If you would like to be added to this mailing list, send a request to Molly Werner at werne022@umn.edu. This newsletter and the advice herein are free. You usually get what you pay for.

**Crop weather**
Rainfall, air and soil temperatures, degree-days, soil moistures, and other current and historical weather data for a little spot about two miles west of Lamberton, MN can be found at the University of Minnesota Southwest Research and Outreach Center (SWROC) website: http://swroc.cfans.umn.edu/WeatherInformation/index.htm.

Growing degree day accumulation are 494 since May 1. Early planted soybeans are at three open trifoliates. Corn is 5 leaf and less, most 3-4. Early planted Common lambsquarters are 6 - 8 inches tall.

**Small grains**

**Fusarium head blight (Scab) forecast**
Winter wheat has headed and spring wheat flowering is not far off.

For those of you that have a wheat crop - herbicide applications should be done. If you are wondering about scab risk on susceptible to resistant varieties, a disease forecast model is available at: http://mawg.cropdisease.com/.

**True armyworm:**
I have not heard of any treatable 2014 Minnesota infestations. The light traps in Lamberton and in Morris have captured numerous but not alarming numbers of adults this spring. At the West Central Research and Outreach Center in Morris, George Nelson ran a pheromone trap for black cutworm and has been helping us compare light
Significant levels of disease and parasitism are present in the armyworm population at the SWROC and will help keep populations in check.

The following is adapted from a 7/19/2014 article:

Armyworms caused problems in 2013 in corn infested with grassy weeds and some small grains in WC Minnesota.

The mere mention of armyworms can cause angst in those who have experienced outbreaks and the news of armyworms in the area causes can trigger unnecessary insecticide applications. Fortunately, other than taking some time, scouting for armyworms is fairly straightforward and they are easily controlled with insecticides.

There is a small problem with using trap captures to predict armyworm (Mythimna unipuncta, formerly known as Pseudaletia unipuncta, Haworth) outbreaks in Minnesota. The moths captured can predict when a problem is likely and when it will occur but not where it will occur. Immigrant moths are particularly likely to re-migrate.

Armyworm larvae target specific environments in which to lay eggs. Areas of dense grasses are favored egg laying sites. Field edges near lodged grassy areas, lodged small grains and corn that had earlier areas of heavy grass weed problems should be checked.

Armyworms are native to eastern North America but they cannot overwinter in MN. Each spring, they migrate north like their black cutworm cousins. They seem to be more abundant in cool, wet years. Heat and dry weather are hard on armyworm eggs and small larvae.

Armyworm larvae are often heavily parasitized by flies and wasps and they can be infected by fungal and virus diseases. Eggs of fly parasites can sometimes be seen behind the heads of larvae and cocoons parasites cover some infested larvae. These are not the tent caterpillars (called armyworms by some) that feed on broadleaf trees and shrubs.
The true armyworm prefers grasses. In previous infestations, I have seen armyworms clean out the weedy grasses in a sunflower or bean field and ignore the broadleaf crop. However, they have occasionally been reported as a pest on some broadleaves. This may be a result of larvae migrating when depleting their food. Hungry larvae will move a fair distance to find a new food source. The “armies” can easily cross a road and feed well into a field on the other side in a single night. Armyworms have multiple but distinct generations in Minnesota. The larvae can range from tan and olive to nearly black in color. The pattern of a dark band flanked by white bordered pink to orange bands on along the side is a distinguishing character as is the net-like pattern on the head. There are six larval instars (stages) and most of the vegetation is consumed during the last week of larval life. Larvae are approximately 1 ½ inches long when mature. When these larvae move underground to pupate, the year’s risk is over.

Scouting and management

Chewing damage on crop leaves and the presence of frass (insect fecal pellets) on plants and the ground indicate that an insect was present. The presence of live armyworm larvae should be confirmed before an insecticide is applied. Armyworm larvae are most active at night and cloudy days. During the heat and bright sunlight, larvae often hide under leaf litter on the ground. Scouting and insecticide applications are often more effective near dawn and dusk and on cloudy days. When disturbed, armyworms drop to the ground and curl into a C-shape to “play possum”.

Early instar true armyworm. Note net-like reticulations on head and the pattern of bands on the body. This moth larva has five pairs of prolegs. Color can vary from tan-olive to nearly black.
Preliminary scouting for armyworms in small grains and field edges can be done with a sweep net.

**Wheat, barley, oats:** Pay close attention to areas that are lodged, have grassy weeds or near lodged grass borders when trying to detect larval populations. When an economic armyworm infestation is suspected in a small grain field, populations per square foot should be estimated. Shake the plants and look for larvae on the ground in a square foot area. In small grains the treatment threshold is 4-5 larvae/square foot. Check under debris and soil clumps. Do this in at least 5 locations within the field.

The larvae occasionally clip heads and when significant can require treating at lower populations. Head clipping is a behavioral change and usually occurs after leaves have been defoliated or senesce.

