Southwest MN IPM STUFF
All the pestilence that’s fit to print

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If you would like to be added to this mailing list, send a request to Molly Werner at werner022@umn.edu. This newsletter and the advice herein are free. You usually get what you pay for.

Crop Weather
Rainfall, temperatures, degree-days and other current and historical weather data for a spot 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.

The SWROC accumulated 187 degree days (Base 50/86° F) since May. We have had a drought ending 8.41 inches of precipitation since January 1. April 28th planted corn on the SWROC is at V1. Soybeans planted the same day are at VE-VC. Most area corn is in with a good start on beans, a few producers finished with beans. Windshield surveys indicate good stands. However, the reader should be advised that windshield surveys are worthless in evaluating emergence and early season pest problems.

As stressful as the spring has been in SW Minnesota, other parts of Minnesota have had it worse. I can only say that the 2013 growing season is far from over and wish all Minnesota agriculture the best.

Other climate data can be found by a web search of other University of Minnesota Research and Outreach Center sites. Some very good climate summaries and links can be found at the University of Minnesota climate site at http://climate.umn.edu/. For example, the frost/freeze tables under Agricultural climate studies may be helpful in deciding maturities to plant.
If you want to know who got rain and when you can check NOAA at: http://water.weather.gov/precip/.

For those of you with smart phones that don't yet have them loaded, there are some excellent apps for weather. The storm and lightning alerts might come in handy for those of you walking around with a metal soil probe the next weeks.

**Herbicide reminder**

Pre-plant incorporated and pre-emerge herbicides may have been skipped during the rush to get corn and soybeans planted followed by an extended rain delay. Hopefully, those fields with dire need of a PRE herbicide, an herbicide resistant weed problem for example, had the extra effort applied.

**Read the herbicide labels!** You’ll spoil the fun if you kill the crop with the wrong herbicide before the insects and pathogens have a chance!

CDMS is just one of several sources to look up pesticide labels http://www.cdms.net/LabelsMsds/LMDefault.aspx.


While many pre-emerge corn herbicides can be applied post, some cannot without causing crop injury. Of particular interest are some herbicides containing the site of action (SOA) # 14 or PPO inhibitors. These include Fierce, Sharpen and Verdict.
There are pre-emerge options (e.g. Warrant, Dual II Magnum) that can be applied post but in soybeans avoid most post-emerge herbicides with SOA #14 more than 3 days after planting. Formosafen is an exception. It is a SOA 14 herbicide but can be used post-emerge and a product like Prefix (formosafen + S metolachlor) would still be option.


Make sure that the herbicide chosen and the application timing matches the species and size of weeds in your field.

Finally, as plans change, remember some herbicides (e.g. Accent, Callisto) can interact with organophosphate corn rootworm (e.g. Counter, Lorsban) and cause corn injury.

*Please note: This is not a complete list of herbicide options and not intended to endorse any product. It is also not a substitute for reading the herbicide label.*

**Cutworms, wireworms and maggots...Oh my!**
Watch for damage by dingy cutworm and seedcorn maggot in corn planted in to alfalfa stands. Wireworms may be an issue, particularly where alfalfa stands were grassy. At-plant corn rootworm insecticides and neonicitinoid seed applied insecticides (e.g. Cruiser, Gaucho, Poncho) at low to medium rates usually provide control of seedcorn maggot and wireworm.

**Alfalfa insects**
Nothing new to report here... Sweeps of alfalfa on May 20 revealed very low insect populations. No potato leafhopper or alfalfa weevil yet. A quick look at weather shows more potential for leafhopper migration to the east. Unfortunately, because of their broad host range, the immigrants will find something to eat while waiting for new seeding alfalfa to emerge.

**Black cutworm**
Trap captures over the past week (May 10-17) were once again low and sporadic.

[http://swroc.cfans.umn.edu/prod/groups/cfans/@pub/@cfans/@swroc/documents/asset/cfans_asset_443575.pdf](http://swroc.cfans.umn.edu/prod/groups/cfans/@pub/@cfans/@swroc/documents/asset/cfans_asset_443575.pdf) has tips on scouting and thresholds.

