

Alberta Irrigation Information 2019



Irrigation Districts

AID – Aetna Irrigation District
BRID – Bow River Irrigation District
EID – Eastern Irrigation District
LID – Leavitt Irrigation District
LNID – Lethbridge Northern Irrigation District
MID – Magrath Irrigation District
MVID – Mountain View Irrigation District
RID – Raymond Irrigation District
RCID – Ross Creek Irrigation District
SMRID – St. Mary River Irrigation District
TID – Taber Irrigation District
UID – United Irrigation District
WID – Western Irrigation District

Unit Conversion

Imperial to Metric

1 acre = 0.405 ha
1 ac-ft = 1233.480 m³
1 ac-ft = 1.233 dam³
1 inch = 25.4 mm
1 mile = 1.609 km

Metric to Imperial

1 ha = 2.471 acres
1 m³ = 0.00081 ac-ft³
1 dam³ = 0.8107 ac-ft³
1 mm = 0.0394 inches
1 km = 0.6214 miles

Other

1 m³ = 1000 L³
1 dam³ = 1000 m³
1 dam³ = 1 megalitre³
1 km = 1000 m

Alberta Agriculture and Forestry, Government of Alberta

September 2020

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The purpose of this booklet is to provide a statistical overview of irrigation information and data relating primarily to the thirteen irrigation districts situated in Alberta, but also includes information about irrigation across the whole province. The majority of the annual data is provided by the irrigation districts.

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Table 1. Details of Crops Grown within the 13 Irrigation Districts

CROP TYPE		AID			BRID			EID			LID			LNID		
		acres covered by an irrigation system		acres with no irrigation system	acres covered by an irrigation system		acres with no irrigation system	acres covered by an irrigation system		acres with no irrigation system	acres covered by an irrigation system		acres with no irrigation system	acres covered by an irrigation system		acres with no irrigation system
		Irrigated this year	Not irrigated this year		Irrigated this year	Not irrigated this year		Irrigated this year	Not irrigated this year		Irrigated this year	Not irrigated this year		Irrigated this year	Not irrigated this year	
CEREALS	Barley	475	991		18,456			17,065			150	16		18,162		
	CPS Wheat				1,683			1,074						505		
	Durum Wheat				12,488			1,864						9,351		
	Grain Corn				3,476			8,378								
	Hard Spring Wheat				59,490			59,630						2,998		
	Malt Barley				639											
	Miscellaneous Cereals													2,370		
	Oats				906			2,245			30			553		
	Rye				511			312								
	Soft Wheat				3,625			1,340						9,325		
	Triticale				936			3,433			60			1,481		
Winter Wheat				3,061			1,364									
FORAGES	Alfalfa - Two cuts							30,052								
	Alfalfa - Three cuts							7,181								
	Alfalfa Hay	1,345	550		13,590			5,637			663	75		10,973		
	Alfalfa Silage				131			1,234						18,524		
	Barley Silage				2,319			3,172						32,621		
	Barley Silage (underseeded)							167								
	Brome Hay													402		
	Corn Silage				8,508			20,563						28,146		
	Custom Variety Forage/Misc							286						76		
	Grass Hay		6		7,289			13,998			466	330		6,313		
	Green Feed	202	89		772			8,132			69					
	Native Pasture	14			145			1,177			100			244		
	Oats Silage															
	Sorghum/Sudan Grass							64								
	Tame Pasture	388	428		9,002			35,960			1,393	30		3,978		
Timothy Hay							5,238			705			5,039			
Triticale Silage																
OIL SEEDS	Canola		107		17,171			19,315						26,160		
	Flax				2,921			5,027						858		
	Mustard															
SPECIALTY CROPS	Alfalfa Seed				10,536			18,056								
	Canola Seed				12,750			9,847								
	Carrots							366								
	Catnip															
	Chick Peas				262											
	Dill							250								
	Dry Beans				18,134			3,499								
	Dry Peas				14,499			6,696						814		
	Faba Beans				305			1,405								
	Fresh Corn (sweet)															
	Fresh Peas				378			80								
	Grass Seed							105								
	Hemp				2,477			799						1,941		
	Lawn Turf				3			35						821		
	Lentils				140			289								
	Market Gardens				13			140						48		
	Mint				504			125								
	Nursery							408						7		
	Onions															
	Potatoes				11,987			5,404						1,346		
	Pumpkins															
Seed Potatoes							136									
Small Fruit																
Soybeans				412			327									
Sugar Beets				10,523			1,617						2,410			
Sunflower				606			1,281									
Yellow Peas																
OTHER	Miscellaneous	44	65		608			282			228	717		5,292		
	Non Crop							146								
	Summer Fallow				494			658								
	Unknown															
Total acres		2,468	2,236	0	251,750	0	0	304,773	1,086	0	3,863	1,168	0	190,758	0	0
		4,704			251,750			305,750			5,031			190,758		

Table 1. Details of Crops Grown within the 13 Irrigation Districts

CROP TYPE		MID			MVID			RCID			RID			SMRID		
		acres covered by an irrigation system		acres with no irrigation system	acres covered by an irrigation system		acres with no irrigation system	acres covered by an irrigation system		acres with no irrigation system	acres covered by an irrigation system		acres with no irrigation system	acres covered by an irrigation system		acres with no irrigation system
		Irrigated this year	Not irrigated this year		Irrigated this year	Not irrigated this year		Irrigated this year	Not irrigated this year		Irrigated this year	Not irrigated this year		Irrigated this year	Not irrigated this year	
CEREALS	Barley	1,404	145		214					6,731	400		23,859	67	1,333	
	CPS Wheat									2,696	224		5,712	53	103	
	Durum Wheat	555								1,040	62		25,063	367	468	
	Grain Corn												9,503		168	
	Hard Spring Wheat	4,170	238		125					2,354	141		57,646	129	2,386	
	Malt Barley									455	27					
	Miscellaneous Cereals															
	Oats					16				131	40		621		15	
	Rye									445	26		1,762			
	Soft Wheat									1,040	62		5,998	21	120	
	Triticale									246	14		725		10	
	Winter Wheat	279	215		54					681	40		10,037		837	
FORAGES	Alfalfa - Two cuts									10,021	380		16,638	176	1,097	
	Alfalfa - Three cuts									1,475	88		6,745			
	Alfalfa Hay	6,498	374		1,053	525		781					9,088	25	650	
	Alfalfa Silage									30			328		85	
	Barley Silage	332								2,421	145		6,856	65	411	
	Barley Silage (underseeded)												611			
	Brome Hay												212		32	
	Corn Silage				88					3,161	189		24,977		587	
	Custom Variety Forage/Misc												107		3	
	Grass Hay	328			181	247				446	26		8,817	312	1,863	
	Green Feed	155	25		99	100				421	25		7,924	13	191	
	Native Pasture									319	19		4,202	568	236	
	Oats Silage									205	12					
	Sorghum/Sudan Grass												193	43	5	
	Tame Pasture	1,390	200		718	175				2,142	128		7,631	392	1,235	
Timothy Hay				68					1,151	70		7,299		523		
Triticale Silage									260	15		259				
OIL SEEDS	Canola	1,360	214					116		5,945	356		29,550	143	657	
	Flax	129								393	23		6,280		89	
	Mustard												64			
SPECIALTY CROPS	Alfalfa Seed												3,179			
	Canola Seed									320	19		13,119		30	
	Carrots												74			
	Catnip												533			
	Chick Peas												1,310	149	25	
	Dill												357			
	Dry Beans												29,253		398	
	Dry Peas	40								569	34		11,122	65	229	
	Faba Beans												158		18	
	Fresh Corn (sweet)												624			
	Fresh Peas												809		1	
	Grass Seed	239											886		108	
	Hemp		20							314			5,227		72	
	Lawn Turf												115			
	Lentils												1,492		142	
	Market Gardens									33			800	16	26	
	Mint												4,922		5	
	Nursery									43			445		7	
	Onions												8			
	Potatoes												19,812	130	62	
	Pumpkins															
Seed Potatoes												44				
Small Fruit												67				
Soybeans												693				
Sugar Beets												10,327	65	111		
Sunflower												201		81		
Yellow Peas												1,981				
OTHER	Miscellaneous									42			1,665	48	866	
	Non Crop												52	202	460	
	Summer Fallow		20										154	40	1,183	
	Unknown															
Total acres		16,879	1,451	0	2,600	1,063	0	897	0	0	45,530	2,565	0	388,135	3,088	16,92
		18,330			3,663			897			48,095			408,147		

Table 1. Details of Crops Grown within the 13 Irrigation Districts

CROP TYPE		TID			UID			WID			ALL DISTRICTS			TOTAL ACRES (for all districts)
		acres covered by an irrigation system		acres with no irrigation system	acres covered by an irrigation system		acres with no irrigation system	acres covered by an irrigation system		acres with no irrigation system	acres covered by an irrigation system		acres with no irrigation system	
		Irrigated this year	Not irrigated this year		Irrigated this year	Not irrigated this year		Irrigated this year	Not irrigated this year		Irrigated this year	Not irrigated this year		
CEREALS	Barley	3,871	26		5,033			5,281	1,216		100,702	2,861	1,333	104,896
	CPS Wheat							1,766	100		13,436	377	103	13,916
	Durum Wheat	1,374	35								51,735	464	468	52,667
	Grain Corn	1,338									25,693	0	168	22,863
	Hard Spring Wheat	16,475	105		3,945			11,058	898		214,894	1,511	2,386	221,788
	Malt Barley				298			799			2,191	27	0	2,218
	Miscellaneous Cereals										2,370	0	0	2,370
	Oats	295	30					821			5,601	86	15	5,701
	Rye							329			3,359	26	0	3,385
	Soft Wheat	1,637	40					2,268			25,233	123	120	25,476
Triticale										6,881	14	10	6,905	
Winter Wheat	879			1,171						17,527	255	837	18,619	
FORAGES	Alfalfa - Two cuts	243	64		3,913			12,435	1,617		73,302	2,237	1,097	76,637
	Alfalfa - Three cuts	2,171	185		1,544						19,116	273	0	19,389
	Alfalfa Hay	4,288	30		260			605	30		54,780	1,609	650	57,039
	Alfalfa Silage	81						110			20,438	0	85	20,523
	Barley Silage	809	148		1,590			4,101	243		54,220	601	411	55,233
	Barley Silage (underseeded)	115			12			265			1,170	0	0	1,170
	Brome Hay							70			684	0	32	716
	Corn Silage	6,680			109			969			93,201	189	587	93,978
	Custom Variety Forage/Misc							2,466	310		3,116	557	3	3,248
	Grass Hay	512	131		1,112			523	248		39,903	1,153	1,863	43,148
	Green Feed	1,059	58		509			596	50		19,937	360	191	20,488
	Native Pasture	18	327		2,661			1,662	470		10,542	1,384	236	12,162
	Oats Silage							409	125		614	137	0	751
	Sorghum/Sudan Grass	10									267	43	5	315
	Tame Pasture	2,916	912		2,061			4,045	473		71,624	2,738	1,235	75,597
Timothy Hay	3,491			1,826			958			25,775	70	523	26,367	
Triticale Silage										519	15	0	534	
OIL SEEDS	Canola	1,992			7,672			9,067	184		118,347	1,004	657	120,008
	Flax	380						130			16,118	23	89	16,230
	Mustard										64	0	0	64
SPECIALTY CROPS	Alfalfa Seed	65									31,836	0	0	31,836
	Canola Seed	2,932									38,968	19	30	39,017
	Carrots							194			634	0	0	634
	Catnip										533	0	0	533
	Chick Peas										1,572	149	25	1,745
	Dill										607	0	0	607
	Dry Beans	4,688									55,574	0	398	55,972
	Dry Peas	459	10		701			2,271	302		37,172	411	229	37,811
	Faba Beans							170			2,038	0	18	2,056
	Fresh Corn (sweet)	1,843	66					130			2,597	66	0	2,663
	Fresh Peas	2,488						170			3,925	0	1	3,926
	Grass Seed							40			1,270	0	108	1,378
	Hemp	43									10,801	20	72	10,892
	Lawn Turf	84						1,195			2,253	0	0	2,253
	Lentils										1,921	0	142	2,063
	Market Gardens	33	10		3						1,070	26	26	1,122
	Mint										5,551	0	5	5,556
	Nursery	12						1,167	417		2,082	417	7	2,506
	Onions	781									789	0	0	789
	Potatoes	11,241	244		5			160			49,955	374	62	50,392
	Pumpkins	88									88	0	0	88
	Seed Potatoes	216						448			844	0	0	844
Small Fruit							60	60		127	60	0	187	
Soybeans	130									1,562	0	0	1,562	
Sugar Beets	4,908									29,785	65	111	29,961	
Sunflower	678									2,766	0	81	2,847	
Yellow Peas										1,981	0	0	1,981	
OTHER	Miscellaneous	113	71		116			180			8,288	1,183	866	10,336
	Non Crop	132	10		77			6,533	3,486		6,794	3,844	460	11,097
	Summer Fallow	40									688	718	1,183	2,590
	Unknown							10,252			10,252	0	0	10,252
Total acres		81,608	2,502	0	34,618	0	0	83,703	10,229	0	1,407,681	25,487	16,924	1,449,894
		84,110			34,618			93,932			1,449,894			

Table 2. Crop Types Grown within the 13 Irrigation Districts

CROP TYPE	IRRIGATION DISTRICTS													TOTAL ACRES
	AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID	
CEREALS	1,466	105,271	96,705	255	44,745	7,006	409	0	16,855	147,004	26,105	10,448	24,536	480,805
	31.2%	41.8%	31.6%	5.1%	23.5%	38.2%	11.2%	0.0%	35.0%	36.0%	31.0%	30.2%	26.1%	33.2%
FORAGES	3,022	41,756	132,861	3,831	106,316	9,302	3,253	781	23,149	110,397	24,248	15,597	32,780	507,293
	64.2%	16.6%	43.4%	76.1%	55.7%	50.7%	88.8%	87.1%	48.1%	27.0%	28.8%	45.1%	34.9%	35.0%
OIL SEEDS	107	20,092	24,342	0	27,018	1,703	0	116	6,717	36,782	2,372	7,672	9,381	136,302
	2.3%	8.0%	8.0%	0.0%	14.2%	9.3%	0.0%	12.9%	14.0%	9.0%	2.8%	22.2%	10.0%	9.4%
SPECIALTY CROPS	0	83,529	50,865	0	7,387	299	0	0	1,332	109,295	31,019	709	6,784	291,219
	0.0%	33.2%	16.6%	0.0%	3.9%	1.6%	0.0%	0.0%	2.8%	26.8%	36.9%	2.0%	7.2%	20.1%
OTHER *	109	1,102	1,086	945	5,292	20	0	0	42	4,669	366	193	20,451	34,275
	2.3%	0.4%	0.4%	18.8%	2.8%	0.1%	0.0%	0.0%	0.1%	1.1%	0.4%	0.6%	21.8%	2.4%
TOTAL	4,704	251,750	305,859	5,031	190,758	18,330	3,663	897	48,095	408,147	84,110	34,618	93,932	1,449,894

Note: *Other includes miscellaneous, non crop, summer fallow and unknown crops. AID and LID data is from 2016

