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AgVantage Green Notes

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Ceres Solutions Answer Plot Days

Choosing the right seed for your farm to ensure profitability is not just choosing the right genetics. It is also understanding your fertility and how to protect crops and yield.

Our Answer Plots designed by Croplan Genetics and Winfield Solutions offers us a concentrated view into the latest and greatest in seed genetics, agronomic practices and new crop protection products. The plots allow us to view and discuss lots of technology in a relatively small area.

Not only we will have discussions on our seed family genetics, but we also plan to have some timely agronomic discussions on planning for 2010 cropping season. We have a nitrogen study to view, and we will be discussing the value of fall applied herbicides, seed treatments, improved adjuvants, and new corn nematode control products. Hold the following dates open:

August 17—Roselawn Dairy and Forage Day

August 18—Answer Plot at FFR Research Facility 4:00 p.m. The Answer Plot at FFR is located just north of Lafayette IN and just off of SR 25.

August 19— Roselawn Answer Plot 9:00 a.m. near the Roselawn Ceres Solutions facility.

August 20—Crops 63 Answer Plot 9:00 a.m. just east of US 63 and south of the intersection of US 74 and US 63 (1 mile south of the Beef House).

August 28—Farmersburg Answer Plot 8:30 .m. just west of US 41 and just north of Farmersburg. **PARP credits will be awarded.**

Contact your local Ceres Solutions professional for more details on the answer plots.

Inside this issue:

Unusually Long Silks in Corn - (*Bob Nielsen, Purdue*)

The other day, a patron of Rudy's Bar and Grill walks in with an ear of corn that exhibits long, flowing locks of blonde silks tumbling down the sides of the husk leaves and asks two questions: "Why are the silks so long?" and "Do such long silks bode ill for the success of corn pollination?"

Both questions suggest that the guy has some experience thinking about sex in a corn field. Each silk connects to an individual ovule (potential kernel). A given silk must be pollinated in order for fertilization of the ovule to occur and a kernel develop. The guy also seems to know that emerged silks are typically only 2 to 3 inches long; not 6 to 9 inches long like those on the ear he brought in.

Silks begin elongating from the ovules near the base of an ear shoot sometime around leaf stage V12 to V14. The silks from ovules near the base of the cob are typically the first to emerge through the husk leaves; followed sequentially by the remaining silks over a 4 to 8 day period. Without pollination, silk elongation will slow to a stop within about 9 days after emergence.

Emerged silks initially lengthen from 1 to 2 inches per day, but then slow over the next few days due to natural aging or the inhibition caused by "captured" pollen grains as they germinate and initiate pollen tubes that penetrate the silk and elongate toward the ovule. The latter inhibition of silk elongation occurs at least within 12 hours of pollination, if not earlier.

Most of us "gray beard" agronomists were taught that full tassel emergence (growth stage VT) often occurred 2 to 3 days before the first emergence of silks (growth stage R1).

Corn field aficionados will tell you that the timing of tassels/pollen shed/silking has changed somewhat in some of today's hybrids. In my own demo plots in recent years, it is not uncommon for silks to begin emerging before the tips of the tassels are evident. It is not unheard of for pollen shed to begin 2 to 4 days after the beginning of silk emergence. Furthermore, genetic improvement for drought tolerance in some hybrids appears to have also resulted in more robust silk growth in the absence of drought conditions (personal communication, K. Cavanaugh, Becks Hybrids).

Cool temperatures and ample soil moisture promote sustained silk elongation in the absence of typical hot, dry July conditions. Coupled with hybrids that may silk one or more days prior to pollen shed from the tassel, silk lengths can become quite impressive. This year, I have measured exposed silks as long as nine inches.

Can there be a downside to such wonderfully long, voluptuous, silky.....silks? Well, yes, there is a risk that kernel set near the base of the cob may suffer if the initial emerged silks deteriorate enough prior to pollen shed that they become non-receptive. Kernel set near the butt end of the cob may also suffer if later-emerging silks from higher up on the ear "shade" or otherwise obstruct the initial emerged silks from "capturing" pollen.