Other black cutworm information on biology and identification, cutting projections can be found at: [http://swroc.cfans.umn.edu/ResearchandOutreach/PestManagement/CutwormNetwork/index.htm](http://swroc.cfans.umn.edu/ResearchandOutreach/PestManagement/CutwormNetwork/index.htm).
I am working on getting the links more typist friendly. I am... really.

**Scouting early season insects in corn**

**Some of this applies to soybeans also**

...from a 2010 issue

Corn scouting should begin in earnest as soon as fields can be rowed. Initial efforts should focus on evaluating stand. Determining the cause in areas with poor emergence might require some detective work because poor stand has many potential causes. My suggestion is to start with the obvious.

Before blaming insects, disease, herbicide or your seed dealer, eliminate abiotic factors such as seed depth, compaction, seed in dry soil or drowning. Remember that dead seedlings, regardless of the cause, will rot under high moisture conditions and they are attractive to wireworm. Cold, slow growing conditions do, however, favor seedling-attacking insects and disease.

Was seed planted? Rule out mechanical problems. Any mechanical device is predestined for failure. Look for corn seed. How about planting depth? Shallow planted corn might emerge later and less evenly than corn planted a bit deeper. Shallow planted corn (< 1 ½ inches) is exposed to greater temperature fluctuations and less consistent moisture. Shallow seeded corn is also at risk for poor root development and root feeding insect damage when it does emerge.

Did the seed germinate? Lack of moisture or cold conditions are the primary cause of poor germination. Has the seed rotted? Fungicide seed treatments do a good job of protecting seed and seedlings from some fungal pathogens but can be overwhelmed under prolonged very wet, cold conditions.

In the case of corn plants that had emerged and are struggling, check the below ground tissue. If the growing point is firm, the plant is likely to survive. Splitting the stems to look at tissue color will point out future problems. Brown, gray and water soaked tissue; particularly crowns, indicate a short life expectancy for the plant. White fungal growth may be a secondary saprophyte rather than the cause or your crops demise.

Is there evidence of insect feeding? Seed corn maggot and wireworms are the two insects most often associated with corn emergence failures in southwest Minnesota. Seed corn beetles can also occasionally reduce stand. Slow emerging corn is at greater risk from these below ground pests.

Unfortunately, there is no effective treatment, other than replanting, for these insects after corn is planted. The insecticide treated seed provided with most Bt-hybrids (and others) should minimize problems from seed corn maggot and wireworm but occasionally still allow attack from heavy maggot or wireworm infestations.
Is replanting necessary? How bad is too bad?
Sometimes, things work out poorly. Decisions on replanting are seldom enjoyable when a significant stand loss occurs. These decisions are part science and part art. Common sense is at a premium. Yield potential from reduced stands must be weighed against potential yield reductions from later planting dates. Are missing plants still coming? Check for decay and below ground insect damage.

Injured and greatly delayed plants should be viewed with skepticism. Scattered, late-emerging plants will be out-competed by more vigorous neighbors and contribute little to yield. They may have a better chance in areas where most of the plants are in similar straits.

If replanting, growers should consider the length of the growing season that remains and select hybrids of appropriate maturity.

When replanting very thin to non-existent stands, seeding directly into the existing seedbed is a better option than working up mud. Existing plants should be removed by appropriate herbicide or tillage when replanting low but variable stands. Tillage may also be needed with fields hardened by heavy rain or previous tillage problems.

Evaluate fields carefully. While entire fields may require replanting, you may only need to spend the time, money and effort to replant a portion of the field, if any. Partial field replants are why 4-row planters and row units have been selling so well the last couple years.

Additional information on planting date and populations can be found at:

http://blog.lib.umn.edu/efans/cropnews/2013/05/hybrid-maturity-considerations.html has information on switching hybrid maturities.

Additional late planting info is located at:
http://www1.extension.umn.edu/agriculture/crops/late-planting/.

