Alberta irrigation information 2021

Alberta

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

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Alberta Irrigation Information 2021 | Alberta Agriculture, Forestry and Rural Economic Development

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 m^3
1 ac-ft = 1.233 dam^3
1 inch = 25.4 mm
1 mile = 1.609 km

Metric to Imperial

1 ha = 2.471 acres
1 m^3 = 0.00081 $ac\text{-}ft^3$
1 dam^3 = 0.8107 $ac\text{-}ft^3$
1 mm = 0.0394 inches
1 km = 0.6214 miles

Other

1 m^3 = 1000 L^3
1 dam^3 = 1000 m^3
1 dam^3 = 1 $megalitre^3$
1 km = 1000 m

List of Tables

List of Figures

TABLE 1. DETAILS OF CROPS GROWN WITHIN THE IRRIGATION DISTRICTS

CROP TYPE		AID		BRID		EID		LID	
		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	22,574	1,107	14,693	26	150	16
	CPS Wheat			460		1,078			
	Durum Wheat			23,571	519	7,171			
	Grain Corn			4,821	85	5,255			
	Hard Spring Wheat			44,997	2,703	50,085	106		
	Malt Barley			524	22	399			
	Miscellaneous Cereals			66		124			
	Oats			1,637	117	1,931		30	
	Rye			2,809	59	696			
	Soft Wheat			3,829	446	2,619			
	Triticale			115	194	3,756		60	
	Winter Wheat			2,619	37	2,294			
FORAGES	Alfalfa - Two cuts					29,672	618		
	Alfalfa - Three cuts					6,308			
	Alfalfa Hay	1,345	550	7,103	382	2,269		663	75
	Alfalfa Silage			287	147	715			
	Barley Silage			3,419	377	4,014			
	Barley Silage (underseeded)					998			
	Brome Hay								
	Corn Silage			9,836	46	16,388			
	Custom Variety Forage / Misc.			132		587			
	Grass Hay		6	8,166	630	14,795	121	466	330
	Green Feed	202	89	1,294	116	6,009	82	69	
	Native Pasture	14		277	82	690	417	100	
	Oats Silage			135					
	Sorghum/Sudan Grass					180			
	Tame Pasture	388	428	7,164	1,101	32,096	2,629	1,393	30
	Timothy Hay					6,516	56	705	
	Other Silage (Triticale, Wheat)								
OIL SEEDS	Canola		107	19,796	705	35,214			
	Flax			3,684	84	6,335			
	Mustard			1,021					

TABLE 1. DETAILS OF CROPS GROWN WITHIN THE IRRIGATION DISTRICTS

CROP TYPE		AID		BRID		EID		LID	
		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
SPECIALTY CROPS	Alfalfa Seed			4,183	36	13,183	74		
	Canary Seed								
	Canola Seed			20,001	283	9,841			
	Carrots					463			
	Catnip								
	Chick Peas			136					
	Dill					250			
	Dry Beans			21,901	486	4,792			
	Dry Peas			12,740	325	9,067	127		
	Faba Beans			1,517		1,360	75		
	Fresh Corn (sweet)								
	Fresh Peas			168		67			
	Grass Seed			608		288			
	Hemp			3,696	73	917			
	Lawn Turf (Turf Sod)								
	Lentils			533	11				
	Market Gardens			22	8	326	25		
	Mint			283		125			
	Nursery					9	399		
	Onions								
	Potatoes			12,970	166	6,678			
	Quinoa			344					
	Seed Potatoes					207			
	Soybeans			112		196	64		
	Sugar Beets			11,974	142	1,524			
	Sunflower			467		707			
	Yellow Peas								
OTHER	Miscellaneous	44	65	49	179	1,475	277	228	717
	Non Crop					115	31		
	Summer Fallow			122	120	126	59		
	Unknown								
TOTAL ACRES		2,468	2,236	262,163	10,791	304,603	5,186	3,864	1,168
		4,704		**272,954**		**309,789**		**5,032**	

TABLE 1. DETAILS OF CROPS GROWN WITHIN THE IRRIGATION DISTRICTS

CROP TYPE		LNID		MID		MVID		RCID	
		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	18,145		904	145	589			
	CPS Wheat	766							
	Durum Wheat	9,874		290					
	Grain Corn	342							
	Hard Spring Wheat	3,602		2,303	188				
	Malt Barley	149							
	Miscellaneous Cereals								
	Oats	747		80			16		
	Rye	877							
	Soft Wheat	9,610							
	Triticale	1,328							
	Winter Wheat	3,087		369	160				
FORAGES	Alfalfa - Two cuts	8,823							
	Alfalfa - Three cuts	5,053							
	Alfalfa Hay	10,857		7,513	225	1,305	68	781	
	Alfalfa Silage	6,851							
	Barley Silage	31,725		270					
	Barley Silage (underseeded)	585							
	Brome Hay	400							
	Corn Silage	28,621							
	Custom Variety Forage / Misc.								
	Grass Hay	4,513		448	20	357			
	Green Feed	76		87		99	32		
	Native Pasture	244							
	Oats Silage	460							
	Sorghum/Sudan Grass								
	Tame Pasture	3,930		1,218	362	894			
	Timothy Hay	6,582				128			
	Other Silage (Triticale, Wheat)								
OIL SEEDS	Canola	27,311		2,855	154	177		116	
	Flax	1,153		179					
	Mustard								

TABLE 1. DETAILS OF CROPS GROWN WITHIN THE IRRIGATION DISTRICTS

CROP TYPE		LNID		MID		MVID		RCID	
		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
SPECIALTY CROPS	Alfalfa Seed								
	Canary Seed								
	Canola Seed	1,901		130					
	Carrots								
	Catnip								
	Chick Peas								
	Dill	147							
	Dry Beans	554							
	Dry Peas	387		130					
	Faba Beans	150							
	Fresh Corn (sweet)								
	Fresh Peas	299							
	Grass Seed			260					
	Hemp	1,907			20				
	Lawn Turf (Turf Sod)	671							
	Lentils								
	Market Gardens	48							
	Mint								
	Nursery	7							
	Onions								
	Potatoes	1,979							
	Quinoa	300							
	Seed Potatoes								
	Soybeans								
	Sugar Beets	2,343							
	Sunflower	31							
	Yellow Peas								
OTHER	Miscellaneous	476							
	Non Crop	86							
	Summer Fallow				20				
	Unknown								
TOTAL ACRES		196,994		17,036	1,294	3,547	116	897	
		196,994		**18,330**		**3,663**		**897**	

TABLE 1. DETAILS OF CROPS GROWN WITHIN THE IRRIGATION DISTRICTS

CROP TYPE		RID		SMRID		TID		UID	
		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	7,111	311	20,675	1,224	7,671		3,110	1,740
	CPS Wheat	444	90	3,635	25				
	Durum Wheat	2,199	309	35,646	1,777	3,333	40		
	Grain Corn			2,270		1,896			42
	Hard Spring Wheat	3,553	406	37,187	1,685	10,127	75	3,428	2,041
	Malt Barley	142		493	65	296		130	
	Miscellaneous Cereals			246	10				
	Oats	88		620	37	181		9	
	Rye			2,998	20	1,009			
	Soft Wheat			11,503	368	440			
	Triticale			1,264	30	350		282	
	Winter Wheat	1,857	10	13,607	785	1,814		702	
FORAGES	Alfalfa - Two cuts	8,321	50	5,410	12	324		2,481	880
	Alfalfa - Three cuts	929	75	7,008	2	2,390		1,445	18
	Alfalfa Hay	2,066	145	17,210	2,021	3,294	19	74	97
	Alfalfa Silage	170		741	13	175		68	
	Barley Silage	1,236	54	4,892	412	623	10	1,788	320
	Barley Silage (underseeded)			643	45				
	Brome Hay			435	44				
	Corn Silage	1,937	70	23,874	1,004	5,341		132	
	Custom Variety Forage / Misc.								
	Grass Hay	631		8,542	1,230	744		777	282
	Green Feed	280		2,694	407	788	10	133	367
	Native Pasture	218	70	2,796	1,099	169	304	2,016	617
	Oats Silage	136		116					
	Sorghum/Sudan Grass			35		137			
	Tame Pasture	1,960	214	8,896	1,572	2,762	693	1,307	888
	Timothy Hay	1,553		8,683	516	3,289		1,162	
	Other Silage (Triticale, Wheat)			697					
OIL SEEDS	Canola	9,281	299	47,570	1,834	3,904		3,354	2,606
	Flax	310		7,545	563	316			
	Mustard							806	549

TABLE 1. DETAILS OF CROPS GROWN WITHIN THE IRRIGATION DISTRICTS

CROP TYPE		RID		SMRID		TID		UID	
		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
SPECIALTY CROPS	Alfalfa Seed	135		1,237	21				
	Canary Seed			314	60				
	Canola Seed			13,677	382	3,407			
	Carrots			149					
	Catnip			101					
	Chick Peas			888					
	Dill			600	28				
	Dry Beans			32,407	443	5,473	8		
	Dry Peas	139		7,526	583	1,249		474	
	Faba Beans			680	29	132			
	Fresh Corn (sweet)			440	17	2,223			
	Fresh Peas			1,721		2,081			
	Grass Seed			267	21				
	Hemp	180		6,580	220	152			
	Lawn Turf (Turf Sod)			477		130			
	Lentils			2,028	75				
	Market Gardens	50		698	64			9	
	Mint			4,882	27				
	Nursery	43		204	3		12		
	Onions			7		1,421			
	Potatoes			22,917	195	11,546		5	
	Quinoa					14			
	Seed Potatoes					279			
	Soybeans			603	40				
	Sugar Beets			9,922	81	4,701			
	Sunflower			592	130	332			
	Yellow Peas			2,062	41				
OTHER	Miscellaneous	92		1,563	480	264	27	76	75
	Non Crop			168	885	104	15		2
	Summer Fallow			215	927	14			
	Unknown								
TOTAL ACRES		45,059	2,103	390,856	21,550	84,895	1,213	23,768	10,524
		47,162		**412,406**		**86,108**		**34,292**	

