Crop Solutions that Work

September 4, 2014

EVALUATE YOUR 2014 WEED CONTROL SYSTEM NOW

Over the next couple of weeks, we have a great opportunity to evaluate this year's weed control system in both corn and soybeans. This will be most challenging in corn, an unpleasant place to be on hot summer days. Although it may be easier to accomplish from the seat of the combine, right now is the best opportunity to observe individual weed species and their rate of development.

Generally, by the middle of August, most weeds are either at the reproductive stage or are large enough that identification is much easier. Proper weed identification is critical during this time because it assists in evaluating this year's weed control system. Key weeds to watch for include small seeded broadleaves such as waterhemp, lambsquarter, nightshade and marestail (horseweed), as well as a few large seeded broadleaves like common ragweed, giant ragweed and even morningglory. Arrival of new weeds, like Palmer amaranth, should also be noted at this time, and special management efforts should be initiated. Be sure to check fields closely since most of these weeds, mentioned here, can produce seed at a very short height.

An additional area of concern is identifying perennial weeds such as dandelion or quackgrass. For example, if an area of a field is identified now as having a heavy population of dandelion, fall application of 2,4-D can provide good results. For other perennials, both fall and spring tillage might be recommended, whereas simple spring tillage is generally adequate for small seeded broadleaves. Correctly identifying and noting the location of these weeds will help to plan for a better weed control system for 2015.

Another potentially important observation is the diversity of the weed population. Are grasses the only weed escapes? Broadleaves? This can signal fundamental shortcomings in the current weed management program. Perhaps herbicides with different modes of action should be selected. If only one weed species has survived the weed management program, resistance should always be considered, especially if the weed is one for which resistance has been documented.

In addition to accurate identification, recognizing the stage of weed growth is also important. If waterhemp or giant ragweed plants are relatively short, chances are that the postemergence application failed, whereas, weeds that are tall suggest that BOTH the soil and postemergence applications failed. The key question now is why did these herbicide applications fail? Consider: If the postemergence application failed, did we fail to apply a high enough rate of the herbicide? Did we have enough herbicide coverage of the weed? Did we use the correct surfactant system? If the soil application failed, was it due to inadequate incorporation (or maybe the product performs better when not incorporated)? Did we receive too much rainfall? Was the weed control system inadequate for this weed spectrum?

Finally, keep a running list of these issues you notice during your inspection. This will help you select the best weed management system for 2015.

This newsletter brought to you by:

PIATT COUNTY SERVICE COMPANY

www.piattfs.com

AGRONOMY

Contributing Editor:
Tom Walsh
Field Sales Agronomist

STALK ROTS MAY BE SEVERE / ISOLATED

Most stalk and root rots are diseases of old age in corn. Corn stalk rots are usually weak pathogens that move in when the crop is nearing maturity or is under stress from any of a number of factors. Stalk rotting organisms typically survive on residue of earlier crops and invade the current crop through roots or through injury points on stalks.

Anything that stresses the corn plant during the ear fill period can be of benefit to root and stalk rots. Actually, the physiological requirement of the developing ear, itself, represents a significant stress factor. Nutrient shortages, injury to the root system, soil compaction, high plant populations, cloudy weather, too much or too little soil moisture, all are factors that can contribute to severity of stalk rots. Stalk rots usually do not cause significant yield losses, although losses of 10 to 20 percent have been recorded from susceptible hybrids.

Pink or red discoloration of the pith, especially at stalk nodes, is characteristic of Fusarium or Gibberella stalk rots. Gibberella may produce black bumps (perithecia), on lower stalk internodes, that can be scraped off with a finger nail. White mycelial growth may be noted on the outside of the stalk as well. In the field, it is nearly impossible to tell the two pathogens apart. Both Fusarium and Gibberella will invade the ear. Fusarium is noted for production of the mycotoxin, DON.

continued on page 4

DIPLODIA EAR ROT

Diplodia survives over the winter on infected crop residue. Planting corn after corn is one of the major risk factors for this disease. With favorable temperature and moist conditions, pycnidia on the residue release spores in a gelatinous mass. Rain splashes the spores onto the corn plant. ***Corn is most susceptible to Diplodia for a period of time from one to two weeks prior to mid-silking, to three to four weeks after mid silking.*** Cloudy, rainy weather during this time will favor infection. Spores deposited at the level of the ear leaf and at the base of the developing corn ear can infect the corn plant and ear at those sites. Diplodia infections typically move from the base of the ear, upward, and from the cob, outward into the kernels. In some cases, Diplodia may infect at the tip of the ear, particularly when insect damage has occurred.

Diplodia ear infection symptoms range from minor discoloration of affected kernels, to “mummification” of the corn ear as mycelium creates a dense mat over the surface of underdeveloped ears, causing the husks to adhere to the ear. Early symptoms of Diplodia infection may include indistinct dark blotches on leaf sheaths and the green husks, ranging to early death and browning of the husks. Infected ears may be partially or completely covered with white mycelium. Breaking infected ears in two will often reveal black pycnidia on kernel surfaces. Depending on rainfall and overall moisture, some ears may display little mycelial growth but infected kernels turn dark and may easily slough off the cob.

The biggest factor which promotes Diplodia ear rot is presence of corn residue on the soil surface. For this reason, no-tillage, reduced tillage, and continuous cropping of corn are seen as major factors promoting Diplodia infection. An increase in year-to-year incidence of Diplodia ear rot may be linked to similar increases in corn residue on the soil surface, and in increases in continuous cropping of corn. Long term shifts in climate may also play a role in increases of Diplodia ear rot.

