
Alberta 2021 beekeepers' survey results



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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, Forestry and Rural Economic Development (AFRED) 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 2021 Beekeepers' Survey and the related estimates developed.

Methodology

The Alberta Beekeepers' Survey, which is provincial in scope, collects data from producers through a non-probability survey. In December 2021, survey questionnaires were mailed out to 1,668 beekeepers across the province. The questionnaire specifically asked survey 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 2021.

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 2021 Beekeepers' survey. As of August 19, 2022, a total of 610 questionnaires were received, of which 585 were usable and formed the basis in developing the Alberta 2021 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 Alberta AFRED 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 2020/2021 Paired Beekeeping Surveys

The following survey highlights are based on the responses of 282 producers who participated in both the 2020 and 2021 Alberta Beekeepers' Surveys (See Table 1). In 2021, the disruptions on the international importation of packaged bees and queens continued to have an impact on the Alberta beekeeping industry.

Paired Sample Highlights:

- ▶ In 2021, beekeepers purchased more packages/nucs than in 2020. Purchases increased 75.3 per cent, with the average beekeeper buying 39 packages/nucs, compared to 22 in 2020. Due to challenges in acquiring imported bees, the majority of packages/nucs purchased in 2021 were purchased locally (81.3 per cent), with the remainder imported (18.7 per cent), as opposed to the norm.
- ▶ The distribution of imported packages was as follows: other (Chile, British Columbia, and Saskatchewan) with 97.6 per cent and New Zealand with 2.4 per cent. In 2021, the average price of packages from other category was \$234.79 and \$266.88 for New Zealand.
- ▶ In 2021, beekeepers sourced 88.5 per cent of their nuc purchases from Alberta, 11.4 per cent from British Columbia, and the remaining 0.1 per cent from other Canadian provinces. Compared to 2020, the number of nucs purchased from British Columbia decreased while purchases in Alberta increased. The average nuc price in Alberta was \$274.72, while in British Columbia it was \$262.10 and from other Canadian provinces it was \$261.67.
- ▶ Individual queen purchases increased 6.1 per cent in 2021, with producers purchasing 163 queens on average, compared to 154 in 2020. Almost all of the queen purchases were from outside of the province (99 per cent). Hawaii continues to be the primary source of imports, accounting for 61.1 per cent of the total, while other US States (mostly California) were second with 35.3 per cent and other (Ontario, Ukraine) was third, with 2.2 per cent. The remainder came from BC, Saskatchewan, Chile, and New Zealand.
- ▶ Average queen prices in 2021 ranged from \$38.83 to \$47.46, depending upon the source of purchase. The price per queen was lowest for other United States at \$38.83, followed by Hawaii at \$40.45. The average prices per queen were highest for British Columbia at \$47.46.
- ▶ In 2021, the percentage deathloss for queens purchased in packages and nucs fell to 9.7 per cent, down from 28.8 per cent in 2020. For individual queens, the comparable percentage rose to 6.5 per cent, from 3.3 per cent in 2020.
- ▶ On June 30, 2021, there was more honey in inventory than a year earlier. Producers on average had 112,459 pounds of honey in stock, up 49.8 per cent from 2020.
- ▶ Alberta continues to be the preferred location for the over-wintering of bees. Previously some over-wintering of bees was carried out in British Columbia, however, in 2021 almost all of over-wintering activity (indoor/outdoor) occurred in Alberta.
- ▶ "Outdoor" over-wintering remains the favored practice, accounting for 72.9 per cent of the total colonies over-wintered in 2021.
- ▶ In 2021, the average beekeeper reported 11.4 years of beekeeping experience. Years of experience in over-wintering "outdoor" was lower at 9.9 years, while for "indoor" it was 15.1 years.
- ▶ Producer prices received in 2020 were higher for both retail and wholesale sales. The average price realized for wholesale honey was \$197.12 per cwt, \$31.41 above the expected price of \$165.71 per cwt. Similarly, the average realized price for retail honey was \$369.35 per cwt, \$41.74 higher than the expected price of \$327.61 per cwt. The 2021 expected prices for honey are \$271.99 per cwt wholesale, and \$471.35 per cwt retail.

