

Alberta Irrigation Information 2006



IRRIGATION IN ALBERTA

FACTS AND FIGURES FOR THE YEAR 2006

RESOURCE SCIENCES BRANCH
AGRICULTURE STEWARDSHIP DIVISION

JUNE 2007

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INTRODUCTION

This report is prepared by Alberta Agriculture and Food. 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 southern Alberta, but also includes irrigation water use across the whole province.

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

Table with 29 columns: CROP TYPE, AID (Irrigated/Not irrigated), BRID, EID, LID, LNID, MID, MVID, RCID, RID, SMRID, TID, UID, WID, and TOTAL ACRES. Rows are categorized into CEREALS, FORAGES, OIL SEEDS, SPECIALTY CROPS, and OTHER.

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Table 2. Summary of Crops Grown within the 13 Irrigation Districts

CROPS	IRRIGATION DISTRICTS													TOTAL ASSESSMENT ROLL ACRES
	AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID	
Cereals	0 0.0%	80,601 36.4%	77,478 27.3%	442 9.3%	43,806 24.9%	6,312 34.5%	474 13.3%	0 0.0%	16,568 35.8%	135,015 36.2%	20,854 25.3%	10,734 31.5%	27,270 28.4%	419,554 31.2%
Forages	2,361 65.4%	61,862 27.9%	164,836 58.0%	4,276 89.8%	112,823 64.2%	9,955 54.3%	2,995 84.1%	1,101 100.0%	26,044 56.2%	121,707 32.7%	27,244 33.0%	20,103 59.1%	57,940 60.3%	613,246 45.6%
Oil Seeds	0 0.0%	22,381 10.1%	18,271 6.4%	0 0.0%	11,178 6.4%	1,649 9.0%	0 0.0%	0 0.0%	3,090 6.7%	36,607 9.8%	2,637 3.2%	2,029 6.0%	6,517 6.8%	104,359 7.8%
Specialty Crops	0 0.0%	42,420 19.1%	20,168 7.1%	0 0.0%	5,934 3.4%	364 2.0%	0 0.0%	0 0.0%	604 1.3%	74,338 20.0%	29,181 35.4%	1,048 3.1%	4,373 4.6%	178,431 13.3%
Other	1,247 34.6%	14,413 6.5%	3,321 1.2%	45 0.9%	1,897 1.1%	40 0.2%	92 2.6%	0 0.0%	0 0.0%	4,950 1.3%	2,611 3.2%	110 0.3%	0 0.0%	28,726 2.1%
TOTAL ASSESSMENT ROLL ACRES	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

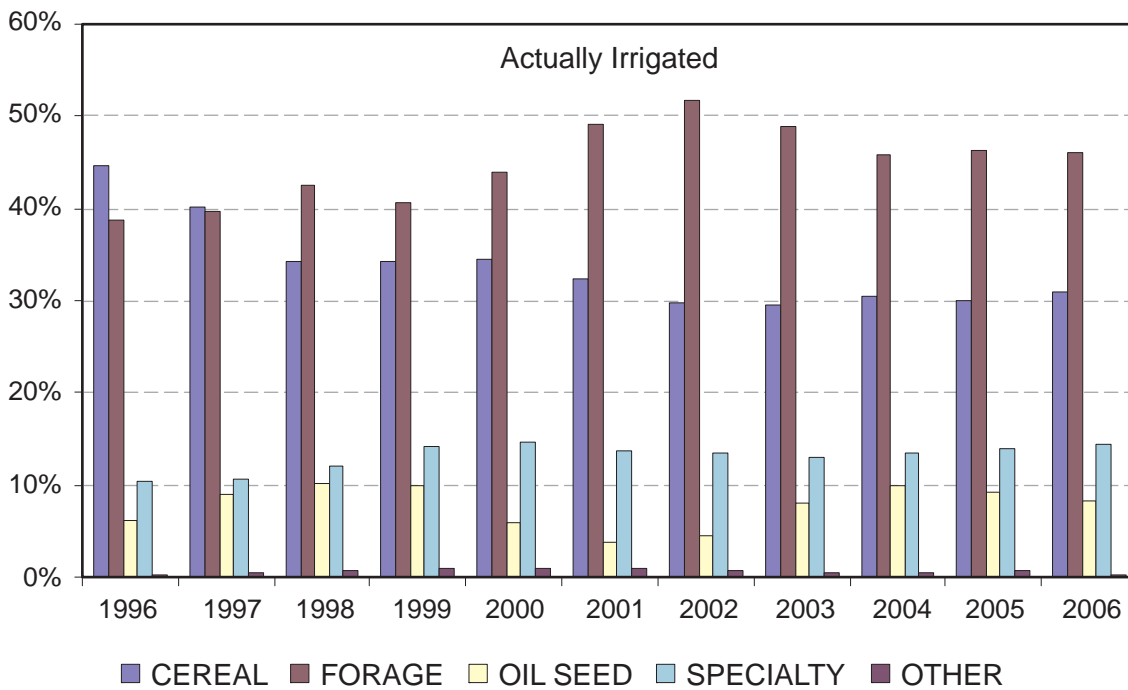


Figure 1. Irrigated Crops within the 13 Irrigation Districts in Southern Alberta (1996 - 2006)

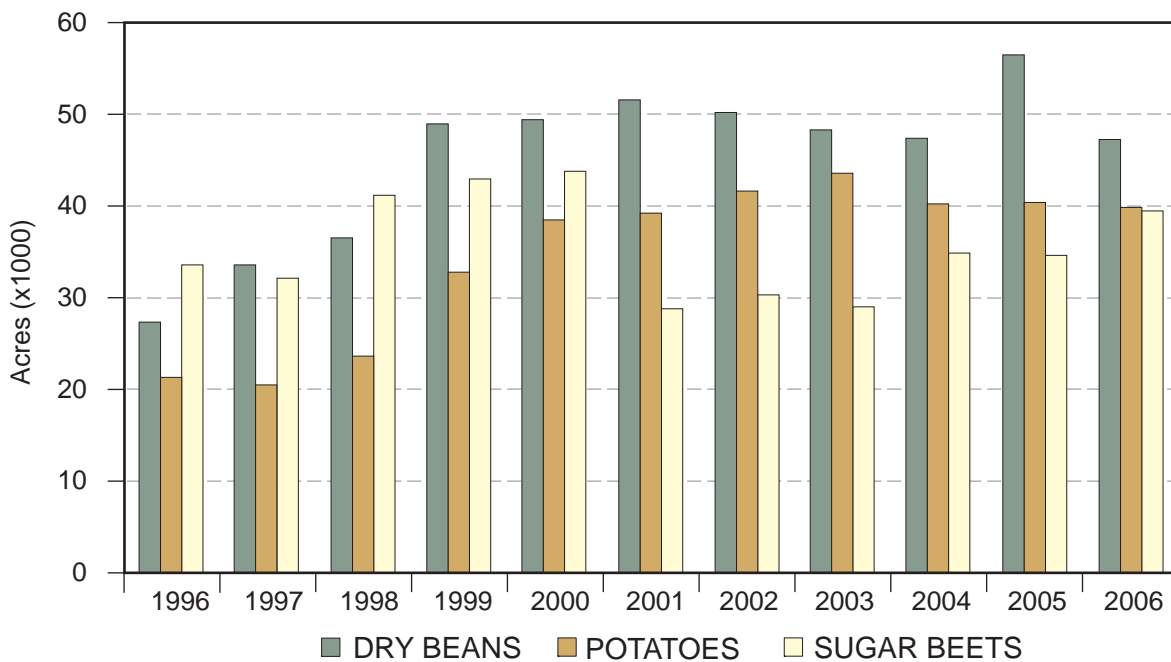


Figure 2. Acres of Three Major Irrigated Specialty Crops – Dry Beans, Potatoes and Sugar Beets within the 13 Irrigation Districts in Southern Alberta (1996 - 2006)

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Table 3. Alberta Potato Acreage (seeded acres)

Year	Process	Seed	Table	Total
1990	15,383	5,117	7,882	28,382
91	12,300	5,735	6,509	24,544
92	9,700	5,515	6,970	22,185
93	13,115	5,850	6,115	25,080
94	13,210	7,390	6,075	26,675
1995	13,450	7,400	5,765	26,615
96	13,870	8,485	5,085	27,440
97	12,225	9,430	5,025	26,680
98	12,800	10,250	5,100	28,150
99	24,616	10,886	4,698	40,200
2000	32,563	12,037	4,331	48,931
01	34,877	12,595	3,883	51,355
02	37,296	14,644	3,241	55,181
03	40,960	13,690	4,125	58,775
04	38,077	11,062	3,508	52,647
2005	37,541	10,531	2,567	50,639
06	36,282	11,878	1,615	49,775

Notes: – data are obtained from the Potato Growers of Alberta
– the above acreage is from the whole province of Alberta, but does not include the potato acreage from market gardens of less than 5 acres
– typically, the processed and the table potatoes are irrigated

Table 4. Alberta Processed Vegetable Acreage (seeded acres)

Year	Carrots	Corn	Peas
1995	740	3,884	3,163
96	710	3,869	2,775
97	367	3,044	3,125
98	856	2,818	2,983
99	1170	2,442	2,646
2000	854	2,577	2,563
01	994	3,992	3,967
02	479	3,712	4,053
03	441	4,329	4,534
04	1009	3,365	4,534
2005	647	2,068	3,346
06	817	3,055	4,675

Notes: – data are obtained from the Alberta Vegetable Growers (Processing)
– processing is defined as fresh, canned, or frozen vegetables for human consumption
– all acres are irrigated

