44. 9	7, 004	7, 538
Other tributaries of Columbia River.....	4, 034	6, 247	-35. 4	4, 607	5, 009
Total.....	24, 676	18, 304	34. 8	30, 318	52, 399
Independent streams.....	18, 264	8, 437	116. 5	29, 687	33, 305
Dungeness River.....	8, 960	6, 180	45. 4	17, 607	20, 142
Other.....	9, 304	2, 277	308. 6	12, 080	13, 163

¹ A minus sign (-) denotes decrease.

INVESTMENT, AND COST OF MAINTENANCE AND OPERATION OF IRRIGATION ENTERPRISES

STATE TABLE 9.—INVESTMENT IN ENTERPRISES: 1890 TO 1930

CENSUS YEAR	INVESTMENT		AVERAGE, PER ACRE ¹	
	Amount	Increase	Amount	Increase
	Dollars 40, 561, 895	Per cent 38. 4	Dollars 64. 23	Per cent 39. 7
1930.....	40, 561, 895	38. 4	64. 23	39. 7
1920.....	20, 290, 011	80. 6	45. 98	33. 4
1910.....	16, 219, 149	84. 7	34. 47	171. 2
1900.....	1, 722, 369	775. 8	12. 71	215. 4
1890.....	196, 660		4. 03	

¹ Based on area enterprises were capable of supplying with water.

STATE TABLE 10.—INVESTMENT, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	INVESTMENT		
	Amount	Proportion of total	Average, per acre ¹
	Dollars 40, 561, 895	Per cent 100. 0	Dollars 64. 23
Total.....	40, 561, 895	100. 0	64. 23
Before 1860.....	19, 610	(?)	37. 35
1860-1869.....	15, 800	(?)	5. 22
1870-1879.....	326, 080	0. 8	19. 49
1880-1889.....	2, 780, 462	6. 9	37. 17
1890-1904.....	8, 060, 065	19. 9	48. 08
1905-1909.....	2, 364, 385	5. 8	56. 48
1910-1914.....	3, 131, 668	7. 7	63. 25
1915-1919.....	3, 345, 633	8. 2	121. 29
1920-1924.....	9, 870, 226	24. 3	68. 85
1925-1929.....	2, 881, 512	7. 1	64. 70
Not reported.....	6, 764, 009	16. 7	236. 31
	1, 001, 960	2. 5	34. 49

¹ Based on area enterprises were capable of supplying with water in 1930.
² Less than one-tenth of 1 per cent.

STATE TABLE 11.—INVESTMENT, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929; BY SOURCE OF WATER SUPPLY

[When water is pumped, cost of maintenance and operation includes cost of fuel and attendance]

SOURCE OF SUPPLY	INVESTMENT, 1930			MAINTENANCE AND OPERATION, 1929	
	Amount	Proportion of total	Average, per acre	Irrigated area re- porting	Average, per acre ¹
	Dollars 40, 561, 895	Percent 100. 0	Dollars 64. 23	Acres 487, 977	Dollars 4. 14
Total.....	40, 561, 895	100. 0	64. 23	487, 977	4. 14
Streams, gravity.....	22, 549, 053	55. 6	55. 45	300, 194	2. 50
Streams, pumped.....	11, 170, 037	27. 5	71. 63	138, 807	3. 84
Streams, gravity and pumped..	280, 321	0. 7	50. 80	4, 144	8. 24
Wells, pumped.....	1, 785, 628	4. 4	82. 24	18, 418	15. 43
Wells, flowing.....	159, 039	0. 4	78. 79	304	10. 02
Wells, pumped and flowing...	36, 900	(?)	30. 28	103	2. 01
Lakes, pumped.....	558, 096	1. 4	150. 15	3, 232	10. 73
Lakes, gravity.....	200, 684	0. 6	59. 04	3, 087	6. 70
Springs.....	173, 304	0. 4	16. 72	2, 868	3. 90
Stored storm water.....	13, 370	(?)	19. 15	250	2. 44
City water.....	420	(?)	9. 13	33	33. 33
Sewage.....	160	(?)	4. 67	35	1. 57
Streams, gravity and wells, pumped.....	43, 836	0. 1	45. 42	685	8. 86
Other mixed.....	3, 197, 338	7. 9	170. 10	15, 817	15. 89
Not reported.....	1, 382	(?)	11. 81		
Supplemental from—					
Pumped streams.....	320, 866	0. 8	65. 04	4, 347	13. 55
Pumped wells.....	9, 370	(?)	59. 08	156	8. 09
Flowing wells.....	1, 500	(?)	107. 14	3	15. 00

¹ Based on area irrigated in 1929 reporting cost.

² Less than one-tenth of 1 per cent.

³ Not considered in total because included in enterprises reporting other sources of supply listed above.

STATE TABLE 12.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE ¹	
	1930	1920	Amount	Per cent
	Dollars 40, 561, 895	Dollars 29, 299, 011	Dollars 11, 262, 884	36. 4
Total.....	40, 561, 895	29, 299, 011	11, 262, 884	36. 4
Columbia River and tributaries..	39, 351, 909	28, 990, 618	10, 361, 291	35. 7
Columbia River direct.....	1, 377, 002	2, 229, 066	-852, 064	-38. 2
Clark Fork.....	50, 956	7, 293	43, 663	598. 7
Colville River.....	355, 290	486, 747	-131, 457	-27. 0
Spokane River.....	1, 352, 395	1, 637, 743	-285, 348	-17. 4
Okanogan River and tributaries..	3, 233, 799	2, 259, 018	974, 781	43. 2
Okanogan River direct.....	234, 965	227, 290	7, 705	3. 4
Tributaries.....	2, 998, 834	2, 031, 728	967, 076	47. 6
Methow River.....	770, 183	483, 809	286, 374	69. 2
Entiat River.....	184, 992	73, 880	111, 103	150. 4
Wenatchee River.....	2, 922, 367	1, 868, 541	1, 053, 826	56. 4
Crab Creek.....	55, 950	869, 050	-813, 100	-93. 5
Yakima River and tributaries..	25, 282, 348	14, 849, 689	10, 432, 659	70. 2
Yakima River direct.....	22, 644, 214	13, 912, 727	8, 731, 487	62. 8
Naches River.....	1, 746, 769	468, 027	1, 278, 732	281. 4
Ahtanum Creek.....	103, 747	88, 443	15, 304	17. 3
Other tributaries.....	787, 628	300, 492	397, 136	101. 7
Snake River and tributaries..	493, 192	1, 398, 296	-905, 104	-64. 7
Snake River direct.....	74, 361	471, 772	-397, 411	-84. 2
Asotin Creek.....	260, 331	606, 084	-345, 753	-58. 7
Palouse River.....	42, 595	175, 100	-132, 505	-76. 7
Other tributaries.....	125, 905	145, 340	-19, 435	-13. 4
Walla Walla River.....	551, 351	890, 980	-339, 629	-38. 1
Klickitat River.....	6, 125	64, 423	-58, 298	-90. 5
White Salmon River.....	111, 862	91, 786	20, 076	21. 9
Other tributaries of Columbia River.....	2, 604, 097	1, 790, 288	813, 809	45. 4
Independent streams.....	1, 209, 986	308, 393	901, 593	292. 4
Dungeness River.....	296, 128	94, 010	202, 116	215. 0
Other.....	913, 858	214, 383	699, 477	326. 3

¹ A minus sign (-) denotes decrease.

STATE TABLE 13.—INVESTMENT, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

CHARACTER OF ENTERPRISE (See definitions in Introduction)	Enter- prises, 1930	INVESTMENT		INCREASE ¹	
		1930	1920	Amount	Per cent
		Number 2, 086	Dollars 40, 561, 805	Dollars 20, 200, 011	Dollars 11, 202, 884	Per cent
Total.....					38.4
Individual and partnership.....	2, 780	4, 467, 509	4, 732, 706	-265, 197	-5.6
Cooperative.....	115	4, 102, 417	3, 949, 896	212, 521	5.4
Irrigation district.....	62	10, 170, 031	6, 112, 628	4, 058, 003	66.4
Commercial.....	10	682, 507	2, 341, 428	-1, 658, 921	-70.8
United States Bureau of Indian Affairs.....	7	5, 402, 844	1, 658, 040	3, 834, 804	231.3
United States Bureau of Reclamation.....	3	15, 542, 597	10, 441, 145	5, 101, 452	48.8
State.....	3	43, 300	55, 608	-12, 308	-22.2
Other.....			7, 500	-7, 500	-100.0

¹ A minus sign (-) denotes decrease.

COST OF PREPARING LAND FOR IRRIGATION

The costs shown in State Table 14 include clearing and grading land, and building farm laterals and farm irrigation structures.

STATE TABLE 14.—ESTIMATED COST OF PREPARING LAND, 1930

ITEM	1930
Area reporting.....acres.....	522, 773
Estimated cost reported.....dollars.....	20, 023, 695
Average, per acre.....dollars.....	37.24

DRAINAGE OF IRRIGATED LAND

STATE TABLE 15.—AREA WITHIN IRRIGATION ENTERPRISES FOR WHICH DRAINS HAVE BEEN INSTALLED AND ADDITIONAL AREA IN NEED OF DRAINAGE: 1930 AND 1920

ITEM	1930	1920
Enterprises reporting land drained or needing drainage.....number.....	74	103
Area ¹ in enterprises reporting land drained or needing drainage.....acres.....	400, 861	218, 763
Area for which drains have been installed.....acres.....	172, 030	70, 168
Additional area needing drainage.....acres.....	28, 084	43, 461
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises reporting drainage.....per cent.....	37.3	36.2
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises.....per cent.....	18.8	6.5
Proportion that area for which drains have been installed plus that needing drainage is of area ¹ in all irrigation enterprises.....per cent.....	21.9	14.6

¹ Irrigable area, 1930; total area, 1920.

IRRIGATION WORKS

STATE TABLE 17.—DAMS, BY MATERIAL, 1930

MATERIAL	DAMS	
	Diversion	Storage
	Number 499	Number 100
Total.....		
Concrete or masonry.....	101	11
Timber.....	149	
Earth and rock.....		52
Other and mixed.....	217	30
Not reported.....	32	7

¹ Principally temporary dams, replaced annually.

STATE TABLE 18.—LENGTH OF PIPE LINES, BY MATERIAL AND SIZE, 1930

MATERIAL AND SIZE (DIAMETER)	Length	MATERIAL AND SIZE (DIAMETER)	Length
Total.....	Miles 1, 136.9		Miles
Concrete:		Clay:	
1 to 12 inches.....	130.7	1 to 12 inches.....	97.6
13 to 30 inches.....	97.3	13 to 30 inches.....	5.7
More than 30 inches.....	12.7	More than 30 inches.....	0.3
Metal:		Not segregated by size.....	26.0
1 to 12 inches.....	290.4	Concrete and metal.....	0.5
13 to 30 inches.....	9.2	Concrete and wood.....	5.0
More than 30 inches.....	1.0	Concrete and clay.....	2.0
Wood:		Metal and wood.....	50.0
1 to 12 inches.....	280.6	Metal and wood.....	28.8
13 to 30 inches.....	61.6	Material not specified, 1 to 12 inches.....	13.0
More than 30 inches.....	34.9		

The areas in State Table 15 include only lands within the boundaries of irrigation enterprises. "Additional area needing drainage" represents all lands so reported by the owners of the enterprises and includes lands producing partial crops as well as those wholly unproductive.

QUANTITY OF WATER USED

The quantity of water used was reported on only part of the irrigation schedules, and all areas reporting "quantity of water entering canals" did not also report "quantity delivered to irrigators." In order that proper values may be assigned to the figures given, those representing measurements and those representing estimates are reported separately in State Table 16.

Some irrigation enterprises carry water to individual farms, but others only to laterals which serve several farms. The "total quantity of water delivered to irrigators," shown in State Table 16, is the quantity reported in answer to a question preceded by the inquiry: "Average head of water delivered per individual irrigator."

STATE TABLE 16.—WATER USED: 1929 AND 1910

ITEM (See definitions in Introduction)	TOTAL		MEASURED		NOT MEASURED	
	1929	1910	1929	1910	1929	1910
	Average flow of water entering canals.....sec.-ft.....	5, 307	8, 827	4, 762	4, 827	545	4, 000
Area irrigated.....acres.....	347, 060	376, 270	326, 112	280, 363	20, 957	95, 907
Average, per second-foot.....acres.....	66	43	68	58	38	24
Total quantity of water entering canals.....ac.-ft.....	1, 022, 940	2, 168, 818	1, 557, 214	1, 513, 616	365, 732	655, 202
Area irrigated.....acres.....	352, 994	341, 569	291, 521	264, 558	61, 473	77, 011
Average quantity per acre.....ac.-ft.....	5.4	6.3	5.3	5.7	5.9	8.5
Total quantity of water delivered to irrigators.....ac.-ft.....	680, 730	594, 470	656, 152	139, 232	30, 587	455, 247
Area irrigated.....acres.....	190, 000	174, 980	170, 520	77, 235	10, 480	97, 754
Average quantity per acre.....ac.-ft.....	3.6	3.4	3.6	1.8	3.6	4.0

STATE TABLE 19.—PUMPING EQUIPMENT, BY KIND OF POWER AND PUMP, 1930

ITEM	ENGINES OR MOTORS		PUMPS				
	Capacity	Proportion of total	Number	Proportion of total	Capacity	Proportion of total	Average Hft
	KIND OF POWER	<i>H. p.</i>	<i>Per cent</i>		<i>Per cent</i>	<i>G. p. m.</i>	<i>Per cent</i>	Feet
Total.....	33, 187	100.0	2, 023	100.0	993, 303	100.0	59
Electricity.....	24, 707	74.4	1, 625	80.3	687, 090	69.2	63
Internal combustion.....	3, 103	9.4	263	14.5	161, 590	16.3	40
Steam.....	110	0.3	3	0.2	2, 850	0.3	113
Water.....	4, 814	14.5	46	2.3	130, 530	13.1	37
Wind.....	8	(¹)	5	0.2	130	(¹)	66
Electricity and internal combustion.....	362	1.1	35	1.7	9, 020	0.9	68
Other mixed.....	83	0.2	16	0.8	2, 108	0.2	41
KIND OF PUMP							
Centrifugal.....	28, 695	86.6	1, 612	70.7	925, 304	93.2	51
Rotary.....	805	2.4	70	3.8	18, 579	1.9	52
Turbine.....	1, 881	5.7	58	2.9	20, 325	2.0	119
Reciprocating.....	194	0.6	47	2.3	4, 020	0.4	67
Plunger.....	844	2.5	163	8.1	14, 055	1.4	101
Water wheels and rams.....	15	(¹)	9	0.4	305	(¹)	15
Centrifugal and—							
Rotary.....	230	0.7	16	0.8	3, 655	0.4	68
Turbine.....	62	0.2	5	0.2	1, 855	0.2	67
Plunger.....	162	0.5	10	0.5	1, 898	0.2	171
Other mixed.....	230	0.7	25	1.2	2, 797	0.3	102
Other and not reported.....	51	0.2	2	0.1	840	0.1	85

¹ Less than one-tenth of 1 per cent.

