



CAPA Statement on Colony Collapse Disorder (CCD)

What is CCD?

CCD is a newly-described disorder of honey bees in which colonies rapidly and unexpectedly die; it is widespread in the United States and has been reported in some European countries. The disorder is characterized by the rapid loss of adult bees from hives leaving behind the brood (larvae and pupae), a small number of young workers and the queen. The remaining adult workforce is insufficient to care for the brood, and the colony collapses. Characteristically, dead bees are not found in the vicinity of the colony.

What has Happened in the U.S.?

CCD was first reported in the Eastern U.S. in November 2006. To date, the disorder has spread to at least 27 states. Large commercial migratory beekeepers have been reporting losses of 30 - 90% of their colonies with many surviving colonies being too weak to pollinate crops. Some estimates suggest a overall decline in American honey bee numbers by 40%.

The U.S. CCD Working Group has identified a number of factors that are being examined as cumulative stressors on colony health. These include the effects of migratory beekeeping practices, nutritional deficiencies, the effects of known and unknown pathogens, parasitic mites such as varroa, a lack of genetic diversity among breeding stock, the effects of systemic pesticides and improper use of mite control products. One or a combination of these factors may cause CCD; no specific cause of CCD has been identified at present.

On March 29, 2007 the House Subcommittee on Horticulture and Organic Agriculture held a hearing to review recent honey bee declines in the U.S. The Pollinator Protection Act was introduced in the House of Representatives. This legislation authorizes over \$75 million (USD) in funding for sustained research on CCD and the decline of pollinators in the U.S.

Current Status of Honey Bees in Canada (Spring 2007):

During spring, the first indication of abnormal problems with honey bee colonies is an examination colony death sustained over winter months (overwintering mortality). Based on current information, the table below indicates the number of colonies that did not survive the winter, which includes colonies that died during the spring or were culled because they were too weak. Winter losses reported by province:

Province	# Colonies Dead	Wintering Losses (% of Provincial Total)
British Columbia	11,308	23
Alberta	77,500	31[*]
Saskatchewan	24,000	24
Manitoba	22,950	27
Ontario	28,379	37
Quebec	12,429	30^{**}
Nova Scotia	3,900	20
New Brunswick	4,990	59
PEI	1,054	29
CANADA	186,510	29% (of National Total)

^{*} Provincial Apiculturist estimates that an additional 15% of the colonies are very weak (< 3 frames of bees) and are not expected to produce much honey this year – submitted 1 June.

^{**} Estimated; final estimates to be compiled by 15 June.

Long-term average overwintering mortality in Canada is approximately 15%. Nationally, overwintering mortality appears to be higher than normal at 29%. This represents 1.9x the rate of normal winter losses. This rate, though certainly higher than average, does not represent unprecedented levels of honey bee die-off over the winter.

Average wintering losses in certain areas such as the Province of New Brunswick (59%) (representing only 3% of the country's colonies) and the Niagara region of Ontario (60-70%) were very high in 2006-07.

Though high losses for individual producers may occur in any given year, high regional losses are of much greater concern. Across the country any unusually high losses have been investigated by provincial apicultural specialists. Initial indications suggest that high wintering losses may be attributed to some identifiable causes:

1. **Ineffective control for the parasitic mite *Varroa destructor*.** In many regions, this mite has now developed multiple pesticide resistance. This is making it increasingly complex for producers to monitor and treat these pest populations effectively.
2. **Unusual fall and winter weather.** Some regions of the country experienced warm fall and winter weather. These conditions contributed to build-up of higher than normal parasitic mite loads. In some areas, prolonged nectar availability until late into the fall also delayed the window in which mite controls could be applied. In other regions, inadequate nectar flows during fall months prevented sufficient bee population build-up prior to winter. The deviations in normal seasonality may also have affected the natural production of "winter bees" physiologically adapted to survive winter conditions.
3. **A late wet spring** in most areas prolonging winter conditions for bees and their access to suitable spring forage.

Is CCD in Canada?

Symptoms of CCD as described from the U.S. have not been diagnosed by professional apiculturists in Canada. Nevertheless, experts remain extremely concerned about the state of honey bee health in Canada and are monitoring the situation with great care.

What else is being done in Canada?

Researchers in Canada remain in close contact with principal scientists assigned to the U.S. Working Group on CCD. Members of CAPA have also been actively monitoring the status of bee health across the country and are sharing scientific information.

Samples of adult honey bee samples from across the country have also been collected for the detection of the unicellular parasite, *Nosema ceranae*. This organism was previously discovered in the Asian honey bee, *Apis cerana*, in 1996. Recent research in Europe identified it as also being present in European populations of the western honey bee, *Apis mellifera*, as well as displacing populations of its native parasite, *Nosema apis*. In Europe, *Nosema ceranae* has been implicated in high honey bee losses in countries such as Spain. Analysis of samples collected from Canada will provide information about the organism's distribution in this country. The impact of *Nosema ceranae* on honey bees is not well understood and it is likely a factor in the survival of colonies already under multiple stresses. Researchers will remain involved with examining the impact of this organism on colony health.

The Canadian Honey Council, with the cooperation of CAPA, will hold a national meeting of invited industry stakeholders on June 18-19 in Winnipeg to discuss strategies for maintaining the long-term viability of Canada's honey bees.

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