

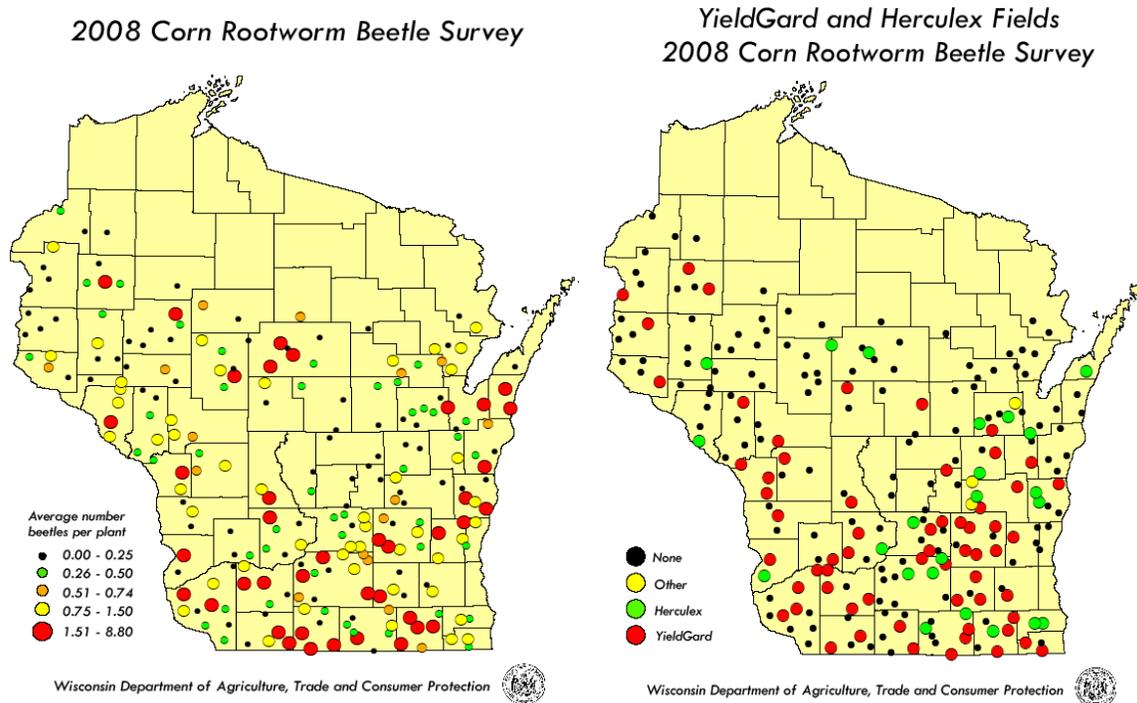
# WISCONSIN INSECT SURVEY RESULTS 2008 AND OUTLOOK FOR 2009

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## Corn Rootworm

Field data from the annual survey of adult corn rootworms in August revealed an increase from 2007 populations in 6 of the 9 agricultural reporting districts, including the southwest, southeast, west central, northwest, north central and northeast, and a decrease in populations in the remaining districts. The state average was 1.0 beetle per plant, the same average as in 2007. Average populations by district were as follows: northwest 1.1; north central 1.5; northeast 1.6; west central 1.0; central 0.5; east central 0.6; southwest 0.5; south central 0.9; southeast 0.6 (see table on Page 152). The western species constituted 52% of the state average population, while the northern species made up about 48%. Research entomologists consider an average of 0.75 beetle per plant to indicate an elevated risk for root injury in continuous corn the following year if some form of control is not used, and 38% of 229 fields in the major corn growing counties had such a count or higher. The obvious conclusion from these results is that there is a high potential for rootworm damage to continuous corn next season.

The use of transgenic Bt corn rootworm hybrids was also measured for the third season. The percentage of survey sites that were Bt corn rootworm fields increased to 40% in 2008 from 27% in 2007. For the third year, Monsanto's YieldGard was the most prevalent of the technologies. The YieldGard Bt-Cry3Bb1 protein was detected in 28% of the fields, the Herculex Bt-Cry34/35Ab1 protein was detected in 11% of the fields, and the mBt-Cry3A protein from Agrisure was found in 1% of the fields. More Bt-rootworm corn was planted in the southwest and south central districts from 2006-2008 relative to the other districts. The maps below summarize the results of the annual corn rootworm beetle survey.



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## European Corn Borer

Flights of spring moths developing from overwintered larvae in May and June were distinctly lower than in the previous year, as egg and larval survival was apparently influenced by wet conditions in the southern half of the state. The magnitude of the second flight of moths was nearly four times lighter than in 2007.

