Wisconsin Crop Manager

Volume 18 Number 24 - - - University of Wisconsin Crop Manager - - - August 25, 2011

Syngenta Information Resources on Agrisure Viptera Bt Corn Market Restrictions

Eileen Cullen, Extension Entomologist

Regarding news this week of grain marketing issues with Syngenta's Agrisure Viptera Bt Corn and the Chinese market, Viptera Corn Being Rejected by Grain Buyers, Syngenta has released a question & answer document that is being distributed to resellers and customers along with other information to assist them, and is working with the grain trade, National Corn Growers Association, ethanol groups and other stakeholders to address the situation with minimal disruption to the marketplace, growers and resellers.

Download Q&A document here: Agrisure Viptera Chinese Import Q&A

Syngenta has set up a toll-free number with a listing of sites accepting grain with the Agrisure Viptera trait by Zip Code. To access this information, please email Export.Info@syngenta.com or call 800-319-1360 between 6 a.m. and 11 p.m. CST, Monday through Saturday. All of this information can be found at AgrisureViptera.com/exportinfo

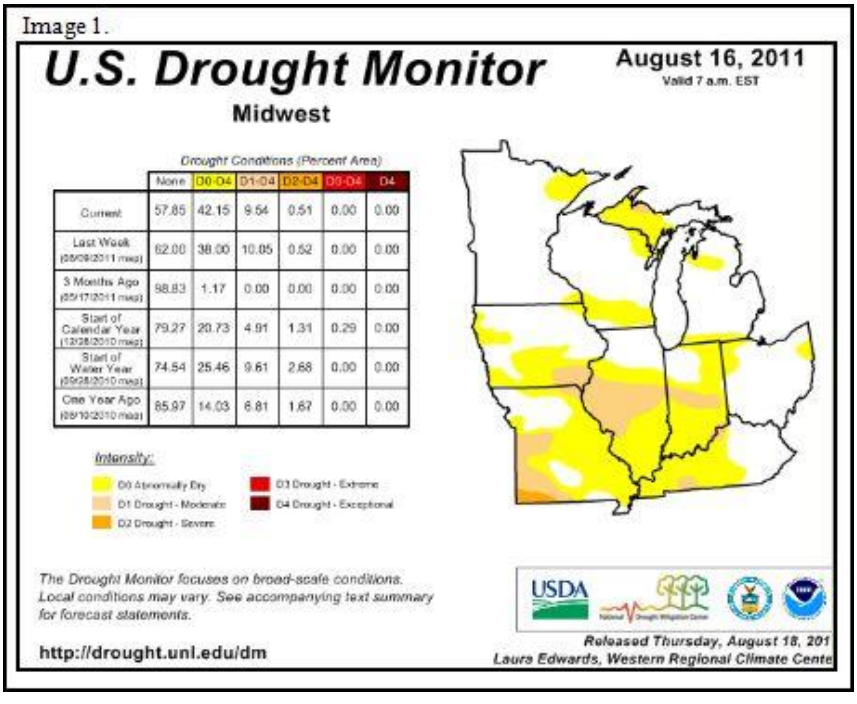
Less than 2% of U.S. corn acres were planted to hybrids with the Agrisure Viptera trait this year, the majority of that planted in Iowa, Illinois, Indiana and Nebraska. (The Ag Professional article here stated incorrectly that 250 million bushels of corn containing the Agrisure Viptera trait were planted this spring. The 250 million figure was meant to express estimated bushels at harvest vs. planting).

Stress on R6 Soybean

Shawn Conley, Soybean and Wheat Extension Specialist.

I have logged many miles across Southern WI the past week and have noticed several pockets of soybean that could use some rain. The U.S. Drought Monitor service verifies my wind shield scouting as it places most of southern WI in the abnormally dry category (Image 1). Across southern and central WI the average soybean field I have been in is at the R5.5 to R6 growth stage (full seed). In WI the R6 growth stage on average lasts ~18 days but will range from 9 to 30 days depending upon the weather. Soybean in this stage use about 1/4 to 1/3 inches of water per day. Lack of sufficient water during this growth stage can cause young pods and developing seed to abort reducing the number of seeds per plant (Images 2 &3).