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STATE TABLE 20.—IRRIGATION WORKS, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS				
	Diver- sion	Stor- age	Capac- ity	Length	Lateral canals, length	Num- ber	Capac- ity	Pipe lines, length	Num- ber	Capac- ity	Num- ber	Capac- ity	Num- ber	Engi- ne or motor capac- ity	Pumps		
															Num- ber	Capac- ity	
Total.....	Num- ber 499	Num- ber 100	Sec.-ft. 14,987	Miles 1,774	Miles 1,861	78	Acre-feet 699,807	Miles 1,136.9	42	G. p. m. 27,290	1,019	G. p. m. 306,800	1,051	H. p. 33,187	2,023	G. p. m. 993,303	
Before 1860.....	3	4	1	1				6.0						4	75	4	3,980
1860-1869.....	11		69	12	2			1.6					1	22	3	1,062	
1870-1879.....	45	2	741	100	21	1	50	7.6				3	2,000	7	89	7	2,000
1880-1889.....	64	5	1,571	323	56	5	622	13.7				6	900	14	225	15	7,755
1890-1899.....	94	6	3,206	347	633	2	7	88.4	2	100		4	880	34	2,728	42	161,507
1900-1904.....	43	10	1,296	211	13	6	3,407	48.2	1	300		10	1,211	32	332	32	8,197
1905-1909.....	30	10	1,030	129	66	12	33,585	102.6	3	930		38	68,971	97	6,445	109	117,847
1910-1914.....	52	19	890	183	99	20	20,587	180.1	12	6,640		89	25,728	100	2,657	197	78,184
1915-1919.....	32	14	3,488	203	844	13	632,984	349.5	2	1,150		121	30,015	212	4,503	219	115,006
1920-1924.....	39	16	1,120	110	40	4	3,365	139.4	2	5,780		174	48,013	312	4,550	330	132,240
1925-1929.....	23	6	1,367	82	83	12	5,160	124.8	7	400		325	73,303	595	6,818	607	167,618
Not reported.....	63	8	208	73	4	3	40	74.4	13	11,990		248	55,767	451	4,752	457	197,881

STATE TABLE 21.—IRRIGATION WORKS, BY CHARACTER OF ENTERPRISE, 1930

CHARACTER OF ENTERPRISE (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS			
	Diver- sion	Stor- age	Capac- ity	Length	Lateral canals, length	Num- ber	Capac- ity	Pipe lines, length	Num- ber	Capac- ity	Num- ber	Capac- ity	Num- ber	Engi- ne or motor capac- ity	Pumps	
															Num- ber	Capac- ity
Total.....	Num- ber 499	Num- ber 100	Sec.-ft. 14,987	Miles 1,774	Miles 1,861	78	Acre-feet 699,807	Miles 1,136.9	42	G. p. m. 27,290	1,019	G. p. m. 306,800	1,051	H. p. 33,187	2,023	G. p. m. 993,303
Individual and partnership.....	406	67	2,250	629	47	43	4,026	469.7	40	26,290	982	219,300	1,832	16,860	1,875	569,802
Cooperative.....	46	7	2,401	420	141	9	11,031	115.6	2	1,000	19	66,850	57	6,452	71	102,002
Irrigation district.....	33	12	2,323	467	230	12	24,940	219.0	7	15,150	30	2,509	37	2,609	37	97,018
Commercial.....	4	5	406	52	8	5	1,480	17.2			5	3,140	10	1,863	10	79,950
United States Bureau of Indian Affairs.....	7	1	2,767	56	552	1	5,000	27.1					1	2,250	3	67,500
United States Bureau of Reclamation.....	3	8	4,340	150	883	8	653,330	286.4					13	3,055	19	69,769
State.....								1.0			6	2,300	8	198	8	6,362

STATE TABLE 22.—IRRIGATION WORKS, BY DRAINAGE BASIN, 1930

DRAINAGE BASIN (See definitions in Introduction)	DAMS		MAIN CANALS			RESERVOIRS			FLOWING WELLS		PUMPED WELLS		PUMPING PLANTS				
	Diver- sion	Stor- age	Capac- ity	Length	Lateral canals, length	Num- ber	Capac- ity	Pipe lines, length	Num- ber	Capac- ity	Num- ber	Capac- ity	Num- ber	Engi- ne or motor capac- ity	Pumps		Aver- age lift
															Num- ber	Capac- ity	
Total.....	Num- ber 499	Num- ber 100	Sec.-ft. 14,987	Miles 1,774	Miles 1,861	78	Acre-feet 699,807	Miles 1,136.9	42	G. p. m. 27,290	1,019	G. p. m. 306,800	1,051	H. p. 33,187	2,023	G. p. m. 993,303	Feet 59
Columbia River and tributaries.....	482	91	14,443	1,694	1,774	70	699,764	1,082.5	42	27,290	879	269,274	1,748	30,783	1,819	908,708	59
Columbia River direct.....	2	1	205	45	6	1	50	148.4	1	300	11	11,325	219	6,625	228	215,538	78
Clark Fork.....	9	1	81	14	1	1	3,060	2.4									
Colville River.....	18	2	61	28	5			2.4									
Spokane River.....	6	3	289	21	4	3	1,607	98.5	1	50	80	74,059	95	3,822	105	72,534	77
Okanogan River and tributaries.....	16	12	602	89	106	11	43,085	52.7			166	27,970	326	4,070	355	104,329	45
Okanogan River direct.....			1	2				22.1			12	2,633	121	2,325	126	57,827	45
Tributaries.....	16	12	601	87	106	11	43,085	30.6	1	50	184	25,337	205	1,764	209	49,502	47
Methow River.....	41	10	1,014	185	7	8	4,374	8.8			2	800	21	226	22	7,464	64
Entiat River.....	5	1	62	32	2			6.9									
Wenatchee River.....	42	10	638	160	27	9	6,203	62.1	1	10	71	6,728	236	1,853	240	34,451	66
Crab Creek.....	7	3	260	5		1	70	2.2			14	7,935	17	161	17	10,647	20
Yakima River and tributaries.....	126	6	10,155	736	1,550	8	629,437	380.6	4	3,350	68	21,768	152	7,498	169	237,533	38
Yakima River direct.....	21	8	7,204	403	1,468	7	628,437	371.0			8	1,465	88	6,510	103	206,020	24
Naches River.....	25		923	135	34			6.2			2	580	2	94	2	580	0
Ahtanum Creek.....	19		605	41	11			0.3			5	1,990	9	23	9	2,321	30
Other tributaries.....	61	2	1,333	157	46	1	1,050	3.1	4	3,350	43	17,733	53	871	55	28,612	86
Snake River and tributaries.....	30	2	70	31	7	2	83	45.7	7	1,300	22	4,656	80	1,172	79	79,499	48
Snake River direct.....								10.7					40	765	41	18,624	50
Asotin Creek.....	1	1	1	1		1	80	12.5					1	150	1	1,000	40
Palouse River.....	12		23	19	4			7.1	7	1,300	5	680	11	103	11	5,126	26
Other tributaries.....	17	1	46	11	3	1	3	15.4			17	3,976	28	154	26	54,749	28
Walla Walla River.....	99	1	391	124	11	2	2	18.1	17	10,600	86	13,580	132	753	139	20,286	22
Klickitat River.....	3		37	16	1			0.7			1	33	5	60	5	908	24
White Salmon River.....	11	1	169	25	10			1.9									
Other tributaries of Columbia River.....	67	30	361	183	28	24	11,743	251.0	11	11,680	334	99,515	446	4,426	461	122,324	69
Independent streams.....	17	9	544	80	87	8	43	54.4			140	37,526	203	2,404	204	84,595	61
Dungeness River.....	4		414	53	46			1.3									
Other.....	13	0	130	27	41	8	43	53.1			140	37,526	203	2,404	204	84,595	61

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COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929

ITEM (See definitions in Introduction)		THE STATE	Adams	Asotin	Benton	Chelan	Clallam
FARMS AND FARM OPERATORS							
1	All farms..... 1930..... number.....	70,904	818	622	1,668	2,218	720
2	Irrigated farms..... 1930..... number.....	15,949	22	372	1,510	2,025	118
3	Operated by—						
4	Owners and managers..... number.....	13,120	18	336	1,233	1,807	101
5	Tenants..... number.....	2,820	4	36	277	168	17
6	Irrigated farms..... 1920..... number.....	13,271	8	279	1,294	1,704	125
	Increase, ¹ 1920-1930..... per cent.....	20.2	175.0	33.3	16.7	18.8	-5.0
FARM AREA AND TOTAL LAND AREA							
7	Approximate land area..... 1930..... acres.....	42,775,040	1,223,680	387,840	1,069,440	1,856,000	1,104,640
8	Land in all farms..... 1930..... acres.....	13,533,778	1,006,582	270,263	320,805	159,501	57,820
9	Land in irrigated farms..... 1930..... acres.....	1,023,337	96,001	43,801	85,873	98,204	8,692
10	Average, per farm..... acres.....	120.6	4,363.7	118.0	56.0	48.5	73.7
11	Operated by owners and managers..... 1930..... acres.....	1,039,945	92,367	41,841	71,515	90,504	8,759
12	Average, per farm..... acres.....	124.9	5,131.5	124.5	68.0	48.5	66.0
13	Operated by tenants..... 1930..... acres.....	283,392	3,634	2,050	14,358	7,700	1,933
14	Average, per farm..... acres.....	100.5	908.5	56.9	61.8	48.7	113.7
15	Area irrigated..... 1929..... acres.....	490,283	1,183	4,162	30,280	34,071	8,060
16	1919..... acres.....	529,890	943	3,474	30,272	36,894	6,100
17	Increase, ¹ 1919-1929..... per cent.....	-5.8	25.4	10.8	-22.9	-12.4	45.4
18	Area enterprises were capable of supplying with water..... 1930..... acres.....	631,511	1,275	5,012	43,016	36,313	17,007
19	1920..... acres.....	637,151	1,342	4,559	48,851	50,502	9,800
20	Increase, ¹ 1920-1930..... per cent.....	-0.9	-5.0	9.9	-10.1	-28.1	78.6
21	Irrigable area in enterprises..... 1930..... acres.....	915,370	1,362	5,023	54,668	40,951	20,142
22	Total area in enterprises..... 1920..... acres.....	836,795	1,787	4,084	72,015	65,324	12,600
23	Area in enterprises available, or to be available, for settlement..... 1930..... acres.....	195,041			4,117	1,200	
IRRIGATION WORKS							
24	Enterprises..... 1930..... number.....	2,939	20	10	101	545	8
25	1920..... number.....	2,692	26	21	146	370	7
26	Main canals..... 1930..... length, miles.....	1,774	17	3	102	281	53
27	1920..... length, miles.....	3,851	19	16	151	304	39
28	1930..... capacity, sec.-ft.....	14,987	19	6	2,072	895	414
29	1920..... capacity, sec.-ft.....	10,242	203	30	982	1,100	570
30	Laterals..... 1930..... length, miles.....	1,861	1		107	50	46
31	1920..... length, miles.....	1,704	8		185	30	32
32	Reservoirs..... 1930..... number.....	78		2		21	
33	1920..... number.....	205	4	1		36	
34	1930..... capacity, ac.-ft.....	600,807		83		12,783	
35	1920..... capacity, ac.-ft.....	477,789	4	100		11,481	
36	Wells, flowing..... 1930..... number.....	42	1		9	4	
37	1920..... number.....	60	6		7	1	
38	1930..... capacity, g. p. m.....	27,290	100		11,000	90	
39	1920..... capacity, g. p. m.....	14,925	160		6,200	10	
40	Wells, pumped..... 1930..... number.....	1,010	7		143	98	
41	1920..... number.....	520	7		101	13	
42	1930..... capacity, g. p. m.....	306,800	6,240		41,230	10,109	
43	1920..... capacity, g. p. m.....	227,744	5,100		38,807	1,775	
44	Pumping plants..... 1930..... number.....	1,951	6	0	201	309	
45	1920..... number.....	975	12	1	144	138	
46	1930..... engine capacity, h. p.....	33,187	72	221	4,489	4,722	
47	1920..... engine capacity, h. p.....	22,920	143	5	4,555	1,415	
48	1930..... pump capacity, g. p. m.....	993,303	6,225	2,505	220,012	80,489	
49	1920..... pump capacity, g. p. m.....	636,552	10,042	200	163,623	45,853	
50	1930..... average lift, feet.....	.59	31	131	37	89	
51	1920..... average lift, feet.....	.60	28	8	37	86	
VALUES OF FARMS, 1930							
52	Land and buildings, all farms..... dollars.....	773,662,602	22,982,466	7,603,664	10,545,070	36,115,713	6,360,435
53	Land and buildings, irrigated farms..... dollars.....	195,394,180	601,086	2,983,840	9,012,255	35,174,251	1,420,550
54	Operated by—						
55	Owners and managers..... dollars.....	168,250,045	520,580	2,763,740	7,440,955	32,042,101	1,162,550
56	Tenants..... dollars.....	27,144,135	71,500	220,100	1,562,300	2,232,150	258,000
57	Average, land and buildings, per farm..... dollars.....	12,251.10	27,322.09	8,021.08	5,068.38	17,370.00	12,038.56
58	per acre..... dollars.....	101.59	6.20	67.98	104.05	358.18	163.43
59	Land (excluding buildings)..... dollars.....	154,326,847	510,311	2,121,268	6,501,985	28,004,409	1,098,340
60	Buildings (including dwellings)..... dollars.....	41,067,333	84,775	862,572	2,510,270	7,169,842	322,210
61	Implements and machinery, irrigated farms..... dollars.....	13,343,847	42,850	164,510	736,070	2,451,510	72,262
62	Average, per farm..... dollars.....	836.66	1,047.73	442.23	487.46	1,210.62	612.39
	per acre..... dollars.....	6.94	0.45	3.75	8.67	24.60	8.31
INVESTMENT IN IRRIGATION ENTERPRISES							
63	Investment to Jan. 1, 1930..... dollars.....	40,561,895	47,620	302,221	3,549,863	4,787,525	296,126
64	1920..... dollars.....	26,299,011	77,350	627,165	2,387,113	3,503,670	94,010
65	Increase, ¹ 1920-1930..... per cent.....	38.4	-38.4	-51.8	48.7	36.6	215.0
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930..... dollars.....	64.23	37.35	60.30	80.83	131.84	16.82
67	1920..... dollars.....	45.98	57.64	137.57	48.86	60.38	9.53
68	Estimated final investment in existing enterprises, 1930..... dollars.....	53,232,477	49,620	305,221	3,506,351	5,150,995	298,126
69	1920..... dollars.....	37,684,591	87,750	627,165	3,040,479	4,080,090	97,010
70	Increase, ¹ 1920-1930..... per cent.....	41.3	-43.4	-51.3	17.3	26.2	207.3
71	Average, per acre, based on estimated final investment and irrigable area, 1930..... dollars.....	58.15	36.43	60.76	65.24	125.78	14.80
72	1920..... dollars.....	45.03	50.52	133.90	42.22	62.46	7.66
COST OF MAINTENANCE AND OPERATION, 1929							
73	Irrigated area for which cost was reported..... acres.....	487,977	1,181	3,941	29,418	33,580	8,000
74	Average, per acre, based on area reporting..... dollars.....	4.14	5.55	8.81	0.10	10.84	0.82

¹ A minus sign (-) denotes decrease.

