

COLONY COLLAPSE DISORDER (CCD)

Malcolm Sanford

Like so many things there's good and bad news about the phenomenon originally called "Fall dwindle disease," now renamed "colony collapse disorder," or CCD. The bad news is that it appears to be a continuing situation with little short-term solution in the offing. The good news is that it has caught the attention of the press, and is responsible for an increased attention about honey bees and their pollination potential.

In an effort to understand the conditions currently faced by the industry with reference to CCD, The Foundation for the Preservation of Honey Bees sponsored a workshop on the disorder in conjunction with the USDA Agricultural Research Service's review of National Program 305, which kicks off a new five-year work cycle. The bee labs are an integral part of NP305. Though not formally linked, the fact that these two events occurred back-to-back at the same location (Suart, Florida) appears to be fortunate. Industry leaders and USDA researchers were able to compare notes, and the disorder made the formal list of things that NP 305, and thus the labs, will be working on for the next half decade.

A Pennsylvania/Florida beekeeper, David Hackenberg, is being noted by press releases as most affected by the phenomenon (Fall dwindle), and in this role has now been quoted all over the globe, as the story continues to take on a "life of its own." Dr. Jerry Bromenshenk of Bee Alert Technology, Inc. and faculty member at the University of Montana, laid out the reason for the name in a posting to the Bee-L Discussion list, February 16, 2007:

"CCD was a name carefully chosen to not imply anything more than we know. The initial Fall Dwindle Disease terminology had three problems – our surveys indicate that the problem was not confined to the Fall, nor was it a dwindle in terms of taking several weeks of months to play out, and it may or may not be a disease. CCD means Colony (the effects are at the colony level), Collapse (sudden, rapid reduction of population sizes – a couple of weeks, maybe even a couple of days), and Disorder (since it may or may not be a disease). CCD may be something new – the nosema seen in Spain, the neonicotinics (imidacloprid) used in France, a new virus, a fungus, the result of throwing everything but the kitchen sink into a hive, etc., or it may be something old – a variation of mites and PMS (parasitic mite syndrome), whatever went through colonies in Louisiana and Texas in the 60s, etc."¹

The Foundation for the Preservation of Honey Bees is a 501 (c) 3 entity with the mission "to preserve and protect honey bees to ensure a quality food supply and environment."² Under its objectives are several pertain-

ing to beekeeping, the reason that it organized the workshop. Thus, it assembled in Florida a diverse array of industry leaders, including representatives of the Apiary Inspectors of America, American Beekeeping Federation, American Honey Producers Association, land-grant colleges (Pennsylvania State University, North Carolina State University), American Association of Professional Apiculturists, Eastern Apicultural Society, and USDA's Agricultural Research Service (Beltsville, MD and other bee laboratories).

Several affected beekeepers at the meeting, including Mr. Hackenberg, described a variety of symptoms characteristic of CCD, but others reported they were not experiencing more than "normal" colony loss. However, a few of those not affected have observed colonies of colleagues collapse quickly for no apparent reason and remain nervous. One operation lost 800 of its 1400 hives and another saw 400 colonies reduced to 10 in short order. Enough beekeepers have been affected, therefore, that the disorder has resulted in its own research group. The CCD Working Group consists of a number of researchers who have agreed to share information, establish standardized sampling procedures, and develop other agreements with respect to citing, publishing and reporting their research. So far, the Group has defined the symptoms of CCD as follows:

1. In collapsed colonies, complete absence of adult bees with no or little build up of dead bees inside or in front of hives; capped brood present; honey and bee bread is not robbed by bees and attack by wax moth and small hive beetle is noticeably delayed.
2. In actively collapsing colonies, not enough workforce to maintain brood present; only young adult bees and queen present, cluster reluctant to consume provided sugar (carbohydrate) or protein supplement.

Reports from the Working Group at the workshop consisted of discussions about the historical context of this kind of phenomenon (disappearing disease), relationship to other diseases and pests, sampling, virus and pathogen screening and comb testing. At least one "organic" beekeeper with new equipment has reported the disorder, leaving in doubt concerns that pesticides employed by beekeepers for mite and beetle control are a cause. Affected colonies also appeared to have passed on the disorder when stacked on healthy hives, suggesting that it might be communicable. Although the workshop produced no concrete recommendations for bee managers at the present time, it was strongly hinted that prudent ones not mix affected equipment or hives with healthy ones until more is known and carefully consider a preven-

tative feeding program of fumagillin for nosema control.

Perhaps the person who has seen the most colonies with CCD is Dr. Bromenshenk, quoted elsewhere in this article, beginning with the Midwest in the Spring of 2006. He reported it appeared to have spread from there to the Southeast and then Central states last Summer, and now is reported in the far West. About 24 states in total have been affected. A major concern was the status of honey bee colonies in California almond groves. Another is that there is simply not enough information for the Working Group to go by in investigating the situation. To this end Dr. Bromenshenk's company, Bee Alert Technology, Inc., has mounted a World Wide Web survey to collect data on the disorder.³ Beekeepers are urged to cooperate in this survey. The specific information they provide will remain confidential and will become an important addition to the studies.

Funding remains an issue. The Florida State Beekeepers Association (\$6,000), Tampa Bay Beekeepers Association (\$1,000), Eastern Apicultural Society (\$5,000), and The National Honey Board (\$58,000) have all committed to support this research. A range of estimates determined at the workshop indicated this course of study might require up to \$500,000. A final concern is the large number of requests from the press. Again, the publicity could be a good thing, but beekeepers are urged not to provide "off the cuff" remarks to reporters. One strategy is to steer reporters away from the topic and focus on the exciting life of the honey bee and its historical value to humanity. There is concern that often the topic of safety of honey in human nutrition comes up when CCD is discussed. Any questions about honey quality should be directed to the National Honey Board.⁴ Updates about CCD will continue to be posted at the Mid-Atlantic Apiculture Research and Education Consortium (MAAREC) Web site.⁵ **BC**

Dr. Sanford is a former Extension Specialist in apiculture at the University of Florida.

References:

1. Bee-L Discussion List Archive, accessed February 23, 2007 <http://listserv.albany.edu:8080/cgi-bin/wa?A2=ind0702c&L=bee-l&T=0&P=4806>.
2. Foundation for the Preservation of Honey Bees, Inc. Web Site, accessed February 23, 2007 <http://www.honeybeeconservation.org/>
3. Bee Alert Technology, Inc Web Site, accessed February 23, 2007. <http://bealert.blackfoot.net/~bealert/surveys/index.php>
4. National Honey Board Web Site, accessed February 23, 2007 <http://honey.com/>.
5. Mid-Atlantic Apiculture Research and Extension Consortium Web Site, accessed February 23, 2007 <http://maarec.cas.psu.edu/index.html>.

If your organization is interested in helping fund these studies, you can make donations to:

1) Project Apis M.
1750 Dayton Road
Chico, CA 95928
Att: CCD Working Group

or

2) Bee Alert Technologies
1620 Roger Street, Suite #1
Missoula, MT 95802

or

3) Maryann Frazier
Att: CCD Working Group
MAAREC
Dept. of Entomology
Penn State University
501 ASI Bldg.
University Park, PA 16802