

Wisconsin Crop Manager

Volume 18 Number 13 --- University of Wisconsin Crop Manager --- June 9, 2011

Weeds

Arlington Weed Garden Now Open.....49

Insects & Mites

True Armyworm Larva – Scout Corn and Wheat Fields49

Black Cutworm Feeding on Bt Corn Technology52

2011 Western Bean Cutworm Trap Network- Call for Wisconsin Cooperators52

Plant Disease

Early Application of Foliar Fungicides for Corn51

Fusarium Head Blight Risk – June 6, 2011.....52

UW-Extension/Madison Plant Disease Diagnostic Clinic (PDDC) Update.....54

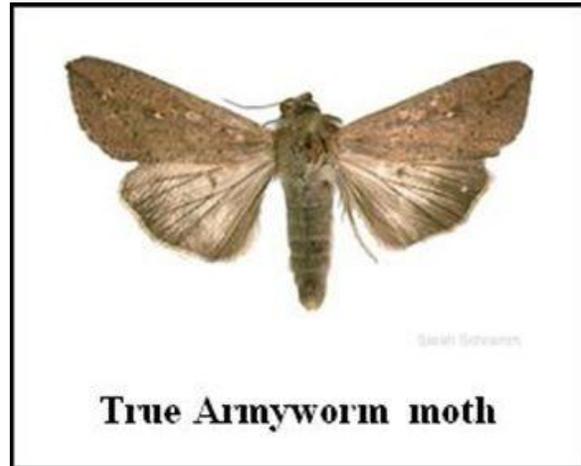
Fertility & Soil

New Video: Wisconsin’s Pre-sidedress Soil Test.....52

True Armyworm Larva – Scout Corn and Wheat Fields

Eileen Cullen, Extension Entomologist

The insect feeding activity report of note I received this week is that of true armyworm larvae on corn in LaCrosse County in Western Wisconsin. I have also recorded an increase in true armyworm moth numbers in the weekly black light trap that my lab runs at Arlington Agriculture Research Station in southern Wisconsin with 86 moths last week and 56 moths this week.



Now is the time to start paying attention to corn and winter wheat for true armyworm larvae. We tend to see high populations or outbreaks following a cool wet spring. Delayed grass weed control can provide an egg-laying source for moths. This first generation that we see in the field in June results primarily from migrating moths from southern states. During the later part of July we will see a second generation that can sometimes be an economic factor in corn.

Arlington Weed Garden Now Open

Mark Renz, Extension Weed Scientist

Thanks to the hard work of John Albright and my student hourlylies, the weed garden at Arlington is now open. The garden features over 100 common weed species found in agronomic fields in Wisconsin. While many of the summer annual weeds are still very small, this is an excellent time to practice weed identification while plants are small. If you live near the Arlington Research Station (N695 Hopkins Road Arlington WI 53911), or are travelling near this facility, please stop by. The weed garden is located on the south side of the public events parking lot. This garden will remain open through September, so weeds can be viewed at various stages of growth.



True armyworm larvae, LaCrosse WI. June 7, 2011
Photo: Krista Hamilton WDATCP Survey Entomologist

Steve Huntzicker, UW Extension LaCrosse County Agriculture Agent and Krista Hamilton WDATCP Survey Entomologist scouted several infested fields on June 7th in northwest LaCrosse County north of Holman towards Galesville. They estimate the number of plants showing leaf damage ranged from 18-40% in the four fields checked. Many larvae were ¼-inch to 1-inch long, two per plant in a few cases.

Additionally, Steve checked one farm in southwest Monroe County near the Cashton area and found a small percent of plants infested, less than 2% in four fields on the farm. Larvae were very small and he had to search for them.

Steve noted that the fields in which he has found True Armyworm larvae over the past couple of days have been corn fields following sod.

Here are reminders for corn and winter wheat regarding True Armyworm:

Grasses and small grains are the preferred egg-laying sites for female moths. For first generation, corn fields with crop residue, weeds or dead grass should be watched closely. Presence of grass weeds will attract moths for egg laying. Corn fields preceded by a winter rye crop may also attract female moths. As small grains are cut or grass weed hosts dry down, armyworm larvae can move quickly to corn, this can happen following a herbicide burn down in no-till or conventional tillage fields.

