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

As of August 19th, we were at 1771 degree-days (Base 50/86 °F). The long-term average is 1930 DDs for this date and 2013 is about 4 -5 days behind average. We picked up 102 degree-days and 0.49 inches of rain the week of August 13 –19. Most soybeans are 2 or more weeks behind the development we would normally see this time of year. Particularly in moisture stressed areas, this week’s forecast heat will push soybean maturity. Early planted mid group I soybeans at the SWROC are now pushing the R6 stage. We have some early planted 0.9 soybeans that are turning (R 6.5).

The pod on the left is still in late R5. Seed will fill the cavity on a pod from one of the upper four nodes (right) to reach the R6 stage.
The most advanced corn at the SWROC is in the milk stage (R3). Calendar, not heat is driving corn development in these reproductive stages.

Rainfall is needed. Corn and soybeans on some lighter soils have suffered significant yield loss. In areas with more rainfall there is a good crop but it will be late.

**Black blister beetle in alfalfa**

It would be worthwhile to scout for blister beetles in alfalfa that will be cut in the next few weeks.

Black blister beetle adults are unusually abundant in some of the organic production alfalfa at the University of Minnesota, Southwest Research and Outreach Center, Lamberton, MN.

Black blister beetles are one of several species of the blister beetles sometimes seen in Minnesota alfalfa. Ash gray, margined and striped blister beetles are perhaps less commonly observed but all species contain an oily, blistering compound called cantharidin at varying levels.

The larvae of blister beetles feed below grown on the eggs of grasshoppers (some species feed on eggs of ground nesting bees). The high blister beetle population in the Lamberton field is probably related to increased area grasshopper numbers over the past year.

Most years, blister beetles are below ground as larvae or pupae during first cutting alfalfa and the adults may no longer be present in late September.

Blister beetles are not alfalfa pests directly. However, when ingested, cantharidin is toxic to horses, and to a much lesser extent cattle and sheep. Additionally, some people are very sensitive to this compound. The cantharidin irritant remains in the bodies of dead beetles. Avoid feeding hay containing containing blister beetles to horses.
Blooming alfalfa is attractive to the beetles and can concentrate them in portions of the field and as a result, individual bales. Black blister beetles may contain less of this compound than other species but large numbers incorporated into bales can still cause problems.

When blister beetles are present a labeled, short pre-harvest interval insecticide can be used before cutting. Do not crimp hay intended for horses -this will allow live beetles to leave the windrow.

**Corn rootworms**
Most reports indicate that *western corn rootworm* damage to Bt-RW trailed corn is somewhat lower than 2013. This could be due to a combination of lower rootworm populations, a later hatch of rootworm eggs and good early season root development. In fields I have been tracking the male/female ratio is about 50/50.

However, *northern corn rootworm populations* appear to be higher on Non Bt –RW hybrids. Bt-RW refuge hybrid fields should be scouted for rootworm beetles.

**Corn aphids**
Don’t panic. While they can be messy, aphids in corn are not likely to reduce corn yields after pollination.

This year, English grain aphids seem to be the most common with some Bird-cherry oat aphids on lower leaves.

Field observations seem to indicate that aphids tend to increase as corn proceeds through milk and early dough, particularly under moisture stress.

Watch fields that have high aphid populations for stalk quality issues near harvest.

The black colored English grain aphid in the upper left of the above photo is parasitized by a wasp. Look for wing pads on some of the nymphs.
**Soybean aphids**

The following summary of late season aphids was provided by Bob Koch, University of Minnesota Extension soybean entomologist:

Maintain soybean aphid scouting through R6.5 (pods and leaves beginning to yellow), regardless of calendar date. Through R5 (seeds developing and filling pod cavity), use the university created and validated threshold of 250 aphids per plant with 80% of plants infested and populations increasing. Yield loss is possible into early R6 (pod cavity filled by seeds), but a valid economic threshold has not been developed. However, this value is likely much higher in R6 than in earlier growth stages. Complicating matters is the fact that the duration of soybean aphid populations and their impacts on yield are less predictable in R6. Regular scouting and use of the 250-aphid-per-plant threshold through R5 should prevent development of large aphid populations on R6 soybeans, when management decisions are more difficult to make. Large aphid populations (thousands per plant) in early R6 may require treatment, particularly if plants are experiencing other stresses (for example, drought or nutrient deficiency). For more information, see: [http://swroc.cfans.umn.edu/prod/groups/cfans/@pub/@cfans/@swroc/documents/asset/cfans_asset_452781.pdf](http://swroc.cfans.umn.edu/prod/groups/cfans/@pub/@cfans/@swroc/documents/asset/cfans_asset_452781.pdf)

Aphid populations are still increasing at a rapid rate in some areas of Minnesota and economic infestations are increasingly being observed to the east.