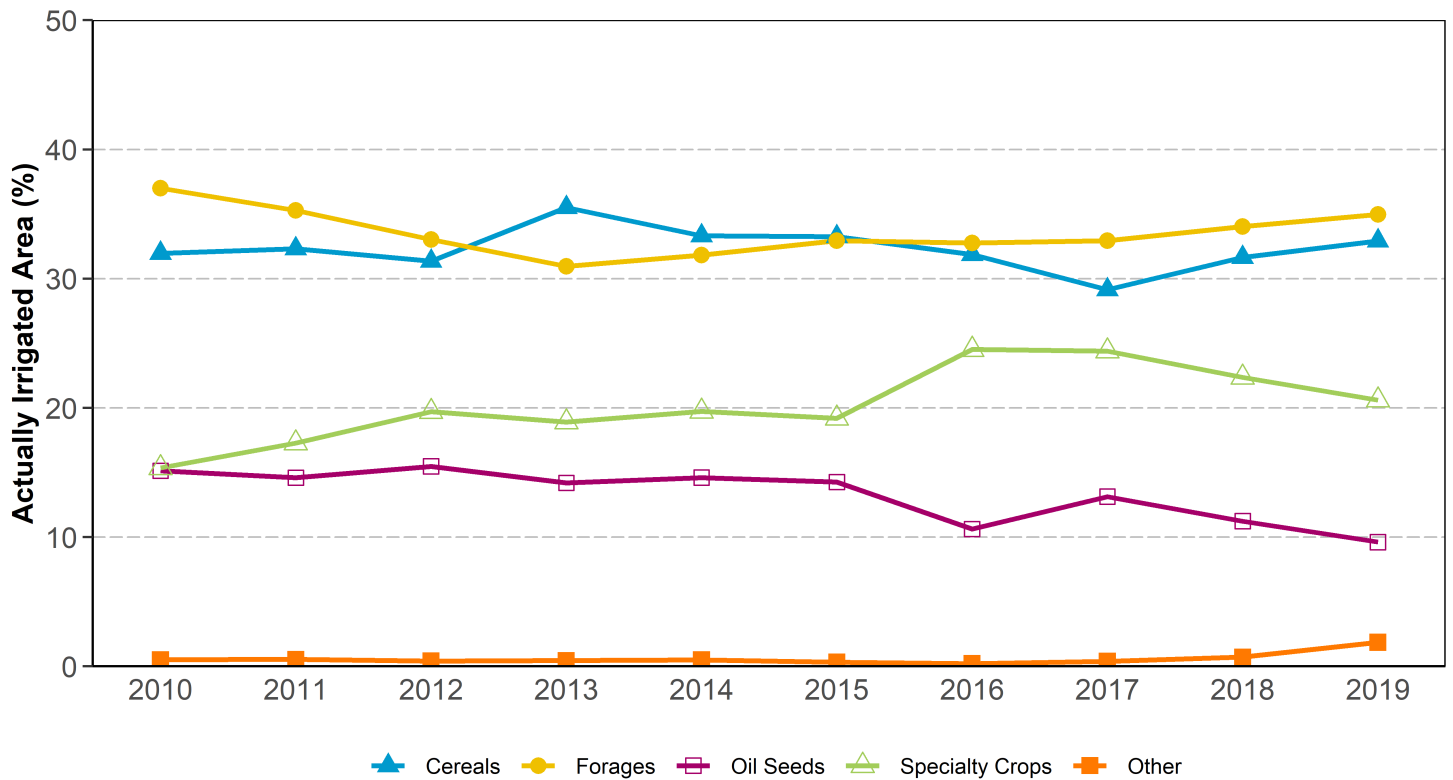


Figure 1. Irrigated Crop Types Within the 13 Irrigation Districts

Note: Starting in 2011, acreage data for canola seed (canola grown for seed production) was moved from the oil seeds category to the specialty crop category.

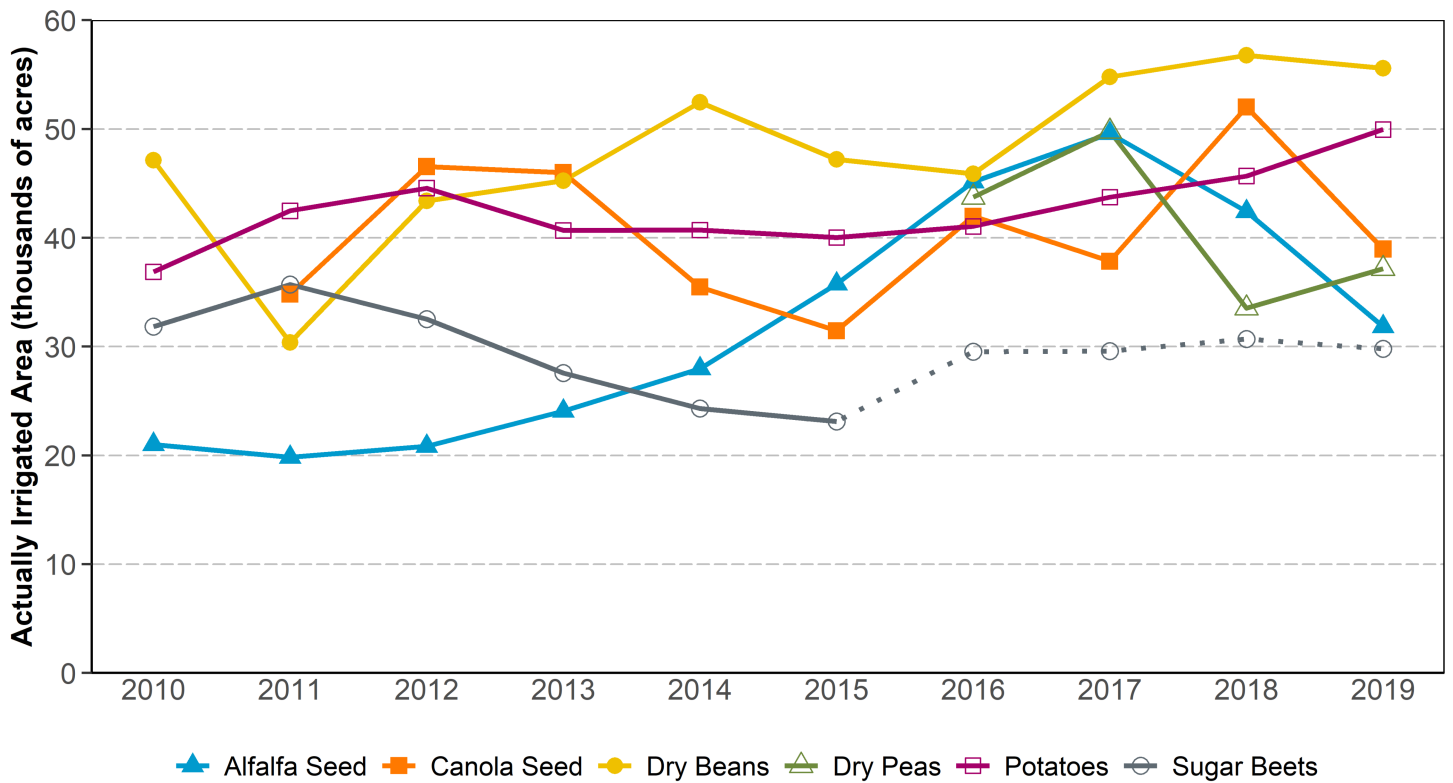


Figure 2. Acres of Five Major Irrigation Specialty Crops within 13 Irrigation Districts

Note: Starting in 2011, acreage data for canola seed (canola grown for seed production) was moved from the oil seeds category to the specialty crop category. In 2016, dry peas surpassed sugar beets in the five major irrigated specialty crops in acreage.

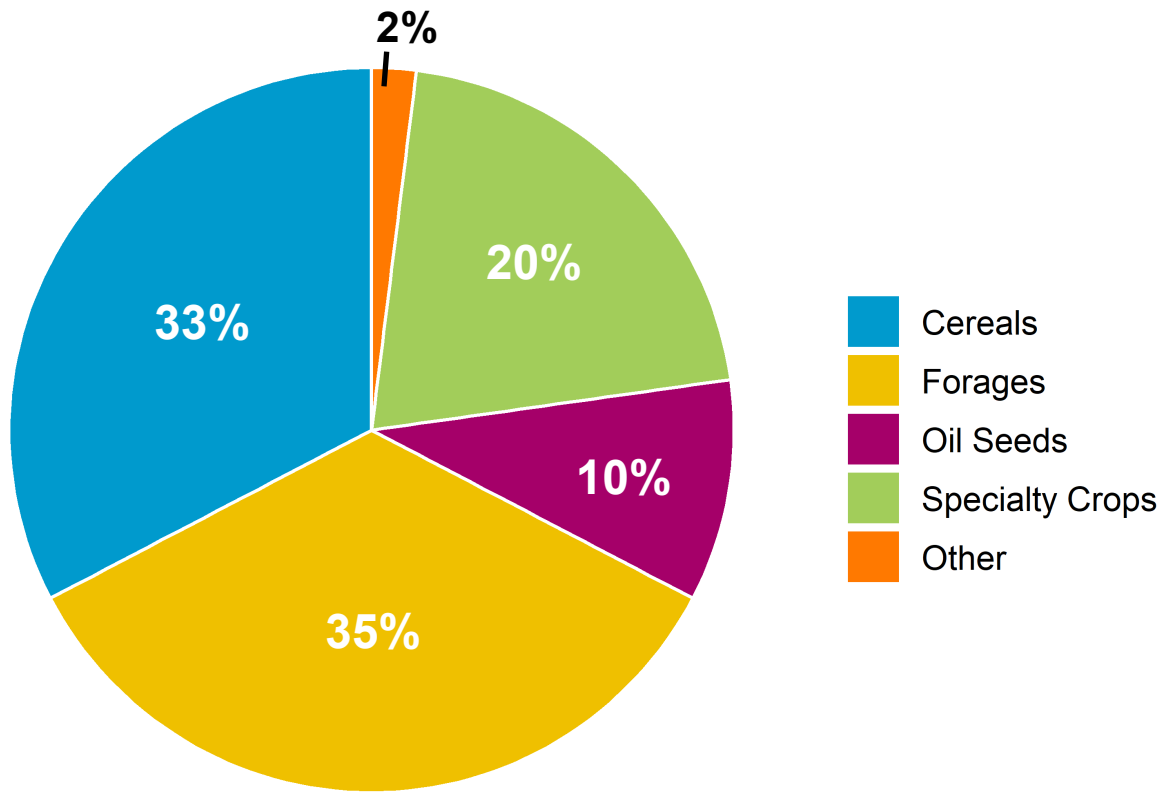


Figure 3. Crop Types within the 13 Irrigation Districts (% of area)

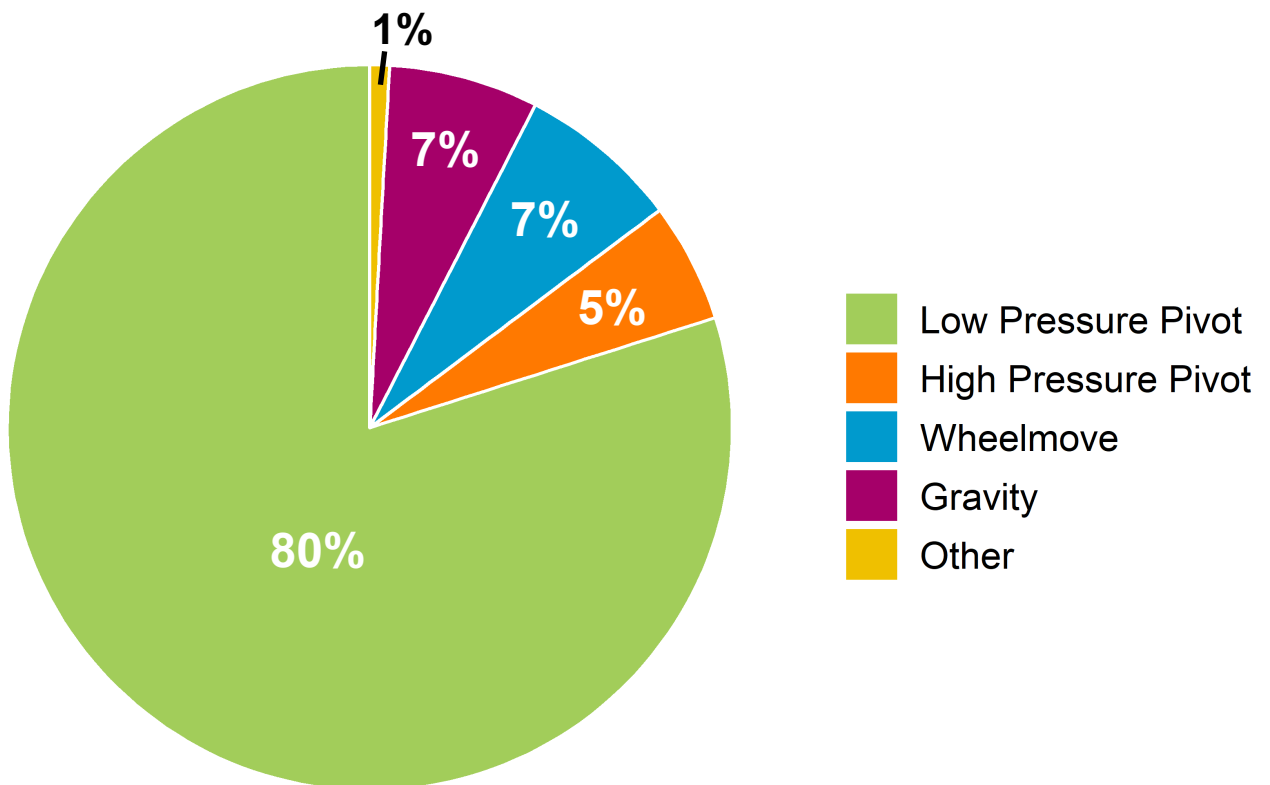
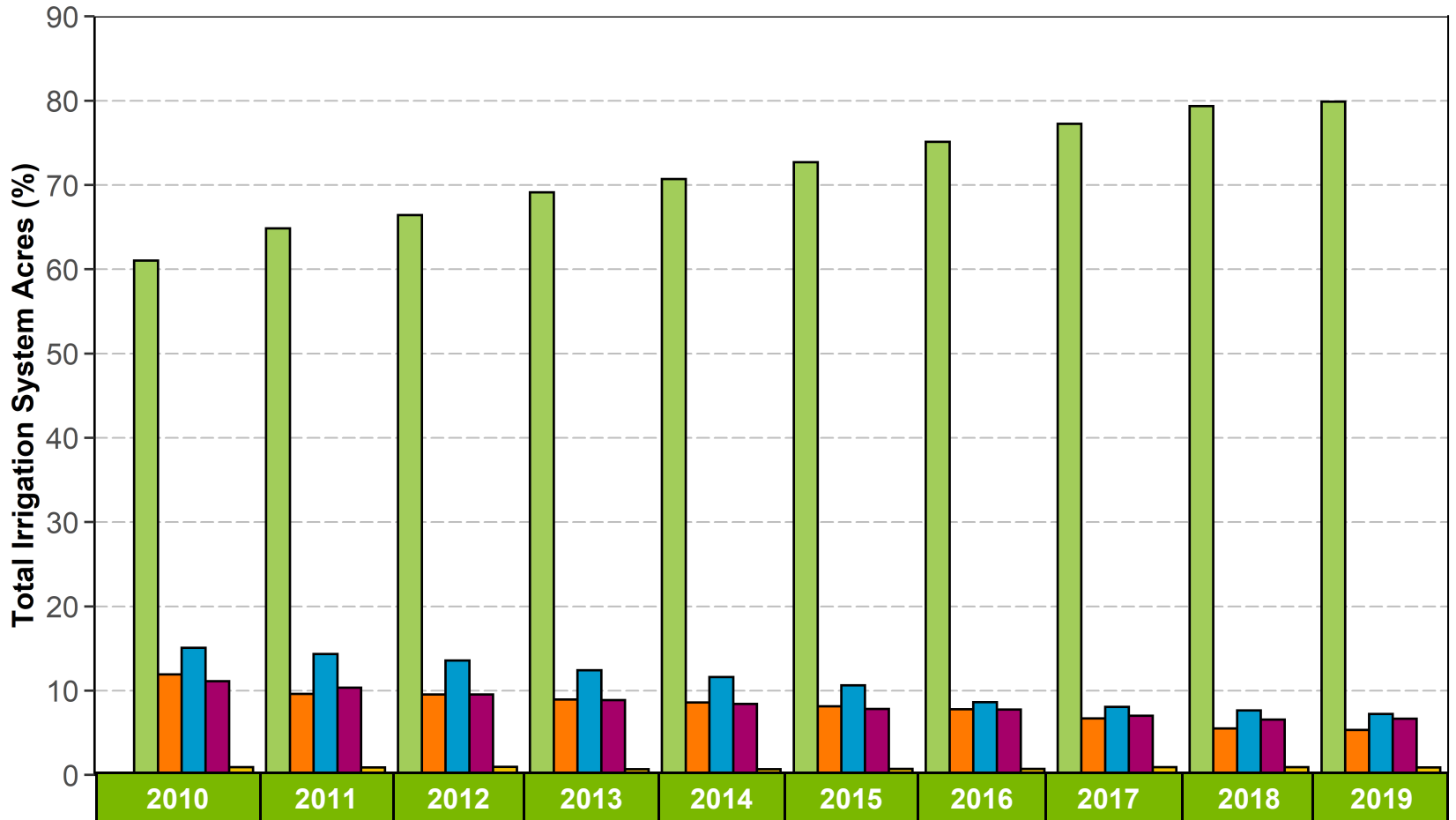