Image 1.



Images 2 & 3. Stress induced seed and pod abortion at R6 soybean.

Soybean plants can reduce the size of their leaf pore openings to reduce the loss of water vapor. This also reduces the intake of carbon dioxide and the manufacturing of photosynthates which slows plant growth. When normal soil moisture returns, normal growth is resumed. This ability to reduce metabolic activity allows plants to tolerate dry spells without dying or harming their ability to resume growth when normal moisture returns.

If stress has severely affected pod set and seed fill, and if livestock feed is needed, soybeans can be harvested as a forage for ensiling. Highest protein and yields are obtained from soybean harvested at the R6 to R7 growth stage. Harvesting soybeans for forage between the R1 and R5 stage will result in a very high quality silage, but dry matter yields will be reduced significantly. Forage quality will be reduced from R5 soybean forward if a conditioning process is used during harvest. Conditioning will cause significant seed shattering.

Vegetable Crop Update 19 is Now Available

The nineteenth vegetable crop update is now available.

To view this update go to the Veg Crop Update page or follow this link http://ipcm.wisc.edu/WCMNews/VegCropUpdate/tabid/115/Default.aspx

This issue includes information regarding:

Potato and vegetable crop status reports, Corn earworm alert in sweet corn, Late blight and early blight updates, Cucurbit downy mildew updates, Black rot in cabbage, Blocker stop sale has been lifted

No Matter the Type of Silo – Risk for Silo Gas and Silo Filler's Disease

Cheryl Skjolass, Agricultural Safety Specialist, UW-Madison/Cooperative Extension Center for Agricultural Safety and Health

The question was asked during a safety presentation "Do we still need to be concerned about silo gas if we only have bunker or pile silos?" Fair question and answer is yes. Let's start with the basic of silage fermentation and the production of silo gas.

What is Silo Gas?

Shortly after green plant material is ensiled, it begins to ferment. Oxygen used in fermentation combines with nitrates in the plants, and nitric oxide gas is released. This combines with oxygen in the air to form nitrogen dioxide (NO2). NO2 is a heavier-than-air, toxic gas which can injure or kill people or animals. NO2 has a yellowish-brown color and may smell like bleach. However, with all the other things around a silo, smell is not a reliable indicator. Besides, if you see it or smell it, it may be too late!

When does Silo Gas start to form?

Silo gas forms within a few hours up to three weeks after fresh plant material is added to the silo. It is a problem in conventional, non-airtight silos. However, silo gas will be formed in silage bags and covered horizontal bunker or pile silos. Be careful when opening up bags, or bunker and pile silo covers as gas may be trapped within them. If someone goes out to repair the plastic covering on bunker or silo piles within the first three weeks, caution should also be taken to reduce potential exposures from trapped gas under the plastic. If a bunker or pile silo is not immediately covered, the NO2 may settle out around these silos. Serious lung damage may occur from a slight exposure.

How will exposure to Silo Gas make me sick?

Silo-filler's disease is the term given the injury resulting from exposure to silo gas. Inhaling even a small amount can result in serious, permanent, or fatal lung injury. The nitrogen dioxide combines with water in your lungs to form highly

corrosive nitric acid. High concentrations of NO_2 may make a person helpless in 2-3 minutes.

Symptoms of silo-filler's disease include: coughing, burning, shortness of breath,chills, fever,headaches, nausea, or vomiting.

While a person may not immediately experience the symptoms from a mild exposure, in 3-30 hours there is a slow, progressive inflammation of the lungs that results in fluid buildup in the lungs. ***This can be fatal***. A unique characteristic of this disease is that there may be a relapse in two to six week after the original episode, which may be milder or more severe than the first episode.

What can I do to prevent Silo-Filler's Disease?