The arrival of winged (alate) aphids added to already rapid population increases and doubling times of 2 days or less were being observed. Aphids, particularly small nymphs, lower in the canopy that were missed by earlier scouting are bolstering the perception of “populations exploding”.

There are large acreages of late-planted soybeans this year. These developmentally delayed soybeans, combined with cool, dry weather, created an unusual soybean aphid situation this August.

As soybeans near R6, soybean aphid yield loss dynamics become increasingly unpredictable. I cannot predict when aphids will begin to leave soybeans for buckthorn or if they will succumb to a fungal disease epidemic. Wish I could.

*You do not have to treat aphids that reach the 250 aphid/plant threshold in R5. However, it might be prudent to keep an eye on these fields if you do not treat.*

At the SWROC we have consistently seen alate aphids leaving soybeans as the terminal flower cluster opens. Not all aphids leave these plants and some new aphids arrive. *Don’t walk away from fields, even where winged aphids are common.*

If you are late in recognizing a problem field, very high aphid populations in late R5 or early R6 should still be removed. With aphid stress is removed, soybeans may still be able compensate with larger seed during mid and late R6. It’s no for certain but worth a shot.
Tanaphid mummies, a sign of soybean aphid parasitoids, are increasingly common. Predator and parasite populations, however, are very low in some fields. As they colonized new, previously un-infested fields, alate aphids found few predators. They did quite well as a result. In those areas where a large percentage of soybean acres were sprayed, beneficial insects may persist on aphids in corn and other plants unless...

Aphid populations are now declining in some fields in the SWROC area. Many nearby fields have been treated and emigrating aphids are not being replaced. Additionally, those wandering, winged aphids landing in insecticide treated fields have had their journey cut short.

Remember, each field is unique and all fields do not have similar aphid populations. Aphids in many fields are below threshold. Unless I had a warehouse full of insecticide, I don’t think I would complain about low aphid populations.

Twospotted spider mites
Watch for spider mites in corn and soybeans; particularly in drier areas and where insecticides and fungicides have previously been applied. Reports of problem fields are currently very scattered. Some field edges in the area and elsewhere in Minnesota are showing mite symptoms. Currently, I am not finding many mites in SWROC corn or soybeans in spite of some significant long-term moisture stress. This may change over the next week or so.

Mite infestations and damage typically starts on field borders where adult females overwinter on perennial vegetation. Mite damage can be distinguished from drought by stipples and the presence of mites and webbing on lower leaf surfaces. The symptoms of mite damage can be less obvious with cool temperatures.

Mite feeding destroys cells and irreversibly removes photosynthetic area. The key is protecting the upper canopies photosynthetic abilities.

Avoid creating a worse spider mite problem. Beneficial insects, predatory mites and fungi usually control mite populations. Do not treat minor mite infestations or infestations limited to field borders. Treat mites when populations have moved well into the field and damage (stippling and/or yellowing) is present in the lower to mid-canopy and live mites are present in the upper 1/3 canopy. Rarely, mites that are blown into the field colonize and damage the upper canopy first and these should be managed accordingly.

Insecticide options for soybean aphid treatment become limited when spider mites are easily detected in a field. Conversely, spraying a field for aphids or other insects increases the probability for higher spider mite populations. Although some insecticides are more likely than others to increase spider mites, all insecticides remove natural enemies and can eventually make mites worse.
Spray coverage is essential when treating mites. Read the label and use an adequate insecticide rate. For example, treating spider mites effectively requires a higher rate of bifenthrin (e.g. Brigade, Tundra) than does soybean aphid treatments. Chlorpyrifos (e.g. Lorsban) and dimethoate are also labeled for spider mite control in soybeans. There are additional corn miticide options that control mite eggs in addition to adult and immature mites - they are effective when used properly but are higher priced and slower acting.

There has been documentation of chlorpyrifos resistance in one SW Minnesota spider mite population with rumors from other areas of western Minnesota. At this point, however, we do not know how widespread this resistance is. Do not just assume you have chlorpyrifos resistant mites in your area.

Insecticide tank mixes may encourage mite resistance to multiple chemistries. I would use a single insecticide unless you know you are treating a known resistant population. After all, these are arthropods and they play by different rules than weeds.

Regardless of the product used, when you do treat a spider mite population, fields need to be re-checked in 3-5 days to confirm that the pesticide worked and that there is not a re-infestation from hatching eggs. Keep scouting these fields. You will have removed natural enemies and may need to re-treat this field unless fungal diseases take hold.

*Do not treat for spider mites in soybeans past mid- R6 stage or in corn past dent.*

For more spider mite information on spider mite biology and management in soybeans see: [http://www.soybeans.umn.edu/crop/insects/spider_mites.htm](http://www.soybeans.umn.edu/crop/insects/spider_mites.htm).

Happy trails,

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