WIDMER & ASSOCIATES, LTD.

The W&A Q&A

Dedicated to Excellence in Growing Crops

VOLUME I ISSUE 3 JULY 2009

FOR THE RECORD:

Data from OARDC Fremont, Matt Hofelich

June Rainfall: 3.94"

Cumulative GDDs: 568

Soil Temperature: 68.3

Websites of Interest:

www.widmerassoc.com

www.weather.com

http://vegnet.osu.edu

http://corn.osu.edu

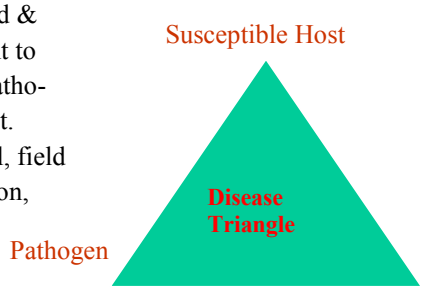
INSIDE THIS ISSUE:

Understanding the Disease Triangle

Dusty Sonnenberg, CCA

For a Disease to impact our crops, three conditions must be met. Often this is referred to as the "Disease Triangle". The first point to the triangle deals with the pathogen. This is the disease causing agent. It can be held in many sources including: contaminated seed, soil, plant residue, weeds, insects, greenhouse or nursery stock, spores in the wind & rain. In order for a plant to become diseased, the pathogen must first be present. Weed and insect control, field and greenhouse sanitation, along with tillage can reduce the level of pathogens present.

The second point of the triangle is having a susceptible host. This is why having knowledge of the varieties you grow and planting those that are resistant to diseases that are commonly present on your farms is crucial. Susceptible hosts also include plants under stress due to extreme weather and insect feeding.



The third point of the disease triangle is the environment. The environment includes everything impacting the growth and development of the plant. Temperature and moisture are the two most common factors considered in disease growth, however soil conditions/compaction, soil fertility, tillage, sunlight, and air movement all play a role. There are some aspects of the plants environment which we can modify that will reduce the chances of a disease to negatively impact our crops. Understanding how diseases work is the first step in reducing the negative impact they will have on your crops this year.

Food Safety & Traceability

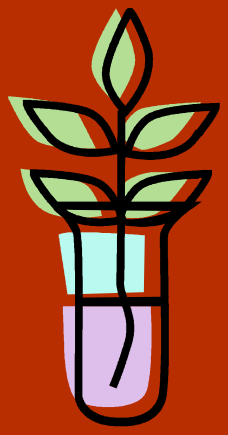
Rex Marquart, CCA

Water Usage

1) Water can be used for irrigation, frost protection, rinsing the crop and a carrier for pesticides, fertilizers and growing aids.
2) Water can be a vector for microbes including human pathogens (E. coli, cholera, listeria, salmonella, etc.)
3) Water can be sourced from District pipelines, wells, open surface sources (ponds), rivers and ditches.
4) Water is to be sampled at the beginning of each growing season and sampled monthly after planting if a surface water source is used.
5) If a filtering system is used, the sample should be taken after the filters.
6) If a filtering system is not used the sample should be taken at some point after the pump. Ideally at the water entrance to the field.
7) The samples are to be analyzed for Generic E Coli. If there is a positive detection of Generic E Coli, the same sample is to be tested for E Coli 0157H7
8) The water can be treated with a chlorination system as a possible mitigation measure. The water then needs to be re-sampled after the chlorination process.
9) The risk of most concern is the water that comes in contact with the edible parts of the vegetables and fruits

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!



July Scouting Tips

Dusty Sonnenberg, CCA

Soybean Aphids

Large numbers of Soybean Aphids have been predicted for 2009, and in some areas they have already been observed. July is the time to scout. The economic threshold is an average of 250/plant and increasing across the field. Regular scouting is necessary to determine how rapidly the population is increasing.

Corn*

- July is the month to get out and dig corn roots to assess corn rootworm damage.
- Once roots are dug, wash the dirt/mud off, you can observe root feeding and assess how far the roots have been chewed back to determine the actual level of damage in your fields.