I try to avoid duplicate postings. You can subscribe to Minnesota crop news at:
http://blog.lib.umn.edu/efans/cropnews/. Subscription options are at the top left.

Early season stand reducing insects
In addition to black cutworm and several other cutworm species there are two other insects that are commonly implicated in reduced corn stands.
The Seed corn maggot is the larva of a fly. The adult resembles a small housefly. Damage from this insect is often worse when corn or soybean emergence is delayed. Egg-laying adults are attracted to decaying organic matter. Fields at highest risk are those with heavy applications of solid manure and where a green manure (including alfalfa or heavy weed infestations) has been worked in. Egg-laying activity can be predicted by degree-days using a 39°F base. Peak flight would have been last week in much of southern Minnesota. Seedcorn maggot larvae are small white maggots and have weak mouthparts only able to attack seed after softened by water uptake. The larvae attack the seed of both corn and soybeans. In corn, the endosperm is usually attacked and the hypocotyl and cotyledons are attacked in soybean. Some tunneling in below ground tissues may occur.

Seedcorn maggots have very quick life cycles. Often only the dark oval pupae, empty pupal cases or feeding damage are found by the time stand loss is detected. Labeled insecticide seed treatments and corn rootworm insecticides provide control.

Several species of wireworm occur in Minnesota. *Melanotus similis*, the corn wireworm, appears to be the predominate species in SW MN corn. Wireworms are the larval stage of click beetles. They are “wormlike” with an elongate body, distinct heads, visible legs and a hard textured body. Most species are dark orange, although a cream colored species also causes problems in SW MN. Unless you’ve score a direct hit with the trowel, they are very active when disturbed. Wireworm can often be observed when digging in fields in early spring. Finding them does not mean stand loss is inevitable. Historically wireworm problems have been associated with fields planted after sod but we have seen considerable injury to fields in a corn-soybean rotation. Wireworm problems are most frequently encountered in low-lying areas and especially on alkali rims in this part of the world.

Several wireworm species can have multi-year life cycles depending on food supply and climate. The germ of the seed, mesocotyl or growing point of larger corn may be attacked. Above ground symptoms are wilted plants or stunting. Stunted plants are often purple as with phosphorus deficiency or dark in color. Wireworms and their feeding injury occur below ground. Damage is often worse in cooler springs for two reasons. Corn development is slowed and corn plants are more vulnerable when small. Wireworms prefer cooler temperatures and will move down in the soil profile as surface temperatures warm. It appears that larger wireworms may hang out for a last “bite” even in warm soils. Wireworm problems have been less frequently reported in recent
years. I do not know if this is due to increased use of neo-nicinoid insecticides (Cruiser, Gaucho, Poncho) on corn seed, unfavorable environmental conditions or both.

A labeled soil insecticide or insecticide treated corn are recommended in replant situations.

I don’t believe I have ever seen a case where wireworms were a primary cause of stand loss in soybean. However, they sometimes congregate around decayed or seed corn maggot infested seedlings.

University of Minnesota Resources

University of Minnesota SW Research and Outreach Center
http://swroc.cfans.umn.edu/ResearchandOutreach/index.htm

University of Minnesota Climate http://climate.umn.edu/

Connect with Crops Extension

University of Minnesota Extension http://www.extension.umn.edu/
http://www1.extension.umn.edu/agriculture/

University of Minnesota Applied Weed Research http://appliedweeds.cfans.umn.edu/

Extension Newsletters

- Minnesota Crop News http://blog.lib.umn.edu/efans/cropnews/
- Cropping issues in NW Minnesota http://www.nwroc.umn.edu/index.htm
- Southwest Minnesota Extension Crops Update: email harbe002@umn.edu to be added
- Southeast Minnesota Crops Connection: email mstearns@umn.edu to be added
- South Central Extension Crops: send an email to SOUTH-CENTRAL-EXTENSION-CROPS@lists.umn.edu with SUBSCRIBE in the subject line

Happy trails,

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