
Alberta 2020 Beekeepers' Survey Results



Alberta

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Purpose of Survey

To address some of the data gaps and information needs of the beekeeping industry in Alberta, each year the Statistics and Data Development (SADD) Section of Alberta Agriculture and Forestry (AF) conducts a survey of beekeepers in the province. The survey results, along with information from other sources are used in the development of provincial and regional estimates for selected honey variables such as colony numbers, yield, production and prices. These estimates, along with the survey results are shared with survey participants, industry, Statistics Canada and other stakeholders.

This report focuses on the results of the Alberta 2020 Beekeepers' Survey and the related estimates developed.

Methodology

The Alberta Beekeepers' Survey collects data from producers through a non-probability survey. In December 2020, survey questionnaires were mailed out to 1,479 beekeepers across the province. The questionnaire specifically asked participants to provide, at their earliest convenience, information on colony numbers, production, yield, bee purchases, prices (expected/actual), carry-over stocks and selected management practices, for their related beekeeping operation in 2020.

Participants were made aware that participation in the survey was voluntary. They were also assured that all individual responses would be kept confidential under both the *Statistics Act of Canada*, and the *Alberta Freedom of Information and Protection of Privacy (FOIP) Act*, by which the SADD Section is governed and operates. In return for their participation, respondents who were interested in the survey results would receive the resulting publication highlighting the results of the 2020 Beekeepers' survey. As of August 24, 2021, a total of 639 questionnaires were received, of which 632 were usable and formed the basis in developing the Alberta 2020 honey production estimates.

Survey responses received were reviewed for data completeness, validated and entered into an electronic database. The data was then subjected to computerized analyses, the results of which were rolled up into group summaries to preserve the confidentiality of data provided by individual respondents. In turn, the group summaries, in conjunction with input from industry, the provincial apiculturist and other AF staff, were used to develop provincial and regional estimates on the number of producers, colonies, yield and production.

It should be noted that the derived estimates could be subject to error. Some of the possible causes of error include data coding, data entry, editing and tabulation. Nonetheless, we believe that the statistics published in this report are reliable estimates for Alberta.

Highlights of the Alberta 2019/2020 Paired Beekeeping Surveys

The following survey highlights are based on the responses of 337 producers who participated in both the 2019 and 2020 Alberta Beekeepers' Surveys (See Table 1). The impact of COVID-19 disruptions on the international importation of packaged bees and queens is evident as both declined in 2020.

Paired Sample Highlights:

- ▶ In 2020, beekeepers purchased more packages/nucs than in 2019. Purchases increased 51.6 per cent, with the average beekeeper buying 40 packages/nucs, compared to 27 in 2019. The majority of packages/nucs purchased in 2020 were imported (91.08 per cent), with the remainder purchased locally (8.92 per cent).
- ▶ The distribution of imported packages was as follows: New Zealand (65.55 per cent), Australia (16.36 per cent) and other not specified (18.09 per cent). Compared to 2019, imports of packages from Australia and other sources not specified (e.g. other Canadian provinces) increased, while those from New Zealand decreased. In 2020, the average price of packages from New Zealand was \$238.75, and other sources not specified was \$245.
- ▶ In 2020, beekeepers sourced 69.32 per cent of their nuc purchases from British Columbia, 20.09 per cent in Alberta, and the remaining 10.60 per cent from other Canadian provinces. Compared to 2019, the number of nucs purchased from British Columbia decreased while purchases in Alberta and from other Canadian provinces increased. The average nuc price in Alberta was \$280.40, while in British Columbia it was \$250.26 and from other Canadian provinces it was \$264.07.
- ▶ Individual queen purchases decreased 10.8 per cent in 2020, with producers purchasing 169 queens on average, compared to 189 in 2019. The majority of queen purchases were from outside the province (95.70 per cent). Hawaii continues to be the primary source of imports, accounting for 80.33 per cent of the total, while other US States (mostly California) were second with 13.43 per cent and Chile third, with 3.35 per cent.
- ▶ Average queen prices in 2020 ranged from \$38 to \$54.16, depending upon the source of purchase. The price per queen was lowest for Chile at \$38, followed by British Columbia at \$38.77. The average price per queen from Hawaii was \$40.90 and \$42.29 for other United States.
- ▶ In 2020, the percentage deathloss for queens purchased in packages and nucs rose to 10.04 per cent, up from 9.21 per cent in 2019. For individual queens, the comparable percentage fell to 6.34 per cent, from 7.79 per cent in 2019.
- ▶ On June 30, 2020, there was less honey in inventory than a year earlier. Producers on average had 64,695 pounds of honey in stock, down 92.9 per cent from 2019.
- ▶ Alberta continues to be the preferred location for the over-wintering of bees. In 2020, 93.36 per cent of over-wintering activity (indoor/outdoor) occurred in the province, with the rest carried out in British Columbia.
- ▶ "Outdoor" over-wintering remains the favored practice in Alberta, accounting for 71.97 per cent of the total colonies over-wintered in 2020.
- ▶ In 2020, the average beekeeper reported 9.81 years of beekeeping experience. Years of experience in over-wintering "outdoor" was lower at 8.82 years, while for "indoor" it was 11.33 years.
- ▶ Producer prices received in 2019 were lower for retail sales of honey, and slightly higher for wholesale. The average price realized for wholesale honey was \$165.71 per cwt, \$0.48 above the expected price of 165.23 per cwt. For retail honey, the realized price was \$327.61 per cwt, \$26.92 lower than the expected price of \$354.53 per cwt. The 2020 expected prices for honey are \$203 per cwt wholesale, and \$444.34 per cwt retail.

