# Alberta
# Irrigation Information
# 2018

Alberta

# ALBERTA IRRIGATION INFORMATION 2018

Basin Water Management Section
Irrigation And Farm Water Branch

September 2019

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

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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 Factors

**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-$ft^3$
1 $dam^3$ = 0.8107 ac-$ft^3$
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

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

| CROP TYPE | | AID | | | BRID | | | EID | | | LID | | | LNID | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | acres covered by an irrigation system | | acres with no irrigation system | acres covered by an irrigation system | | acres with no irrigation system | acres covered by an irrigation system | | acres with no irrigation system | acres covered by an irrigation system | | acres with no irrigation system | acres covered by an irrigation system | | acres with no irrigation system |
| | | Irrigated this year | Not irrigated this year | | Irrigated this year | Not irrigated this year | | Irrigated this year | Not irrigated this year | | Irrigated this year | Not irrigated this year | | Irrigated this year | Not irrigated this year | |
| CEREALS | Barley | 475 | 991 | | 11,488 | 2,124 | | 12,184 | | | 150 | 16 | | 17,537 | | |
| | CPS Wheat | | | | 1,496 | | | 2,852 | | | | | | 504 | | |
| | Durum Wheat | | | | 15,895 | 242 | | 5,261 | | | | | | 8,432 | | |
| | Grain Corn | | | | 5,538 | | | 8,637 | | | | | | | | |
| | Hard Spring Wheat | | | | 51,326 | 2,885 | | 53,196 | | | | | | 2,865 | | |
| | Malt Barley | | | | 892 | 315 | | | | | | | | | | |
| | Miscellaneous Cereals | | | | | | | | | | | | | 3,404 | | |
| | Oats | | | | 447 | 18 | | 2,442 | | | 30 | | | 303 | | |
| | Rye | | | | 188 | | | 237 | | | | | | | | |
| | Soft Wheat | | | | 1,629 | 117 | | 380 | | | | | | 7,528 | | |
| | Triticale | | | | 986 | 36 | | 3,700 | | | 60 | | | 1,328 | | |
| | Winter Wheat | | | | 4,069 | 59 | | 2,342 | | | | | | | | |
| FORAGES | Alfalfa - Two cuts | | | | 115 | | | 25,548 | | | | | | | | |
| | Alfalfa - Three cuts | | | | | | | 8,416 | | | | | | | | |
| | Alfalfa - Four cuts | | | | | | | | | | | | | | | |
| | Alfalfa Hay | 1,345 | 550 | | 14,812 | 306 | | 6,757 | | | 663 | 75 | | 11,701 | | |
| | Alfalfa Silage | | | | | | | 922 | | | | | | 17,613 | | |
| | Barley Silage | | | | 1,904 | 137 | | 3,030 | | | | | | 31,275 | | |
| | Barley Silage (underseeded) | | | | | | | 331 | | | | | | | | |
| | Brome Hay | | | | | | | | | | | | | 472 | | |
| | Corn Silage | | | | 5,388 | 7 | | 18,605 | | | | | | 29,738 | | |
| | Custom Variety Forage/Misc | | | | | | | 154 | | | | | | 76 | | |
| | Grass Hay | | 6 | | 6,838 | 358 | | 13,255 | | | 466 | 330 | | 5,620 | | |
| | Green Feed | 202 | 89 | | 1,499 | 205 | | 6,656 | | | 69 | | | | | |
| | Milk Vetch | | | | 132 | | | | | | | | | | | |
| | Native Pasture | 14 | | | 135 | | | 1,291 | | | 100 | | | 244 | | |
| | Oats Silage | | | | 357 | 143 | | 349 | | | | | | | | |
| | Sorghum/Sudan Grass | | | | | | | 391 | | | | | | | | |
| | Tame Pasture | 388 | 428 | | 7,715 | 740 | | 37,977 | | | 1,393 | 30 | | 4,064 | | |
| | Timothy Hay | | | | | | | 2,735 | | | 705 | | | 3,934 | | |
| | Tritcale Silage | | | | | | | | | | | | | | | |
| OIL SEEDS | Canola | | 107 | | 14,142 | 736 | | 24,984 | | | | | | 28,735 | | |
| | Flax | | | | 2,824 | | | 4,503 | | | | | | 887 | | |
| | Mustard | | | | 135 | | | 413 | | | | | | | | |
| | Safflower | | | | 10 | | | 68 | | | | | | | | |
| SPECIALTY CROPS | Alfalfa Seed | | | | 14,373 | 23 | | 24,527 | | | | | | | | |
| | Canary Seed | | | | 70 | | | | | | | | | | | |
| | Canola Seed | | | | 18,119 | 5 | | 9,306 | | | | | | | | |
| | Carrots | | | | | | | 244 | | | | | | | | |
| | Catnip | | | | | | | | | | | | | | | |
| | Chick Peas | | | | | | | | | | | | | | | |
| | Dill | | | | | | | 250 | | | | | | | | |
| | Dry Beans | | | | 17,373 | 25 | | 3,723 | | | | | | | | |
| | Dry Peas | | | | 11,423 | | | 4,211 | | | | | | 638 | | |
| | Faba Beans | | | | 317 | | | 680 | | | | | | | | |
| | Fresh Corn (sweet) | | | | 38 | | | 135 | | | | | | | | |
| | Fresh Peas | | | | 72 | | | 235 | | | | | | | | |
| | Grass Seed | | | | 204 | | | 105 | | | | | | | | |
| | Hemp | | | | 2,009 | 22 | | 565 | | | | | | 1,766 | | |
| | Lawn Turf | | | | 11 | | | | | | | | | 975 | | |
| | Lentils | | | | 130 | 29 | | 42 | | | | | | | | |
| | Market Gardens | | | | 31 | | | 128 | | | | | | 48 | | |
| | Mint | | | | 348 | | | 125 | | | | | | | | |
| | Nursery | | | | | | | 408 | | | | | | 7 | | |
| | Onions | | | | | | | | | | | | | | | |
| | Potatoes | | | | 11,243 | | | 6,028 | | | | | | 1,056 | | |
| | Pumpkins | | | | | | | | | | | | | | | |
| | Radishes | | | | | | | | | | | | | | | |
| | Seed Potatoes | | | | | | | | | | | | | | | |
| | Small Fruit | | | | | | | | | | | | | | | |
| | Soybeans | | | | 896 | 4 | | 1,509 | | | | | | | | |
| | Sugar Beets | | | | 11,435 | 28 | | 1,469 | | | | | | 2,476 | | |
| | Sunflower | | | | 487 | | | 2,367 | | | | | | | | |
| | Yellow Peas | | | | | | | | | | | | | | | |
| OTHER | Miscellaneous | 44 | 65 | | 489 | 405 | | | | | 228 | 717 | | | | |
| | Non Crop | | | | | | | | 146 | | | | | | | |
| | Summer Fallow | | | | 270 | 55 | | | 621 | | | | | | | |
| | Unknown | | | | | | | | | | | | | | | |
| **Total acres** | | **2,468** | **2,236** | **0** | **239,295** | **9,023** | **0** | **303,673** | **767** | **0** | **3,863** | **1,168** | **0** | **187,269** | **0** | **0** |
| | | **4,704** | | | **248,318** | | | **304,440** | | | **5,031** | | | **187,269** | | |

## Table 1. Details of Crops Grown within the 13 Irrigation Districts (cont'd)

| CROP TYPE | | MID | | | MVID | | | RCID | | | RID | | | SMRID | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | acres covered by an irrigation system | | acres with no irrigation system | acres covered by an irrigation system | | acres with no irrigation system | acres covered by an irrigation system | | acres with no irrigation system | acres covered by an irrigation system | | acres with no irrigation system | acres covered by an irrigation system | | acres with no irrigation system |
| | | Irrigated this year | Not irrigated this year | | Irrigated this year | Not irrigated this year | | Irrigated this year | Not irrigated this year | | Irrigated this year | Not irrigated this year | | Irrigated this year | Not irrigated this year | |
| CEREALS | Barley | 1,095 | 144 | | 103 | | | | | | 4,170 | 40 | | 13,777 | 227 | 659 |
| | CPS Wheat | | | | | | | | | | 971 | | | 1,723 | | |
| | Durum Wheat | 290 | | | | | | | | | 3,260 | | | 33,132 | 104 | 972 |
| | Grain Corn | | | | | | | | | | | | | 6,386 | | 4 |
| | Hard Spring Wheat | 3,107 | 528 | | | 125 | | | | | 2,758 | 20 | | 57,485 | 620 | 3,252 |
| | Malt Barley | | | | | | | | | | 455 | | | 257 | | 13 |
| | Miscellaneous Cereals | | | | | | | | | | 254 | 2,017 | | | 9 | |
| | Oats | | | | 83 | | | | | | 120 | | | 413 | | |
| | Rye | | | | | | | | | | 405 | | | 407 | | 5 |
| | Soft Wheat | | | | | | | | | | 360 | | | 2,225 | | 50 |
| | Triticale | | | | | | | | | | 150 | | | 951 | | 82 |
| | Winter Wheat | 485 | 120 | | | | | | | | 676 | | | 12,757 | 231 | 297 |
| FORAGES | Alfalfa - Two cuts | | | | | | | | | | | | | 16,824 | 380 | 1,157 |
| | Alfalfa - Three cuts | | | | | | | | | | 6,450 | | | 4,225 | | |
| | Alfalfa - Four cuts | | | | | | | | | | 280 | | | | | |
| | Alfalfa Hay | 5,612 | 320 | | 936 | 583 | | 781 | | | 4,603 | | | 10,284 | 117 | 786 |
| | Alfalfa Silage | | | | | | | | | | 450 | 250 | | 1,081 | | 171 |
| | Barley Silage | 202 | | | | | | | | | 2,116 | | | 5,489 | 14 | 386 |
| | Barley Silage (underseeded) | | | | | | | | | | | | | 1,114 | | 68 |
| | Brome Hay | | | | | | | | | | | | | 71 | | |
| | Corn Silage | | | | | | | | | | 3,729 | | | 25,820 | 14 | 1,000 |
| | Custom Variety Forage/Misc | | | | | | | | | | | | | 120 | | |
| | Grass Hay | 438 | 20 | | 325 | 154 | | | | | 610 | | | 5,761 | 425 | 712 |
| | Green Feed | 436 | 229 | | 150 | 32 | | | | | 206 | | | 1,894 | 25 | 117 |
| | Milk Vetch | | | | | | | | | | | | | | | |
| | Native Pasture | | | | | | | | | | | | | 3,670 | 216 | 573 |
| | Oats Silage | | | | | | | | | | 482 | | | 310 | | |
| | Sorghum/Sudan Grass | | | | | | | | | | | | | 428 | 35 | |
| | Tame Pasture | 1,008 | 362 | | 667 | 253 | | | | | 4,110 | 467 | | 8,759 | 1,011 | 1,193 |
| | Timothy Hay | | | | | | | | | | 1,034 | | | 7,122 | | 286 |
| | Tritcale Silage | | | | | | | | | | 260 | | | 497 | | |
| OIL SEEDS | Canola | 2,665 | 407 | | | | | 116 | | | 6,564 | 290 | | 37,464 | 188 | 1,341 |
| | Flax | 128 | | | | | | | | | 815 | | | 5,596 | | 14 |
| | Mustard | | | | | | | | | | | | | 225 | | |
| | Safflower | | | | | | | | | | | | | | | |
| SPECIALTY CROPS | Alfalfa Seed | | | | | | | | | | | | | 3,420 | | |
| | Canary Seed | | | | 141 | | | | | | | | | | | |
| | Canola Seed | | | | | | | | | | | | | 20,025 | 64 | 15 |
| | Carrots | | | | | | | | | | | | | 72 | 59 | |
| | Catnip | | | | | | | | | | | | | 454 | | |
| | Chick Peas | | | | | | | | | | | | | 2,087 | | 21 |
| | Dill | | | | | | | | | | | | | 256 | | 57 |
| | Dry Beans | | | | | | | | | | | | | 31,261 | 65 | 325 |
| | Dry Peas | 285 | | | | | | | | | 1,246 | 60 | | 11,425 | 112 | 617 |
| | Faba Beans | | | | | | | | | | | | | 426 | | 2 |
| | Fresh Corn (sweet) | | | | | | | | | | | | | 519 | | |
| | Fresh Peas | | | | 112 | | | | | | | | | 1,406 | | |
| | Grass Seed | 239 | | | | | | | | | | | | 648 | | |
| | Hemp | | 20 | | | | | | | | 299 | | | 4,949 | | 96 |
| | Lawn Turf | | | | | | | | | | | | | 146 | | |
| | Lentils | | | | | | | | | | | | | 3,224 | 4 | 158 |
| | Market Gardens | | | | | | | | | | 50 | | | 526 | | 30 |
| | Mint | | | | | | | | | | | | | 4,206 | | |
| | Nursery | | | | | | | | | | 43 | | | 330 | 31 | 7 |
| | Onions | | | | | | | | | | | | | 5 | | |
| | Potatoes | | | | | | | | | | | | | 15,640 | 20 | 173 |
| | Pumpkins | | | | | | | | | | | | | | | |
| | Radishes | | | | | | | | | | | | | | | |
| | Seed Potatoes | 130 | | | | | | | | | | | | 65 | | |
| | Small Fruit | | | | | | | | | | | | | 58 | | |
| | Soybeans | | | | | | | | | | | | | 599 | 2 | 27 |
| | Sugar Beets | | | | | | | | | | | | | 10,577 | | 180 |
| | Sunflower | | | | | | | | | | | | | 449 | | |
| | Yellow Peas | | | | | | | | | | | | | 685 | | |
| OTHER | Miscellaneous | | | | | | | | | | 42 | | | 1,296 | 179 | 250 |
| | Non Crop | | | | | | | | | | | | | 338 | 184 | 335 |
| | Summer Fallow | | 60 | | | | | | | | | | | 171 | 28 | 689 |
| | Unknown | | | | | | | | | | | | | | | |
| **Total acres** | | **16,120** | **2,210** | **0** | **2,517** | **1,146** | **0** | **897** | **0** | **0** | **46,968** | **3,144** | **0** | **381,529** | **4,362** | **16,120** |
| | | **18,330** | | | **3,663** | | | **897** | | | **50,112** | | | **402,011** | | |