Soybeans*

- Late July is a good time to dig soybean roots and actually see the Soybean Cyst Nematode.
- Dig roots and soak the dirt/mud off in a 5 gallon bucket of water. Once the dirt is off, the Cysts and Nematodes become visible. Some may even float on the water when finished.

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

Weed Control

Doug Mitchell, CCA

We have found quite a few instances this season where the burndown applications in no-till soybeans that normally provide good control of winter annuals & early germinating summer annuals have not been very effective. The "standard" burndown rates of 0.5 to 0.75 lb ai per acre of Glyphosate along with 0.5 lb ai per acre of 2-4,D generally give good control of small lambsquarter and smartweed, as well as chickweed & marestail. Even if burndown treatments are delayed well into May and these weeds are a little larger, the warmer temperatures we usually get at that time allow these rates to still be effective. The unusually cool temperatures we had this May may have allowed weeds to survive burndown rates that normally would get them. It usually does not take a high rate of Glyphosate to control common chickweed (2-4,D does not control chickweed).

Chickweed infestations that did not appear that severe in late April looked pretty robust by late May, even after being sprayed. That and the survival of some lambsquarter, smartweed, marestail, & ragweeds left us with some pretty ugly looking Non-GMO bean fields or necessitated an early 2nd application in Roundup Ready beans. In any event, we may have to rethink at what point we start increasing Glyphosate burndown rates in the spring. We might also want to consider using a full pound active of Glyphosate in our burn-

*Factors that limit Nutrient Availability** *Mike Netz, CCA*

It is not unusual for crops in fields or portions of fields to show nutrient deficiencies even though adequate fertility and proper nutrient management plans are followed.

Under adequate nutrient management practices, these deficiencies are most often temporary and occur during early stages of development. What is important to remember is that in addition to inherent soil properties (parent material; amount of organic matter; depth to bedrock, sand, or gravel; permeability; water-holding capacity; drainage), environmental conditions have an important impact on nutrient availability. The fact that nutrients are applied does not necessarily mean they are available. Plants obtain most of their nutrients and water from the soil through their root systems. Any factor that restricts root growth and activity has the potential to restrict nutrient availability. This is not because nutrients are not plant-available in the soil, but because the crop's ability to take up those nutrients is restricted.

Keep the following points in mind:
1) Soil water content is critical not only to supply the water needs of the crop but also to dissolve nutrients and make them available to the plant. Temporary nutrient deficiencies can be observed when the surface layer of the soil becomes too dry and the root system of the crop is small and shallow. On the other hand, excess water in the soil depletes oxygen and builds up carbon dioxide levels. Oxygen is needed by roots to grow and take up nutrients, while high carbon dioxide is toxic and limits root growth and activity.
2) Soil compaction can limit or completely restrict root penetration and effectively reduce the volume of soil, including nutrients and water that can be accessed by the plant. To limit soil compaction, avoid entering fields that are too wet, and minimize the weight per axle by decreasing load weight and/or increasing tire surface area in contact with the soil. Planting when soils are wet can create a compacted wall next to the seed that will prevent the seedling from developing an adequate root system. Tilling wet soils will result in clods that become hard and dry out quickly on the surface, preventing roots from accessing resources inside the clod.
3) Light intensity is low on cloudy days. Low light intensity reduces photosynthetic rates and nutrient uptake by the crop. Since low light intensity sometimes occurs when soils are waterlogged or temperatures are cool, cloud cover can exacerbate the capacity of the crop to take nutrients.
4) Temperature is important in regulating the speed of soil chemical and biological processes that make nutrients available. When soil temperatures are cool, chemical reactions and root activity decrease, rendering nutrients less available to the crop. Portions of the plant nutrients are taken up as roots extract soil water to replenish water lost through the leaves. Cool air temperatures can lower evapotranspiration and reduce the convective flow of water and nutrients from the soil to the root.

