Wisconsin Crop Manager

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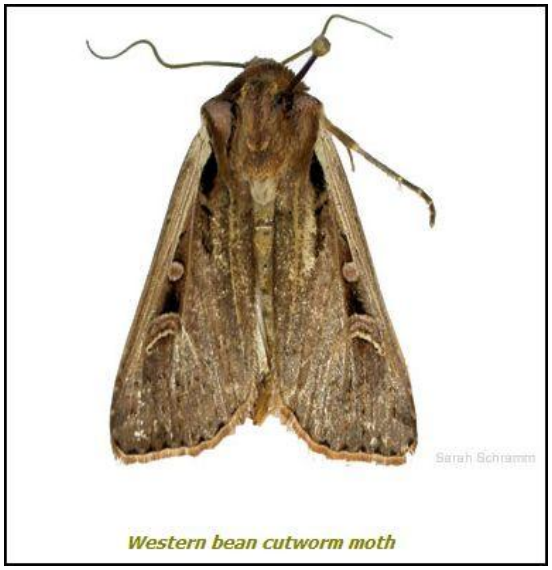
Western Bean Cutworm Moth Flight Has Begun

Eileen Cullen, Extension Entomologist

The annual flight of western bean cutworm (WBC) moths began this past week. The first moths of the season were recorded June 23-29 in Adams, Calumet, Iowa, Marquette and Sauk counties according to the WI DATCP Pest Bulletin survey 2011 WBC pheromone trap network. July 5, we captured our first WBC moth (1 moth total) at the Arlington, WI (Dane Co.) pheromone trap. With very low trap counts of 1-2 moths per trap during this first week of detection, the WBC moth flight is just beginning.



Western bean cutworm moth

There is one generation per year of this **mid to late-season field and sweet corn ear feeding insect.** WBC overwinters in Wisconsin as a late instar larvae in the soil. Thus, we can use insect degree-days to estimate peak moth emergence and egg laying in the field and alert growers, consultants and canners to accurately time field scouting and threshold based treatment decisions before larvae enter the ear.

Photo credit Rob Shields WRC Cooperative

Western bean cutworm egg mass on corn (2009)

Using the WBC phenology model, **you should start scouting field and sweet corn at 1,320 degree days (base 50°F) when 25% of the moth population will be in flight.** This scouting cue puts you ahead of peak moth flight (50% emergence; 1,422 degree days) and will allow you to notice when the first egg masses are present in the field.

WI DATCP reports that 1,320 degree days should occur around July 14 near Beloit, July 22 near Madison, August 2 near Eau Claire, and August 12 near Green Bay. Check WBC degree-day accumulation in your area to make sure you do not miss the moth flight and scouting window for eggs and small larvae over the next couple to three weeks (depending on location in the state and WBC degree days for your area).

Keep in mind, degree-day accumulations accrue sooner in southern and central WI than Northeastern and Northern corn growing areas of the state, so it's important to track WBC degree days and check WBC pheromone traps in your area to fine tune your scouting and treatment decisions.

Although, degree day forecasting gives you a sound indication of when to start scouting fields (1,320 DD; 25% moth emergence), WBC pheromone traps placed on or near your farm fields (corn) are a better indicator of when to start

scouting. **If you have a WBC pheromone trap on or near your farm fields, scouting for egg masses and small larvae should begin as soon as moths begin appearing in traps.**

Adult female WBC moths are most attracted to corn just before tasseling and lay eggs on the upper leaf surface, primarily on upper leaves on the corn plant, but also near the ear zone. Corn crop growth stage (planting date) and planting type (field corn, seed corn, sweet corn) will dictate somewhat where on the plant you can find egg masses, and eventually small larvae as they move from the egg mass after hatching.

As WBC moths prefer to lay eggs on corn just before tasseling, these fields should be scouted first when 1,320 degree days are reached and/or you begin to catch WBC moths in a pheromone trap. Continue to scout post tassel corn as well since moths will lay eggs in these fields too, particularly at the end of the moth flight when corn is older. Later in July at peak moth flight (1,422 degree days; 50% moth emergence) and beyond in the flight trajectory, larvae can be found on corn tassels, in leaf axils, and on silks. They are much easier to scout for when in the egg and small larvae stage, before they have moved to silks, and treatment will be more effective when timed accordingly.