² Includes 3 intercounty projects counted in this table as 6 independent enterprises; corresponding figures for 1920 not available. For actual number of enterprises see State Tables 4 and 13.

IRRIGATION—WASHINGTON

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Columbia	Douglas	Ferry	Franklin	Garfield	Grant
FARMS AND FARM OPERATORS							
1	All farms.....1930.....number..	544	1,214	577	354	393	787
2	Irrigated farms.....1930.....number..	120	404	66	137	30	224
3	Operated by—						
4	Owners and managers.....number..	100	463	58	109	22	202
5	Tenants.....number.....	20	81	8	25	8	22
6	Irrigated farms.....1920.....number..	93	314	61	78	26	185
	Increase, 1920-1930.....per cent..	29.0	57.3	8.2	75.6	20.0	21.1
FARM AREA AND TOTAL LAND AREA							
7	Approximate land area.....1930.....acres..	540,120	1,143,680	1,420,800	771,840	444,160	1,740,800
8	Land in all farms.....1930.....acres..	338,260	705,255	133,640	553,547	357,086	764,407
9	Land in irrigated farms.....1930.....acres..	56,472	34,132	13,285	41,142	22,032	164,569
10	Average, per farm.....acres.....	470.6	69.1	201.3	300.3	754.4	734.7
11	Operated by owners and managers.....acres..	43,669	33,488	12,148	37,379	19,667	141,962
12	Average, per farm.....acres.....	436.6	72.3	209.4	342.9	893.5	702.8
13	Operated by tenants.....acres.....	12,813	644	1,137	3,763	2,975	22,607
14	Average, per farm.....acres.....	640.6	20.8	142.1	134.4	371.9	1,027.6
15	Area irrigated.....1929.....acres..	2,480	9,605	1,246	2,606	775	7,507
16	Increase, 1919-1929.....1919.....acres..	2,168	4,822	701	2,263	883	7,545
17	Increase, 1919-1929.....per cent..	14.4	99.2	57.5	16.7	-12.2	0.7
18	Area enterprises were capable of supplying with water.....1930.....acres..	2,672	10,061	2,018	4,471	806	8,231
19	Increase, 1920-1930.....1920.....acres..	3,063	4,938	2,253	10,014	1,552	9,302
20	Increase, 1920-1930.....per cent..	-12.3	103.7	-10.4	-65.4	-48.1	-11.5
21	Irrigable area in enterprises.....1930.....acres..	2,861	10,525	5,847	4,821	300	9,112
22	Total area in enterprises.....1920.....acres..	3,532	8,756	7,421	14,268	1,698	12,806
23	Area in enterprises available, or to be available, for settlement.....1930.....acres..			128	25		7
IRRIGATION WORKS							
24	Enterprises.....1930.....number..	67	206	35	60	34	175
25	1920.....number.....	52	86	45	48	36	172
26	Main canals.....1930.....length, miles..	18	23	11	8		11
27	1920.....length, miles.....	36	15	31		17	37
28	1930.....capacity, sec.-ft.....	63	87	17	71		207
29	1920.....capacity, sec.-ft.....	697	48	119	121	97	113
30	Laterals.....1930.....length, miles..	4	5				
31	1920.....length, miles.....	15	11				
32	Reservoirs.....1930.....number.....	1	4	1	1		6
33	1920.....number.....	1	8	2	2	1	18
34	1930.....capacity, ac.-ft.....		5	1	50		74
35	1920.....capacity, ac.-ft.....	1		151	2		4,519
36	Wells, flowing.....1930.....number.....		2	1			
37	1920.....number.....						
38	1930.....capacity, g. p. m.....						
39	1920.....capacity, g. p. m.....						
40	Wells, pumped.....1930.....number.....		190	1,000			
41	1920.....number.....		112		28	1	136
42	1930.....number.....	4	22	3	31	1	132
43	1920.....capacity, g. p. m.....		43,221		8,875	60	45,251
44	1930.....capacity, g. p. m.....	130	6,865	1,000	13,030	250	39,779
45	Pumping plants.....1930.....number.....	3	204		65	16	170
46	1920.....number.....	7	65	3	50	7	164
47	1930.....engine capacity, h. p.....	23	2,932		1,200	284	2,650
48	1920.....engine capacity, h. p.....	28	1,452	9	1,100	242	3,084
49	1930.....pump capacity, g. p. m.....	1,203	69,258		97,265	5,594	81,925
50	1920.....pump capacity, g. p. m.....	355	33,760	153	36,478	7,750	76,924
51	1930.....average lift, feet.....	14	72		34	48	74
51	1920.....average lift, feet.....	13	95	12	43	76	79
VALUES OF FARMS, 1930							
52	Land and buildings, all farms.....dollars..	17,948,154	18,647,020	1,982,132	6,827,213	15,258,487	10,482,412
53	Land and buildings, irrigated farms.....dollars..	1,670,715	10,162,678	301,950	1,103,473	696,850	3,378,511
54	Operated by—						
55	Owners and managers.....dollars..	1,390,415	9,688,678	320,850	959,943	603,850	3,129,761
56	Tenants.....dollars.....	280,300	473,900	32,100	143,530	93,000	248,750
57	Average, land and buildings, per farm.....dollars..	13,922.02	20,572.02	5,484.09	8,091.04	23,228.33	15,682.64
58	Land (excluding buildings).....dollars..	29.58	297.74	27.24	28.94	30.79	20.53
59	Buildings (including dwellings).....dollars..	1,331,640	9,673,909	272,090	864,998	590,000	2,789,005
60	Implements and machinery, irrigated farms.....dollars..	339,075	1,488,689	89,860	213,475	106,850	594,606
61	Average, per farm.....dollars.....	85,310	699,814	37,275	61,957	34,525	234,745
62	per acre.....dollars.....	710.92	1,416.63	594.77	671.22	1,150.33	1,047.97
	per acre.....dollars.....	1.61	20.50	2.80	2.24	1.52	1.43
INVESTMENT IN IRRIGATION ENTERPRISES							
63	Investment to Jan. 1, 1930.....dollars..	78,244	685,382	45,693	523,544	22,340	694,701
64	1920.....dollars.....	61,447	382,890	60,050	362,390	32,700	1,192,739
65	Increase, 1920-1930.....per cent..	27.3	79.2	-30.8	45.8	-31.7	-41.8
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars..	29.28	68.12	22.04	118.22	27.72	84.40
67	1920.....dollars.....	20.06	77.44	29.32	36.19	21.07	128.22
68	Estimated final investment in existing enterprises, 1930.....dollars..	78,544	730,086	49,343	787,164	22,340	734,101
69	Increase, 1920-1930.....dollars.....	64,947	402,008	66,950	637,390	36,000	1,301,729
70	Average, per acre, based on estimated final investment and irrigable area, 1930.....per cent..	20.9	81.6	-26.3	23.5	-37.9	-43.6
71	Average, per acre, based on estimated final investment and total area, 1920.....dollars..	27.45	69.37	8.44	163.28	27.72	80.56
72	Average, per acre, based on estimated final investment and total area, 1920.....dollars..	18.39	45.91	9.02	44.67	21.20	101.65
COST OF MAINTENANCE AND OPERATION, 1929							
73	Irrigated area for which cost was reported.....acres..	1,851	9,352	1,087	2,580	237	6,253
74	Average, per acre, based on area reporting.....dollars..	1.57	15.00	1.51	11.68	9.46	16.32

1 A minus sign (-) denotes decrease.

IRRIGATION—WASHINGTON

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COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Kittitas	Klickitat	Lincoln	Okanogan	Pend Oreille	Spokane
FARMS AND FARM OPERATORS							
1	All farms..... 1930..... number.....	888	1,074	1,407	2,326	613	4,268
2	Irrigated farms..... 1930..... number.....	664	162	47	1,313	38	600
3	Operated by—						
3	Owners and managers..... number.....	525	126	38	1,108	33	636
4	Tenants..... number.....	139	86	9	115	5	60
5	Irrigated farms..... 1920..... number.....	737	104	83	1,103	(1)	775
6	Increase, 1920-1930..... per cent.....	-9.9	-1.2	-43.4	10.0	-----	-10.2
FARM AREA AND TOTAL LAND AREA							
7	Approximate land area..... 1930..... acres.....	1,400,560	1,108,000	1,473,280	3,341,440	871,040	1,123,840
8	Land in all farms..... 1930..... acres.....	359,003	651,305	1,356,440	601,558	114,631	763,772
9	Land in irrigated farms..... 1930..... acres.....	289,866	66,802	74,846	205,470	10,217	24,069
10	Average, per farm..... acres.....	420.8	412.4	1,502.6	156.5	268.0	35.4
11	Operated by owners and managers..... acres.....	247,772	50,020	71,483	184,594	8,361	22,110
12	Average, per farm..... acres.....	471.0	473.2	1,881.1	154.1	253.4	34.8
13	Operated by tenants..... acres.....	35,594	7,182	3,363	20,885	1,856	2,553
14	Average, per farm..... acres.....	256.1	199.6	373.7	181.0	371.2	42.0
15	Area irrigated..... 1929..... acres.....	46,031	11,502	1,430	36,248	896	18,240
16	1919..... acres.....	81,067	18,978	2,221	35,899	(1)	16,154
17	Increase, 1919-1929..... per cent.....	-43.8	-39.4	-35.6	1.0	-----	13.0
18	Area enterprises were capable of supplying with water..... 1930..... acres.....	63,415	18,607	1,695	50,011	2,705	30,254
19	1920..... acres.....	83,562	21,360	2,838	62,315	(1)	20,905
20	Increase, 1920-1930..... per cent.....	-24.1	-12.9	-40.3	-4.4	-----	44.1
21	Irrigable area in enterprises..... 1930..... acres.....	122,914	20,321	1,895	60,081	3,334	37,092
22	Total area in enterprises..... 1920..... acres.....	87,775	32,315	3,201	71,760	(1)	30,468
23	Area in enterprises available, or to be available, for settlement..... 1930..... acres.....	19,060	-----	400	-----	-----	5,400
IRRIGATION WORKS							
24	Enterprises..... 1930..... number.....	72	72	10	408	20	90
25	1920..... number.....	223	93	54	383	(1)	107
26	Main canals..... 1930..... length, miles.....	225	51	7	206	14	21
27	1920..... length, miles.....	380	173	24	421	(1)	64
28	1930..... capacity, sec.-ft.....	2,237	214	12	1,600	81	280
29	1920..... capacity, sec.-ft.....	1,788	842	63	1,851	(1)	732
30	Laterals..... 1930..... length, miles.....	100	11	-----	113	1	4
31	1920..... length, miles.....	41	10	7	180	(1)	130
32	Reservoirs..... 1930..... number.....	3	4	-----	20	1	3
33	1920..... number.....	7	18	1	40	(1)	32
34	1930..... capacity, ac.-ft.....	386,100	60	-----	52,469	3,000	1,007
35	1920..... capacity, ac.-ft.....	384,810	415	-----	30,789	(1)	5,093
36	Wells, flowing..... 1930..... number.....	-----	-----	-----	1	-----	-----
37	1920..... number.....	-----	-----	-----	1	(1)	-----
38	1930..... capacity, g. p. m.....	-----	-----	-----	50	(1)	-----
39	1920..... capacity, g. p. m.....	-----	-----	-----	-----	(1)	-----
40	Wells, pumped..... 1930..... number.....	-----	7	8	204	-----	80
41	1920..... number.....	1	2	0	52	(1)	49
42	1930..... capacity, g. p. m.....	-----	1,040	2,500	20,420	-----	74,059
43	1920..... capacity, g. p. m.....	200	24	3,785	13,613	(1)	68,040
44	Pumping plants..... 1930..... number.....	2	21	11	309	-----	93
45	1920..... number.....	9	12	20	131	(1)	76
46	1930..... engine capacity, h. p.....	137	212	185	5,035	-----	3,732
47	1920..... engine capacity, h. p.....	193	104	361	1,835	(1)	3,316
48	1930..... pump capacity, g. p. m.....	2,700	6,615	5,170	123,611	-----	69,934
49	1920..... pump capacity, g. p. m.....	12,575	6,100	11,895	54,491	(1)	79,688
50	1930..... average lift, feet.....	135	41	52	50	-----	70
51	1920..... average lift, feet.....	24	46	63	43	(1)	83
VALUES OF FARMS, 1930							
52	Land and buildings, all farms..... dollars.....	14,377,961	12,657,139	37,014,414	17,723,438	2,054,840	45,500,787
53	Land and buildings, irrigated farms..... dollars.....	12,685,440	1,884,010	925,750	13,203,533	309,075	5,368,317
54	Operated by—						
54	Owners and managers..... dollars.....	10,389,806	1,421,010	811,506	12,417,293	205,975	5,052,017
55	Tenants..... dollars.....	2,295,640	463,000	114,250	789,240	104,000	315,700
56	Average, land and buildings, per farm..... dollars.....	10,104.59	11,629.69	19,690.94	10,059.00	8,157.24	7,713.10
57	per acre..... dollars.....	44.77	28.20	12.37	64.26	30.34	217.61
58	Land (excluding buildings)..... dollars.....	10,029,821	1,450,510	707,377	10,787,882	226,775	3,248,760
59	Buildings (including dwellings)..... dollars.....	2,655,625	427,500	158,379	2,415,651	83,200	2,119,557
60	Implements and machinery, irrigated farms..... dollars.....	877,826	97,521	64,405	809,775	26,680	250,560
61	Average, per farm..... dollars.....	1,322.03	601.08	1,370.32	685.28	702.10	360.00
62	per acre..... dollars.....	8.10	1.40	0.80	4.38	2.61	10.16
INVESTMENT IN IRRIGATION ENTERPRISES							
63	Investment to Jan. 1, 1930..... dollars.....	7,000,394	190,912	33,615	4,165,746	50,956	1,340,735
64	1920..... dollars.....	4,678,707	198,501	87,431	2,874,338	(1)	1,608,838
65	Increase, 1920-1930..... per cent.....	50.9	-3.8	-61.6	44.9	-----	-10.3
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930..... dollars.....	111.34	10.26	19.83	83.30	18.84	44.51
67	1920..... dollars.....	56.00	9.29	30.81	54.94	(1)	70.40
68	Estimated final investment in existing enterprises, 1930..... dollars.....	10,309,879	192,212	34,115	4,489,856	51,381	1,374,935
69	1920..... dollars.....	5,908,707	206,851	88,431	4,707,308	(1)	2,609,388
70	Increase, 1920-1930..... per cent.....	74.5	-7.1	-61.4	-6.4	-----	-49.1
71	Average, per acre, based on estimated final investment and irrigable area, 1930..... dollars.....	83.88	9.46	18.00	73.69	15.41	36.18
72	1920..... dollars.....	67.32	6.40	20.87	66.85	(1)	68.41
COST OF MAINTENANCE AND OPERATION, 1929							
73	Irrigated area for which cost was reported..... acres.....	44,952	11,176	1,803	35,453	892	18,183
74	Average, per acre, based on area reporting..... dollars.....	2.25	0.73	4.26	8.78	0.81	0.40