Bottom Line? While unusually long silks are, well, unusual, don't get overly dejected about the prospects of poor kernel set as a consequence. Time spent now walking fields during the early stages of grain fill may help provide an overview of the extent of the problem if any.

Set Up Your Fields For Success by Soil Testing this Fall

Even though crop input prices are much lower than a year ago, they are not at the levels they were in 2008 or before. Commodity prices are also not what they were a year ago. It still makes good economic sense to understand your fertility in each of your fields owned and rented. Intensive soil sampling provides you more detailed information on all field areas to ***ensure your P and K is applied to the right areas of the field to optimize production on a field by field basis***.

Remind me, what are optimal soil test phosphorus (P) and potassium (K) levels? An optimum soil P level is about 30-40 lb/A (we often build to 50 lb/A soil test P in some areas to ensure P is not limiting and to 70 lb/A if wheat is in the cropping rotation). An optimum soil K level is 200-350 lb/A depending on soil type and CEC. And soil pH should be between 6.0-6.5. *When soil P & K levels are not optimal and/ or soil pH is below 6.0, nitrogen and water use efficiency are lowered and corn, soybean and wheat yields can suffer. It is not economical anymore to guess at your soil fertility.*

Don forget a good corn and soybean crop, 180 bu/A corn and 60 bu/A soybean will use **250 lb/A of 0-46-0 and 225 lb/A 0-0-61 (about 500 lb/A of fertilizer) together at optimum soil test P and K levels.** Are you applying this much fertilizer or something less? What are your soil levels?

Ceres Solutions AgVantage—Ceres Solutions AgVantage is our intensive soil sampling program. It is a program that combines our intensive soil sampling with field by field recommendations for crop nutrients, crop protection and seed plus two business meetings with our Ceres Solutions Crops Professionals, and a number of monthly and in season crops newsletters to keep you current on the latest agronomic information.

As you know with intensive soil sampling, global positioning (GPS) is used to mark and take a soil sample every 2.5 acres. Site specific sampling provides a more detailed picture of P, K, Mg, and soil pH variability within a field. Lime and fertilizer can be applied variably according to results. And fields can be resample in the same locations in years to come.

Get with you local Ceres Solutions crops specialist **now** to plan your fall intensive soil sampling needs.

Western Bean Cutworms Damaging NW IN Corn

By John Obermeyer and Christian Krupke, Purdue—Field visits last week to northern Jasper County opened our eyes to the high amount of western bean cutworm damage. Plants/ears infested ranged from 20 to over 50%, some with multiple larvae. Too, we have heard of similar type infestations in Lake and Pulaski Counties. Presently there is a high correlation of infestations to sandy soils.

Many pest managers in northern Indiana counties have been tracking this pest through moth flight and egg laying, and now are scouting for larvae. Many are frustrated because egg masses found were well below the 5% plants infested threshold, but are now heavily infested. We are all on a steep learning curve in trying to understand why established sampling protocol for NE may need to be tweaked for IN.

The current challenge is to identify fields that are infested, assess the size and location of larvae, and determine if treatments are warranted. In at least five different areas of the field, carefully examine the ear and ear zone of primary and secondary ears in 20 consecutive plants. Determine the % plants infested and the size and activity of the larvae. This will require peeling back the husk over the ear tip to find a worm and/or frass/damage. Also carefully pullback leaves and leaf sheaths adjacent to the ear. Again you may find larvae, and entrance holes in ear sides. Smaller larvae, <1", seem to be more active in and out of the ear. Larger larvae seem to remain in the ear and feed on kernels. NE entomologists indicate as temps increase, larvae are more likely to remain inside the ear.

Treatment for field corn at this time is ill-advised, high value food-grade corn may be a different matter. Reports from folks that treated last week (Aug. 3) indicate good control. Since that time, larvae have grown and temps are higher. Consider the following before treating:

- Control, in corn that has already pollinated, will likely be less than 50%.
- 1 larva/ear at dent stage corn is approximately equal to a 4 bushel/acre loss (Nebraska and Iowa data).
- Ear damage opens the door for molds, a concern in food grade corn.
- Larvae in the ear will NOT be controlled, larvae exposed or that exit the ear can be.
- Larvae become less mobile as temperatures increase.
- Increased carrier volume will improve the canopy penetration into the ear zone.
- Insecticides will provide about a week of efficacy, give or take a few days depending on the environment (e.g., heat, sunshine).
- Pre-Harvest intervals for insecticides, on the label, must be followed (most are 21 to 30 days).
- Cry1A (YieldGard®) does not prevent or control western bean cutworm, Cry1F (Herculex®) does.
- Approved insecticides, their rates, and pre-harvest intervals can be viewed at: <http://extension.entm.purdue.edu/publications/E-219.pdf>, look under western bean cutworm.