Results of the fall survey of second generation larvae showed a sizeable decrease in population densities from 2007 to 2008. Populations were well below normal, averaging 0.09 borer per plant (9 borers per 100 plants), the lowest average since 1998. The state average is about one-third that of last season and the 10-year average of 0.31 per plant, and far below the 50-year average of 0.46 per plant. Counts in individual districts were also extremely low. The most drastic reductions were noted in the west central, central and south central districts.

Injury to corn from larval feeding was not detected in 64% of the grain corn fields examined, most of which were presumed to be Bt hybrids. Roughly 2.5% of the fields had populations exceeding 0.50 borer per plant and only 1% had populations above the economic threshold of 1.0 borer per plant. The fall abundance survey in 230 fields registered the third lowest population since 1942.

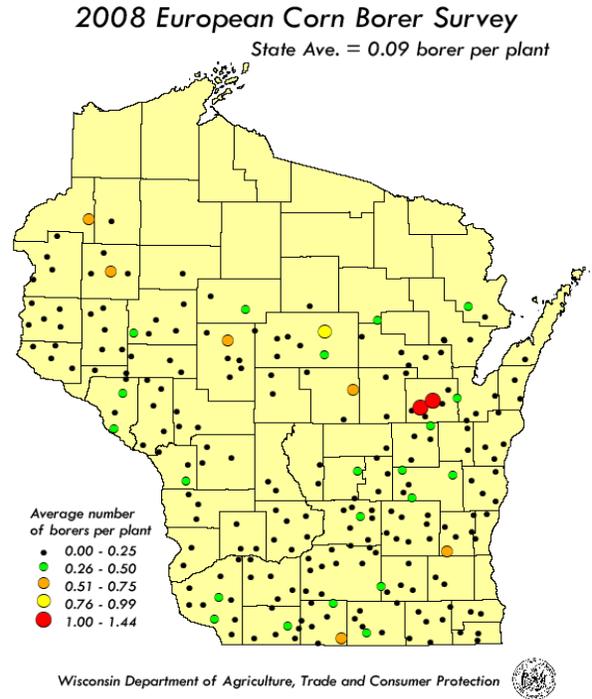


Table 1. European corn borer fall abundance survey summary 1999-2008 (Average no. borers per plant).

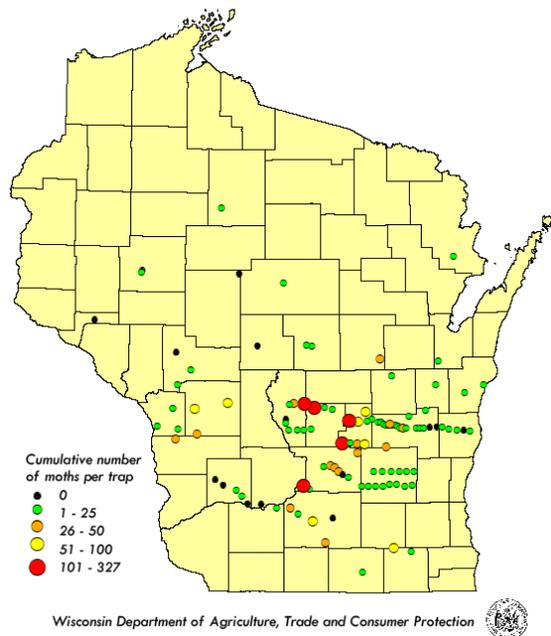
District	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	10-Yr Ave
NW	0.15	0.24	0.33	0.44	0.20	0.13	0.01	0.27	0.24	0.12	0.21
NC	0.03	0.04	0.05	0.26	0.14	0.20	0.36	0.16	0.35	0.18	0.18
NE	0.18	0.03	0.07	0.75	0.23	0.22	0.33	0.23	0.07	0.12	0.22
WC	0.30	0.31	0.67	0.71	0.16	0.05	0.24	0.42	0.52	0.04	0.34
C	0.30	0.41	0.48	1.21	0.44	0.06	0.44	0.51	0.42	0.11	0.44
EC	0.25	0.19	0.33	0.44	0.20	0.22	0.25	0.11	0.21	0.20	0.24
SW	0.57	0.39	0.87	0.65	0.34	0.10	0.49	0.20	0.28	0.05	0.39
SC	0.61	0.33	0.48	0.86	0.51	0.05	0.67	0.38	0.33	0.07	0.43
SE	0.31	0.16	0.36	0.61	0.21	0.02	0.35	0.16	0.12	0.04	0.23
<b>State Ave</b>	<b>0.30</b>	<b>0.24</b>	<b>0.40</b>	<b>0.66</b>	<b>0.30</b>	<b>0.10</b>	<b>0.40</b>	<b>0.29</b>	<b>0.31</b>	<b>0.09</b>	<b>0.31</b>