For field corn, the economic threshold level of 5% field infestation with eggs and small larvae is now in use throughout the Upper Midwest (adjusted downward from 8%). Processing sweet corn economic threshold is lower at 4%.

For more information on WBC biology, economic threshold and management, please refer to the **Entomological Society of America's Journal of Integrated Pest Management**, J. Integ. Pest Mngmt. 1(1): 2010; DOI: 10.1603/IPM10003, **Ecology and Management of the Western Bean Cutworm (Lepidoptera: Noctuidae) in Corn and Dry Beans.**

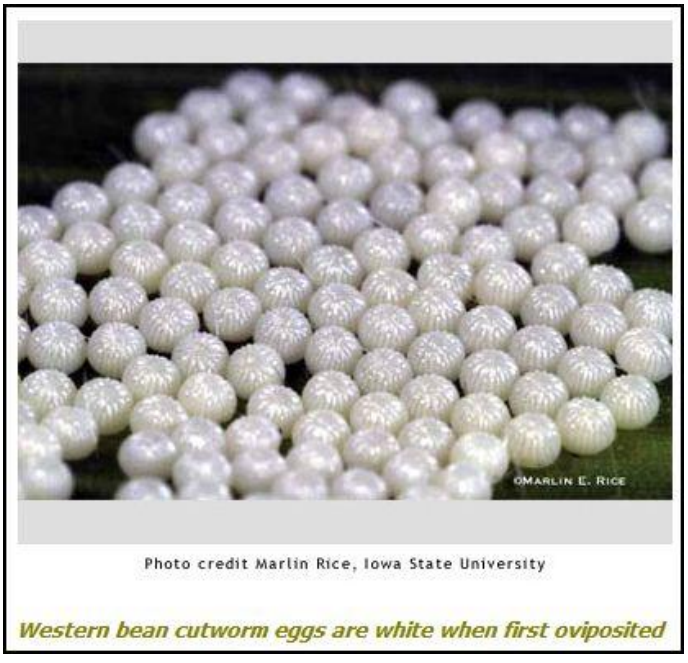


Photo credit Marlin Rice, Iowa State University

Western bean cutworm eggs are white when first oviposited

Photo credit Marlin Rice, Iowa State University

Western bean cutworm eggs turn purple 1 to 2 days before hatching

Vegetable Crop Update 12 Now Available

The 12th issue of the vegetable crop updates is now available. To view all vegetable crop updates go to Veg Crop Update found under the WCM-News tab.

Included in this issue:

Crop updates in potatoes and fresh market veg, Colorado Potato Beetle, European Corn Borer, Squash Vine Borer, and Squash Bug updates, Late blight (Blitecast) updates, Early blight updates and symptoms, Tomato Septoria, Cucurbit downy mildew update, Onion disease updates, Petiole nitrate sampling update, Troubleshooting crop injury

Late Blight Alert

Dr. Amanda J. Gevens, Assistant Professor, Extension Plant Pathologist in Potatoes & Vegetables University of Wisconsin Department of Plant Pathology

Late blight has been confirmed on tomato in Waukesha County WI today, July 6. All susceptible tomato and potato crops should be treated with effective fungicides at this time on a 7 day schedule. Weather is forecasted to be dry for the next several days and will help to keep in disease control.

Cucurbit downy mildew has been detected in Ontario Canada. Suscetible cucurbits in southeastern WI should be protected with appropriate fungicides at this time.

More info to come in this week's Vegetable Crop Update newsletter.

Examining Risk Factors Associated with White Mold in Soybean

Paul Esker, Extension Field Crops Plant Pathologist

I just spent the past three days participating in various field days in the western part of the state. These travels really provided an excellent opportunity to examine stand quality across the different field crops, in particular the soybean crop. Soybean stands were pretty variable across these areas, ranging from some really good looking soybean to areas where the stands were struggling quite a bit. Given that many of these fields were last in soybean during 2009, when we had excellent conditions for white mold to develop, this was a topic that was on the minds of many of the producers and consultants.