For Upright Silos:

1. Stay out of an upright silo for at least three weeks after filling.
2. Be alert for bleach-like odors and/or yellowish brown gases in or near silos.
3. If you must enter the silo, e.g., to set up a silo unloader, do so immediately after the last load is in. Do not wait several hours or overnight. If you need to wait until the next day, save the last load to add before entering. Run the blower at least 15-20 minutes before entering and keep it running while inside. Keep a door open down to the silage surface, and have someone keep in contact with you from the outside.
4. Ventilate the silo room adequately for three weeks after filling, keeping windows and doors open.
5. Keep the door between the silo room and the barn closed to prevent silo gas from killing livestock.
6. If you experience throat irritation or coughing in the silo, get fresh air immediately.

For bunker and pile silos and silage bags.

1. Cover immediately when done harvesting.
2. Observe for any signs of gas when repairing plastic or working around the area.
3. Do not puncture bubbles in plastic that may release the gas directly into an individuals face.
4. Use caution when opening the plastic during the first three weeks after covering or sealing the bag.

See your doctor immediately after exposure to silo gas. Remember, this can be fatal.

Calibrating your forage harvester's yield monitor

Matthew Digman, Research Agricultural Engineer, Dairy Forage Research Center (USDA-ARS) and Kevin Shinners, Professor of Agricultural Engineering, University of Wisconsin - Madison

Combines have been monitoring yield since the mid-nineties. Back then, forage yield monitoring was still in development. However, yield monitors for forage harvesters have made great progress in the last ten years. We are familiar with the importance of calibrating the yield monitors on combines and now need to pay similar attention to forage harvesters.

Figure 1. Linear (right) and angle (left) sensor for measuring feedroll movement.

To build a yield map, your harvester's electronics combine mass-flow (throughput), harvested width, speed and location. Harvested width, speed and location are available from the machine's global navigation satellite system (GNSS). Throughput on a forage harvester is commonly measured indirectly as feedroll displacement (Figure 1). The concept is that as the harvester engages higher yielding crop, more mass enters the feedrolls, causing them to separate to accommodate the increased volume. Researchers have correlated this displacement to the total mass of the crop. Because throughput is not directly measured, a calibration that builds a relationship between feedroll displacement and throughput is critical.

Calibration begins with ensuring the feedrolls start at the proper zero position. The feedroll position can move off the zero position when feedroll spring tension or mounting position is changed, or when crop builds up under the feedroll down stops. Consult your operator's manual for specific points to check on your machine and for specific steps for the zero point calibration. Also, some machines have a response threshold or minimum feedroll displacement, which will trigger throughput monitoring. This is much like the header height shut-off on combines. Corn silage may have a higher shut-off threshold than alfalfa or grass. Be sure to check that your machine is set up for the crop you intend to harvest.

Once the zero point and the response threshold are established, the system must be calibrated to match the volume (displacement) to the mass of the particular crop that you are harvesting. Crop yield, moisture and species as well as feedroll spring tension and length of cut can have a significant effect on the yield prediction. Therefore, it is important to start the calibration process in a representative, uniform area of the field. Additionally, it is important to harvest at the speed you expect to operate. This insures the calibration point is as close to the typical operating conditions as possible.

Generally, machines have a calibration "wizard" or step-by-step procedure to follow. As usual, make sure the container you are loading has a recent empty weight and that it is completely empty. Also, harvest a full load; however, in order to obtain an accurate calibration factor, do not overfill the container, as crop could be lost in transit to the scale. At this time, most machines allow the operator to resume harvest until the load weight can be entered into the calibration wizard. Once this weight is available, a calibration factor is calculated that relates the container weight to the calculated volume during the calibration run, based on feedroll displacement and time to fill the container. This factor now adjusts yield data recorded from this point forward. To accommodate varying field conditions, it is recommended that the calibration factor be adjusted at least once per day or when a noticeable change in harvesting conditions occurs.

The next step is setting up your moisture sensor for an accurate reading. There are two different types of technologies utilized on today's forage harvesters including capacitance sensor and near infra-red reflectance spectrometer. Both sensors require specific maintenance to work properly. However, both need to be cleaned of material buildup, especially gummy material, to work properly. This often can be remedied by ensuring the sensor is properly adjusted to engage the crop stream or by cleaning with window cleaner and a rag. Also, both require a call to the dealership if moisture prediction is significantly off.

Figure 2. Capacitance and near infra-red reflectance moisture sensors.

