

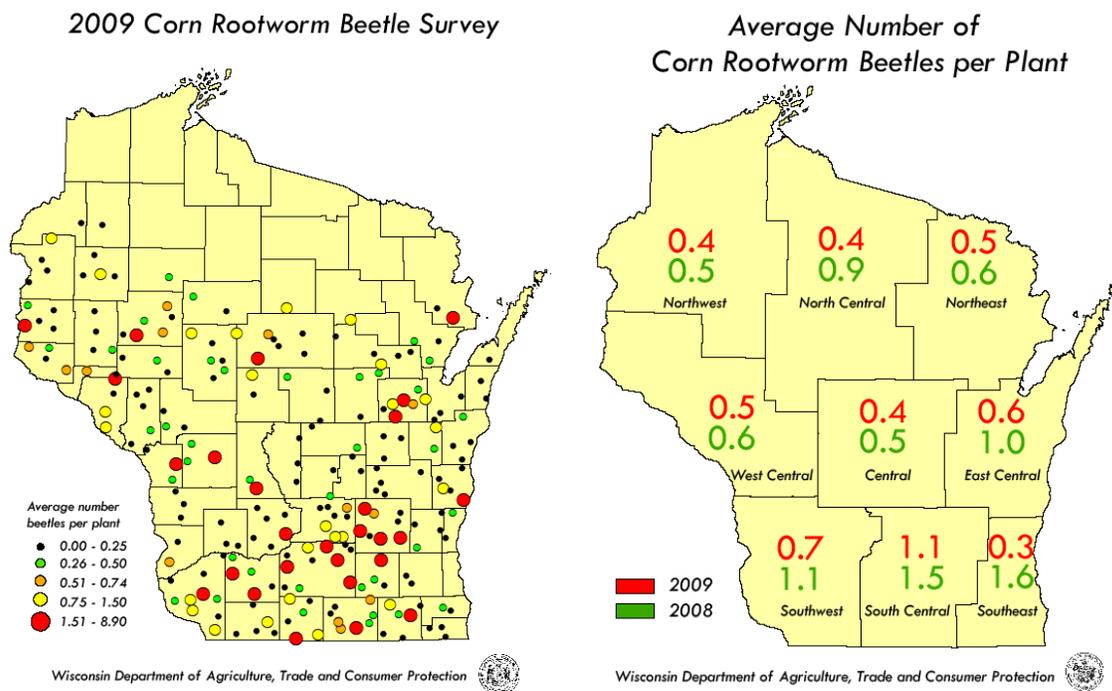
# WISCONSIN INSECT SURVEY RESULTS 2009 AND OUTLOOK FOR 2010

Krista L. Hamilton <sup>1/</sup>

## Corn Rootworm

The annual survey in August documented a decrease in the state average number of beetles per plant for the first time in five years. Population declines were charted in every district, with the largest reductions occurring in the southeast, east-central and north-central areas. The state average of 0.6 beetle per plant compares to 1.0 last season and a 5-year average of 1.1 per plant. District counts were as follows: northwest 0.4, north-central 0.4, northeast 0.5, west-central 0.5, central 0.4, east-central 0.6, southwest 0.7, south-central 1.1, and southeast 0.3. Populations in 77% of surveyed fields were below the 0.75 beetle per plant level which indicates root injury potential in 2010 if some form of control is not used.

The causes of the decline in beetle numbers are not certain. It is presumed that widespread use of stacked Bt hybrids is a major contributing factor, both in Wisconsin and across the Midwest where populations of the western species were greatly reduced this season. Wet soil conditions last spring also may have caused some degree of larval mortality, thus lowering adult numbers. The map below shows the locations of 229 fields sampled in August. Areas with an elevated risk of root injury to non-Bt, continuous corn are represented by red and yellow circles.