# Table 1. Details of Crops Grown within the 13 Irrigation Districts (cont'd)

| CROP TYPE | | TID | | | UID | | | WID | | | ALL DISTRICTS | | | TOTAL ACRES (for all districts) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | acres covered by an irrigation system | | acres with no irrigation system | acres covered by an irrigation system | | acres with no irrigation system | acres covered by an irrigation system | | acres with no irrigation system | acres covered by an irrigation system | | acres with no irrigation system | |
| | | Irrigated this year | Not irrigated this year | | Irrigated this year | Not irrigated this year | | Irrigated this year | Not irrigated this year | | Irrigated this year | Not irrigated this year | | |
| CEREALS | Barley | 6,091 | 10 | | 4,712 | | | 5,848 | 403 | | 77,630 | 3,955 | 659 | **82,243** |
| | CPS Wheat | | | | | | | 3,627 | | | 11,173 | 0 | 0 | **11,173** |
| | Durum Wheat | 2,500 | 105 | | 32 | | | 530 | | | 69,332 | 450 | 972 | **70,755** |
| | Grain Corn | 1,236 | 10 | | | | | 170 | | | 21,967 | 10 | 4 | **21,981** |
| | Hard Spring Wheat | 14,638 | 112 | | 5,458 | | | 9,404 | 1,274 | | 200,237 | 5,565 | 3,252 | **209,054** |
| | Malt Barley | 6 | | | | | | 40 | | | 1,650 | 315 | 13 | **1,978** |
| | Miscellaneous Cereals | | 40 | | | | | | | | 3,658 | 2,066 | 0 | **5,724** |
| | Oats | 613 | | | | | | 322 | 85 | | 4,772 | 103 | 0 | **4,876** |
| | Rye | 65 | | | | | | 49 | | | 1,351 | 0 | 5 | **1,356** |
| | Soft Wheat | | | | | | | 772 | 261 | | 12,895 | 378 | 50 | **13,322** |
| | Triticale | | | | 227 | | | | | | 7,402 | 36 | 82 | **7,520** |
| | Winter Wheat | 1,315 | | | 797 | | | | | | 22,440 | 410 | 297 | **23,147** |
| FORAGES | Alfalfa - Two cuts | 525 | 64 | | 3,362 | | | 9,681 | 475 | | 56,056 | 919 | 1,157 | **58,132** |
| | Alfalfa - Three cuts | 2,583 | 101 | | 1,840 | | | 1,153 | | | 24,667 | 101 | 0 | **24,768** |
| | Alfalfa - Four cuts | | | | | | | | | | 280 | 0 | 0 | **280** |
| | Alfalfa Hay | 4,247 | 278 | | 89 | | | 3,908 | 1,096 | | 65,737 | 3,325 | 786 | **69,849** |
| | Alfalfa Silage | 56 | | | 41 | | | | | | 20,163 | 250 | 171 | **20,584** |
| | Barley Silage | 826 | | | 1,655 | | | 6,256 | 316 | | 52,754 | 467 | 386 | **53,606** |
| | Barley Silage (underseeded) | | | | | | | 392 | | | 1,837 | 0 | 68 | **1,905** |
| | Brome Hay | | | | | | | 328 | | | 871 | 0 | 0 | **871** |
| | Corn Silage | 3,392 | | | | | | 550 | 315 | | 87,222 | 335 | 1,000 | **88,557** |
| | Custom Variety Forage/Misc | | | | | | | | | | 350 | 0 | 0 | **350** |
| | Grass Hay | 268 | 52 | | 1,013 | | | 1,041 | 60 | | 35,634 | 1,405 | 712 | **37,751** |
| | Green Feed | 371 | 74 | | 488 | | | 507 | | | 12,477 | 654 | 117 | **13,248** |
| | Milk Vetch | | | | | | | | | | 132 | 0 | 0 | **132** |
| | Native Pasture | 18 | 327 | | 2,767 | | | 3,437 | 976 | | 11,676 | 1,519 | 573 | **13,768** |
| | Oats Silage | | | | 135 | | | 588 | | | 2,221 | 143 | 0 | **2,364** |
| | Sorghum/Sudan Grass | | | | | | | | | | 819 | 35 | 0 | **854** |
| | Tame Pasture | 3,300 | 978 | | 1,843 | | | 1,665 | 175 | | 72,889 | 4,443 | 1,193 | **78,525** |
| | Timothy Hay | 2,633 | | | 1,467 | | | 1,113 | | | 20,743 | 0 | 286 | **21,029** |
| | Tritcale Silage | | | | | | | | | | 757 | 0 | 0 | **757** |
| OIL SEEDS | Canola | 1,762 | 212 | | 6,721 | | | 14,511 | 1,789 | | 137,664 | 3,729 | 1,341 | **142,734** |
| | Flax | 720 | | | | | | 380 | | | 15,853 | 0 | 14 | **15,867** |
| | Mustard | | | | | | | | | | 773 | 0 | 0 | **773** |
| | Safflower | | | | | | | | | | 78 | 0 | 0 | **78** |
| SPECIALTY CROPS | Alfalfa Seed | 65 | | | | | | | | | 42,385 | 23 | 0 | **42,407** |
| | Canary Seed | | | | | | | | | | 211 | 0 | 0 | **211** |
| | Canola Seed | 4,496 | | | | | | | | | 51,946 | 69 | 15 | **52,030** |
| | Carrots | | | | | | | 60 | | | 376 | 59 | 0 | **435** |
| | Catnip | | | | | | | | | | 454 | 0 | 0 | **454** |
| | Chick Peas | | | | | | | | | | 2,087 | 0 | 21 | **2,108** |
| | Dill | | | | | | | | | | 506 | 0 | 57 | **563** |
| | Dry Beans | 4,013 | | | | | | | | | 56,370 | 90 | 325 | **56,785** |
| | Dry Peas | 444 | | | 1,299 | | | 1,683 | 90 | | 32,653 | 262 | 617 | **33,532** |
| | Faba Beans | 132 | | | | | | | | | 1,554 | 0 | 2 | **1,556** |
| | Fresh Corn (sweet) | 1,957 | 66 | | | | | | | | 2,649 | 66 | 0 | **2,715** |
| | Fresh Peas | 2,315 | | | | | | 508 | 270 | | 4,648 | 270 | 0 | **4,918** |
| | Grass Seed | | | | 144 | | | 80 | | | 1,420 | 0 | 0 | **1,420** |
| | Hemp | | | | | | | | | | 9,588 | 42 | 96 | **9,727** |
| | Lawn Turf | 96 | | | | | | 2,500 | | | 3,728 | 0 | 0 | **3,728** |
| | Lentils | | | | | | | | | | 3,396 | 33 | 158 | **3,587** |
| | Market Gardens | 22 | | | 19 | | | | | | 824 | 0 | 30 | **854** |
| | Mint | | | | | | | | | | 4,679 | 0 | 0 | **4,679** |
| | Nursery | 12 | | | | | | 1,080 | 307 | | 1,880 | 338 | 7 | **2,225** |
| | Onions | 929 | | | | | | | | | 934 | 0 | 0 | **934** |
| | Potatoes | 11,354 | 9 | | 3 | | | 160 | | | 45,484 | 29 | 173 | **45,686** |
| | Pumpkins | 157 | | | | | | | | | 157 | 0 | 0 | **157** |
| | Radishes | | | | | | | | | | 0 | 0 | 0 | **0** |
| | Seed Potatoes | 599 | | | | | | 376 | | | 1,170 | 0 | 0 | **1,170** |
| | Small Fruit | | | | | | | 60 | | | 118 | 0 | 0 | **118** |
| | Soybeans | 211 | | | | | | | | | 3,215 | 6 | 27 | **3,247** |
| | Sugar Beets | 4,495 | 30 | | | | | | | | 30,452 | 58 | 180 | **30,689** |
| | Sunflower | 215 | | | | | | | | | 3,518 | 0 | 0 | **3,518** |
| | Yellow Peas | | | | | | | | | | 685 | 0 | 0 | **685** |
| OTHER | Miscellaneous | 110 | 71 | | 194 | | | 2,424 | | | 8,870 | 1,436 | 250 | **10,556** |
| | Non Crop | | 48 | | 4 | | | 270 | 197 | | 612 | 575 | 335 | **1,522** |
| | Summer Fallow | 10 | | | | | | | | | 450 | 764 | 689 | **1,903** |
| | Unknown | | | 4,238 | | | | | | 10,673 | 0 | 0 | 14,911 | **14,911** |
| **Total acres** | | **78,797** | **2,587** | **4,238** | **34,309** | **0** | **0** | **75,473** | **8,089** | **10,673** | **1,373,178** | **34,731** | **31,031** | **1,438,941** |
| | | **85,622** | | | **34,309** | | | **94,235** | | | **1,438,941** | | | **1,438,941** |

## Table 2. Crop Types Grown within the 13 irrigation Districts

| CROP TYPE | IRRIGATION DISTRICTS | | | | | | | | | | | | | TOTAL ACRES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AID | BRID | EID | LID | LNID | MID | MVID | RCID | RID | SMRID | TID | UID | WID | |
| CEREALS | 1,466 | 99,750 | 91,231 | 255 | 41,901 | 5,769 | 311 | 0 | 15,656 | 136,039 | 26,741 | 11,227 | 22,785 | **453,130** |
| | 31.2% | 40.2% | 30.0% | 5.1% | 22.4% | 31.5% | 8.5% | 0.0% | 31.2% | 33.8% | 31.2% | 32.7% | 24.2% | **31.5%** |
| FORAGES | 3,022 | 40,790 | 126,417 | 3,831 | 104,737 | 8,627 | 3,099 | 781 | 25,047 | 102,156 | 20,093 | 14,699 | 34,032 | **487,331** |
| | 64.2% | 16.4% | 41.5% | 76.1% | 55.9% | 47.1% | 84.6% | 87.1% | 50.0% | 25.4% | 23.5% | 42.8% | 36.1% | **33.9%** |
| OIL SEEDS | 107 | 17,847 | 29,968 | 0 | 29,622 | 3,200 | 0 | 116 | 7669 | 44,827 | 2,694 | 6,721 | 16,680 | **159,451** |
| | 2.3% | 7.2% | 9.8% | 0.0% | 15.8% | 17.5% | 0.0% | 12.9% | 15.3% | 11.2% | 3.1% | 19.6% | 17.7% | **11.1%** |
| SPECIALTY CROPS | 0 | 88,712 | 56,057 | 0 | 6,966 | 674 | 253 | 0 | 1,698 | 115,521 | 31,617 | 1,465 | 7,174 | **310,137** |
| | 0.0% | 35.7% | 18.4% | 0.0% | 3.7% | 3.7% | 6.9% | 0.0% | 3.4% | 28.7% | 36.9% | 4.3% | 7.6% | **21.6%** |
| OTHER * | 109 | 1,219 | 767 | 945 | 4,043 | 60 | 0 | 0 | 42 | 3,468 | 4,477 | 197 | 13,564 | **28,891** |
| | 2.3% | 0.5% | 0.3% | 18.8% | 2.2% | 0.3% | 0.0% | 0.0% | 0.1% | 0.9% | 5.2% | 0.6% | 14.4% | **2.0%** |
| **TOTAL** | **4,704** | **248,318** | **304,440** | **5,031** | **187,269** | **18,330** | **3,663** | **897** | **50,112** | **402,011** | **85,622** | **34,309** | **94,235** | **1,438,941** |