TABLE 1. DETAILS OF CROPS GROWN WITHIN THE IRRIGATION DISTRICTS

CROP TYPE		WID		ALL DISTRICTS		TOTAL ACRES (FOR ALL DISTRICTS)
		Irrigated this year	Not Irrigated this year	Irrigated this year	Not Irrigated this year	
CEREALS	Barley	9,193	744	105,289	6,304	**111,593**
	CPS Wheat	1,779	190	8,161	305	**8,466**
	Durum Wheat	376		82,459	2,645	**85,104**
	Grain Corn			14,584	127	**14,711**
	Hard Spring Wheat	10,451	78	165,733	7,282	**173,016**
	Malt Barley	321	130	2,453	217	**2,670**
	Miscellaneous Cereals			436	10	**446**
	Oats	230	108	5,553	278	**5,831**
	Rye	1,321		9,710	79	**9,788**
	Soft Wheat	1,703	30	29,705	844	**30,549**
	Triticale	75		7,230	224	**7,454**
	Winter Wheat			26,349	992	**27,341**
FORAGES	Alfalfa - Two cuts	9,055	613	64,085	2,173	**66,258**
	Alfalfa - Three cuts			23,133	95	**23,228**
	Alfalfa Hay	2,450	180	56,930	3,761	**60,691**
	Alfalfa Silage	663		9,669	160	**9,829**
	Barley Silage	5,550		53,517	1,174	**54,690**
	Barley Silage (underseeded)	994	200	3,219	245	**3,464**
	Brome Hay	667	96	1,503	140	**1,643**
	Corn Silage	760		86,889	1,120	**88,010**
	Custom Variety Forage / Misc.			719		**719**
	Grass Hay	1,288	50	40,726	2,668	**43,394**
	Green Feed	1,104	78	12,835	1,181	**14,016**
	Native Pasture	385	300	6,910	2,889	**9,798**
	Oats Silage	4		851		**851**
	Sorghum/Sudan Grass			352		**352**
	Tame Pasture	4,895	660	66,902	8,577	**75,479**
	Timothy Hay	1,452		30,070	572	**30,642**
	Other Silage (Triticale, Wheat)	705	210	1,402	210	**1,612**
OIL SEEDS	Canola	21,356	1,247	170,934	6,952	**177,886**
	Flax	130		19,653	647	**20,299**
	Mustard			1,827	549	**2,376**

TABLE 1. DETAILS OF CROPS GROWN WITHIN THE IRRIGATION DISTRICTS

CROP TYPE		WID		ALL DISTRICTS		TOTAL ACRES (FOR ALL DISTRICTS)
		Irrigated this year	Not Irrigated this year	Irrigated this year	Not Irrigated this year	
SPECIALTY CROPS	Alfalfa Seed			18,738	131	**18,868**
	Canary Seed			314	60	**374**
	Canola Seed			48,958	666	**49,623**
	Carrots	30		642		**642**
	Catnip			101		**101**
	Chick Peas			1,024		**1,024**
	Dill			997	28	**1,025**
	Dry Beans			65,127	937	**66,063**
	Dry Peas	1,186	50	32,899	1,085	**33,985**
	Faba Beans	210		4,048	104	**4,152**
	Fresh Corn (sweet)			2,663	17	**2,680**
	Fresh Peas	306		4,642		**4,642**
	Grass Seed	150		1,573	21	**1,594**
	Hemp			13,433	313	**13,746**
	Lawn Turf (Turf Sod)	2,580		3,858		**3,858**
	Lentils			2,561	86	**2,647**
	Market Gardens	160		1,313	97	**1,409**
	Mint			5,290	27	**5,316**
	Nursery	1,266	102	1,529	516	**2,045**
	Onions			1,428		**1,428**
	Potatoes	190		56,286	361	**56,647**
	Quinoa			658		**658**
	Seed Potatoes	639		1,125		**1,125**
	Soybeans			911	104	**1,015**
	Sugar Beets			30,464	223	**30,686**
	Sunflower			2,129	130	**2,259**
	Yellow Peas			2,062	41	**2,103**
OTHER	Miscellaneous	225		4,492	1,821	**6,313**
	Non Crop	535	35	1,008	968	**1,975**
	Summer Fallow			477	1,126	**1,603**
	Unknown					
TOTAL ACRES		84,384	5,101	1,420,534	61,282	**1,481,815**
		89,485		**1,481,815**		

TABLE 2. CROP TYPES GROWN WITHIN THE IRRIGATION DISTRICTS

CROP TYPE	AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID	TOTAL ACRES
CEREALS	1,466	113,312	90,233	256	48,525	4,439	604	0	16,519	136,171	27,232	11,484	26,729	476,970
	31.2%	41.5%	29.1%	5.1%	24.6%	24.2%	16.5%	0.0%	35.0%	33.0%	31.6%	33.5%	29.9%	32.2%
FORAGES	3,022	40,694	125,160	3,831	108,719	10,143	2,882	781	20,114	101,048	21,072	14,851	32,359	484,677
	64.2%	14.9%	40.4%	76.1%	55.2%	55.3%	78.7%	87.1%	42.6%	24.5%	24.5%	43.3%	36.2%	32.7%
OIL SEEDS	107	25,291	41,549	0	28,464	3,188	177	116	9,890	57,600	4,220	7,315	22,733	200,650
	2.3%	9.3%	13.4%	0.0%	14.4%	17.4%	4.8%	12.9%	21.0%	14.0%	4.9%	21.3%	25.4%	13.5%
SPECIALTY CROPS	0	93,191	50,764	0	10,724	540	0	0	547	113,471	33,350	488	6,929	310,004
	0.0%	34.1%	16.4%	0.0%	5.4%	2.9%	0.0%	0.0%	1.2%	27.5%	38.7%	1.4%	7.7%	20.9%
OTHER	109	465	2,083	945	562	20	0	0	92	4,116	234	154	735	9,515
	2.3%	0.2%	0.7%	18.8%	0.3%	0.1%	0.0%	0.0%	0.2%	1.0%	0.3%	0.4%	0.8%	0.6%
TOTAL	**4,704**	**272,954**	**309,789**	**5,032**	**196,994**	**18,330**	**3,663**	**897**	**47,162**	**412,406**	**86,108**	**34,292**	**89,485**	**1,481,815**

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

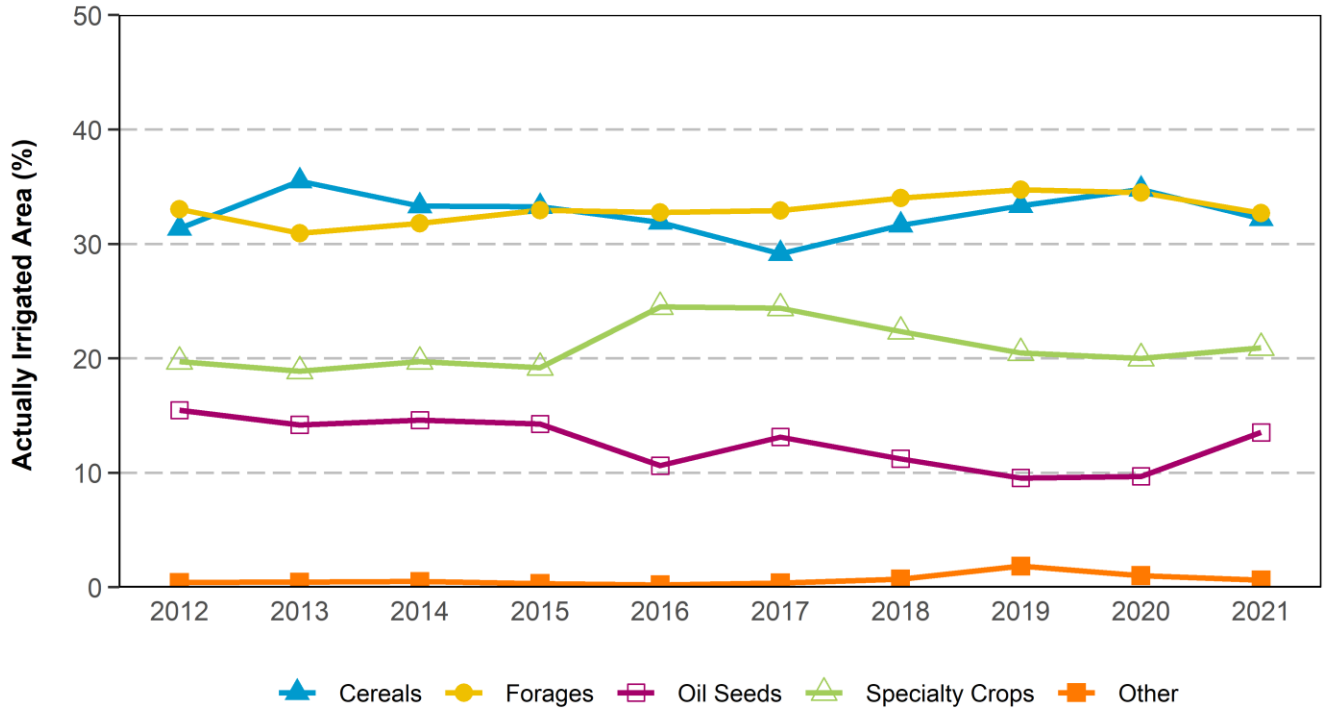


FIGURE 1. IRRIGATED CROPS WITHIN THE IRRIGATION DISTRICTS

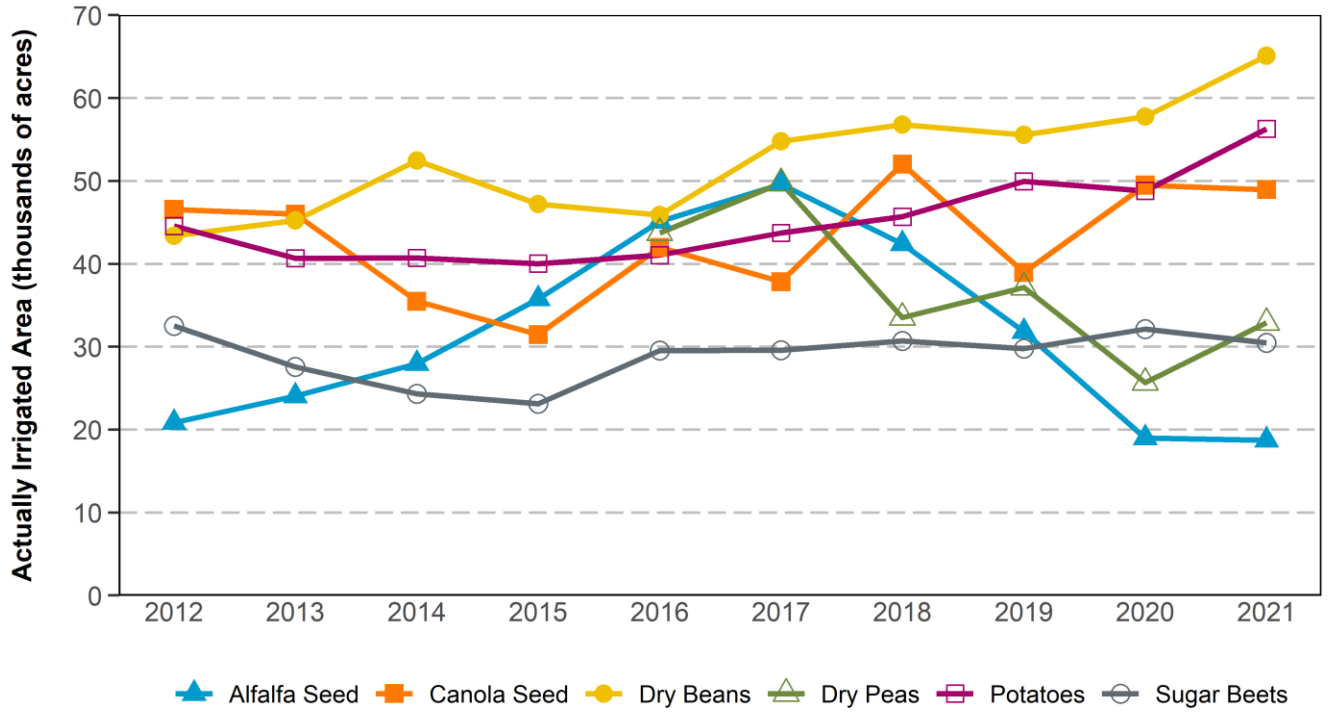


FIGURE 2. ACRES OF MAJOR IRRIGATION SPECIALTY CROPS WITHIN THE IRRIGATION DISTRICTS

TABLE 3. ON-FARM IRRIGATION METHOD ACRES WITHIN THE IRRIGATION DISTRICTS

(Page 1 of 2)