In spite of the preference for broadleaves, anyone, including an armyworm, can make a mistake. I’d be a little nervous with an alfalfa under seed being undamaged. A barley (or wheat) cover crop may have more armyworm pressure than oats but all are hosts.

**Corn:** Grassy weeds are attractive to egg-laying moths. When scouting, pay close attention to field borders and within-field or areas with current or past high grass weed pressure.

Examine plants for feeding damage and larvae. Larvae can often be found in the whorl and the nighttime feeding often occurs in the whorl.

Treat whorl stage corn when 25% of plants have 2 larvae/plant or 75% of plants have one larva or more. On tassel stage corn minimize defoliation at or above the ear leaf.

Lepidoptera Bt traits are tested and labeled with fall armyworm, a different species more commonly a pest to our south. While there may be some benefits from the traits that are effective on other members of the family Noctuidae (black cutworm, corn earworm, fall armyworm, common stalk borer) true armyworm is not on these labels. We are typically dealing with larger, less susceptible
larvae moving from weeds and field borders into corn. Secondly, insects must eat the Bt to be affected. Even if the protein were effective, damage could occur with very high armyworm populations on the move.

**Insecticides:**
Do not base treatment decisions solely on field edge populations. Treatment of populations that are near or starting to pupate or are heavily parasitized is not recommended.

Partial field or border insecticide treatments for armyworm are often sufficient when infestations are well identified by scouting and armyworm populations are found early are the armyworms are migrating. Treat several boom widths ahead of the infestation. Long insecticide residuals are not needed because of the short time a larval generation is damaging. Many products are labeled and effective. Refer to the insecticide label for rates. It is important to check the pre-harvest interval of any small grain pesticide. Take precautions to protect pollinators, particularly as corn nears tassel stage.

**True armyworm lookalikes in MN spring corn and cereal crops:**
Be aware that there can be an armyworm imposter lurking on field edges. Grass sawfly larvae range from tan to green. They are in the order Hymenoptera (bees and wasps) rather than Lepidoptera (butterflies and moths).

A giveaway are the fleshy prolegs which number more than five. In the Lepidoptera, the prolegs number 5 or less. Lepidoptera caterpillar prolegs have minute hooks (crochets) and while those of sawflies do not.

Sawflies can clip small grain heads but I cannot remember a Minnesota infestation heavy enough to require treating.

**Cutworms.** Several species of cutworms may be found in corn and small grain crops. These will have five proleg pairs like armyworm.
Black cutworm
Scattered reports of treatable infestations in corn and sugarbeets have been received. The map represents the area of highest risk based on pheromone trap captures and counties where I have a reputable report of least one treatable field. There have been larvae observations at low levels from additional counties but this occurs most springs. I am somewhat of a recluse so this map is probably incomplete. I apologize for the rather crude appearance of this map but hey, I could not find my box of crayons in the clutter on my desk.

Things should start winding down. Five-six collar corn is usually safe from black cutworm injury unless large larvae attack growing points at the soil surface. Larvae from the early May flight should be mid-late 5th instar. Feeding from these flights should be slowing over the next week as the larvae approach the pupal stage.

Soybeans
Pre emerge herbicides have been working well where moisture is adequate. Some injury from pres where heavy rainfall occurred after planting are starting to show up.

Root death has occurred in some areas where soils are saturated caused anaerobic conditions. Above ground symptoms are a general yellowing. Root disease will show up in these areas and may inhibit root regeneration.

This could be an unusually bad year for iron deficiency chlorosis (IDC). Symptoms will start to show around the 2nd trifoliate.

There is not a large difference in soybean emergence between fields in many areas of SW Minnesota. Spring colonization by soybean aphids moving from buckthorn may be more spread out between more fields than last year. This might make finding those first aphids a bit harder.

We have another healthy crop of volunteer soybeans this spring. Control them with your corn herbicide program.

Corn
Some injury from late applied formosafen (e.g. Flexstar and similar) in 2013 soybeans has started to show up. Drier areas of the field and sprayer laps are usually where symptoms are worse. Last summer's dry weather in much of SW MN didn't help.

This spring, fallow syndrome symptoms are obvious anywhere a lack of plant growth in 2013 occurred. Fallow syndrome symptoms can also occur following plants that are not a host for symbiotic mycorrhizal fungi (e.g. members of the beet and cabbage/mustard plant families). In other words, don't count on a vigorous stand of lambsquarters or mustards to prevent fallow syndrome the following year.

Some wet spots have been re-planted more than once and stunting and nutrient deficiency symptoms are showing up where moisture has caused poor root function.

Slugs could be an issue on some minimum till fields if cool, wet weather continues. Do not confuse slug damage with cutworm, armyworm and etc. The darn mollusks are currently tearing up the hostas in my yard.

Grasshoppers
Watch any areas where 2013 fall grasshopper populations were high. The dry summer in parts of southern Minnesota saw grasshopper populations start to build. This year's nymph hatch has started, triggered in part by recent warm rains.

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