1 Included in "All other counties."
 2 A minus sign (-) denotes decrease.

IRRIGATION—WASHINGTON

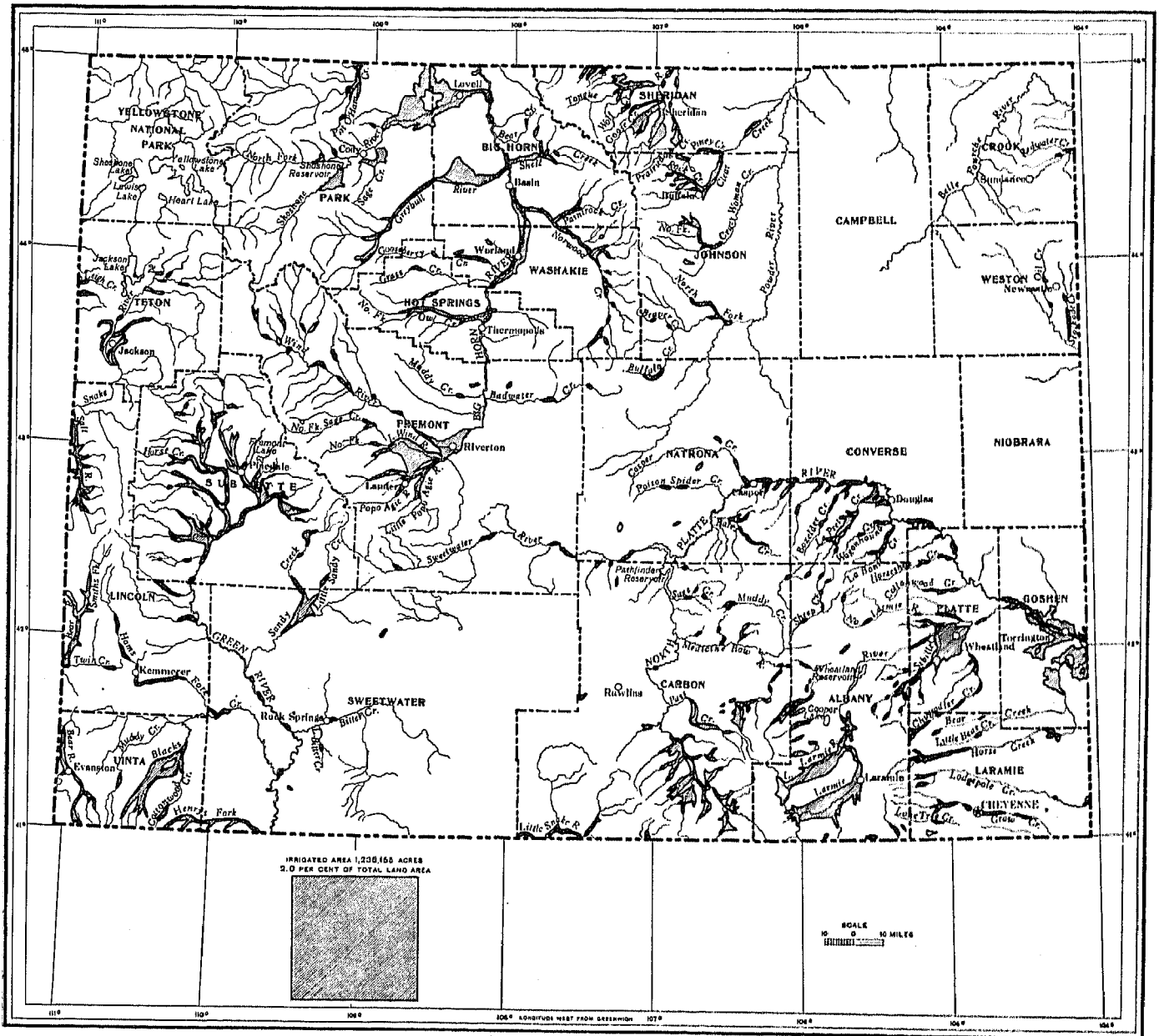
COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Stevens	Thurston	Walla Walla	Whitman	Yakima	All other counties
FARMS AND FARM OPERATORS							
1	All farms.....1930.....number..	2,033	2,082	1,498	2,631	6,806	34,664
2	Irrigated farms.....1930.....number..	236	141	682	45	6,507	300
3	Operated by—						
4	Owners and managers.....number..	191	134	616	38	4,935	250
5	Tenants.....number.....	45	7	166	7	1,572	50
6	Irrigated farms.....1920.....number..	18	(¹)	654	14	5,354	203
	Increase, ² 1920-1930.....per cent..			4.3	221.4	21.5	47.8
FARM AREA AND TOTAL LAND AREA							
7	Approximate land area.....1930.....acres..	1,603,200	453,760	809,600	1,349,120	3,237,760	14,141,440
8	Land in all farms.....1930.....acres..	467,414	143,378	702,900	1,303,748	598,366	1,705,002
9	Land in irrigated farms.....1930.....acres..	50,534	4,975	80,254	30,770	412,547	13,935
10	Average, per farm.....acres.....	214.1	35.3	117.7	683.8	63.4	46.6
11	Operated by owners and managers.....acres..	40,088	4,041	66,583	29,635	301,638	12,135
12	Average, per farm.....acres.....	209.9	34.6	129.0	779.9	61.1	48.5
13	Operated by tenants.....acres.....	10,446	384	13,671	1,135	110,909	1,850
14	Average, per farm.....acres.....	232.1	47.7	82.4	162.1	70.6	37.0
15	Area irrigated.....1929.....acres.....	3,077	3,033	18,921	1,913	254,055	957
16	Increase, ² 1919-1929.....acres.....	8,990	(¹)	23,575	2,009	230,033	2,778
17	Increase, ² 1919-1929.....per cent..	-65.8		-19.7	-8.9	10.4	-65.6
18	Area enterprises were capable of supplying with water.....1930.....acres..	3,602	5,033	20,453	2,083	209,091	1,280
19	Increase, ² 1920-1930.....acres.....	18,238	(¹)	39,040	2,536	242,726	7,815
20	Increase, ² 1920-1930.....per cent..	-80.2		-47.6	-17.9	23.6	-82.5
21	Irrigable area in enterprises.....1930.....acres..	5,180	5,033	22,465	2,340	475,530	1,870
22	Total area in enterprises.....1920.....acres..	28,605	(¹)	45,303	4,138	309,235	10,014
23	Area in enterprises available, or to be available, for settlement.....1930.....acres..		200	1,411		169,063	
IRRIGATION WORKS							
24	Enterprises.....1930.....number.....	112	4	341	43	221	128
25	1920.....number.....	199	(¹)	280	20	252	54
26	Main canals.....1930.....length, miles..	48	11	124	11	429	10
27	1920.....length, miles..	240	(¹)	1,059	27	624	30
28	1930.....capacity, sec.-ft.....	78	100	391	15	5,940	23
29	1920.....capacity, sec.-ft.....	477	(¹)	959	48	5,152	191
30	Laterals.....1930.....length, miles..	11	40	11	4	1,843	1
31	1920.....length, miles..	29	(¹)	79	4	956	20
32	Reservoirs.....1930.....number.....	1	1	2		5	3
33	1920.....number.....	7	(¹)	5		3	10
34	1930.....capacity, ac.-ft.....	90	35	2		243,387	5
35	1920.....capacity, ac.-ft.....	800	(¹)			39,000	54
36	Wells, flowing.....1930.....number.....			17	6	4	
37	1920.....number.....		(¹)	33	5	3	1
38	1930.....capacity, g. p. m.....			10,600	1,200	3,350	
39	1920.....capacity, g. p. m.....		(¹)	6,080	1,000	285	
40	Wells, pumped.....1930.....number.....	5	3	114	3	43	22
41	1920.....number.....	2	(¹)	45		43	3
42	1930.....capacity, g. p. m.....	1,500	313	19,628	540	19,203	3,602
43	1920.....capacity, g. p. m.....	45	(¹)	36,240		8,225	120
44	Pumping plants.....1930.....number.....	7	3	169	32	117	60
45	1920.....number.....	9	(¹)	65	11	51	11
46	1930.....engine capacity, h. p.....	42	18	955	479	5,400	344
47	1920.....engine capacity, h. p.....	41	(¹)	2,775	340	1,735	151
48	1930.....pump capacity, g. p. m.....	2,105	313	31,109	15,841	150,511	20,858
49	1920.....pump capacity, g. p. m.....	9,166	(¹)	25,885	8,434	47,002	1,303
50	1930.....average lift, feet.....	38	80	24	47	30	33
51	1920.....average lift, feet.....	48	(¹)	24	56	38	
VALUES OF FARMS, 1930							
52	Land and buildings, all farms.....dollars..	15,388,540	12,488,969	43,283,940	80,822,715	80,355,056	256,250,831
53	Land and buildings, irrigated farms.....dollars..	2,400,700	571,040	9,623,802	754,350	77,722,892	3,372,640
54	Operated by—						
55	Owners and managers.....dollars.....	1,890,720	538,940	7,028,488	682,350	63,001,971	2,988,940
56	Tenants.....dollars.....	539,980	32,700	1,605,374	72,000	14,720,921	383,700
57	Average, land and buildings, per farm.....dollars..	10,172.46	4,054.18	14,111.23	16,763.33	11,944.50	11,242.13
58	Land (excluding buildings).....dollars.....	47.51	114.90	119.92	24.52	188.40	241.16
59	Buildings (including dwellings).....dollars.....	1,836,385	396,780	7,624,117	612,350	62,170,616	2,410,619
60	Implements and machinery, irrigated farms.....dollars..	584,315	174,860	1,909,745	142,000	15,552,276	902,021
61	Average, per farm.....dollars.....	173,215	21,750	593,323	53,790	5,515,846	208,328
62	Average, per acre.....dollars.....	733.90	154.26	738.01	1,195.33	847.68	694.43
	Increase, ² 1920-1930.....dollars.....	3.43	4.37	6.27	1.75	13.37	14.90
INVESTMENT IN IRRIGATION ENTERPRISES							
63	Investment to Jan. 1, 1930.....dollars.....	476,384	226,250	575,916	95,520	15,215,018	80,100
64	1920.....dollars.....	641,580	(¹)	990,667	225,933	8,597,038	248,934
65	Increase, ² 1920-1930.....per cent..	-25.7		-41.9	-57.7	71.0	-65.4
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars..	132.26	44.95	28.16	45.86	50.72	67.34
67	1920.....dollars.....	35.18	(¹)	25.38	89.09	36.65	34.03
68	Estimated final investment in existing enterprises, 1930.....dollars..	639,219	226,250	587,966	102,520	23,356,538	96,015
69	1920.....dollars.....	1,002,330	(¹)	1,340,767	237,533	10,670,024	201,734
70	Increase, ² 1920-1930.....per cent..	-36.2		-66.1	-56.8	118.9	-67.1
71	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars.....	123.26	44.95	26.17	43.81	49.12	61.16
72	Average, per acre, based on estimated final investment and total area, 1929.....dollars.....	35.04	(¹)	29.60	57.40	34.50	29.13
COST OF MAINTENANCE AND OPERATION, 1929							
73	Irrigated area for which cost was reported.....acres..	2,446	3,063	17,178	1,779	252,524	609
74	Average, per acre, based on area reporting.....dollars..	5.72	5.68	2.99	8.64	1.98	12.01

¹ Included in "All other counties."
² A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.

WYOMING

APPROXIMATE LOCATION AND EXTENT OF IRRIGATED LAND



WYOMING

INTRODUCTION

Statistics are presented in the following pages on farms irrigated and area irrigated, investment and cost of maintenance and operation of irrigation enterprises, cost of preparing land for irrigation, drainage of irrigated land, quantity of water used, and distribution of irrigation works, with specialized information relating to dams, pipe lines, and pumping equipment. Data on area irrigated, investment, and irrigation works are given in detail by drainage basins. Classifications of irrigated farms by type of farm, size of farm, and value of farm products; and the acreage, yield, and value of the principal crops grown on irrigated land, for all irrigation States, are shown in Parts III and IV, pages 257 and 325, respectively, of this volume.

Statistics for area irrigated and for cost of maintenance and operation of irrigation works relate to the year 1929; all other items relate to 1930.

For purposes of comparison, statistics for the census of 1920 are shown, where available; and for the purpose of showing the historical development of irrigation certain data are presented from censuses previous to that of 1920.

Data on number, area, and value of wholly and partly irrigated farms with the tenure of the operators of these farms were collected in 1930 on the general farm schedule; in 1920 only the number of irrigated farms was obtained in this way. All other statistics, in both censuses, were collected on special schedules for irrigation enterprises.

STATE TABLE 1.—SUMMARY FOR THE STATE: 1930 AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Amount	Per cent
All farms.....number.....	16, 011	15, 748	263	1. 7
All land in farms.....acres.....	23, 525, 234	11, 809, 351	11, 715, 883	99. 2
Approximate land area of State.....acres.....	62, 430, 720	62, 430, 720		
Farms irrigated.....number.....	7, 308	6, 449	859	13. 3
Area irrigated.....acres.....	1, 236, 155	1, 207, 982	28, 173	2. 3
Area enterprises were capable of supplying with water.....acres.....	1, 655, 008	1, 831, 039	-176, 031	-9. 6
Area in enterprises ².....acres.....	1, 958, 147	2, 564, 668		
Proportion irrigated:				
All farms.....per cent.....	45. 6	41. 0		
All land in farms.....per cent.....	5. 2	10. 2		
Approximate land area of State.....per cent.....	2. 0	1. 9		
Excess of area enterprises were capable of supplying with water over area irrigated.....acres.....	418, 853	623, 057	-204, 204	-32. 8
Excess of area in enterprises ² over area irrigated.....acres.....	721, 992	1, 356, 686		
Area in enterprises available, or to be available, for settlement.....acres.....	164, 861	197, 326	-32, 465	-16. 7
Value of irrigated farms [land, buildings (including dwellings), and implements and machinery].....dollars.....	129, 692, 086	(³)		
Investment in irrigation enterprises.....dollars.....	35, 153, 187	34, 326, 328	826, 859	2. 4
Average, per acre, based on area enterprises were capable of supplying with water.....dollars.....	21. 24	13. 75	2. 40	13. 3
Estimated final cost of existing enterprises.....dollars.....	41, 970, 416	51, 500, 288	-9, 529, 872	-18. 5
Average, per acre, based on area in enterprises ².....dollars.....	21. 43	20. 08		
Average annual cost, per acre, for maintenance and operation of irrigation works.....dollars.....	0. 84	1. 04	-0. 20	-19. 2

¹ A minus sign (-) denotes decrease.