The capacitance sensor accuracy can also be improved by entering a crop density. This process involves compressing harvested crop into a specific volume container and measuring the weight (density is the weight of crop per volume). Please follow your operator's manual and harvester's wizard for specific instructions.

For the NIR sensor, make sure your sensor has the latest calibrations from the manufacturer. You can either visit their support website or contact your dealership. It is also important to make sure the sensor's lens is free of any scratches or excessive wear and is properly adjusted to interact with the harvester's crop stream. Contact your dealer if you suspect your lens may need replacement as they can assess the lens with a wavelength standard.

With some attention to the details, you will have a harvester that should be able to produce yield maps that will allow the same precision management expected in cereal crops. Forage yield maps, coupled with site-specific technologies in application of soil amendments, fertilizers, and pesticides will allow the crop manager to determine the resulting yield response for these management decisions. Yield improvement would not be the only factor increasing profitability as site-specific application of fertilizer and pesticides could lead to lower usage, resulting in lower input costs and environmental impact.

Corn N fertilizer rate and N fertilizer price comparison iPhone apps now available in iTunes

Carrie Laboski, Extension Soil Scientist, Roger Schmidt and Scott Sturgul, Nutrient and Pest Management (NPM) Program

Have you ever needed to know the N rate for corn that will maximize return on investment but didn't have access to A2809 *Nutrient application guidelines in field, vegetable, and fruit crops in Wisconsin*? Have you ever wanted to make a quick price comparison of N fertilizer materials, but didn't feel like thinking about the math? If you answered yes to either of these questions, then you'll be glad to know that the NPM program has an app, actually two, for that. The apps are available for free in the iTunes store. See the following websites for more details.

http://itunes.apple.com/us/app/corn-n-rate-calculator/id455298473?mt=8

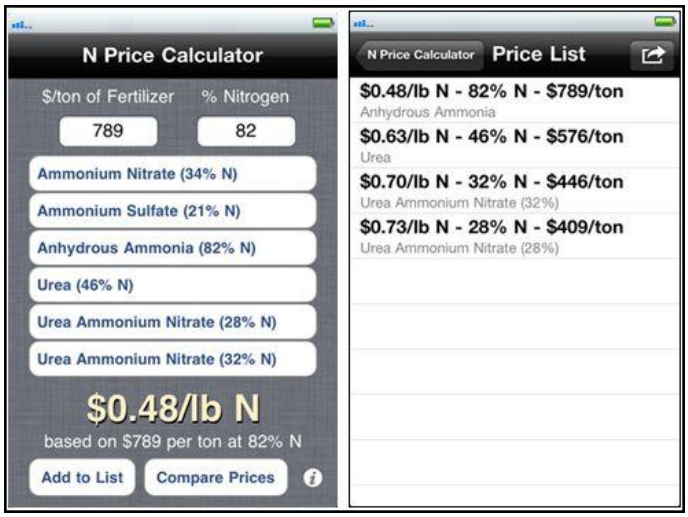
http://itunes.apple.com/us/app/n-price-calculator/id455090088?mt=8

N Price Calculator

View the N Price page on this website for instructions on how to use this app.

The free N Price calculator app allows you to compare the price of various forms of nitrogen fertilizer products in terms of their price per pound of nitrogen. Nitrogen fertilizers such as anhydrous ammonia, urea, and urea ammonium nitrate (UAN) vary in their nitrogen content and are sold on a price per ton basis. This app converts the price of each fertilizer product from price per ton to price per pound of nitrogen -- allowing for "apples to apples" comparisons. By comparing the price per pound of nitrogen from multiple fertilizer sources on the N

Price Calculator's Price List, the cheapest source of nitrogen can be identified.



Wisconsin's Corn N Rate Calculator

View the Corn N Rate page on this website for instructions on how to use this app.

The MRTN guidelines are designed to assist producers in selecting an N rate that improves profitability when N and corn rates fluctuate. Maximum return to N (MRTN) is the N rate that will be most profitable for a particular N:Corn ratio. The MRTN rate is the LARGE number expressed in lbs N/acre (total to apply) including N in starter. Below that number is the range of N rates that result in profitability within $1/acre of the MRTN rate.