When a plant lacks a particular essential element, symptoms of deficiency specific to this element develop. Some of these deficiency symptoms may be observed visually, whereas others are more subtle & may be detected only by tissue analysis. Starvation symptoms usually appear long after hunger actually begins. Much damage to growth & yield usually has occurred when a specific symptom shows up. HIDDEN HUNGER is the term sometimes used to describe this condition: where deficiency symptoms are not visible, but plants are not thriving as they should because the amounts of available essential nutrients will not support normal growth. The addition of nutrients with suitable fertilizers & methods of application – in sufficient amounts to meet needs for plant growth – has become the standard way to avoid reduction in yield & quality of crops. Situations like this can be easily remedied by a foliar application of the deficient nutrient. Foliar nutrition has been known to work for many years. Soluble salts of iron have been used since more than 150 years ago on many crops to control iron deficiency chlorosis occurring under alkaline soil conditions. The earliest successful commercial use of foliar sprays, were made on pineapples deficient in iron, back in the mid 1800's! Accurate measurements of uptake & transport of nutrients applied as foliar sprays came with the availability of radioactive tracers. Through the use of this new technique, it was possible to distinguish just how much nutrients a plant can absorb thru its leaves & stems & the plant pathways in which the various nutrients move. Foliar nutrition proved, in many cases, to be more effective & more economic than soil application of fertilizers; especially where you have a problem with soil tie up. Growth responses to foliar absorption from the trace elements iron, copper, zinc, manganese, molybdenum, boron sulfur were recorded by many investigators. Foliar sprays of the major elements nitrogen, phosphorus, potassium, calcium, & magnesium were also recommended by many investigators, as supplements to control some nutritional disorders.

It is generally recognized that to achieve a certain nutritional status, the amount of plant food required for foliar sprays are considerably less than when the same nutrients are applied to the soil! Two sprays of a 4% ferrous sulfate solution at 30 gallons per acre produced a greater increase in yield than did 500 pounds applied to the soil (Withee and Carleson, 1959). Similar results can be obtained from magnesium (Johnson, et al, 1957). Similar comparisons can be made with manganese, boron, & copper on many crops where a high degree of soil fixation occurs.

Foliar feeding is often effective when roots are unable to absorb sufficient nutrients from the soil. Crop response to foliar nutrient sprays is more rapid but also more temporary than from soil treatments. This offers a quick recovery from deficiencies & more precise control over the equilibrium between vegetative growth & fruit production. As a supplement to the usual soil fertilizer treatments during the early life of a crop, favorable responses from foliar fertilization have been observed during periods of slow growth during flowering. At flowering many crops plants, having achieved their maximum leaf surface, show a marked depression in general overall metabolic activity, including nutrient uptake by the roots (Wittwer, 1943). Foliar applications of nutrients should be especially beneficial under such conditions.

* Portions of this information were taken from a University of Illinois Extension article.

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Dedicated to Excellence in Growing Crops

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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 he value received by the client.

Save the Date!!! August 4, 2009
Strip-Tillage Field Day!!!
Widmer & Associates& Orthman Equipment

Expensive Harvest Mistakes

Dusty Sonnenberg, CCA

Wheat harvest has arrived, snap beans and other vegetable picking has begun, first cutting hay has been made, and straw baling is just around the corner. Harvest is a great time to reap the rewards of your labor, however it can also be a time when some very expensive and unnecessary mistakes occur. Some expensive mistakes may include improper settings and adjustments on the combine or vegetable harvester. Others may deal with mechanical breakdowns that delay a timely harvest. The most expensive mistakes however are those that involve personal injury to yourself or those working with you. The National Safety Council lists agriculture as the second most hazardous occupation. Each year literally thousands of injuries and hundreds of farm related deaths occur which could have been prevented.

No one wakes up in the morning planning on having an accident, however as harvest rolls on, folks do wake up thinking of "short-cuts" they can take to get the job done faster. Short-cuts in farming often lead to trouble. Removing safety shields and allowing moving parts to be exposed is one we are all often guilty of ...especially if it is in an area that is a chronic problem. We're usually good about cleaning out the air filters regularly in the dusty harvest conditions, but we are often not as quick to clean the windows for good operator visibility and light covers and SMV emblems to allow others to see us traveling down the road. Keeping bearings properly greased, belts serviced, and fire extinguishers fully charged is a good way to reduce the risk of harvest fires. Taking regular breaks reduces operator fatigue and allows you to check for mechanical issues on the equipment. Watching out for each other, anticipating potential accidents and thinking safety in the back of our minds at all times is the best way to reduce the most expensive harvest mistakes. Have a Safe Harvest!