	IRRIGATION METHOD	AID	BRID	EID	LID	LNID	MID	MVID	RCID
LOW PRESSURE PIVOT	Pivot Low Pressure	1,099	164,835	215,988	411	74,899	8,343		604
	Pivot Low Pressure - Corner Arm		73,172	20,132		98,992	140		
	Linear - Low Pressure		56	2,166		520			
	Pivot Medium Pressure		103	3,921					
	Pivot Medium Pressure - Corner Arm			252					
	Pivot LEPA / LESA / PMDI								
	Pivot LEPA / LESA / PMDI Corner Arm								
	Percent of total -----	23.4%	87.8%	78.3%	8.2%	88.5%	46.3%	0.0%	67.3%
HIGH PRESSURE PIVOT	Pivot High Pressure		15,498	16,684	761		2,186	1,091	67
	Pivot High Pressure - Corner Arm		2,437	1,292		81			
	Linear - High Pressure			217					
	Percent of total -----	0.0%	6.6%	5.9%	15.1%	0.0%	11.9%	29.8%	7.5%
WHEEL MOVE	Wheel Move - One and Two Laterals	1,822	4,120	10,326	1,324	8,597	4,537	337	226
	Wheel Move - Three and Four Laterals		1,854	2,282	198	10,188			
	Percent of total -----	38.7%	2.2%	4.1%	30.2%	9.5%	24.7%	9.2%	25.2%
GRAVITY	Gravity - Developed		7,497	29,377		556	2,905		
	Gravity - Undeveloped	277	1,330	6,469	1,747	564		2,235	
	Percent of total -----	5.9%	3.3%	11.6%	34.7%	0.6%	15.8%	61.0%	0.0%
OTHER	Volume Gun - Stationary								
	Volume Gun - Traveller		25	207		150			
	Solid Set (underground sprinkler)	140		8		691	25		
	Hand Move (sprinkler above ground)	1,366	124	468	591	832	174		
	Micro - Spray - Sprinkler					135			
	Micro - Drip - Trickle					789	20		
	Subsurface - Subsurface Drip		194						
	Other Application Use								
	Percent of total -----	32.0%	0.1%	0.2%	11.7%	1.3%	1.2%	0.0%	0.0%
Total Acres with Irrigation System		4,704	271,247	309,789	5,032	196,994	18,330	3,663	897
No Irrigation System or Not Reported			1,708						
TOTAL		**4,704**	**272,954**	**309,789**	**5,032**	**196,994**	**18,330**	**3,663**	**897**

TABLE 3. ON-FARM IRRIGATION METHOD ACRES WITHIN THE IRRIGATION DISTRICTS

(Page 2 of 2)

	IRRIGATION METHOD	RID	SMRID	TID	UID	WID	Individual Method Total	Total Acres
LOW PRESSURE PIVOT	Pivot Low Pressure	28,950	300,076	46,745	19,430	64,618	925,997	1,215,434
	Pivot Low Pressure - Corner Arm	2,349	51,329	23,468	1,069	4,442	275,093	
	Linear - Low Pressure	702	1,247	256	70	678	5,695	
	Pivot Medium Pressure	681	3,152				7,857	
	Pivot Medium Pressure - Corner Arm		500				752	
	Pivot LEPA / LESA / PMDI		40				40	
	Pivot LEPA / LESA / PMDI Corner Arm						0	
	Percent of total -----	69.6%	90.1%	81.8%	60.0%	78.0%		83.1%
HIGH PRESSURE PIVOT	Pivot High Pressure	1,196	7,600	7,612	330	3,463	56,488	63,494
	Pivot High Pressure - Corner Arm		1,348	1,087			6,244	
	Linear - High Pressure	65		84		396	762	
	Percent of total -----	2.7%	2.3%	10.2%	1.0%	4.3%		4.3%
WHEEL MOVE	Wheel Move - One and Two Laterals	7,985	20,311	5,005	1,317	7,668	73,574	94,429
	Wheel Move - Three and Four Laterals	1,390	2,419	476	167	1,881	20,856	
	Percent of total -----	20.0%	5.8%	6.4%	4.3%	10.7%		6.5%
GRAVITY	Gravity - Developed	2,159	988	414	1,445	85	45,427	78,102
	Gravity - Undeveloped	1,211	4,654	883	10,118	3,098	32,585	
	Percent of total -----	7.2%	1.4%	1.5%	33.7%	3.6%		5.3%
OTHER	Volume Gun - Stationary		152	37		74	263	11,302
	Volume Gun - Traveller		29			480	891	
	Solid Set (underground sprinkler)	30	254			614	1,762	
	Hand Move (sprinkler above ground)	166	896	34	167	344	5,162	
	Micro - Spray - Sprinkler	51	39	7	22	51	305	
	Micro - Drip - Trickle	7	264		157	1,487	2,724	
	Subsurface - Subsurface Drip						194	
	Other Application Use						0	
	Percent of total -----	0.5%	0.4%	0.1%	1.0%	3.4%		0.8%
Total Acres with Irrigation System		46,940	395,298	86,108	34,292	89,379	1,462,672	1,462,672
No Irrigation System or Not Reported		222	17,107			106	19,143	19,143
TOTAL		**47,162**	**412,406**	**86,108**	**34,292**	**89,485**	**1,481,815**	**1,481,815**

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

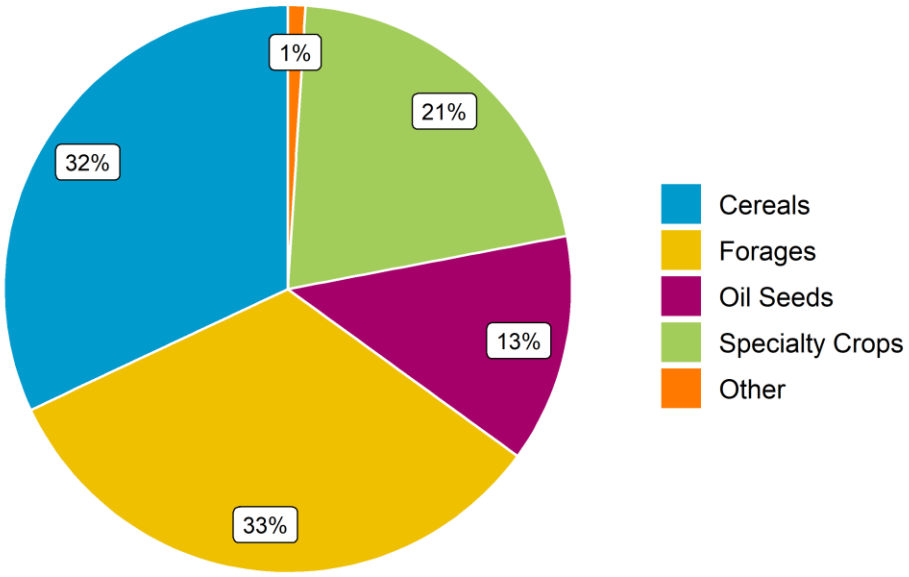


FIGURE 3. CROP TYPES WITHIN THE IRRIGATION DISTRICTS (% OF AREA)

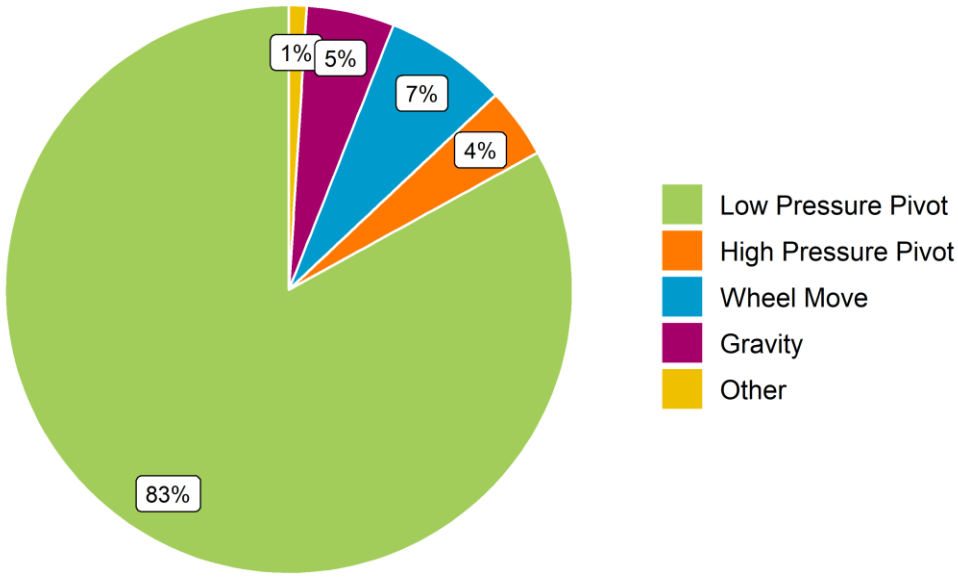
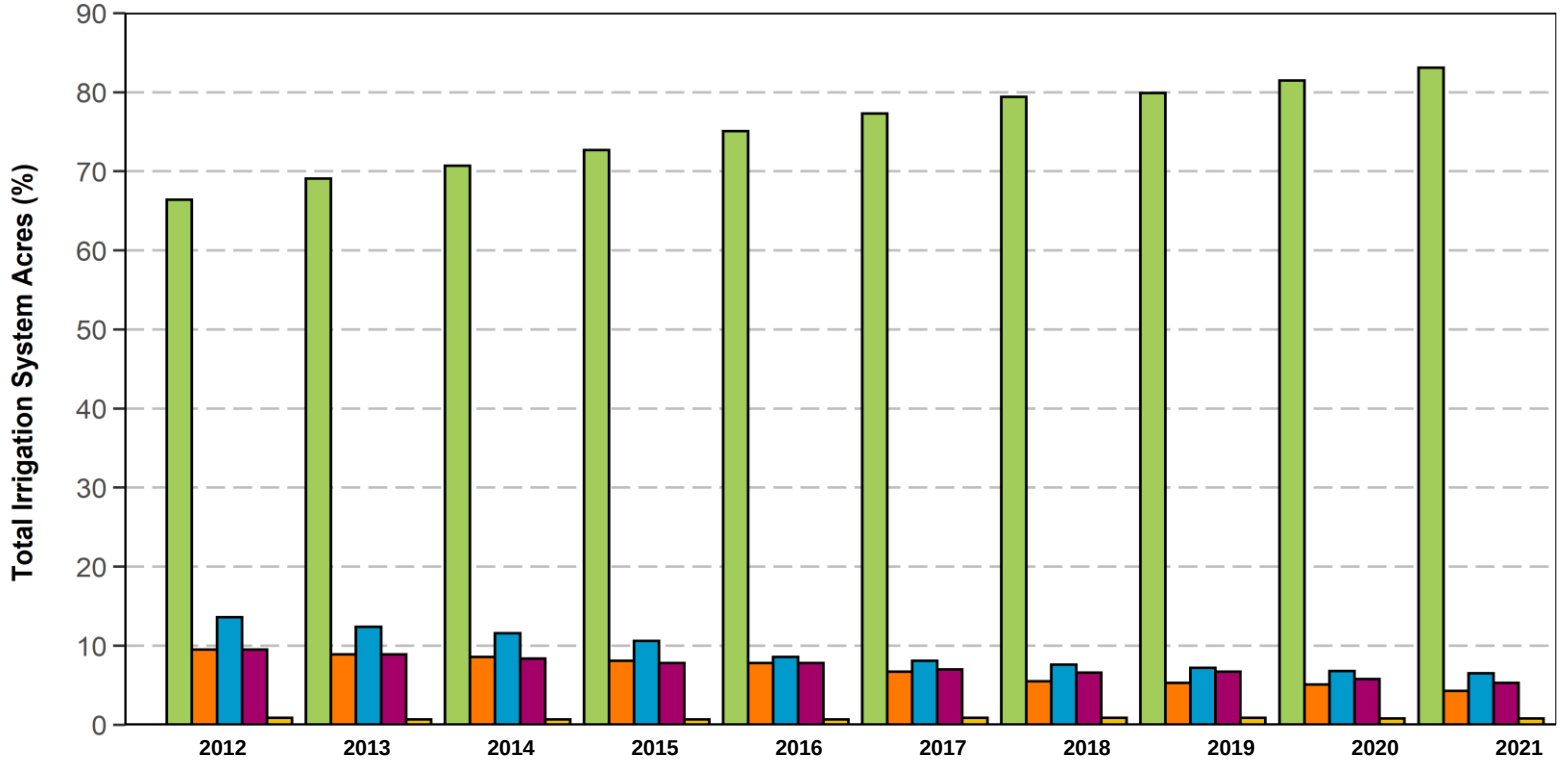