Adults seek areas of dense cover to lay eggs. For that reason, concentrating scouting efforts around weed escapes can be a good place to start.

The greenish white eggs are laid in rows or clusters on leaves. One week to 10 days after the eggs are laid, larvae begin to emerge and feed. After 3-4 weeks, larvae pupate for 2 weeks and emerge as adults. There are three generations per season, each generation lasting approximately 5-6 weeks. The success of the first generation will set the stage for 2nd generation later in July. (The third, fall generation is typically not injurious and is often heavily parasitized by beneficial insects, fungi and viruses).

True armyworm larvae are brownish green, hairless, and have white-bordered stripes running laterally along the body and dark bands at the top of each abdominal proleg. The head is yellow-brown with a network of dark brown lines creating a pattern. The adult moth is sand colored with a small white spot on the center of each forewing.

There are six larval instars, reaching approximately 1.5-inches when full grown. The closer larvae get to this length, the shorter the duration of time for them to feed before pupation. Insecticide treatment recommendations are based not only on the number of larvae but also on length (smaller larvae will continue to feed for a longer time).

Larvae tend to feed at night or on cloudy days and hide in soil or under foliage during the day. Leaf feeding begins from the outer leaf margins, inward toward the leaf midrib – giving corn leaves a ragged appearance.

Scout several areas in the field, checking 5 sets of 20 plants. Armyworm **economic thresholds for corn** are 2 or more armyworms at ¾-inch length or smaller per plant on 25% of the plants, OR, 1 armyworm ¾-inch length or smaller per plant on 75% of the plants.



True armyworm larval feeding in corn, LaCrosse WI. June 7, 2011
Photo: Krista Hamilton WDATCP Survey Entomologist

In wheat and pasture grasses examine the soil between two rows at several points in the field and determine the number of larvae per square foot. In small grains armyworm damage may be more severe in lodged areas. Populations at 3 larvae per square foot justify treatment. Later, as wheat reaches physiological maturity, head clipping will be of more concern than leaf feeding although true armyworm does not always switch to head clipping in wheat. (Something to watch for as the wheat crop matures).

Consult UW-Extension bulletin A3646 Pest Management in Wisconsin Field Crops for insecticide label information for armyworm in corn, small grains and pasture if economic thresholds are reached.

<http://learningstore.uwex.edu/Assets/pdfs/A3646.pdf>

Keep in mind; none of the Bt corn rootworm or corn borer insect trait corn hybrids list true armyworm on the spectrum of control or suppression and we do not have good data on this to date. Some anecdotal field observations from 2010 suggested some suppression from some Bt hybrids. Nevertheless, Bt fields should be scouted for armyworm activity along with other corn fields.

For additional information and images, please visit the True Armyworm page at my UW Madison Field and Forage Crop entomology web site:

<http://www.entomology.wisc.edu/cullenlab/insects/info/taw.html#Images>

Early Application of Foliar Fungicides for Corn

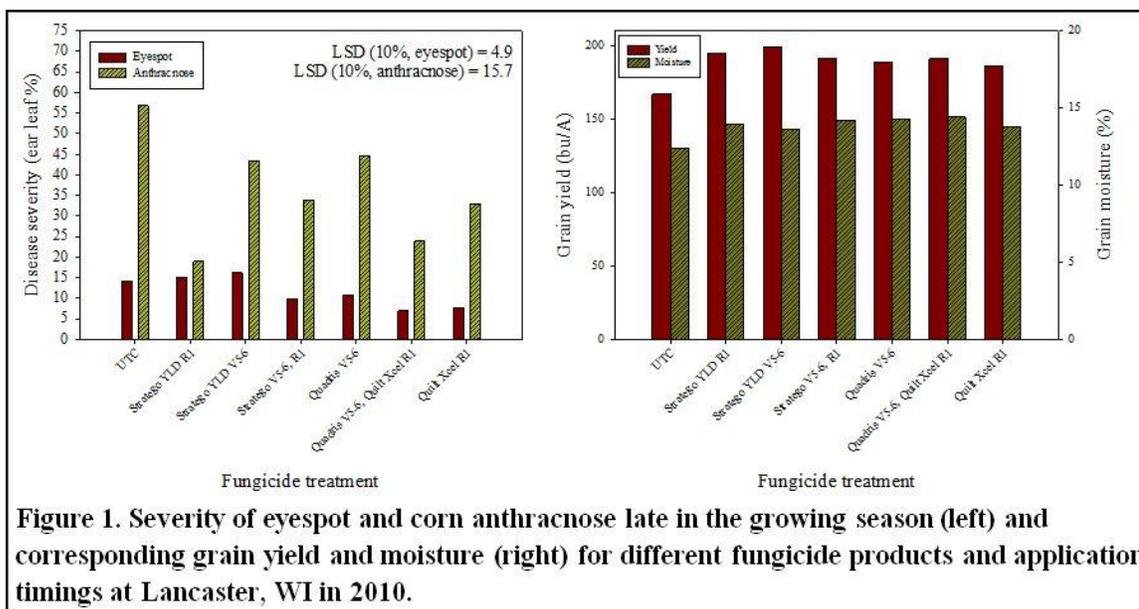
Paul Esker, Field Crops Extension Plant Pathologist