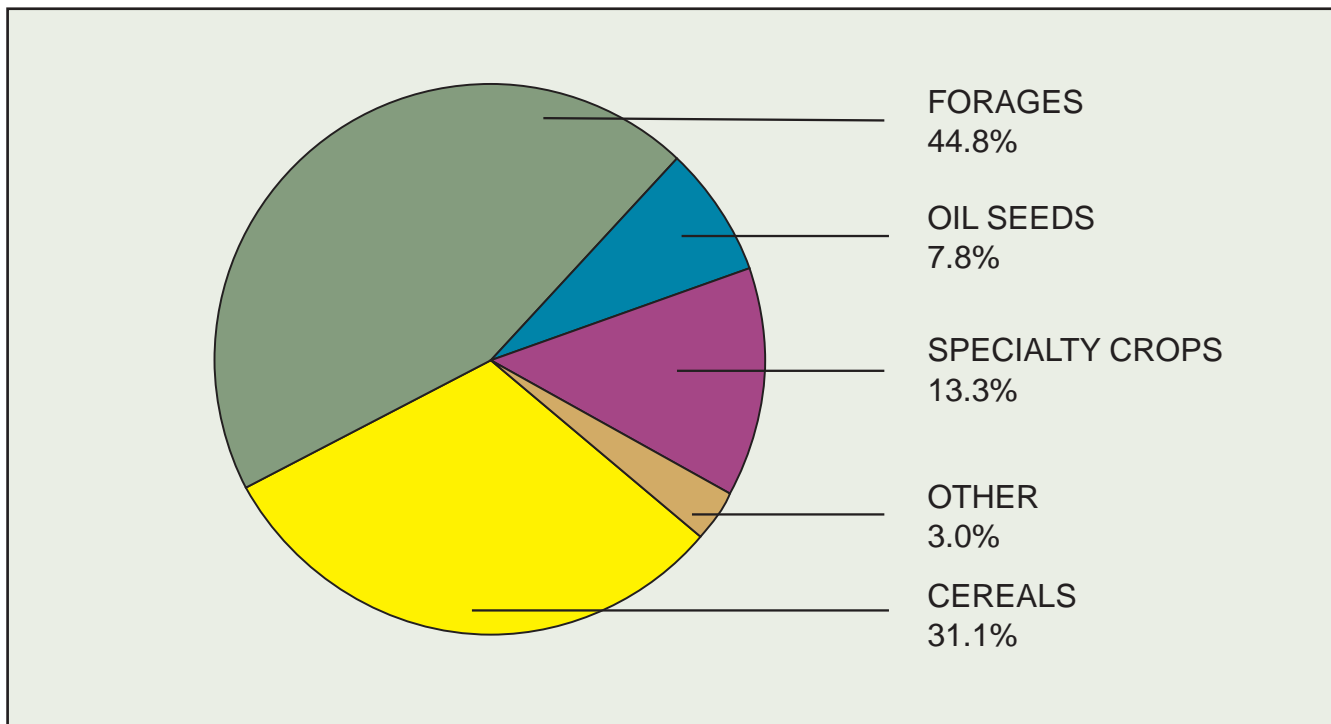


Figure 3. Irrigated Crop Mix within the 13 Irrigation Districts in Southern Alberta

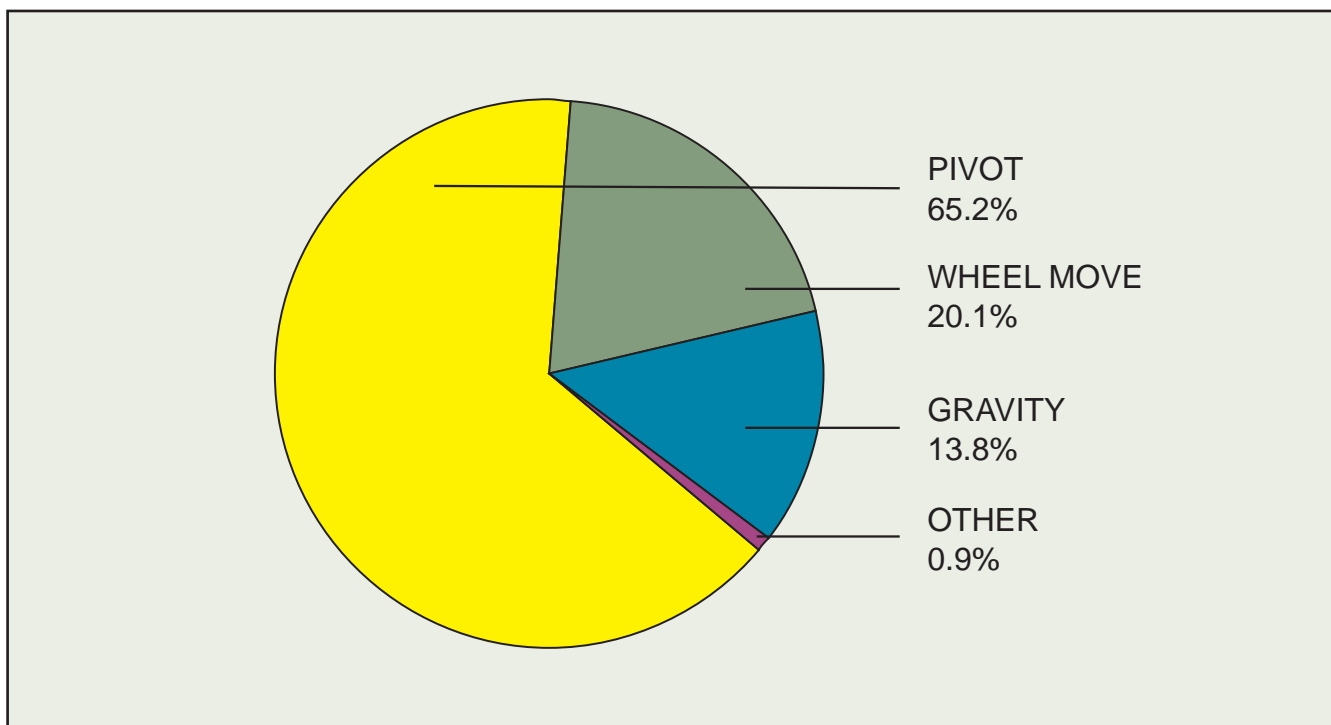


Figure 4. On-farm Irrigation Method Mix within the 13 Irrigation Districts in Southern Alberta

Table 5. On-farm Irrigation Method Summary within the 13 Irrigation Districts in Southern Alberta (acres covered by an irrigation system)

IRRIGATION METHOD		AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID	Individual Method Total	Total Acres Covered	
PIVOT SPRINKLER	Pivot High Pressure	374	66,698	36,071	747	8,316	3,441		40	10,193	10,527	14,151	6,897	28,904	186,359	848,519	
	Pivot High Pressure - Corner arm		5,363	3,188		4,424				567	1,560	2,417		364	17,883		
	Pivot Medium Pressure			3,878		641				362	3,141				8,022		
	Pivot Medium Pressure - Corner Arm			140							154				294		
	Pivot Low Pressure		70,380	99,285	180	43,589	4,364				5,534	227,401	31,193	3,938	21,572		507,436
	Pivot Low Pressure - Corner Arm		9,424	6,871		58,483					965	37,089	9,472	141	916		123,361
	Linear - High Pressure					873					100	130	110				1,213
	Linear - Low Pressure			124	1,825		262				139	1,218	249		134		3,951
percent of total -----	15.8%	72.9%	53.3%	19.5%	66.6%	42.7%	0.0%	3.6%	38.6%	78.5%	71.6%	52.8%	53.5%	65.2%	65.2%		
WHEEL MOVE	Wheel Move -Two Laterals	1,157	15,707	31,283	1,251	24,542	6,667	417		19,931	52,485	16,507	3,039	13,518	186,504	260,714	
	Wheel Move - Four Laterals		14,216	11,869	424	29,197	225			3,374	9,296	2,892	346	2,371	74,210		
	percent of total -----	49.0%	14.4%	15.2%	35.2%	30.7%	37.7%	11.9%	0.0%	50.3%	17.2%	24.1%	16.3%	16.4%	20.1%		20.1%
GRAVITY	Gravity - Developed - No Control		6,434	55,793	135	319	3,459		493	1,357	449	601	93	215	69,348	179,904	
	Gravity - Developed - Controlled		14,049	17,239	85	1,139			568	1,587	995	1,321	2,253		39,236		
	Gravity - Undeveloped - Flood	474	5,713	15,570	1,771	1,018		3,093		1,235	11,747	1,288	3,976	25,272	71,157		
	Gravity - Undeveloped - Subsurface					3				70				90	163		
	percent of total -----	20.1%	12.6%	31.2%	41.8%	1.4%	18.9%	88.1%	96.4%	9.2%	3.7%	4.0%	30.4%	26.3%	13.8%		13.8%
OTHER	Volume Gun - Stationary										143	10		175	328	11,453	
	Volume Gun - Traveller		40	318		144					189	46		1,083	1,820		
	Solid Set (underground sprinkler)			8		592				95	254			217	1,166		
	Hand Move (sprinkler above ground)	356	19	673	170	1,001	144			739	1,512	134	96	974	5,818		
	Micro - Spray - Sprinkler		212			41				42	28	15		83	421		
	Micro - Drip - Trickle									7	115			1,185	1,307		
	Other Application Use			26		567									593		
percent of total -----	15.1%	0.1%	0.4%	3.6%	1.3%	0.8%	0.0%	0.0%	0.0%	1.9%	0.6%	0.3%	0.5%	3.8%	0.8%	0.9%	
Total Acres Covered		2,361	208,379	284,037	4,763	175,151	18,300	3,510	1,101	46,297	358,433	80,406	20,779	97,073	1,300,590	1,300,590	

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Table 6. Assessment Roll Acres within the 13 Irrigation Districts

YEAR	AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID	TOTAL
1970	6,673	23,783	199,729	4,523	89,360	8,506	3,719	2,068	20,847	197,540	57,484	33,353	44,006	691,591
71	6,548	24,071	200,459	4,343	89,883	8,105	3,719	2,068	20,349	199,572	59,172	33,353	43,949	695,591
72	3,131	24,196	202,225	4,305	89,379	9,042	3,719	2,068	20,269	204,051	59,833	33,353	43,899	699,470
73	3,081	26,756	205,481	4,305	98,206	9,182	3,719	2,068	20,647	216,136	61,692	33,353	43,919	728,545
74	3,081	118,741	207,245	4,421	105,958	9,077	3,717	2,068	23,257	237,244	63,823	34,034	44,219	856,885
1975	3,081	131,764	212,982	4,430	108,106	8,871	3,720	2,068	26,920	252,019	62,692	33,358	45,311	895,322
76	3,081	139,665	219,405	4,430	109,629	9,069	3,720	2,069	28,350	262,231	66,423	33,358	52,190	933,620
77	3,081	147,795	224,967	4,430	111,735	9,480	3,720	1,319	31,626	274,301	68,178	33,617	68,549	982,798
78	3,104	153,120	227,202	4,431	111,947	10,737	3,717	1,776	31,570	284,151	68,815	33,651	71,603	1,005,824
79	3,104	150,160	227,254	4,477	111,924	10,797	3,710	1,776	31,524	287,329	69,828	33,546	74,525	1,009,954
1980	3,104	164,889	229,110	4,477	112,562	10,797	3,710	1,776	33,681	293,126	70,368	33,544	76,029	1,037,173
81	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
82	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
83	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
84	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
86	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
87	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
88	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
89	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
91	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
92	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
93	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
94	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
96	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
97	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
98	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
99	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
01	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
02	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
03	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
04	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
06	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

Notes: – BRID increased 94,000 acres in 1974 with the amalgamation of the BRID and the Bow River Project (Federal).

