

## 2016 ALBERTA PROVINCIAL APICULTURIST ANNUAL REPORT

Provincial Apiarist: Dr. Medhat Nasr

### A. Beekeeping Industry Statistics

. No. of Beekeepers	1390
. No. of Producing Colonies	316,400
. Average Yield/Colony (lb/kg)	125 lb/55.5 kg
. Total Estimated Crop (lb/Kg x1000)	39.5 mil lb /17.6 mil kg
. Colonies Wintered Last Year	296,880
. Average Winter Mortality (%)	15.2%

### B. Diseases and Pests

Disease/Pest	Number of Colonies Inspected	Number of Apiary Inspected	Disease Incidence	
			Incidence (%)	Incidence (%)
. AFB	750	45	1.00	
. EFB			0.001	
. Chalkbrood		N/A		
. Sacbrood		N/A		
. Tracheal Mite		N/A		
. <i>Varroa</i> Mite	suspected Amitraz resistance was reported			
. Other	9,950 hives were inspected for small hive beetle. Small hive beetle was not found.			

### C. Comments

#### • Winter mortality:

- Beekeepers with 400 colonies or more were surveyed. 70% of the beekeepers responded. The total number of colonies owned by the respondent beekeepers was 163,578. Overall the average winter mortality for the province weighted by number of colonies reported by responded beekeepers was 15.2%.
- The 2015/2016 winter was mild followed by an early spring. This year bee colony losses may be attributed to one or a combination of potential causes reported by beekeepers. Beekeepers ranked possible causes of winter mortality from highest to lowest as follows: 1) poor queens, 2) *Varroa*, 3) *Nosema*, and 4) starvation. Due to the mild winter, colonies started brooding early and bees consumed most of the stored honey and pollen. Therefore, when beekeepers accessed bee colonies in early spring some of the colonies were full of bees and brood. These colonies needed more feed to continue their development.

#### • Beekeeping Industry and Management:

- In 2016 the number of registered beekeepers increased to 1390. The number of bee colonies reached 316,400. This number has doubled since 1987 when the reported number of colonies was 147,000.
- The distribution of beekeepers and the number of bee colonies is summarized in the following table.

Grouping	No. Beepeers	Total Number of hives	% of bees
0	173	0	<b>0</b>
9-1	811	2342	<b>0.74</b>
24-10	125	1860	<b>0.58</b>
25-49	54	1922	<b>0.6</b>
50-74	31	1867	<b>0.59</b>
75-99	17	1445	<b>0.46</b>
100 and more	179	306964	<b>97.00</b>
<b>Total</b>	<b>1390</b>	<b>316400</b>	<b>99.97</b>

- The pedigreed hybrid canola seed production industry continues to grow in Southern Alberta. Alberta Beekeepers this year supplied 75,000 colonies for canola pollination. The average fee for renting a bee colony was approximately \$175/colony.

- **Brood Disease:**

- The inspection of bee colonies across the province was conducted as a part of the Alberta Apiculture Surveillance program.
- American Foul Brood (AFB) was found in a few commercial operations and testing showed Oxytetracycline resistance in some samples.
- The annual inspection has included visual inspection of top bar and the bottom board of bee colonies for Small Hive Beetle. Inspections were done on high risk operations that move bees between the Peace River Region and British Colombia. Bees from high risk operations moved from northern Alberta to southern Alberta were also inspected for the small hive beetle. Bee operations keeping bees close to the USA border were inspected. Overall 9950 bee colonies were inspected throughout the year. Small hive beetle was not found in any of the Alberta inspections. However three operations had weak colonies and other bee diseases and as such were identified as high risk operations.

- **Parasitic Mites:**

Bee colonies were quite strong in 2016 early spring due to a mild winter. Most beekeepers applied the recommended dose of Apivar strips based on the total number of frames covered with bees. Operations that applied only 2 strips per strong hive suffered from low efficacy of controlling *Varroa*.

- In some operations *Varroa* mites rebuilt their population by the end of the season. These operations reported high levels of *Varroa*. They were advised to implement fall treatments. Beekeepers also applied oxalic acid to ensure that *Varroa* levels are low in wintering bee colonies. Despite all of these efforts, it is expected that Alberta will have a higher winter kill in 2017 in comparison to other years.
- Apivar continued to show excellent results in many operations. The efficacy of Apivar averaged 92%.

In two operations after investigation, it is suspected that Apivar resistance is emerging. These operations will be reinvestigated to find out more information on potential Apivar resistance in spring 2017.

- **Alberta Apiculture Research and Extension Program:**

- Alberta bee team in Edmonton has expanded and added Dr. Rassol Bahreini. Dr. Bahreini is focused on developing management practices for *Varroa* mites and nosema.
- The honey bee research program - Edmonton continues to focus on honey bee health issues in Alberta. A field test of HopGuard II was concluded. The

data were prepared for submission to the Pest Management Regulatory Agency (PMRA) to support the registration of HopGuard II in Canada.

- The Bee team in Edmonton has also evaluated the efficacy of 5 miticides for *Varroa* control under laboratory conditions. One product might be considered for field tests in 2017. Efforts will continue to screen more miticides to find effective products with different modes of action for *Varroa* control. These new products will address the shortage of *Varroa* mite control options. They will also help in management of the resistance to used miticides.
- The honey bee research program – Lethbridge continues to focus on pollination, bee management, bee health, hive products, and queen breeding. Current projects include management and health of colonies in hybrid canola seed production, contribution of honey bees to commodity canola pollination, behaviour of bees in seed fields, effects of prebiotics and supplemental feeding on bee health, effects of neonicotinoids on managed bees using bee cell lines, and methods of queen selection.
- A response plan for the new policy of regulating the use of antimicrobials and antimicrobial resistance in beekeeping is under discussions with Health Canada.
- The Alberta Research Program is funded by The Alberta Crop Industry Development (ACIDF), Alberta Agriculture and Forestry, Saskatchewan Agriculture Development Fund, Growing Forward II, The Alberta Beekeepers Commission, Canola Seed Production Companies, Canadian Bee Research Fund, The Alfalfa Seed Commission of Alberta, Genome Canada, Agriculture and Agri-Food Canada, and BeeMaid.