Wheat Seed Treatments—Robert Bowden, U of KY

A **major use of seed treatments is control of seedborne smuts and bunts.** Common bunt can be controlled with most commercial treatments. Recently, a disease called Karnal bunt was detected in the southwestern U.S.A. Quarantines are established to keep Karnal bunt out of the Great Plains. Use of certain seed treatments could help reduce the spread of this seedborne disease. No products can control Karnal bunt after it becomes established in the soil.

A **second major use is to improve stand establishment**. Most treatments do at least a fair job of controlling seed rots and seedling blights. Scab (which we had a lot this year) and black point are two seedborne diseases that can reduce seed germination. If seed has either of these, it should be cleaned to remove all light seeds, then tested for germination rate. If germination is low (less than 90%), a seed treatment could help raise the germination rate. Several treatments are available if wireworms are expected to be a problem.

Another use of seed treatments is insect control. Fall-season aphid pressures continue to be problematic. Remember several species of aphids vector the disease barley yellow dwarf.

Conditions favoring use of standard seed treatments in grain production fields include: 1) high yield potential field, 2) seed saved from field with loose smut or bunt or scab last year, 3) expensive seed, 4) low planting rates, 5) planting under poor germination conditions, especially late planting, or 6) poor quality seed must be used.

Ceres Solutions treats wheat if purchased untreated or saving seed. Remember due to the occurrence of scab last year, saved seed should be tested for germination and possibly germination with a seed treatment. Consult with your locals Ceres Solutions Professional.

Corn and Soybean Nematode Update—Jamal Fagihi, Purdue

Corn Nematodes - Corn nematodes have been a problem this year. We have received more corn samples this year than the last five years combined. The continuation of a cool and somewhat wet season has provided ideal conditions for the Needle nematode to cause substantial damage in sandy soils. By this time of the year, we normally don't see the Needle nematode in soil samples. But, this has been far from a normal year. We continue to find a few Needle nematodes in some of the samples from soils that have not experienced temperatures above 85°F for a sustained period of time. We have found three species of corn parasitic nematodes (Needle, Lance, and Lesion) in the majority of the samples. Lance and Lesion nematodes will continue their feeding throughout the season while Needle nematode damage should stop as they begin to disappear. We expect to continue finding Lance and Lesion nematodes in roots and soil samples. We have found another species of nematode called Spiral nematode in many of the corn samples. This nematode feeds on corn roots but it causes yield loss only when hundreds of these are found in 100cc of soil.

We are often asked about the threshold levels of the corn parasitic nematodes. Threshold levels were established in late 70's and we continue to rely on these numbers as a guideline until new thresholds, are established. At the present time, needle > 10 per 100cc, lance > 60 per 100cc, lesion >200 per 100cc, and spiral > 1000 per 100 cc of soil might affect corn yields in Indiana.

If you continue to experience problems in corn, you may wish to send the entire root system with adjacent soil to the Nematology Laboratory at Purdue for analysis. Samples must be kept cool and prevented from drying. Soil samples must be taken from a depth of 4-6 inches, as close as possible to the infected plants. It is essential to enclose as many fine roots as possible with soil surrounding the infected plant. A more detailed sampling procedure can be found on the following website: <http://www.entm.purdue.edu/nematology/samples.html>.