– Assessment roll acres include "irrigation", "terminable" and "annual" acres. Only "irrigation" and "terminable" acres are considered in district expansion limits.

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Table 8. Irrigation Districts Annual Water Rates (\$ per assessed acre per year)

YEAR	AID	BRID	EID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	WID
1982	\$2.50	\$6.50	\$6.50	\$5.00	\$12.00	\$6.00	\$3.00	\$3.00	\$6.25	\$12.00	\$10.75	\$3.25	\$6.30
83	\$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
84	\$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
86	\$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
87	\$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
88	\$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
89	\$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
91	\$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
92	\$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
93	\$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*
94	\$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*
96	\$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*
97	\$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*
98	\$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*
99	\$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*
01	\$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*
02	\$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*
03	\$9.00*	\$15.00	\$7.50**	\$10.00*	\$14.00*	\$8.00*	\$8.00	\$13.58	\$8.50	\$17.90	\$11.00	\$8.25	\$16.25*
04	\$9.00*	\$14.50	\$7.50**	\$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*
06	\$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*

Note: * The districts levy the following additional surcharges.

- AID – \$2.00 per acre for pipeline delivery in township 2
– \$3.00 per acre for pipeline delivery in township 3
- BRID – \$0.60 per acre for volumes used on flood parcels over the annual water allocation
- LID – \$3.00 per acre for pipeline delivery
- LNID – \$0.15 per psi for pressure pipeline up to and including 40 psi
– \$0.30 per psi for pressure pipeline above 40 psi
- MID – \$1.00 per 10 psi for pressure pipeline
- WID – \$3.10 per 10 psi delivered

** The Eastern Irrigation District waived the irrigation rate for irrigated acres in recognition of the local BSE related agricultural economic impacts.

Table 9. Alberta Irrigation Districts Annual Irrigation Diversions

DISTRICT	OLDMAN RIVER BASIN										BOW RIVER BASIN			TOTALS
	AID	LID	LNID	MID	MVID	RCID	RID	SMRID	TID	UID	BRID	EID	WID	
WATER SOURCE	Belly River	Belly River	Oldman River	SMRID main canal	Belly River	Gros Ck. & Ross Ck.	SMRID main canal	Belly, Waterton, & St. Mary Rivers	SMRID main canal	Belly, & St. Mary Rivers	Bow River	Bow River	Bow River	
EXPANSION LIMITS (acres)	3,560	4,770	177,000	18,300	4,240	1,210	46,500	372,000	82,200	34,400	232,000	311,000	95,000	1,382,180
WATER LICENCE ALLOCATION (acre-feet)	9,000	12,000	317,000	34,000	8,000	3,000	81,000	722,000	158,000	66,210	450,000	762,000	160,400	2,782,610
YEAR	VOLUME OF WATER DIVERTED (acre-feet)													
1976			154,844	7,600		1,981	36,414	339,188	86,330	14,998	309,000	565,100	153,222	1,668,677
77			169,436	14,300		2	48,317	423,509	122,209	31,050	304,600	572,100	137,008	1,822,531
78			85,934	3,900		2,489	12,848	202,066	35,303	10,620	204,268	387,100	102,959	1,047,487
79			138,630	9,500		5,561	24,521	303,097	94,736	23,517	262,593	542,846	138,630	1,543,631
1980			134,576	8,100		0	19,944	340,254	94,858	17,754	287,892	548,686	136,198	1,588,262
81			132,955	5,910		264	22,162	379,075	108,427	12,242	307,452	577,969	108,630	1,655,086
82			142,683	9,404		3,551	27,697	332,337	91,998	19,133	281,000	481,258	129,712	1,518,773
83			150,790	9,800		1,354	14,955	361,537	97,674	24,078	313,897	580,299	146,737	1,701,121
84			177,543	14,106		67	17,544	492,674	101,643	25,093	322,335	657,640	162,140	1,970,785
1985	5,020	8,500	184,029	13,457	4,250	3,827	27,302	425,583	95,751	24,193	337,409	655,188	158,897	1,943,406
86	4,074	6,858	182,408	13,515	3,212	1,832	22,045	406,536	101,597	20,106	309,580	680,592	131,333	1,883,688
87	4,392	5,644	181,597	11,761	3,180	1,321	40,559	426,434	98,621	19,958	275,841	639,928	129,712	1,838,948
88	6,910	9,398	222,943	23,414	6,066	256	55,411	563,621	121,668	30,462	389,186	730,274	171,868	2,331,477
89	4,613	3,517	198,622	10,795	2,750	122	34,540	504,255	78,396	18,372	301,442	605,148	122,416	1,884,988
1990	3,754	5,328	192,136	16,196	3,290	298	32,000	467,244	98,572	16,133	380,907	689,178	128,091	2,033,127
91	3,556	4,468	184,840	16,521	2,662	1,775	30,702	391,634	94,956	17,003	334,792	629,872	147,547	1,860,328
92	2,170	11,216	137,008	12,261	4,118	0	32,070	441,745	101,122	18,628	336,878	625,650	135,387	1,858,253
93	2,126	1,824	61,775	5,792	988	3,300	13,574	218,375	59,278	8,107	210,340	423,551	114,309	1,123,339
94	4,110	4,319	180,000	8,073	3,325	758	28,328	415,162	103,028	16,827	364,126	559,476	132,104	1,819,636
1995	1,802	1,548	110,200	2,180	861	208	17,600	385,290	79,818	7,710	302,305	602,098	116,254	1,627,874
96	4,035	4,892	209,600	15,539	2,660	1,085	45,527	498,483	127,436	19,832	328,182	615,478	117,065	1,989,814
97	6,051	5,193	193,574	7,337	1,529	1,760	38,043	466,000	115,582	20,364	343,428	572,151	116,740	1,887,752
98	4,874	5,331	160,800	13,514	2,323	1,726	33,834	424,700	116,300	14,895	303,565	638,500	142,367	1,862,729
99	3,485	11,415	179,987	20,800	2,499	1,700	42,960	411,532	105,208	20,900	298,524	426,788	88,410	1,614,208
2000	6,000	11,240	245,976	30,160	6,700	0	58,202	540,200	140,046	37,200	417,897	675,000	156,400	2,325,021
01	3,952	7,593	275,475	17,109	6,814	0	40,207	461,200	94,770	27,526	413,780	685,000	160,000	2,193,426
02	2,938	9,835	109,704	11,940	3,033	N/A	23,552	543,600	53,324	21,283	333,541	562,000	149,577	1,824,327
03	4,598	7,964	187,518	18,020	5,889	N/A	49,723	466,800	86,500	32,500	279,798	459,700	128,700	1,727,710
04	3,440	5,425	159,286	12,475	2,660	N/A	28,224	460,200	64,399	21,600	230,817	417,370	114,195	1,520,091
2005	4,000	6,243	134,088	7,524	2,067	1,190	27,046	336,456	72,487	13,717	184,600	323,417	109,500	1,222,335
06	3,681	5,341	178,500	11,900	3,987	0	37,049	369,303	82,448	20,390	192,200	354,700	87,100	1,346,599
Percent of Licence (2006)	40.9%	44.5%	56.3%	35.0%	49.8%	0.0%	45.7%	51.2%	52.2%	30.8%	42.7%	46.5%	54.3%	48.4%
Average Volume	4,072	6,504	166,370	12,352	3,403	1,175	31,706	412,842	94,338	20,200	305,231	564,002	131,394	1,749,530

Notes: – Data are obtained from Water Survey of Canada (WSC), Alberta Environment and Irrigation Districts' annual reports.

– RCID has a second supply from Ross Creek, but data has not been consistently recorded at that location.

– Diversion data represent the gross diversion into and through the works of the districts and include volumes used directly for irrigation purposes, reservoir filling and the water supplied or licensed to municipal, domestic, other agricultural, industrial and environmental uses.

– UID licence amended in 2004, re-allocating 1300 acre-feet of diversion authority to the Southeast Alberta Water Cooperative.