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

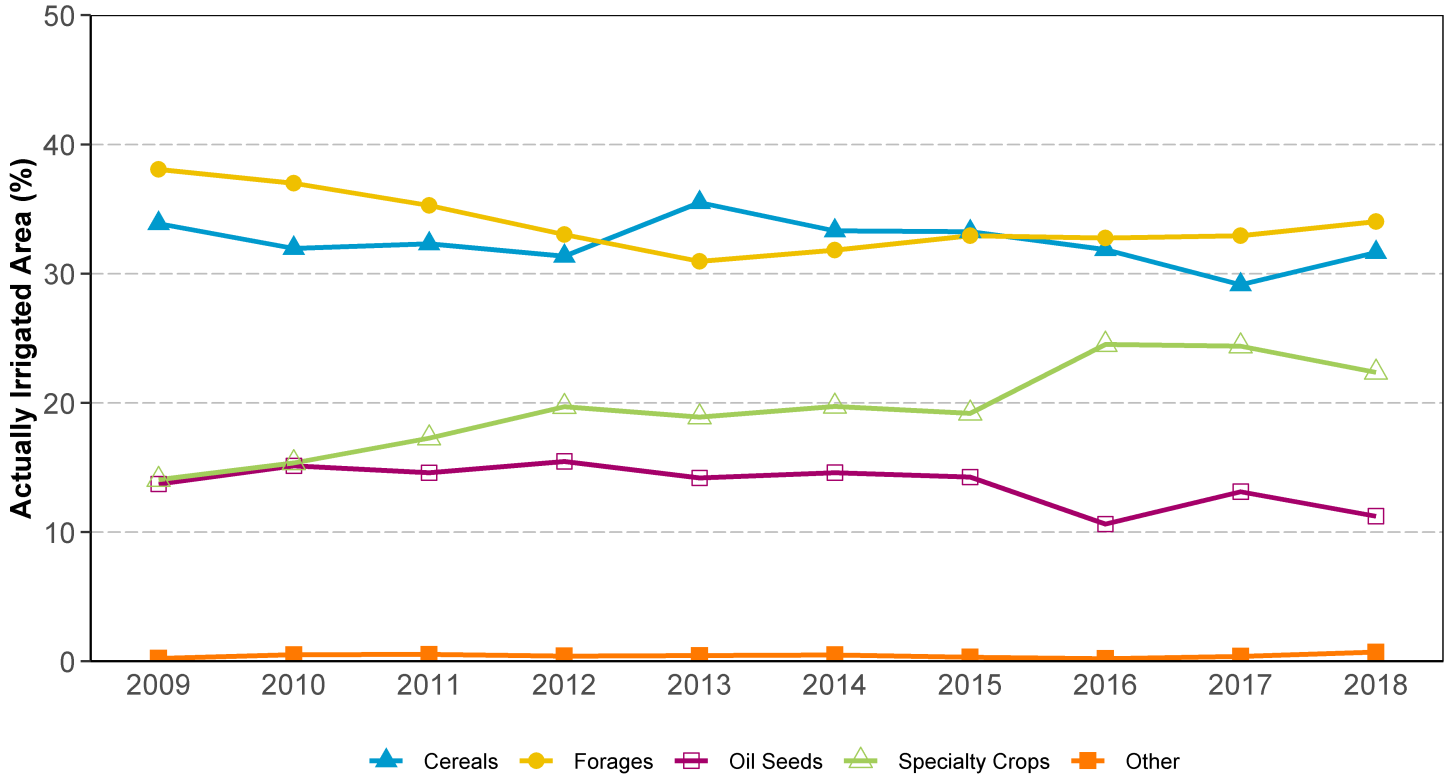



**Figure 1. Irrigated Crop Types Within the 13 Irrigation Districts**

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

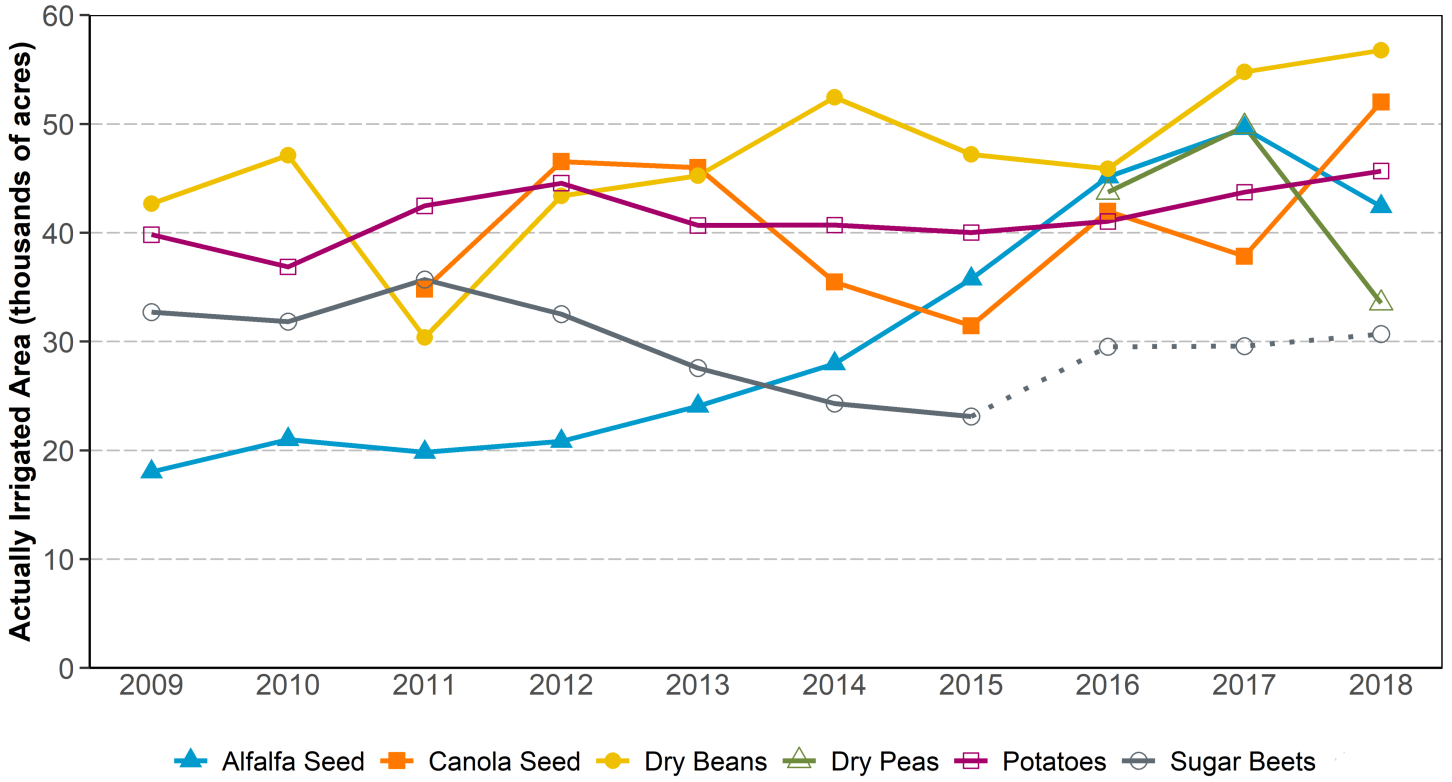



**Figure 2. Acres of Five Major Irrigation Specialty Crops within 13 Irrigation Districts**

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

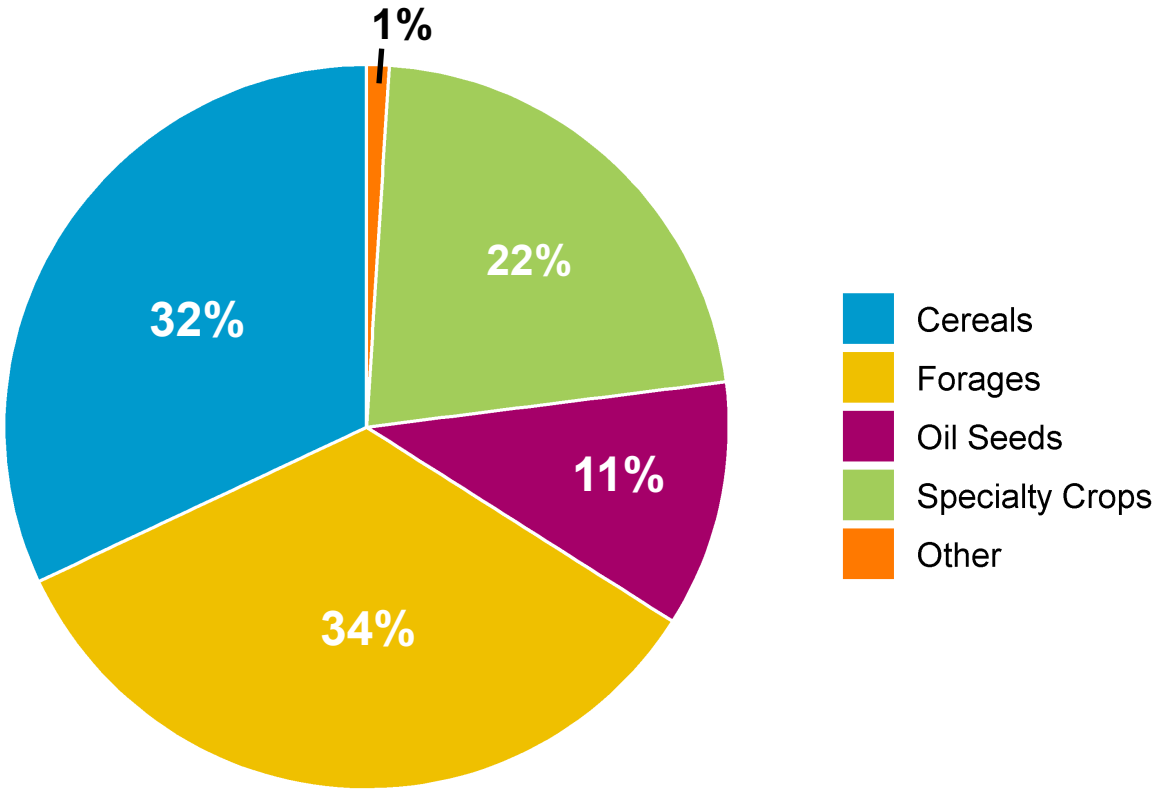



**Figure 3. Crop Types within the 13 Irrigation Districts in 2018 (% of area)**

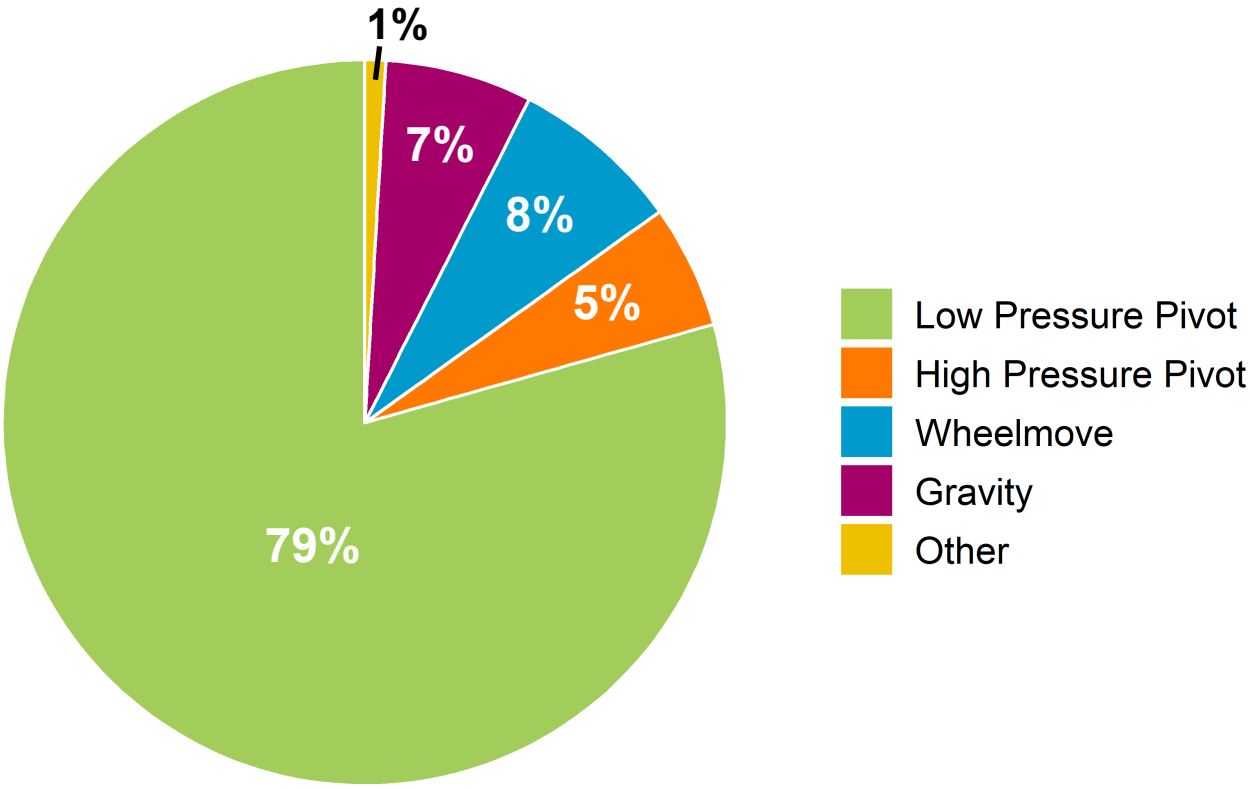
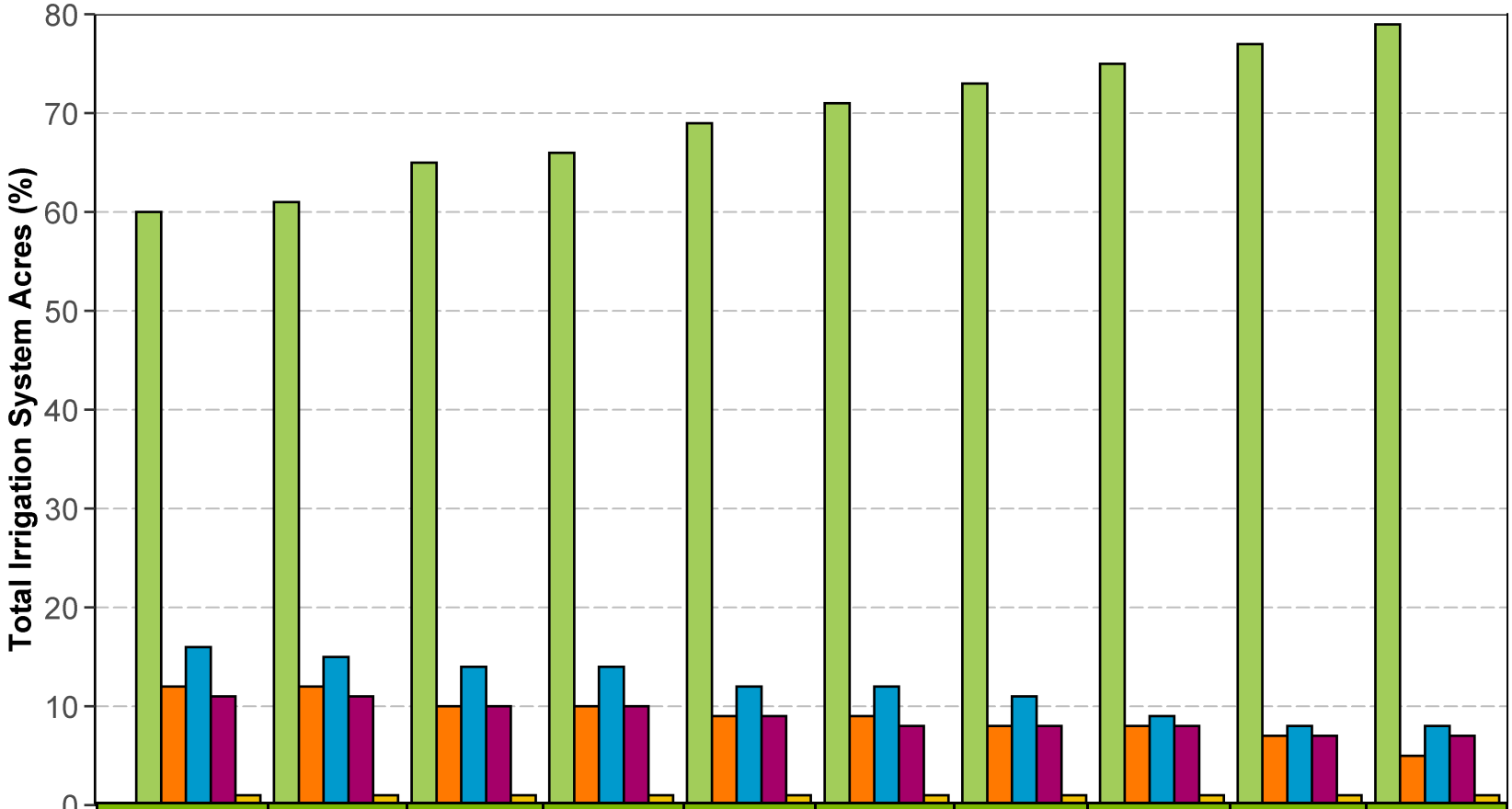



**Figure 4. On-farm Irrigation Methods within the 13 Irrigation Districts in 2018 (% of area)**

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

| IRRIGATION METHOD | | AID | BRID | EID | LID | LNID | MID | MVID | RCID | RID | SMRID | TID | UID | WID | Individual Method Total | Total Acres Covered |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOW PRESSURE PIVOT | Pivot Low Pressure | 1,099 | 149,862 | 190,684 | 411 | 69,936 | 8,343 | | 604 | 29,862 | 287,015 | 42,187 | 17,934 | 56,087 | 854,024 | |
| | Pivot Low Pressure - Corner Arm | | 62,988 | 17,086 | | 90,593 | 140 | | | 2,298 | 48,796 | 19,683 | 1,191 | 4,116 | 246,891 | |
| | Linear - Low Pressure | | 56 | 1,479 | | 276 | | | | 407 | 1,287 | 220 | 239 | 323 | 4,287 | 1,115,693 |
| | Pivot Medium Pressure | | 850 | 4,300 | | | | 253 | | 824 | 3,064 | | | | 9,291 | |
| | Pivot Medium Pressure - Corner Arm | | 448 | 252 | | | | | | | 500 | | | | 1,200 | |
| | Percent of total ----- | 23.4% | 86.3% | 70.4% | 8.2% | 85.9% | 46.3% | 6.9% | 66.8% | 73.6% | 88.3% | 76.3% | 56.0% | 70% | | 79.4% |
| HIGH PRESSURE PIVOT | Pivot High Pressure | | 15,882 | 24,577 | 761 | | 2,186 | | 67 | 805 | 8,721 | 8,204 | 568 | 7,206 | 68,977 | |
| | Pivot High Pressure - Corner arm | | 2,272 | 2,561 | | | | | | | 1,473 | 1,087 | | 260 | 7,653 | 77,393 |
| | Linear - High Pressure | | | 217 | | | | | | | | 84 | | 462 | 763 | |
| | Percent of total ----- | 0.0% | 7.3% | 9.0% | 15.1% | 0.0% | 11.9% | 0.0% | 7.4% | 1.8% | 2.6% | 11.5% | 1.6% | 9.2% | | 5.5% |
| WHEEL MOVE | Wheel Move - One and Two Laterals | 1,822 | 3,964 | 12,183 | 1,323 | 10,864 | 4,537 | 468 | 226 | 6,692 | 23,657 | 7,469 | 1,673 | 8,288 | 83,166 | |
| | Wheel Move - Three and Four Laterals | | 1,924 | 3,512 | 194 | 11,509 | | | | 923 | 2,937 | 483 | 103 | 2,442 | 24,027 | 107,193 |
| | Percent of total ----- | 38.7% | 2.4% | 5.2% | 30.2% | 11.9% | 24.8% | 12.8% | 25.0% | 16.8% | 6.9% | 9.8% | 5.1% | 12.4% | | 7.6% |
| GRAVITY | Gravity - Developed | | 8,292 | 36,706 | | 584 | 2,905 | | | 1,762 | 1,015 | 730 | 1,465 | 85 | 53,544 | |
| | Gravity - Undeveloped | 277 | 1,451 | 9,555 | 1,747 | 691 | | 2,949 | 7 | 1,456 | 5,653 | 1,006 | 10,695 | 3,298 | 38,785 | 92,329 |
| | Percent of total ----- | 5.9% | 3.9% | 15.2% | 34.8% | 0.7% | 15.8% | 80.4% | 0.8% | 7.1% | 1.7% | 2.1% | 35.2% | 3.9% | | 6.6% |
| OTHER | Volume Gun - Stationary | | | | | | | | | | 152 | 37 | | 74 | 263 | |
| | Volume Gun - Traveller | | 25 | 207 | | 150 | | | | | 24 | 22 | | 510 | 938 | |
| | Solid Set (underground sprinkler) | 140 | | 8 | | 691 | 25 | | | 95 | 254 | | | 734 | 1,947 | |
| | Hand Move (sprinkler above ground) | 1,366 | 111 | 466 | 591 | 858 | 174 | | | 179 | 934 | 80 | 157 | 365 | 5,281 | 13,067 |
| | Micro - Spray - Sprinkler | | 195 | | | 135 | | | | 51 | 39 | 15 | 15 | 51 | 501 | |
| | Micro - Drip - Trickle | | | | | | 20 | | | 7 | 264 | 75 | 159 | 2,165 | 2,690 | |
| | Other Application Use | | | | | 982 | | | | | 111 | | 354 | | 1,447 | |
| | Percent of total ----- | 32.0% | 0.1% | 0.2% | 11.8% | 1.5% | 1.2% | 0.0% | 0.0% | 0.7% | 0.5% | 0.3% | 2.0% | 4.5% | | 0.9% |
| **Total Acres Covered** | | **4,704** | **248,320** | **303,793** | **5,027** | **187,269** | **18,330** | **3,670** | **904** | **45,361** | **385,896** | **81,382** | **34,553** | **86,466** | **1,405,675** | **1,405,675** |