Soybean Cyst Nematode - Soybean Cyst Nematode (SCN) continues to be a problem in soybeans. So far this year, because soybeans have not been under moisture stress, the typical symptoms of SCN damage might not be present. The SCN symptoms usually appear as

Sudden Death Syndrome and White Mold in Soybeans

Sudden Death Syndrome in Soybean – *Kiersten Wise, Purdue* The Indiana State Fair began last week in Indianapolis, and true to its nickname, the "state fair disease" or sudden death syndrome (SDS) is now being reported on soybean in Indiana. The fungus that causes SDS, *Fusarium virguliforme*, infects soybean early and symptoms are typically expressed later in the growing season. The southeastern corner of the state has had ample rainfall this year as soybean entered into flowering and pod development, and severe symptoms of SDS are appearing in fields in the lower corner of the state. Many soybeans throughout Indiana were planted into cool wet soils this spring, and growers should be watching for symptoms of SDS over the next few weeks.

Symptoms of SDS include interveinal yellowing and necrosis (Figure 1). Veins of the infected plants will remain green. Leaflets will curl or shrivel and drop off with only the petiole remaining attached. If symptomatic plants are pulled from the soil and split down the stem, the lower stem will have a dark or discolored cortex, while the pith will remain white or light brown.

SDS is a disease that is best managed through preventative methods. Producers are encouraged to plant varieties that are less susceptible to SDS in fields with a history of the disease. SDS is typically more problematic in early-planted soybeans. Planting fields with a history of SDS last may reduce the risk for SDS, but when we have an unusually cool spring, soil conditions may still favor disease development. Foliar fungicide applications are not recommended for management of SDS.

White Mold of Soybean - (*Kiersten Wise*)

Due to the cool, wet weather conditions we had in various parts of Indiana right before and during soybean flowering, it is no surprise that we are seeing white mold on soybeans this year. Reports are surfacing from western IN. The disease, caused by the fungus Sclerotinia sclerotiorum, is not common every year, but conditions have been favorable for infection this summer.

White mold is usually first noticed when infected soybean plants begin to wilt. Yellow to brown leaves that remain on the stem are also commonly observed in white mold infections. The foliar symptoms can be confused with other diseases like brown stem rot, SDS, or Phytophthora root rot. It is helpful to get a closer look at the stems of the plant if these symptoms are observed in a field. Lower stems will have a white, bleached appearance and white fuzzy growth, or mycelium, may be noticeable on the stem surface. If the stem is split open at this bleached area, hard, black fungal structures called sclerotia will be present in the stem and can be on the stem surface. Sclerotia are able to survive in crop residue and can also survive for several years in the soil.

Yield loss due to the disease depends on the level of infection in a field as well as timing of infection. Plants that are infected earlier in the season may be deprived of water and nutrients due to infection, and may not produce seed. Soybeans that are at maturity at the time of infection will often still produce normal seed and severe yield loss may not be observed, depending on the amount of plants infected within the field.

White mold infections are favored by cool, cloudy, wet, and humid weather at flowering. The disease is more problematic in soybeans with thick stands, narrow row spacing, and an early-closing canopy. To manage the disease, a combination of tactics must be used to prevent white mold infection and spread.

If white mold is present in fields this year, consider harvesting those

Soybean Aphids over Threshold in NW Indiana—Christian Krupke, Purdue

We have confirmed reports of soybean aphids at levels over the treatment threshold of 250 aphids/plant in the state. These reports originated in LaPorte county, and with several other fields in the area in the high double-digits this week, it is likely there are more to come. Aphids have been observed as far south in the Ceres Solutions territory as Farmersburg, albeit in very low populations.

Aphids have been relatively scarce in the Midwest this year. However, at the end of July we found our first aphids in sentinel plots in Indiana and early August brought some higher populations. It appears that we may see a late push from aphids. However, time is on our side – once fields hit R6, aphids are not a concern and with most Indiana fields well into R3/R4, we are not too far off.

We are not out of the woods yet, and producers in the northern third of the state (particularly the NW corner), should still be scouting. Don't let your fields be among those that are not scouted until they are over threshold – take the time for a quick survey of 20 plants throughout the field – with winged aphids on the move, fields can become infested very rapidly.