Figure 4. On-farm Irrigation Methods within the 13 Irrigation Districts (% of area)

Table 3. On-farm Irrigation Method Acres within 13 Irrigation Districts

IRRIGATION METHOD		AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID	Individual Method Total	Total Acres Covered
LOW PRESSURE PIVOT	Pivot Low Pressure	1,099	150,159	193,854	411	72,723	8,343		604	27,485	293,841	44,034	18,511	57,422	868,485	1,139,291
	Pivot Low Pressure - Corner Arm		66,951	17,112		92,461	140			2,226	50,570	21,425	1,191	3,845	255,921	
	Linear - Low Pressure		56	1,708		375				392	1,247	232	70	423	4,503	
	Pivot Medium Pressure		731	4,411						681	3,361				9,183	
	Pivot Medium Pressure - Corner Arm		448	252							500				1,200	
	Percent of total ----	23.4%	86.8%	71.2%	8.2%	86.8%	46.3%	0.0%	66.8%	67.8%	89.3%	78.0%	57.7%	68.1%		79.9%
HIGH PRESSURE PIVOT	Pivot High Pressure		15,889	24,509	761		2,186	832	67	1,196	7,763	8,167	419	5,849	67,638	76,115
	Pivot High Pressure - Corner arm		2,272	2,573							1,457	1,087		130	7,519	
	Linear - High Pressure			217						65		84		592	958	
	Percent of total ----	0.0%	7.2%	8.9%	15.1%	0.0%	11.9%	22.7%	7.4%	2.8%	2.4%	11.1%	1.2%	7.2%		
WHEEL MOVE	Wheel Move - One and Two Laterals	1,822	3,939	11,438	1,323	9,816	4,537	336	226	7,978	22,009	6,756	1,436	8,236	79,851	102,824
	Wheel Move - Three and Four Laterals		1,553	3,262	194	11,099				1,460	2,495	472	270	2,168	22,973	
	Percent of total ----	38.7%	2.2%	4.8%	30.2%	11.0%	24.8%	9.2%	25.0%	20.8%	6.3%	8.6%	5.0%	11.5%		
GRAVITY	Gravity - Developed		7,972	35,819		578	2,905			2,209	904	755	1,420	245	52,806	95,258
	Gravity - Undeveloped	277	1,480	9,350	1,747	563		2,494	7	1,491	5,333	994	10,615	8,102	42,452	
	Percent of total ----	5.9%	3.8%	14.8%	34.8%	0.6%	15.8%	68.1%	0.8%	8.1%	1.6%	2.1%	35.1%	9.2%		
OTHER	Volume Gun - Stationary										152	37		74	263	12,399
	Volume Gun - Traveller		25	207		150					29	22		480	913	
	Solid Set (underground sprinkler)	140		8		691	25			30	254			614	1,762	
	Hand Move (sprinkler above ground)	1,366	101	468	591	858	174			166	929	69	158	344	5,224	
	Micro - Spray - Sprinkler					135				51	39	90	22	51	388	
	Micro - Drip - Trickle					158	20			7	264		135	2,075	2,659	
	Other Application Use					1,113					77				1,190	
	Percent of total ----	32.0%	0.1%	0.2%	11.8%	1.6%	1.2%	0.0%	0.0%	0.6%	0.4%	0.3%	0.9%	4.0%		0.9%
Total Acres Covered		4,704	251,576	305,188	5,027	190,718	18,330	3,662	904	45,435	391,223	84,224	34,246	90,650	1,425,887	1,425,887

Note: Information for RCID is for 2014 irrigation season. Information for AID and LID is for 2016 irrigation season.



		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
A C R E S	Low Pressure Pivot	802,173	856,707	879,651	923,391	957,117	991,859	1,038,024	1,072,113	1,115,693	1,139,291
	High Pressure Pivot	156,784	126,864	126,430	119,449	116,436	110,733	107,761	93,052	77,393	76,115
	Wheel move	198,043	189,410	179,837	165,561	157,056	145,124	118,962	112,091	107,193	102,824
	Gravity	145,879	136,709	126,217	118,307	114,122	106,764	107,129	97,421	92,329	95,258
	Other	11,826	11,626	12,444	8,785	8,941	9,698	9,731	12,807	13,067	12,399

Figure 5. On-farm Irrigation Methods within the 13 Irrigation Districts

Table 4. Acres on the Assessment Roll within the 13 Irrigation Districts

YEAR	AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID	TOTAL
1981	3,096	174,641	230,553	4,457	113,845	10,963	3,710	1,776	35,385	299,548	70,819	33,417	79,633	1,061,843
1982	3,127	179,613	239,651	4,423	114,919	11,647	3,710	1,716	39,130	301,446	71,529	33,383	81,864	1,086,158
1983	2,916	181,174	244,099	4,440	116,745	12,357	3,710	1,776	39,148	313,728	72,623	33,448	81,480	1,107,644
1984	3,051	183,529	244,243	4,440	117,869	13,047	3,710	1,776	41,729	319,712	72,971	33,534	82,974	1,122,585
1985	3,399	185,034	246,658	4,460	118,883	14,218	3,710	1,319	44,990	328,063	73,063	33,854	84,245	1,141,896
1986	3,444	189,202	247,804	4,460	126,307	14,579	3,690	1,210	44,950	331,493	73,314	34,336	83,924	1,158,713
1987	3,444	190,263	249,372	4,479	128,867	14,885	3,690	1,210	44,407	334,285	73,654	34,450	85,405	1,168,411
1988	3,435	192,424	252,432	4,709	131,565	15,030	3,690	1,210	44,196	339,091	73,602	34,615	86,198	1,182,197
1989	3,500	194,977	256,353	4,729	133,620	15,569	3,700	1,210	44,144	342,451	74,898	34,818	87,242	1,197,211
1990	3,500	199,980	260,523	4,742	135,632	15,099	3,728	1,210	44,044	349,849	74,568	34,769	88,480	1,216,124
1991	3,527	201,070	263,889	4,762	137,719	16,665	3,728	1,210	44,305	350,108	77,740	34,687	88,112	1,227,522
1992	3,519	202,499	269,462	4,800	139,688	16,391	3,734	1,210	44,279	351,393	78,177	34,868	87,949	1,237,969
1993	3,519	204,466	270,008	4,780	138,095	16,775	3,737	1,210	44,229	353,039	78,412	34,772	87,453	1,240,495
1994	3,519	205,983	272,024	4,780	141,517	16,785	3,727	1,210	44,219	353,466	78,629	34,438	86,725	1,247,022
1995	3,519	207,652	273,848	4,780	143,608	17,908	3,727	1,210	43,678	356,618	78,676	34,428	86,942	1,256,594
1996	3,519	209,560	276,405	4,760	147,241	18,169	3,727	1,210	44,315	358,399	79,069	34,506	87,258	1,268,138
1997	3,519	209,686	279,966	4,760	150,843	18,300	3,713	1,210	44,810	360,659	79,788	34,353	86,284	1,277,891
1998	3,519	210,690	280,573	4,769	153,365	18,300	3,722	1,210	45,533	360,780	80,455	34,352	86,771	1,284,039
1999	3,609	211,152	281,107	4,769	154,886	18,300	3,722	1,210	45,751	367,161	81,984	34,352	88,131	1,296,134
2000	3,609	210,352	281,720	4,763	157,825	18,300	3,722	1,210	45,888	369,771	82,257	34,329	87,236	1,300,982
2001	3,611	209,927	281,710	4,763	163,878	18,300	3,712	1,210	46,235	370,925	82,261	34,329	87,924	1,308,785
2002	3,611	214,279	282,516	4,763	163,870	18,300	3,712	1,210	46,304	371,319	82,284	34,423	96,512	1,323,103
2003	3,611	214,585	282,961	4,763	164,288	18,320	3,712	1,210	46,304	372,114	82,562	34,423	96,646	1,325,499
2004	3,611	216,533	283,625	4,763	175,568	18,320	3,712	1,210	46,296	372,979	82,515	34,093	96,535	1,339,760
2005	3,608	219,733	283,706	4,763	175,628	18,320	3,561	1,210	46,296	372,619	82,533	34,081	96,415	1,342,473
2006	3,608	221,677	284,074	4,763	175,636	18,320	3,561	1,101	46,306	372,618	82,527	34,025	96,100	1,344,316
2007	3,699	231,713	284,419	5,205	175,913	18,300	3,654	1,101	46,306	372,996	82,804	34,044	96,091	1,356,245
2008	3,699	233,869	285,086	5,126	176,069	18,300	3,700	1,101	46,293	373,162	82,600	34,069	96,079	1,359,153
2009	3,699	233,438	294,612	4,706	176,201	18,300	3,700	1,101	46,303	373,092	82,569	34,325	96,045	1,368,091
2010	4,389	233,925	290,429	4,793	176,282	18,300	3,700	1,101	46,302	373,018	82,728	34,370	95,628	1,364,965
2011	4,390	234,014	294,373	4,848	176,187	18,300	3,617	1,101	46,302	374,408	82,773	34,382	95,754	1,370,449
2012	4,376	234,327	294,620	4,840	177,593	18,300	3,616	1,101	46,402	373,835	82,750	34,382	95,788	1,371,930
2013	4,376	241,604	296,619	4,853	179,014	18,300	3,698	1,101	46,500	380,371	82,822	34,393	95,776	1,389,427
2014	4,511	254,909	297,884	4,876	179,719	18,300	3,698	1,101	46,500	388,039	83,263	34,395	95,641	1,412,836
2015	4,607	258,114	298,763	4,898	180,007	18,300	3,711	1,101	46,500	390,497	83,584	34,391	95,516	1,419,989
2016	4,705	259,792	299,762	5,031	182,716	18,300	3,733	1,101	46,500	393,034	84,045	34,383	95,475	1,428,577
2017	4,705	260,008	301,428	5,031	184,831	18,300	3,647	1,091	46,500	395,991	84,431	34,386	95,320	1,435,669
2018	4,714	260,659	303,652	5,266	187,984	18,300	3,647	1,091	46,500	402,014	85,620	34,310	95,964	1,449,721
2019	4,699	270,823	305,477	5,360	191,546	18,300	3,647	1,091	48,095	408,147	88,385	34,654	96,082	1,476,306

Notes: Assessment roll acres include "irrigation", "terminable" and "annual" acres. Only "irrigation" and "terminable" acres are considered in district expansion limits. In 2019, irrigation districts reported 16,314 annual acres.

Table 5. Acres Actually Irrigated within the 13 Irrigation Districts

YEAR	AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID	TOTAL
1981	2,500	140,300	216,200	4,476	90,552	8,650	2,783	0	19,462	259,564	66,206	15,064	28,389	854,146
1982	1,200	152,144	216,620	3,000	104,533	8,500	3,154	650	25,169	268,916	67,305	10,054	41,996	903,241
1983	1,200	168,461	231,125	3,000	108,141	9,000	3,154	650	28,055	288,969	68,474	12,734	46,638	969,601
1984	1,200	173,334	238,000	3,000	102,301	10,200	3,154	600	34,728	300,071	69,847	12,313	46,638	995,386
1985	2,933	174,087	244,763	3,664	114,635	13,000	3,184	700	36,286	305,560	70,133	12,620	49,666	1,031,231
1986	2,933	174,903	246,916	3,600	113,663	13,000	3,184	700	36,008	307,875	69,928	13,146	48,000	1,033,856
1987	2,200	178,482	245,514	4,076	119,562	12,400	3,321	700	36,008	305,964	69,413	12,526	46,984	1,037,150
1988	2,500	173,400	241,494	3,900	124,555	13,436	3,100	500	36,496	316,223	69,581	14,536	52,950	1,052,671
1989	1,962	181,106	249,623	3,900	127,330	13,555	2,000	0	35,766	323,400	70,278	11,693	52,153	1,072,766
1990	2,446	183,147	253,261	4,500	127,439	14,000	2,500	0	36,911	338,274	73,329	11,523	49,000	1,096,330
1991	2,473	182,932	246,083	4,200	130,989	15,000	2,880	650	32,847	319,745	73,169	11,548	48,300	1,070,816
1992	2,519	182,543	256,342	4,200	131,305	15,240	2,880	0	36,788	324,477	74,229	15,499	43,889	1,089,911
1993	0	184,463	259,778	0	67,565	0	0	0	0	262,718	66,158	0	40,007	880,689
1994	1,940	187,247	259,942	4,200	133,803	11,425	3,277	734	36,291	330,949	73,949	14,255	47,335	1,105,347
1995	765	192,328	263,576	1,000	100,589	3,250	3,300	643	16,473	289,173	72,108	5,035	39,130	987,370
1996	2,145	196,055	271,075	4,277	143,147	14,341	3,355	734	39,662	339,098	74,766	14,135	68,710	1,171,500
1997	2,476	197,904	274,880	4,600	145,061	13,479	3,600	794	39,484	342,234	76,083	19,205	62,448	1,182,248
1998	1,930	198,197	274,942	4,600	122,379	11,189	3,228	1,055	32,259	342,758	76,872	17,276	67,643	1,154,328
1999	1,870	198,060	277,723	4,735	145,782	14,723	3,510	1,210	38,966	355,988	79,166	17,407	51,032	1,190,172
2000	2,361	199,873	278,956	4,763	154,300	15,427	3,510	0	42,062	352,372	79,206	19,741	64,414	1,216,985
2001	3,155	201,859	279,354	4,763	160,657	17,520	3,510	0	39,326	339,666	76,653	21,708	71,158	1,219,329
2002	2,422	202,807	281,070	4,763	162,624	14,717	3,510	1,149	37,221	342,053	76,245	20,364	75,635	1,224,580
2003	2,386	202,974	280,624	4,763	162,779	15,579	3,510	1,194	42,210	351,257	76,884	22,660	67,540	1,234,360
2004	2,386	203,007	283,625	4,763	175,406	14,489	3,510	800	38,461	353,085	76,277	21,735	54,666	1,232,210
2005	2,361	192,899	282,267	4,763	175,206	13,044	3,510	800	36,611	346,596	77,522	20,780	56,186	1,212,544
2006	2,361	198,111	280,753	4,763	175,184	13,232	3,510	0	41,156	335,269	76,765	22,771	43,136	1,197,011
2007	2,361	201,286	284,419	4,763	174,673	14,676	3,509	600	42,573	345,935	77,068	22,021	40,716	1,214,600
2008	2,361	206,283	280,691	4,763	175,886	13,420	3,509	0	38,617	352,564	77,132	21,735	48,126	1,225,087
2009	2,361	211,577	285,191	4,706	174,487	14,866	3,500	800	40,174	352,104	77,571	23,383	64,196	1,254,915
2010	150	182,483	235,371	0	174,518	5,688	500	374	17,481	340,078	72,989	17,333	48,700	1,095,665
2011	2,961	202,478	294,569	4,714	175,683	12,774	500	770	37,163	346,079	75,048	21,003	42,270	1,216,012
2012	2,797	208,217	294,748	4,625	177,593	14,175	535	878	39,560	338,439	76,775	22,655	52,483	1,233,480
2013	3,285	217,417	295,923	1,736	178,697	14,386	608	770	39,839	338,588	76,002	22,708	49,791	1,239,750
2014	1,611	224,952	297,015	1,736	179,296	14,305	1,801	897	37,511	362,254	75,838	21,044	60,587	1,278,847
2015	1,611	228,480	297,930	1,736	179,625	16,182	1,746	897	43,378	370,590	77,123	34,391	67,800	1,321,489
2016	2,467	226,492	299,336	3,863	182,160	16,387	1,746	897	43,743	374,554	77,801	22,757	65,735	1,317,938
2017	2,467	242,150	301,309	3,863	184,565	16,423	2,089	897	45,183	377,047	77,996	34,099	68,131	1,356,219
2018	2,468	239,295	303,673	3,863	187,269	16,120	2,517	897	46,968	381,529	78,797	34,310	75,473	1,373,179
2019	2,468	251,750	304,773	3,863	190,758	16,879	2,600	897	45,530	388,136	81,608	34,618	83,703	1,407,583

Table 6. Private Water Licences for Irrigation

There are 2,910 individual irrigation projects, outside of the 13 irrigation districts, irrigating approximately 312,384 acres in Alberta. These projects vary in size from 1 acre to over several thousand acres of agricultural or horticultural production. Each of these projects is licensed to an individual, a group of producers or to private or public lands (ie. golf courses or parks). The licencing is regulated by Alberta Environment and Parks.