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




| | | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Low Pressure Pivot | ACRES | 773,538 | 802,173 | 856,707 | 879,651 | 923,391 | 957,117 | 991,859 | 1,038,024 | 1,072,113 | 1,115,693 |
| High Pressure Pivot | | 160,665 | 156,784 | 126,864 | 126,430 | 119,449 | 116,436 | 110,733 | 107,761 | 93,052 | 77,393 |
| Wheel move | | 210,606 | 198,043 | 189,410 | 179,837 | 165,561 | 157,056 | 145,124 | 118,962 | 112,091 | 107,193 |
| Gravity | | 141,885 | 145,879 | 136,709 | 126,217 | 118,307 | 114,122 | 106,764 | 107,129 | 97,421 | 92,329 |
| Other | | 11,935 | 11,826 | 11,626 | 12,444 | 8,785 | 8,941 | 9,698 | 9,731 | 12,807 | 13,067 |

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

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

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

Notes: Assessment roll acres include "irrigation", "terminable" and "annual" acres. Only "irrigation" and "terminable" acres are considered in district expansion limits. In 2018, irrigation districts reported 9,574 annual acres.

## Table 5. Acres Actually Irrigated within the 13 Irrigation Districts

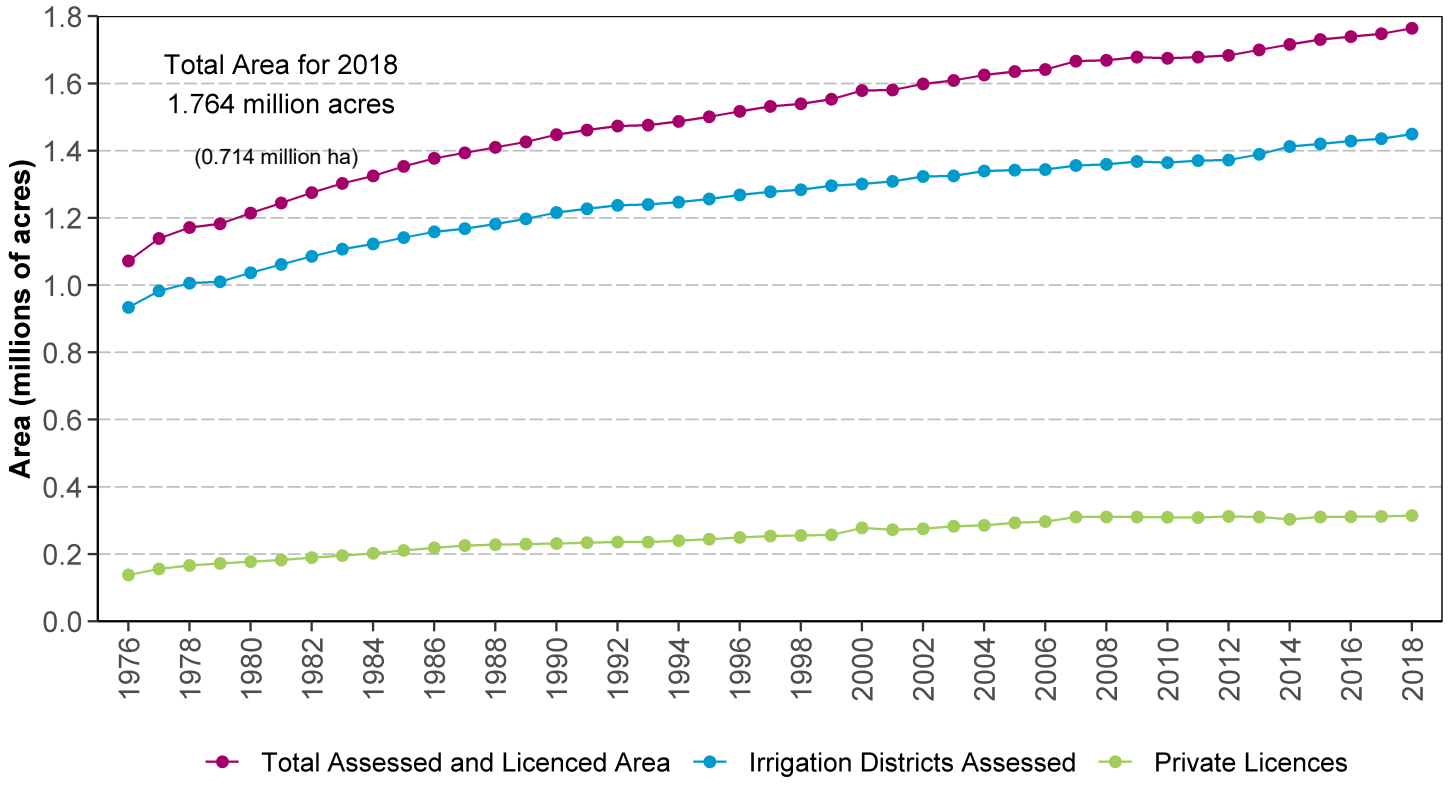
| YEAR | AID | BRID | EID | LID | LNID | MID | MVID | RCID | RID | SMRID | TID | UID | WID | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1980** | 2,500 | 134,493 | 212,524 | 4,476 | 95,979 | 8,000 | 2,900 | 600 | 19,137 | 251,914 | 63,202 | 12,607 | 43,986 | **852,318** |
| **1981** | 2,500 | 140,300 | 216,200 | 4,476 | 90,552 | 8,650 | 2,783 | 0 | 19,462 | 259,564 | 66,206 | 15,064 | 28,389 | **854,146** |
| **1982** | 1,200 | 152,144 | 216,620 | 3,000 | 104,533 | 8,500 | 3,154 | 650 | 25,169 | 268,916 | 67,305 | 10,054 | 41,996 | **903,241** |
| **1983** | 1,200 | 168,461 | 231,125 | 3,000 | 108,141 | 9,000 | 3,154 | 650 | 28,055 | 288,969 | 68,474 | 12,734 | 46,638 | **969,601** |
| **1984** | 1,200 | 173,334 | 238,000 | 3,000 | 102,301 | 10,200 | 3,154 | 600 | 34,728 | 300,071 | 69,847 | 12,313 | 46,638 | **995,386** |
| **1985** | 2,933 | 174,087 | 244,763 | 3,664 | 114,635 | 13,000 | 3,184 | 700 | 36,286 | 305,560 | 70,133 | 12,620 | 49,666 | **1,031,231** |
| **1986** | 2,933 | 174,903 | 246,916 | 3,600 | 113,663 | 13,000 | 3,184 | 700 | 36,008 | 307,875 | 69,928 | 13,146 | 48,000 | **1,033,856** |
| **1987** | 2,200 | 178,482 | 245,514 | 4,076 | 119,562 | 12,400 | 3,321 | 700 | 36,008 | 305,964 | 69,413 | 12,526 | 46,984 | **1,037,150** |
| **1988** | 2,500 | 173,400 | 241,494 | 3,900 | 124,555 | 13,436 | 3,100 | 500 | 36,496 | 316,223 | 69,581 | 14,536 | 52,950 | **1,052,671** |
| **1989** | 1,962 | 181,106 | 249,623 | 3,900 | 127,330 | 13,555 | 2,000 | 0 | 35,766 | 323,400 | 70,278 | 11,693 | 52,153 | **1,072,766** |
| **1990** | 2,446 | 183,147 | 253,261 | 4,500 | 127,439 | 14,000 | 2,500 | 0 | 36,911 | 338,274 | 73,329 | 11,523 | 49,000 | **1,096,330** |
| **1991** | 2,473 | 182,932 | 246,083 | 4,200 | 130,989 | 15,000 | 2,880 | 650 | 32,847 | 319,745 | 73,169 | 11,548 | 48,300 | **1,070,816** |
| **1992** | 2,519 | 182,543 | 256,342 | 4,200 | 131,305 | 15,240 | 2,880 | 0 | 36,788 | 324,477 | 74,229 | 15,499 | 43,889 | **1,089,911** |
| **1993** | 0 | 184,463 | 259,778 | 0 | 67,565 | 0 | 0 | 0 | 0 | 262,718 | 66,158 | 0 | 40,007 | **880,689** |
| **1994** | 1,940 | 187,247 | 259,942 | 4,200 | 133,803 | 11,425 | 3,277 | 734 | 36,291 | 330,949 | 73,949 | 14,255 | 47,335 | **1,105,347** |
| **1995** | 765 | 192,328 | 263,576 | 1,000 | 100,589 | 3,250 | 3,300 | 643 | 16,473 | 289,173 | 72,108 | 5,035 | 39,130 | **987,370** |
| **1996** | 2,145 | 196,055 | 271,075 | 4,277 | 143,147 | 14,341 | 3,355 | 734 | 39,662 | 339,098 | 74,766 | 14,135 | 68,710 | **1,171,500** |
| **1997** | 2,476 | 197,904 | 274,880 | 4,600 | 145,061 | 13,479 | 3,600 | 794 | 39,484 | 342,234 | 76,083 | 19,205 | 62,448 | **1,182,248** |
| **1998** | 1,930 | 198,197 | 274,942 | 4,600 | 122,379 | 11,189 | 3,228 | 1,055 | 32,259 | 342,758 | 76,872 | 17,276 | 67,643 | **1,154,328** |
| **1999** | 1,870 | 198,060 | 277,723 | 4,735 | 145,782 | 14,723 | 3,510 | 1,210 | 38,966 | 355,988 | 79,166 | 17,407 | 51,032 | **1,190,172** |
| **2000** | 2,361 | 199,873 | 278,956 | 4,763 | 154,300 | 15,427 | 3,510 | 0 | 42,062 | 352,372 | 79,206 | 19,741 | 64,414 | **1,216,985** |
| **2001** | 3,155 | 201,859 | 279,354 | 4,763 | 160,657 | 17,520 | 3,510 | 0 | 39,326 | 339,666 | 76,653 | 21,708 | 71,158 | **1,219,329** |
| **2002** | 2,422 | 202,807 | 281,070 | 4,763 | 162,624 | 14,717 | 3,510 | 1,149 | 37,221 | 342,053 | 76,245 | 20,364 | 75,635 | **1,224,580** |
| **2003** | 2,386 | 202,974 | 280,624 | 4,763 | 162,779 | 15,579 | 3,510 | 1,194 | 42,210 | 351,257 | 76,884 | 22,660 | 67,540 | **1,234,360** |
| **2004** | 2,386 | 203,007 | 283,625 | 4,763 | 175,406 | 14,489 | 3,510 | 800 | 38,461 | 353,085 | 76,277 | 21,735 | 54,666 | **1,232,210** |
| **2005** | 2,361 | 192,899 | 282,267 | 4,763 | 175,206 | 13,044 | 3,510 | 800 | 36,611 | 346,596 | 77,522 | 20,780 | 56,186 | **1,212,544** |
| **2006** | 2,361 | 198,111 | 280,753 | 4,763 | 175,184 | 13,232 | 3,510 | 0 | 41,156 | 335,269 | 76,765 | 22,771 | 43,136 | **1,197,011** |
| **2007** | 2,361 | 201,286 | 284,419 | 4,763 | 174,673 | 14,676 | 3,509 | 600 | 42,573 | 345,935 | 77,068 | 22,021 | 40,716 | **1,214,600** |
| **2008** | 2,361 | 206,283 | 280,691 | 4,763 | 175,886 | 13,420 | 3,509 | 0 | 38,617 | 352,564 | 77,132 | 21,735 | 48,126 | **1,225,087** |
| **2009** | 2,361 | 211,577 | 285,191 | 4,706 | 174,487 | 14,866 | 3,500 | 800 | 40,174 | 352,104 | 77,571 | 23,383 | 64,196 | **1,254,915** |
| **2010** | 150 | 182,483 | 235,371 | 0 | 174,518 | 5,688 | 500 | 374 | 17,481 | 340,078 | 72,989 | 17,333 | 48,700 | **1,095,665** |
| **2011** | 2,961 | 202,478 | 294,569 | 4,714 | 175,683 | 12,774 | 500 | 770 | 37,163 | 346,079 | 75,048 | 21,003 | 42,270 | **1,216,012** |
| **2012** | 2,797 | 208,217 | 294,748 | 4,625 | 177,593 | 14,175 | 535 | 878 | 39,560 | 338,439 | 76,775 | 22,655 | 52,483 | **1,233,480** |
| **2013** | 3,285 | 217,417 | 295,923 | 1,736 | 178,697 | 14,386 | 608 | 770 | 39,839 | 338,588 | 76,002 | 22,708 | 49,791 | **1,239,750** |
| **2014** | 1,611 | 224,952 | 297,015 | 1,736 | 179,296 | 14,305 | 1,801 | 897 | 37,511 | 362,254 | 75,838 | 21,044 | 60,587 | **1,278,847** |
| **2015** | 1,611 | 228,480 | 297,930 | 1,736 | 179,625 | 16,182 | 1,746 | 897 | 43,378 | 370,590 | 77,123 | 34,391 | 67,800 | **1,321,489** |
| **2016** | 2,467 | 226,492 | 299,336 | 3,863 | 182,160 | 16,387 | 1,746 | 897 | 43,743 | 374,554 | 77,801 | 22,757 | 65,735 | **1,317,938** |
| **2017** | 2,467 | 242,150 | 301,309 | 3,863 | 184,565 | 16,423 | 2,089 | 897 | 45,183 | 377,047 | 77,996 | 34,099 | 68,131 | **1,356,219** |
| **2018** | 2,468 | 239,295 | 303,673 | 3,863 | 187,269 | 16,120 | 2,517 | 897 | 46,968 | 381,529 | 78,797 | 34,310 | 75,473 | **1,373,179** |

## Table 6. Private Water Licences for Irrigation

There are 2,921 individual irrigation projects, outside of the 13 irrigation districts, irrigating approximately 314,672 acres in Alberta. These projects vary in size from 1 acre to over several thousand acres of agricultural or horticultural production. Each of these projects is licensed to an individual, a group of producers or to private or public lands (ie. golf courses or parks). The licencing is regulated by Alberta Environment and Parks.