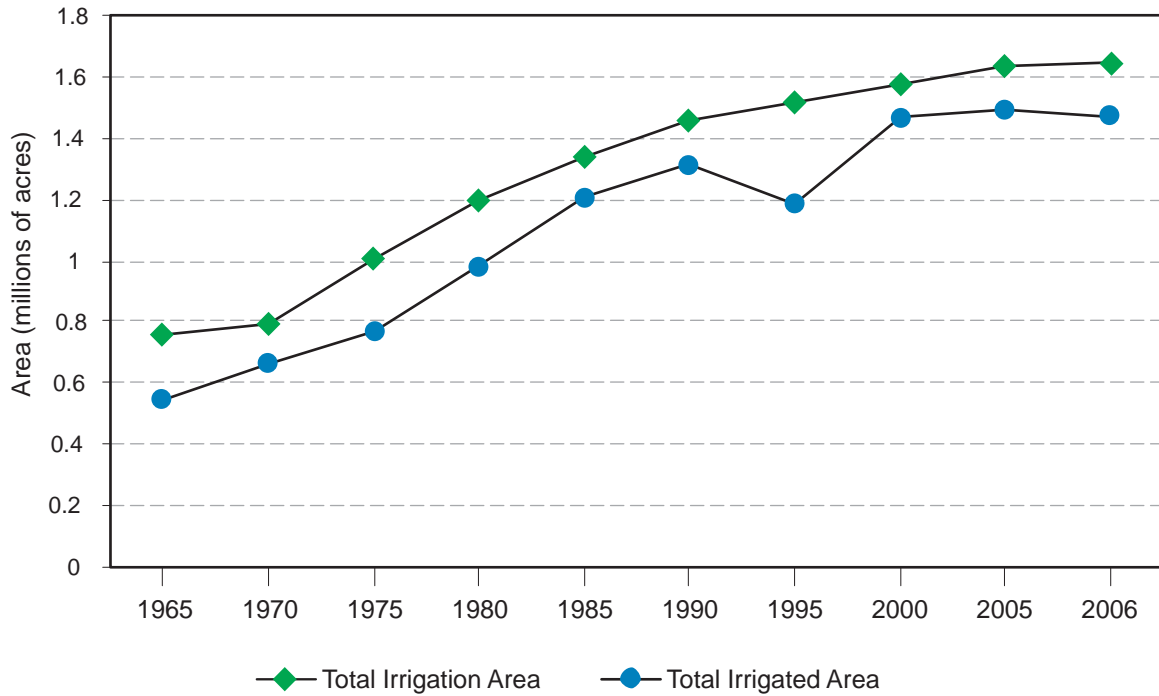


Figure 5. Growth in Irrigation Across Alberta (1965 - 2006)

Note: The ratio of the actual irrigated area vs. the authorized or assessed irrigation area is referred to as the "Utilization Factor". During the course of the past 30 to 40 years, this ratio, weighted for all irrigated areas, has increased from a little more than 70%, in a given year, to approximately 92%.

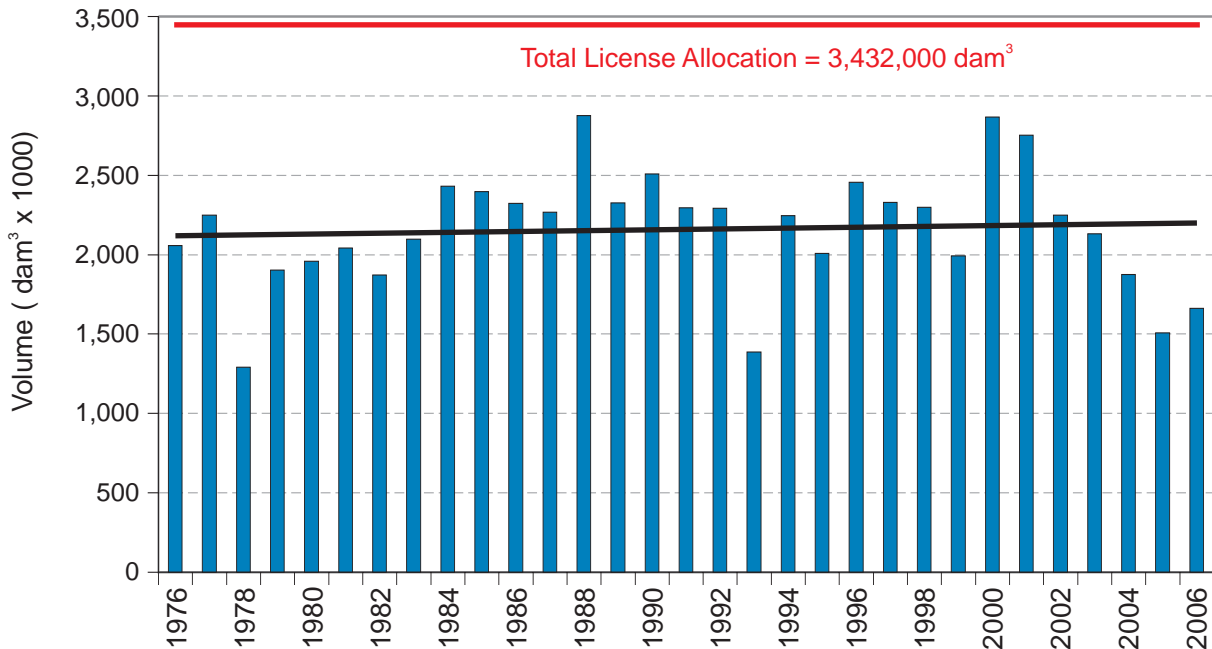


Figure 6. Irrigation District Annual Diversions (1976 - 2006)

Note: The annual gross diversion volumes indicated represent the gross volume of water diverted into the works of all 13 irrigation districts and includes, in addition to the volume of water actually distributed for irrigation purposes, those volumes which may have accrued as net gains in reservoir storage within the districts as well as those volumes diverted through the works of the districts for other uses such as domestic, municipal, other agricultural, industrial recreational and habitat enhancement purposes.

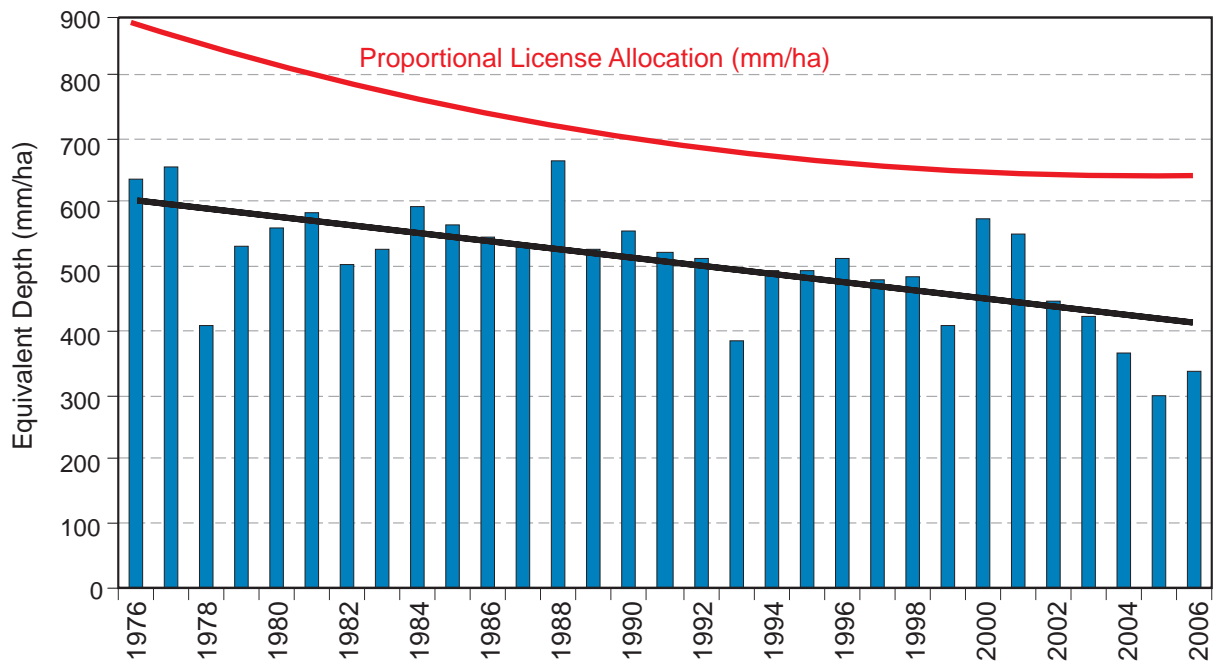


Figure 7. Irrigation District Water Use and Allocation (1976 - 2006)

Note: The amount of annual gross diversion of water into the works of all 13 irrigation districts, divided by the total number of hectares actually irrigated in respective years, represents a measurement of irrigation water use. However, this “depth” also includes that water which may have accounted as net gains in reservoir storage within the districts as well as those volumes diverted through the works of the districts for other uses such as domestic, municipal, other agricultural, industrial, recreational and habitat enhancement purposes. The “Proportional Licence Allocation” represents the equivalent depth of the total licensed water volumes over all district assessed irrigation areas. The change through time is a reflection of the historical growth in irrigation area.

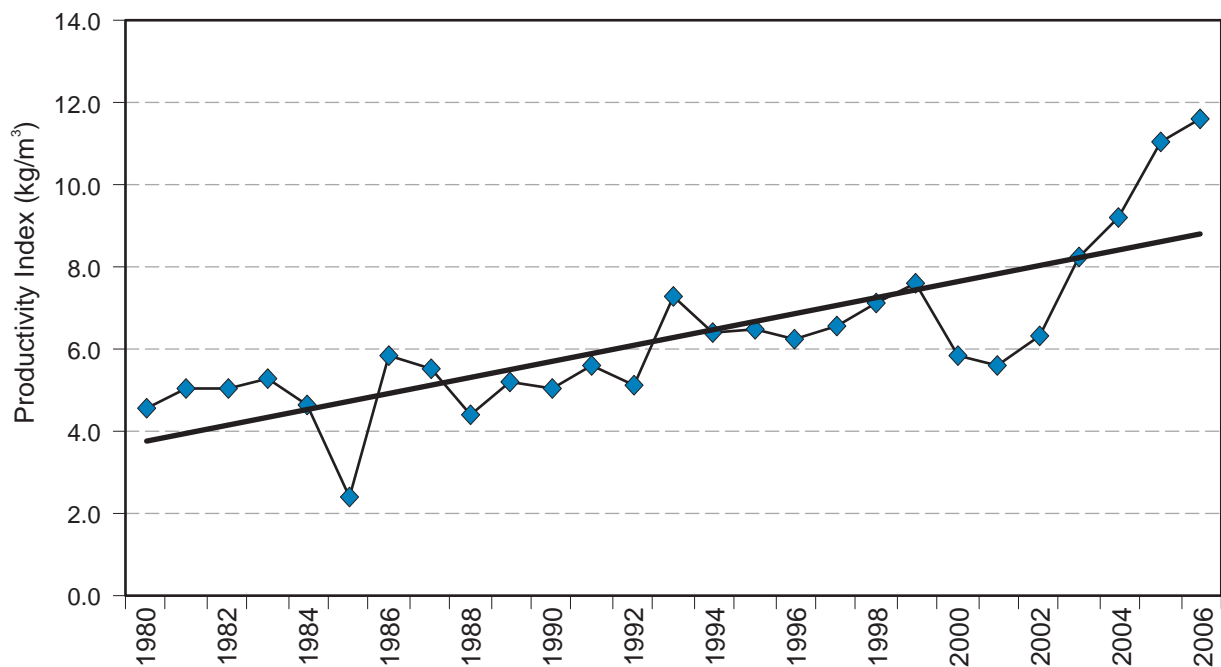


Figure 8. Irrigation District Water Use Productivity (1980 - 2006)

Note: Commodity yield per unit area divided by the volume of irrigation water diverted per unit area provides a measure of productive output per unit of irrigation water used. The historical yields of sugar beets (as recorded by the Alberta Sugar Beet Growers Marketing Board), the historical yields of potatoes (as compiled by the Potato Growers of Alberta) and the historical yields of soft white spring wheat (as provided by the Alberta Soft Wheat Growers) are tallied and then divided by the respective annual gross water use values of the 13 irrigation districts to derive a ‘Productivity Index’.