With soybean moving into the early flowering period, now is a good time to think about several risk factors that can be integrated to determine if using a management tactic like foliar fungicides is warranted.

(1) What has been the previous history of white mold in my fields? In several of the meetings during this past week, multiple growers indicated that white mold was their main disease affecting soybean yield. During these discussions, it was also clear that they recognized that they either needed to, or had already changed several of their production practices to better manage this disease. Recognizing the risk to white mold is critical for constructing both a short- and long-term management plan for reducing the risk of this disease it is important to maintain good records for previous occurrences of white mold as well as field history information like the crop rotation, soybean variety, row spacing, plant population, and general weather conditions.

(2) How does planting date and relative maturity affect risk? Early planting, late-maturing, and varieties with a bushy architecture can all contribute to increased close canopies. This year, from our discussions with various growers, the planting date is much more variable than in 2010 so it remains to be seen how much that affects differences in flowering dates around the state. Many of the fields we visited were planted weeks later than last year.

(3) What variety have I planted and what level of partial resistance does this variety have for white mold? During the discussions, there were several questions about "what soybean variety" should I consider planting. Keep in mind that there are no varieties with complete resistance to white mold but there are partially resistant varieties available. What this means is that in years where white mold occurs, the severity of the disease will be less than in a susceptible variety. If you are not sure what the level of resistance is to white mold in the variety you are currently using, asking your local extension agent or seed dealer to help you find that information is important. Also, do not be shy to ask how that rating was determined.

(4) What was the plant population I planted? When I asked many of the growers what their current plant populations were, the common answer ranged from something like "140,000 to 160,000 plants per acre" to "one bag, one acre". Previous research has shown that when the plant population is greater than 175,000 plants per acre, the risk of white mold can increase. It is advisable to consider to taking stand assessments across your fields with a history of white mold to accurately determine the average plant population in those fields.

(5) What is the row width of my soybean? We saw a wide range of row widths in our travels from 7.5" to 30" as well as twin rows. Narrower row spacings can lead to faster and more complete canopy closure, which can increase the risk of white mold. Several growers commented how they had moved to wider row spacing to improve air flow through the canopy especially in fields where they had a history of white mold.

(6) What conditions favor the development of white mold? There are several environmental conditions that need to occur to increase the risk of white mold. Sclerotia (the overwintering structure of the pathogen) in the top two inches of soil can germinate to produce apothecia under high moisture and cool soil conditions (40 to 60 F). Apothecia can produce millions of spores called ascospores and these can infect the plant through senescing flowers. Infection is favored by a dense canopy during the flowering period and rain, fog, or dew which result in a shaded and moist microclimate within the canopy. Temperature is key driver in this process. Cool maximum daily temperatures (< 85F) are more favorable conditions for disease development.

After considering all of these factors, in-season management of white mold is focused on determining if there is a need for a foliar fungicide application. The use of a foliar fungicide should be part of an overall integrated program that is based on all of the risk factors previously discussed. Over the past two years, results from our white mold fungicide trials in Wisconsin have not shown a consistent result meaning that, while there has been some reductions in white mold in some of the trials, this has not always translated in increased yields. We have also not seen a consistent response by specific fungicide products meaning results differed between the years. Over the years, the best results across University studies have shown reductions as high as 60%, although several factors can influence this response. In particular, the best timing remains in the early reproductive developmental stages like R1 (initial flowering). Also, adequate plant coverage is needed to get the fungicide to the site of where infections occur (the flowers). Flat-fan spray nozzles that produce a fine to medium droplet size (200 to 400 microns) provide the best fungicide coverage. Canopy density also needs to be considered since this can affect the necessary volume of water needed to achieve optimal coverage, as a greater volume is needed when there is a heavy canopy density.

For further information about white mold management please check:

http://fyi.uwex.edu/fieldcroppathology/soybean_pests_diseases/white_mold/