During the winter meeting season, we received a large number of questions about the application of foliar fungicides on corn at early growth stages like V5 to V6. As we start to see some hotter weather building across the state this week, further questions about early fungicide applications have been posed. These questions have focused on trial results as well as how different products are being marketed in Wisconsin and across the region.

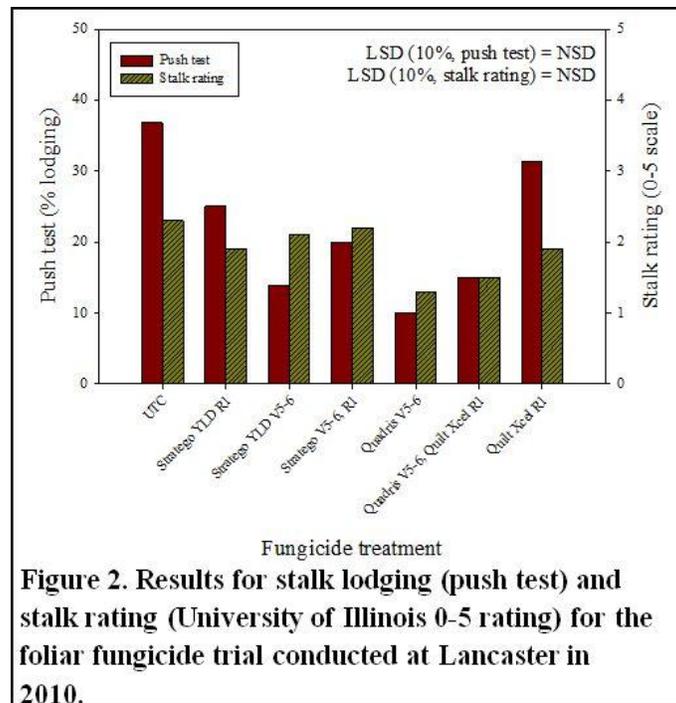
Similar to 2009, regional data from 2010 were compiled by Drs. Kiersten Wise and Greg Shaner at Purdue University to look at the response to early versus late foliar fungicide applications in corn. Dr. Carl Bradley, University of Illinois, recently summarized that information in a “[the Bulletin](#)” article through the University of Illinois-Extension. The key result was that there was a greater yield response observed with a fungicide application made at R1 compared to V6, although the largest response was observed with applications made at V6 followed by R1. It is difficult to say if two applications (V6 followed by R1) were economical given the fluctuations in corn prices.

In 2010, trials were conducted in Wisconsin at the Lancaster Agricultural Research Station and the Arlington Agricultural Research Station. These trials looked at the question of early fungicide applications differently. At Lancaster, the focus was on examining fungicide product and timing in a field with a known history of corn diseases, in particular, corn anthracnose. At Arlington, the emphasis was on examining different combinations of herbicides and fungicide (Quadris®) in a field that did not have a history of corn diseases.