Effective management of Diplodia ear rot is tied to reduction of corn crop residue on the soil surface. With due consideration for benefits of reduced tillage in controlling soil erosion, diseases like Diplodia ear rot can be reduced with tillage of crop residue. In addition, it may be helpful to avoid planting hybrids with proven susceptibility to this disease. At this time, fungicides appear to have no proven value in reducing Diplodia ear rot. While there may be differences in ear rot expression between hybrids having loose or tight husks, other considerations can exercise greater influence in driving selection of these traits.

SUDDEN DEATH SYNDROME AND BROWN STEM ROT COMPARED

Both Sudden Death Syndrome (SDS) and Brown Stem Rot (BSR) have been reported from soybean fields. In some cases, these two diseases may be present in the same field. The first symptom usually noted for SDS and BSR is development of chlorotic and necrotic spots on upper leaves. These leaf symptoms are not caused by the pathogens, themselves, but are caused by toxins produced by these fungi in the lower part of the plant. Following are summaries of features of each of these diseases. Determination of the causal disease is important because management is slightly different for each of these diseases.

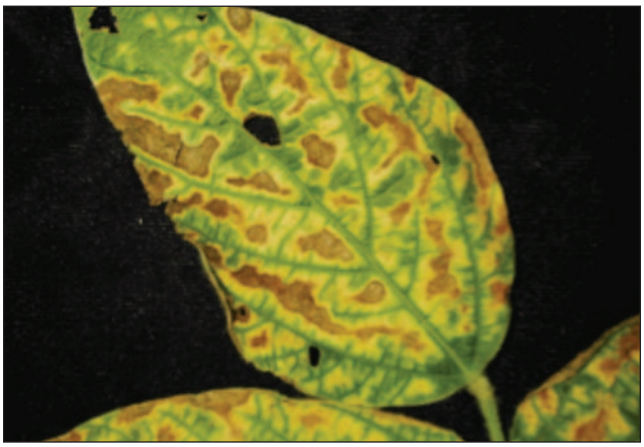
Sudden Death Syndrome (SDS)

- Caused by the fungus, *Fusarium virguliforme* formerly (*F. Solani f.dp. glycines*) that has a blue pigment in the fungal growth (usually a gelatinous mass) that is sometimes found on the taproot.
- Early spring infection is favored with early soybean planting, presence of soybean cyst nematodes or under conditions causing slow soybean growth.
- Infection occurs early in the season but external symptoms typically show up during pod fill.
- Early symptoms include decay of lateral roots and part of the taproot.
- Occurrence may be patchy in the field.
- Upper leaves develop interveinal chlorotic, then necrotic spots that expand in size to fill areas between major veins. This symptom is nearly impossible to distinguish from that associated with brown stem rot.
- The stem pith remains white but the cortical tissue may develop a faint grayish or brownish discoloration, seen in cross-section or longitudinal slices.
- Leaflets typically fall off petioles but the petioles remain attached to the stem.
- Some varietal tolerance or resistance is present in varieties. No practical fungicidal controls exist.
- The potential benefits of seed treatments have not been established.

Brown Stem Rot (BSR)

- Caused by the fungus, *Phialophora gregata*.
- Infection occurs early in the season but external symptoms typically show up during pod fill.
- The fungus does not cause noticeable decay of the taproot or lateral roots.
- Occurrence may be patchy in the field.
- Upper leaves develop interveinal chlorotic, then necrotic spots that expand in size to fill areas between major veins. This symptom is nearly impossible to distinguish from that associated with sudden death syndrome.
- As early as the V4 stage of growth, browning of the stem pith may be observed. Cortical tissue remains a normal color.
- Leaflets typically remain attached to the petioles, and the petioles remain attached to the stem. The entire leaf usually wilts and droops.
- Different strains, or pathotypes, of this disease exist and result in varying amounts of defoliation.
- Genetic resistance is available in commercial soybean varieties. No practical fungicidal controls exist.
- No benefits have been documented for seed treatments.

Browning of Stem Pith Associated With BSR



Leaf Symptoms of Either SDS or BSR

Piatt County Service Company
427 West Marion Street
P.O. Box 587
Monticello, IL 61856-0587

Return Service Requested

Crop Solutions that Work

STALK ROTS MAY BE SEVERE / ISOLATED

continued from page 2

In this edition...

Deterioration of pith tissue, ambiguous tan discoloration of the lower stalk, presence of small bumps on the stalk surface, and occasional white mold growth, all are symptoms of Diplodia (Stenocarpella) stalk rot. The bumps (pycnidia) produced by Diplodia on the lower stalk surface are embedded and are not easily scraped off. Diplodia will invade ears resulting in symptoms ranging from white mycelial growth at the base of the ear or over the surface of the kernels, all the way up to complete mummification of the ear.

Anthracnose is an exception to several stalk rot rules. It is an aggressive pathogen that can infect leaves early in the season, can invade just the top of the plant after pollination, causing top dieback, or can act like other stalk rots, being confined primarily to lower node areas. Symptoms of anthracnose that we're most familiar with include late season shiny black patches (leopard spots) on the lower part of the stalk. Anthracnose is not known in the U.S. as an ear-rotting pathogen.

Remember that one of the simplest management techniques for stalk rots is early harvest. When 10 to 15 percent of affected plants fail the push or pinch test, harvest should be prioritized. Ear drydown on stalk rot infected plants tends to be slower than on healthy plants and the risk of stalk breakage is great, so there is little advantage to delaying harvest.