FIGURE 4. ON-FARM IRRIGATION METHODS WITHIN THE IRRIGATION DISTRICTS (% OF AREA)



	ACRES	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Low Pressure Pivot		879,651	923,391	957,117	991,859	1,038,024	1,072,113	1,115,693	1,139,291	1,173,944	1,215,434
High Pressure Pivot		126,430	119,449	116,436	110,733	107,761	93,052	77,393	76,115	72,868	63,494
Wheel move		179,837	165,561	157,056	145,124	118,962	112,091	107,193	102,824	98,668	94,429
Gravity		126,217	118,307	114,122	106,764	107,129	97,421	92,329	95,258	84,162	78,102
Other		12,444	8,785	8,941	9,698	9,731	12,807	13,067	12,399	11,806	11,302

FIGURE 5. ON-FARM IRRIGATION METHODS WITHIN THE IRRIGATION DISTRICTS

TABLE 4. ACRES ON THE ASSESSMENT ROLL WITHIN THE IRRIGATION DISTRICTS

YEAR	AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID	TOTAL
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
2020	4,698	279,441	307,588	5,365	195,063	18,300	3,647	1,091	48,095	410,772	90,347	34,797	96,996	1,496,200
2021	4,707	286,707	309,828	5,600	198,158	18,300	3,733	1,091	49,623	412,406	90,388	34,817	96,832	1,512,190

Note: Assessment roll acres include "irrigation", "terminable" and "annual" acres. Only "irrigation" and "terminable" acres are considered in district expansion limits. In 2021, irrigation districts reported 9,933 annual acres

TABLE 5. ACRES ACTUALLY IRRIGATED WITHIN THE IRRIGATION DISTRICTS

YEAR	AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID	TOTAL
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
2020	2,468	239,431	297,830	3,863	193,936	16,879	3,664	897	45,989	390,165	83,720	34,619	67,719	1,381,180
2021	2,468	262,163	304,603	3,864	196,994	17,036	3,547	897	45,059	390,856	84,895	23,768	84,384	1,420,534

TABLE 6. PRIVATE WATER LICENCES FOR IRRIGATION

There are 2,605 individual irrigation projects, outside of 13 irrigation districts, irrigating approximately 297,516 acres in Alberta. These projects vary in size from 1 acre to several thousand acres of agricultural and horticultural production (crops, greenhouses, gardening, market gardens sod and tree farms). Each of these projects is licensed to an individual, a group of producers or to private or public lands. The licensing 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	1,306	34	3	0	37
BEAVER RIVER	219	6	0	0	6
MILK RIVER	18,839	80	48	14	142
NORTH SASKATCHEWAN RIVER	27,884	279	47	17	343
PEACE RIVER	4,612	53	10	3	66
SOUTH SASKATCHEWAN RIVER	244,656	1,401	461	149	2,011
Sub-Basin					
- Bow River	18,984	104	38	13	155
- Little Bow River	32,398	105	70	30	205
- Oldman River (Lower)	18,851	23	24	17	64
- Oldman River (Upper)	7,762	55	20	5	80
- Red Deer River	36,486	364	86	18	468
- South Saskatchewan River	47,088	495	86	25	606
- Waterton / Belly / St. Mary Rivers	49,013	107	64	19	190
- Willow Creek	34,074	148	73	22	243
TOTAL	**297,516**	**1,853**	**569**	**183**	**2,605**

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
Licence authorization as of January 2022 obtained from Alberta Environment and Parks

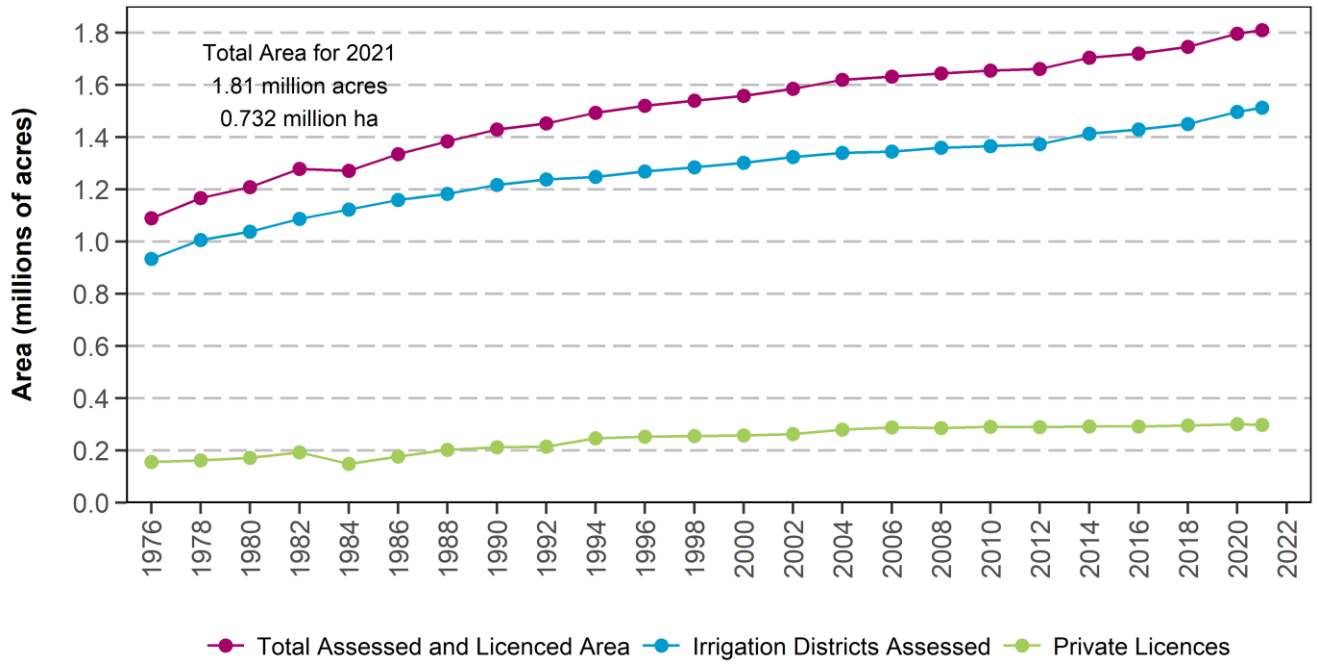


FIGURE 6. GROWTH IN IRRIGATION AREA

Note: Figure generated using biennial data and includes private water licences for crops, greenhouses, gardening, market gardens sod and tree farms only

