

WIDMER &
ASSOCIATES, LTD.

FOR THE
RECORD:

Data from OARDC
Fremont, Matt Hofelich

July Rainfall: 2.13"

Cumulative GDDs: 615

Soil Temperature: 72.6

Websites of Interest:

www.widmerassoc.com

www.weather.com

<http://vegnet.osu.edu>

<http://corn.osu.edu>

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*contains information adapted and summarized from *Modern Corn and Soybean Production* by R.G. Hoelt, E. D. Nafziger, R.R. Johnson, and S.R. Aldrich. (Published 2000. MCSP Publications, Champaign, IL).

The W&A Q&A

Dedicated to Excellence in Growing Crops

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AUGUST 2009



Veris & Soil Sampling Dusty Sonnenberg, CCA

“Don’t Guess...Soil Test” is more than just a catchy bumper sticker phrase from the 1980’s, it’s the foundation for sound agronomic management decision making. There are numerous systems in place for collecting soil samples. Grid sampling, composite samples, soils maps are all tools used in selecting management zones to collect soil samples from. Another alter-

native that we at Widmer & Associates would recommend is Veris Data Collection. The Veris machine as shown below is a simple device that sends an electric current between a series of flat disc blades which in turn measures electro conductivity of the soil. This soil electro conductivity has a direct correlation to the soil cation exchange capacity (CEC).

By using data from the Veris machine, we can determine more precise management zones which we then collect soil sample from and can make recommendations. In the summer after wheat harvest, and in the fall following corn and bean harvest are good times to have your fields Veris sampled, prior to any tillage or ditching. The generally accepted recommendation is to have soil re-sampled every 3 years.

Effects of Cool Summer Weather on Corn Grain Fill* Doug Mitchell, CCA

Anyone who has been waiting for their row of sweet corn to ripen enough to pick knows that the cool temperatures so far this summer have had a large impact on crop development. What does this slow emergence of corn silks & even slower emergence of tassels mean for corn pollination? And what will be the overall effect of this weather on corn yields?

We know that pollen shed usually begins two to three days prior to silk emergence and continues for five to eight days with peak shed on the third day. The ear shoot should have 750 to 1,000 ovules (potential kernels) each producing a silk. The silks from near the base of the ear emerge first and those from the tip appear last. All silks will emerge and be ready for pollination within 3 to 5 days. When there is a prob-

lem with pollination and poor kernel set due to stress from extreme drought or heat, it is often because the silks emerge after pollen shed (not the other way around). Pollen may be shed before the tassel fully emerges. Pollen shed usually begins in the middle of the central spike of the tassel and spreads out later over the whole tassel with the lower branches last to shed pollen. Silks will remain receptive to pollen for 10 days after emergence. The pollen grain starts growth of the pollen tube down the silk channel within minutes of coming in contact with a silk and the pollen tube grows the length of the silk and enters the female flower (ovule) in 12 to 28 hours.

After pollination occurs, corn grain fill can actually benefit from more moderate temperatures. High nighttime

temperatures especially can have an adverse effect, even though some believe corn grows better when it’s hot at night. Higher night temperatures causes a higher rate of respiration, which burns up more sugars produced during the day by photosynthesis. This leaves less sugars available to fill developing kernels and lowers potential yield. Lower night temperatures can even extend the grain filling period and promote more dry matter accumulation. This is due to heat units (GDD) accumulating slower, which also means corn will be slower to mature. So, our “cool” summer weather may mean harvest delays and higher grain drying costs, but assuming adequate moisture levels to finish the season, there should be more grain to harvest and dry.

Nutrients & Natural Plant Hormones

The consultants who work for Widmer & Associates, have many years of experience with the foliar application of nutrients & natural plant hormone type products. That is the basis of our business & has been for many years! We specialize in carrying many different forms of all nutrients made especially for foliar feeding. We carry a variety of mixes, packaged in jugs & bulk shuttles to fit the need of any foliar application. We also have the ability to custom blend any nutrient combination you may want to fit a specific need or use. We also specialize in handling fertilizers that work well in drip or overhead fertigation applications. Talk to your Widmer consultant about any nutrient needs you may have, we would be happy to help you!