Table 1 - 2019 AND 2020 BEEKEEPING SURVEY RESULTS - ALBERTA*
(GROUP AVERAGES)**

DESCRIPTION	2019	2020	20 ¹⁹ (%)
PACKAGES/NUCS:			
Average number of packages/nucs purchased in spring per beekeeper:	26.70	40.47	51.6
Package queen/nuc deathloss (%):	9.21	10.04	9.1
Percent of packages/nucs purchased:			
- Locally (Alberta) (%)	2.81	8.92	217.7
- Imported (%)	97.19	91.08	-6.3
Distribution of imported packages purchased:			
- New Zealand (%)	83.91	65.55	-21.9
- Australia (%)	14.40	16.36	13.6
- Other (%)	1.68	18.09	975.0
Distribution of nucs purchased:			
- Alberta (%)	8.18	20.09	145.5
- British Columbia (%)	87.39	69.32	-20.7
- Other (%)	4.43	10.60	139.0
Average price per package (2 lb equivalent) purchased from:			
- New Zealand (\$)	226.49	238.75	5.4
- Australia (\$)	-	-	n/a
- Other (\$)	200.00	245.00	22.5
Average price per nuc purchased from:			
- Alberta (\$)	242.22	280.40	15.8
- British Columbia (\$)	196.02	250.26	27.7
- Other (\$)	250.17	264.07	5.6
INDIVIDUAL QUEENS:			
Average number of queens purchased in spring per beekeeper:	189.21	168.86	-10.8
Purchased individual queen deathloss (%):	7.79	6.34	-18.6
Percent of individual queens purchased:			
- Locally (Alberta) (%)	4.42	4.30	-2.8
- Imported (%)	95.58	95.70	0.1
Distribution of imported queens:			
- British Columbia (%)	1.02	0.76	-25.4
- Saskatchewan (%)	1.34	0.08	-93.7
- New Zealand (%)	2.40	0.15	-93.6
- Australia (%)	0.12	0.00	-97.2
- Hawaii (%)	75.69	80.33	6.1
- Other United States (%)	16.03	13.43	-16.2
- Chile (%)	-	3.35	n/a
- Other (%)	3.40	1.89	-44.4
Average price per individual queen purchased from:			
- British Columbia (\$)	42.09	38.77	-7.9
- Saskatchewan (\$)	38.32	54.16	41.3
- New Zealand (\$)	43.25	40.72	-5.9
- Australia (\$)	38.68	45.00	16.3
- Hawaii (\$)	38.73	40.90	5.6
- Other United States (\$)	40.48	42.29	4.5
- Chile (\$)	-	38.00	n/a
- Other (\$)	41.79	39.00	-6.7

* Based on paired sample ** Weighted n/a Not applicable

Note: Some totals may not add up due to rounding.

