RUTGERS COOPERATIVE EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

CRANBERRY EDITION $1.50 APRIL 26, 2007

INSIDE

Honey Bees, Colony Collapse Disorder, and Cranberries

Cesar Rodriguez-Saona, Ph.D., Specialist in Entomology

Earlier this month I wrote an article in "*The Blueberry Bulletin*" (April 17, 2007; vol. XXIII, No. 4) on the "Colony Collapse Disorder" affecting honeybees. Here I present a similar article related to this bee problem and cranberries.

Beekeepers have recently experienced a significant decline in bee colony numbers, a phenomenon that has been termed "Colony Collapse Disorder" (CCD). Beekeepers report losses of >50% of their colonies. The cause of this phenomenon is not known. Although bees have previously experienced problems, such as Varroa mites, over the last few decades, the rate of colony die-off was much accelerated in the years 2006-07. CCD is manifested by a complete absence of adult bees in colonies. Possible causes of CCD include environmental stress, poor nutrition, pesticides (i.e., insecticides, miticides, and antibiotics), pathogens and immunodeficiency, among others. Recently, cell phone towers and high-voltage transmission lines have been added to this list.

The extent of the impact of CCD in New Jersey cranberries remains unknown; however, the cranberry industry is likely to be impacted due to its high reliance on bees for pollination. Potential impacts include unavailability of hives and increases in bee-colony rental costs. At this point, we recommend growers to be cautious in their pest management practices. At the same time, we feel that it is too premature to blame insecticides, especially imidaclopid, for CCD. There is a lack of conclusive data directly linking imidaclopid usage with this disorder. Imidaclopid belongs to a fairly new class of nicotine-based insecticides, referred to as neonicotinoids. The concern relies in that imidaclopid (and other neonicotinoids) are systemic and could be taken up into the pollen and nectar.

If there are potential negative effects of these insecticides on bees, we expect them to be greatest if applied close to or during pollination. There are currently few neonicotinoids registered in cranberries for pre-bloom applications. In fact, the only insecticide of this class recommended for pre-bloom treatment is Actara (thiamethoxam) for cranberry weevil and leafhopper control. Actara is used regularly for cranberry weevil control in Massachusetts. Luckily for New Jersey growers, cranberry weevil is not an important pest in cranberries. The

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only pre-bloom treatment of Actara in New Jersey cranberries could be for leafhopper (nymphs) control. Blunt-nosed leafhoppers transmit false blossom disease. We recommend growers to be cautious when using Actara pre-bloom. Instead, we recommend treatment with a broad-spectrum insecticide (e.g., Diazinon, Lorsban) to control leafhoppers, if needed. No neonicotinoids currently registered in cranberries should be used during bloom.

It is less likely that neonicotinoids could have a negative effect on bees when applied post-bloom. Actara could be used post-bloom for adult leafhopper and cranberry flea beetle control. Admire (imidaclopid) is the only insecticide registered in cranberries for white grub (*Phyllophaga* spp.) control and is recommended for post-bloom applications. There is no data that indicate that treatment of imidaclopid, or any other neonicotinoid, in one year will cause accumulation of residues in the pollen or nectar the following year, which could potentially negatively affect adult bees. We are looking into this.

We are aware that some beekeepers are requesting growers to use non-imidaclopid products (even when applied post-bloom). Even though, as we indicated above, there is no data to support these claims, under those circumstances we suggest growers to use alternatives for flea beetle and leafhopper control (refer to the "*2007 New Jersey Cranberry Insect and Disease Control*"). Note that populations of cranberry flea beetle and blunt-nosed leafhopper are not widely spread in New Jersey cranberries; thus, use of broad-spectrum insecticides against these insects should be used only if needed. There are, however, no current alternatives to Admire for grub control.

For more information on CCD visit http://www.maarec.cas.psu.edu/. ❑

Insect Update

Cesar Rodriguez-Saona, Ph.D., Specialist in Entomology

At this time most growers in New Jersey have taken the water from winter flooding off their cranberry beds. We expect overwintering insects to become active as soon as plants start to break dormancy and vines start to grow.

Two insect pests that bear special mention for early season scouting are gypsy moth and blackheaded fireworm.

✔ **Gypsy moth** – We observed high populations of gypsy moth larvae in bogs near woods in 2006. We expect populations to be high also this year. Gypsy moth eggs can successfully survive the winter flood on cranberry beds. Also, first instars "balloon" on silken threads from infested trees onto nearby cranberry beds. Either way, gypsy moths tend to be one of the earliest caterpillars to show up in cranberry beds, usually during the first week of May. They are quite easy to detect by means of sweep net sampling when they are small. Gypsy moth larvae are easy to control with most of the insecticides at our disposal.