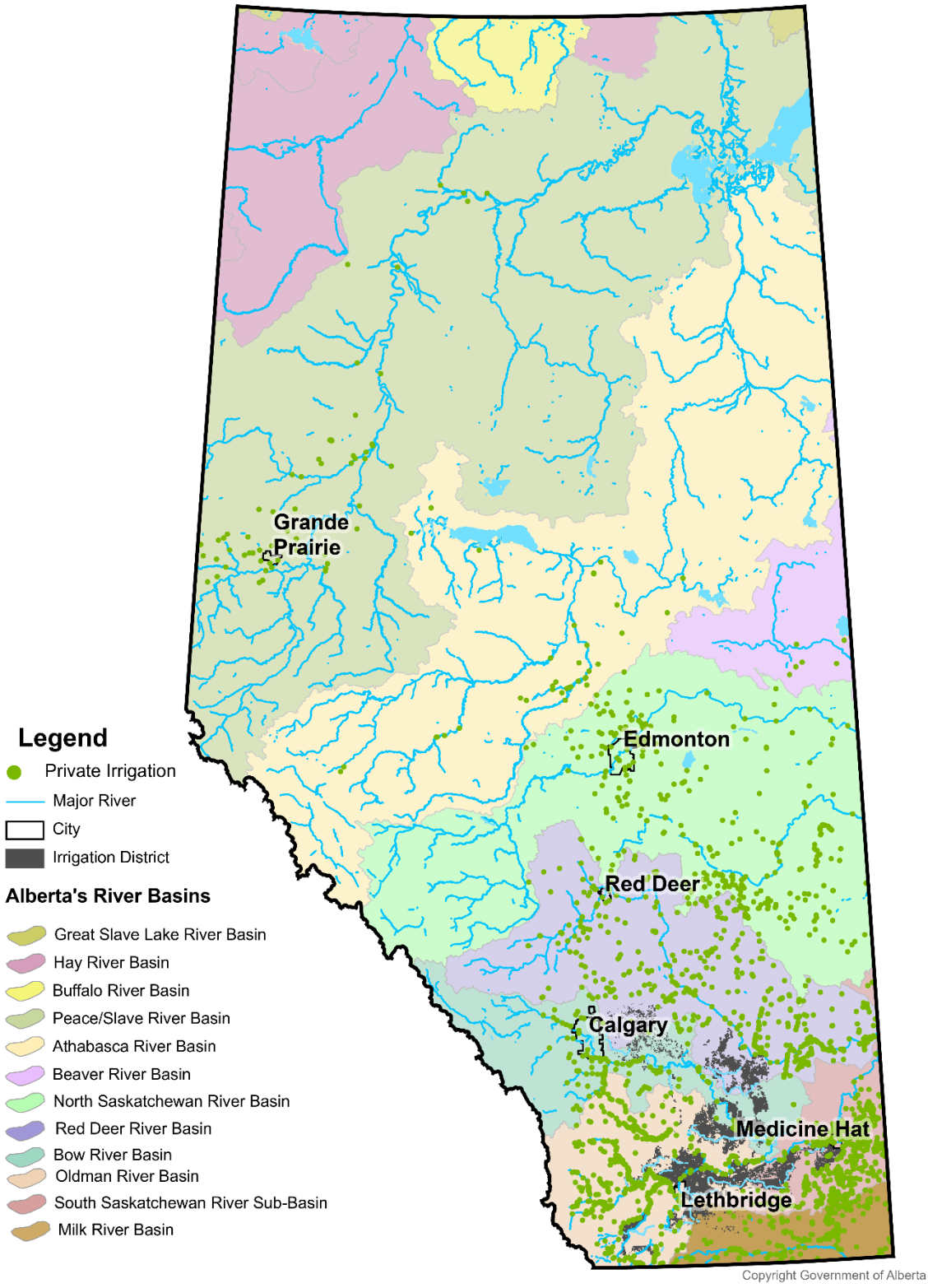


FIGURE 7. LOCATION OF IRRIGATION FROM PRIVATE WATER LICENSES IN ALBERTA'S RIVER BASINS

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
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
2020	$13.00	$16.00	$0.00	$13.00	$17.50	$14.00	$12.00	$25.00	$16.00	$23.00	$21.00	$12.88	$18.40
2021	$14.00	$16.00	$0.00	$14.00	$18.00	$14.00	$12.00	$25.00	$18.00	$23.00	$23.50	$13.27	$18.40

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

TABLE 8. ENERGY TYPES USED IN THE IRRIGATION DISTRICTS' IRRIGATED AREAS

CROP TYPE	BRID	EID	LNID	MID	RCID	RID	SMRID	TID	UID	WID	TOTAL ACRES
ELECTRICITY	212,629	179,177	76,522	1,499		23,994	266,385	61,996	17,637	33,166	873,004
	78.4%	57.8%	38.8%	8.2%		51.1%	67.4%	72.0%	51.4%	37.1%	60.2%
NATURAL GAS	26,008	64,801	52,126	10,761		15,708	109,616	20,476	773	24,699	324,968
	9.6%	20.9%	26.5%	58.7%		33.5%	27.7%	23.8%	2.3%	27.6%	22.4%
DIESEL	5,862	11,611	896	0		189	2,539	866	790	10,139	32,893
	2.2%	3.7%	0.5%	0.0%		0.4%	0.6%	1.0%	2.3%	11.3%	2.3%
GRAVITY	8,893	38,947	2,658	3,119		3,229	5,257	2,329	5,659	5,516	75,607
	3.3%	12.6%	1.3%	17.0%		6.9%	1.3%	2.7%	16.5%	6.2%	5.2%
GRAVITY PRESSURE PIPELINE	5,157	5,714	37,180	2,921	897	456	10,417	244	9,201	7,062	79,249
	1.9%	1.8%	18.9%	15.9%	100.0%	1.0%	2.6%	0.3%	26.8%	7.9%	5.5%
PUMP PRESSURE PIPELINE	715	6,850	18,425	0		0	0	0	0	395	26,386
	0.3%	2.2%	9.4%	0.0%		0.0%	0.0%	0.0%	0.0%	0.4%	1.8%
OTHER *	1,023	2,689	1,102	30		602	1,084	190	85	5,331	12,136
	0.4%	0.9%	0.6%	0.2%		1.3%	0.3%	0.2%	0.2%	6.0%	0.8%
UNKNOWN	10,958	0	8,084	0		2,763	0	7	148	3,071	25,030
	4.0%	0.0%	4.1%	0.0%		5.9%	0.0%	0.0%	0.4%	3.4%	2%
TOTAL	**271,247**	**309,789**	**196,994**	**18,330**	**897**	**46,940**	**395,298**	**86,108**	**34,292**	**89,379**	**1,449,274**

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

TABLE 9. IRRIGATION DISTRICT EXPANSION LIMITS AND WATER LICENCE ALLOCATIONS

BASIN	IRRIGATION DISTRICT	EXPANSION LIMIT (acres)	WATER SOURCE	OTHER PURPOSES* (ac-ft)	TOTAL LICENCED VOLUME (ac-ft)
BOW RIVER SUB-BASIN	BRID	295,000	Bow River	2,380	490,000
	EID	345,000	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	52,000	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		**1,589,850**		**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, management of wildlife, habitat enhancement and recreation
* Water volumes allocated to other purposes are included in the total licensed volumes

TABLE 10. GROSS ANNUAL DIVERSIONS FOR IRRIGATION DISTRICTS

YEAR	BOW RIVER SUB-BASIN			OLDMAN RIVER SUB-BASIN									SOUTH SASK RIVER SUB-BASIN	TOTAL (ac-ft)
	BRID	EID	WID	AID	LID	LNID	MID	MVID	RID	SMRID	TID	UID	RCID	
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
2020	284,400	384,500	96,360	4,337	7,232	167,486	25,685	1,932	39,819	408,700	94,784	25,821	2,237	1,543,293
2021	424,000	537,700	145,500	4,913	7,802	272,129	27,195	4,151	53,528	566,500	127,484	29,135	872	2,200,909
Percent of Licence (2021)	**86.5%**	**70.7%**	**76.4%**	**54.6%**	**65.0%**	**81.4%**	**80.0%**	**51.9%**	**66.1%**	**78.5%**	**80.7%**	**44.2%**	**29.1%**	**76.7%**

Note: Data are obtained from Water Survey of Canada, Alberta Environment and Parks, and Irrigation Districts' annual reports
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)