Table 10. Conveyance Infrastructure by Type of Works

Irrigation District	REHABILITATED										UN-REHABILITATED		Total Conveyance Works (km)
	Membrane-Lined Canals		Pipelines - Closed		Pipelines - Open		Concrete - Lined		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	3.5	10.2%	16.0	46.8%	0.0	0.0%	0.0	0.0%	1.2	3.5%	13.5	39.5%	34
BRID	184.0	17.6%	290.6	27.7%	14.7	1.4%	34.4	3.3%	221.4	21.1%	303.2	28.9%	1048
EID	300.3	15.7%	770.9	40.2%	42.4	2.2%	0.0	0.0%	216.2	11.3%	587.0	30.6%	1917
LID	2.0	3.6%	25.2	45.1%	0.4	0.7%	0.0	0.0%	12.7	22.7%	15.6	27.9%	56
LNID	53.3	7.1%	321.2	42.8%	18.8	2.5%	52.4	7.0%	68.1	9.1%	236.4	31.5%	750
MID	1.2	1.2%	50.1	50.7%	1.1	1.1%	0.3	0.3%	36.9	37.3%	9.2	9.3%	99
MVID	0.0	0.0%	15.4	38.4%	1.8	4.5%	0.0	0.0%	17.0	42.4%	5.9	14.7%	40
RCID	1.3	6.4%	0.0	0.0%	1.7	8.3%	0.0	0.0%	9.5	46.6%	7.9	38.7%	20
RID	1.2	0.5%	96.9	40.7%	10.7	4.5%	0.0	0.0%	97.0	40.8%	32.2	13.5%	238
SMRID	70.0	3.9%	736.4	40.6%	18.3	1.0%	99.5	5.5%	458.8	25.3%	431.2	23.8%	1814
TID	57.6	17.3%	154.8	46.4%	11.7	3.5%	8.7	2.6%	70.4	21.1%	30.2	9.1%	333
UID	15.8	6.6%	46.4	19.5%	31.1	13.1%	0.2	0.1%	56.5	23.8%	87.7	36.9%	238
WID	38.4	3.6%	60.7	5.6%	34.9	3.2%	5.3	0.5%	144.9	13.4%	795.2	73.7%	1079
Total	729	9.5%	2,585	33.7%	188	2.4%	201	2.6%	1,411	18.4%	2,555	33.3%	7667
Headworks Owned by Alberta Environment (AENV)												339	
Total Length of Conveyance System in Southern Alberta (km)												8006	

NOTE: Rehabilitated infrastructure includes those works re-constructed through:

- the Irrigation Rehabilitation Program (IRP)
- Alberta Environment's headworks improvement program
- individual district O & M program

Totals only include irrigation conveyance works, ie. does not include domestic water supply

Table 11. Irrigation District Infrastructure by Length and Replacement Cost

IRRIGATION DISTRICTS	CONVEYANCE WORKS	MAJOR STRUCTURES	DRAINAGE WORKS		TOTAL of ALL WORKS
	(length - km) (replacement cost)	(number of units) (replacement cost)	CONSTRUCTED (length - km) (replacement cost)	NATURAL (length - km) (replacement cost)	
AID	34.2 \$9,274,300	0 \$0	0.0 \$0	19.1 \$286,848	53.3 \$9,561,148
BRID	1057.0 \$346,884,180	22 \$93,543,460	42.2 \$2,254,350	486.3 \$5,327,820	1,585.5 \$448,009,810
EID	1920.2 \$589,872,245	57 \$332,129,532	178.3 \$7,468,777	1704.1 \$15,534,826	3,802.6 \$945,005,380
LID	55.8 \$13,352,479	0 \$0	9.7 \$421,717	3.4 \$32,934	69.0 \$13,807,130
LNID	750.2 \$232,911,947	2 \$2,755,814	18.9 \$958,653	225.2 \$2,671,426	994.3 \$239,297,840
MID	98.7 \$24,802,133	0 \$0	12.5 \$2,683,500	150.0 \$2,045,920	261.2 \$29,531,553
MVID	40.0 \$12,633,123	0 \$0	0.5 \$33,725	0.0 \$0	40.5 \$12,666,848
RCID	20.4 \$7,571,573	0 \$0	0.0 \$0	2.9 \$43,710	23.3 \$7,615,283
RID	238.1 \$53,712,690	0 \$0	19.4 \$1,007,868	187.6 \$3,400,772	445.1 \$58,121,330
SMRID	1814.2 \$556,692,391	48 \$321,165,074	32.5 \$2,965,010	348.0 \$4,802,955	2,194.6 \$885,625,430
TID	333.4 \$101,776,028	12 \$13,558,095	49.2 \$2,887,431	17.7 \$177,282	400.3 \$118,398,836
UID	237.7 \$63,386,875	11 \$15,508,598	3.9 \$333,297	56.3 \$656,852	297.9 \$79,885,622
WID	1079.3 \$284,805,706	13 \$17,397,008	6.9 \$669,219	855.8 \$14,843,873	1,942.0 \$317,715,806
DISTRICT TOTALS	7,679.0 \$2,297,675,670	165 \$796,057,581	374.0 \$21,683,547	4,056.4 \$49,825,218	12,109.5 \$3,165,242,016

NOTE: – Constructed drainage works include both open channels and pipelines.
 – Natural drains are those channels that exist as natural watercourses and provide a means to drain unused tailwater away from irrigated works.
 – Total of All Works length values include the summation of conveyance and drainage works only.

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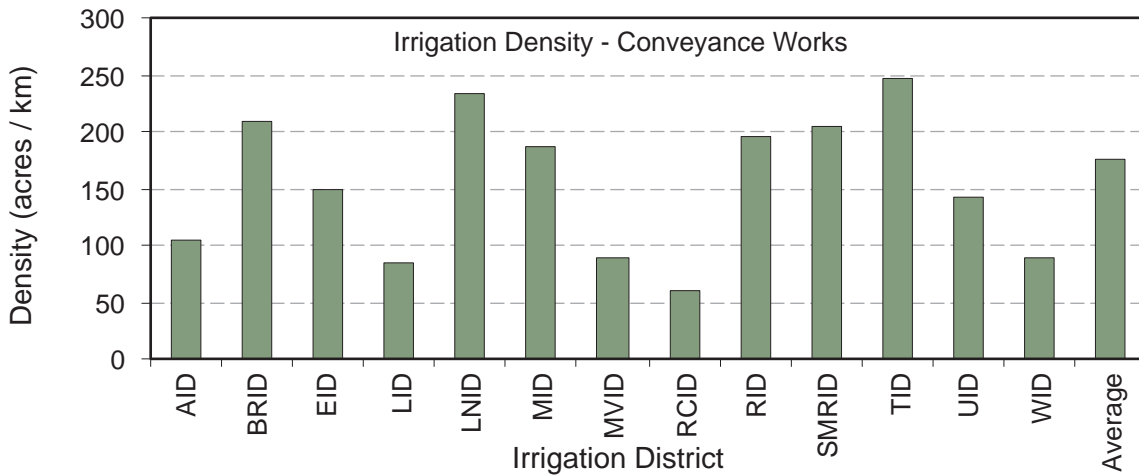


Figure 9. Density of Irrigation Area Relative to Infrastructure

Note: Irrigation Density is a measure of the “compactness” of an irrigation district. Greater compactness or being able to serve more irrigated area per unit of conveyance length is one factor that leads to opportunities for conveying water more efficiently.

Works Category	Good	Fair	Poor	TOTAL
Conveyance	\$1,336,368,845	\$823,341,852	\$137,964,973	\$2,297,675,670
Drainage (Const.)	\$11,752,359	\$7,885,269	\$0	\$19,637,628
Drainage (Natural)	\$118,062	\$35,757,601	\$13,949,015	\$49,824,678
Major Structures	\$504,024,585	\$285,131,719	\$6,901,277	\$796,057,581
TOTAL	\$1,852,263,851	\$1,152,116,441	\$158,815,265	\$3,163,195,557
Proportion	58.6%	36.4%	5.0%	100%

Figure 10. Summary of Condition Assessments (All Works by Replacement Cost)

Note: In 2006, the construction and material costs used in these calculations were updated to reflect current prices. Combined with the updated works conditions, this resulted in an approximate 21% increase over 2005 values. The last valuation was done in 2000. Construction and material costs are updated approximately every five years.