✔ **Blackheaded fireworm** – Blackheaded fireworm eggs overwinter on the bed and usually hatch by around mid-May. It is important to catch the first generation, if possible, because the second generation occurs during bloom and is typically much more destructive. Blackheaded fireworm larvae can be detected by sweep sampling and it is a good idea to look along the edges of beds where vines first begin to grow. Remember: blackheaded fireworm is much easier to control if detected during the early part of the season.

✔ **Scouting and control** – Use sweep-netting for monitoring early pests (pre-bloom). A sweep set consists of 25 sweeps and 1 sweep set is recommended per acre (this may vary depending on the size of bogs). The action threshold for **false armyworm**, **blossomworm**, and **gypsy moth** (we use a combined threshold from adding all these caterpillars per sweep) is an average of 4 or 5 caterpillars in sets of 25 sweeps. The action threshold for **blackheaded fireworm** is an average of 1 to 2 per sweep set. We recommend the use of the growth regulators Confirm and Intrepid, or Spintor, if populations exceed action thresholds. These are reduced-risk, softer insecticides that are very effective against lepidopteran pests. More information on these (and other) lepidopteran pests will be provided as the season progresses. ❑

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much below normal south, and below normal central and north, averaging 50 degrees north, 51 degrees central and 50 degrees south. Extremes were 82 degrees at Seabrook on the 23rd, and 32 degrees at Downstown, Hammonton and Pomona on the 22nd. Weekly rainfall averaged 0.44 inches north, 0.56 inches central, and 0.82 inches south. The heaviest 24 hour total reported was 1.50 inches at South Harrison on the 16th to 17th. Estimated soil moisture, in percent of field capacity, this past week averaged 98 percent north, 96 percent central and 95 percent south. Four inch soil temperatures averaged 50 degrees north, 51 degrees central and 50 degrees south.

The following table contains meteorological information since the start of the growing season March first. The table is updated each Monday and the following is an explanation for each column.

WEEK=TOTAL RAINFALL FOR THE PREVIOUS 7 DAYS ENDING MONDAY MORNING
TOTAL=TOTAL RAINFALL SINCE MARCH 1ST
DEP=DEPARTURE FROM NORMAL OF RAINFALL SINCE MARCH 1ST. A NEGATIVE SIGN INDICATES BELOW NORMAL AND NO SIGN INDICATES ABOVE NORMAL.
MX=HIGHEST TEMPERATURE FOR THAT 7 DAY PERIOD
MN=LOWEST TEMPERATURE FOR THAT 7 DAY PERIOD
AVG=AVERAGE TEMPERATURE FOR THAT 7 DAY PERIOD
DEP=DEPARTURE FROM NORMAL OF THE AVERAGE TEMPERATURE FOR THAT 7 DAY PERIOD
TOTAL=TOTAL NUMBER OF GROWING DEGREE UNITS SINCE MARCH 1ST
DEP=DEPARTURE FROM NORMAL OF GROWING DEGREE UNITS
%FC=PERCENT OF FIELD CAPACITY (SOIL MOISTURE)

Weather Summary for the Week Ending 8 am Monday 4/23/ 7

	RAINFALL			TEMPERATURE				GDD BASE50		MON
WEATHER STATIONS	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
CANOE BROOK	.48	15.07	7.45	80	34	51.	-1	57	52	94
CHARLOTTEBURG	.52	12.47	5.04	78	34	50.	0	46	46	94
FLEMINGTON	.25	14.58	7.30	82	34	51.	-1	58	51	93
NEWTON	.51	9.21	2.63	78	34	49.	-1	37	37	94
FREEHOLD	.60	11.74	4.47	76	35	51.	-2	88	70	93
LONG BRANCH	.20	11.24	3.71	73	37	51.	-2	53	41	84
NEW BRUNSWICK	.49	15.14	8.21	78	35	51.	-4	68	39	94
TOMS RIVER	.58	10.17	2.86	77	33	51.	-2	85	72	85
TRENTON	.93	12.30	5.71	80	36	52.	-3	86	46	85
CAPE MAY COURT HOUSE	.72	6.73	.33	75	34	48.	-6	67	36	89
DOWNSTOWN	1.19	11.59	4.99	81	32	49.	-6	100	57	87
GLASSBORO	1.02	9.66	2.72	81	36	52.	-3	119	79	83
HAMMONTON	1.34	10.71	3.98	81	32	50.	-5	103	66	85
POMONA	.54	8.79	2.30	79	32	50.	-4	90	68	85
SEABROOK	.14	10.84	4.99	82	34	51.	-4	124	79	88
SOUTH HARRISON	1.53	12.25	5.77	79	33	51	NA	108	NA	NA

WES KLINE -- GDD BASE 40 PINEY HOLLOW
LAST WEEK 30 (Ending 4/16/07)
THIS WEEK 69 (Ending 4/23/07)

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