Source: Alberta Agriculture and Forestry, Intergovernmental and Trade Relations Branch, Statistics and Data Development Section

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Table 1 (Cont'd) - 2019 AND 2020 BEEKEEPING SURVEY RESULTS - ALBERTA*
(GROUP AVERAGES)**

DESCRIPTION	2019	2020	20/19 (%)
OTHER SELECTED STATISTICS:			
Honey in inventory as of June 30th, per beekeeper (lbs.):	915,169.00	64,695.00	-92.9
Experience in beekeeping (years):	8.67	9.81	13.2
Estimated number of colonies per active beekeeper:	239.71	215.39	-10.1
Over-wintering intentions for active colonies:			
- indoors in Alberta (%)	19.48	21.39	9.8
- outdoors in Alberta (%)	74.58	71.97	-3.5
- in British Columbia (%)	0.36	0.51	39.1
Experience in over-wintering (years):			
- indoors	16.33	11.33	-30.6
- outdoors	7.61	8.82	15.9
Price received for 2019 honey crop:			
- Retail (\$/cwt)	354.53***	327.61****	-----
- Wholesale (\$/cwt)	165.23***	165.71****	-----
Price expected for 2020 honey crop:			
- Retail (\$/cwt)	n/a	444.34	-----
- Wholesale (\$/cwt)	n/a	203.00	-----

* Based on paired sample ** Weighted *** Expected price in 2019 **** Actual price received in 2019 n/a Not applicable

Note: Some totals may not add up due to rounding.

Source: Alberta Agriculture and Forestry, Intergovernmental and Trade Relations Branch, Statistics and Data Development Section

Honey Production in Alberta

In 2020, there were 1,621 beekeepers in Alberta, down 1.9 per cent from 2019 (Tables 3 and 4), but still second highest since 1986. The drop in the number of beekeepers is largely due to an increase in the costs associated with beekeeping in the past few years, some bad weather which affected honey production, and disruptions in bee importation due to COVID-19 related travel bans. Colony numbers fell 10.1 per cent to 283,000 colonies, the lowest colony count in the past five years. Preliminary statistics indicate that while Alberta accounts for a relatively small percentage (13.6 per cent) of the nation's total beekeepers, it accounted for 38.2 per cent of honey producing colonies in Canada.

Alberta produced slightly more honey in 2020 than was previously forecasted. Final estimates show total production at 30.7 million pounds, compared to the preliminary fall 2020 forecast of 29.9 million pounds. Even so, the final 2020 production was 2.2 per cent lower than the 2019 production of 31.4 million pounds.

Preliminary estimates by Statistics Canada peg total Canadian honey production in 2020 at 82.9 million pounds, 4.3 per cent lower than the 86.6 million pounds in 2019. While over the past five years Alberta has accounted for almost 40 per cent of the nation's honey production, in 2020 the province's proportion dropped to 36.1 per cent due to a poor honey crop.

In 2020, honey production was down across all regions in Alberta with the exception of the North West region which grew (Tables 2 and 4). The decrease in production was largely attributed to unpredictable weather (cold and wet conditions), disruptions in bee importation due to COVID-19 related travel bans, and in some cases bee disease, specifically European foulbrood. At 12.2 million pounds, the North West region produced the highest amount of honey and accounted for 39.9 per cent of the total provincial production of 30.7 million pounds. The Peace region was second with 7.3 million pounds, (or 23.6 per cent), followed by the South region with 4.8 million pounds (or 15.6 per cent). The North East region had the lowest production with 3.1 million pounds (or 10.2 per cent), while the Central region was 3.3 million pounds (or 10.8 per cent). It cannot be over emphasized that honey production on a regional basis is directly tied to colony numbers and yield per colony, hence, explaining the variation among regions.