² Irrigable area, 1930; total area, 1920.

³ Figures not available.

STATE TABLE 2.—FARMS AND SPECIFIED FARM VALUES, BY TENURE OF FARM OPERATOR, 1930

ITEM (See definitions in Introduction)	FARMS		SPECIFIED FARM VALUES					
	Number	Area <i>Acres</i>	Land and buildings		Land alone		Implements and machinery	
			Total <i>Dollars</i>	Per acre <i>Dollars</i>	Total <i>Dollars</i>	Per acre <i>Dollars</i>	Total <i>Dollars</i>	Per acre <i>Dollars</i>
All farms.....	16, 011	23, 525, 234	206, 852, 171	8. 79	174, 464, 455	7. 42	17, 617, 857	0. 75
Owners and managers.....	12, 491	21, 019, 392	171, 782, 789	8. 17			14, 249, 008	0. 68
Tenants.....	3, 520	2, 505, 842	35, 069, 382	14. 00			3, 368, 849	1. 34
Irrigated farms.....	7, 308	9, 959, 883	120, 208, 187	12. 07	99, 704, 088	10. 01	9, 483, 869	0. 95
Owners and managers.....	5, 426	8, 807, 784	97, 153, 418	11. 03	80, 317, 984	9. 12	7, 355, 283	0. 84
Tenants.....	1, 882	1, 152, 149	23, 054, 769	20. 01	19, 386, 104	16. 83	2, 128, 586	1. 85
Wholly irrigated farms.....	6, 413	8, 318, 764	100, 374, 938	12. 07	82, 825, 587	9. 96	8, 103, 642	0. 97
Owners and managers.....	4, 746	7, 316, 969	80, 475, 994	11. 00	66, 170, 478	9. 04	6, 285, 201	0. 86
Tenants.....	1, 667	1, 001, 795	19, 898, 944	19. 86	16, 655, 109	16. 62	1, 818, 361	1. 82
Partly irrigated farms.....	895	1, 641, 119	19, 833, 249	12. 08	16, 873, 501	10. 28	1, 380, 227	0. 84
Owners and managers.....	680	1, 490, 765	16, 677, 424	11. 19	14, 147, 506	9. 49	1, 069, 992	0. 72
Tenants.....	215	150, 354	3, 155, 825	20. 99	2, 730, 995	18. 16	310, 235	2. 06
Farms not irrigated.....	8, 703	13, 565, 351	86, 643, 984	6. 39	74, 760, 367	5. 51	8, 133, 988	0. 60

FARMS AND AREA IRRIGATED

In State Table 3 and in other tables "Number of farms irrigated" is equivalent to "Number of irrigators" used in census reports previous to 1910.

STATE TABLE 3.—FARMS AND AREA IRRIGATED: 1890 TO 1930

CENSUS YEAR	FARMS IRRIGATED			AREA IRRIGATED			
	Number	In-crease	Proportion of all farms	Area	In-crease	Pro-portion of total land area of State	Pro-portion of land in all farms
						Per cent	Per cent
1930.....	7,308	13.3	45.6	1,236,155	2.3	2.0	5.2
1920.....	6,440	2.4	41.0	1,207,982	4.6	1.9	10.2
1910.....	6,297	60.2	57.3	1,133,302	87.1	1.8	13.3
1900.....	3,721	94.1	61.1	605,878	163.8	1.0	7.5
1890.....	1,917		61.3	229,670		0.4	12.5

STATE TABLE 4.—AREA, BY DATE OF BEGINNING OF ENTERPRISES SUPPLYING WATER FOR IRRIGATION

DATE OF BEGINNING (See definitions in Introduction)	Enter-prises, 1930	AREA IRRIGATED IN 1920		Area enter-prises were capable of supplying with water, 1930	Irrigable area in enter-prises, 1930
		Area	Proportion of irrigable area in enter-prises		
Total.....	2,631	1,236,155	63.1	1,655,008	1,958,147
1860-1869.....	8	3,835	73.6	5,212	5,212
1870-1879.....	98	59,110	70.5	81,093	83,854
1880-1889.....	598	367,491	71.0	454,155	617,287
1890-1899.....	467	227,176	70.2	280,333	323,551
1900-1904.....	354	183,200	71.1	235,853	267,705
1905-1909.....	278	174,708	48.6	301,399	359,394
1910-1914.....	247	69,271	66.8	89,945	103,682
1915-1919.....	155	58,572	66.2	81,010	88,436
1920-1924.....	78	14,533	11.9	36,690	121,822
1925-1929.....	53	2,874	66.6	4,394	5,081
Not reported.....	295	75,385	81.8	87,024	92,123

STATE TABLE 5.—AREA, BY SOURCE OF WATER SUPPLY: 1929 AND 1919

SOURCE OF SUPPLY	AREA IRRIGATED				Area enter-prises were capable of supplying with water, 1930	Irrigable area in enter-prises, 1930
	1929	1919	Increase ¹			
			Area	Per cent		
Total.....	1,236,155	1,207,982	28,173	2.3	1,655,008	1,958,147
Streams, gravity.....	1,173,763	1,155,596	18,167	1.6	1,564,004	1,837,864
Streams, pumped.....	9,489	1,525	7,964	522.2	14,867	16,798
Wells, pumped.....	180	147	33	22.4	285	296
Wells, flowing.....	140	19	121	636.8	160	270
Lakes, pumped.....	6		6		66	66
Lakes, gravity.....	3,656	355	3,301	929.8	8,796	12,596
Springs.....	6,289	5,985	304	5.1	7,468	8,915
Stored storm water ²	974	10,852	-9,878	-91.0	1,529	1,467
Sewage.....	65		65		70	115
Streams, gravity and wells, pumped.....	137	400	-263	-65.8	140	200
Streams, gravity and wells, flowing.....					15	45
Other mixed.....	35,497	33,043	2,454	16.5	54,280	76,087
Not reported.....	2,959	60	2,899		3,328	3,328

¹ A minus sign (-) denotes decrease. Per cent not shown when more than 1,000.
² In reservoirs filled from channels which carry water only during storms and are not classed as streams.

AREA, BY CHARACTER OF ENTERPRISE

The areas credited to the United States Bureau of Reclamation include the Goshen, the Deaver, and the Shoshone irrigation districts, but do not include other areas partly served by Government works, in 1929 and 1919, with water carried through private canals under Warren Act or other water-service contracts.

STATE TABLE 6.—AREA, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

[For number of enterprises by classes, see State Table 12]

ITEM AND CHARACTER (See definitions in Introduction)	CENSUS OF—		INCREASE ¹	
	1930	1920	Area	Per cent
	Acres	Acres	Acres	Per cent
AREA IRRIGATED				
Total.....	1,236,155	1,207,982	28,173	2.3
Individual and partnership.....	605,844	724,020	-58,770	-8.1
Cooperative.....	305,086	286,702	16,384	5.7
Irrigation district.....	89,174	22,935	66,239	275.7
Carey Act.....	22,009	36,230	-14,161	-39.1
Commercial.....	51,400	57,800	-6,340	-11.0
United States Bureau of Indian Affairs.....	21,636	22,000	-364	-1.6
United States Bureau of Reclamation.....	85,886	53,555	32,331	60.4
State.....		2,120	-2,120	-100.0
City.....		2,020	-2,020	-100.0
AREA ENTERPRISES WERE CAPABLE OF SUPPLYING WITH WATER				
Total.....	1,055,008	1,831,030	-176,031	-9.6
Individual and partnership.....	790,345	1,008,379	-200,034	-20.7
Cooperative.....	305,070	432,950	-37,877	-8.7
Irrigation district.....	115,408	54,017	61,391	113.0
Carey Act.....	48,200	72,215	-24,015	-33.2
Commercial.....	94,760	121,310	-26,550	-21.9
United States Bureau of Indian Affairs.....	57,608	45,000	12,608	28.2
United States Bureau of Reclamation.....	144,548	93,022	51,526	55.4
State.....		2,120	-2,120	-100.0
City.....		2,020	-2,020	-100.0
AREA IN ENTERPRISES ²				
Total.....	1,958,147	2,504,608		
Individual and partnership.....	898,108	1,339,116		
Cooperative.....	434,002	632,200		
Irrigation district.....	134,408	56,617		
Carey Act.....	65,200	98,100		
Commercial.....	109,760	146,478		
United States Bureau of Indian Affairs.....	78,900	87,940		
United States Bureau of Reclamation.....	230,800	299,789		
State.....		2,155		
City.....		2,177		

¹ A minus sign (-) denotes decrease. ² Irrigable area, 1930; total area, 1920.

AREA, BY CHARACTER OF WATER RIGHTS

STATE TABLE 7.—AREA IRRIGATED, BY CHARACTER OF RIGHTS UNDER WHICH WATER IS RECEIVED: 1929 AND 1919

WATER RIGHTS (See definitions in Introduction)	1929		1919	
	Area	Proportion of total	Area	Proportion of total
	Acres	Per cent	Acres	Per cent
Total.....	1,236,155	100.0	1,207,982	100.0
Appropriation and use.....	116,554	9.4	25,662	2.1
Notice filed and posted.....	27,436	2.2	60,792	5.0
Adjudicated by court.....	217,005	17.6	162,180	13.4
Permit from State.....	402,169	32.6	466,020	38.6
Certificate or license from State.....	341,910	27.7	457,038	37.8
Underground.....	320	(¹)	270	(¹)
Other.....	13,433	1.1	657	0.1
Mixed.....	2,471	0.2		
Not reported.....	23,957	1.9	35,345	2.9

¹ Less than one-tenth of 1 per cent.

AREA, BY DRAINAGE BASIN

STATE TABLE 8.—AREA, BY DRAINAGE BASIN: 1929 AND 1919

DRAINAGE BASIN (See definitions in Introduction)	AREA IRRIGATED			Area enterprises were capable of supplying, 1930	Irrigable area in enterprises, 1930
	1929	1919	Increase ¹		
	Acres	Acres	Per cent		
Total.....	1,236,155	1,207,982	2.3	1,655,008	1,958,147
Missouri River drainage.....	900,523	880,845	3.5	1,217,344	1,449,857
Clark Fork (of Yellowstone) and tributaries.....	6,658	8,897	-28.2	11,035	11,035
Clark Fork direct.....	4,340	3,686	17.7	8,340	8,340
Tributaries.....	2,318	5,211	-55.5	2,695	2,695
Big Horn River and tributaries.....	318,607	307,846	3.5	475,301	623,351
Big Horn River direct.....	45,379	42,799	6.0	52,318	56,293
Pogo Agie River.....	21,131	22,073	-4.3	26,189	31,343
Wind River.....	51,789	43,620	18.7	116,788	224,983
Owl Creek.....	16,148	11,610	39.1	18,924	20,051
No Wood Creek.....	15,254	18,416	-17.2	19,778	21,476
Greybull River.....	62,138	49,231	5.9	65,331	70,808
Shell Creek.....	7,110	11,955	-40.5	13,795	18,894
Shoshone River.....	95,636	95,091	0.6	142,902	163,768
Little Horn River.....	1,637	1,408	16.3	2,705	2,705
Other tributaries.....	12,385	11,643	6.4	16,571	18,528
Tongue River and tributaries.....	52,195	43,025	21.3	55,453	57,917
Tongue River direct.....	8,014	9,805	-9.1	10,534	10,534
Goose Creek.....	35,455	27,627	28.3	36,884	38,490
Other tributaries.....	7,820	5,593	30.9	8,035	8,884
Powder River and tributaries.....	49,135	88,903	-44.7	55,194	57,844
Powder River direct.....	4,703	2,465	90.8	4,703	4,703
Red Fork Creek.....	450	3,341	-86.5	450	4,703
Crazy Woman Creek.....	2,600	21,905	-88.2	4,146	4,188
Clear Creek.....	35,235	50,648	-30.3	35,960	38,338
Other tributaries.....	6,087	10,484	-41.9	9,935	10,165
Little Missouri River.....	457	1,066	-100.0	632	657
Belle Fourche River.....	3,040	5,900	-48.4	3,843	7,021
South Fork (Cheyenne River).....	393	445	-25.2	368	508
Niobrara River.....	393	445	-25.2	368	508
North Platte and tributaries.....	452,752	402,993	12.3	596,125	671,716
North Platte River direct.....	81,313	66,794	43.2	100,287	104,952
Beaver Creek.....	3,132	2,621	19.5	4,176	4,176
Grand Encampment Creek.....	6,906	7,053	-2.1	11,522	11,522
Spring Creek.....	10,825	13,123	-17.5	13,197	13,197
Pass Creek.....	14,681	8,567	71.6	17,860	18,243
Medicine Bow River.....	36,879	54,500	-32.3	42,271	44,416
Sweetwater River.....	6,606	5,443	19.4	8,519	8,697
Muddy Creek.....	400	657	-39.1	400	400
Box Elder Creek.....	3,742	4,643	-10.5	8,486	8,486
La Prele Creek.....	10,549	9,103	81.8	16,908	17,462
Labonte Creek.....	4,353	4,376	0.2	4,826	4,876
Laramie and tributaries.....	170,019	149,999	19.3	257,351	315,207
Laramie River direct.....	108,510	72,400	48.2	168,297	215,907
Little Laramie River.....	43,942	30,860	42.4	50,972	51,177
Syvilla Creek.....	5,237	6,183	-15.3	5,387	5,934
North Laramie River.....	6,979	6,858	-12.8	6,360	11,474
Chugwater Creek.....	6,139	5,914	3.8	7,108	7,648
Other tributaries.....	10,212	27,784	-22.5	13,227	23,067
Rawhide Creek.....	225	2,045	-89.0	225	225
Horse Creek.....	23,694	28,369	4.3	30,920	34,688
Other tributaries of North Platte.....	58,598	65,700	5.2	79,177	85,109
Tributaries of South Platte.....	17,340	9,804	76.9	19,393	19,748
Lodgepole Creek.....	1,505	1,775	-10.1	1,725	2,040
Crow Creek.....	4,951	2,680	91.9	6,677	6,717
Lone Tree Creek.....	9,485	1,990	383.9	9,485	9,485
Cache la Poudre River.....	1,309	3,489	-62.5	1,506	1,606
Colorado River drainage.....	228,690	211,507	8.1	304,057	360,974
Green River and tributaries.....	228,690	211,507	8.1	304,057	360,974
Green River direct.....	25,701	20,285	27.1	28,985	38,880
New Fork.....	48,003	27,743	73.0	63,967	77,099
Horse Creek.....	5,082	15,520	-61.4	6,935	8,855
Cottonwood Creek.....	9,189	17,437	-47.3	10,594	12,667
South Piney Creek.....	1,472	11,928	-87.4	1,800	2,970
La Barge Creek.....	4,083	5,459	-25.2	4,898	4,898
Fontanelle Creek.....	1,607	4,428	-63.7	1,680	1,680
Bitter Creek.....	878	2,395	-63.3	1,026	1,356
Blacks Fork.....	61,397	65,980	-6.9	76,875	87,650
Henrys Fork.....	15,884	8,298	91.4	18,677	26,698
Little Snake River.....	11,719	13,463	-13.0	12,049	12,049
Other tributaries.....	42,694	18,371	76,671	86,272	
Great Salt Lake drainage.....	47,379	63,665	-25.6	56,221	59,351
Bear River and tributaries.....	47,379	63,665	-25.6	56,221	59,351
Bear River direct.....	28,455	37,306	-23.7	34,116	36,650
Tributaries.....	18,924	26,359	-28.2	22,105	22,701
Columbia River drainage.....	69,554	62,965	-5.4	77,386	87,955
Snake River tributaries.....	69,554	62,965	-5.4	77,386	87,955
South Fork direct.....	1,250	912	37.1	1,877	2,438
Gros Ventre River.....	3,884	6,718	-42.2	4,431	6,621
Little Gros Ventre River.....	2,274	6,243	-63.6	2,294	2,928
Salt River.....	36,863	34,338	7.4	46,235	49,016
Other tributaries.....	15,283	14,754	3.6	22,551	26,982

¹ A minus sign (-) denotes decrease.
² Includes 11,000 acres reported in "Other tributaries" of Laramie River in 1920.
³ Includes several projects now in "Other tributaries" of Green River.