Grain Update

USDA Summary—June 10,2009

Estimates in Million Bushels

Corn	**Aug USDA—09/10**	**July USDA-09/10**
Carry-in	1720	1770
Production	12,761	12,290
Total Supply	14,496	14,075
Feed and Residual	5300	5,200
Ethanol	4200	4100
Exports	2100	1,950
Total Use	12,875	12,525
Carry-out	1,621	1,550
Soybeans		
Carry-in	110	110
Production	3199	3,260
Total Supply	3320	3,180
Crush	1,670	1,680
Exports	1,265	1,275
Seed	94	94
Residual	80	81
Total Use	3109	3130
Carry-out	210	250
Wheat		
Carry-in	667	667
Production	2,184	2,112
Total Supply	2,961	2,894
Food	955	955
Seed	78	78
Feed & Resid	235	230
Exports	950	925
Total Use	2218	2188
Carry-out	743	706

Nematode Update cont..

patches of yellow and stunted soybeans. However, this is the best time of the year to observe this pest if nematodes are present on the roots. The white and yellow female bodies, which form the cysts when they die, should be visible on the soybean roots. To see these cysts, dig the soybean plants out of the ground with a shovel and dip in a bucket of water to observe the new cysts. Care must be taken when digging the plants as the cysts are loosely attached to the soybean roots. Locating the young cysts on the roots is especially important in resistant soybeans, as this is the best indicator of their true resistance.

fields last. This will help prevent spread of sclerotia into new fields. Another option to avoid introduction of the disease into new areas would be to clean the combine between fields when harvesting areas with white mold present.

Other management tactics include:

1. Use partially-resistant varieties in areas where white mold is problematic, and always plant clean seed that is free of sclerotia.

2. Planting soybeans early in the spring has been shown to increase white mold severity in fields with a history of the disease (2). Early plantings of soybean can cause flowering and canopy closure to occur at the same time as spore dispersal of the fungus. This leads to increased disease pressure in the field. If possible, wait to plant soybean in fields that have had white mold in past years.

3. Consider using long rotations in field with white mold to reduce the amount of sclerotia present in the soil. A one-year rotation away from soybean is not enough to impact the long-lived sclerotia population in the soil. Three to four year rotations with small grains and corn included in the rotation give the best results for white mold control.

4. Sclerotinia is also able to infect many different hosts, such as alfalfa and other legumes, and weeds like lambsquarters, ragweed, and velvetleaf. Good weed control is important in areas with white mold to prevent build up of the disease in fields due to weedy hosts.

5. Row spacing and planting populations are also important to consider in white mold control. Wider rows do promote more air movement in the canopy, but 30-inch rows often do not yield as well as plants in 15-inch row spacings. Lowering the planting population to less than 150,000 plants per acre in fields with a history of white mold is recommended instead of increasing row spacing (1).

6. There are fungicides available for use on white mold (Topsin M and Domark), however penetration of the fungicide into the canopy can be an issue depending on the timing of fungicide application. Fungicides may be most useful on fields where susceptible varieties are planted in a field with a history of white mold impacting yield. Currently, only two fungicide modes of action are labeled for use on white mold. Strobilurin fungicides are NOT currently labeled for use on white mold. If considering a fungicide application for white mold, read fungicide labels carefully to determine what product to use.

Check out these sites for more information on white mold:

Purdue Extension Bulletin BP-43-W. Diseases of Soybean: White Mold <http://www.ces.purdue.edu/extmedia/BP/BP-43-W.pdf>

University of Wisconsin's Soybean Plant Health Site: <http://www.plantpath.wisc.edu/soyhealth/cause.htm>

Soybean Rust Update

United States Soybean Rust Commentary (updated: 08/13/09)
On August 13th, soybean rust was reported in Suwannee County, Florida on kudzu. On August 12th, soybean rust was reported in three additional Florida counties, Duval, Madison, and Washington. On August 11th, soybean rust was reported on soybean in Tift County in Georgia. **On August 10th, soybean rust was found for the first time this year in Arkansas, in Chicot County on soybeans.** On August 6th, soybean rust was found in Holmes County, Mississippi in a commercial soybean field; this is a first find in the state this year. In 2009, soybean rust has been found in seven states and 44 counties in United States, and in two states and five municipalities in Mexico.

So far soybean rust is not a threat to Indiana soybeans. Many of our cold fronts have been originating in the west and not from the south. We still need to pay attention to soybean rust movement.