August Scouting Tips Dusty Sonnenberg,

Corn*

Northern Corn Leaf Blight

- “Cigar” shaped lesions.
- Lesions are usually 1-1.5 inches wide and 2-6 inches long.
- Grayish Green to Tan to Grayish Black.
- Conditions of 65-78 degrees and heavy dew.
- Yield losses as high as 30-50% if established before tasseling.

Corn*

Gray Leaf Spot

- Rectangular lesions.
- Lesions are usually 0.5 -4 inches long with parallel sides.
- Lesions are gray or pale brown.
- Favored by heavy dew, fog or light rain in July & August.
- Lesions generally first appear near tasseling.

Soybeans*

Soybean Aphid

- Scout multiple locations throughout the field. Count the total number of aphids on each plant. An economic threshold is an average of 250 aphids per plant with an increasing population. Under ideal conditions, the soybean aphids can double in population every 3-4 days. Low levels now should be monitored throughout the month.

- *For more detailed information visit the following websites:
- www.oardc.ohio-state.edu/ohiofieldcropdisease - <http://.ipm.osu.edu>

Food Safety & Traceability;

Harvesting Food Safety Issues - Rex Marquart, CCA

1) Pre-harvest inspection of the field to be harvested.

- Signs of flooding.
- Evidence of visible pesticide contamination.
- Visual evidence of bird or animal activity in the field.
- Evidence workers have not complied with food safety issues.
- Any observed food safety issues on adjacent lands that have or may contaminate the field to be harvested.



- Are toilets, hand-washing facilities and garbage containers properly stocked and located near the field for the harvest crew to use?
- If the final packing containers are used are they free of evidence of pest activity, foreign

material, clean and free from exposure to the ground?

- If grading and packing tables are used, is there a documented cleaning and sanitation program being used?
- If re-useable containers (bulk bins, hampers, tubs, etc.) are used, is there a documented cleaning and sanitation program being used?

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Key Growth Stages in Corn* *Mike Netz, CCA*

There are several key growth stages in the production of a corn crop. There are many cultural practices that a grower can do, that can have a major impact on the final yield & quality of the crop. Some of the more important stages of growth & development are:

Pre - Planting thru Growth stage V3

- Variety selection
- Ground preparation of the seed bed – eliminate compaction layers in the subsoil, provide good soil structure to ensure good seed to soil contact & preserve soil moisture for germination
- Proper planting depth
- Proper seed population & singulation of the seed
- Provide proper nutrition for the seedling – row fertilizer, in-furrow fertilizer with root enhancers. A 200 bushel corn crop needs 22 inches of water from either rainfall or from the subsoil to achieve this yield. So anything you can do to enhance your crops ability to form deep roots early will help you to achieve higher yields.
- Weed control
- Side dressing of the final amount of nitrogen

Growth stage V5-6

It is at this stage of growth that the 5th-6th leaf is fully extended. Inside the plant the tassel is formed & present. The numbers of leaves the corn plant will have has been determined. The number of kernel rows each ear will have has been determined. The weather that has occurred previous to this time & how good of a job you did to address the key items listed above will help to determine how many rows your ears will have.

Growth stage VT (tassel emergence)

- Your corn is near its maximum height
- Pollen shed begins

Growth stage R1 – R2 (silking begins)

- It is during this time that kernel abortion adjusts the number of kernels in a row to fit the conditions that have occurred previously. It is the kernel numbers in a row that is usually the main yield determinant.
- From this time on it is very important to maintain leaf health (prevent foliar diseases). The most important leaves to protect are the leaves immediately above & below the corn ear. These leaves provide the most sugars for the expanding kernels.
- It is very critical at this time to also do anything you can to reduce stress (excessive) ethylene. Stress ethylene will cause the corn plant to die early. For each day you can extend the life of your plant, you will add to the kernel depth & weight. The experts say each additional day you can keep your plants alive longer, you will add 2 bushels to your final yield.

