The 2019 silage corn harvest is finally starting to ramp up in Wisconsin. With the excitement of finally getting into the field comes the need to be aware of the corn disease situation this season. As most of you will remember, the 2018 field season was an extreme challenge when it came to making quality corn silage in Wisconsin. Foliar diseases of corn, forced the plants to lose photosynthetic capability pre-maturely, resulting in cannibalization of stalks for carbohydrates to fill ears. Loss in stalk integrity meant extreme lodging, not to mention that was a struggle to find optimum moisture in any field. Throw in frequent rains, and trying to chop on time to achieve quality fermentation was nearly impossible in 2018. The consequences of the challenging season are still being felt with poor quality, wild yeast issues, and higher than typical mycotoxin loads. So what does 2019 look like?

Foliar Disease of Silage Corn in 2019

Compared to 2018, the foliar disease situation has been less significant in 2019. However, there are still some important diseases to consider as you prepare for harvest. Statewide, gray leaf spot did appear early again this season. However, unseasonably cool weather kept this disease relegated to the lower canopy. For most fields we have visited, gray leaf spot will likely be of little impact on yield and feed quality this year.

The flipside of the cooler weather meant that tar spot (Fig. 1) has become an issue again this year. Tar spot is favored by persistent temperatures between 60 and 70 F and high relative humidity averaging above 75% for a 30-day period. Periods of extended leaf wetness further facilitate increase and spread. We have been right in the ideal growth zone for the pathogen that causes tar spot since the first part of August. Over the last month, tar spot has been found in many areas of the state (CLICK HERE to view the latest national map for tar
spot confirmations), leading to the 4th straight field season where this disease has impacted silage corn. While the disease has moved in later this season, compared to 2018, it is moving quickly. Tar spot can kill leaves prematurely, or reduce photosynthetic capacity.

Northern corn leaf blight (NCLB; Fig. 2) can also be readily found in the upper canopy in some fields in 2019. This disease has historically been a more significant problem on silage hybrids, increasing when the weather is cool and the humidity high. Depending on the severity and interaction of both NCLB and tar spot, these diseases can influence whole plant moisture levels and also cause stalk-cannibalization, leading to increased risk for lodging. As you prepare to chop silage, scout fields to understand the severity of foliar disease levels along with whole plant moisture and kernel maturity. Fields with the highest levels of foliar disease should be closely monitored for whole plant moisture and prioritized for harvest first. Then work your way to those fields with less visible disease.

Ear rots and mycotoxins of silage corn in 2019

In 2018, corn production in Wisconsin was also plagued by high levels of Gibberella ear rot (Fig. 3) and high levels of deoxynivalenol (DON or vomitoxin) in finished grain and silage. Remember that vomitoxin is a secondary metabolite produced by the fungus that causes Gibberella ear rot. We believe that 2019 will be another year with high levels of Gibberella ear rot and vomitoxin levels. Weather has been wet, especially during silking on late-planted fields in 2019. This increases the risk of Gibberella ear rot. Furthermore, the fungus that causes Gibberella ear rot can cause Fusarium head blight (FHB or scab) in wheat. Vomitoxin can also accumulate in wheat grain resulting in unusable grain, or grain subjected to dockage at the elevator. The 2019 wheat season saw high levels of FHB in winter wheat, with subsequent reports of high levels of vomitoxin. Anecdotal reports of very high DON levels have been reported in wheat straw harvested in 2019. This situation further
substantiates the possibility that corn might also be hit hard with Gibberella this year. When scouting fields, pull back some husks to see if there is visible ear rot. Note these fields where high levels of severity exist. Also, check fields for lodging and assess stalk integrity. The fungus that causes Gibberella ear rot can also cause Gibberella stalk rot. We also know that from some preliminary research, vomitoxin can accumulate in the stalk portions of the plant in addition to the ears. Fields with high levels of ear rot and/or stalk rot should be prioritized for harvest first. You might also consider keeping silage from these higher-severity fields separate from other fields you harvest. Also consider testing for nutritive quality and mycotoxin load as you chop silage, so you know how much vomitoxin is present and potentially from which fields. Information on testing grain and silage can be found by clicking here. An additional list of testing labs can be found in A3646-Pest Management in Wisconsin Field Crops in table 2-16. Remember that mycotoxins like vomitoxin are very stable. They cannot be removed by heating or freezing. When storing corn grain for long periods of time, we recommend drying grain down to 13%. This will help stop the continued growth of the fungus that can cause vomitoxin and reduce any subsequent accumulation of the mycotoxin. In silage corn production, harvesting at optimum moisture and packing the bunker and inducing fermentation and anaerobic conditions as quickly as possible will limit any further growth of the fungus and any additional accumulation of vomitoxin.