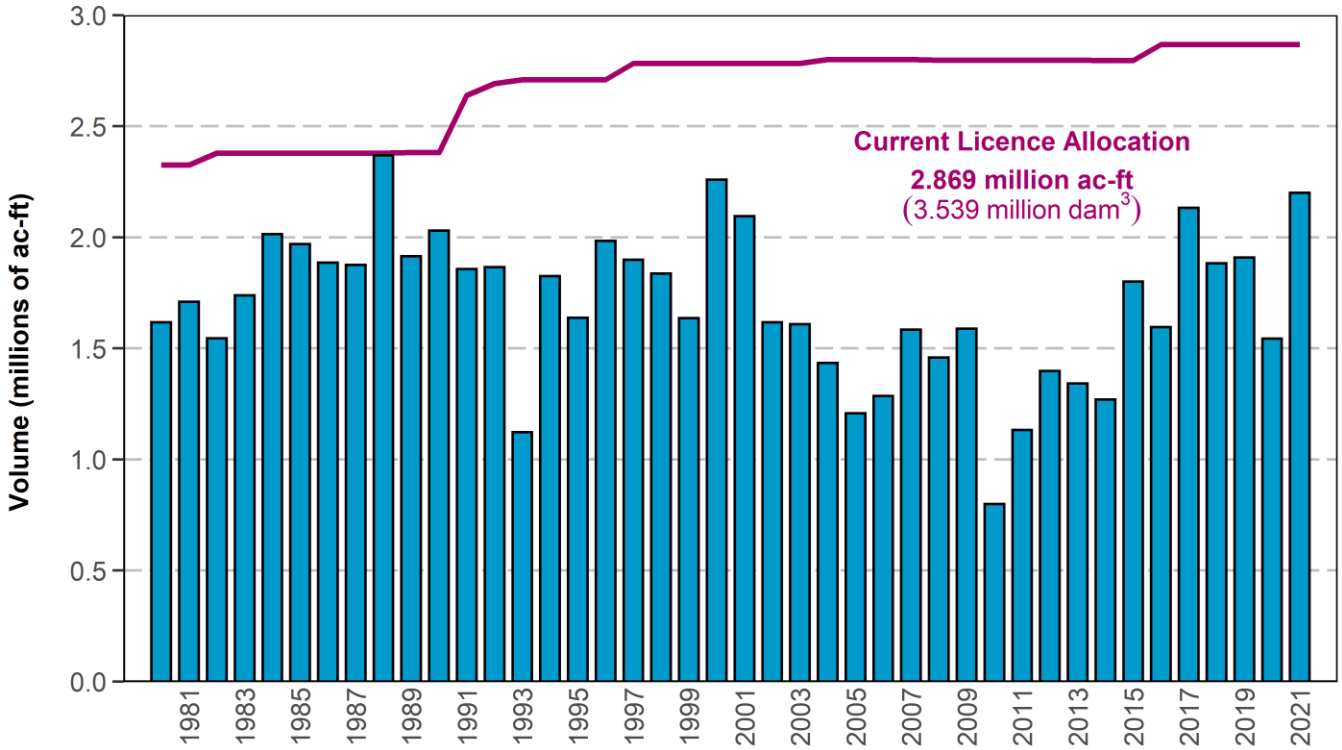


FIGURE 8. IRRIGATION DISTRICTS GROSS ANNUAL DIVERSION AND LICENCE ALLOCATION

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

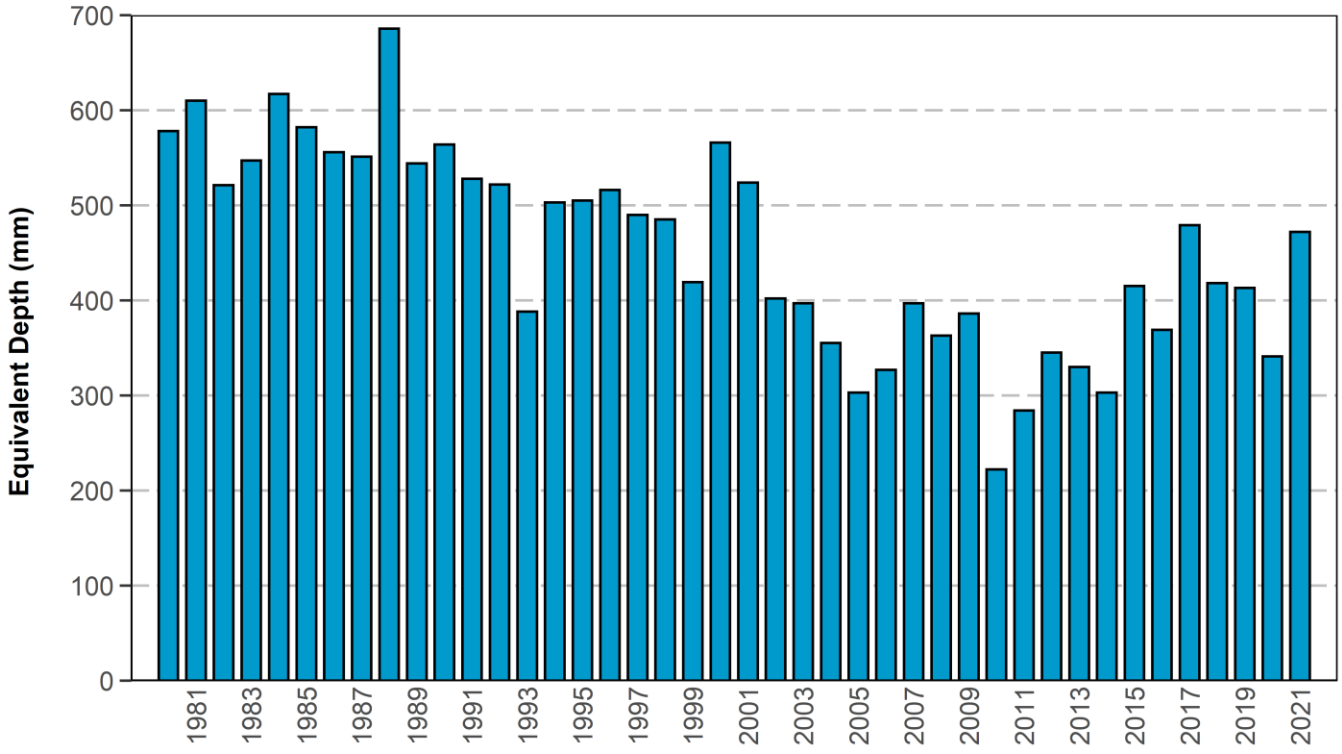
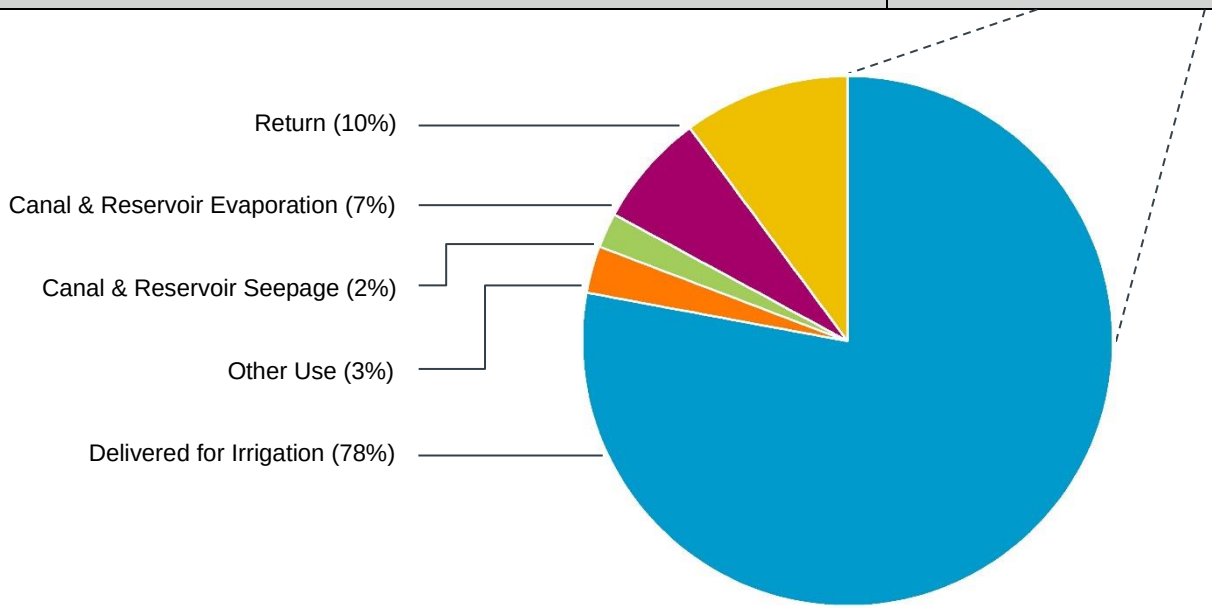


FIGURE 9. IRRIGATION DISTRICTS GROSS DIVERSION EQUIVALENT DEPTH

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 11. IRRIGATION DISTRICTS WATER BALANCE

WATER BALANCE CATEGORY	BOW RIVER BASIN DISTRICTS (ac-ft)	OLDMAN RIVER BASIN DISTRICTS (ac-ft)	TOTAL IRRIGATION DISTRICTS (ac-ft)
Gross Diversion	1,107,200	1,093,700	2,200,900
Net District Storage Change	9,400	202,400	211,800
TOTAL DISTRICT USE	**1,116,600**	**1,296,100**	**2,412,700**
Delivered for Irrigation	796,000	1,094,600	1,890,600
Delivered for Other Use	38,100	29,700	67,800
Canal & Reservoir Seepage	27,900	22,300	50,200
Canal & Reservoir Evaporation	101,100	63,200	164,300
Return	153,600	86,300	239,400
TOTAL DISTRICT OPERATIONS	**1,116,700**	**1,296,100**	**2,412,800**



Note: Irrigation district reported values were used to estimate the water balance. Where district reporting was incomplete, Alberta Agriculture, Forestry and Rural Economic Development calculated estimates. Canal and reservoir seepage and evaporation values were used from 2018.

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 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 12. TYPES OF CONVEYANCE INFRASTRUCTURE WITHIN THE IRRIGATION DISTRICTS

IRRIGATION DISTRICT	REHABILITATED										UNREHABILITATED		TOTAL CONVEYANCE WORKS (km)
	PIPELINES CLOSED		PIPELINES OPEN		MEMBRANE LINED CANALS		CONCRETE LINED CANALS		EARTH CANALS		UNREHABILITATED 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	61.6%	0.2	0.6%	4.5	11.4%	0.0	0.0%	1.0	2.5%	9.4	23.9%	39
BRID	637.6	61.6%	7.5	0.7%	107.5	10.4%	6.4	0.6%	163.7	15.8%	112.6	10.9%	1035
EID	1294.6	66.7%	21.1	1.1%	205.9	10.6%	0.0	0.0%	190.8	9.8%	227.4	11.7%	1940
LID	32.5	56.3%	0.3	0.5%	2.0	3.4%	0.0	0.0%	11.7	20.3%	11.2	19.4%	58
LNID	620.9	77.4%	6.7	0.8%	47.8	6.0%	10.5	1.3%	62.6	7.8%	53.4	6.7%	802
MID	65.6	61.2%	1.5	1.4%	1.2	1.1%	0.3	0.3%	33.7	31.4%	4.9	4.5%	107
MVID	19.0	44.5%	1.8	4.2%	0.0	0.0%	0.0	0.0%	17.0	39.6%	5.0	11.7%	43
RCID	12.2	83.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	16.9%	0.0	0.0%	15
RID	160.4	64.3%	2.5	1.0%	0.0	0.0%	0.0	0.0%	67.9	27.2%	18.5	7.4%	249
SMRID	1003.7	55.1%	25.9	1.4%	64.1	3.5%	42.0	2.3%	457.0	25.1%	229.2	12.6%	1822
TID	203.2	57.5%	11.8	3.3%	56.2	15.9%	6.5	1.8%	57.0	16.1%	18.7	5.3%	353
UID	102.0	44.2%	22.8	9.9%	13.9	6.0%	0.2	0.1%	42.2	18.3%	49.8	21.6%	231
WID	248.2	24.6%	33.6	3.3%	100.7	10.0%	5.2	0.5%	171.5	17.0%	450.4	44.6%	1,010
TOTAL	**4,424**	**57.4%**	**136**	**1.8%**	**604**	**7.8%**	**71**	**0.9%**	**1,279**	**16.6%**	**1,190**	**15.5%**	**7,704**
												Headworks Owned by Alberta Environment and Parks (AEP)	339
												Total Length of Irrigation Conveyance System (km)	8,043

Note: Rehabilitated infrastructure includes those works re-constructed through:
Irrigation Rehabilitation Program (IRP)
Alberta Environment and Parks
District funded infrastructure projects

TABLE 13. IRRIGATION DISTRICT INFRASTRUCTURE LENGTH AND REPLACEMENT COST

IRRIGATION DISTRICT	CONVEYANCE WORKS		DRAINAGE WORKS		MAJOR STRUCTURES		TOTAL OF ALL WORKS	
	Length (km)	Replacement Cost ($'000)	Length (km)	Replacement Cost ($'000)	Length (km)	Replacement Cost ($'000)	Length (km)	Replacement Cost ($'000)
AID	39	$11,150	19	$314	0	$0	59	$11,464
BRID	1,035	$367,928	807	$18,088	22	$97,753	1,843	$483,768
EID	1,940	$730,116	1,964	$46,234	61	$349,421	3,904	$1,125,771
LID	58	$13,769	5	$160	0	$0	63	$13,929
LNID	802	$276,310	260	$10,073	2	$2,880	1,062	$289,263
MID	107	$27,694	163	$5,666	0	$0	270	$33,360
MVID	43	$14,557	1	$75	0	$0	44	$14,631
RCID	15	$2,848	20	$987	1	$135	34	$3,969
RID	249	$62,383	218	$10,827	0	$0	467	$73,210
SMRID	1,820	$677,870	413	$11,381	48	$335,617	2,233	$1,024,869
TID	353	$134,021	84	$4,670	12	$14,168	437	$152,859
UID	231	$75,231	59	$1,573	11	$16,206	290	$93,010
WID	1,010	$353,883	927	$24,706	13	$18,180	1,938	$396,769
TOTAL	**7,703**	**$2,747,759**	**4,940**	**$134,752**	**170**	**$834,361**	**12,643**	**$3,716,872**

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 14. IRRIGATION DISTRICT RESERVOIRS

LOCATION	RESERVOIR	APPROXIMATE DATE OF 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	190,350	154,320
	Cross Coulee	1954	2,090	1,700
	Forty Mile	1987	86,350	70,000
	Murray	1954	30,830	24,990
	North East	1954	2,820	2,290
	Raymond	1954	1,810	1,470
	Sauder	1953/1982*	37,800	30,640
	Seven Persons	1953	900	730
	Sherburne	1952	12,190	9,880
	Stafford	1954/1982*	21,500	17,430
	Yellow Lake	1952	6,170	5,000
	TOTAL STORAGE		392,940	318,550
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			**1,050,820**	**851,880**

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

TABLE 15. PROVINCIALLY OWNED AND OPERATED RESERVOIRS USED FOR IRRIGATION

SOURCE SUPPLY FOR:	RESERVOIR	APPROXIMATE DATE OF IMPOUNDMENT	IRRIGATION LIVE STORAGE (dam^3)	IRRIGATION 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
MID, RID, SMRID, TID	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 year of reservoir enlargement