RIVER BASIN	TOTAL ACRES IRRIGATED	NO. OF LICENCES 1 TO 100 AC.	NO. OF LICENCES 101 TO 300 AC.	NO. OF LICENCES OVER 300 AC.	TOTAL NO. OF LICENCES
ATHABASCA RIVER	1,985	43	6	0	49
MILK RIVER	18,875	99	43	14	156
NORTH SASKATCHEWAN RIVER	27,089	311	56	15	382
PEACE RIVER	3,791	65	9	1	75
SOUTH SASKATCHEWAN RIVER	260,644	1,606	505	137	2,248
Sub-Basin					
- Bow River	25,697	149	59	18	226
- Little Bow River	33,592	125	73	26	224
- Oldman River (Lower)	17,752	30	28	14	72
- Oldman River (Upper)	7,479	60	20	4	84
- Red Deer River	46,277	419	94	18	531
- South Saskatchewan River	46,857	528	81	23	632
- Waterton / Belly / St. Mary Rivers	50,266	137	71	17	225
- Willow Creek	32,724	158	79	17	254
TOTAL	312,384	2,124	619	167	2,910

Note: - Oldman (upper) reach is defined as upstream of the Belly River confluence
 - Oldman (lower) reach is defined as downstream of the Belly River confluence
 - 25,000 acres from the Waterton / Belly / St. Mary Rivers category is for the Blood Tribe Agricultural Project
 - Does not include irrigation licences issued to irrigation districts in southern Alberta
 - Licence authorization as of January 2019 obtained from Alberta Environment and Parks

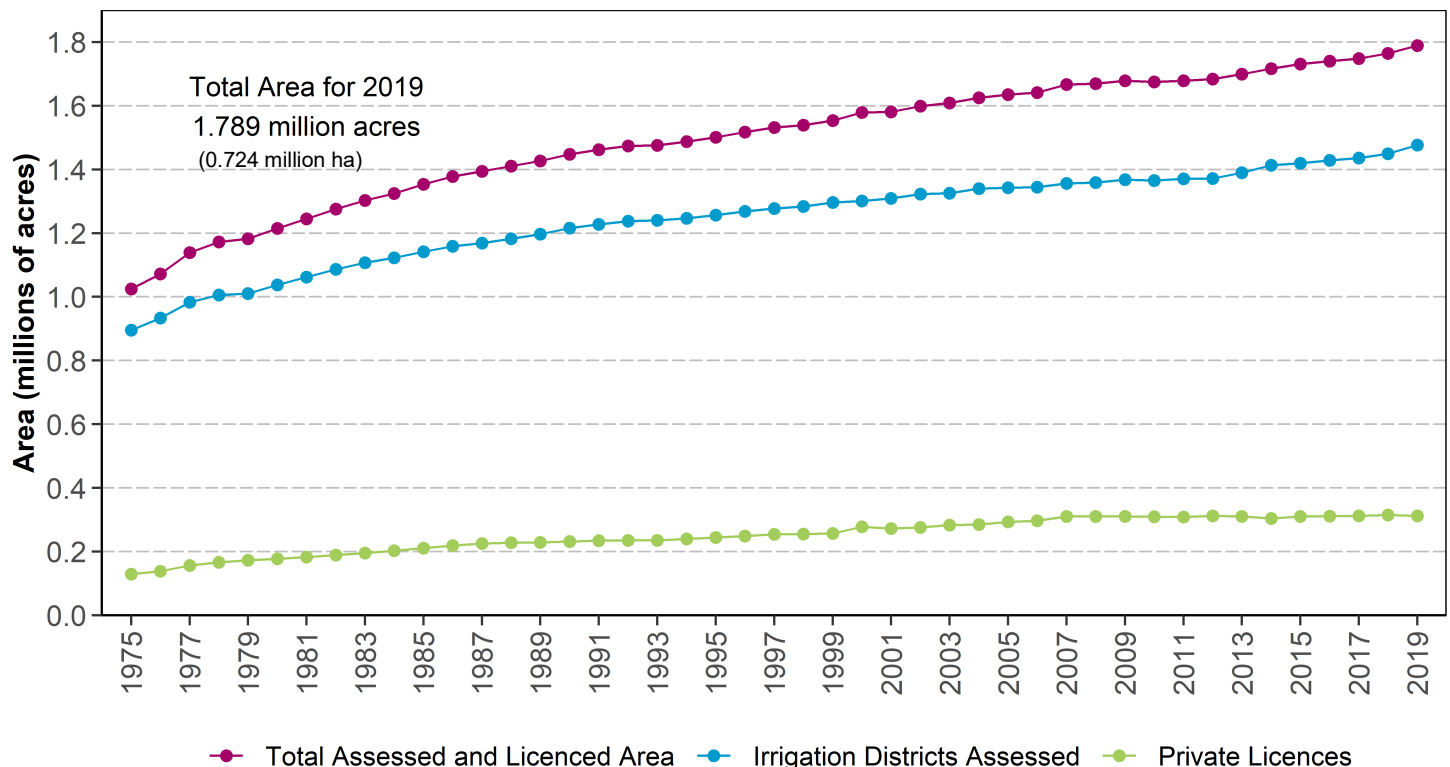


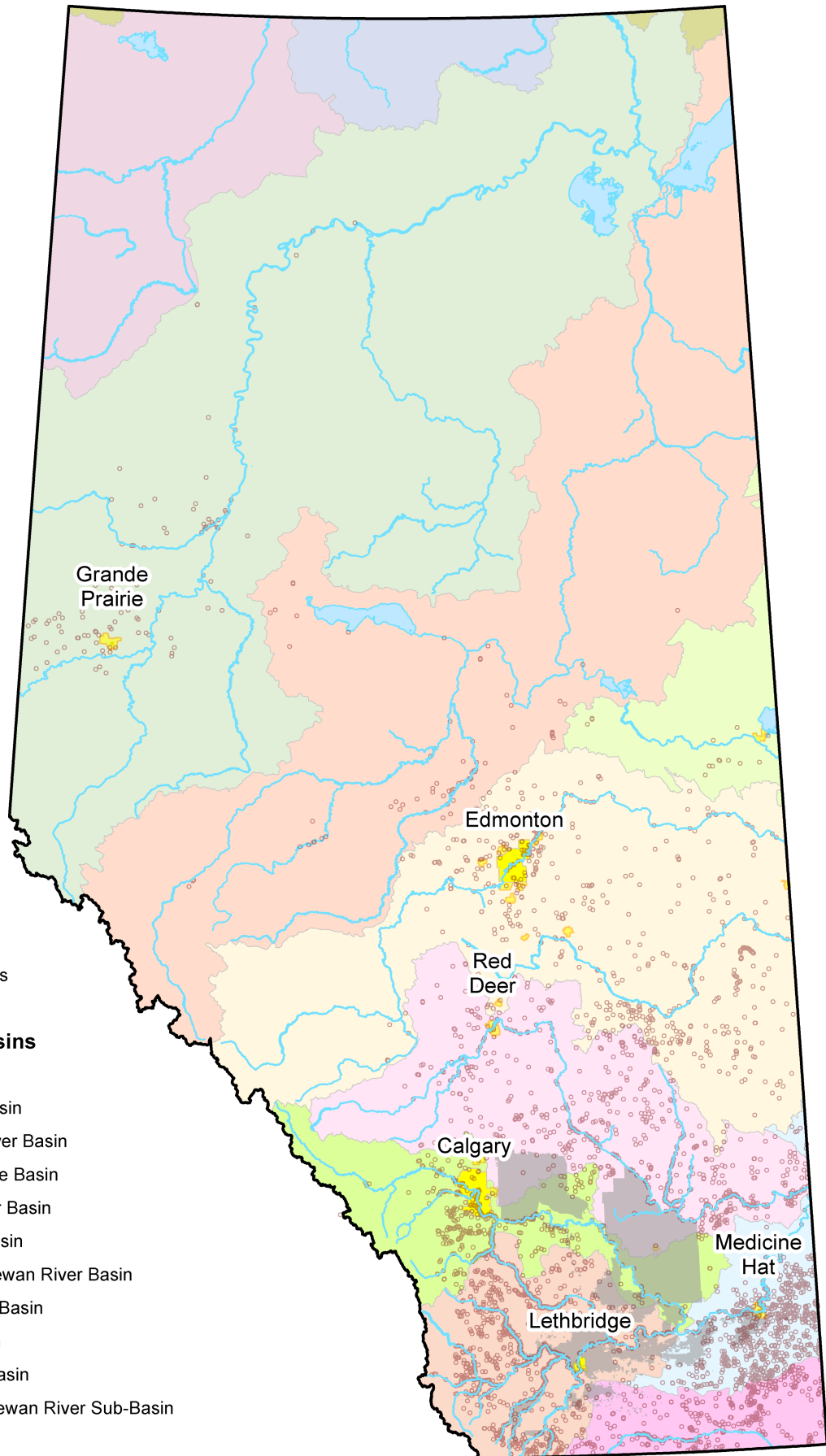
Figure 6. Growth in Irrigation Area

LEGEND

- Private Irrigation
- ~ Major Rivers
- Irrigation Districts
- Major Cities

Alberta's River Basins

- Hay River Basin
- Buffalo River Basin
- Peace/Slave River Basin
- Great Slave Lake Basin
- Athabasca River Basin
- Beaver River Basin
- North Saskatchewan River Basin
- Red Deer River Basin
- Bow River Basin
- Oldman River Basin
- South Saskatchewan River Sub-Basin
- Milk River Basin



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Figure 7. Location of Private Irrigation

Table 7. Irrigation Districts Irrigation Rates (\$ per irrigation acre per year)

YEAR	AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID
1983	\$5.00	\$9.00	\$6.75	\$8.00	\$12.50	\$6.00	\$5.20	\$3.00	\$6.50	\$12.00	\$11.00	\$3.25	\$6.50
1984	\$6.00	\$10.00	\$7.00	\$8.00	\$12.50	\$6.00	\$5.20	\$3.00	\$6.50	\$12.00	\$11.00	\$3.25	\$6.75
1985	\$6.00	\$10.00	\$7.00	\$7.50	\$12.50	\$6.00	\$5.20	\$4.00	\$6.50	\$12.00	\$11.00	\$3.25	\$7.25
1986	\$6.00	\$10.00	\$7.25	\$7.50	\$12.50	\$6.00	\$5.20	\$6.00	\$6.50	\$13.00	\$11.00	\$3.25	\$7.47
1987	\$6.00	\$10.00	\$7.50	\$7.50	\$12.50	\$6.00	\$5.20	\$6.00	\$6.50	\$13.00	\$11.00	\$3.25	\$7.47
1988	\$7.00	\$10.00	\$7.50	\$8.00	\$12.50	\$6.00	\$5.20	\$6.00	\$6.50	\$13.00	\$12.00	\$3.25	\$7.70
1989	\$7.00	\$10.00	\$8.00	\$8.00	\$13.50	\$6.00	\$6.20	\$6.00	\$6.50	\$13.25	\$12.00	\$3.50	\$8.00
1989	\$7.00	\$10.00	\$8.00	\$8.00	\$13.50	\$6.00	\$6.20	\$6.00	\$6.50	\$13.25	\$12.00	\$3.50	\$8.00
1990	\$8.00	\$10.00	\$8.50	\$8.00	\$13.50	\$6.00	\$6.20	\$6.00	\$6.50	\$14.00	\$12.00	\$3.75	\$11.00
1991	\$8.00	\$10.00	\$8.50	\$7.00	\$13.50	\$6.00	\$6.20	\$6.00	\$6.50	\$14.00	\$12.00	\$4.00	\$13.00
1992	\$8.00	\$11.00	\$8.50	\$7.00	\$14.00	\$6.00	\$6.20	\$6.00	\$6.50	\$14.00	\$12.00	\$4.25	\$13.50
1993	\$8.00	\$11.00	\$8.50	\$7.00	\$14.00	\$6.00	\$6.20	\$6.00	\$6.50	\$14.25	\$12.00	\$4.50	\$13.50
1994	\$8.00	\$12.00	\$8.50	\$7.00	\$14.00	\$6.50	\$6.20	\$6.00	\$7.00	\$15.25	\$12.00	\$4.50	\$14.75
1995	\$8.00	\$13.00	\$8.50	\$8.00	\$14.00	\$7.00	\$8.00	\$8.50	\$7.00	\$16.15	\$12.00	\$4.50	\$14.75
1996	\$8.00	\$13.00	\$8.50	\$8.00	\$14.00	\$7.00	\$8.00	\$8.50	\$7.50	\$16.15	\$12.00	\$6.50	\$15.25
1997	\$8.00	\$13.00	\$7.50	\$8.00	\$14.00	\$7.00	\$8.00	\$8.50	\$7.50	\$16.15	\$12.00	\$6.75	\$15.25
1998	\$8.00	\$13.50	\$7.50	\$8.00	\$14.00	\$7.50	\$8.00	\$8.50	\$8.50	\$16.65	\$12.00	\$7.00	\$16.25
1999	\$8.00	\$14.50	\$7.50	\$8.00	\$14.00	\$7.50	\$8.00	\$8.50	\$8.50	\$17.00	\$12.00	\$7.25	\$16.25
2000	\$8.00	\$14.50	\$7.50	\$8.00	\$14.00	\$7.50	\$8.00	\$8.50	\$8.50	\$17.50	\$12.00	\$7.50	\$16.25
2001	\$8.00	\$14.50	\$7.50	\$8.00	\$14.00	\$7.50	\$8.00	\$8.50	\$8.50	\$17.90	\$11.00	\$7.50	\$16.25
2002	\$8.00	\$14.50	\$7.50	\$8.00	\$14.00	\$7.50	\$8.00	\$6.00	\$8.50	\$16.90	\$11.00	\$7.75	\$16.25
2003	\$9.00	\$15.00	\$0.00	\$10.00	\$14.00	\$8.00	\$8.00	\$13.58	\$8.50	\$17.90	\$11.00	\$8.25	\$16.25
2004	\$9.00	\$14.50	\$0.00	\$11.00	\$14.00	\$8.00	\$8.00	\$13.58	\$9.50	\$17.90	\$11.00	\$8.25	\$16.25
2005	\$9.00	\$14.50	\$0.00	\$11.00	\$14.00	\$8.50	\$10.00	\$13.58	\$9.50	\$17.90	\$11.00	\$8.25	\$16.25
2006	\$9.00	\$14.50	\$0.00	\$11.00	\$14.00	\$8.50	\$10.00	\$15.00	\$9.50	\$18.50	\$11.00	\$8.25	\$16.25
2007	\$9.00	\$14.50	\$0.00	\$11.00	\$14.00	\$9.00	\$10.00	\$18.00	\$9.50	\$18.75	\$8.00	\$8.25	\$16.25
2008	\$10.00	\$14.50	\$0.00	\$11.50	\$14.00	\$9.00	\$12.00	\$21.00	\$9.50	\$18.75	\$8.00	\$8.50	\$16.25
2009	\$10.00	\$15.00	\$0.00	\$11.50	\$14.00	\$9.00	\$12.00	\$22.50	\$9.50	\$19.00	\$8.00	\$8.50	\$16.25
2010	\$10.00	\$15.00	\$0.00	\$11.50	\$14.00	\$9.50	\$12.00	\$21.50	\$9.50	\$20.00	\$8.00	\$8.50	\$16.25
2011	\$10.00	\$15.00	\$0.00	\$11.50	\$14.00	\$9.50	\$12.00	\$20.50	\$9.50	\$20.00	\$8.00	\$8.50	\$16.25
2012	\$11.00	\$16.00	\$0.00	\$11.50	\$14.00	\$11.00	\$12.00	\$20.50	\$10.00	\$20.00	\$8.00	\$9.00	\$16.25
2013	\$11.00	\$16.00	\$0.00	\$11.50	\$14.00	\$11.00	\$12.00	\$20.50	\$10.00	\$20.00	\$8.00	\$11.00	\$18.00
2014	\$12.00	\$16.00	\$0.00	\$12.00	\$16.00	\$11.00	\$12.00	\$23.00	\$10.00	\$20.00	\$8.00	\$11.00	\$18.00
2015	\$12.00	\$16.00	\$0.00	\$12.00	\$16.00	\$11.00	\$12.00	\$25.00	\$10.00	\$20.00	\$10.00	\$11.00	\$18.00
2016	\$12.00	\$16.00	\$0.00	\$12.00	\$16.00	\$11.00	\$12.00	\$25.00	\$12.00	\$20.00	\$14.00	\$11.00	\$18.00
2017	\$13.00	\$16.00	\$0.00	\$12.00	\$16.00	\$11.00	\$12.00	\$25.00	\$12.00	\$22.00	\$16.00	\$11.50	\$18.00
2018	\$13.00	\$16.00	\$0.00	\$12.50	\$16.00	\$12.50	\$12.00	\$25.00	\$13.00	\$22.00	\$18.00	\$12.00	\$18.32
2019	\$13.00	\$16.00	\$0.00	\$13.00	\$17.00	\$14.00	\$12.00	\$25.00	\$16.00	\$22.00	\$20.00	\$12.50	\$18.32

Note: Some districts levy the additional surcharges for use in excess of allocation, pipeline and pressure delivery.