Table 1 - 2020 AND 2021 BEEKEEPING SURVEY RESULTS - ALBERTA*
(GROUP AVERAGES)**

DESCRIPTION	2020	2021	21/20 (%)
PACKAGES/NUCS:			
Average number of packages/nucs purchased in spring per beekeeper:	22.00	38.57	75.3
Package queen/nuc deathloss (%):	28.77	9.71	-66.3
Percent of packages/nucs purchased:			
- Locally (Alberta) (%)	8.48	81.30	858.7
- Imported (%)	91.52	18.70	-79.6
Distribution of imported packages purchased:			
- New Zealand (%)	0.40	2.44	514.6
- Australia (%)	-	-	n/a
- Other (%)	99.60	97.56	-2.1
Distribution of nucs purchased:			
- Alberta (%)	10.01	88.50	783.7
- British Columbia (%)	15.02	11.42	-24.0
- Other (%)	74.96	0.08	-99.9
Average price per package (2 lb equivalent) purchased from:			
- New Zealand (\$)	237.50	266.88	12.4
- Australia (\$)	-	-	n/a
- Other (\$)	245.00	234.75	-4.2
Average price per nuc purchased from:			
- Alberta (\$)	264.69	274.72	3.8
- British Columbia (\$)	257.30	262.10	1.9
- Other (\$)	254.97	261.67	2.6
INDIVIDUAL QUEENS:			
Average number of queens purchased in spring per beekeeper:	153.79	163.20	6.1
Purchased individual queen deathloss (%):	3.33	6.47	94.2
Percent of individual queens purchased:			
- Locally (Alberta) (%)	7.47	1.05	-85.9
- Imported (%)	92.53	98.95	6.9
Distribution of imported queens:			
- British Columbia (%)	0.12	0.08	-32.4
- Saskatchewan (%)	0.07	0.95	1,238.4
- New Zealand (%)	0.15	0.18	13.8
- Australia (%)	-	-	n/a
- Hawaii (%)	63.70	61.08	-4.1
- Other United States (%)	31.27	35.34	13.0
- Chile (%)	4.42	0.17	-96.3
- Other (%)	0.27	2.22	736.9
Average price per individual queen purchased from:			
- British Columbia (\$)	44.81	47.46	5.9
- Saskatchewan (\$)	41.38	45.05	8.9
- New Zealand (\$)	39.37	44.46	12.9
- Australia (\$)	-	-	n/a
- Hawaii (\$)	38.75	40.45	4.4
- Other United States (\$)	40.31	38.83	-3.7
- Chile (\$)	38.00	45.00	18.4
- Other (\$)	46.83	45.14	-3.6

* Based on paired sample ** Weighted n/a Not applicable Note: Some totals may not add up due to rounding.

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

**Table 1 (Cont'd) - 2020 AND 2021 BEEKEEPING SURVEY RESULTS - ALBERTA*
(GROUP AVERAGES)****

DESCRIPTION	2020	2021	21/20 (%)
OTHER SELECTED STATISTICS:			
Honey in inventory as of June 30th, per beekeeper (lbs.):	75,090	112,459	49.8
Experience in beekeeping (years):	10.27	11.36	10.6
Estimated number of colonies per active beekeeper:	181.15	190.32	5.1
Over-wintering intentions for active colonies:			
- indoors in Alberta (%)	16.76	27.12	61.8
- outdoors in Alberta (%)	81.81	72.87	-10.9
- in British Columbia (%)	1.43	0.00	-99.9
Experience in over-wintering (years):			
- indoors	11.05	15.14	37.1
- outdoors	9.37	9.89	5.6
Price received for 2020 honey crop:			
- Retail (\$/cwt)	327.61***	369.35****	----
- Wholesale (\$/cwt)	165.71***	197.12****	----
Price expected for 2021 honey crop:			
- Retail (\$/cwt)	n/a	471.35	----
- Wholesale (\$/cwt)	n/a	271.99	----

* Based on paired sample ** Weighted *** Expected price in 2020 **** Actual price received in 2020 n/a Not applicable

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

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

Honey Production in Alberta

In 2021, there were 1,754 beekeepers in Alberta, up 8.2 per cent from 2020 (see Tables 3 and 4), the highest number since 1980. The growth in the number of beekeepers is largely due to an increase in the number of hobby beekeepers in urban areas. Colony numbers rose 14.7 per cent to a record 324,500 colonies, as producers aggressively split colonies to make up for shortages due importation challenges. Preliminary statistics indicate that while Alberta accounts for a relatively small percentage (11.5 per cent) of the nation's total beekeepers (13,105 producers), it accounted for 38.9 per cent of the honey producing colonies in Canada.