## European Corn Borer

Examination of 229 corn fields between September 1 and October 31 found the second lowest population since the survey began in 1942. The state average of 0.06 borer per plant (6 per 100 plants) represents a decline from last year's very low average of 0.09 per plant, and is well

<sup>1/</sup> Plant Pest & Disease Specialist, Entomologist, Wis. Dept. of Agriculture, Trade and Consumer Protection, 2811 Agriculture Dr., Madison, WI 53708 (krista.hamilton@wisconsin.gov).

below both the 10 and 50-year averages. Populations this fall exceeded 2008 levels only in the southwest and west-central districts (see table below). Less than 1% of the fields sampled had populations that met the treatment criteria of 1.0 or more borer per plant, and 75% had no detectable larval population. Survey data from 2009 and the previous several years continue to suggest that transgenic Bt-corn has become a major mortality factor among the European corn borer population.

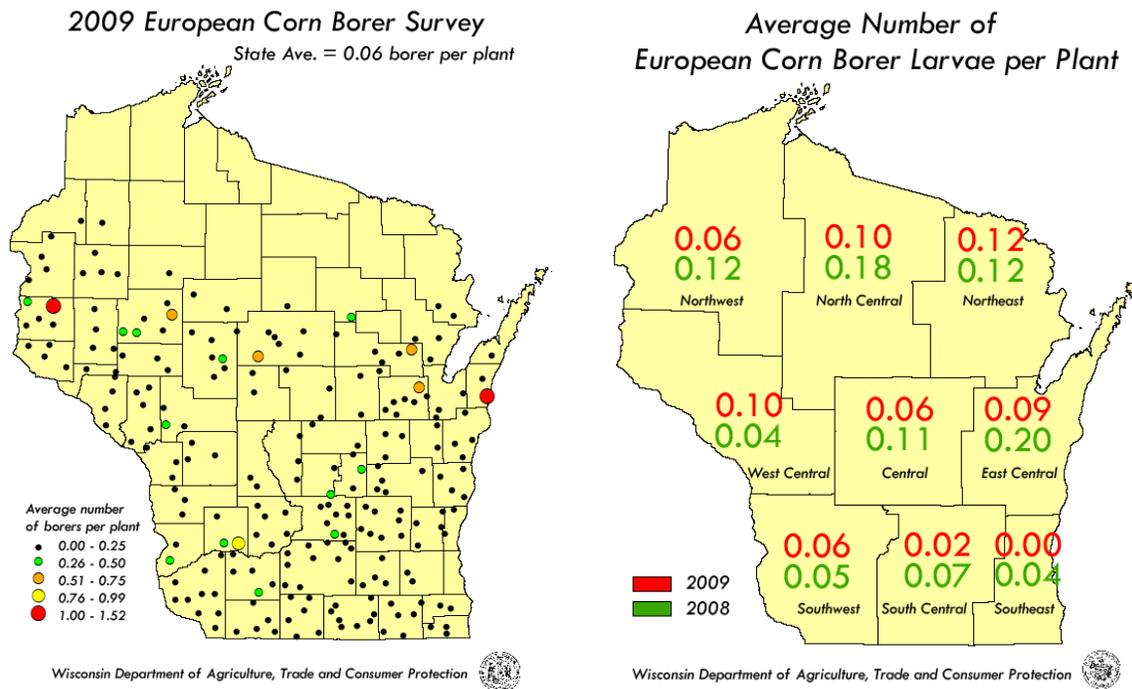


Table 1. European corn borer fall abundance survey results 2000-2009 (average no. borers per plant).

District	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	10-Yr Ave
NW	0.24	0.33	0.44	0.20	0.13	0.01	0.27	0.24	0.12	0.06	0.20
NC	0.04	0.05	0.26	0.14	0.20	0.36	0.16	0.35	0.18	0.10	0.18
NE	0.03	0.07	0.75	0.23	0.22	0.33	0.23	0.07	0.12	0.12	0.22
WC	0.31	0.67	0.71	0.16	0.05	0.24	0.42	0.52	0.04	0.10	0.32
C	0.41	0.48	1.21	0.44	0.06	0.44	0.51	0.42	0.11	0.06	0.41
EC	0.19	0.33	0.44	0.20	0.22	0.25	0.11	0.21	0.20	0.09	0.22
SW	0.39	0.87	0.65	0.34	0.10	0.49	0.20	0.28	0.05	0.06	0.34
SC	0.33	0.48	0.86	0.51	0.05	0.67	0.38	0.33	0.07	0.02	0.37
SE	0.16	0.36	0.61	0.21	0.02	0.35	0.16	0.12	0.04	0.00	0.20
State Ave.	0.24	0.40	0.66	0.30	0.10	0.40	0.29	0.31	0.09	0.06	0.29