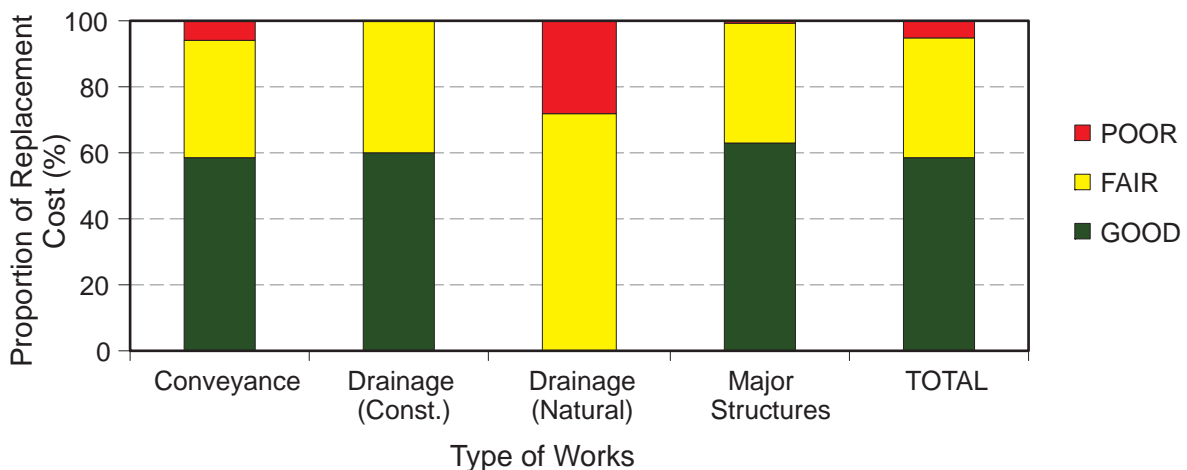


Figure 11. Irrigation District Infrastructure Condition Rating

Table 12. Irrigation District Reservoirs

Location	Reservoir	Approximate Date of Impoundment	Live Storage (dam ³)	Live Storage (acre-feet)
Bow River Irrigation District	Badger	1985	53,650	43,494
	'D' Reservoir	2005	395	320
	'H' Reservoir	1953	2,220	1,800
	Lost Lake	1973 - 1987*	5,050	4,094
	'PFRID' Reservoir	2005	586	475
	Scope	1953	19,740	16,003
	Total storage	-	81,641	66,186
Eastern Irrigation District	Bantry # 1	1968	617	500
	Bantry # 2	1967	5,550	4,500
	Cowoki Lake	1937	19,735	16,000
	Crawling Valley	1984	130,500	105,797
	'J' Reservoir	1949 - 1966*	615	500
	Kitsim	1980	26,520	21,500
	Lake Newell	1914	320,215	259,600
	One Tree	1935	2,345	1,901
	Rock Lake	1956	9,250	7,500
	Rolling Hills	1940 - 2003*	46,000	37,292
	Snake Lake	1997	18,230	14,779
	Tilley "A"	1972	33,300	26,996
	Tilley "B"	1973 - 1979*	38,235	30,997
Total storage	-	651,112	527,862	
Lethbridge Northern Irrigation District	Park Lake	1928	740	600
	Picture Butte	1936	1,600	1,297
	Vandenburg	1992	114	93
	Total storage	-	2,454	1,990
Raymond Irrigation District	Corner Lake	1925	495	400
	Craddock	1925	615	500
	Factory Lake	1925	370	300
	Total storage	-	1,480	1,200
St. Mary River Irrigation District	Bullshead	1954	125	101
	Chin	1954	190,330	154,300
	Cross Coulee	1954	2,590	2,100
	Forty Mile	1987	86,345	70,000
	Murray	1954	30,590	24,800
	North East	1954	2,095	1,698
	Raymond	1954	1,600	1,297
	Sauder	1953 - 1982*	37,745	30,600
	Seven Persons	1953	1,355	1,099
	Sherburne	1952	10,625	8,614
	Stafford	1954 - 1982*	23,315	18,900
	Yellow Lake	1952	18,130	14,690
Total storage	-	404,845	328,199	
Taber Irrigation District	Fincastle	1952	3,085	2,501
	Horsefly	1950	9,250	7,499
	Taber Lake	1955	6,415	5,200
	Total storage	-	18,750	15,200
United Irrigation District	Cochrane Lake	1923	3,100	2,513
Western Irrigation District	Chestermere	1944	5,180	4,200
	Langdon	1979	7,895	6,400
	Total storage	-	13,075	10,600
Grand Total	-	-	1,176,457	953,751

Note: – all reservoirs are off-stream storage sites

* denotes year of reservoir enlargement

Table 13. Provincially Owned and Operated Reservoirs

Source Supply for:	Reservoir	Approximate Date of Impoundment	Live storage (dam ³)	Live storage (acre-feet)
Bow River Irrigation District	Little Bow	1920	21,078	17,088
	McGregor	1914	351,059	284,604
	Traverse *	1954	104,638	84,830
	Total Storage	-	476,775	386,522
Lethbridge Northern Irrigation District	Keho	1920	95,635	77,531
	Oldman River *	1991	490,180	397,390
	Total Storage	-	585,815	474,921
Ross Creek Irrigation District	Cavan	1950	4,625	3,750
Mountain View, Leavitt, Aetna	Payne	1942	8,690	7,045
St. Mary Project (SMRID, MID, TID, RID)	Jensen	1948	19,000	15,403
	Milk River Ridge	1957	127,297	103,200
	St Mary *	1951	369,310	299,400
	Waterton *	1965	111,196	90,147
	Total Storage	-	626,803	508,150
Diversions Outside of Irrigation Districts	Chain Lakes	1966	14,679	11,900
	Twin Valley Dam *	2003	62,700	50,831
	Pine Coulee	1998	51,000	41,346
	Women's Coulee	1949	362	293
	Total Storage	-	128,741	104,370
Grand Total	-	-	1,831,449	1,484,759

Note: - * denotes on-stream storage reservoir

Table 14. Hydroelectric Plants Associated with Water Distribution Works

Location	Owner	Capacity (megawatts)
Oldman Reservoir	ATCO Electric	32.0
Waterton Reservoir	Canadian Hydro	2.8
Belly River Chute	Canadian Hydro	3.0
St. Mary Reservoir	Canadian Hydro	2.5
Taylor Coulee Chute (Jensen Reservoir)	Canadian Hydro	12.7
Raymond Reservoir	Irrican	20.5
Chin Chute (Chin Reservoir)	Irrican	11.0
SMRID - Main Canal Drops #4, #5 and #6	Irrican	7.0

Table 15. Private Water Licences for Irrigation in Alberta

There are 2,888 individual irrigation projects, outside of the 13 irrigation districts, irrigating approximately 296,964 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 agricultural feasibility of these projects is reviewed by Alberta Agriculture and Food and the licencing is regulated by Alberta Environment.

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.
ATHABASCA RIVER	2,213	42	5	1
MILK RIVER	18,980	103	42	14
NORTH SASKATCHEWAN RIVER	27,996	328	57	15
PEACE RIVER	3,615	76	9	0
SOUTH SASKATCHEWAN RIVER				
- Bow River	28,689	157	62	19
- Little Bow River	23,492	124	47	16
- Lower Oldman River	16,056	23	26	11
- Red Deer River	40,604	421	89	18
- South Saskatchewan River	48,045	534	82	25
- Upper Oldman River	7,347	64	21	3
- Waterton / Belly / St. Mary Rivers	51,934	135	69	20
- Willow Creek	27,993	143	70	17
Total (2006)	296,964	2,150	579	159
2005	293,055	2,138	572	154
2004	285,276	2,113	575	152
2003	283,254	2,108	571	149
2002	275,599	2,100	567	141
2001	272,353	2,085	558	143
2000	277,826	2,076	555	140
1999	257,258	1,863	509	137
1998	255,192	1,884	501	138
1997	253,868	1,893	486	129

Notes: – upper Oldman reach is defined as upstream of the Belly River confluence
– lower Oldman 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
– data are obtained from Alberta Environment
– licence authorization as of January 2006