TABLE 16. HYDROELECTRIC PLANTS ASSOCIATED WITH IRRIGATION INFRASTRUCTURE

LOCATION	COMMISSION DATE	OWNER	CAPACITY (megawatts)
Oldman Reservoir	2003	ATCO and Piikani Nation	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	21
Chin Chute (Chin Reservoir)	1994	Irrican	15
SMRID - Main Canal Drops #4, #5 and #6	2004	Irrican	7
TOTAL			**96**

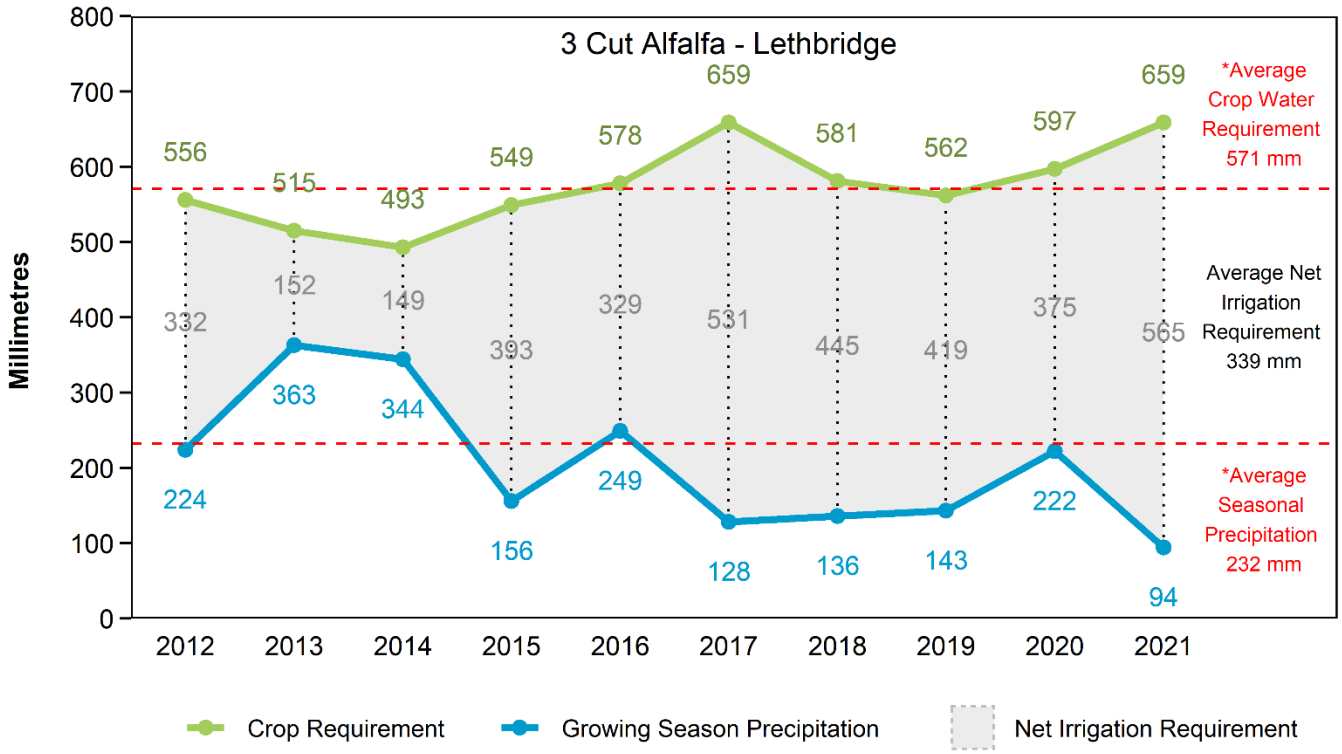


FIGURE 10. LETHBRIDGE OPTIMUM CROP WATER AND NET IRRIGATION REQUIREMENTS

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 1997 to 2021. Seasonal precipitation from May 1 to September 30