At Lancaster, there was evidence that the severity for several foliar diseases, including, eyespot and corn anthracnose, were lower with the application of a foliar fungicide and that the best foliar disease control occurred with applications made at R1 (Figure 1). While there was a trend for increased grain yield with all fungicide treatments, at the 10% statistical level, there was no evidence of differences among the treatments. This was also observed for grain moisture (Figure 1).



One common question that has asked the past few years from our research on foliar fungicides for corn has been about improvements in stalk quality with the application of a foliar fungicide. At Lancaster, both a push test and stalk rating were used to examine this question. Stalk ratings were based on the University of Illinois 0-5 scale. Results indicated no evidence of differences among fungicide treatments ($P > 0.10$) in this trial (Figure 2).



In the Arlington trial, results indicated that there was no evidence of differences among the treatments for grain yield ($P > 0.10$). Values ranged from 159 to 169 bushels per acre and treatment combinations without Quadris® yielded 164.4 bushels per acre, while those with Quadris® yielded 163.4 bushels per acre.

To summarize, results have not elucidated specific factors that would drive a response with the early application of a foliar fungicide for corn. Hybrid selection, knowledge of previous history of corn diseases and increased corn residue are some of the factors that need to be considered when deciding if

a fungicide application is warranted. If you are considering applying a foliar fungicide in corn in 2011, remember to have a check strip or section in the same field in an area that is representative of where the fungicide will be applied. By building knowledge over time of how different factors interact on your farm, this can improve your working knowledge of conditions that may affect response to a foliar fungicide.

New video - Wisconsin's pre-sidedress nitrate test (PSNT)

Carrie Laboski, Extension Soil Scientist, Dept. of Soil Science, University of Wisconsin-Madison, Kevin Shelley, Outreach Specialist, Nutrient & Pest Management Program, University of Wisconsin- Madison

The corn has been planted and is starting to grow. Now is the time to consider using the pre-sidedress nitrate test (PSNT) to help you adjust your sidedress N fertilizer rate. To learn how and why to take PSNT samples, view the following video.

[*Click here*](#)

Fusarium Head Blight Risk - June 6, 2011

Paul Esker, Extension Field Crops Plant Pathologist

Currently, wheat in many areas of Wisconsin is starting to flowering or will be over the next few days. The current risk for Fusarium head blight is low based on the Fusarium Head Blight Prediction Center. Rainfall has been rather light the past 7 days, although some locations received rainfalls upwards of 0.30 inches or more this morning (6/6) in thunderstorms that are passing through the state. The next 2-3 days will be extremely hot with temperatures in the low to mid 90s. From the National Weather Service, it looks like the next chance for rain is Wednesday into Thursday, when air temperatures are also suppose to cool off. Based on these factors, the recommendation for using a foliar fungicide for suppression of FHB is not recommended. We will continue to monitor conditions as the week progresses and provide any updates as necessary.

Black Cutworm Feeding on Bt Corn Technology

Eileen Cullen, Extension Entomologist

Reports of black cutworm feeding (chewing holes in leaves) and cut plants are coming in this week. Late planted corn is still smaller than V4-V5 making it vulnerable to cutting as black cutworm larvae reach the cutting stage. Please see the May 5, 2011 WCM article [Black Cutworm Damage Potential for Corn](#) to review information on scouting, thresholds, treatment, and fields that are likely candidates for black cutworm.

As noted in that article, heavy spring moth flights and pheromone trap catches in WI and surrounding states indicated potential for black cutworm larval feeding in June. I provided a link in that article to recent research (reviewed by Mike Gray, Entomologist, Univ. of Illinois in The Bulletin) that sheds light on what we can expect of Bt corn (Cry 1F protein in the research) and one insecticidal seed treatment (clothianidin), [Black Cutworms, Bt Corn, and Insecticidal Seed Treatments: Recent Research Developments](#).

In Wisconsin, I've had one report this week from Bill Stangel, CCA, Soil Solutions Consulting, of black cutworm feeding holes, cut plants, and confirmed larval ID in SmartStax corn. These are large larvae 0.5 inch or larger and small corn plants, smaller than V4/V5. Clearly, black cutworm

populations this year are feeding through some Bt technologies that list black cutworm on the spectrum of control or suppression. Reports to date relate to the Cry 1F protein (Herculex and SmartStax products).