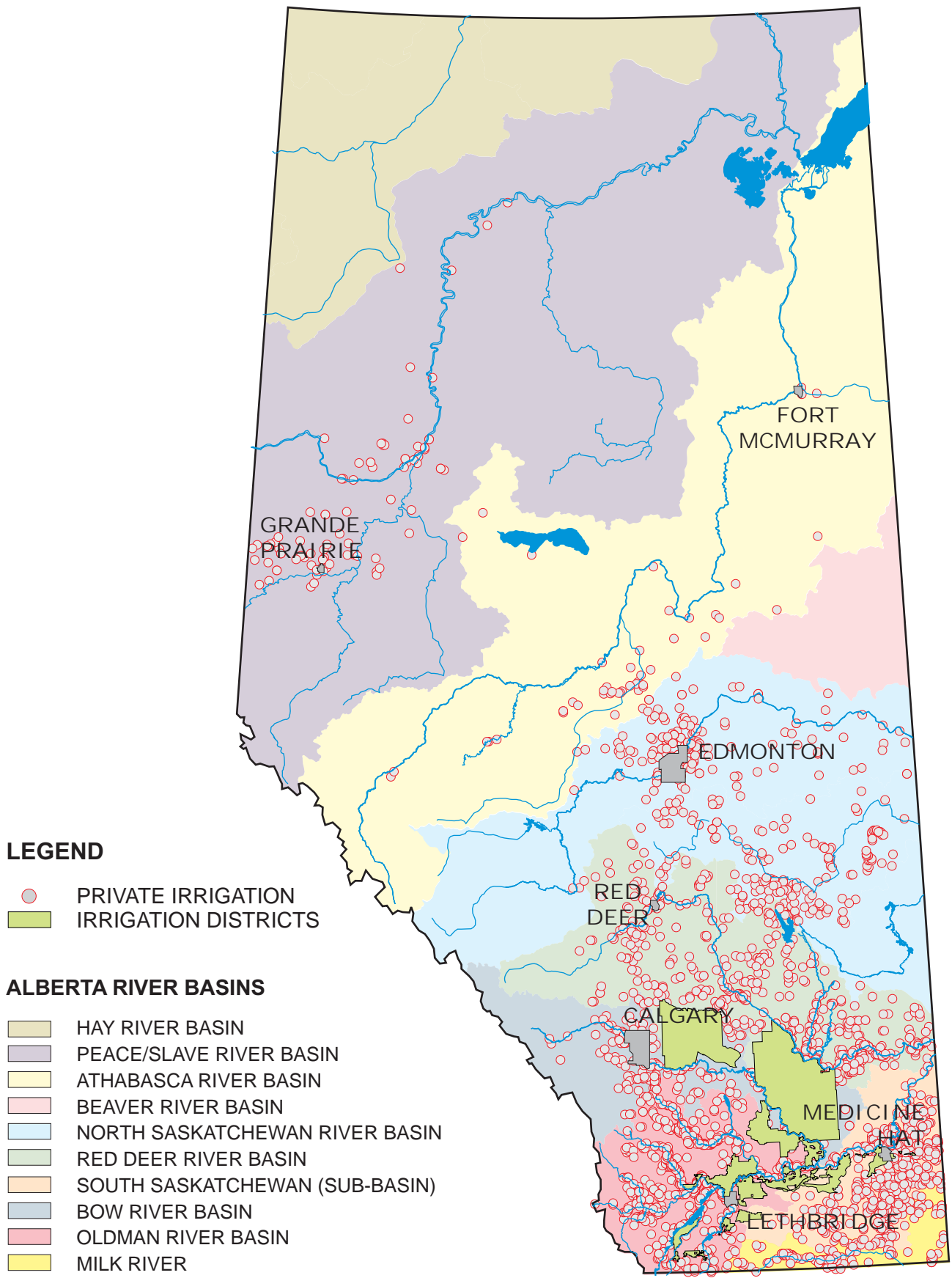


Figure 12. Private Irrigation in Alberta

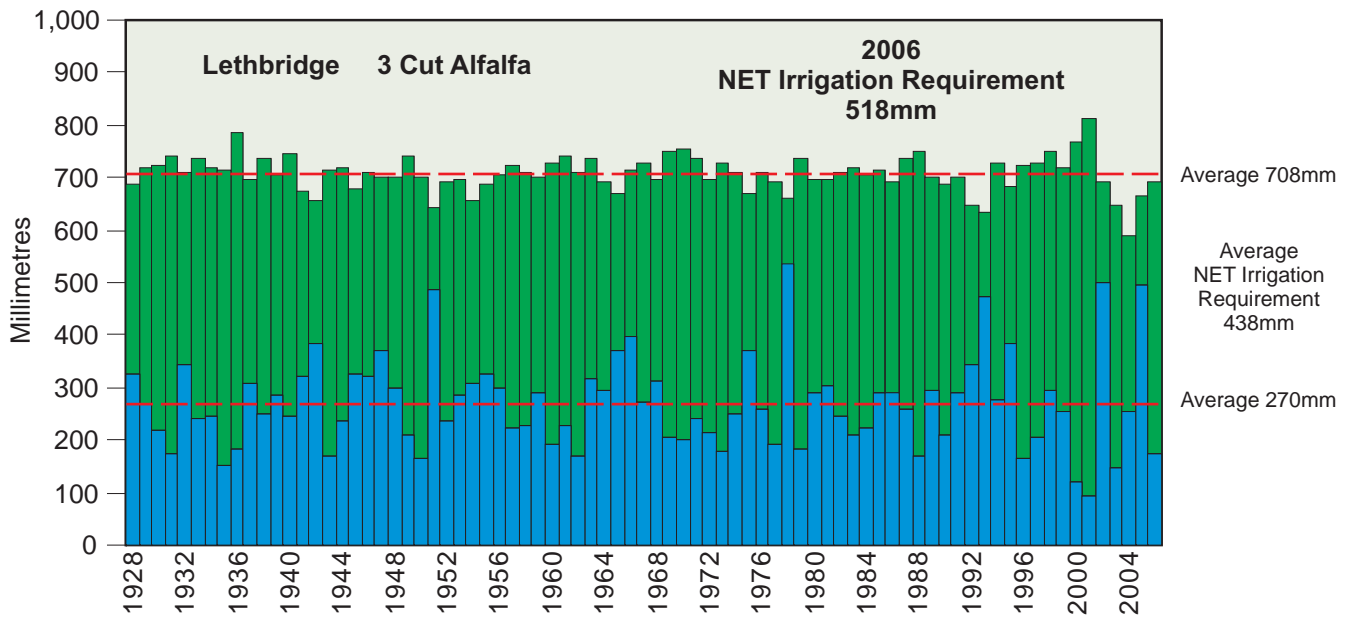


Figure 13. Optimum Crop Water and Net Irrigation Requirements

■ Growing Season Precipitation ■ Annual Crop Water Demand

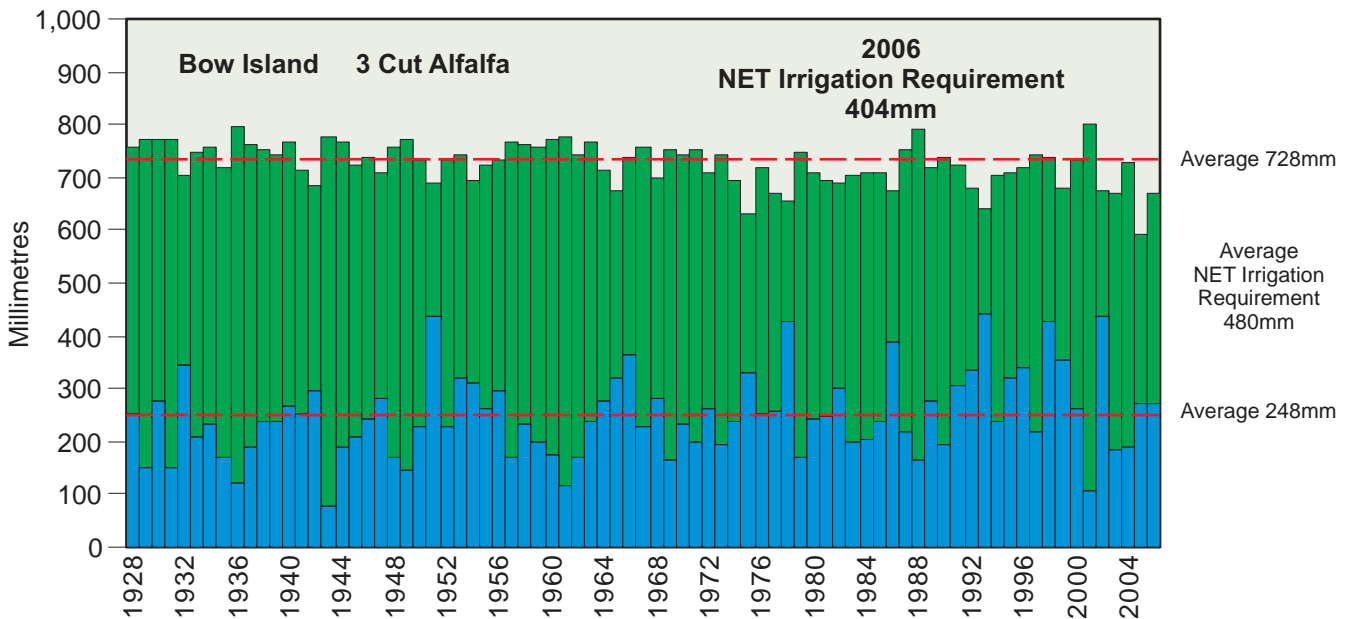


Figure 14. Optimum Crop Water and Net Irrigation Requirements

Note: The high water use, 3 cut alfalfa is used in these examples because this crop's annual growing season closely coincides with the annual irrigation season.

The difference between the total crop water requirement and total precipitation is the NET irrigation requirement.

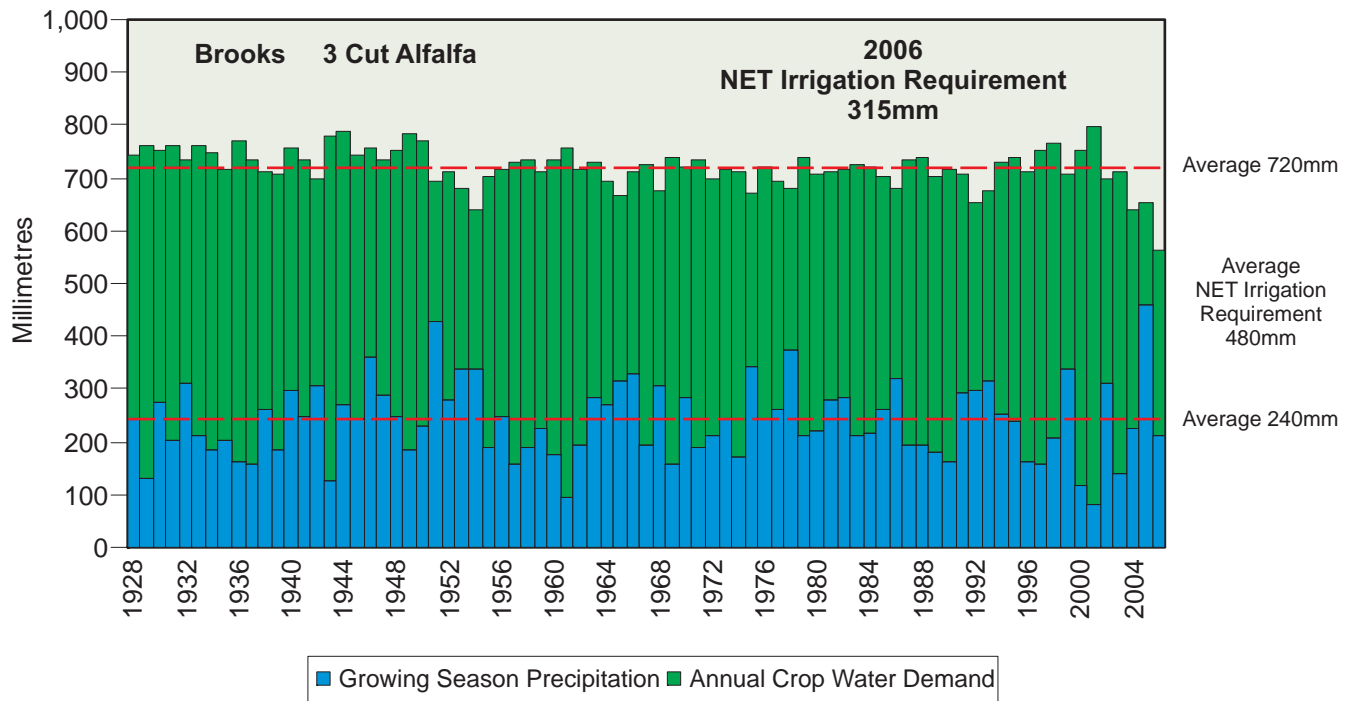


Figure 15. Optimum Crop Water and Net Irrigation Requirements

Note: The high water use, 3 cut alfalfa is used in these examples because this crop's annual growing season closely coincides with the annual irrigation season.