Alberta produced slightly less honey in 2021 than was previously forecasted. Final estimates show total production at 34.1 million pounds, compared to the preliminary fall 2021 forecast of 34.9 million pounds. Even so, the final 2021 production was 10.8 per cent higher than the 2020 production of 30.7 million pounds.

Preliminary estimates by Statistics Canada peg total Canadian honey production in 2021 at 89.9 million pounds, 7.9 per cent higher than 83.2 million pounds in 2020. While previously Alberta has accounted for over 40 per cent of the nation's honey production, in 2021 the province's proportion dropped to 38.9 per cent due to lower honey yields caused by heat waves and dry conditions that decimated crops such as canola.

In 2021, Alberta's honey production was up largely due to an increase in colonies as yield was down. The dry weather may have supported colony growth but it did affect yield as it decimated crops such as canola, and forced bees to forage on wildflowers and weeds such as goldenrod that are generally more resistant to extreme weather. The number of colonies was up across all regions in the province, while yield decreased in Central, North West and Peace Regions (See Tables 3 and 4) which are Alberta's largest honey producing areas. In 2021, a decline in honey production in the North West and Peace regions was more than offset by an increase production in the South, Central, and North East regions (see Tables 2 and 4). At 9.7 million pounds, the North West region produced the highest amount of honey and accounted for 28.4 per cent of the total provincial production of 34.1 million pounds. The South region was second with 8.3 million pounds, (or 24.3 per cent), followed by the Peace region with 7.1 million pounds (or 20.9 per cent). The Central region had the lowest production with 3.6 million pounds (or 10.7 per cent), followed by the North East region at 5.4 million pounds (or 15.7 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.