## Western Bean Cutworm

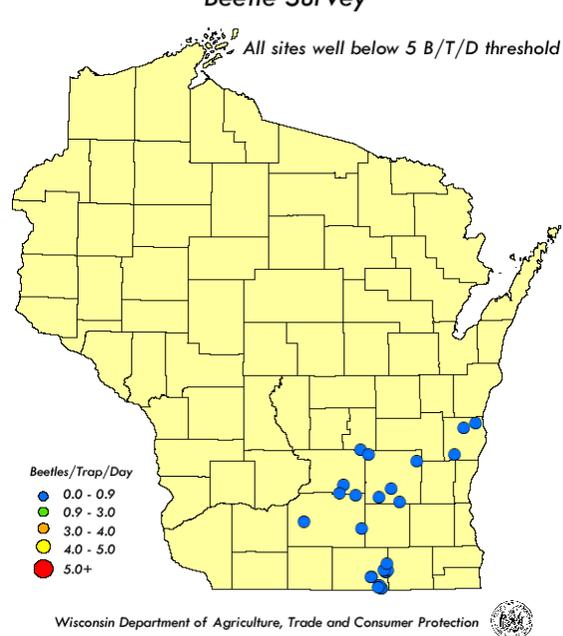
The first moths were captured in a pheromone trap on July 2 in Fond du Lac County, with the peak of the moth flight occurring from July 25-August 6. Egg masses were noted near Westfield in Marquette County on July 29. Severe larval injury to corn from this flight was reported or observed in Adams, Columbia, Door, Green Lake, Juneau, Lafayette, Marquette and Sauk counties, where exceptional fields had 50-72% of the ears infested in late August. Moth activity

declined to low levels by August 21. A cumulative high count of 327 moths for the July-August monitoring period was registered near Princeton in Green Lake County. The 112 Wisconsin pheromone traps captured a total of 2,433 moths in 2008, a minor increase from the 2,178 moths captured in 110 traps in 2007. Although the annual flight was comparable to last year, late season infestations were more prevalent and larvae were far more abundant.

2008 Western Bean Cutworm Trap Counts



2008 Variant Western Corn Rootworm Beetle Survey



### Variant Western Corn Rootworm

The Wisconsin Variant Western Corn Rootworm Trapping Network monitored 26 soybean fields in August of 2008 and found none with populations above the economic threshold of 5 Beetles/Trap/Day (B/T/D) for the four-week sampling period. Of the 26 soybean fields in Columbia, Dane, Dodge, Rock, and Sheboygan counties, the highest average of only 0.88 B/T/D was found in Rock County. Pressure from the variant was also light in 2007, when averages in all 53 fields sampled were well below the economic threshold. The variant has been detected above the 5 B/T/D threshold in five counties since 2004, including Jefferson (2005), Kenosha (2005), Racine (2005), Rock (2004-2006), and Walworth (2004-2005).

Results of the 2008 survey indicate that first-year corn planted after soybeans in the fields monitored is at a low risk for economic damage from larval rootworm feeding in 2009. It should be noted that the averages obtained during the August sampling period are specific to those fields sampled. Despite apparently low pressure from this insect in the last two years, individual fields in southern Wisconsin may be subject to damage.

### Corn Earworm

An early flight of migrant corn earworm moths beginning June 3 and continuing through June 26 produced heavy infestations of larvae by mid-July and prompted the treatment of many sweet corn fields in the southern and central counties. Four successive weeks of large flights of moths in August led to a second round of serious infestations in the state. In terms of magnitude, this

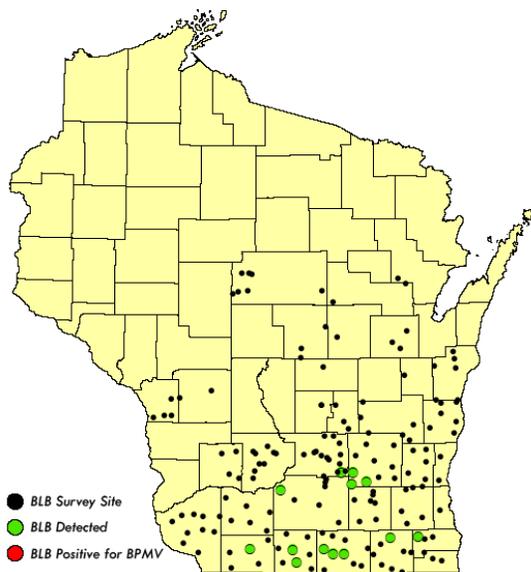
later flight was 23% lighter than the flight documented in 2007, although late larval infestations were much heavier this season. The cumulative seasonal capture was 5,624 moths in 2008, compared to 8,055 moths in 2007. Areas of heaviest infestation occurred in Adams, Columbia, Dane, Dodge, Jefferson and Marquette counties, and a few scattered locations in Rock County. Moths continued to be registered near Chippewa Falls and Marshfield as late as October 3.