| RIVER BASIN | TOTAL ACRES IRRIGATED | NO. OF LICENCES 1 TO 100 AC. | NO. OF LICENCES 101 TO 300 AC. | NO. OF LICENCES OVER 300 AC. | TOTAL NO. OF LICENCES |
|---|---|---|---|---|---|
| ATHABASCA RIVER | **1,985** | **43** | **6** | **0** | **49** |
| MILK RIVER | **18,874** | **98** | **43** | **14** | **155** |
| NORTH SASKATCHEWAN RIVER | **27,089** | **311** | **56** | **15** | **382** |
| PEACE RIVER | **4,574** | **65** | **10** | **2** | **77** |
| SOUTH SASKATCHEWAN RIVER | **262,150** | **1,615** | **505** | **138** | **2,258** |
| Sub-Basin | | | | | |
| - Bow River | 25,892 | 149 | 60 | 18 | 227 |
| - Little Bow River | 33,564 | 126 | 73 | 26 | 225 |
| - Oldman River (Lower) | 17,752 | 30 | 28 | 14 | 72 |
| - Oldman River (Upper) | 7,513 | 61 | 20 | 4 | 85 |
| - Red Deer River | 46,275 | 417 | 94 | 18 | 529 |
| - South Saskatchewan River | 47,026 | 534 | 81 | 23 | 638 |
| - Waterton / Belly / St. Mary Rivers | 50,316 | 138 | 70 | 17 | 225 |
| - Willow Creek | 33,812 | 160 | 79 | 18 | 257 |
| **TOTAL** | **314,672** | **2,132** | **620** | **169** | **2,921** |

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




## Figure 6. Growth in Irrigation Area

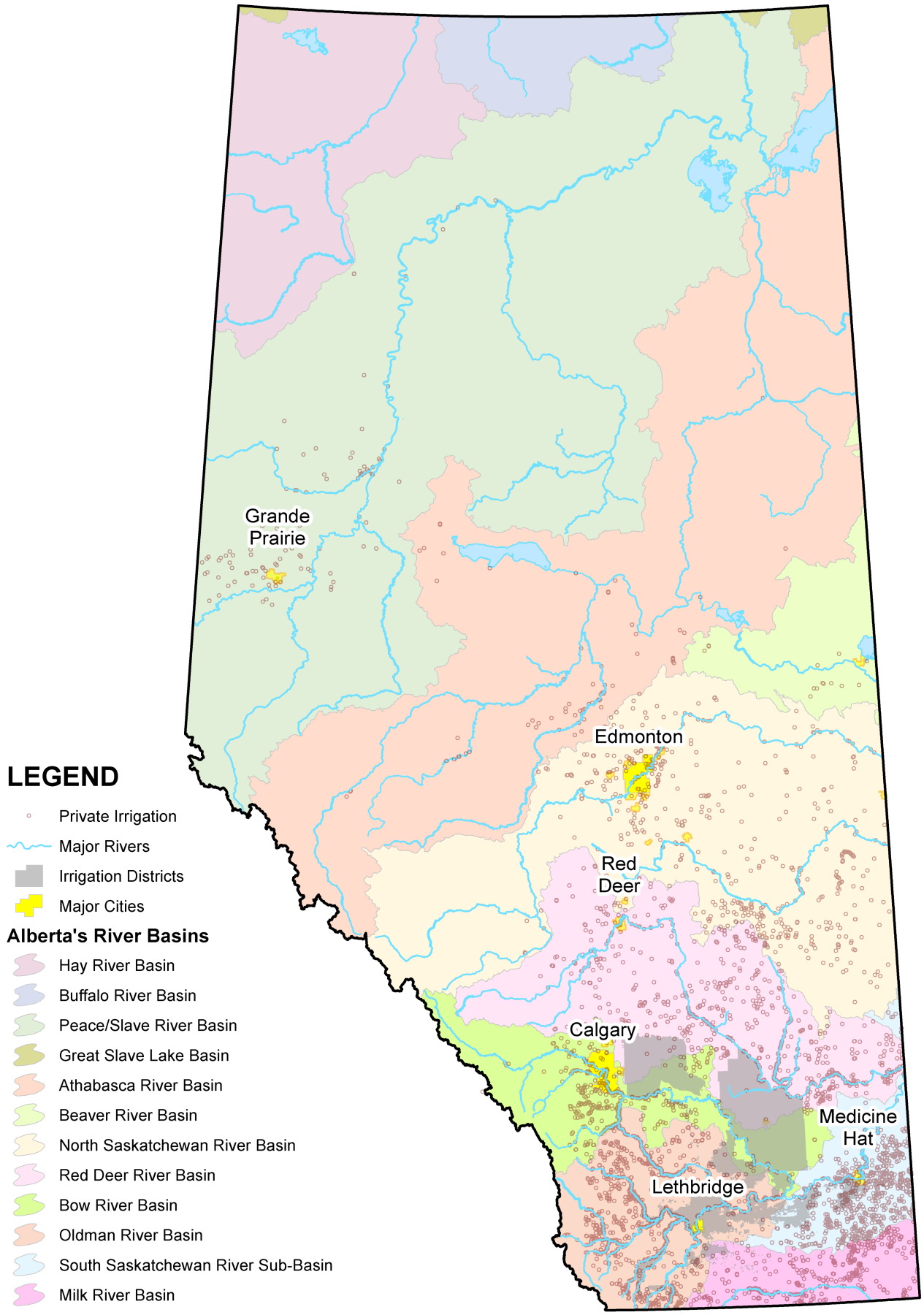





**Figure 7. Location of Private Irrigation**

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

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

Note: Some districts levy the additional surcharges for overallocation, pipeline and pressure delivery.

## Table 8. Irrigation District Expansion Limits and Water Licence Allocations

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

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

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

## Table 9. Gross Annual Diversions for Irrigation Districts

| YEAR | BOW RIVER SUB-BASIN | | | OLDMAN RIVER SUB-BASIN | | | | | | | | | SOUTH SASK RIVER SUB-BASIN | TOTALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BRID | EID | WID | AID | LID | LNID | MID | MVID | RID | SMRID | TID | UID | RCID | |
| **1985** | 358,722 | 655,188 | 158,897 | 5,020 | 8,500 | 184,029 | 18,533 | 4,250 | 27,302 | 425,500 | 95,751 | 24,193 | 3,827 | 1,969,712 |
| **1986** | 311,000 | 680,592 | 131,333 | 4,074 | 6,858 | 182,159 | 14,114 | 3,212 | 22,045 | 406,536 | 101,597 | 20,106 | 1,832 | 1,885,458 |
| **1987** | 309,000 | 639,928 | 129,712 | 4,392 | 5,644 | 181,934 | 14,649 | 3,180 | 40,559 | 426,434 | 98,621 | 19,958 | 1,321 | 1,875,332 |
| **1988** | 423,000 | 730,274 | 171,868 | 6,910 | 9,398 | 222,936 | 22,918 | 6,066 | 60,531 | 563,621 | 121,668 | 30,462 | 256 | 2,369,908 |
| **1989** | 333,000 | 605,148 | 122,416 | 4,613 | 3,517 | 198,789 | 12,338 | 2,750 | 30,728 | 504,255 | 78,396 | 18,372 | 122 | 1,914,444 |
| **1990** | 380,907 | 689,178 | 128,091 | 3,754 | 5,328 | 191,899 | 13,555 | 3,290 | 32,000 | 467,244 | 98,572 | 16,133 | 298 | 2,030,249 |
| **1991** | 334,792 | 629,872 | 147,547 | 3,556 | 4,468 | 184,737 | 12,712 | 2,662 | 30,702 | 391,634 | 94,956 | 17,003 | 1,775 | 1,856,416 |
| **1992** | 336,878 | 625,650 | 135,387 | 2,170 | 11,216 | 136,925 | 15,695 | 4,118 | 36,210 | 441,745 | 101,122 | 18,628 | 0 | 1,865,744 |
| **1993** | 210,340 | 423,551 | 114,309 | 2,126 | 1,824 | 61,753 | 4,848 | 988 | 13,574 | 218,375 | 59,278 | 8,107 | 3,300 | 1,122,373 |
| **1994** | 364,126 | 559,476 | 132,104 | 4,110 | 4,319 | 179,663 | 13,895 | 3,325 | 28,328 | 415,162 | 103,028 | 16,827 | 758 | 1,825,121 |
| **1995** | 302,305 | 602,098 | 116,254 | 1,802 | 1,548 | 110,114 | 4,248 | 861 | 19,953 | 390,285 | 79,818 | 7,710 | 208 | 1,637,204 |
| **1996** | 328,182 | 615,478 | 117,065 | 4,035 | 4,892 | 206,206 | 12,506 | 2,660 | 45,527 | 498,483 | 127,436 | 19,832 | 1,085 | 1,983,387 |
| **1997** | 343,380 | 593,782 | 116,740 | 6,051 | 5,193 | 188,378 | 12,564 | 1,529 | 38,043 | 455,300 | 115,582 | 20,364 | 1,760 | 1,898,666 |
| **1998** | 303,565 | 638,500 | 142,367 | 4,874 | 5,331 | 157,758 | 9,671 | 2,323 | 33,834 | 405,000 | 116,300 | 14,895 | 1,726 | 1,836,144 |
| **1999** | 298,524 | 426,788 | 88,410 | 3,485 | 11,415 | 196,906 | 25,178 | 2,499 | 42,960 | 411,532 | 105,208 | 20,900 | 1,700 | 1,635,505 |
| **2000** | 417,897 | 675,238 | 156,400 | 6,000 | 11,240 | 263,413 | 35,375 | 6,700 | 58,202 | 451,700 | 140,046 | 37,200 | 0 | 2,259,411 |
| **2001*** | 413,780 | 685,000 | 160,000 | 3,952 | 7,593 | 308,236 | 21,173 | 6,814 | 40,207 | 325,700 | 94,770 | 27,526 | 0 | 2,094,751 |
| **2002** | 333,541 | 430,000 | 149,577 | 2,938 | 9,835 | 112,143 | 10,788 | 3,033 | 23,552 | 466,700 | 53,324 | 21,283 | N/A | 1,616,714 |
| **2003** | 279,798 | 459,700 | 128,700 | 4,598 | 7,964 | 201,812 | 20,711 | 5,889 | 49,723 | 330,600 | 86,500 | 32,500 | N/A | 1,608,495 |
| **2004** | 230,817 | 417,370 | 114,000 | 3,440 | 5,425 | 166,276 | 12,391 | 2,660 | 28,224 | 367,500 | 64,399 | 21,600 | N/A | 1,434,102 |
| **2005** | 182,819 | 318,000 | 120,400 | 4,000 | 6,243 | 134,088 | 8,859 | 2,067 | 27,046 | 316,200 | 72,487 | 13,717 | 1,190 | 1,207,116 |
| **2006** | 210,741 | 335,210 | 72,000 | 3,681 | 5,341 | 165,752 | 14,114 | 3,987 | 37,049 | 334,100 | 82,448 | 20,390 | 0 | 1,284,813 |
| **2007** | 256,518 | 417,830 | 68,000 | 3,235 | 6,330 | 235,330 | 18,238 | 3,600 | 47,322 | 394,700 | 100,907 | 31,801 | N/A | 1,583,811 |
| **2008** | 238,000 | 409,400 | 85,000 | 3,584 | 6,389 | 178,750 | 12,659 | 2,609 | 34,348 | 381,200 | 85,829 | 21,054 | 200 | 1,459,022 |
| **2009** | 295,557 | 435,650 | 120,829 | 2,651 | 5,378 | 179,945 | 14,885 | 2,138 | 45,705 | 370,100 | 97,532 | 17,506 | 200 | 1,588,076 |
| **2010** | 156,116 | 210,500 | 65,850 | 1,938 | 2,383 | 71,950 | 5,351 | 1,013 | 21,903 | 201,700 | 53,135 | 7,264 | 116 | 799,219 |
| **2011** | 151,700 | 310,100 | 85,985 | 2,902 | 8,028 | 132,388 | 15,233 | 2,393 | 32,534 | 286,000 | 84,909 | 19,073 | 530 | 1,131,775 |
| **2012** | 260,000 | 343,200 | 103,862 | 2,761 | 3,973 | 176,683 | 20,720 | 2,558 | 35,200 | 340,800 | 88,309 | 19,039 | 562** | 1,397,105 |
| **2013** | 240,000 | 383,400 | 99,473 | 3,446 | 4,101 | 139,035 | 17,210 | 2,297 | 39,723 | 314,600 | 77,371 | 18,598 | 2,319 | 1,341,573 |
| **2014** | 222,191 | 371,000 | 113,666 | 3,113 | 5,928 | 120,097 | 13,552 | 1,801 | 31,448 | 297,600 | 71,874 | 16,565 | 700 | 1,269,535 |
| **2015** | 331,900 | 471,900 | 136,600 | 3,306 | 4,540 | 197,000 | 21,459 | 2,420 | 50,711 | 453,300 | 100,481 | 25,839 | 700 | 1,800,156 |
| **2016** | 328,085 | 371,100 | 109,865 | 3,848 | 4,564 | 206,730 | 20,325 | 2,233 | 39,704 | 402,600 | 84,313 | 21,864 | 367 | 1,595,598 |
| **2017** | 422,000 | 521,200 | 131,000 | 4,710 | 5,697 | 274,400 | 24,221 | 2,838 | 54,062 | 536,900 | 123,923 | 31,350 | 800 | 2,133,101 |
| **2018** | 290,400 | 495,500 | 136,000 | 3,648 | 9,363 | 223,918 | 26,529 | 2,475 | 53,799 | 504,000 | 105,352 | 30,680 | 1,569 | 1,883,233 |
| **PERCENT OF LICENCE (2018)** | **59.3%** | **65.1%** | **71.4%** | **40.5%** | **78.0%** | **67.0%** | **78.0%** | **30.9%** | **66.4%** | **69.8%** | **66.7%** | **46.3%** | **52.3%** | **65.6%** |
| **AVERAGE VOLUME (1976-2018)** | **302,827** | **513,716** | **123,836** | **3,786** | **6,170** | **171,152** | **15,169** | **3,036** | **34,353** | **387,694** | **92,987** | **20,624** | **1,022** | **1,673,651** |

Note: - Data is 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 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).
- *Water rationing in effect for MID, RID, SMRID,TID,UID,AID, LID and MVID.
- **RCID 2012 had zero diversion since the diversion structure was under construction; 562 ac-ft was delivered for irrigation from Cavan Lake