Table 8. Irrigation District Expansion Limits and Water Licence Allocations

BASIN	IRRIGATION DISTRICT	EXPANSION LIMIT (ACRES)	WATER SOURCE	OTHER PURPOSES* (AC-FT)	TOTAL LICENSED VOLUME
BOW RIVER SUB-BASIN	BRID	295,000	Bow River	2,380	490,000
	EID	311,000	Bow River	5,000	761,000
	WID	95,000	Bow River	3,500	190,500
OLDMAN RIVER SUB-BASIN	AID	7,500	Belly River	700	9,000
	LID	6,000	Belly River	1,000	12,000
	LNID	227,000	Oldman River	39,068	334,450
	MID	18,300	Belly, Waterton, and St. Mary Rivers	740	34,000
	MVID	4,240	Belly River	340	8,000
	RID	46,500	Belly, Waterton, and St. Mary Rivers	4,500	81,000
	SMRID	412,000	Belly, Waterton, and St. Mary Rivers	12,000	722,000
	TID	92,200	Belly, Waterton, and St. Mary Rivers	8,000	158,000
	UID	34,400	Belly and Waterton Rivers	1,000	65,988
SOUTH SASKATCHEWAN RIVER SUB-BASIN	RCID	1,210	Gros Ventre Creek	n/a	3,000
TOTAL		1,550,350		78,228	2,868,938

Note: The other purposes volumes may be used for purposes other than irrigation, as set out in the districts water licences. Other purpose uses of water volumes licensed to irrigation districts include non-irrigation uses such as municipal, rural water supply, agricultural, commercial, industrial, rural residential, management of fish/wildlife, habitat enhancement and recreation.

* Water volumes allocated to other purposes are included in the total licensed volumes.

Table 9. Gross Annual Diversions for Irrigation Districts

YEAR	BOW RIVER SUB-BASIN			OLDMAN RIVER SUB-BASIN									SOUTH SASK RIVER SUB-BASIN	TOTALS (AC-FT)
	BRID	EID	WID	AID	LID	LNID	MID	MVID	RID	SMRID	TID	UID	RCID	
1986	311,000	680,592	131,333	4,074	6,858	182,159	14,114	3,212	22,045	406,536	101,597	20,106	1,832	1,885,458
1987	309,000	639,928	129,712	4,392	5,644	181,934	14,649	3,180	40,559	426,434	98,621	19,958	1,321	1,875,332
1988	423,000	730,274	171,868	6,910	9,398	222,936	22,918	6,066	60,531	563,621	121,668	30,462	256	2,369,908
1989	333,000	605,148	122,416	4,613	3,517	198,789	12,338	2,750	30,728	504,255	78,396	18,372	122	1,914,444
1990	380,907	689,178	128,091	3,754	5,328	191,899	13,555	3,290	32,000	467,244	98,572	16,133	298	2,030,249
1991	334,792	629,872	147,547	3,556	4,468	184,737	12,712	2,662	30,702	391,634	94,956	17,003	1,775	1,856,416
1992	336,878	625,650	135,387	2,170	11,216	136,925	15,695	4,118	36,210	441,745	101,122	18,628	0	1,865,744
1993	210,340	423,551	114,309	2,126	1,824	61,753	4,848	988	13,574	218,375	59,278	8,107	3,300	1,122,373
1994	364,126	559,476	132,104	4,110	4,319	179,663	13,895	3,325	28,328	415,162	103,028	16,827	758	1,825,121
1995	302,305	602,098	116,254	1,802	1,548	110,114	4,248	861	19,953	390,285	79,818	7,710	208	1,637,204
1996	328,182	615,478	117,065	4,035	4,892	206,206	12,506	2,660	45,527	498,483	127,436	19,832	1,085	1,983,387
1997	343,380	593,782	116,740	6,051	5,193	188,378	12,564	1,529	38,043	455,300	115,582	20,364	1,760	1,898,666
1998	303,565	638,500	142,367	4,874	5,331	157,758	9,671	2,323	33,834	405,000	116,300	14,895	1,726	1,836,144
1999	298,524	426,788	88,410	3,485	11,415	196,906	25,178	2,499	42,960	411,532	105,208	20,900	1,700	1,635,505
2000	417,897	675,238	156,400	6,000	11,240	263,413	35,375	6,700	58,202	451,700	140,046	37,200	0	2,259,411
2001*	413,780	685,000	160,000	3,952	7,593	308,236	21,173	6,814	40,207	325,700	94,770	27,526	0	2,094,751
2002	333,541	430,000	149,577	2,938	9,835	112,143	10,788	3,033	23,552	466,700	53,324	21,283	N/A	1,616,714
2003	279,798	459,700	128,700	4,598	7,964	201,812	20,711	5,889	49,723	330,600	86,500	32,500	N/A	1,608,495
2004	230,817	417,370	114,000	3,440	5,425	166,276	12,391	2,660	28,224	367,500	64,399	21,600	N/A	1,434,102
2005	182,819	318,000	120,400	4,000	6,243	134,088	8,859	2,067	27,046	316,200	72,487	13,717	1,190	1,207,116
2006	210,741	335,210	72,000	3,681	5,341	165,752	14,114	3,987	37,049	334,100	82,448	20,390	0	1,284,813
2007	256,518	417,830	68,000	3,235	6,330	235,330	18,238	3,600	47,322	394,700	100,907	31,801	N/A	1,583,811
2008	238,000	409,400	85,000	3,584	6,389	178,750	12,659	2,609	34,348	381,200	85,829	21,054	200	1,459,022
2009	295,557	435,650	120,829	2,651	5,378	179,945	14,885	2,138	45,705	370,100	97,532	17,506	200	1,588,076
2010	156,116	210,500	65,850	1,938	2,383	71,950	5,351	1,013	21,903	201,700	53,135	7,264	116	799,219
2011	151,700	310,100	85,985	2,902	8,028	132,388	15,233	2,393	32,534	286,000	84,909	19,073	530	1,131,775
2012	260,000	343,200	103,862	2,761	3,973	176,683	20,720	2,558	35,200	340,800	88,309	19,039	562**	1,397,105
2013	240,000	383,400	99,473	3,446	4,101	139,035	17,210	2,297	39,723	314,600	77,371	18,598	2,319	1,341,573
2014	222,191	371,000	113,666	3,113	5,928	120,097	13,552	1,801	31,448	297,600	71,874	16,565	700	1,269,535
2015	331,900	471,900	136,600	3,306	4,540	197,000	21,459	2,420	50,711	453,300	100,481	25,839	700	1,800,156
2016	328,085	371,100	109,865	3,848	4,564	206,730	20,325	2,233	39,704	402,600	84,313	21,864	367	1,595,598
2017	422,000	521,200	131,000	4,710	5,697	274,400	24,221	2,838	54,062	536,900	123,923	31,350	800	2,133,101
2018	290,400	495,500	136,000	3,648	9,363	223,918	26,529	2,475	53,799	504,000	105,352	30,680	1,569	1,883,233
2019	389,000	508,900	120,687	5,091	3,953	207,086	18,917	2,433	47,518	479,300	102,900	22,053	750	1,908,588
PERCENT OF LICENCE (2019)	79.4%	66.9%	63.4%	56.6%	32.9%	61.9%	55.6%	30.4%	58.7%	66.4%	65.1%	33.4%	25.0%	66.5%

Note: - Data is obtained from Water Survey of Canada (WSC), Alberta Environment and Irrigation Districts' annual reports. - *Water rationing in effect for MID, RID, SMRID, TID, UID, AID, LID and MVID.
 - RCID has a second supply from Ross Creek, but data has not been consistently recorded at that location. - **RCID 2012 had zero diversion since the diversion structure was under construction;
 - Diversion volume could include other allocation at the point of diversion for users other than irrigation districts (municipal, domestic, other agricultural, industrial, water management and environmental uses). 562 ac-ft was delivered for irrigation from Cavan Lake

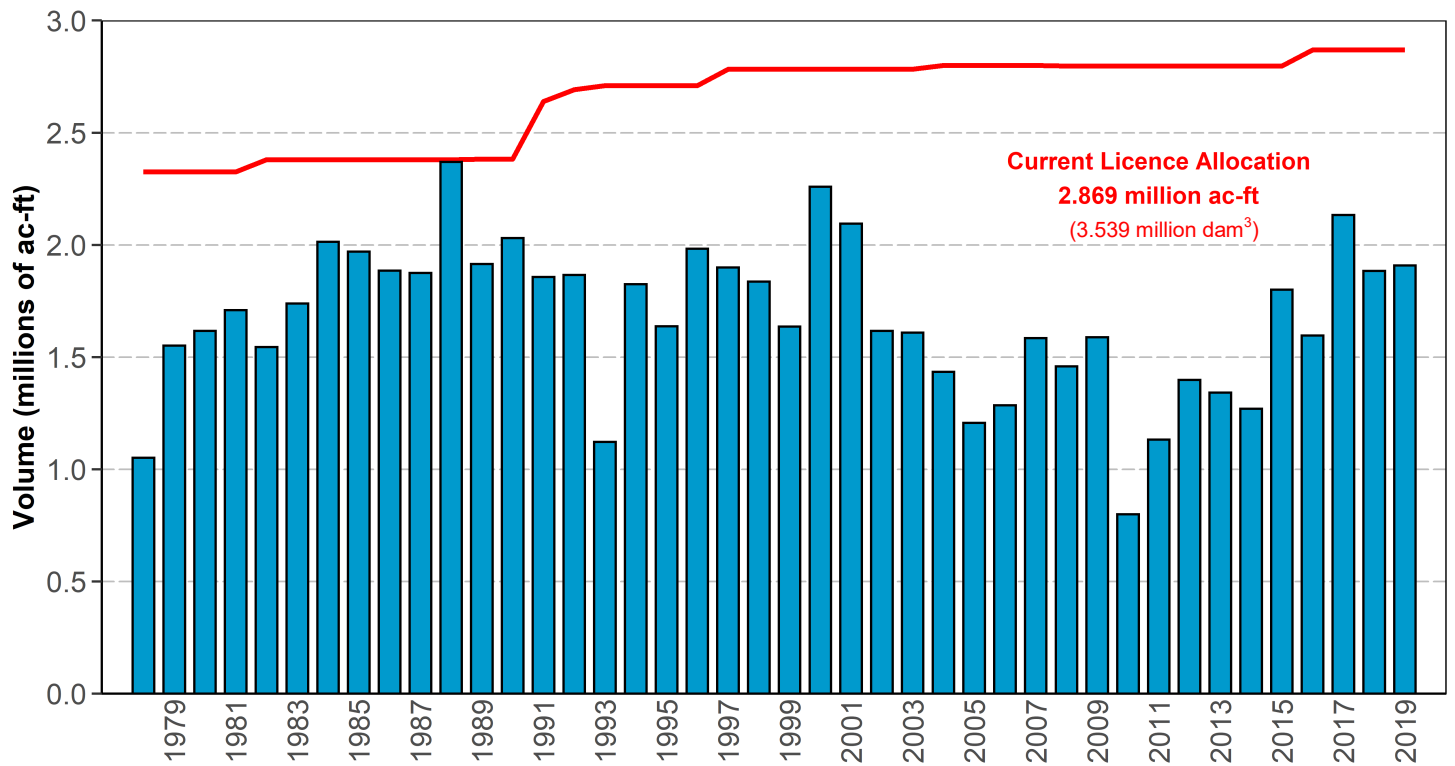


Figure 8. Irrigation Districts Gross Annual Diversion and Licence Allocation

Note: Diversion data represent the gross diversion into and through the works of the irrigation districts and include volumes used directly for irrigation purposes, reservoir filling and the water supplied or licensed to municipal, domestic, other agricultural, industrial, environmental uses and water delivered to other licence holders through a conveyance agreement with the licence holder.