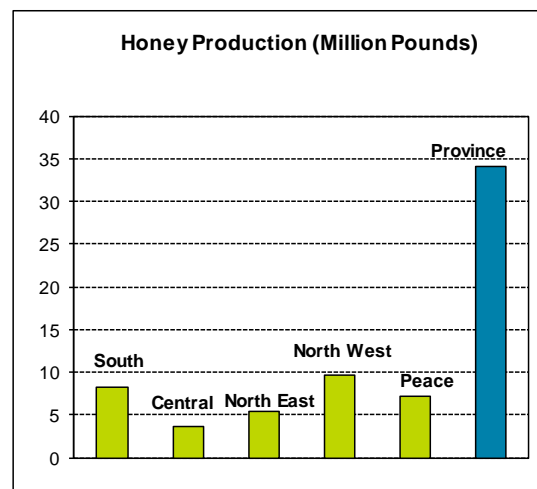
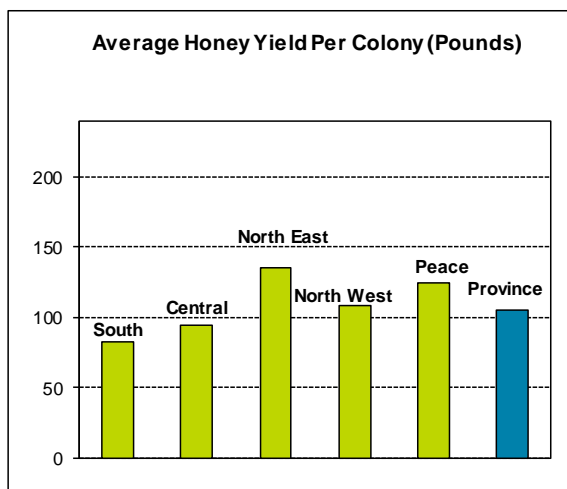
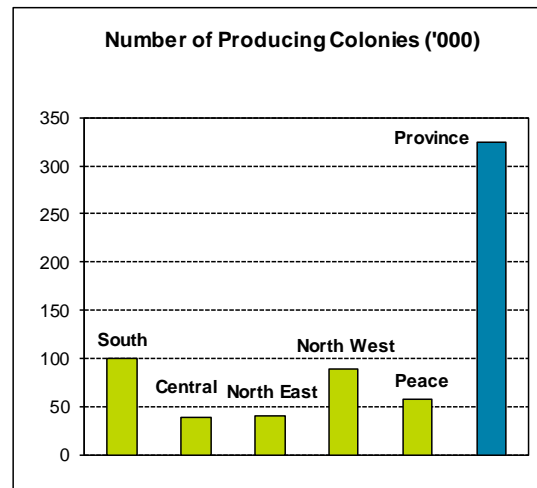
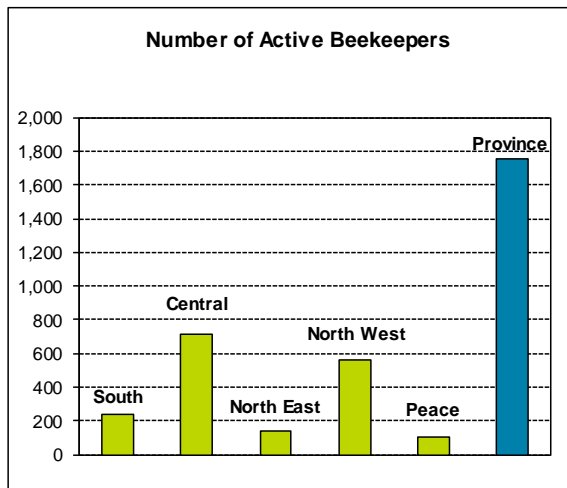
The Alberta Beekeepers' Survey also included questions regarding the pollination of crops. Based on the survey results (which did not include all beekeepers involved in pollination activities), there were 17,860 colonies rented for pollination in 2021, with an average rental charge of \$208.75 per colony.

Table 2 - 2021 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	234	100,193	83	37	8,278,677	3,755
Central	714	38,615	94	43	3,627,875	1,646
North East	137	39,493	136	62	5,360,847	2,432
North West	562	89,182	108	49	9,668,829	4,386
Peace	107	57,018	125	64	7,125,145	3,232
Province	1,754	324,500	105	48	34,061,372	15,450