### Corn Earworm

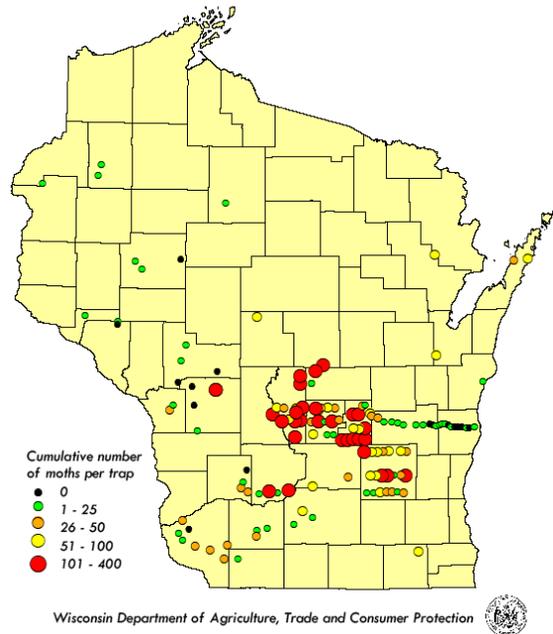
Significant flights of moths did not materialize this season at the majority of pheromone trap locations. Despite favorable migrating conditions and large source populations in the south-central U.S., adult dispersal was suppressed throughout much of August by low nightly temperatures. Moderate counts were registered in Dane County from August 14-21 and numbers escalated to 60-160 moths per trap by August 31, but the flight was considered to have been too minor to produce substantial larval infestations. Larvae were very scarce in corn fields examined

during fall surveys. If pheromone trap counts are indicative, the flight was almost six times smaller than that of 2008. The cumulative seasonal capture was 990 moths in 2009, compared to 5,624 moths in 2008 and 8,055 moths in 2007.

### Western Bean Cutworm

The adult flight period was delayed by record low temperatures in July and most moths did not appear in trap collections until July 27-August 14. Egg deposition was noted by July 18. Although larval populations were found in corn throughout the state in August and September, the heaviest infestations were concentrated on sandy soils in the central district. Pheromone trap counts coincided closely with field observations, documenting the largest moth numbers in the central counties of Adams, Green Lake, Juneau, Marquette, Monroe and Waushara. High cumulative counts for the season were 339 moths in a pheromone trap and 350 moths in a black light trap, both located near Grand Marsh in Adams County. Larvae persisted in some corn fields past October 16.

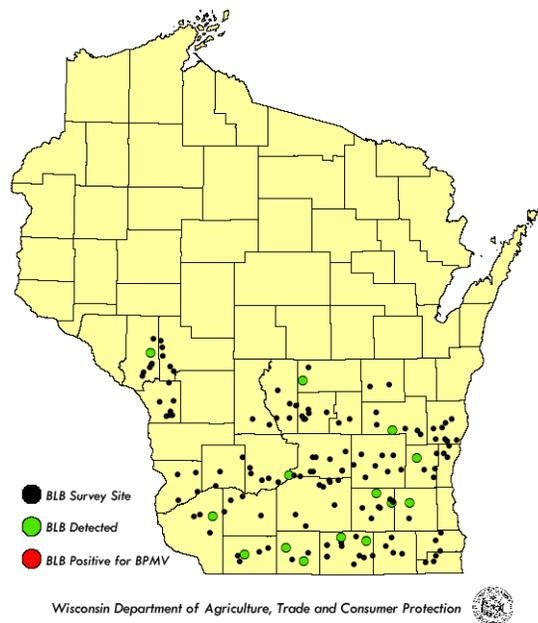
### 2009 Western Bean Cutworm Trap Counts