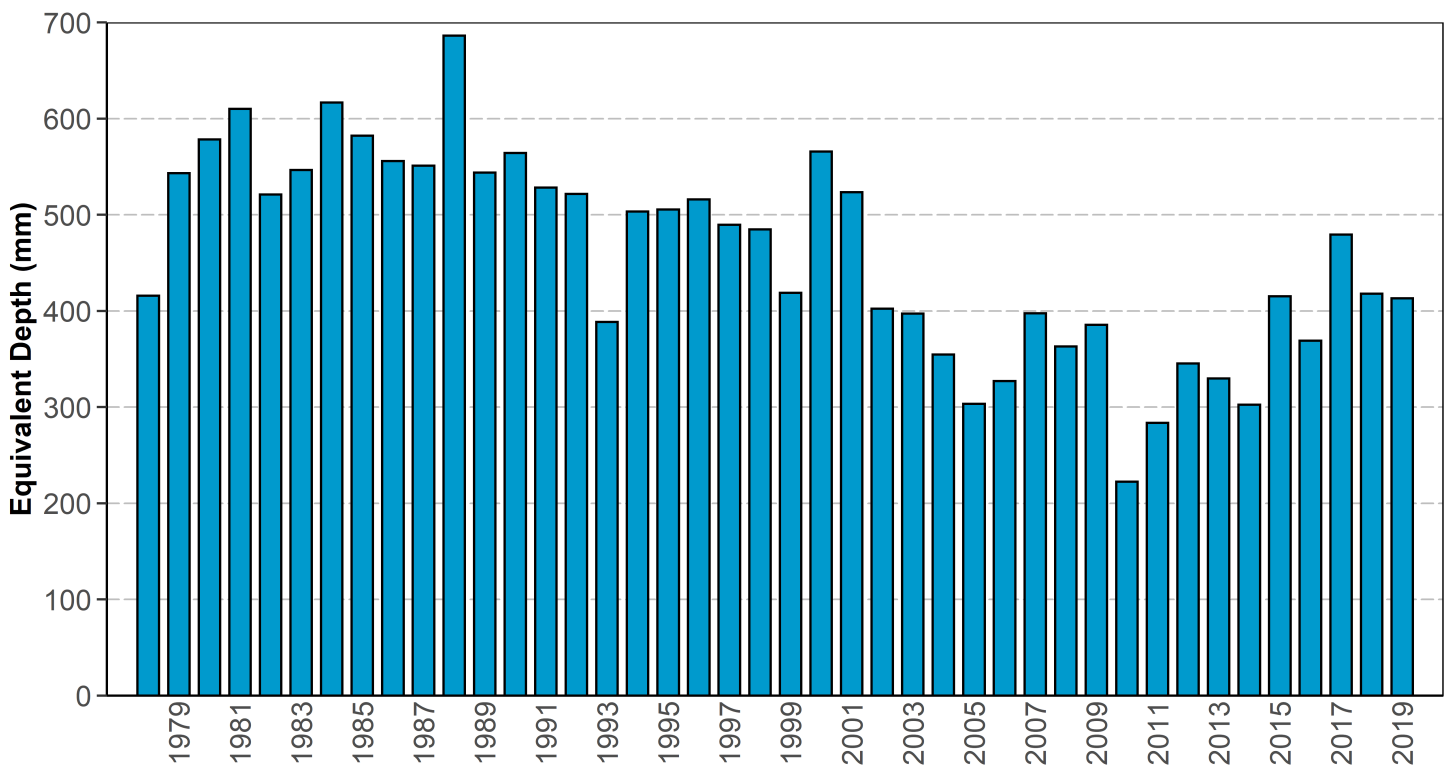
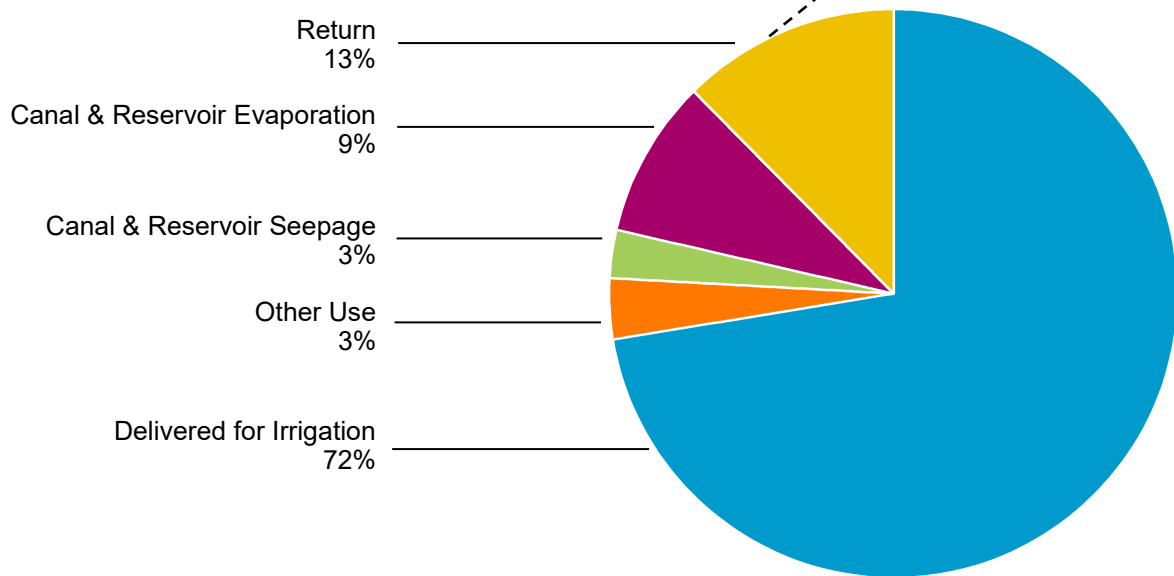


Figure 9. Irrigation Districts Gross Diversion Equivalent Depth

Note: Irrigation district equivalent depth is the annual gross diversion of water (into the works of all 13 irrigation districts), divided by the area actually irrigated. However, this “depth” also includes water used for net gains in reservoir storage, water diverted for other uses such as domestic, municipal, other agricultural, industrial, recreational and habitat enhancement purposes.

Table 10. Irrigation Districts Water Balance

WATER BALANCE CATEGORY	BOW RIVER BASIN	OLDMAN RIVER BASIN	IRRIGATION DISTRICTS
Gross Diversion	890,000	1,018,600	1,908,600
Net District Storage Change	17,600	(5,400)	12,200
TOTAL DISTRICT USE	907,600	1,013,200	1,920,800
Delivered for Irrigation	678,600	701,900	1,380,500
Delivered for Other Use	28,100	39,500	67,600
Canal & Reservoir Seepage	24,300	27,900	52,200
Canal & Reservoir Evaporation	70,600	101,100	171,700
Return	106,000	142,800	248,800
TOTAL DISTRICT OPERATIONS	907,600	1,013,200	1,920,800



Note: Irrigation district reported values were used to estimate the water balance. Where district reporting was incomplete, Alberta Agriculture and Forestry calculated estimates.

Gross Diversion - Volume of water diverted from a lake, reservoir or the river system by irrigation districts.

Net District Storage Change - Net volume of water removed from internal irrigation district reservoirs for use. A negative number within brackets, indicates a net increase in reservoir storage volume over the irrigation season.

Total District Use - Total volume of water used from diversion and storage.

Delivered for Irrigation - Net volume of water supplied for irrigation purposes.

Delivered for Other Use - Volume of water supplied for other uses including municipal domestic, other agricultural, industrial, and environmental uses.

Canal & Reservoir Seepage - Water lost from seepage from reservoirs and canals.

Canal & Reservoir Evaporation - Water lost from evaporation from the surface of irrigation district canals and reservoirs.

Return - Volume of water returned to the river system.

Total District Operations - Total volume of water used for irrigation districts operations comprised of water delivered for irrigation, other use, seepage and evaporation, and water returned.

Table 11. Types of Conveyance Infrastructure within the 13 Irrigation Districts

IRRIGATION DISTRICT	REHABILITATED										UNREHABILITATED		TOTAL CONVEYANCE WORKS (KM)
	PIPELINES - CLOSED		PIPELINES - OPEN		MEMBRANE-LINED CANALS		CONCRETE-LINED CANALS		EARTH CANALS		UN-REHABILITATED CANALS		
	Length (km)	% of District Works	Length (km)	% of District Works	Length (km)	% of District Works	Length (km)	% of District Works	Length (km)	% of District Works	Length (km)	% of District Works	
AID	24.3	61.7%	0.2	0.5%	4.5	11.4%	0	0.0%	1.0	2.5%	9.4	23.9%	39
BRID	606.8	59.8%	4.7	0.5%	111.1	10.7%	6.42	0.6%	166.6	16.1%	118.9	11.5%	1,015
EID	1248.6	64.6%	21.2	1.1%	235.4	12.0%	0	0.0%	194.5	10.0%	232.4	11.9%	1,932
LID	29.5	53.9%	0.3	0.5%	2	3.6%	0	0.0%	11.7	21.1%	11.2	20.2%	55
LNID	555.7	72.9%	5.8	0.8%	48.9	6.3%	17	2.2%	62.6	8.0%	72.6	9.3%	763
MID	65.6	61.2%	1.5	1.4%	1.2	1.1%	0.28	0.3%	33.7	30.4%	4.9	4.4%	107
MVID	19	44.4%	1.8	4.2%	0	0.0%	0	0.0%	17	38.7%	5	11.4%	43
RCID	12.2	83.0%	0	0.0%	0	0.0%	0	0.0%	2.5	15.2%	0	0.0%	15
RID	151.5	63.0%	2.5	1.0%	0	0.0%	0	0.0%	67.9	27.2%	18.6	7.4%	241
SMRID	988.8	54.4%	23	1.3%	64.9	3.5%	44.2	2.4%	461.8	24.9%	234.3	12.6%	1,817
TID	196.4	56.7%	10.9	3.1%	56.5	15.4%	6.49	1.8%	57	15.5%	19.4	5.3%	347
UID	102.0	44.2%	22.7	9.8%	13.9	5.9%	0.17	0.1%	42.2	17.8%	49.9	21.1%	231
WID	249.0	24.2%	33.6	3.3%	97	9.3%	5.2	0.5%	163.6	15.6%	481.8	46.1%	1,030
TOTAL	4,249	55.7%	128	1.7%	635	8.3%	80	1.0%	1,282	16.8%	1,258	16.5%	7,634
Headworks Owned by Alberta Environment and Parks (AEP)												339	
Total Length of Conveyance System in Southern Alberta (km)												7,973	

Note: Rehabilitated infrastructure includes those work re-constructed through:

- the Irrigation Rehabilitation Program (IRP)
- Alberta Environment and Parks.
- district funded infrastructure projects

Table 12. Irrigation District Infrastructure Length and Replacement Cost

IRRIGATION DISTRICTS	CONVEYANCE WORKS		DRAINAGE WORKS		MAJOR STRUCTURES		TOTAL OF ALL WORKS	
	Length (km)	Replacement Cost (\$'000)	Length (km)	Replacement Cost (\$'000)	Number of Units	Replacement Cost (\$'000)	Length (km)	Replacement Cost (\$'000)
AID	39	\$11,155	19	\$314	0	\$0	59	\$11,469
BRID	1,015	\$364,894	794	\$17,251	22	\$97,753	1,808	\$479,898
EID	1,932	\$726,180	1,968	\$45,701	61	\$349,421	3,900	\$1,121,303
LID	55	\$12,779	5	\$160	0	\$0	60	\$12,939
LNID	763	\$261,242	250	\$8,136	2	\$2,880	1,013	\$272,258
MID	107	\$27,695	163	\$5,667	0	\$0	270	\$33,362
MVID	43	\$14,567	1	\$75	0	\$0	44	\$14,642
RCID	15	\$2,844	20	\$986	1	\$135	34	\$3,965
RID	241	\$60,052	218	\$10,822	0	\$0	458	\$70,874
SMRID	1,817	\$671,439	413	\$11,376	48	\$335,617	2,230	\$1,018,432
TID	347	\$131,581	84	\$4,660	12	\$14,168	430	\$150,410
UID	231	\$75,279	59	\$1,574	11	\$16,206	290	\$93,060
WID	1,030	\$356,055	938	\$24,957	13	\$18,180	1,968	\$399,192
TOTAL	7,634	\$2,715,763	4,931	\$131,679	170	\$834,361	12,565	\$3,681,803

Note: Total of "All Works" length values include the summation of conveyance and drainage works. Replacement cost is based on construction and material costs that were updated in 2012 .

Table 13. Irrigation District Reservoirs

LOCATION	RESERVOIR	APPROXIMATE DATE OF LIVE IMPOUNDMENT	IRRIGATION LIVE STORAGE (dam ³)	IRRIGATION LIVE STORAGE (acre-feet)
BRID	Badger	1985	57,120	46,300
	'D' Reservoir	2005	350	280
	'H' Reservoir	1953	2,790	2,260
	Lost Lake	1973/1987*	5,060	4,100
	'PFRID' Reservoir	2005	570	480
	Scope	1953	12,930	10,480
	Total storage		78,820	63,900
EID	Bantry # 1	1968	1,090	880
	Bantry # 2	1967	4,150	3,360
	Cowoki Lake	1937	8,370	6,780
	Crawling Valley	1984	94,300	76,450
	'J' Reservoir	1949/1966*	1,460	1,180
	Kitsim	1980	19,470	15,790
	Lake Newell	1914	315,300	255,610
	One Tree	1935	5,660	4,590
	Rock Lake	1956	3,990	3,240
	Rolling Hills	1940/2003*	40,640	32,950
	Snake Lake	1997	18,620	15,100
Tilley "B"	1972	21,070	17,080	
	Total storage		534,120	433,010
LNID	Park Lake	1928	1,440	1,170
	Picture Butte	1936	1,490	1,210
	Total storage		2,930	2,380
RID	Corner Lake	1925	500	400
	Craddock	1925	620	500
	Factory Lake	1925	370	300
	Total storage		1,490	1,200
SMRID	Bullshead	1954	130	100
	Chin	1954	207,370	168,120
	Cross Coulee	1954	2,090	1,700
	Forty Mile	1987	100,430	81,420
	Murray	1954	30,630	24,830
	North East	1954	2,820	2,290
	Raymond	1954	1,810	1,470
	Sauder	1953/1982*	45,240	36,680
	Seven Persons	1953	900	730
	Sherburne	1952	12,190	9,880
	Stafford	1954/1982*	21,790	17,670
	Yellow Lake	1952	18,130	14,700
	Total storage		443,530	359,590
TID	Fincastle	1952	3,770	3,060
	Horsefly	1950	6,370	5,170
	Taber Lake	1955	6,410	5,190
	Total storage		16,550	13,420
UID	Cochrane Lake	1923	3,130	2,540
WID	Chestermere	1944	5,090	4,130
	Langdon	1979/2014*	15,750	12,770
	Total storage		20,840	16,900
GRAND TOTAL			1,101,398	892,905

Note: All reservoirs are off-stream storage sites. * Denotes year of reservoir enlargement

Table 14. Provincially Owned and Operated Reservoirs Used by Irrigation

SOURCE SUPPLY FOR:	RESERVOIR	APPROXIMATE DATE OF IMPOUNDMENT	LIVE STORAGE (dam ³)	LIVE STORAGE (acre-feet)
BRID	Little Bow	1920	43,260	35,070
	McGregor	1914	351,060	284,600
	Travers *	1954	104,640	84,830
	Total Storage		498,960	454,500
LNID	Keho	1920	95,640	77,540
	Oldman River *	1991	490,180	397,390
	Total Storage		585,820	474,930
RCID	Cavan	1950	4,630	3,750
MVID, LID, AID	Payne	1942	8,690	7,040
St. Mary Project (SMRID , MID, TID, RID)	Jensen	1948	19,000	15,400
	Milk River Ridge	1957	127,300	103,200
	St. Mary *	1951	369,310	299,400
	Waterton *	1965	111,200	90,150
	Total Storage		626,810	508,150
Other	Chain Lakes *	1966	14,680	11,900
	Twin Valley Dam *	2003	60,700	49,210
	Pine Coulee	1998	51,000	41,350
	Women's Coulee	1949	360	290
	Total Storage		126,740	102,750
GRAND TOTAL			1,851,650	1,501,120

Note: Irrigation storage might be lower than live storage. * denotes on-stream storage reservoir.