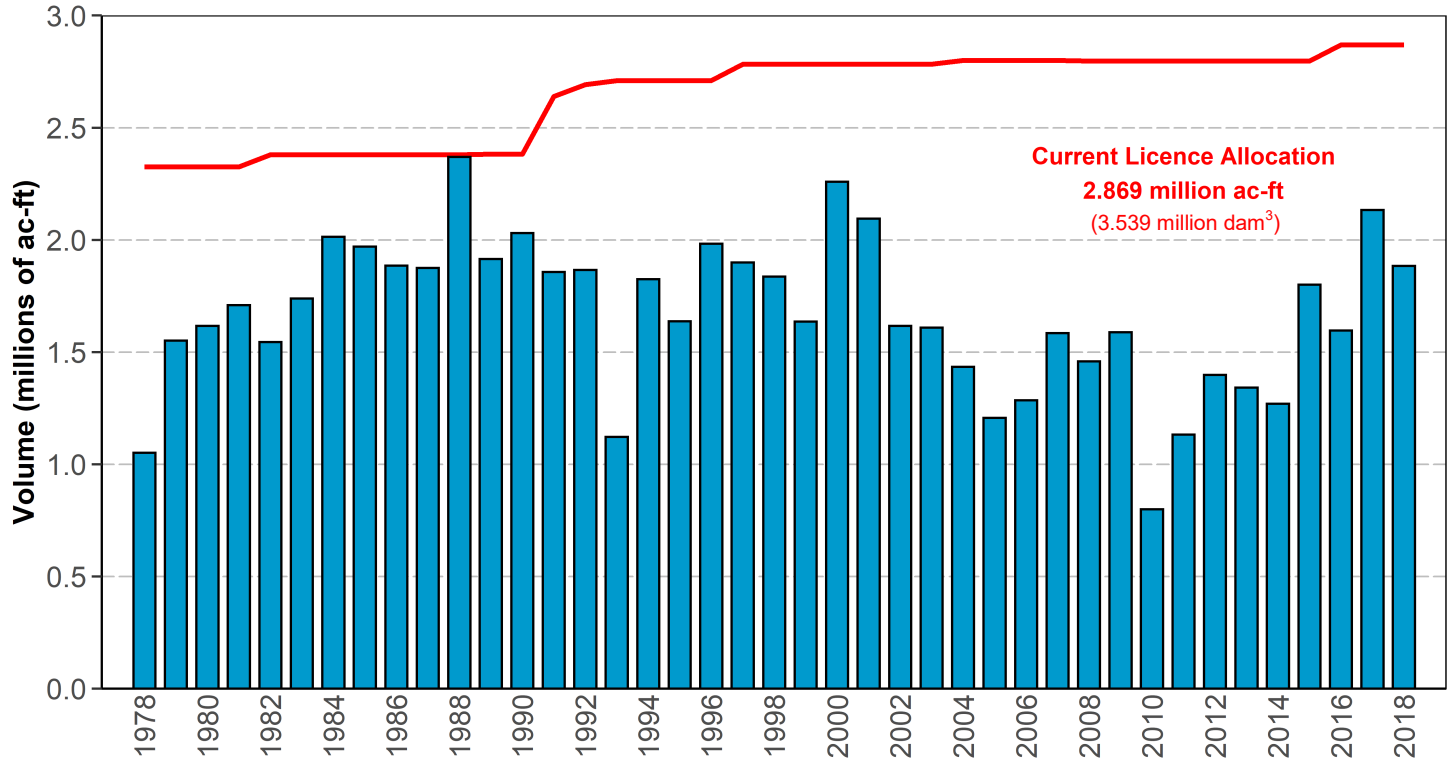



**Figure 8. Irrigation Districts Gross Annual Diversion and Licence Allocation**

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

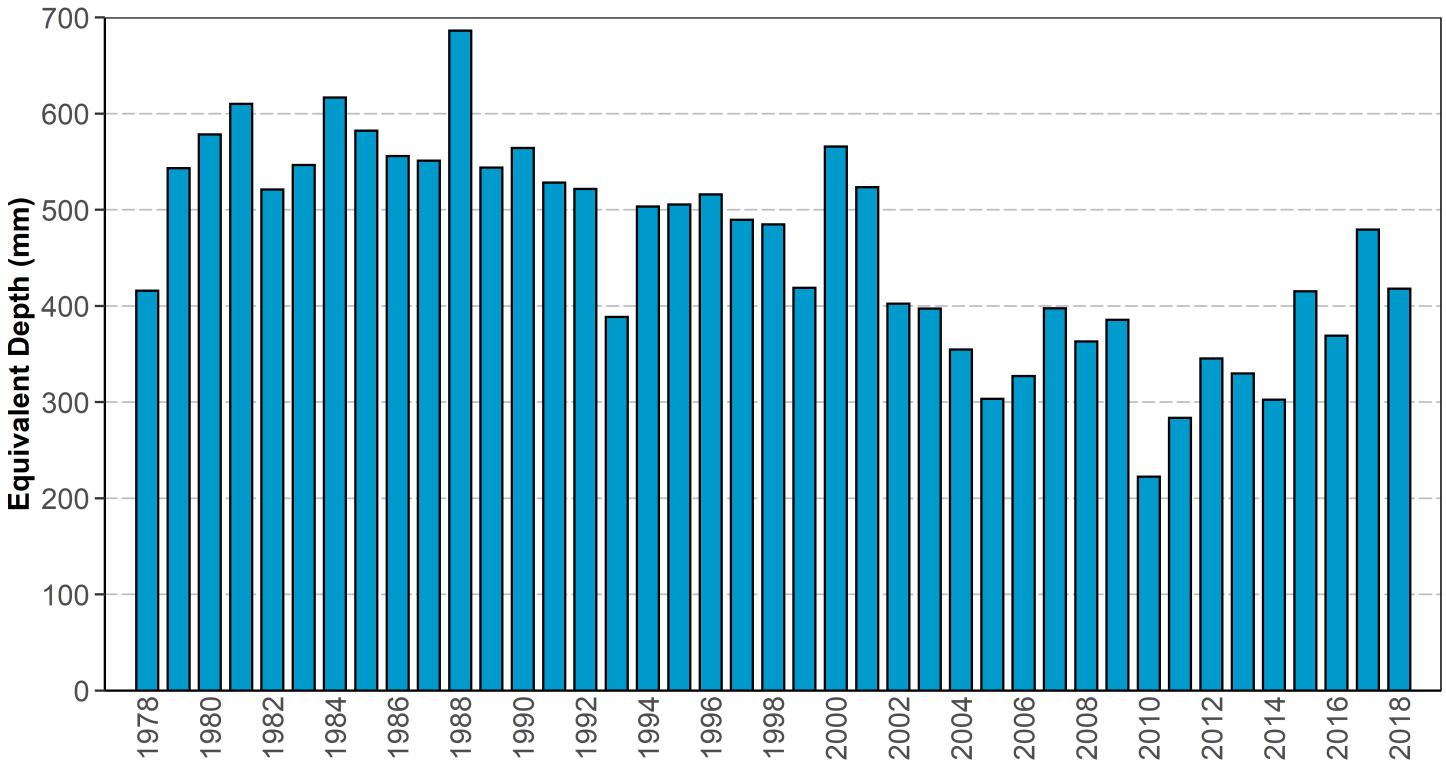
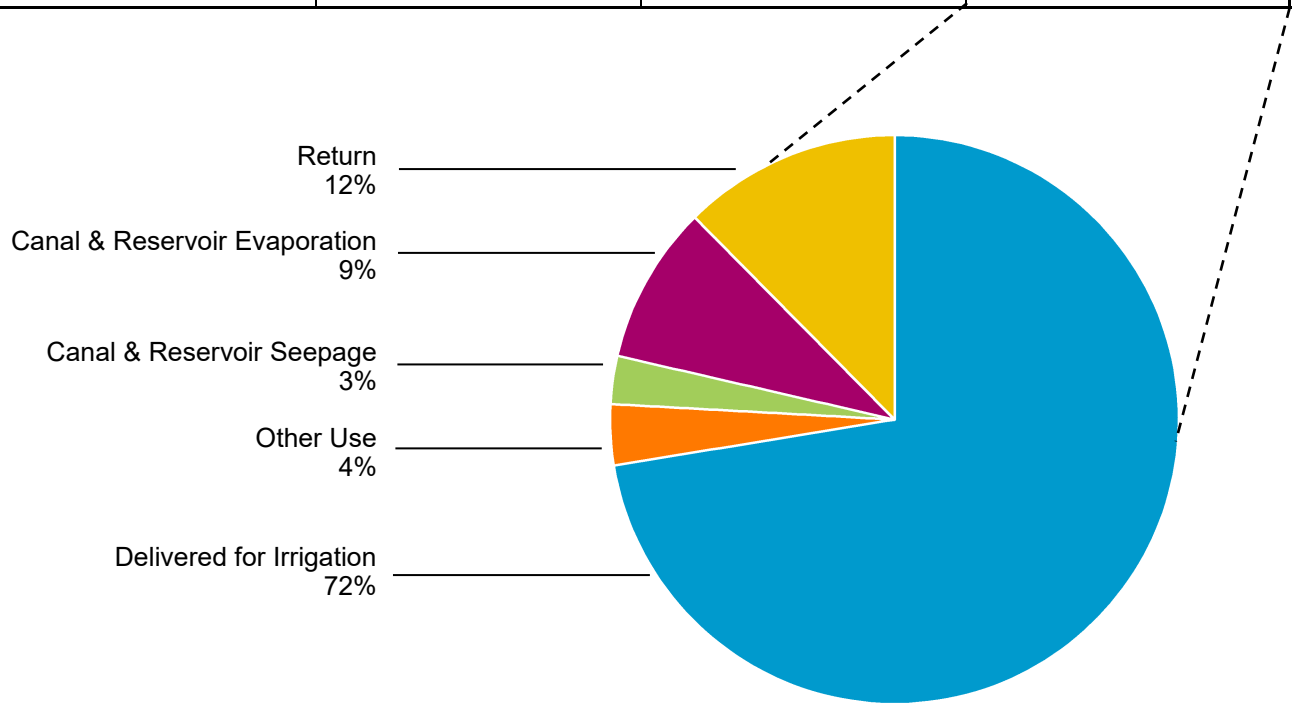



**Figure 9. Irrigation Districts Gross Diversion Equivalent Depth**

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

## Table 10. Irrigation Districts Water Balance

| WATER BALANCE CATEGORY | BOW RIVER BASIN | OLDMAN RIVER BASIN | IRRIGATION DISTRICTS |
|---|---|---|---|
| Gross Diversion | 921,900 | 961,300 | 1,883,200 |
| Net District Storage Change | 1,300 | 9,900 | 11,200 |
| **TOTAL DISTRICT USE** | **923,200** | **971,200** | **1,894,400** |
| Delivered for Irrigation | 631,900 | 740,000 | 1,371,900 |
| Delivered for Other Use | 37,000 | 28,400 | 65,400 |
| Canal & Reservoir Seepage | 27,900 | 23,800 | 51,700 |
| Canal & Reservoir Evaporation | 101,100 | 69,200 | 170,300 |
| Return | 125,300 | 109,800 | 235,100 |
| **TOTAL DISTRICT OPERATIONS** | **923,200** | **971,200** | **1,894,400** |




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

**Gross Diversion** - Volume of water diverted from a lake, reservoir or the river system by irrigation districts.
**Net District Storage Change** - Net volume of water removed from internal irrigation district reservoirs for use. A negative number within brackets, indicates a net increase in reservoir storage volume over the irrigation season.
**Total District Use** - Total volume of water used from diversion and storage.
**Delivered for Irrigation** - Net volume of water supplied for irrigation purposes.
**Delivered for Other Use** - Volume of water supplied for other uses including municipal domestic, other agricultural, industrial, and environmental uses.
**Canal & Reservoir Seepage** - Water lost from seepage from reservoirs and canals.
**Canal & Reservoir Evaporation** - Water lost from evaporation from the surface of irrigation district canals and reservoirs.
**Return** - Volume of water returned to the river system.
**Total District Operations** - Total volume of water used for irrigation districts operations comprised of water delivered for irrigation, other use, seepage and evaporation, and water returned.

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

| IRRIGATION DISTRICT | REHABILITATED | | | | | | | | | | UNREHABILITATED | | TOTAL CONVEYANCE WORKS (KM) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PIPELINES - CLOSED | | PIPELINES - OPEN | | MEMBRANE-LINED CANALS | | CONCRETE-LINED CANALS | | EARTH CANALS | | UN-REHABILITATED CANALS | | |
| | Length (km) | % of District Works | Length (km) | % of District Works | Length (km) | % of District Works | Length (km) | % of District Works | Length (km) | % of District Works | Length (km) | % of District Works | |
| **AID** | 24.3 | 61.7% | 0.2 | 0.5% | 4.5 | 11.4% | 0.0 | 0.0% | 1.0 | 2.5% | 9.4 | 23.9% | **39** |
| **BRID** | 584.3 | 58.1% | 6.2 | 0.6% | 125.3 | 12.3% | 6.4 | 0.6% | 170.0 | 16.7% | 118.8 | 11.7% | **1,011** |
| **EID** | 1225.6 | 63.3% | 28.4 | 1.5% | 250.4 | 12.9% | 0.0 | 0.0% | 194.4 | 10.0% | 236.7 | 12.2% | **1,936** |
| **LID** | 29.5 | 53.9% | 0.3 | 0.5% | 2.0 | 3.7% | 0.0 | 0.0% | 11.8 | 21.5% | 11.2 | 20.5% | **55** |
| **LNID** | 537.2 | 70.3% | 10.1 | 1.3% | 50.3 | 6.6% | 20.0 | 2.6% | 64.6 | 8.5% | 82.0 | 10.7% | **764** |
| **MID** | 65.6 | 61.2% | 1.5 | 1.4% | 1.2 | 1.1% | 0.3 | 0.3% | 33.7 | 31.4% | 4.9 | 4.6% | **107** |
| **MVID** | 19.0 | 44.4% | 1.8 | 4.2% | 0.0 | 0.0% | 0.0 | 0.0% | 17.0 | 39.7% | 5.0 | 11.7% | **43** |
| **RCID** | 12.2 | 83.0% | 0.0 | 0.0% | 0.0 | 0.0% | 0.0 | 0.0% | 2.5 | 17.0% | 0.0 | 0.0% | **15** |
| **RID** | 151.5 | 63.0% | 2.5 | 1.0% | 0.0 | 0.0% | 0.0 | 0.0% | 68.0 | 28.3% | 18.6 | 7.7% | **241** |
| **SMRID** | 968.2 | 53.5% | 23.7 | 1.3% | 66.2 | 3.7% | 47.7 | 2.6% | 423.2 | 23.4% | 282.3 | 15.6% | **1,811** |
| **TID** | 196.4 | 56.7% | 10.9 | 3.1% | 56.5 | 16.3% | 6.5 | 1.9% | 57.0 | 16.4% | 19.4 | 5.6% | **347** |
| **UID** | 97.6 | 42.3% | 24.0 | 10.4% | 13.9 | 6.0% | 0.2 | 0.1% | 42.7 | 18.5% | 52.6 | 22.8% | **231** |
| **WID** | 249.0 | 24.2% | 33.6 | 3.3% | 94.0 | 9.1% | 5.3 | 0.5% | 164.1 | 15.9% | 484.4 | 47.0% | **1,030** |
| **TOTAL** | **4,167** | **54.6%** | **143** | **1.9%** | **664** | **8.7%** | **86** | **1.1%** | **1,250** | **16.4%** | **1,325** | **17.4%** | **7,629** |
| | | | | | | | | | | | | Headworks Owned by Alberta Environment and Parks (AEP) | **339** |
| | | | | | | | | | | | | Total Length of Conveyance System in Southern Alberta (km) | **7,968** |