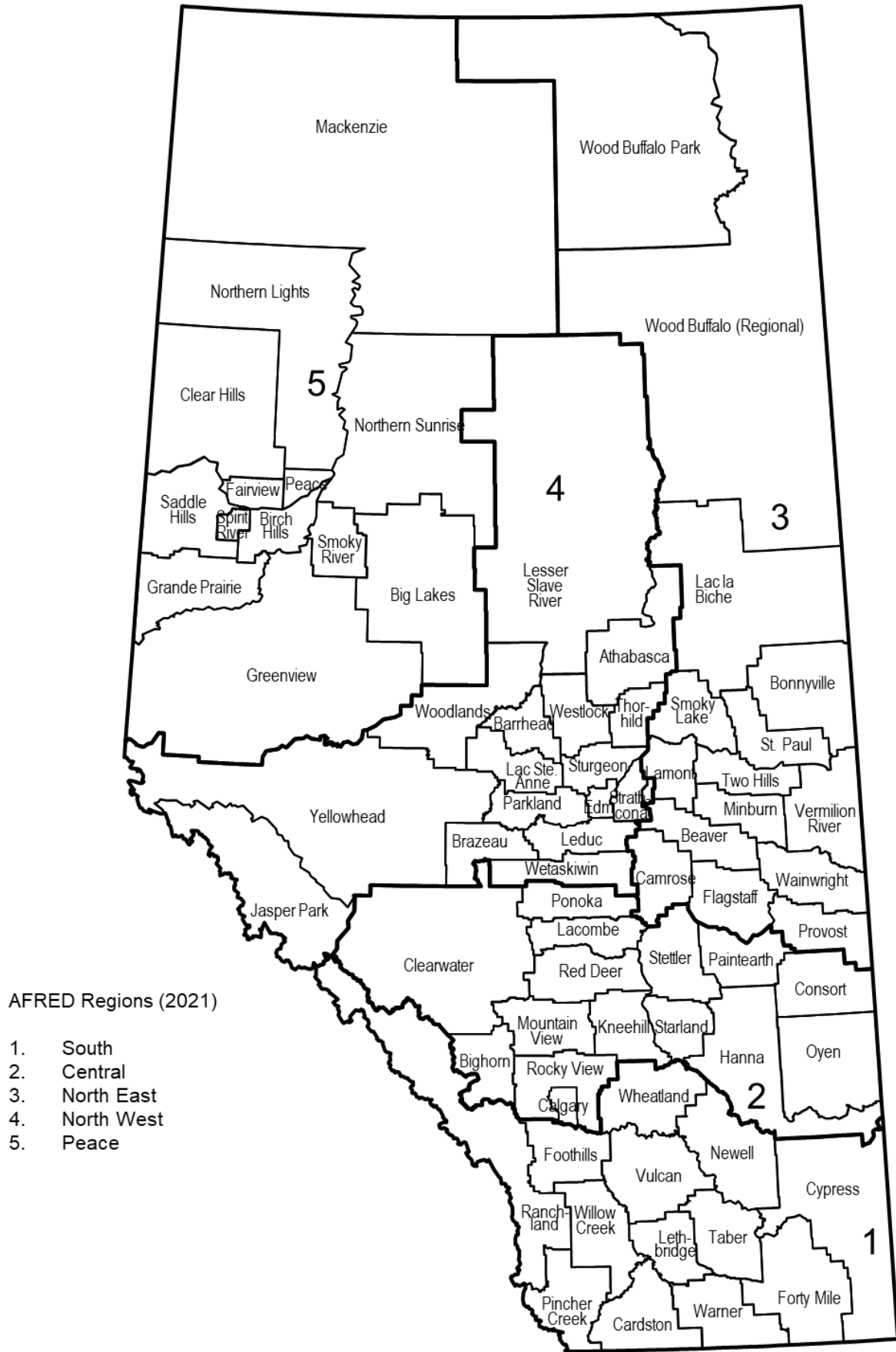
Note: Yield and honey production rounded to the nearest pound, kilogram or tonne.
Totals may not add due to rounding.

**2021 REGIONAL DISTRIBUTION OF ALBERTA'S ESTIMATED HONEY PRODUCTION
(SELECTED HONEY STATISTICS)**



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

Map of AFRED Regions in Alberta



AFRED Regions (2021)