Table 15. Hydroelectric Plants Associated with Irrigation Infrastructure

LOCATION	COMMISSION DATE	OWNER	CAPACITY (MEGAWATTS)
Oldman Reservoir	2003	ATCO Power	32
Waterton Reservoir	1992	TransAlta	3
Belly River Chute	1991	TransAlta	3
St. Mary Reservoir	1992	TransAlta	2
Taylor Coulee Chute (Jensen Reservoir)	2000	TransAlta	13
Raymond Reservoir	1994	Irrican Power	21
Chin Chute (Chin Reservoir)	1994	Irrican Power	15
SMRID - Main Canal Drops #4, #5 and #6	2004	Irrican Power	7
TOTAL			96

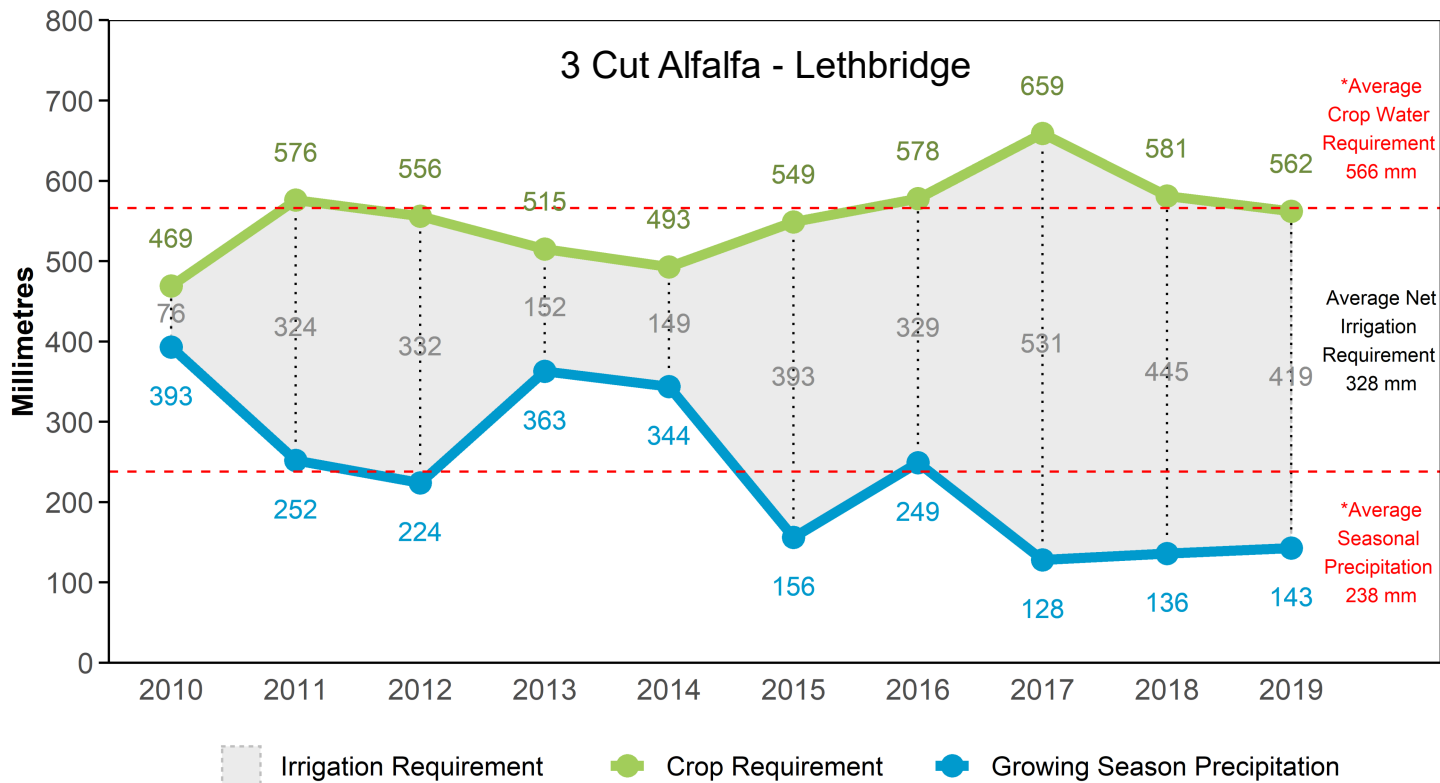


Figure 10. Lethbridge Optimum Crop Water and Net Irrigation Requirements

Note: Three cut alfalfa is used as an indicator crop because of its high water demand. The difference between the total crop water requirement and total precipitation is the Net Irrigation Requirement. *The average crop requirement and average precipitation are from the period of 1998 to 2019. Seasonal precipitation from May 1 to September 30.

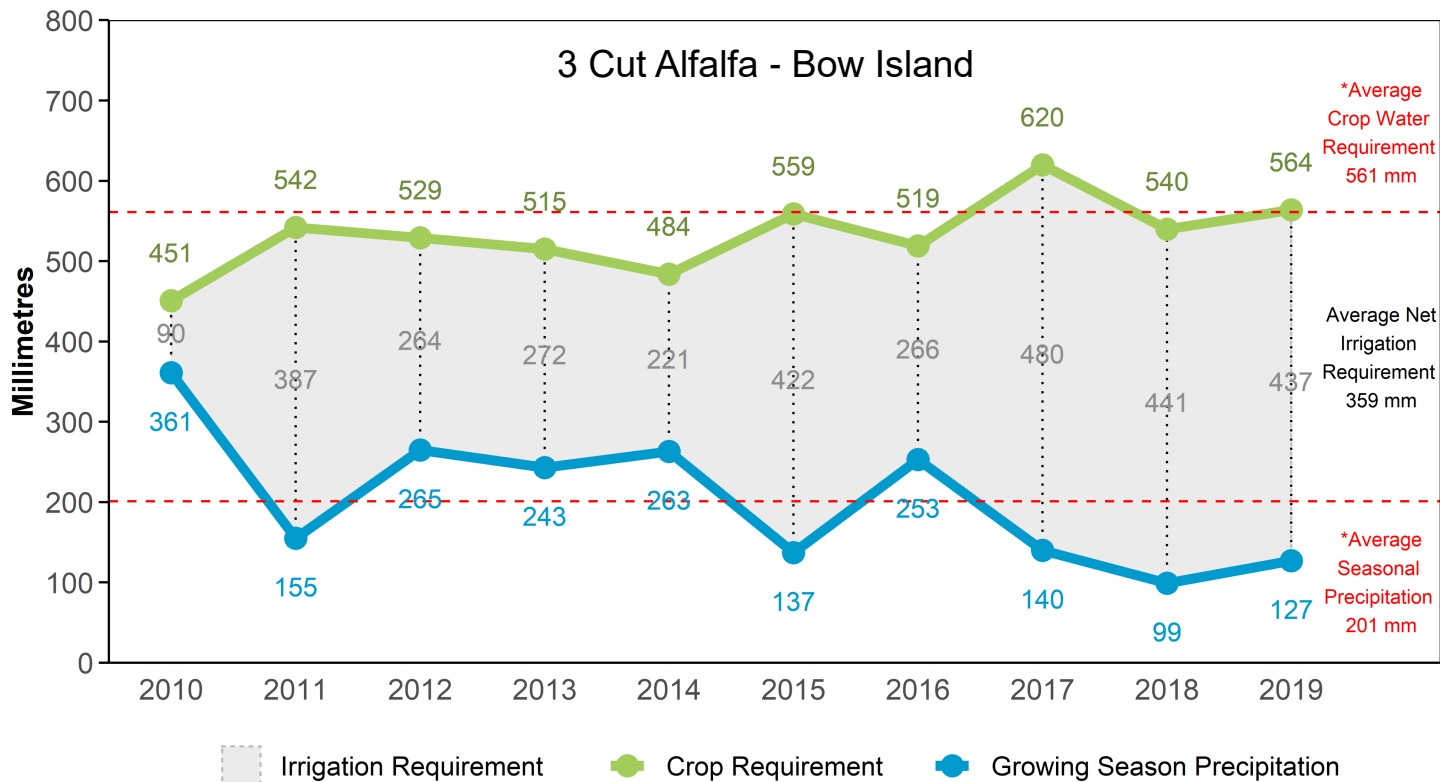


Figure 11. Bow Island Optimum Crop Water and Net Irrigation Requirements

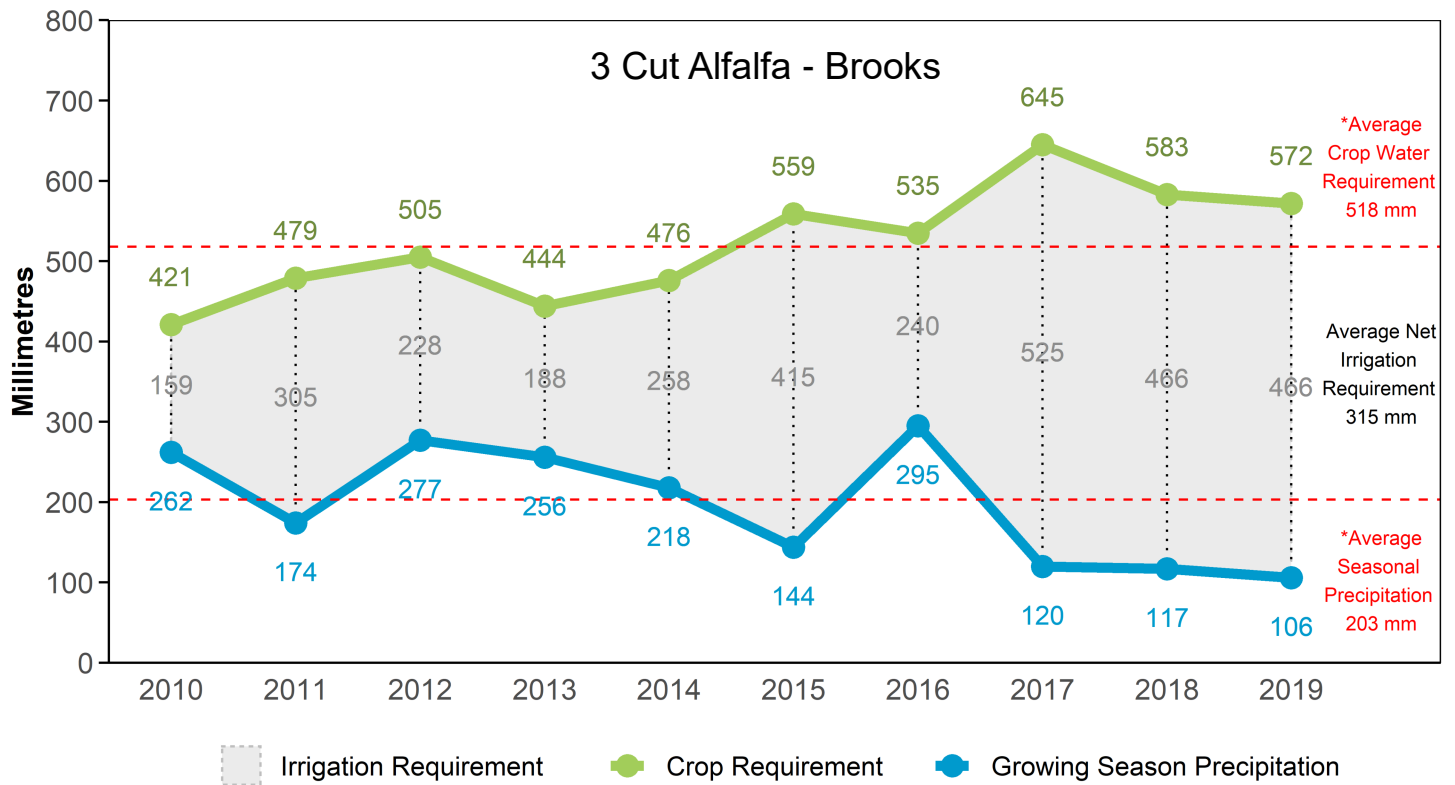


Figure 12. Brooks Optimum Crop Water and Net Irrigation Requirements

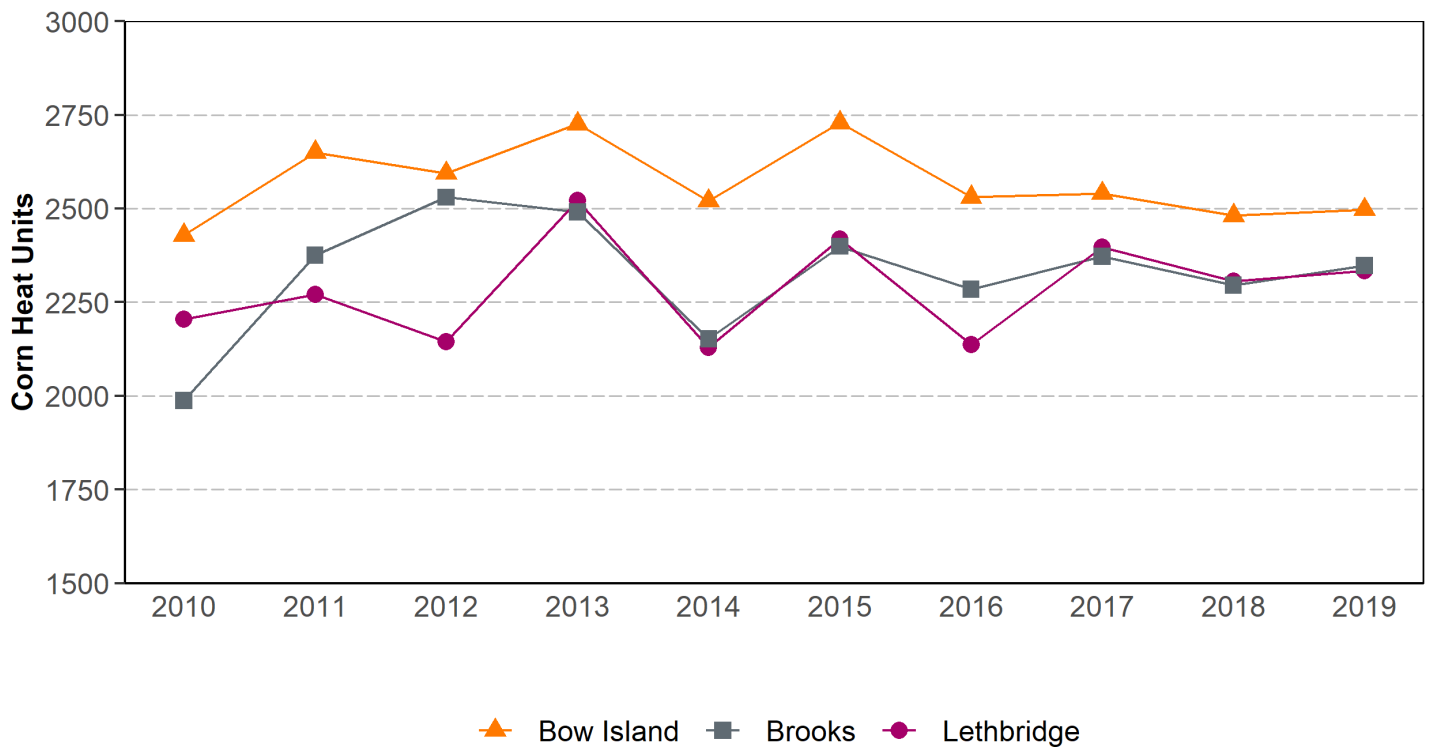


Figure 13. Lethbridge, Bow Island and Brooks Corn Heat Units

Note: Total Corn Heat Units (CHU) starting May 15 until first frost (-2°C)

Table 16. Historical Rainfall in Southern Alberta (April 15—October 15)

SITE	MAXIMUM RAINFALL (MM)	MINIMUM RAINFALL (MM)	NORMAL RAINFALL* (MM)	2019 RAINFALL (MM)	2019 % OF NORMAL
Lethbridge	534 (1978)	71 (2001)	273	205	75%
Bow Island	439 (1993)	112 (2001)	250	180	72%
Brooks	484 (2005)	87 (2001)	236	162	69%

Note: *Normal rainfall: 1970 - 2019 average

Table 17. Historical Corn Heat Units in Southern Alberta (May 15 to First -2°C Frost)

SITE	MAXIMUM CHU (2010 - 2019)	MINIMUM CHU (2010 - 2019)	LAST TEN YEAR AVERAGE*	2019 CORN HEAT UNITS	2019 % of LAST TEN YEAR AVERAGE
Lethbridge	2522 (2013)	2129 (2014)	2283	2333	102%
Bow Island	2729 (2015)	2429 (2010)	2570	2497	97%
Brooks	2530 (2012)	1987 (2010)	2327	2348	101%

Note: *Last ten year average 2010 - 2019

Table 18. Frost Free Period (> 0°C) in Southern Alberta

SITE	AVERAGE LAST FROST	AVERAGE FIRST FROST	AVERAGE FROST FREE DAYS	2019 LAST FROST	2019 FIRST FROST	2019 FROST FREE DAYS	2019 % OF AVERAGE
Lethbridge	May 11	Sep 20	132	May 20	Sep 28	131	100%
Bow Island	May 11	Sep 22	134	May 9	Sep 28	142	106%
Brooks	May 14	Sep 18	128	May 20	Sep 28	131	103%