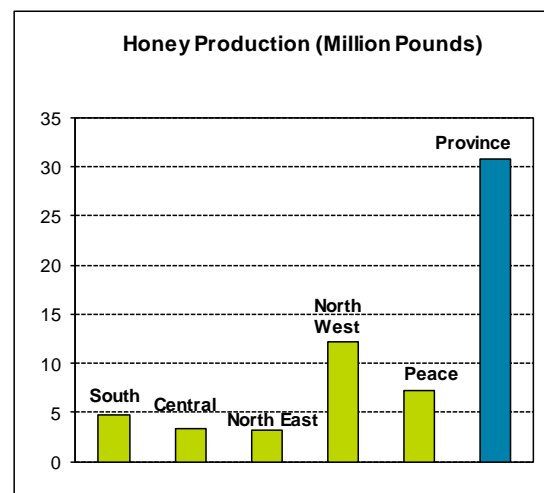
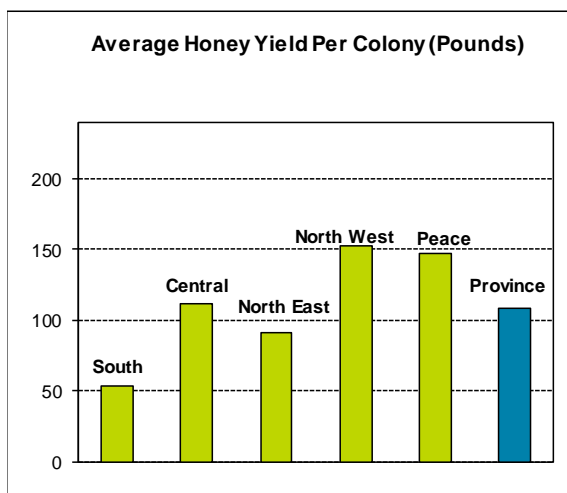
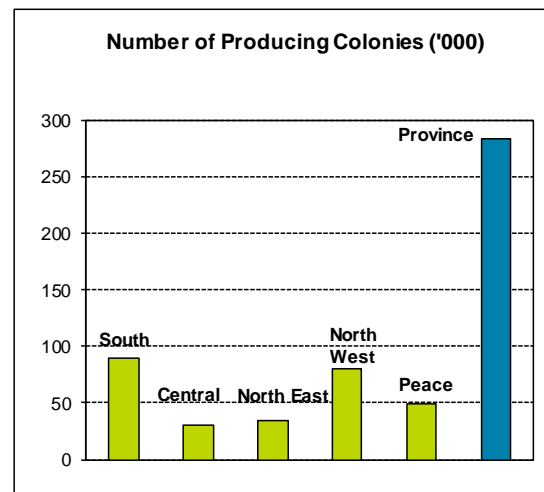
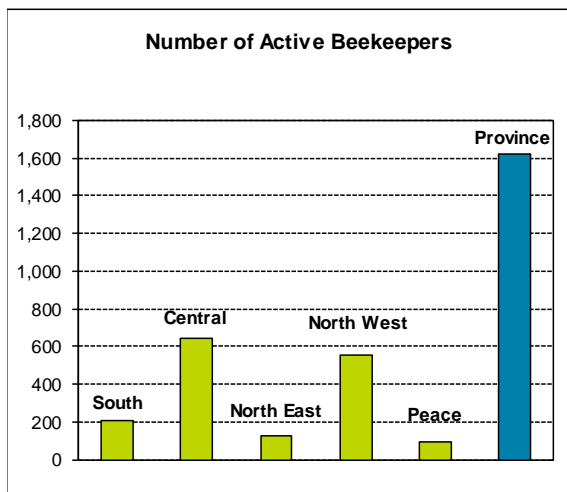
The Alberta Beekeepers' Survey also included questions regarding the pollination of crops. Based on the survey results (which did not include all beekeepers involved in pollination activities), 28,542 colonies were rented for pollination in 2020, with an average rental charge of \$167.13 per colony. Note, this rental charge is a blend of rental fees for orchards (apple, cherries, and blueberry) and canola fields. Rental fees for orchards are lower compared to those for canola fields. In fact, in 2020, rental fees for orchards ranged from \$95 to \$150, while for canola fields it ranged from \$180 to \$200.

Table 2 - 2020 HONEY PRODUCTION ESTIMATE - ALBERTA

Region	Number of Registered Beekeepers	Number of Producing Colonies	Honey Yield Per Colony		Total Honey Produced	
			lbs	kg	lbs	tonnes
South	203	89,002	54	24	4,786,550	2,171
Central	642	29,768	111	50	3,311,551	1,502
North East	129	34,557	91	41	3,137,172	1,423
North West	550	80,245	153	69	12,247,617	5,555
Peace	97	49,428	147	64	7,252,309	3,290
Province	1,621	283,000	109	49	30,735,200	13,941

Note: Yield and honey production rounded to the nearest pound, kilogram or tonne.
Totals may not add due to rounding.