INVESTMENT, AND COST OF MAINTENANCE AND OPERATION OF IRRIGATION ENTERPRISES

STATE TABLE 9.—INVESTMENT IN ENTERPRISES: 1890 TO 1930

CENSUS YEAR	INVESTMENT		AVERAGE, PER ACRE ¹	
	Amount	Increase	Amount	Increase
	Dollars	Per cent	Dollars	Per cent
1930.....	35,153,187	2.4	21.24	13.3
1920.....	34,326,328	93.9	18.75	73.6
1910.....	17,700,980	345.5	10.80	64.0
1900.....	3,973,165	377.9	6.56	81.2
1890.....	831,427		3.62	

¹ Based on area enterprises were capable of supplying with water.

STATE TABLE 10.—INVESTMENT, BY DATE OF BEGINNING, 1930

DATE OF BEGINNING (See definitions in Introduction)	INVESTMENT		
	Amount	Proportion of total	Average, per acre ¹
	Dollars	Per cent	Dollars
Total.....	35,153,187	100.0	21.24
1860-1869.....	18,430	0.1	3.54
1870-1879.....	695,903	2.0	8.58
1880-1889.....	4,009,666	11.4	8.83
1890-1899.....	2,038,947	5.8	7.27
1900-1909.....	2,734,998	7.8	11.00
1910-1919.....	15,010,694	42.7	49.80
1920-1929.....	1,237,064	3.5	14.23
1930.....	4,647,339	13.2	57.37
Not reported.....	4,042,940	11.5	110.19
1925-1929.....	50,503	0.1	11.49
Not reported.....	666,703	1.9	7.58

¹ Based on area enterprises were capable of supplying with water in 1930.

STATE TABLE 11.—INVESTMENT, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929; BY SOURCE OF WATER SUPPLY
 (When water is pumped, cost of maintenance and operation includes cost of fuel and attendance)

SOURCE OF SUPPLY	INVESTMENT, 1930			MAINTENANCE AND OPERATION, 1929	
	Amount	Proportion of total	Average, per acre	Irrigated area reporting	Average, per acre ¹
	Dollars	Per cent	Dollars	Acres	Dollars
Total.....	35,153,187	100.0	21.24	1,131,867	0.84
Streams, gravity.....	32,977,096	93.8	21.08	1,075,560	0.79
Streams, pumped.....	283,444	0.8	19.06	8,033	1.58
Wells, pumped.....	8,250	(?)	28.95	176	34.76
Wells, flowing.....	1,000	(?)	6.25	90	1.67
Lakes, pumped.....	1,560	(?)	23.64	6	4.17
Lakes, gravity.....	143,000	0.4	16.26	3,655	12.97
Springs.....	51,670	0.1	6.92	4,883	0.71
Stored storm water.....	43,348	0.1	28.35	692	2.54
Sewage.....	2,100	(?)	30.00		
Streams, gravity and wells, pumped.....	1,600	(?)	11.43	137	0.52
Streams, gravity and wells, flowing.....	150	(?)	10.00		
Other mixed.....	1,594,984	4.5	29.38	35,781	0.86
Not reported.....	44,985	0.1	13.52	2,854	1.14

¹ Based on area irrigated in 1929 reporting cost.
² Less than one-tenth of 1 per cent.

STATE TABLE 12.—INVESTMENT, BY CHARACTER OF ENTERPRISE: 1930 AND 1920

CHARACTER OF ENTERPRISE (See definitions in Introduction)	Enterprises, 1930	INVESTMENT		INCREASE ¹	
		1930	1920	Amount	Per cent
		Dollars	Dollars	Dollars	
Total.....	2,631	35,153,187	34,326,328	826,859	2.4
Individual and partnership.....	2,431	5,410,053	8,738,886	-3,328,833	-38.1
Cooperative.....	176	4,786,271	6,701,990	-1,915,719	-28.6
Irrigation district.....	13	2,615,006	1,441,812	1,173,694	81.4
Carey Act.....	3	982,360	2,484,791	-1,452,431	-59.6
Commercial.....	3	2,299,870	780,562	1,519,308	194.6
United States Bureau of Indian Affairs.....	1	1,469,642	1,330,887	129,755	9.7
United States Bureau of Reclamation.....	4	17,589,985	12,863,870	4,726,115	36.7
State.....			15,050	-15,050	-100.0
City.....			9,980	-9,980	-100.0

¹ A minus sign (-) denotes decrease.

IRRIGATION—WYOMING

STATE TABLE 13.—INVESTMENT, BY DRAINAGE BASIN: 1930 AND 1920

DRAINAGE BASIN (See definitions in Introduction)	INVESTMENT		INCREASE ¹	
	1930	1920	Amount	Per cent
	Dollars	Dollars	Dollars	Per cent
Total	35,153,187	34,326,328	826,859	2.4
Missouri River drainage.....	31,313,543	29,818,230	1,495,307	5.0
Clark Fork (of Yellowstone) and tributaries.....	71,975	117,292	-45,317	-38.6
Clark Fork direct.....	64,100	55,402	8,698	15.7
Tributaries.....	7,875	61,890	-54,015	-87.3
Big Horn River and tributaries.....	17,389,656	14,830,800	2,558,856	21.3
Big Horn River direct.....	656,257	1,295,576	-639,319	-40.8
Pogo Agle River.....	235,333	349,546	-114,213	-32.7
Wind River.....	5,949,968	2,101,819	3,848,139	183.1
Owl Creek.....	110,235	52,915	57,320	108.3
No Wood Creek.....	162,731	161,588	1,143	0.7
Greybull River.....	413,845	503,184	-89,339	-17.8
Shell Creek.....	386,300	380,420	5,880	1.5
Shoshone River.....	9,285,642	8,702,480	583,162	6.7
Little Horn River.....	39,590	35,000	4,590	13.1
Other tributaries.....	149,765	748,272	-598,507	-80.0
Tongue River and tributaries.....	723,271	811,125	-87,854	-10.8
Tongue River direct.....	85,814	125,555	-39,741	-31.6
Goose Creek.....	584,689	563,518	21,121	3.7
Other tributaries.....	52,818	122,052	-69,234	-56.7
Powder River and tributaries.....	816,498	1,159,096	-342,598	-29.0
Powder River direct.....	100,000	152,100	7,900	5.2
Red Fork Creek.....	15,300	78,500	-63,200	-30.5
Crazy Woman Creek.....	23,850	127,791	-103,941	-81.3
Clear Creek.....	551,488	553,465	-1,977	-0.4
Other tributaries.....	65,800	248,140	-182,280	-73.4
Little Missouri River.....	3,100	76,006	-72,906	-95.9
Belle Fourche River.....	33,865	196,820	-132,955	-79.7
South Fork (Cheyenne River).....	3,104	10,565	-7,461	-70.0
Niobrara River.....	12,007,008	12,931,901	-924,893	-7.1
North Platte and tributaries.....	5,241,418	5,920,923	-679,505	-11.5
North Platte River direct.....	11,427	37,497	-26,070	-69.5
Beaver Creek.....	75,926	72,692	3,234	4.4
Grand Encampment Creek.....	62,781	184,290	-121,509	-66.0
Spring Creek.....	47,555	50,051	-2,496	-5.0
Pass Creek.....	434,825	346,004	88,821	25.4
Medicine Bow River.....	78,200	87,322	-9,122	-10.4
Sweetwater River.....	6,000	7,770	-1,770	-22.8
Muddy Creek.....	176,245	104,676	71,569	38.4
Box Elder Creek.....	331,825	327,411	4,414	1.3
La Poudre Creek.....	28,655	71,826	-43,171	-60.1
Labonte Creek.....	4,198,500	4,334,806	-136,306	-3.1
Laramie River and tributaries.....	3,385,291	923,041	2,462,220	72.8
Laramie River direct.....	273,861	48,753	225,108	461.7
Little Laramie River.....	24,935	65,041	-40,106	-61.7
Sybilie Creek.....	276,120	396,708	-120,588	-30.4
North Laramie River.....	118,648	83,155	35,493	42.7
Ohugwater Creek.....	119,675	2,818,198	-2,698,523	-88.3
Other tributaries.....	3,200	27,330	-24,130	-88.3
Rawhide Creek.....	627,600	530,475	97,125	17.0
Horse Creek.....	683,501	822,078	-138,577	-16.8
Other tributaries of North Platte.....	204,466	212,945	8,479	4.1
Tributaries of South Platte River.....	15,275	89,087	-73,812	-82.8
Lodgepole Creek.....	136,346	48,919	87,427	178.7
Crow Creek.....	105,570	36,173	69,397	191.8
Lone Tree Creek.....	7,275	38,816	-31,541	-81.2
Cache la Poudre River.....	2,121,930	3,064,797	-942,867	-30.8
Colorado River drainage.....	2,121,930	3,064,797	-942,867	-30.8
Green River and tributaries.....	190,463	170,841	19,622	11.5
Green River direct.....	538,415	293,043	245,372	82.0
New Fork.....	19,823	51,163	-31,340	-61.2
Horse Creek.....	29,641	456,827	-427,186	-83.5
Cottonwood Creek.....	7,830	85,728	-77,898	-26.2
South Piney Creek.....	29,900	39,150	-9,250	-26.2
La Barge Creek.....	12,000	35,000	-23,000	-61.8
Pontenelle Creek.....	6,445	98,158	-91,713	-93.1
Bitter Creek.....	208,495	566,778	-358,283	-63.2
Blacks Fork.....	117,750	177,520	-59,770	-44.5
Henrys Fork.....	110,950	274,302	-163,352	-69.6
Little Snake River.....	861,618	923,489	-61,871	-7.1
Other tributaries.....	201,574	679,405	-477,831	-70.3
Great Salt Lake drainage.....	201,574	679,405	-477,831	-70.3
Bear River and tributaries.....	84,424	294,688	-210,264	-71.3
Bear River direct.....	117,150	384,817	-267,667	-69.6
Tributaries.....	1,516,140	763,890	752,250	98.5
Columbia River drainage.....	1,516,140	763,890	752,250	98.5
Snake River tributaries.....	1,273,820	500,202	773,618	154.7
South Fork direct.....	16,475	31,225	-14,750	-47.2
Gros Ventre River.....	4,800	18,748	-13,948	-74.4
Little Gros Ventre River.....	111,868	140,207	-28,339	-25.4
Salt River.....	109,677	64,510	45,167	70.0
Other tributaries.....				

¹ A minus sign (-) denotes decrease.
² Includes \$2,440,000 reported in "Other tributaries" of Laramie River in 1920.
³ Includes several projects now in "Other tributaries" of Green River.

COST OF PREPARING LAND FOR IRRIGATION

State Table 14 shows estimated cost of clearing and grading land, building farm laterals, and farm irrigation structures.

STATE TABLE 14.—ESTIMATED COST OF PREPARING LAND, 1930

ITEM	1930
Area reporting.....	1,351,876 acres..
Estimated cost reported.....	18,501,921 dollars..
Average, per acre.....	13.69 dollars..

DRAINAGE OF IRRIGATED LAND

The areas in State Table 15 relate only to lands within the boundaries of irrigation enterprises. "Additional area needing drainage" represents lands partly productive and those wholly unproductive.

STATE TABLE 15.—AREA WITHIN IRRIGATION ENTERPRISES FOR WHICH DRAINS HAVE BEEN INSTALLED AND ADDITIONAL AREA IN NEED OF DRAINAGE: 1930 AND 1920

ITEM	1930	1920
Enterprises reporting land drained or needing drainage.....	88	144
Area ¹ in enterprises reporting land drained or needing drainage.....	592,041 acres..	513,347 acres..
Area for which drains have been installed.....	147,346 acres..	68,080 acres..
Additional area needing drainage.....	34,077 acres..	75,183 acres..
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises reporting drainage.....	24.0	13.3
Proportion that area for which drains have been installed is of area ¹ in all irrigation enterprises.....	7.5	2.7
Proportion that area for which drains have been installed plus that needing drainage is of area ¹ in all irrigation enterprises.....	9.3	5.0

¹ Irrigable area, 1930; total area, 1920.

QUANTITY OF WATER USED

The quantity of water used was reported on only part of the irrigation schedules, and all areas reporting "quantity of water entering canals" did not also report "quantity delivered to irrigators," hence, figures representing measurements and those representing estimates are shown separately in State Table 16. Some enterprises carry water to individual farms, but others only to community laterals. The "total quantity of water delivered" is the quantity reported in answer to the question preceded by the inquiry: "Average head of water delivered per individual irrigator."