Note: *Average frost free days 1998 - 2019

Table 19. Frost Free Period (> -2°C) in Southern Alberta

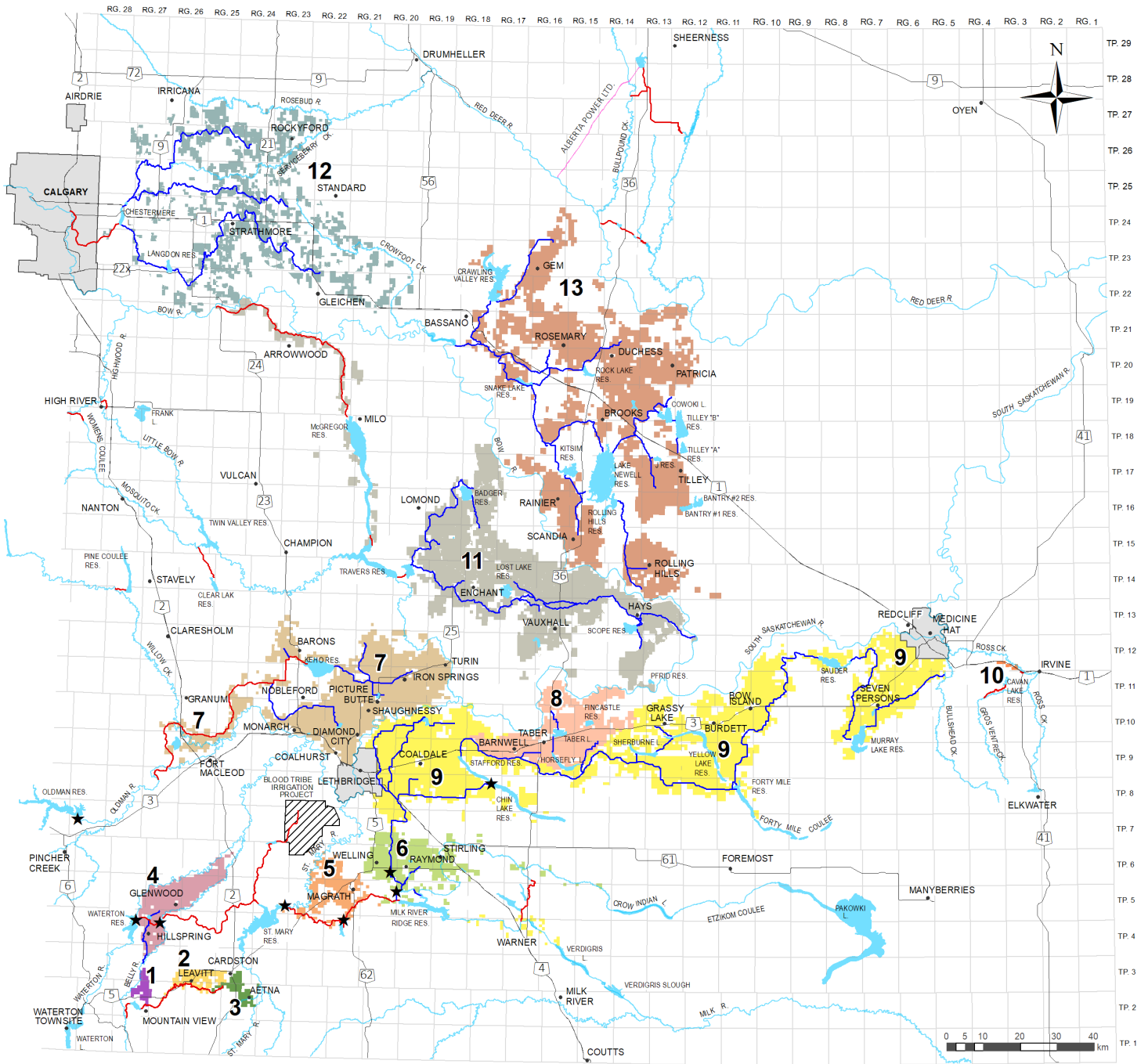
SITE	AVERAGE LAST FROST	AVERAGE FIRST FROST	AVERAGE FROST FREE DAYS	2019 LAST FROST	2019 FIRST FROST	2019 FROST FREE DAYS	2019 % OF AVERAGE
Lethbridge	May 2	Sept 27	147	May 1	Sep 28	150	102%
Bow Island	May 1	Oct 1	153	May 6	Sep 30	147	96%
Brooks	May 10	Sept 24	137	May 20	Sep 30	133	97%

Note: *Average frost free days 1998 - 2019

Table 20. Energy Types Used in the Irrigation Districts' Irrigated Areas

ENERGY TYPE	IRRIGATION DISTRICT										TOTAL ACRES
	BRID	EID	LNID	MID	RCID	RID	SMRID	TID	UID	WID	
ELECTRICITY	194,542	168,071	76,365	1,499	0	23,455	261,425	55,237	17,238	30,774	828,606
	78.5%	55.1%	40.2%	8.2%	0.0%	52.4%	66.8%	67.2%	50.6%	34.8%	59.1%
NATURAL GAS	25,612	66,057	54,623	10,761	0	15,653	110,077	23,335	784	24,255	331,157
	10.3%	21.7%	28.7%	58.7%	0.0%	35.0%	28.1%	28.4%	2.3%	0.0%	23.6%
DIESEL	6,063	9,925	896	0	0	204	2,549	726	710	9,076	30,149
	2.4%	3.3%	0.5%	0.0%	0.0%	0.5%	0.7%	0.9%	2.1%	10.3%	2.1%
GRAVITY	9,290	45,838	2,370	3,119	0	3,409	5,477	2,298	6,070	10,407	88,278
	3.8%	15.0%	1.2%	17.0%	0.0%	7.6%	1.4%	2.8%	17.8%	11.8%	6.3%
GRAVITY PRESSURE PIPELINE	9,044	5,910	33,307	2,921	1,075	456	10,705	407	9,282	7,464	80,571
	3.7%	1.9%	17.5%	15.9%	100.0%	1.0%	2.7%	0.5%	27.2%	8.4%	5.7%
PUMP PRESSURE PIPELINE	849	6,657	16,277	0	0	0	0	0	0	395	24,178
	0.3%	2.2%	8.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	1.7%
OTHER *	983	2,635	1008	30	0	567	990	190	15	5478	11,896
	0.4%	0.9%	0.5%	0.2%	0.0%	1.3%	0.3%	0.2%	0.0%	6.2%	0.8%
UNKNOWN	1,336	0	5313	0	0	1,005	0	31	0	510	8,195
	0.5%	0.0%	2.8%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	0.6%	0.6%
TOTAL ACRES	247,719	305,093	190,159	18,330	1,075	44,749	391,223	82,224	34,099	88,359	1,403,030

Note: - * other includes gasoline, propane or butane
- AID, LID and MVID did not report any data



- 1 Mountain View Irrigation District
- 2 Leavitt Irrigation District
- 3 Aetna Irrigation District
- 4 United Irrigation District
- 5 Magrath Irrigation District
- 6 Raymond Irrigation District
- 7 Lethbridge Northern Irrigation District
- 8 Taber Irrigation District
- 9 St. Mary River Irrigation District
- 10 Ross Creek Irrigation District
- 11 Bow River Irrigation District
- 12 Western Irrigation District
- 13 Eastern Irrigation District

- Hydroelectric Plants Associated with Water Distribution Works
- Headworks Owned and Operated by Alberta Environment and Parks
- Major Canals (District Owned and Operated)

There are 13 irrigation districts in Alberta providing water to 1,476,306 assessed acres of land. The infrastructure that provides water to the irrigation districts is comprised of approximately 7,973 kilometers of conveyance system, of which 339 kilometers are owned and operated by Alberta Environment and Parks*.

* based on 2019 data.

Figure 14. Alberta's Irrigation Districts

Glossary

Acres Actually irrigated: A parcel of assessed land that includes an irrigation system and received water during the current year, as reported by the irrigation districts.

Acres covered by an irrigation system: A parcel of land recorded on the assessment roll of an irrigation district as having irrigation acres and has some type of irrigation system.

Irrigated this year: A parcel of land that received irrigation water in the current year.

Not irrigated this year: A parcel of land that did not receive irrigation water in the current year.

Acres with no irrigation system: A parcel of land recorded on the assessment roll of an irrigation district as having irrigation acres without any type of system.

Assessment roll: List of all parcels in a district that have irrigation acres, and acres subject to terminable or annual agreements. To learn more about assessment rolls, please refer to Alberta's Irrigation Districts Act.

Canal Evaporation: Water lost through the delivery system by evaporation from the water surface of an open channel.

Canal Seepage: Water lost through the delivery system through the sides and bottom of an open channel.

Corn Heat Unit: A numerical measure of the growth response of a corn plant to daily minimum and maximum temperatures. Zero corn heat units are calculated when daily minimum temperatures are below 4.4°C and daily maximum temperatures are below 10°C. They are calculated on a daily basis and accumulated annually starting on May 15 and continuing until the first killing frost of -2°C.

Crop Water Requirement: The amount of water a crop needs to transpire in response to meteorological conditions.

Crop Type: Plants that are grown in the irrigation districts are grouped into five categories: cereals, forages, oil seeds, specialty crops, and other.

Cereals: Annual grasses grown for their grain. Crops reported include barley, Canada Prairie Spring (CPS) wheat, durum wheat, grain corn, hard red spring wheat, malt barley, oats, rye, soft wheat, triticale, and winter wheat.

Forages: Plants that are consumed by livestock. Crops reported include alfalfa (two & three cut, hay, and silage), barley silage, brome hay, corn silage, grass hay, green feed, milk vetch, native pasture, oats silage, sorghum/sudan grass, tame pasture, timothy hay, and triticale silage.

Oil Seeds: Plants that are grown for the oil contained in the seeds. Crops reported include canola, flax, mustard and safflower.

Specialty Crops: Include fruits and vegetables, horticulture, seed production, pulse crops, and nursery crops. Crops reported include alfalfa seed, canola seed, carrots, cat nip, chick peas, dill, dry beans, dry peas, faba beans, fresh sweet corn, fresh peas, grass seed, hemp, lawn turf, lentils, market gardens, mint, nursery, onions, potatoes, pumpkins, seed potatoes, small fruit, soy beans, sugar beets, sunflower and yellow peas.

Other: Other reported include miscellaneous, non-crop, summer fallow, and unknown.

Delivered for Irrigation: Any water delivered by an irrigation district for irrigation purposes.

Delivered for Other Use: Any water delivered by an irrigation district for a use other than irrigation; this includes municipal, domestic, other agricultural, industrial, and environmental uses.

Drainage Works: A natural or man-made, open channel or pipeline that provides a means to move unused water away from irrigation works.

Expansion Limit: The maximum allowable number of irrigation acres plus acres subject to a terminable agreement in an irrigation district, as per the Irrigation Districts Act. (reason: Annual acres can result in the total irrigated area exceeding the expansion limit).

Frost Free Period (0°C): Continuous number of days where the minimum daily temperature does not drop below 0°C.

Frost Free Period (-2°C): Continuous number of days where the minimum daily temperature does not drop below -2°C.

Gross Annual Diversion: All water diverted into the works of an irrigation district from a water source. It includes water used directly for irrigation purposes, reservoir filling, and the water supplied or licenced to municipal, domestic, other agricultural, industrial, and environmental uses, as well as losses through seepage and evaporation.

Irrigation District: A corporation that operates under the authority of the Alberta Irrigation Districts Act whose primary purpose is to convey and deliver water through irrigation works, divert and use quantities of water within the terms of its licence, and to construct, operate and maintain irrigation works. An irrigation district is the geographical area consisting of the parcels of land included in the district.

Irrigation District Irrigation Rate: The annual amount charged by an irrigation district per irrigation acre of land for irrigation water delivery. Some districts levy additional surcharges for services including pipeline and/or pressurized delivery, using more water than allocated, and automated screen cleaning.

Irrigation District Works: Any structure, device, or artificial body of water or watercourse used or to be used by a district.

Rehabilitated: includes work re-constructed through the Irrigation Rehabilitation Program (IRP), Alberta Environment and Parks and district funded infrastructure projects.

Closed pipeline: A buried conduit that is closed at the outlet.

Open pipeline: A buried conduit that is open at the outlet.

Membrane-lined canal: An open channel that has been lined with a membrane material to prevent water seepage.

Concrete-lined canal: An open channel that has been constructed with concrete to prevent water seepage.

Earth canal: An open channel that has been constructed with a natural low porosity material that reduces water seepage.

Un-rehabilitated: includes irrigation district works, in particular, canals that have not been re-constructed.

Irrigation method: On-farm technique and system used to apply irrigation water to an irrigated field. Irrigation systems are grouped into five categories: high pressure pivot sprinkler, low pressure pivot sprinkler, wheel move sprinkler, gravity, and other.

Low pressure pivot sprinkler includes:

Pivot medium pressure: Centre pivot irrigation system with medium pressure (between 30 and 50 psi) impact sprinklers.

Pivot medium pressure – corner arm: Centre pivot irrigation system with medium pressure (between 30 and 50 psi) impact sprinkler nozzles with the addition of a secondary pivotal arm connected to the end of the centre pivot boom.

Pivot low pressure: Centre pivot irrigation system with low pressure (less than 30 psi) spray nozzles.

Pivot low pressure – corner arm: Centre pivot irrigation system with medium pressure (less than 30 psi) impact spray nozzles with the addition of a secondary pivotal arm connected to the end of the centre pivot boom.

Linear – low pressure: Linear move irrigation pivot system with high pressure (less than 30 psi) impact sprinklers that irrigate a rectangular field.

High pressure pivot sprinkler includes:

Pivot high pressure: Centre pivot irrigation system with high pressure (greater than 50 pounds per square inch (psi) impact sprinklers.

Pivot high pressure – corner arm: Centre pivot irrigation system with high pressure (greater than 50 psi) impact sprinklers with the addition of a secondary pivotal arm connected to the end of the centre pivot boom.

Linear – high pressure: Linear move irrigation pivot system with high pressure (greater than 50 psi) impact sprinklers that irrigate a rectangular field.

Wheel move includes:

Wheel move – two laterals: Two wheel mounted pipelines with sprinklers along their length per parcel of land.

Wheel move – four laterals: Four wheel mounted pipelines with sprinklers along their length per parcel of land.

Gravity includes:

Gravity – developed: surface irrigation system with some land modification (leveling) or application control (construction of border strips, furrows, dykes), where the soil surface is used to distribute and infiltrate the applied water.

Gravity undeveloped: surface irrigation system without any land modification (leveling) or application control (furrows, border strips, dykes).

Other includes:

Volume gun – stationary: Large volume sprinkler stationed at a single point.

Volume gun – traveller: Large volume sprinkler mounted on wheels.

Solid set: Sprinklers mounted on risers connected to a buried pipe.

Hand move: Sprinklers mounted on risers connected to a surface pipe that can be moved.

Micro – spray – sprinkler: Spray emitter connected to a drip irrigation system.

Micro – drip – trickle: Drip emitter connected to a drip irrigation system.

Other application use: Water used for purposes other than irrigation.

Live storage: Portion of the volume of water stored in a reservoir that is available for use for flood control, power production, irrigation or other downstream releases. In contrast, dead storage refers to the portion of water in a reservoir that cannot be drained or released from the reservoir under normal operations.

Net District Storage Change: Net volume of water removed from internal irrigation district reservoirs for use. Irrigation districts own and operate reservoirs to store irrigation water for release when there is insufficient diversion capacity to meet the demand for water. They are also used for normal district operations to stabilize flows and capture unused water for further use.

Net Irrigation Requirement: The amount of water supplied by irrigation to meet the crop water requirement.

Percent of Licence: The percentage of the irrigation district's water licence volume that was diverted in a year.

Replacement Cost: The cost in today's dollars to replace a piece of irrigation district infrastructure.

Reservoir Evaporation: Water lost from the surface of a reservoir by vaporization.

Reservoir Seepage: Water lost from a reservoir through seepage.

Return: Water returned by an irrigation district infrastructure to a river system.

Water Licence (Irrigation): Includes irrigation district and private licences.

Irrigation District Water Licence: An authorization which permits the irrigation district to divert a certain volume of water, at a specific rate, from a watercourse into district owned conveyance and storage systems.

Private Irrigation Water Licence: An authorization which permits the licence holder to divert a certain volume of water, at a specific rate, from a watercourse to a private irrigation development project.

Water Licence Allocation (Irrigation District): The total volume of water that an irrigation district is licenced to annually divert.