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

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

## Table 12. Irrigation District Infrastructure Length and Replacement Cost

| IRRIGATION DISTRICTS | CONVEYANCE WORKS | | DRAINAGE WORKS | | MAJOR STRUCTURES | | TOTAL OF ALL WORKS | |
|---|---|---|---|---|---|---|---|---|
| | Length (km) | Replacement Cost ($'000) | Length (km) | Replacement Cost ($'000) | Number of Units | Replacement Cost ($'000) | Length (km) | Replacement Cost ($'000) |
| **AID** | 39 | $11,155 | 19 | $314 | 0 | $0 | **59** | **$11,469** |
| **BRID** | 1,011 | $365,779 | 780 | $16,832 | 22 | $97,753 | **1,791** | **$480,364** |
| **EID** | 1,936 | $721,524 | 1,960 | $44,773 | 61 | $349,421 | **3,896** | **$1,115,718** |
| **LID** | 55 | $12,779 | 5 | $160 | 0 | $0 | **60** | **$12,939** |
| **LNID** | 764 | $262,443 | 247 | $7,393 | 2 | $2,880 | **1,010** | **$272,716** |
| **MID** | 107 | $27,695 | 163 | $5,667 | 0 | $0 | **270** | **$33,362** |
| **MVID** | 43 | $14,567 | 1 | $75 | 0 | $0 | **44** | **$14,642** |
| **RCID** | 15 | $2,844 | 20 | $986 | 1 | $135 | **34** | **$3,965** |
| **RID** | 241 | $60,052 | 218 | $10,822 | 0 | $0 | **458** | **$70,874** |
| **SMRID** | 1,811 | $671,339 | 412 | $11,342 | 48 | $335,617 | **2,224** | **$1,018,298** |
| **TID** | 347 | $131,503 | 84 | $4,660 | 12 | $14,168 | **430** | **$150,332** |
| **UID** | 231 | $75,701 | 59 | $1,548 | 11 | $16,206 | **290** | **$93,455** |
| **WID** | 1,030 | $355,171 | 938 | $24,801 | 13 | $18,180 | **1,968** | **$398,152** |
| **TOTAL** | **7,629** | **$2,712,553** | **4,905** | **$129,373** | **170** | **$834,361** | **12,534** | **$3,676,287** |

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

## Table 13. Irrigation District Reservoirs

| LOCATION | RESERVOIR | APPROXIMATE DATE OF LIVE IMPOUNDMENT | IRRIGATION LIVE STORAGE ($dam^3$) | IRRIGATION LIVE STORAGE (acre-feet) |
|---|---|---|---|---|
| BRID | Badger | 1985 | 57,120 | 46,300 |
| | 'D' Reservoir | 2005 | 350 | 280 |
| | 'H' Reservoir | 1953 | 2,790 | 2,260 |
| | Lost Lake | 1973/1987* | 5,060 | 4,100 |
| | 'PFRID' Reservoir | 2005 | 570 | 480 |
| | Scope | 1953 | 12,930 | 10,480 |
| | **Total storage** | | **78,820** | **63,900** |
| EID | Bantry # 1 | 1968 | 1,090 | 880 |
| | Bantry # 2 | 1967 | 4,150 | 3,360 |
| | Cowoki Lake | 1937 | 8,370 | 6,780 |
| | Crawling Valley | 1984 | 94,300 | 76,450 |
| | 'J' Reservoir | 1949/1966* | 1,460 | 1,180 |
| | Kitsim | 1980 | 19,470 | 15,790 |
| | Lake Newell | 1914 | 315,300 | 255,610 |
| | One Tree | 1935 | 5,660 | 4,590 |
| | Rock Lake | 1956 | 3,990 | 3,240 |
| | Rolling Hills | 1940/2003* | 40,640 | 32,950 |
| | Snake Lake | 1997 | 18,620 | 15,100 |
| | Tilley "B" | 1972 | 21,070 | 17,080 |
| | **Total storage** | | **534,120** | **433,010** |
| LNID | Park Lake | 1928 | 1,440 | 1,170 |
| | Picture Butte | 1936 | 1,490 | 1,210 |
| | Vandenburg | 1992 | 120 | 90 |
| | **Total storage** | | **3,050** | **2,470** |
| RID | Corner Lake | 1925 | 500 | 400 |
| | Craddock | 1925 | 620 | 500 |
| | Factory Lake | 1925 | 370 | 300 |
| | **Total storage** | | **1,490** | **1,200** |
| SMRID | Bullshead | 1954 | 130 | 100 |
| | Chin | 1954 | 207,370 | 168,120 |
| | Cross Coulee | 1954 | 2,090 | 1,700 |
| | Forty Mile | 1987 | 100,430 | 81,420 |
| | Murray | 1954 | 30,630 | 24,830 |
| | North East | 1954 | 2,820 | 2,290 |
| | Raymond | 1954 | 1,810 | 1,470 |
| | Sauder | 1953/1982* | 45,240 | 36,680 |
| | Seven Persons | 1953 | 900 | 730 |
| | Sherburne | 1952 | 12,190 | 9,880 |
| | Stafford | 1954/1982* | 21,790 | 17,670 |
| | Yellow Lake | 1952 | 18,130 | 14,700 |
| | **Total storage** | | **443,530** | **359,590** |
| TID | Fincastle | 1952 | 3,770 | 3,060 |
| | Horsefly | 1950 | 6,370 | 5,170 |
| | Taber Lake | 1955 | 6,410 | 5,190 |
| | **Total storage** | | **16,550** | **13,420** |
| UID | Cochrane Lake | 1923 | 3,130 | 2,540 |
| WID | Chestermere | 1944 | 5,090 | 4,130 |
| | Langdon | 1979/2014* | 15,750 | 12,770 |
| | **Total storage** | | **20,840** | **16,900** |
| **GRAND TOTAL** | | | **1,101,530** | **893,010** |

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

## Table 14. Provincially Owned and Operated Reservoirs Used by Irrigation

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

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

## Table 15. Hydroelectric Plants Associated with Irrigation Infrastructure

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

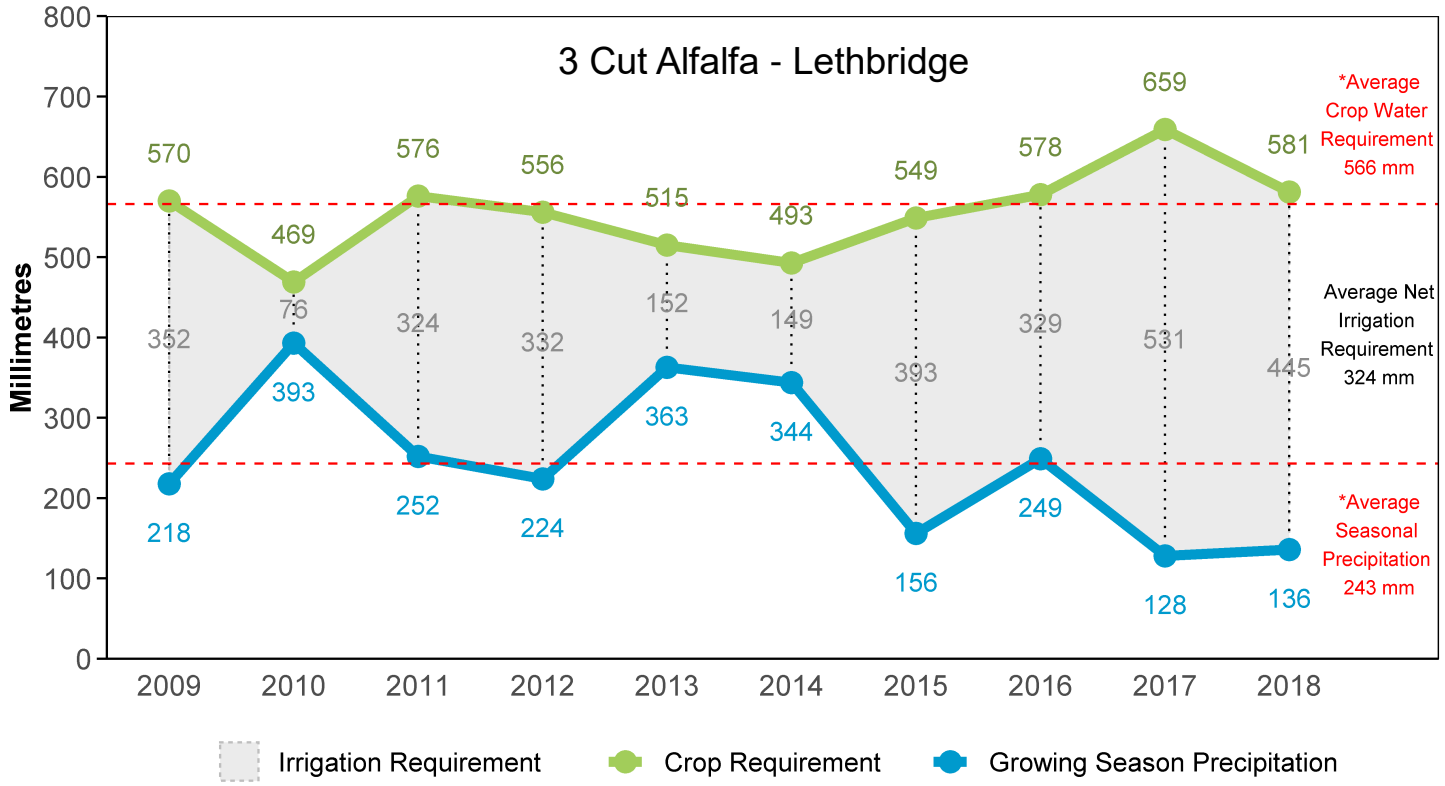



**Figure 10. Lethbridge Optimum Crop Water and Net Irrigation Requirements**

Note: Three cut alfalfa is used as an indicator crop because of its high water demand. The difference between the total crop water requirement and total precipitation is the Net Irrigation Requirement. *The average crop requirement and average precipitation are from the period of 1997 to 2018. Seasonal precipitation from May 1 to September 30.