A good article on this observation was also posted this week by entomologists Christian Krupke and John Obermeyer, Purdue University in their Pest & Crop newsletter. They have several similar reports from growers and consultants that larger larvae, ≥ 0.5 inch, are not controlled by Bt proteins expressed in Herculex and SmartStax. Likewise seed-applied insecticides may not provide complete control under heavy infestations. You can read their report here: [Cutworms Chewing Through Technology](#).

With larger black cutworm larvae active, and corn is still in the vulnerable stage, don't overlook scouting of Bt corn fields. It is worth checking to see if a rescue treatment is required as evidenced by recent reports covered in this article.

2011 Western Bean Cutworm Trap Network - Call for Wisconsin Cooperators

Eileen Cullen, Extension Entomologist

Clarrisa Hammond, WDATCP Plant Pest & Disease Specialist, is coordinating the 2011 WBC pheromone trap network. Trap captures will be published in the [Wisconsin Pest Bulletin](#). UW Entomology and UW-Extension County Offices will be participating in the 2011 survey with WDATCP. Additional cooperators are invited to participate (farmers, crop consultants, agronomists, other interested individuals).

Objectives of the Wisconsin pheromone trap network are to determine the START, PEAK, and SIZE of the flight each season. There is one generation per year. Trapping is conducted from late-June through mid-August, or approximately 8 weeks.

This information is very useful to field corn and processing sweet corn cooperators in a local region to alert growers and consultants to the moth flight and the need to start scouting fields for eggs and larvae.

Additional sites also help WI to obtain a good distribution of WBC flight statewide. Northeast and North-Central counties are always under-surveyed, as WDATCP staff cannot cover all regions. More traps in these areas will be helpful, and all cooperators statewide are welcome. WBC moths have been captured as far north as Price and Marinette counties, so any county in the state is fair game for WBC moth flights and egg-laying in susceptible crops (field and sweet corn, dry beans). Soybeans are not a host plant for WBC.

Recent WBC degree-day accumulations predict 10% moth emergence should occur during the first week of July in southern Wisconsin. In order to capture the first moths emerged we are recommending traps be set out by June 22nd. (Pheromone traps in central and northern locations can be set out a bit later). By July 1, it is ideal to have all pheromone traps in place in the network statewide.

Cooperators in the 2011 Wisconsin Western Bean Cutworm Trapping Survey should contact **Clarissa Hammond**,

WDATEP Pest Survey Program at clarissa.hammond@wi.gov or [1-866-440-7523](tel:1-866-440-7523) by June 15.

Clarissa will register your pheromone trap site (Name, Company/Organization, County, Phone, Nearest Town, Zip Code, GPS Coordinates for site, Lat. Long) and will supply cooperators with TRECE brand Western Bean Cutworm pheromone lures for each trap site at no charge.

Cooperators should complete the top portion of the attached data sheet for each trap site and submit to Clarissa to register the site by June 15 if possible, or as soon thereafter as possible. The data sheet for recording weekly trap catch is attached to this article in PDF and Excel formats.

Western Bean Cutworm pheromone lures are also available for purchase from Gemplers and Great Lakes IPM. Gemplers sells the TRECE lure in a pack of 25 for \$61.75 (call 1-800-382-8473, ask for Tech Services). Great Lakes IPM sells the TRECE lure in a pack of 25 for \$44.00, or individually for \$2.00 each (call 1-989-268-5693).

Please contact Clarissa Hammond if interested, to allow time for lures to reach you prior to June 22 - July 1.

Establishing a pheromone trap is simple, and only one trap per site is required. After registering a trap site, cooperators simply call-in or email total WBC moth number from their trap once per week (detail below).



Western bean cutworm adult moth



Milk jug trap with propylene glycol antifreeze
(color may be green or pink, check label to make sure it is propylene glycol and not the more toxic form ethylene glycol).