### Bean Leaf Beetle

The first overwintered beetles were swept from a Walworth County alfalfa field on May 14, about two weeks later than last year. Winter mortality due to extreme cold temperatures was estimated to be high, ranging from 52-69%. The annual survey of 167 first crop alfalfa fields from May 14-June 4 substantiated this prediction, yielding just 21 bean leaf beetles, the fewest obtained since surveys began in 2003.

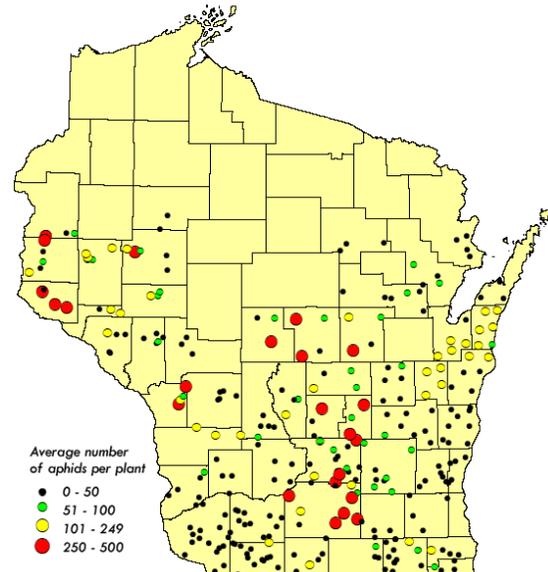
The accompanying map provides an indication of the distribution of overwintered beetles last spring. Each black circle signifies a first crop alfalfa field, and each green circle signifies a field at which beetles were collected. Only 8% (13 of 167) of the first crop alfalfa fields surveyed contained beetles. Laboratory testing of the 21 beetles subsequent to the field portion of the survey showed all were negative for bean pod mottle virus (BPMV), suggesting a negligible risk for early season BPMV transmission to soybeans. This insect cannot be credited with causing any economic damage to soybeans in 2008.

*2008 Spring Survey for Overwintered Bean Leaf Beetles and BPMV in Alfalfa*



Wisconsin Department of Agriculture, Trade and Consumer Protection

*2008 Soybean Aphid Survey Results R2-R4 Growth Stages*



Wisconsin Department of Agriculture, Trade and Consumer Protection

### Soybean Aphid

Flooding in June caused a large proportion of soybeans to be planted late or replanted, and this historic event, in combination with cool temperatures in August, significantly impacted soybean aphid dynamics in 2008. Populations increased noticeably later than in other years and remained above economic levels into September. This development is not reflected in the low

averages found during the annual survey, which appraised aphid levels at R2-R4, before peak densities were reached.

The annual soybean aphid survey conducted from July 21-August 21 showed 92% of the 299 soybean fields examined contained non-economic populations of aphids. Economic or high densities of 250 or more aphids per plant were found at 8% of the sites, distributed principally in the central and northwest districts. Low to moderate populations were observed throughout the southern, east central and northeast districts; numbers were particularly low in the southwest and northeast areas. Averages by agricultural reporting district were as follows: northwest 90 per plant; northeast 34 per plant; west central 121 per plant; central 142 per plant; east central 66 per plant; southwest 14 per plant; south central 98 per plant; southeast 23 per plant. The 2008 state average density of 70 aphids per plant is well below both the 2007 average of 164 per plant and the 6-year average of 198 per plant. The highest survey average of 758 aphids per plant was recorded in 2003.

Table 2. Soybean aphid survey summary 2003-2008 (R2-R4 stages of growth).

<b>District</b>	Ave no.soybean aphids per plant <b>2008</b>	Ave no.soybean aphids per plant <b>2007</b>	Ave no.soybean aphids per plant <b>2006</b>	Ave no.soybean aphids per plant <b>2005</b>	Ave no.soybean aphids per plant <b>2004</b>	Ave no.soybean aphids per plant <b>2003</b>
<b>NW</b>	90	13	56	306	1	566
<b>NC</b>	—	109	22	113	7	93
<b>NE</b>	34	13	58	42	25	170
<b>WC</b>	121	356	101	198	9	632
<b>C</b>	142	170	44	175	43	680
<b>EC</b>	66	10	159	124	5	968
<b>SW</b>	14	302	55	44	2	149
<b>SC</b>	98	188	30	75	11	993
<b>SE</b>	23	54	23	91	6	1268
<b>State Ave</b>	<b>70</b>	<b>164</b>	<b>69</b>	<b>118</b>	<b>11</b>	<b>758</b>