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

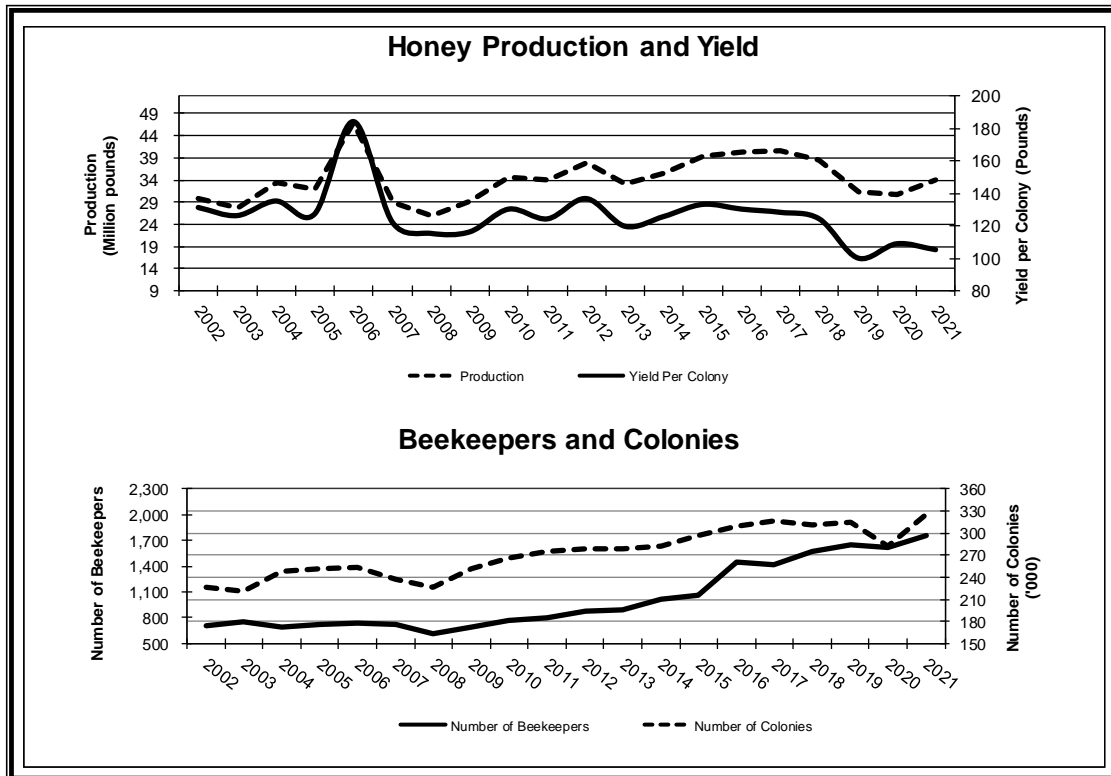
Big Lakes County
Birch Hills County
Clear Hills County
Fairview No. 136
Grande Prairie County No. 1
Greenview No. 16
Mackenzie County
Northern Lights County
Northern Sunrise County
Peace No. 135
Saddle Hills County
Smoky River No. 130
Spirit River No. 133

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

Table 3 - ALBERTA HONEY STATISTICS, 2002-2021

Year	No. of Beekeepers	No. of Colonies	Production ('000 pounds)	Yield per Colony (pounds)	No. of Colonies Per Beekeeper
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
2021	1,754	324,500	34,061	105	185

Alberta Honey Production, Yield, Beekeepers and Colonies, 2002-2021



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

Table 4 - HONEY PRODUCTION BY REGION IN ALBERTA (2014-2021)								
Region	2014	2015	2016	2017	2018	2019	2020	2021
Number of Active Beekeepers								
South	126	140	190	192	202	193	203	234
Central	341	363	516	519	589	639	642	714
North East	114	119	148	136	151	146	129	137
North West	322	338	482	471	524	563	550	562
Peace	112	104	117	102	106	112	97	107
Province	1,015	1,064	1,453	1,420	1,572	1,653	1,621	1,754
Number of Producing Colonies								
South	84,002	84,664	85,684	84,155	75,152	86,553	89,002	100,193
Central	24,400	28,537	32,683	31,567	33,799	35,089	29,768	38,615
North East	31,833	32,694	37,727	40,427	48,212	38,050	34,557	39,493
North West	78,109	83,076	81,032	87,739	84,424	91,631	80,245	89,182
Peace	64,556	67,910	71,875	73,112	69,414	63,477	49,428	57,018
Province	282,900	296,880	309,000	317,000	311,000	314,800	283,000	324,500
Average Yield (pounds per colony)								
South	69	73	40	64	64	46	54	83
Central	129	128	146	116	116	107	111	94
North East	115	138	157	116	116	112	91	136
North West	146	167	208	156	156	132	153	108
Peace	151	137	140	180	180	115	147	125
Province	119	125	133	128	124	100	109	105
Honey Production ('000 pounds)								
South	6,162	3,372	4,898	5,379	3,973	4,016	4,787	8,279
Central	3,122	4,163	3,988	3,666	3,259	3,746	3,312	3,628
North East	4,386	5,148	6,187	4,676	5,345	4,250	3,137	5,361
North West	13,014	17,265	13,914	13,672	13,011	12,098	12,248	9,669
Peace	8,816	9,513	11,183	13,184	12,979	7,308	7,252	7,125
Province	35,500	39,461	40,170	40,576	38,567	31,418	30,735	34,061

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

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