R1 – R2 is about where our corn maturity is at currently. Now is the time to consider spraying to control any leaf or stalk diseases present. There has been a lot of research conducted in the last couple of years on the use of strobilurin fungicides to control leaf & stalk diseases. Fungicides in this class include Brand Names like: Headline, Quadris, Quilt, Stratego. This class of fungicide has proven to have an additional benefit besides controlling diseases. Research has shown that this class of fungicides can help to reduce stress ethylene for a short period of time.

Ethylene suppression - It is important to understand that ethylene can be produced under two types of conditions:

- a. in normal quantities required for growth; and,
- b. very high levels under stress

Research has shown variable yield increases from the combination of disease & stress reduction. The amount of yield increase you can achieve depends on the presence & severity of disease & the variety of corn. Not all varieties of corn produce the same amounts of ethylene under stress conditions or handle stress ethylene the same. Unfortunately the ability of these fungicides when applied by themselves is very short (less than a week). There is something a grower can do to extend the ethylene suppression period of this class of fungicide. Add Stoller USA's Bio-Forge to the fungicide application.

Stress ethylene can be regulated at the genetic level. Ethylene in normal quantities is good for flowering, reproduction, and disease resistance. Stress ethylene in excessive quantities will cause cell death. **Target and manage stress ethylene with Stoller USA's Bio-Forge.®.** The technology of Stoller USA's Bio-Forge is proven to up-regulate the Dreb-1A gene. The Dreb-1A gene is the gene that up-regulates drought resistance. Catalase enzyme is the enzyme that is responsible for coordinating the amount of water in the plant cell that is a natural result of cell respiration. Bio-Forge will manage ethylene to an optimal level to restore proper functioning of the plant, while increasing yield. Understanding this technology may be challenging, but understanding that this technology will be profitable to growers with crops experiencing stress conditions should not be. It takes only a 2 bushel per acre increase in corn yield to cover the cost of Bio-Forge for growers. University studies average more than 10 bushels / acre increase in yield. The risk-to-reward ratio is worthwhile for any corn farmer, where stress conditions threaten yield reductions.

Yield Increases Documented: Ohio State University Research

Faced with extreme stress - in extreme wet and then extreme dry conditions in Ohio during the 2008 crop year, Bio-Forge was compared to untreated corn and to corn treated with fungicides. Bio-Forge proved to enhance yields considerably over untreated plants when applied at the R1-2 stage in a corn plant population with 30,000 seeding rate. Yield increases ranged from 8.4 bushels / acre to 13.2 bushels / acre in research conducted at Ohio State University in 2008. The ability of Bio-Forge to manage stress ethylene, even under the extreme weather conditions experienced during this 2008 corn study, was credited for the positive results.

For more information on stress reduction & Bio-Forge use; contact your Widmer & Associates crop consultant!



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Dedicated to Excellence in Growing Crops



Widmer & Associates provides growers with a unique partnership that provides a complete crop nutrient management system that results in improved cropping profitability.

Our mission is to provide a team of experienced and professional agronomists that partner with individual farmers to help pull together information and technologies that will positively impact their total crop production profitability.

The true worth of information and technology is determined by the value received by the client.

***Save the Date!!! Sept 22-24, 2009
Come see us at the Farm Science Review!!!
W&A, Trimble, Ag Leader & Orthman Mfg.***

Food Safety & Traceability, Harvest Food Safety Issues Continued...

- 6) If harvest tools (knives, etc.) are used:
- A. Are they made of non-corrosive and easy to clean material?
 - B. Are they subject to a controlled storage and documented cleaning and sanitation program?



- 7) If harvesting aid or machinery is used:
- A. Are the food contact surfaces constructed of food grade materials?
 - B. Is the harvesting equipment subject to a documented cleaning and sanitation program?
 - C. Are only food grade lubricants used on the critical parts of the harvesting equipment?
 - D. Are all glass issues on the harvesting equipment, in-field trucks, wagons and tractors protected to prevent contamination of the harvested product?

- 8) If "in-field processing" occurs does the flow of the product ensure that the processed product is not contaminated by unprocessed products?
- 9) All harvested product is to be coded for the date of harvest, harvest crew and field designation to enable trace back if it is necessary.