The difference between the total crop water requirement and total precipitation is the NET irrigation requirement.

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

AREA	MAXIMUM RAINFALL (mm)	MINIMUM RAINFALL (mm)	NORMAL RAINFALL (mm)	2006 RAINFALL (mm)	2006 % OF NORMAL
Lethbridge	534 (1978)	92 (2001)	270	173	64%
Bow Island	439 (1993)	77 (1943)	248	269	108%
Brooks	460 (2005)	83 (2001)	240	212	88%

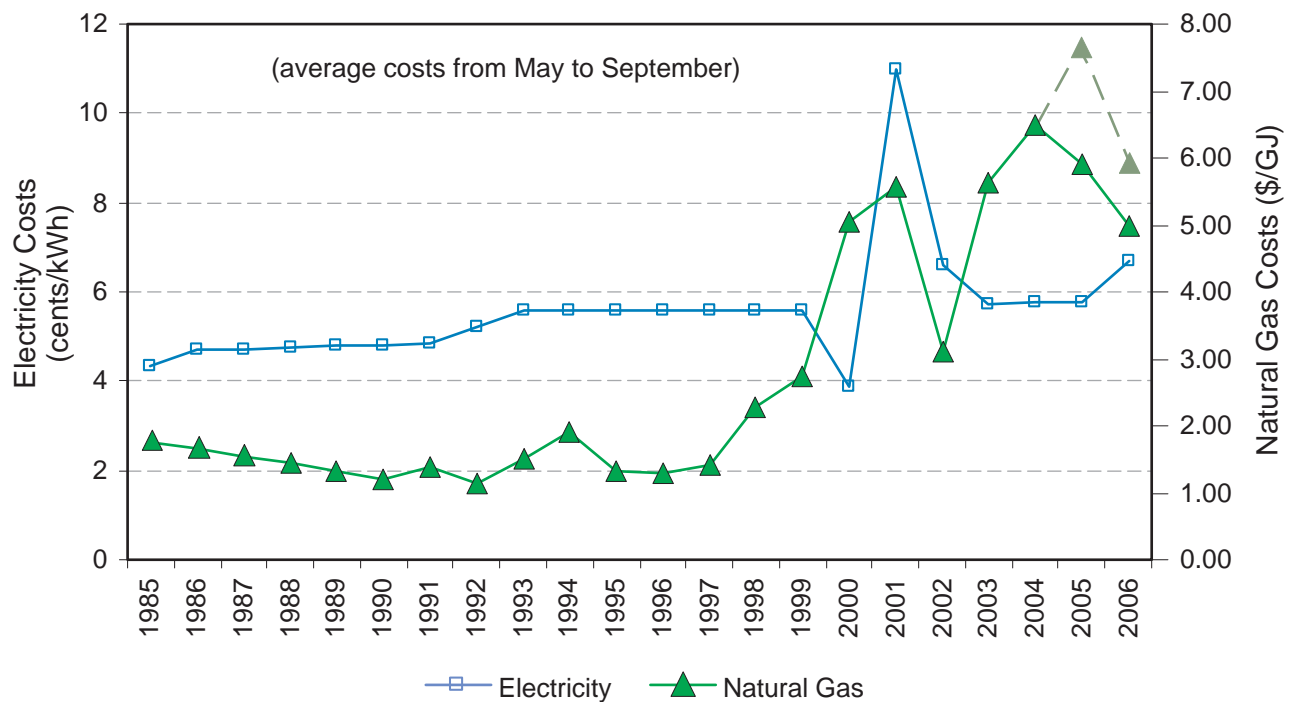


Figure 16. Historical Irrigation Energy Costs

Note: 2006 Natural Gas cost reduced by an average \$0.90 per GJ – Alberta Government rebate

Table 17. Energy Type Used in the Irrigation Districts (acres irrigated by energy type)

Energy Type	BRID	EID	LNID	MID	RID	SMRID	TID	UID	WID	Average Energy Type
Electricity	60.0%	30.6%	44.3%	9.2%	32.9%	48.6%	55.4%	40.9%	27.2%	38.8%
	125,023	86,995	75,860	1,683	14,871	174,156	44,525	5,991	26,361	
Natural Gas	22.3%	28.9%	40.6%	59.2%	50.5%	44.2%	38.7%	14.1%	26.2%	36.1%
	46,513	81,958	69,658	10,824	22,842	158,435	31,155	2,064	25,404	
Diesel	3.1%	5.4%	0.4%	0.0%	1.0%	1.5%	1.0%	1.3%	8.0%	2.4%
	6,374	15,434	724	0	444	5,459	775	189	7,708	
Gravity	13.7%	32.8%	10.9%	31.5%	7.4%	5.3%	4.7%	43.7%	31.2%	20.1%
	28,578	93,101	18,745	5,763	3,330	18,870	3,751	6,409	30,203	
Pump Pressure	0.1%	0.7%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%
	261	2,064	4,452	0	0	0	0	0	125	
Other*	0.6%	1.0%	0.7%	0.0%	2.0%	0.4%	0.2%	0.1%	7.4%	1.4%
	1,231	2,890	1,192	0	891	1,384	185	12	7,137	
Unknown	0.2%	0.6%	0.4%	0.0%	6.4%	0.0%	0.0%	0.0%	0.0%	0.8%
	399	1,595	745	0	2,888	130	15	0	0	

Notes: – * other includes gasoline, propane or butane
 – AID, LID, MVID and RCID did not report any data

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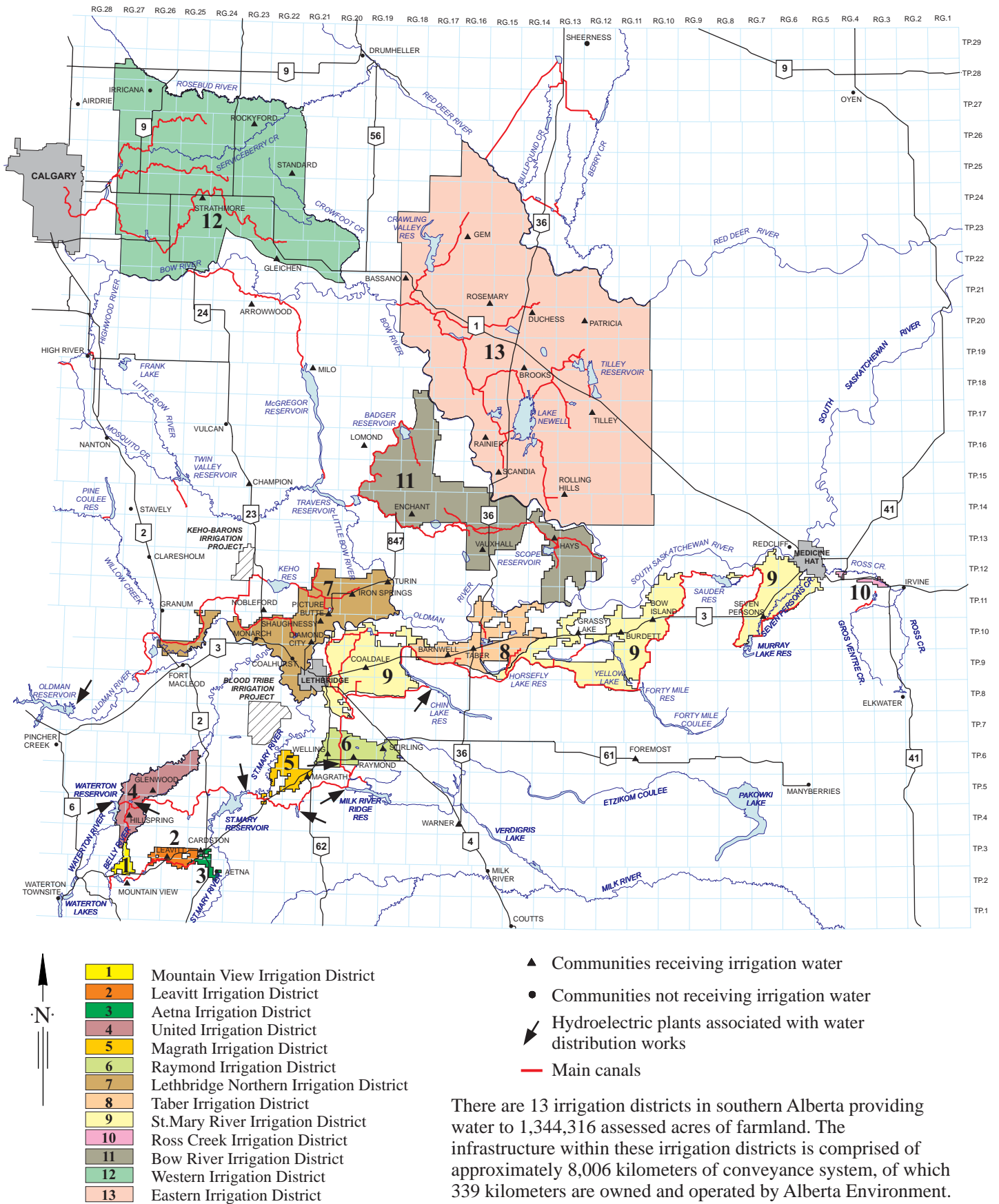


Figure 17. Alberta's Irrigation Districts