STATE TABLE 16.—WATER USED: 1929 AND 1919

ITEM (See definitions in Introduction)	TOTAL		MEASURED		NOT MEASURED	
	1929	1919	1929	1919	1929	1919
Average flow of water entering canals.....	6,340	9,890	3,049	3,709	3,294	6,184
Area irrigated.....	333,634	454,615	208,781	228,539	174,853	228,076
Average, per second-foot.....	60	46	68	62	53	87
Total quantity of water entering canals.....	1,292,891	1,310,560	513,763	491,047	779,128	819,513
Area irrigated.....	403,534	545,265	183,323	230,729	220,211	314,536
Average quantity per acre.....	3.2	2.4	2.8	2.1	3.5	2.6
Total quantity of water delivered to irrigators.....	395,302	393,985	228,552	274,200	166,810	119,785
Area irrigated.....	160,266	180,328	111,685	128,021	48,581	58,807
Average quantity per acre.....	2.5	2.1	2.0	2.1	3.4	2.1

IRRIGATION—WYOMING

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929

ITEM (See definitions in Introduction)		THE STATE	Albany	Big Horn	Campbell	Carbon	Converse	Crook	Fronton 1
FARMS AND FARM OPERATORS									
1	All farms.....1930.....number.....	10,011	548	948	1,310	500	811	953	942
2	Irrigated farms.....1930.....number.....	7,308	327	863	2	368	171	13	833
3	Operated by—								
4	Owners and managers.....number.....	5,426	252	624	—	206	134	8	580
5	Tenants.....number.....	1,882	75	230	2	62	37	5	253
6	Irrigated farms.....1920.....number.....	6,440	280	952	8	313	157	21	827
7	Increase,* 1920-1930.....per cent.....	13.3	16.8	-9.3	-75.0	14.4	8.9	-38.1	—
FARM AREA AND TOTAL LAND AREA									
8	Approximate land area.....1930.....acres.....	2,430,720	2,815,360	1,990,400	3,047,040	5,124,480	2,645,120	1,834,240	5,004,000
9	Land in all farms.....1930.....acres.....	23,525,234	1,302,481	187,866	2,500,755	2,048,810	1,753,207	1,241,621	1,088,284
10	Land in irrigated farms.....1930.....acres.....	9,959,883	1,095,804	171,918	22,200	1,450,581	408,981	20,790	672,782
11	Average, per farm.....acres.....	1,302.9	3,351.1	190.2	11,130.0	4,008.7	2,391.7	2,000.8	807.7
12	Operated by owners and managers.....acres.....	8,807,734	874,881	126,034	—	1,272,542	350,854	17,930	612,171
13	Average, per farm.....acres.....	1,623.2	3,471.8	202.0	—	4,299.1	2,663.1	2,241.2	1,055.5
14	Operated by tenants.....acres.....	1,152,149	220,923	45,884	22,260	184,039	52,127	8,860	60,611
15	Average, per farm.....acres.....	612.2	2,045.0	192.0	11,130.0	2,968.4	1,408.8	1,772.0	239.0
16	Area irrigated.....1929.....acres.....	1,236,155	193,570	104,889	440	121,534	37,398	457	78,958
17	Increase,* 1919-1929.....per cent.....	1,207,682	114,248	108,754	1,066	121,593	30,821	951	115,067
18	Area enterprises were capable of supplying with water.....1930.....acres.....	1,655,008	182,829	145,783	440	152,789	43,503	632	151,600
19	Increase,* 1920-1930.....per cent.....	1,831,039	218,270	161,341	2,220	160,485	43,818	1,089	197,400
20	Increase,* 1920-1930.....per cent.....	-0.6	-16.2	-0.6	-80.2	1.6	-0.6	-62.0	—
21	Irrigable area in enterprises.....1930.....acres.....	1,958,147	218,800	170,163	440	155,885	40,400	657	265,225
22	Total area in enterprises.....1920.....acres.....	2,564,608	332,455	213,937	8,278	193,532	53,502	1,925	370,472
23	Area in enterprises available, or to be available, for settlement.....1930.....acres.....	164,361	19,517	7,788	—	160	—	—	98,240
IRRIGATION WORKS									
24	Enterprises.....1930.....number.....	4,267	232	115	3	270	83	8	208
25	Increase,* 1920-1930.....number.....	3,564	303	198	19	380	118	20	385
26	Main canals.....1930.....length, miles.....	8,043	834	481	—	749	371	5	681
27	Increase,* 1920-1930.....length, miles.....	9,517	781	594	20	1,065	360	30	1,148
28	Increase,* 1920-1930.....capacity, sec.-ft.....	35,811	4,893	2,715	—	2,441	746	5	4,959
29	Increase,* 1920-1930.....capacity, sec.-ft.....	30,009	4,669	2,904	109	3,057	2,259	350	4,323
30	Laterals.....1930.....length, miles.....	2,782	183	244	—	23	78	1	621
31	Increase,* 1920-1930.....length, miles.....	2,534	142	206	5	121	115	7	228
32	Reservoirs.....1930.....number.....	214	0	5	1	20	4	1	11
33	Increase,* 1920-1930.....number.....	374	30	12	14	25	10	13	31
34	Increase,* 1920-1930.....capacity, acre-ft.....	3,051,745	110,500	1,806	1	4,593	20,000	40	38,068
35	Increase,* 1920-1930.....capacity, acre-ft.....	2,911,748	132,114	2,293	2,438	10,336	20,798	56	6,314
36	Wells, flowing.....1930.....number.....	6	7	—	—	—	—	—	—
37	Increase,* 1920-1930.....number.....	7	—	—	—	—	—	—	—
38	Increase,* 1930.....capacity, g. p. m.....	2,205	—	—	—	—	1	—	—
39	Increase,* 1920-1930.....capacity, g. p. m.....	40	—	—	—	—	—	120	—
40	Wells, pumped.....1930.....number.....	11	—	—	—	—	40	—	—
41	Increase,* 1920-1930.....number.....	16	—	—	—	—	—	—	—
42	Increase,* 1930.....capacity, g. p. m.....	8,280	—	1	2	5	—	—	—
43	Increase,* 1920-1930.....capacity, g. p. m.....	8,020	—	900	2,005	—	180	—	—
44	Pumping plants.....1930.....number.....	61	1	—	—	3	—	—	—
45	Increase,* 1920-1930.....number.....	57	6	—	—	6	9	—	—
46	Increase,* 1930.....engine capacity, h. p.....	912	45	—	2	—	3	—	5
47	Increase,* 1920-1930.....engine capacity, h. p.....	1,304	202	—	82	51	400	—	—
48	Increase,* 1930.....pump capacity, g. p. m.....	86,905	1,000	—	—	3,850	44,620	23	82
49	Increase,* 1920-1930.....pump capacity, g. p. m.....	30,725	2,250	—	2,005	1,287	1,782	1,391	2,480
50	Increase,* 1930.....average lift, ft.....	21	12	—	—	18	—	—	—
51	Increase,* 1920-1930.....average lift, ft.....	31	14	—	70	17	35	13	90
VALUES OF FARMS, 1930									
52	Land and buildings, all farms.....dollars.....	206,852,171	9,406,270	7,661,065	12,408,033	11,807,609	11,193,254	9,758,695	7,905,985
53	Land and buildings, irrigated farms.....dollars.....	120,208,187	8,384,497	7,264,900	123,000	10,009,822	4,767,919	320,380	8,878,309
54	Operated by—								
55	Owners and managers.....dollars.....	97,153,418	6,828,549	5,445,350	—	8,074,902	4,115,424	211,092	5,325,759
56	Average, land and buildings, per farm.....dollars.....	23,054,769	1,505,948	1,819,550	123,000	1,334,950	642,495	100,288	1,552,610
57	Increase,* 1920-1930.....per acre.....dollars.....	10,448.85	25,487.76	8,418.19	81,500.00	27,900.48	27,824.00	24,644.62	8,257.94
58	Increase,* 1920-1930.....per acre.....dollars.....	12.07	7.60	42.28	5.52	6.87	11.03	11.96	10.22
59	Land (excluding buildings).....dollars.....	99,704,088	6,985,767	5,751,965	119,500	8,712,855	4,069,930	264,480	5,537,575
60	Buildings (including dwellings).....dollars.....	20,504,099	1,348,780	1,512,935	6,500	1,296,967	687,939	55,950	1,340,704
61	Implements and machinery, irrigated farms.....dollars.....	0,483,809	448,911	1,140,460	10,000	500,436	204,550	44,244	652,503
62	Average, per farm.....dollars.....	1,267.74	1,372.82	1,821.51	5,000.00	1,582.22	1,722.51	3,403.38	783.32
63	Increase,* 1920-1930.....per cent.....	0.95	0.41	6.63	0.45	0.30	0.72	1.65	0.97
INVESTMENT IN IRRIGATION ENTERPRISES									
64	Investment to Jan. 1, 1930.....dollars.....	85,153,157	3,480,280	3,734,074	5,300	831,209	915,028	3,100	6,209,771
65	Increase,* 1920-1930.....dollars.....	34,326,328	3,975,710	4,495,690	85,100	1,193,536	862,217	20,912	3,784,769
66	Increase,* 1920-1930.....per cent.....	2.4	-12.5	-16.9	-93.8	-80.4	0.1	-85.2	—
67	Average, per acre, based on area enterprises were capable of supplying with water, 1930.....dollars.....	21.24	19.04	25.81	12.04	5.44	21.03	4.90	41.38
68	Increase,* 1920-1930.....dollars.....	18.75	18.21	27.86	38.33	7.93	19.08	12.38	19.17
69	Estimated final investment in existing enterprises, 1930.....dollars.....	41,970,416	3,633,005	3,929,532	5,300	860,309	939,428	3,200	12,365,371
70	Increase,* 1920-1930.....dollars.....	51,500,288	3,998,180	6,104,440	88,100	1,263,535	914,807	20,912	11,646,044
71	Increase,* 1920-1930.....per cent.....	-18.5	-9.1	-35.6	-94.0	-31.4	2.7	-84.7	—
72	Average, per acre, based on estimated final investment and irrigable area, 1930.....dollars.....	21.43	16.60	23.09	12.04	5.52	20.25	4.87	46.02
73	Average, per acre, based on estimated final investment and total area, 1920.....dollars.....	20.08	12.03	23.53	26.88	6.48	17.07	10.86	31.44
COST OF MAINTENANCE AND OPERATION, 1929									
74	Irrigated area for which cost was reported.....acres.....	1,181,867	101,108	104,539	440	99,789	35,711	367	77,895
75	Average, per acre, based on area reporting.....dollars.....	0.84	0.33	1.07	0.45	0.62	1.15	1.84	1.33

1 Part taken to form part of Sublette in 1923.
 2 A minus sign (-) denotes decrease.
 3 Includes 1,002,720 acres in Yellowstone National Park (part of) not shown in detail.
 4 Includes 5 intercounty projects counted in this table as 11 independent enterprises; corresponding figures for 1920 not available. For actual number of enterprises see State Tables 4 and 12.

IRRIGATION—WYOMING

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COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)	Goshon	Hot Springs	Johnson	Laramie	Lincoln ¹	Natrona	Niobrara	Park ²
FARMS AND FARM OPERATORS								
1 All farms..... 1930..... number.....	1,487	229	536	908	666	389	727	688
2 Irrigated farms..... 1930..... number.....	654	171	237	64	534	119	3	652
3 Operated by—								
4 Owners and managers..... number.....	349	141	173	74	484	103	3	480
5 Tenants..... number.....	305	30	64	20	50	16	—	163
6 Irrigated farms..... 1920..... number.....	524	127	227	64	749	62	2	750
7 Increase, 1920-1930..... per cent.....	101.8	34.0	4.4	40.9	—	128.8	50.0	—
FARM AREA AND TOTAL LAND AREA								
7 Approximate land area..... 1930..... acres.....	1,399,040	1,290,000	2,064,900	1,713,920	2,705,280	3,400,080	1,000,500	3,310,480
8 Land in all farms..... 1930..... acres.....	1,082,004	275,085	1,229,248	1,044,740	417,202	1,133,104	1,221,741	471,900
9 Land in irrigated farms..... 1930..... acres.....	274,104	105,152	737,602	621,388	371,013	400,260	23,560	430,524
10 Average, per farm..... acres.....	410.2	1,141.2	3,112.2	6,610.5	694.8	4,195.5	7,850.0	669.5
11 Operated by owners and managers..... acres.....	204,601	174,000	653,261	545,721	340,180	478,675	23,550	402,013
12 Average, per farm..... acres.....	589.2	1,234.0	3,770.1	7,374.6	715.2	4,647.3	7,850.0	822.1
13 Operated by tenants..... acres.....	69,503	21,152	84,341	75,665	24,833	20,594	—	34,500
14 Average, per farm..... acres.....	223.2	705.1	1,317.8	3,783.2	496.7	1,287.1	—	211.7
15 Area irrigated..... 1920..... acres.....	87,842	21,675	30,437	23,383	73,050	14,667	397	81,202
16 Increase, 1919-1929..... per cent.....	55.481	16.443	63.383	24.165	108.428	10.385	759	77,527
17 Area enterprises were capable of supplying with water..... 1930..... acres.....	105,033	26,023	32,361	30,441	62,954	22,702	573	110,684
18 Increase, 1920-1930..... per cent.....	86.142	21.125	82.933	29.000	245.723	14.020	1,102	121,465
19 Irrigable area in enterprises..... 1930..... acres.....	108,251	27,570	34,633	34,176	67,973	24,462	773	110,895
20 Total area in enterprises..... 1920..... acres.....	138,452	23,393	67,830	60,590	288,057	21,018	1,427	180,710
21 Area in enterprises available, or to be available, for settlement..... 1930..... acres.....	424	200	—	—	—	300	—	11,132
IRRIGATION WORKS								
24 Enterprises..... 1930..... number.....	20	92	59	95	201	68	6	70
25 Increase, 1920-1930..... per cent.....	69	72	150	90	586	61	7	202
26 Main canals..... 1930..... length, miles.....	211	193	200	273	490	58	8	370
27 Increase, 1920-1930..... per cent.....	236	160	513	260	1,410	142	17	501
28 Capacity, 1930..... sec.-ft.....	2,370	529	783	566	1,374	145	9	2,074
29 Increase, 1920-1930..... per cent.....	1,803	431	1,724	618	5,200	238	161	2,068
30 Laterals..... 1930..... length, miles.....	399	25	61	20	33	—	1	410
31 Increase, 1920-1930..... per cent.....	195	19	113	18	308	14	—	348
32 Reservoirs..... 1930..... number.....	10	7	8	24	6	34	3	6
33 Increase, 1920-1930..... per cent.....	30	9	8	28	14	17	4	24
34 Capacity, 1930..... acre-ft.....	29,600	621	7,382	8,585	940	1,197,533	675	463,570
35 Increase, 1920-1930..... per cent.....	27,728	488	3,871	3,932	847,718	1,081,204	467	463,041
36 Wells, flowing..... 1930..... number.....	—	4	—	—	—	—	—	—
37 Increase, 1920-1930..... per cent.....	—	1,965	—	—	—	—	—	—
38 Capacity, 1930..... g. p. m.....	—	—	—	—	—	—	—	—
39 Increase, 1920-1930..... per cent.....	—	—	—	—	—	—	—	—
40 Wells, pumped..... 1930..... number.....	—	—	—	6	—	2	—	—
41 Increase, 1920-1930..... per cent.....	—	—	—	2	—	370	—	—
42 Capacity, 1930..... g. p. m.....	—	—	—	7,500	—	3,000	—	—
43 Increase, 1920-1930..... per cent.....	—	50	—	735	—	—	—	—
44 Pumping plants..... 1930..... number.....	4	2	6	—	—	18	—	—
45 Increase, 1920-1930..... per cent.....	6	3	2	—	—	4	—	—
46 Capacity, 1930..... h. p.....	48	30	100	—	—	132	—	—
47 Increase, 1920-1930..... per cent.....	58	49	20	—	—	105	—	—
48 Capacity, 1930..... g. p. m.....	3,240	6,500	7,800	—	—	10,880	—	—
49 Increase, 1920-1930..... per cent.....	4,020	1,100	735	—	—	8,850	—	—
50 Average lift, 1930..... ft.....	8	7	26	—	—	26	—	—
51 Increase, 1920-1930..... per cent.....	20	33	12	—	—	10	—	—
VALUES OF FARMS, 1930								
52 Land and buildings, all farms..... dollars.....	18,050,372	2,937,476	9,666,589	14,380,174	5,835,410	5,383,230	11,208,702	8,823,128
53 Land and buildings, irrigated farms..... dollars.....	8,388,037	2,333,709	7,322,538	4,226,374	5,284,627	3,197,201	310,000	3,576,190
54 Operated by—								
55 Owners and managers..... dollars.....	4,928,343	1,923,809	6,189,688	3,718,094	4,795,707	2,989,351	310,000	6,973,215
56 Tenants..... dollars.....	3,460,294	400,000	1,132,850	508,280	488,920	207,940	—	1,602,975
57 Average, land and buildings, per farm..... dollars.....	12,820.06	13,647.42	30,896.73	44,961.42	9,896.30	20,867.90	103,533.33	13,153.60
58 per acre..... dollars.....	30.59	11.96	0.93	6.80	14.24	6.40	13.19	10.65
59 Land (excluding buildings)..... dollars.....	7,119,307	1,913,034	6,381,183	3,570,017	4,271,977	2,627,835	270,000	6,636,081
60 Buildings (including dwellings)..... dollars.....	1,269,330	420,075	991,355	666,357	1,012,650	569,466	40,000	1,940,100
61 Implements and machinery, irrigated farms..... dollars.....	871,099	251,505	360,653	108,083	435,876	172,018	7,500	797,665
62 Average, per farm..... dollars.....	1,331.96	1,470.79	1,479.55	2,107.26	816.25	1,453.60	2,500.00	1,223.41
63 per acre..... dollars.....	3.18	1.29	0.48	0.32	1.17	0.35	0.32	1.83
INVESTMENT IN IRRIGATION ENTERPRISES								
64 Investment to Jan. 1, 1930..... dollars.....	5,499,544	181,315	453,210	403,223	327,399	234,067	4,829	6,642,442
65 Increase, 1920-1930..... per cent.....	3,680,421	141,450	861,860	267,853	1,694,382	2,207,139	23,195	5,640,280
66 Average, per acre, based on area enterprises were capable of supplying with water, 1930..... dollars.....	52.36	6.97	14.16	13.25	3.52	10.35	8.35	56.99
67 Increase, 1920-1930..... per cent.....	43.28	6.70	10.39	8.93	()	()	21.05	46.44
68 Estimated final investment in existing enterprises, 1930..... dollars.....	5,505,344	191,515	453,610	405,226	332,799	238,442	4,829	6,758,356
69 Increase, 1920-1930..... per cent.....	6,696,902	146,450	878,638	268,853	1,741,382	2,208,139	27,170	6,862,433
70 Average, per acre, based on estimated final investment and irrigable area, 1930..... dollars.....	50.86	6.95	13.24	11.86	3.40	0.75	6.21	56.37
71 Average, per acre, based on estimated final investment and total area, 1920..... dollars.....	47.65	6.28	8.98	5.31	()	()	19.04	54.57
COST OF MAINTENANCE AND OPERATION, 1929								
72 Irrigated area for which cost was reported..... acres.....	86,342	19,990	30,079	15,472	66,817	7,286	343	78,402
73 Average, per acre, based on area reporting..... dollars.....	1.23	0.46	0.94	1.46	0.35	0.85	3.13	0.88