To make a trap you will need:

- One-gallon plastic milk jug with lid
- Paper clip
- Western Bean Cutworm pheromone lure
- Antifreeze (propylene glycol)
- 4-foot high post
- Wire (for mounting milk jug to post)

Trap Construction and Survey Protocol:

1. Making the trap: Cut a 4 x 4 inch square window in two sides of a one-gallon plastic milk container. Leave at least two inches between the bottom of the window and the bottom of the jug. Antifreeze (propylene glycol, safer for people and animals) will be poured into this portion of the jug. Hang a rubber pheromone lure from the top of the jug using a paper clip, but **DO NOT PUNCTURE THE LURE**. Use duct tape to secure the plastic cap in place.

2. Installation: Locate a fence post or roadside stake near your designated trapping site and hang the milk jug trap approximately four feet off the ground using zip ties. Fill the bottom 1 1/2 to 2 inches with the antifreeze. **Please note:** For the 2011 growing season, degree-day accumulation (heat units) are approx. 2 weeks ahead of schedule. Therefore WBC traps should be in place by June 22 in southern WI and no later than July 1 in central and northern, northeast WI.

3. Monitoring: Check the trap once per week (or more often if you prefer). Count, record, and remove any western bean cutworm moths in the antifreeze. Pheromone lures should be replaced after three weeks and antifreeze added as needed. Trapping is conducted from mid-June through mid-August, or approximately 8 weeks.

4. Reporting: PLEASE REPORT COUNTS TO BY 12:00pm EACH Wednesday at clarissa.hammond@wi.gov or by calling [1-866-440-7523](tel:1-866-440-7523).

5. Weekly trap data will be posted on the following websites:

Wisconsin Pest Bulletin
at <http://pestbulletin.wi.gov> (Wisconsin Map)

PestWatch at <http://www.pestwatch.psu.edu> (National Map for Midwest and Eastern U.S. & Ontario, Canada)

Related articles and recommendations will be posted here at the Wisconsin Crop Manager newsletter.

Protocol and Site Registration Attachments:

[PDF of 2011 Survey Protocol and WBCW Datasheet 2011](#)

[WBCW Datasheet 2011.xls](#)

PDF Files are also attached at the end of this issue

UW-Extension/Madison Plant Disease Diagnostic Clinic (PDDC) Update

Brian Hudelson, Ann Joy, Amanda Zimmerman, Adam Greene, and Erin Schmid, Plant Disease Diagnostics Clinic

The PDDC receives samples of many plant samples from around the state. The following diseases/disorders have been identified at the PDDC from May 25, 2011 through June 7, 2011:

PLANT/ SAMPLE TYPE	DISEASE/ DISORDER	PATHOGEN	COUNTY
FORAGE CROPS			
Alfalfa	Aphanomyces Root Rot	<i>Aphanomyces euteiches</i>	Chippewa
	Crown Rot	<i>Fusarium</i> sp., <i>Pythium</i> sp.	Chippewa
FRUITS			
Apple	Sooty Mold	<i>Fumago vagans</i>	Oneida
Raspberry	Cane Blight	<i>Coniothyrium fuckelii</i>	Kewaunee
VEGETABLES			
Asparagus	Cold Injury	None	Green Lake

For additional information on plant diseases and their control, visit the PDDC website at pddc.wisc.edu.

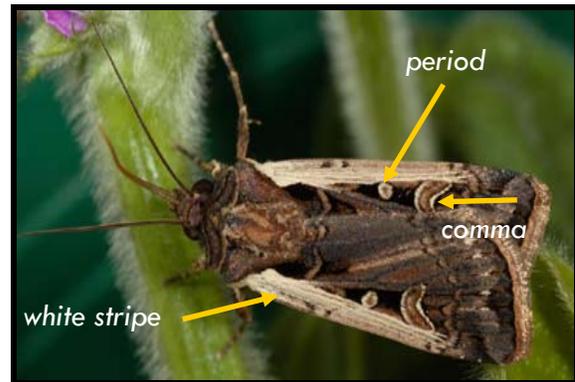


2011 WESTERN BEAN CUTWORM TRAPPING SURVEY

Wisconsin Department of Agriculture, Trade and Consumer Protection • Pest Survey Program • Madison, WI

SURVEY OBJECTIVES

The Wisconsin Pest Survey Program has monitored the annual flight of western bean cutworm moths in the state since 2005. Objectives of the trapping survey are to determine the START, PEAK and SIZE of the flight each season.