**2020 REGIONAL DISTRIBUTION OF ALBERTA'S ESTIMATED HONEY PRODUCTION
(SELECTED HONEY STATISTICS)**



Source: Alberta Agriculture and Forestry, Intergovernmental and Trade Relations Branch, Statistics and

Map of AF Regions in Alberta



- AF Regions (2020)
1. South
 2. Central
 3. North East
 4. North West
 5. Peace

Alberta Municipalities Classified by Region

South Region

Cardston County
Cypress County
Foothills No. 31
County of Forty Mile No. 8
Lethbridge County
Newell County
Pincher Creek No. 9
Ranchland No. 66
Taber
Vulcan County
Warner County No. 5
Wheatland County
Willow Creek No. 26

Central Region

Bighorn No. 8
Calgary
Clearwater County
Kneehill County
Lacombe County
Mountain View County
Paintearth County No. 18
Ponoka County
Red Deer County
Rocky View County
Special Area No. 2
Special Area No. 3
Special Area No. 4
Starland County

North East Region

Beaver County
Bonnyville No. 87
Camrose County
Flagstaff County
Improvement District No.24
Lac La Biche County
Lamont County
Minburn County No. 27
Provost No. 52
Smoky Lake County
St. Paul County No. 19
Two Hills County No. 21
Vermilion River County
Wainwright No. 61
Wood Buffalo

North West Region

Athabasca County
Barrhead County No. 11
Brazeau County
Edmonton
Improvement District No.12
Lac Ste. Anne County
Leduc County
Lesser Slave River No. 124
Parkland County
Strathcona County
Sturgeon County
Thorhild County
Westlock County
Wetaskiwin County No. 10
Woodlands County
Yellowhead County

Peace Region

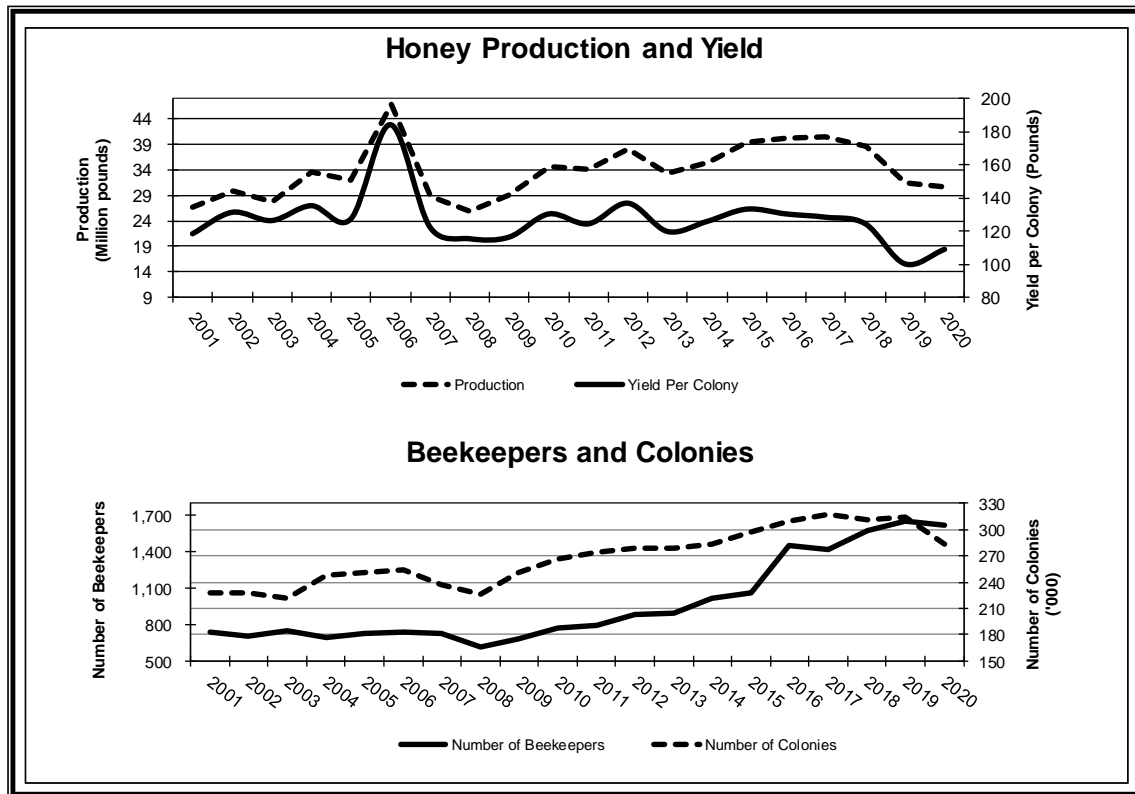
Big Lakes County
Birch Hills County
Clear Hills County
Fairview No. 136
Grande Prairie County No. 1
Greenview No. 16
Mackenzie County
Northern Lights County
Northern Sunrise County
Peace No. 135
Saddle Hills County
Smoky River No. 130
Spirit River No. 133