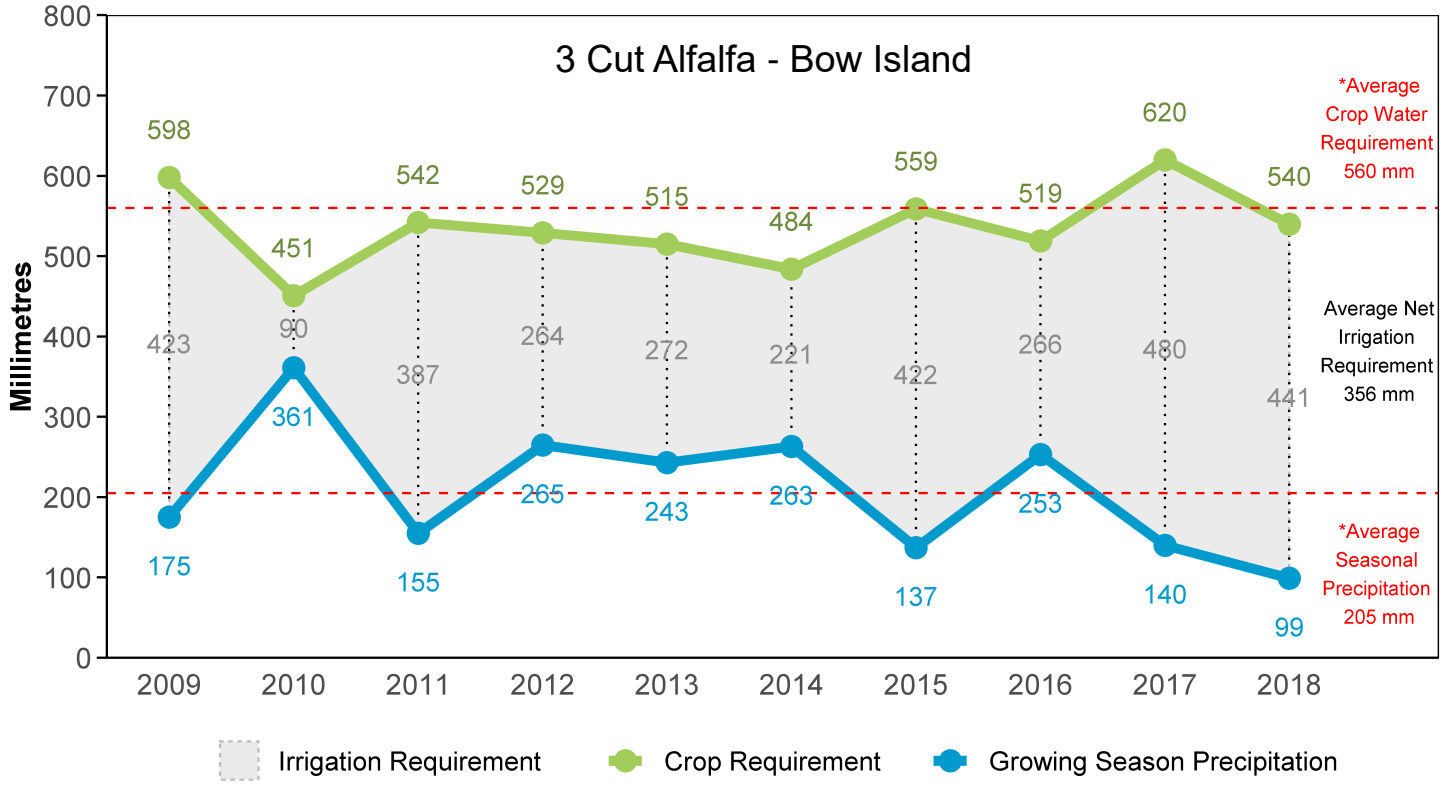



**Figure 11. Bow Island Optimum Crop Water and Net Irrigation Requirements**

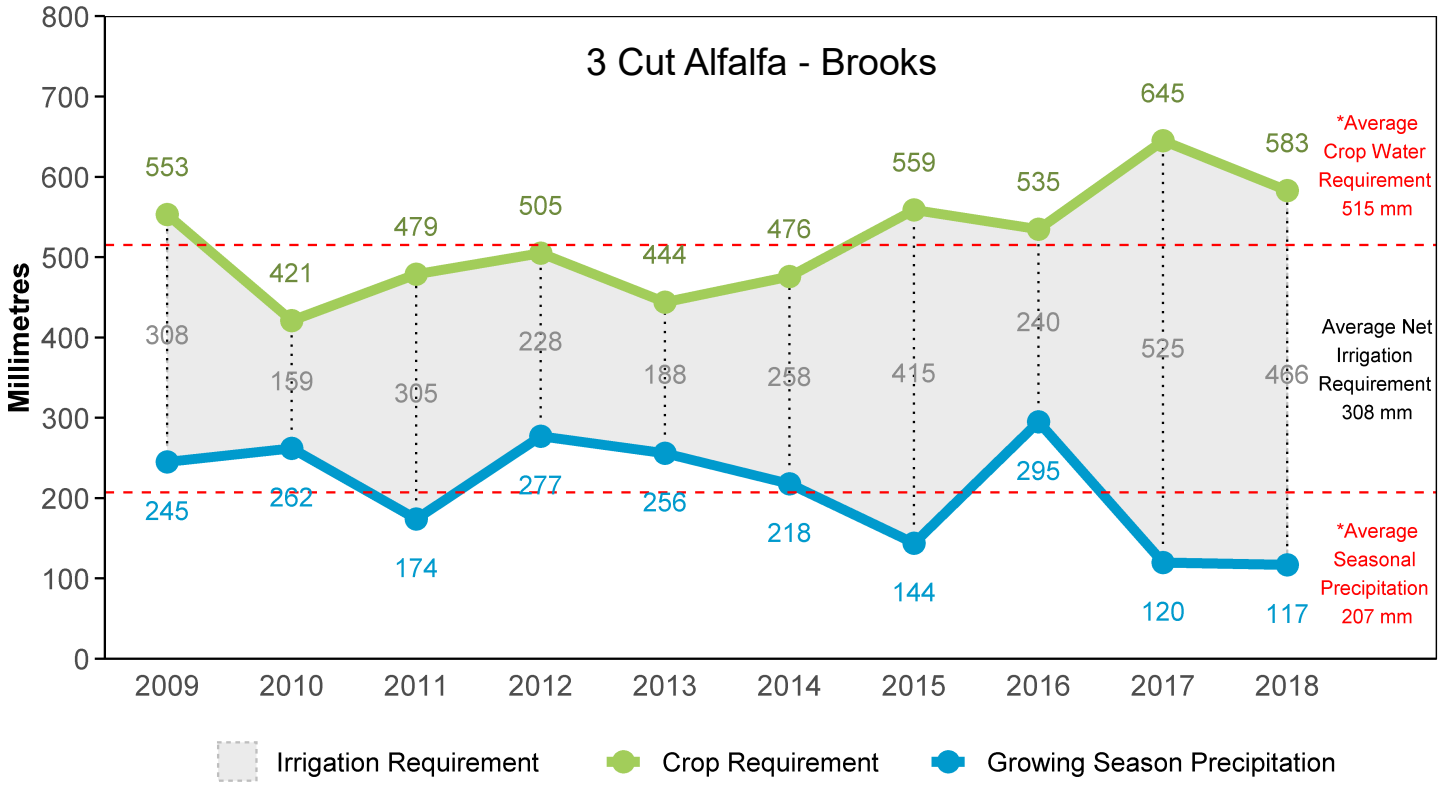



**Figure 12. Brooks Optimum Crop Water and Net Irrigation Requirements**

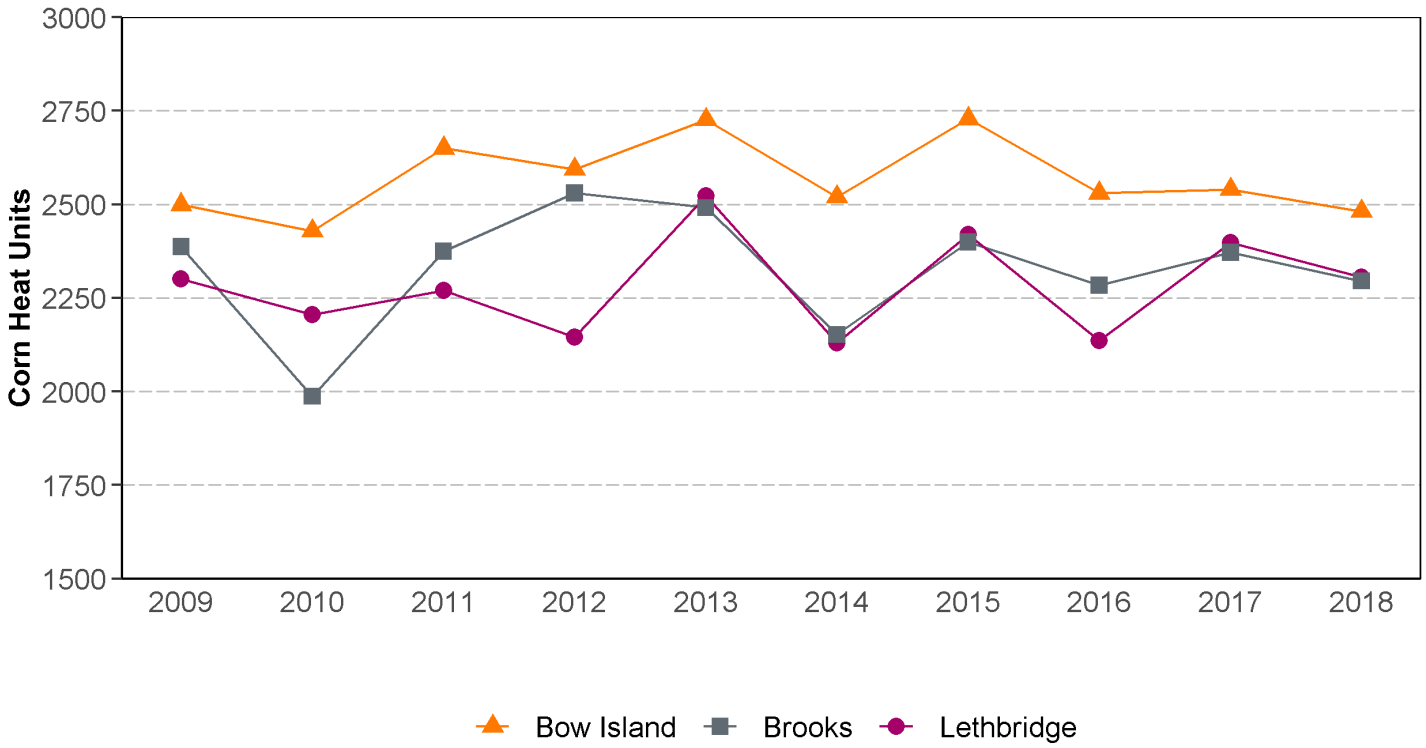



**Figure 13. Lethbridge, Bow Island and Brooks Corn Heat Units**

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

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

| SITE | MAXIMUM RAINFALL (MM) | MINIMUM RAINFALL (MM) | NORMAL RAINFALL* (MM) | 2018 RAINFALL (MM) | 2018 % OF NORMAL |
|---|---|---|---|---|---|
| Lethbridge | 534 (1978) | 71 (2001) | 274 | **161** | **59%** |
| Bow Island | 439 (1993) | 112 (2001) | 252 | **112** | **44%** |
| Brooks | 484 (2005) | 87 (2001) | 238 | **133** | **56%** |

Note: *Normal rainfall: 1970-2018 average

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

| SITE | MAXIMUM CHU (2009 - 2018) | MINIMUM CHU (2009 - 2018) | LAST TEN YEAR AVERAGE* | 2018 CORN HEAT UNITS | 2018 % of LAST TEN YEAR AVERAGE |
|---|---|---|---|---|---|
| Lethbridge | 2522 (2013) | 2129 (2014) | 2283 | **2306** | **101%** |
| Bow Island | 2729 (2015) | 2429 (2010) | 2283 | **2481** | **97%** |
| Brooks | 2530 (2012) | 1987 (2010) | 2327 | **2295** | **99%** |

Note: *Last ten year average 2009-2018

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

| SITE | AVERAGE LAST FROST | AVERAGE FIRST FROST | AVERAGE FROST FREE DAYS | 2018 LAST FROST | 2018 FIRST FROST | 2018 FROST FREE DAYS | 2018 % OF AVERAGE |
|---|---|---|---|---|---|---|---|
| Lethbridge | May 11 | Sep 20 | 132 | **May 12** | **Sep 5** | **116** | **88%** |
| Bow Island | May 11 | Sep 22 | 134 | **May 12** | **Sep 27** | **138** | **103%** |
| Brooks | May 14 | Sep 18 | 127 | **May 12** | **Sep 18** | **129** | **101%** |

Note: *Average frost free days 1998 - 2018

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

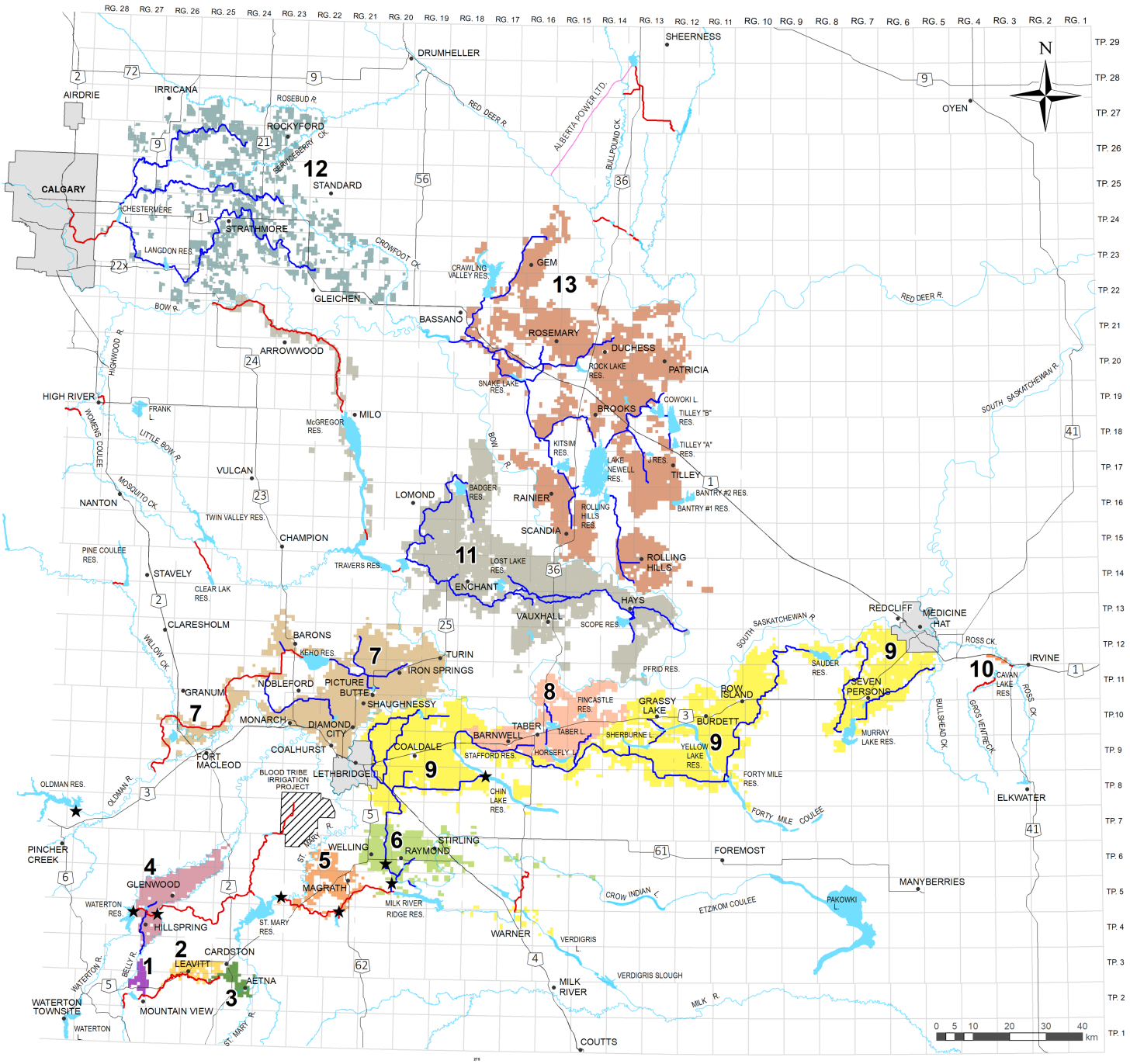
| SITE | AVERAGE LAST FROST | AVERAGE FIRST FROST | AVERAGE FROST FREE DAYS | 2018 LAST FROST | 2018 FIRST FROST | 2018 FROST FREE DAYS | 2018 % OF AVERAGE |
|---|---|---|---|---|---|---|---|
| Lethbridge | May 2 | Sept 27 | 147 | **Apr 23** | **Sep 30** | **160** | **109%** |
| Bow Island | May 1 | Oct 1 | 153 | **Apr 23** | **Sep 30** | **158** | **103%** |
| Brooks | May 9 | Sept 23 | 137 | **May 12** | **Sep 28** | **139** | **101%** |

Note: *Average frost free days 1998 - 2018

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

| ENERGY TYPE | IRRIGATION DISTRICT | | | | | | | | | | TOTAL ACRES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | BRID | EID | LNID | MID | RCID | RID | SMRID | TID | UID | WID | |
| **ELECTRICITY** | 190,873 | 166,425 | 76,086 | 1,499 | 0.0 | 24,390 | 255,083 | 51,943 | 16,943 | 32,669 | **815,911** |
| | 77.6% | 54.8% | 40.6% | 8.2% | 0.0% | 54.0% | 66.1% | 63.8% | 49.2% | 37.1% | **58.60%** |
| **NATURAL GAS** | 26,427 | 65,958 | 54,502 | 10,761 | 0.0 | 15,324 | 110,522 | 25,846 | 771 | 24,554 | **334,665** |
| | 10.7% | 21.7% | 29.1% | 58.7% | 0.0% | 33.9% | 28.6% | 31.8% | 2.2% | 27.9% | **24.10%** |
| **DIESEL** | 6,921 | 9,965 | 896 | 0.0 | 0.0 | 204 | 2,598 | 726 | 298 | 8,658 | **30,266** |
| | 2.8% | 3.3% | 0.5% | 0.0% | 0.0% | 0.5% | 0.7% | 0.9% | 0.9% | 9.8% | **2.20%** |
| **GRAVITY** | 9,316 | 46,150 | 2,370 | 3,119 | 0.0 | 3,307 | 5,810 | 2,239 | 5,968 | 8,841 | **87,120** |
| | 3.8% | 15.2% | 1.3% | 17.0% | 0.0% | 7.3% | 1.5% | 2.8% | 17.3% | 10.0% | **6.30%** |
| **GRAVITY PRESSURE PIPELINE** | 9,056 | 5,906 | 33,332 | 2,921 | 1,075 | 391 | 10,804 | 407 | 10,466 | 7,229 | **81,587** |
| | 3.7% | 1.9% | 17.8% | 15.9% | 100.0% | 0.9% | 2.8% | 0.5% | 30.4% | 8.2% | **5.90%** |
| **PUMP PRESSURE PIPELINE** | 848 | 6,643 | 16,382 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 225 | **24,098** |
| | 0.3% | 2.2% | 8.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.3% | **1.70%** |
| **OTHER *** | 1,138 | 2,651 | 863 | 30 | 0.0 | 667 | 909 | 190 | 15 | 5,988 | **12,451** |
| | 0.5% | 0.9% | 0.5% | 0.2% | 0.0% | 1.5% | 0.2% | 0.2% | 0.0% | 6.8% | **0.90%** |
| **UNKNOWN** | 1,336 | 0.0 | 2,839 | 0.0 | 0.0 | 859 | 54 | 31 | 0.0 | 0.0 | **5,119** |
| | 0.5% | 0.0% | 1.5% | 0.0% | 0.0% | 1.9% | 0.0% | 0.0% | 0.0% | 0.0% | **0.40%** |
| **TOTAL ACRES** | **245,915** | **303,698** | **187,270** | **18,330** | **1,075** | **45,142** | **385,780** | **81,382** | **34,461** | **88,164** | **1,391,217** |

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




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

★ Hydroelectric Plants Associated with Water Distribution Works

Headworks Owned and Operated by Alberta Environment and Parks

Major Canals (District Owned and Operated)

There are 13 irrigation districts in Alberta providing water to 1,449,721 assessed acres of land. The infrastructure that provides water to the irrigation districts is comprised of approximately 7,968 kilometers of conveyance system, of which 339 kilometers are owned and operated by Alberta Environment and Parks*.

* based on 2018 data.

**Figure 14. Alberta's Irrigation Districts**

## GLOSSARY

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

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

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

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

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

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

**Canal Evaporation:** Water lost through the delivery system by vaporizing 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.

**Constructed Drain:** A man-made open channel or pipeline that provides a means to move unused water away from irrigation works.

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

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

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

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

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

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

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

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

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

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

**Expansion Limit:** The maximum number of irrigation acres plus acres subject to a terminable agreement in an irrigation district; the total irrigated area of an irrigation district cannot exceed this limit as per the Irrigation Districts Act.

**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 environ mental 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.

**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.

**Low pressure pivot sprinkler includes:**

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

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

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

**Wheel move includes:**

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

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

**Gravity includes:**

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

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

**Other includes:**

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

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

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

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

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

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

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

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

**Natural Drain:** An open channel that exists as a natural watercourse that provides a means to move unused water away from irrigation works.

**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 to the 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 a private irrigator 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.