TIME FRAME

Trapping is conducted from mid-June through mid-August, or approximately 8 weeks.

TRAP CONSTRUCTION AND SURVEY PROTOCOL

1. **Making the trap:** Cut a 4 x 4 inch square window in two sides of a one-gallon plastic milk container. Leave at least 2 inches between the bottom of the window and the bottom of the jug. Non-toxic, RV Antifreeze will be poured into this portion of the jug. Hang a rubber pheromone lure from the top of the jug using a paper clip, but **DO NOT PUNCTURE THE LURE**. Use duct tape to secure the plastic cap in place.
2. **Installation:** Locate a fence post or roadside stake near your designated trapping site and hang the milk jug trap approximately 4 feet off the ground using zip ties. Fill the bottom 1 ½-2 inches with antifreeze.
3. **Monitoring:** Check the trap once per week (or more often if you prefer). Count, record and remove any western bean cutworm moths in the antifreeze. Pheromone lures should be replaced after three weeks and antifreeze added as needed.
4. **Reporting:** **PLEASE REPORT COUNTS TO CLARISSA BY 3:00 EACH WEDNESDAY at clarissa.hammond@wisconsin.gov or by calling 1-866-440-7523 or 608-224-4544.** Weekly trap data will be posted on the following websites:
 - Iowa State WBCW Trapping Network at <http://www.ent.iastate.edu/trap/westernbeancutworm>
 - Wisconsin Pest Bulletin at <https://onlineservices.datcp.wi.gov/pb/>



Western bean cutworm larva



Milk jug trap with non-toxic RV antifreeze

2011 WISCONSIN WESTERN BEAN CUTWORM SURVEY FIELD DATA SHEET

NAME _____ COMPANY _____

COUNTY _____ NEAREST TOWN _____ ZIP CODE _____

GPS COORDS LAT _____ LON _____

GPS Example (42.981574N -89.61753W)

		# of Moths		# of Moths
15-Jun	SET TRAP	_____	21-Jul	_____
16-Jun		_____	22-Jul	_____
17-Jun		_____	23-Jul	_____
18-Jun		_____	24-Jul	_____
19-Jun		_____	25-Jul	_____
20-Jun		_____	26-Jul	_____
21-Jun		_____	27-Jul	_____
22-Jun		_____		
	REPORT WEEKLY TOTAL	_____		REPORT WEEKLY TOTAL
23-Jun		_____	28-Jul	_____
24-Jun		_____	29-Jul	_____
25-Jun		_____	30-Jul	_____
26-Jun		_____	31-Jul	_____
27-Jun		_____	1-Aug	_____
28-Jun		_____	2-Aug	_____
29-Jun		_____	3-Aug	_____
	REPORT WEEKLY TOTAL	_____		REPORT WEEKLY TOTAL
30-Jun		_____	4-Aug	_____
1-Jul		_____	5-Aug	_____
2-Jul		_____	6-Aug	_____
3-Jul		_____	7-Aug	_____
4-Jul		_____	8-Aug	_____
5-Jul		_____	9-Aug	_____
6-Jul		_____	10-Aug	_____
	REPORT WEEKLY TOTAL	_____		REPORT WEEKLY TOTAL
7-Jul		_____	11-Aug	_____
8-Jul		_____	12-Aug	_____
9-Jul		_____	13-Aug	_____
10-Jul		_____	14-Aug	_____
11-Jul		_____	15-Aug	_____
12-Jul		_____	16-Aug	_____
13-Jul		_____	17-Aug	_____
	REPORT WEEKLY TOTAL	_____		REPORT WEEKLY TOTAL
14-Jul		_____		
15-Jul		_____		
16-Jul		_____		
17-Jul		_____		
18-Jul		_____		
19-Jul		_____		
20-Jul		_____		
	REPORT WEEKLY TOTAL	_____		

**REPORT COUNTS EACH WEDNESDAY BY 3:00 PM
TO CLARISSA HAMMOND:
clarissa.hammond@wisconsin.gov
1-866-440-7523 or 608-224-4544**

DATCP TRAP NUMBER _____
CUMULATIVE TOTAL _____
NUMBER MOTHS 2011 _____

NOTE: REPLACE LURE EVERY 3 WEEKS