¹ Parts taken to form Teton and part of Sublette in 1923.
² Part annexed to Yellowstone National Park, and part of Yellowstone National Park annexed in 1929.
³ A minus sign (—) denotes decrease.
⁴ Average not shown because part of land served by storage works lies in another State.

IRRIGATION—WYOMING

COUNTY TABLE.—FARMS, AREA, INVESTMENT IN IRRIGATION ENTERPRISES, AND IRRIGATION WORKS, 1930 AND 1920; AREAS IRRIGATED, 1929 AND 1919; TENURE OF FARM OPERATORS AND VALUE OF FARMS, 1930; AND COST OF MAINTENANCE AND OPERATION, 1929—Continued

ITEM (See definitions in Introduction)		Platte	Sheridan	Sublette ¹	Sweet-water	Teton ²	Uinta	Washakie	Weston
FARMS AND FARM OPERATORS									
1	All farms..... 1930..... number.....	1, 148	926	292	268	280	435	320	616
2	Irrigated farms..... 1930..... number.....	485	465	202	173	207	376	285	24
3	Operated by—								
4	Owners and managers..... number.....	304	286	235	151	184	337	200	19
5	Tenants..... number.....	181	179	27	22	23	30	85	5
6	Irrigated farms..... 1920..... number.....	404	420	—	90	—	359	275	42
	Increase, ³ 1920-1930..... per cent.....	20.0	10.7	—	92.2	—	4.7	3.6	-42.8
FARM AREA AND TOTAL LAND AREA									
7	Approximate land area..... 1930..... acres.....	1, 300, 000	1, 647, 360	3, 173, 760	6, 716, 800	1, 788, 800	1, 340, 160	1, 434, 240	1, 537, 920
8	Land in all farms..... 1930..... acres.....	1, 487, 504	989, 560	418, 823	1, 244, 571	94, 695	375, 419	256, 285	999, 730
9	Land in irrigated farms..... 1930..... acres.....	936, 432	496, 125	393, 200	421, 657	78, 565	333, 526	171, 402	115, 110
10	Average, per farm..... acres.....	1, 930.8	1, 086.9	1, 500.8	2, 437.3	379.5	887.0	601.6	4, 796.2
11	Operated by owners and managers..... acres.....	805, 769	412, 875	370, 603	415, 784	72, 657	319, 258	152, 220	110, 150
12	Average, per farm..... acres.....	2, 847.9	1, 443.6	1, 577.0	2, 753.5	304.9	947.4	761.1	5, 797.4
13	Operated by tenants..... acres.....	70, 663	83, 250	22, 597	5, 873	5, 908	14, 268	19, 242	4, 960
14	Average, per farm..... acres.....	390.4	465.1	836.9	297.0	256.9	365.8	226.4	992.0
15	Area irrigated..... 1929..... acres.....	67, 346	70, 435	125, 744	19, 756	18, 652	86, 122	39, 661	2, 953
16	1919..... acres.....	66, 753	68, 311	—	14, 010	—	102, 695	41, 179	6, 263
17	Increase, ³ 1919-1929..... per cent.....	0.9	3.1	—	41.0	—	-16.1	-3.7	-52.8
18	Area enterprises were capable of supplying with water..... 1930..... acres.....	91, 032	75, 096	161, 138	43, 685	26, 282	101, 567	48, 332	3, 574
19	1920..... acres.....	108, 639	90, 198	—	40, 805	—	148, 563	50, 597	8, 618
20	Increase, ³ 1920-1930..... per cent.....	-16.2	-6.7	—	-6.7	—	-31.6	-4.4	-58.5
21	Irrigable area in enterprises..... 1930..... acres.....	110, 123	77, 938	198, 287	51, 705	32, 673	115, 614	53, 747	6, 752
22	Total area in enterprises..... 1920..... acres.....	131, 362	108, 667	—	57, 591	—	222, 643	60, 349	12, 542
23	Area in enterprises available, or to be available, for settlement..... 1930..... acres.....	21, 431	—	1, 260	1, 290	1, 340	950	200	69
IRRIGATION WORKS									
24	Enterprises..... 1930..... number.....	143	102	287	93	140	183	94	17
25	1920..... number.....	178	203	—	82	—	308	70	54
26	Main canals..... 1930..... length, miles.....	285	429	1, 130	204	201	623	202	31
27	1920..... length, miles.....	451	603	—	212	—	701	189	100
28	1930..... capacity, sec.-ft.....	1, 091	1, 306	5, 277	550	757	1, 028	424	63
29	1920..... capacity, sec.-ft.....	1, 869	2, 189	—	606	—	2, 474	559	699
30	Laterals..... 1930..... length, miles.....	31	112	240	61	47	90	10	5
31	1920..... length, miles.....	289	106	—	51	—	116	35	88
32	Reservoirs..... 1930..... number.....	14	13	6	11	3	6	9	3
33	1920..... number.....	24	26	—	26	—	9	2	16
34	1930..... capacity, acre-ft.....	203, 768	45, 290	32, 128	23, 530	847, 687	2, 008	1, 204	1, 930
35	1920..... capacity, acre-ft.....	270, 895	11, 252	—	19, 505	—	2, 864	60	3, 724
36	Wells, flowing..... 1930..... number.....	—	—	—	1	—	—	—	—
37	1920..... number.....	—	—	—	2	—	—	—	—
38	1930..... capacity, g. p. m.....	—	—	—	120	—	—	—	—
39	1920..... capacity, g. p. m.....	—	—	—	6	—	—	—	—
40	Wells, pumped..... 1930..... number.....	—	—	—	3	—	—	—	—
41	1920..... number.....	—	—	—	—	—	—	—	—
42	1930..... capacity, g. p. m.....	—	—	—	410	—	—	—	—
43	1920..... capacity, g. p. m.....	—	—	—	—	—	—	—	—
44	Pumping plants..... 1930..... number.....	7	1	1	8	—	—	—	1
45	1920..... number.....	8	4	—	3	—	—	1	1
46	1930..... engine capacity, h. p.....	34	22	2	32	—	—	—	16
47	1920..... engine capacity, h. p.....	72	373	—	44	—	—	26	16
48	1930..... pump capacity, g. p. m.....	3, 646	435	500	3, 334	—	—	—	1, 100
49	1920..... pump capacity, g. p. m.....	5, 120	4, 900	—	1, 505	—	—	1, 200	1, 100
50	1930..... average lift, ft.....	22	8	5	21	—	—	—	12
51	1920..... average lift, ft.....	21	42	—	39	—	—	68	10
VALUES OF FARMS, 1930									
52	Land and buildings, all farms..... dollars.....	14, 334, 845	10, 532, 185	5, 462, 034	3, 588, 716	3, 989, 072	5, 102, 562	5, 221, 653	6, 104, 267
53	Land and buildings, irrigated farms..... dollars.....	9, 278, 121	12, 433, 011	5, 268, 739	2, 258, 611	3, 257, 327	4, 830, 822	4, 867, 453	685, 220
54	Operated by—								
55	Owners and managers..... dollars.....	6, 824, 464	9, 047, 904	4, 890, 189	2, 037, 431	3, 038, 947	4, 506, 012	3, 776, 368	602, 220
56	Tenants..... dollars.....	2, 453, 657	3, 385, 107	378, 550	218, 180	324, 810	1, 091, 085	859, 662	83, 000
57	Average, land and buildings, per farm..... dollars.....	19, 130.15	26, 737.66	20, 109.69	13, 055.55	15, 735.88	12, 847.93	17, 078.78	28, 550.83
58	Land (excluding buildings)..... dollars.....	9.91	25.06	13.40	5.36	41.48	14.48	28.39	5.96
59	Buildings (including dwellings)..... dollars.....	7, 668, 054	10, 119, 215	4, 572, 914	1, 810, 134	2, 589, 927	4, 107, 165	3, 983, 453	584, 170
60	1, 620, 067	2, 313, 796	895, 825	348, 477	667, 400	723, 657	884, 000	101, 050	
61	Implements and machinery, irrigated farms..... dollars.....	706, 062	710, 664	379, 107	211, 825	244, 194	269, 701	549, 788	50, 125
62	Average, per farm..... dollars.....	1, 641.36	1, 528.31	1, 446.97	1, 224.42	1, 179.68	797.08	1, 929.08	2, 088.54
	per acre..... dollars.....	0.85	1.43	0.96	0.50	3.11	0.80	3.21	0.44
INVESTMENT IN IRRIGATION ENTERPRISES									
63	Investment to Jan. 1, 1930..... dollars.....	989, 310	1, 099, 049	949, 868	790, 190	1, 381, 282	280, 955	640, 099	31, 740
64	1920..... dollars.....	1, 042, 905	1, 096, 497	—	892, 577	—	729, 204	859, 662	170, 920
65	Increase, ³ 1920-1930..... per cent.....	-39.8	0.2	—	-11.5	—	-61.5	-25.5	-81.4
66	Average, per acre, based on area enterprises were capable of supplying with water, 1930..... dollars.....	10.87	14.64	5.89	18.09	(⁴)	2.77	13.23	8.88
67	1920..... dollars.....	15.12	12.16	—	19.07	—	4.01	16.99	19.55
68	Estimated final investment in existing enterprises, 1930..... dollars.....	1, 036, 400	1, 149, 149	981, 868	802, 946	1, 384, 483	288, 355	655, 099	40, 740
69	1920..... dollars.....	1, 907, 605	1, 040, 167	—	910, 727	—	744, 344	921, 952	219, 560
70	Increase, ³ 1920-1930..... per cent.....	-45.7	10.5	—	-11.8	—	-61.3	-28.9	-81.4
71	Average, per acre, based on estimated final investment and irrigable area, 1930..... dollars.....	8.92	14.74	4.95	16.53	(⁴)	2.49	12.19	6.03
72	Average, per acre, based on estimated final investment and total area, 1920..... dollars.....	14.52	9.57	—	16.81	—	3.34	15.28	17.51
COST OF MAINTENANCE AND OPERATION, 1929									
73	Irrigated area for which cost was reported..... acres.....	59, 044	68, 036	124, 774	19, 394	16, 848	77, 075	38, 879	2, 737
74	Average, per acre, based on area reporting..... dollars.....	1.41	1.38	0.32	1.66	0.36	0.18	1.92	0.91

¹ Organized from parts of Fremont and Lincoln in 1923.

² Organized from part of Lincoln in 1923.

³ A minus sign (-) denotes decrease.

⁴ The excess of farm acreage over approximate land area is due to the fact that the entire acreage of a farm is tabulated as in the county in which the headquarters are located, even though a part of the farm may be situated in an adjoining county.

⁵ Average not shown because part of land served by storage works lies in another State.