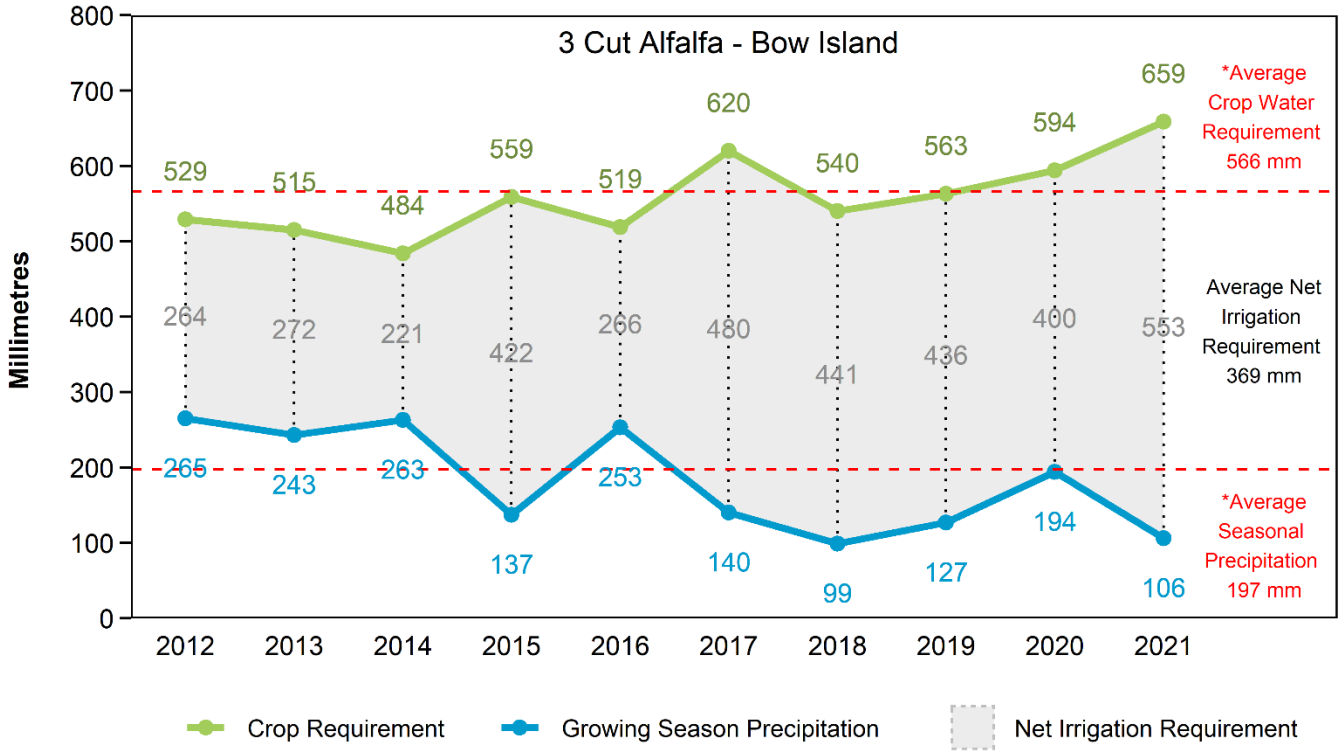


FIGURE 11. BOW ISLAND OPTIMUM CROP WATER AND NET IRRIGATION REQUIREMENTS

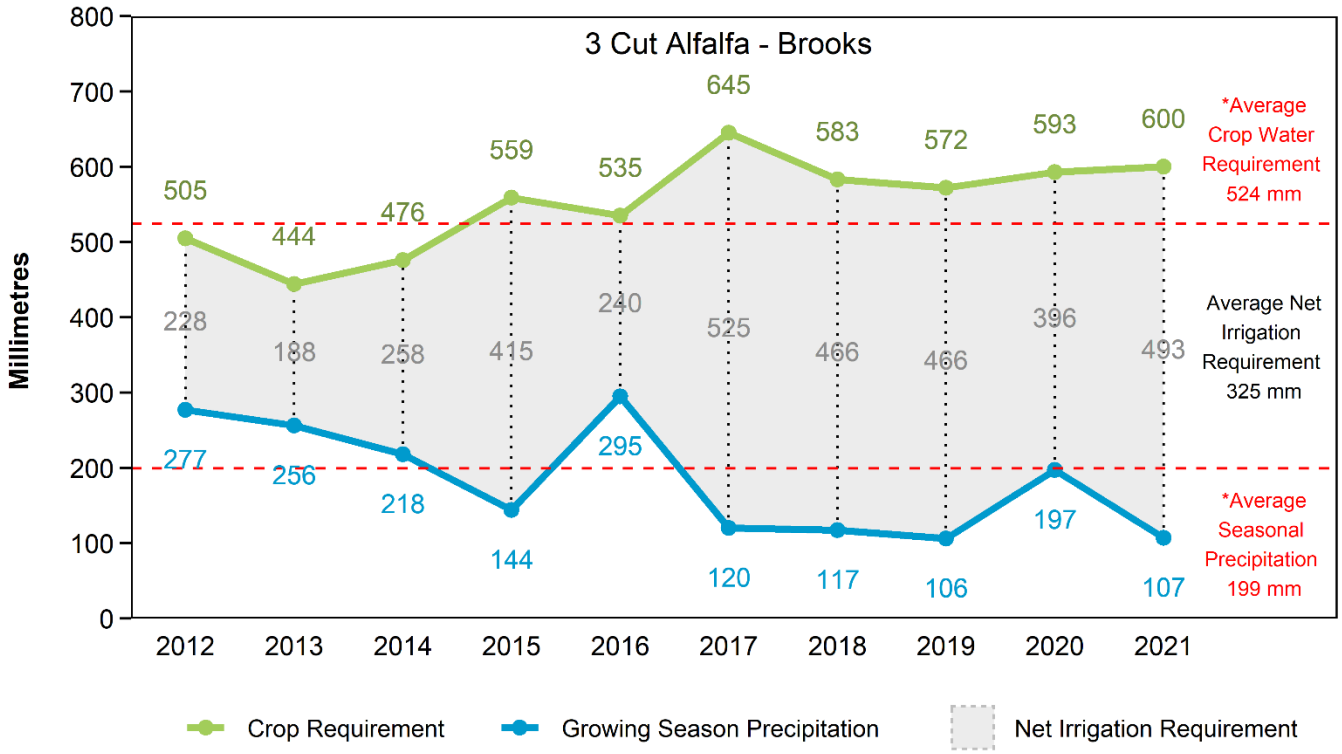


FIGURE 12. BROOKS OPTIMUM CROP WATER AND NET IRRIGATION REQUIREMENTS

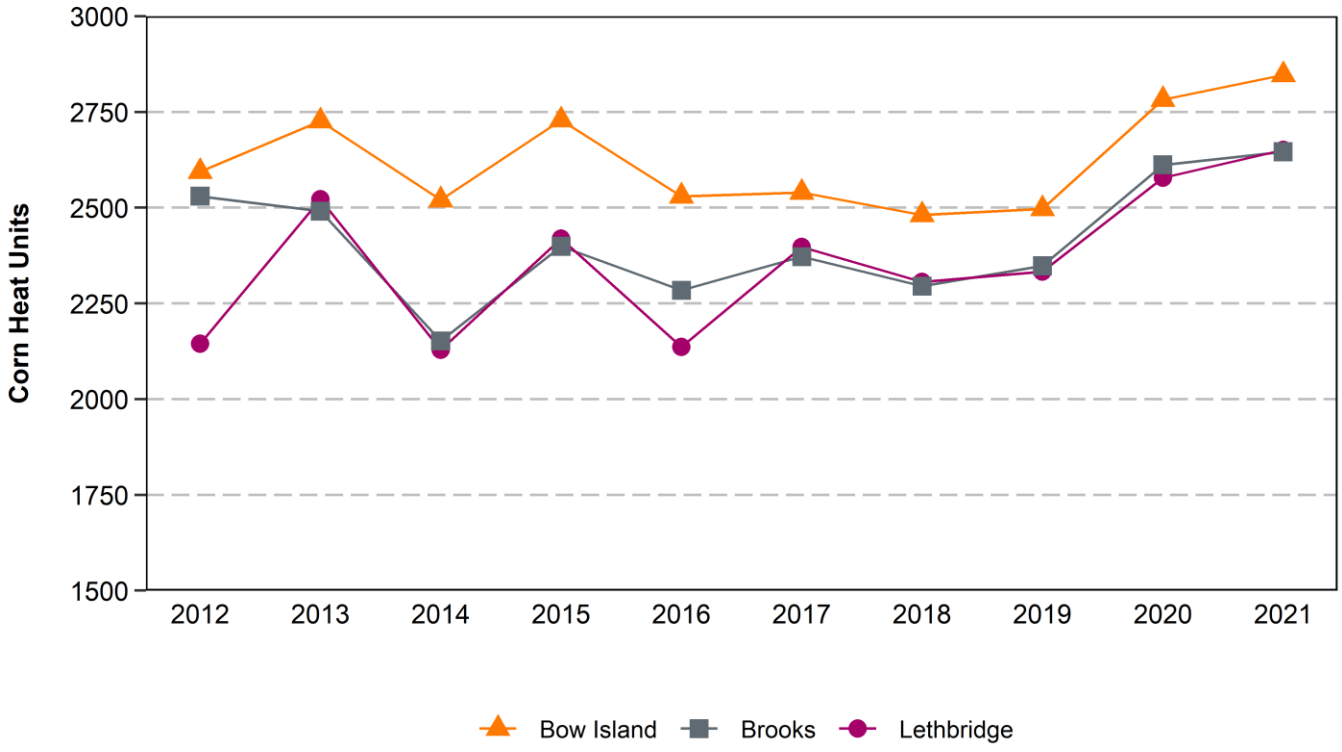


FIGURE 13. LETHBRIDGE, BOW ISLAND AND BROOKS CORN HEAT UNITS

TABLE 17. HISTORICAL RAINFALL IN SOUTHERN ALBERTA

(April 15 — October 15)

SITE	MAXIMUM RAINFALL (mm)	MINIMUM RAINFALL (mm)	NORMAL RAINFALL (mm)	2021 RAINFALL (mm)	2021 % OF NORMAL
Lethbridge	534 (1978)	71 (2001)	270	**117**	**43%**
Bow Island	439 (1993)	112 (2001)	248	**128**	**52%**
Brooks	484 (2005)	87 (2001)	234	**127**	**54%**

Note: *Normal rainfall: 1970 - 2021 average

TABLE 18. HISTORICAL CORN HEAT UNIT (CHU) IN SOUTHERN ALBERTA

(May 15 to first -2 ºC frost)

SITE	MAXIMUM CHU (2012 - 2021)	MINIMUM CHU (2012 - 2021)	LAST TEN YEAR AVERAGE*	2021 CORH HEAT UNITS	2021 % OF LAST TEN YEAR AVERAGE
Lethbridge	2651 (2021)	2129 (2014)	2362	**2651**	**112%**
Bow Island	2847 (2021)	2481 (2018)	2625	**2847**	**108%**
Brooks	2646 (2021)	2152 (2014)	2413	**2646**	**110%**

Note: *Last ten year average 2012 - 2021

TABLE 19. FROST FREE PERIOD (> 0°C) IN SOUTHERN ALBERTA

SITE	AVERAGE LAST FROST	AVERAGE FIRST FROST	AVERAGE FROST FREE DAYS	2021 LAST FROST	2021 FIRST FROST	2021 FROST FREE DAYS	2021 % OF AVERAGE
Lethbridge	May 25	Oct 7	135	Apr 27	Oct 2	158	117%
Bow Island	May 9	Sep 23	137	Apr 27	Oct 7	163	119%
Brooks	May 14	Sep 20	129	May 23	Oct 7	137	107%

Note: *Average frost free days 1998 - 2021

TABLE 20. FROST FREE PERIOD (> -2°C) IN SOUTHERN ALBERTA

SITE	AVERAGE LAST FROST	AVERAGE FIRST FROST	AVERAGE FROST FREE DAYS	2021 LAST FROST	2021 FIRST FROST	2021 FROST FREE DAYS	2021 % OF AVERAGE
Lethbridge	May 1	Sep 28	150	Apr 23	Oct 7	167	112%
Bow Island	Apr 30	Oct 2	155	Apr 26	Oct 11	168	109%
Brooks	May 9	Sep 25	139	May 3	Oct 7	157	113%

Note: *Average frost free days 1998 – 2021

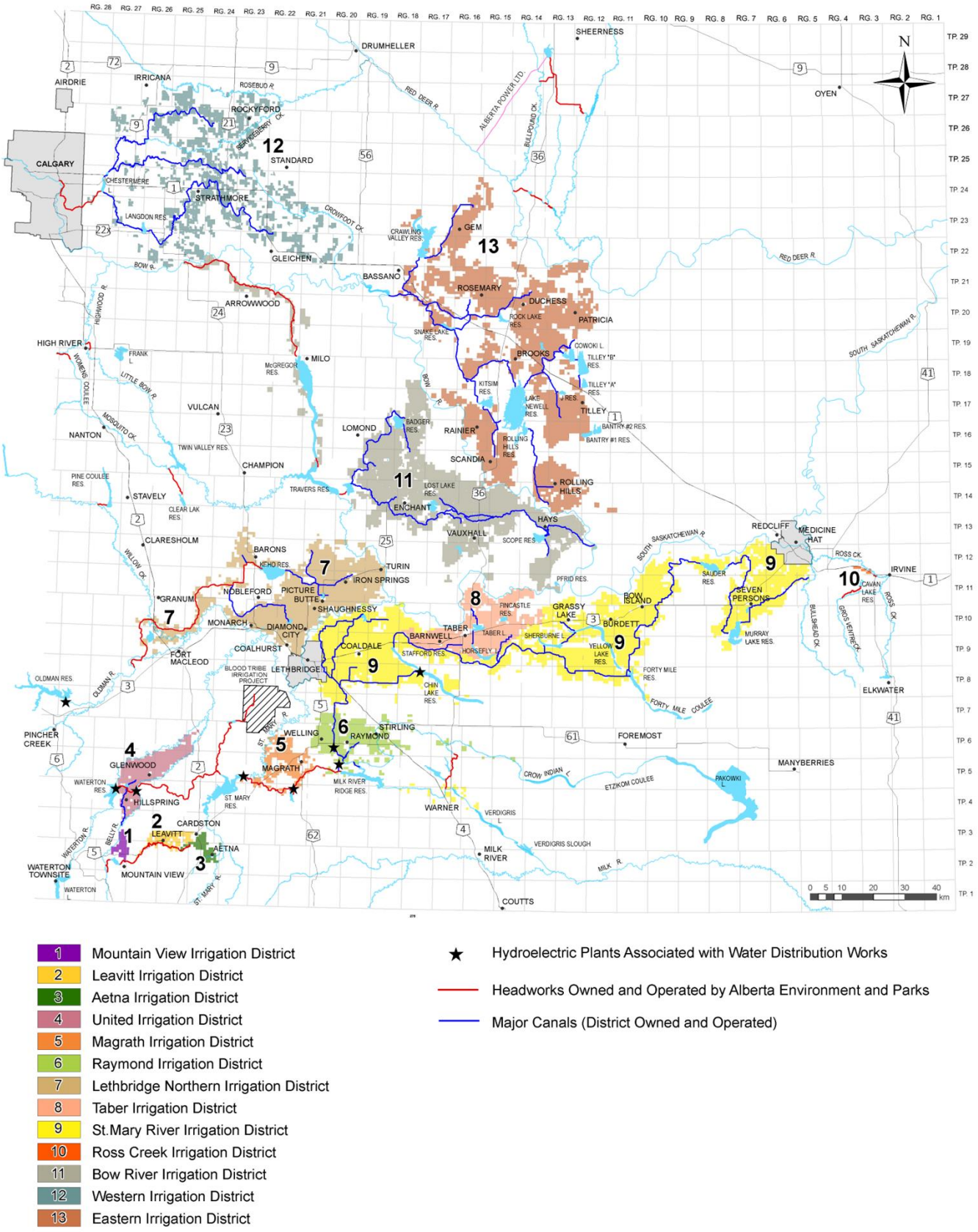


FIGURE 14. ALBERTA'S IRRIGATION DISTRICTS

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, and timothy hay.
- **Oil Seeds:** Plants that are grown for the oil contained in the seeds. Crops reported include canola, flax, and mustard.
- **Specialty Crops:** Include fruits and vegetables, horticulture, seed production, pulse crops, and nursery crops. Crops reported include alfalfa seed, canary seed, canola seed, carrots, catnip, chick peas, dill, dry beans, dry peas, faba beans, fresh corn (sweet), fresh peas, grass seed, hemp, lawn turf (turf sod), lentils, market gardens, mint, nursery, onions, potatoes, quinoa, seed potatoes, soybeans, 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 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.

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 LEPA / LESA / PMDI:

LEPA: Low Energy Precision Application Sprinklers include bubbler plate or drag socks that are mounted 1 to 1.5 feet above the soil surface or are in direct contact with the soil surface using drag socks. They have 3.5 to 5 feet spacing between the drop tubes.

LESA: Low Elevation Spray Application Sprinklers are mounted 1 to 3.5 feet above the soil surface. They have 5 feet spacing between the drop tubes.

PMDI (MDI): Precision Mobile Drip Irrigation (Mobile Drip Irrigation) tubing is pulled behind a pivot mounted manifold and the drip tubing is in direct contact with the soil or crop canopy.

Pivot LEPA / LESA / PMDI corner arm: Low Energy Precision Application Sprinklers, Low Elevation Spray Application Sprinklers, or Precision Mobile Drip Irrigation (Mobile Drip Irrigation) with the addition of a secondary pivotal arm connected to the end of the center pivot boom.

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 – one and two laterals: One and two wheel mounted pipelines with sprinklers along their length per parcel of land.

Wheel move – three and four laterals: Three and 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.

Subsurface – subsurface drip: Low-pressure irrigation system that uses buried drip tubes or drip tape.

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.