### Bean Leaf Beetle

The spring survey of 152 first growth alfalfa fields conducted from May 18-June 10 yielded just 24 overwintered adults. This figure is comparable to the 21 beetles collected during a similar survey last season, but considerably lower than the numbers found during annual surveys in the years 2003-2007 when several hundred specimens were collected. Beetles were swept from only 14 fields in Columbia, Fond du Lac, Grant, Green, Jefferson, Lafayette, Rock, Trempealeau, Waukesha, Waushara and Washington counties, with no apparent pattern to their distribution (see map). Laboratory testing of the 24 specimens showed all were negative for bean pod mottle virus (BPMV). Based on the low population of overwintered beetles detected last spring, a minimal risk of early-season defoliation and virus transmission was predicted for emerging soybeans.

### 2009 Spring Survey for Overwintered Bean Leaf Beetles and BPMV in Alfalfa



## Soybean Aphid

According to the results of the annual survey, the vast majority of Wisconsin soybean fields did not develop economically significant populations during the R2-R4 growth stages. Of the 247 fields examined in late July and early August, 94% had non-economic densities below 250 aphids per plant. Economic populations were observed at scattered locations in Columbia, Dunn, Eau Claire, Marquette, Pepin, Pierce, Taylor, St. Croix and Wood counties, but these were exceptional. The survey found the state average density to be 53 aphids per plant, which compares to 72 in 2008, 164 in 2007, 69 in 2006, 118 in 2005, 11 in 2004, and 758 in 2003.

By mid-August the situation changed considerably. Densities surged above treatment thresholds and remained extremely high for the balance of the season. Swarms of winged aphids descended on urban areas across the Midwest during an unprecedented fall migration to buckthorn, causing great annoyance to humans. Despite the magnitude of the flight, a fungal disease apparently decimated populations by late October and substantially reduced egg counts on buckthorn.

**2009 Soybean Aphid Survey Results  
R2-R4 Growth Stages**

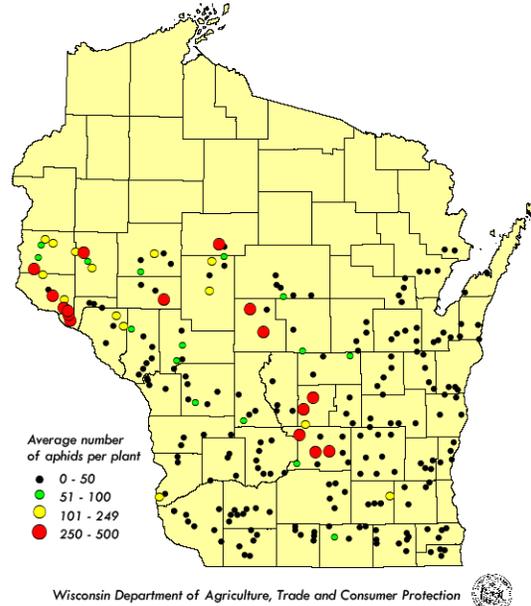


Table 2. Soybean aphid survey results 2003-2009 (average no. aphids per plant, R2-R4 stages).

District	2009	2008	2007	2006	2005	2004	2003
NW	49	90	13	56	306	1	566
NC	89	—	109	22	113	7	93
NE	22	34	13	58	42	25	170
WC	112	121	356	101	198	9	632
C	94	142	170	44	175	43	680
EC	16	66	10	159	124	5	968
SW	6	14	302	55	44	2	149
SC	72	98	188	30	75	11	993
SE	3	23	54	23	91	6	1268
<b>State Ave.</b>	<b>53</b>	<b>70</b>	<b>164</b>	<b>69</b>	<b>118</b>	<b>11</b>	<b>758</b>