Note: Alberta Agriculture and Forestry regional boundaries no longer exist; however, these have been maintained to facilitate historical comparisons.

Table 3 - ALBERTA HONEY STATISTICS, 2001-2020

Year	No. of Beekeepers	No. of Colonies	Production ('000 pounds)	Yield per Colony (pounds)	No. of Colonies Per Beekeeper
2001	739	227,000	26,786	118	307
2002	702	227,000	29,737	131	323
2003	754	221,000	27,846	126	293
2004	693	248,000	33,480	135	358
2005	728	251,000	31,877	127	345
2006	733	254,000	46,736	184	347
2007	726	237,000	28,914	122	326
2008	620	226,000	25,990	115	365
2009	683	251,000	29,116	116	367
2010	769	266,000	34,580	130	346
2011	798	274,600	34,050	124	344
2012	883	278,400	38,000	136	315
2013	890	278,100	33,200	119	312
2014	1,015	282,900	35,500	125	279
2015	1,064	296,880	39,461	133	279
2016	1,453	309,000	40,170	130	213
2017	1,420	317,000	40,576	128	223
2018	1,572	311,000	38,567	124	198
2019	1,653	314,800	31,418	100	190
2020	1,621	283,000	30,735	109	175

Alberta Honey Production, Yield, Beekeepers and Colonies, 2001-2020



Source: Alberta Agriculture and Forestry, Intergovernmental and Trade Relations Branch, Statistics and Data Development Section

Table 4 - HONEY PRODUCTION BY REGION IN ALBERTA (2013-2020)

Region	2013	2014	2015	2016	2017	2018	2019	2020
Number of Active Beekeepers								
South	108	126	140	190	192	202	193	203
Central	292	341	363	516	519	589	639	642
North East	104	114	119	148	136	151	146	129
North West	287	322	338	482	471	524	563	550
Peace	99	112	104	117	102	106	112	97
Province	890	1,015	1,064	1,453	1,420	1,572	1,653	1,621
Number of Producing Colonies								
South	83,565	84,002	84,664	85,684	84,155	75,152	86,553	89,002
Central	27,182	24,400	28,537	32,683	31,567	33,799	35,089	29,768
North East	27,177	31,833	32,694	37,727	40,427	48,212	38,050	34,557
North West	74,708	78,109	83,076	81,032	87,739	84,424	91,631	80,245
Peace	65,468	64,556	67,910	71,875	73,112	69,414	63,477	49,428
Province	278,100	282,900	296,880	309,000	317,000	311,000	314,800	283,000
Average Yield (pounds per colony)								
South	116	69	73	40	64	64	46	54
Central	145	129	128	146	116	116	107	111
North East	135	115	138	157	116	116	112	91
North West	142	146	167	208	156	156	132	153
Peace	155	151	137	140	180	180	115	147
Province	136	119	125	133	128	124	100	109
Honey Production ('000 pounds)								
South	5,751	6,162	3,372	4,898	5,379	3,973	4,016	4,787
Central	3,519	3,122	4,163	3,988	3,666	3,259	3,746	3,312
North East	3,118	4,386	5,148	6,187	4,676	5,345	4,250	3,137
North West	10,916	13,014	17,265	13,914	13,672	13,011	12,098	12,248
Peace	9,895	8,816	9,513	11,183	13,184	12,979	7,308	7,252
Province	33,200	35,500	39,461	40,170	40,576	38,567	31,418	30,735

Note: Some totals may not add up due to rounding.

Source: Alberta Agriculture and Forestry, Intergovernmental and Trade Branch, Statistics and Data Development Section