If you sprayed silage corn with fungicide in 2019, this might help reduce the levels of foliar disease, ear rot, and vomitoxin levels. However, it will not “cure” the situation nor is it anywhere near perfect. Research in 2018 demonstrated that fungicides could reduce disease levels, but in a year when weather conditions were conducive for ear rot and vomitoxin accumulation expectations needed to be lowered. In 2018 certain fungicide programs had the capability of reducing vomitoxin levels by 50% or more, but that still meant that a lot of the silage made was still considered unacceptable for feeding due to high vomitoxin levels. Remember that hybrid choice, in addition to treating with fungicide, can play an important role in how much vomitoxin is present and the nutritive value of the finished feed.

What are the impacts of poor silage quality and mycotoxin accumulation?

Animal nutritionists have observed many impacts of mycotoxin and microbial growth challenges in animals, including dairy cattle. Performance and health issues can range from milk fat or milk protein percentage decreases, to decreased milk production and all the way on up to feed refusal, intestinal or gut hemorrhaging, and death. For this reason, nutritionists have devised guidelines for dietary limits of some mycotoxins to reduce harm to the animal. Dr. John Goeser has assembled the “Mycotoxin Guidelines and Dietary Limits” fact sheet to help producers better understand the potentially harmful toxin levels in the total diet (DM). You will see in that chart that for vomitoxin (DON), the suggested total mixed ration (TMR) concern limit is just 0.5 to 1.0 ppm for dairy cattle. The fact sheet also provides a helpful formula to understand the contribution of toxin in a particular component of feed, relative to the total diet.

Also recognize microbial growth (mold, yeast and negative bacteria) challenges will increase with wetter conditions. Both mycotoxin load and microbial contamination need to be checked if performance or health appear challenged for your herd. Start by checking the TMR and then work backward from there with your advisory team.

We are expecting a prolonged harvest this year due to unprecedented plant-
ing growing conditions earlier this season. As discussed previously, step up your crop scouting efforts to optimize harvest this year. Consider using the approach discussed in this recent Hoard’s Dairyman HD Intel newsletter to be proactive and stay in control this harvest.

SOYBEAN DISEASE CONSIDERATIONS AS THE 2019 HARVEST APPROACHES

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As the days get shorter and the temperatures start to cool, soybean harvest is on everyone’s minds. As the crop is maturing and beginning the early stages of drydown, calls about diseases are starting to come in. In the southern third of the state most of the calls have centered on sudden death syndrome or SDS. To the north, most questions pertain to Sclerotinia stem rot or white mold. Below we will discuss SDS in some detail and provide a brief update on the white mold situation as well as elaborate on seed decay issues that we should pay attention to as we begin harvest.

Scout for Sudden Death Syndrome (SDS)

The first noticeable symptoms of SDS (Fig. 1) are chlorotic (i.e., yellow) blotches that form between the veins of soybean leaflets. These blotches expand into large, irregular, chlorotic patches (also between the veins), and this chlorotic tissue later dies and turns brown. Soon thereafter entire leaflets will die and shrivel. In severe cases, leaflets will drop off leaving the petioles attached. Taproots and below-ground portions of the stems of plants suffering from SDS, when split open, will exhibit a slightly tan to light brown discoloration of the vascular (i.e., water- conducting) tissue. The pith will remain white or cream-colored. In plants with advanced foliar symptoms of SDS, small, light blue patches will form on taproots and stems below the soil line. These patches are spore masses of the fungus that causes the disease.

Foliar symptoms of SDS can be confused with those of brown stem rot. However, in the case of brown stem rot (BSR), the pith of affected soybean plants will be brown (Fig. 2). In addition, roots and lower stems of plants suffering from BSR will not have light blue spore masses.

Once symptoms of SDS are evident, yield losses are inevitable. Yield losses can range from slight to 100%, depending on the soybean variety being grown,
the plant growth stage at the time of infection and whether or not SCN is present in a field. If SDS occurs after reproductive stages (R5 or R6) impact on yield is usually less compared to the development of SDS at flowering, which can lead to substantial yield losses. When SCN is present, the combined damage from both diseases can be substantially more than the sum of the damage expected from the individual diseases.

SDS is caused by the soilborne fungus, Fusarium virguliforme (synonym: F. solani f. sp. glycines). F. virguliforme can overwinter freely in the soil, in crop residue, and in the cysts of SCN. The fungus infects soybean roots (by some reports as early as one week after crop emergence), and is generally restricted to roots as well as stems near the soil line. F. virguliforme does not invade leaves, flowers, pods or seeds, but does produce toxins in the roots that move to the leaves, causing SDS’s characteristic foliar symptoms.

SDS cannot be controlled once plants have been infected. Foliar fungicides have NO effect on the disease. Recently a new seed treatment has been identified that has efficacy against SDS. The active ingredient fluopyram can be found in the seed treatment iLeVo and is rated “very good” in multi-state trials. Other methods of control include using SDS-resistant varieties whenever possible in fields with a history of the disease; however, keep in mind that SDS-resistant varieties with maturity groups suitable for Wisconsin and other northern regions (groups I and II) can be limited. If SDS and SCN are both problems in the same field, planting an SCN-resistant soybean variety may also be beneficial in managing SDS. Do not delay planting soybeans to avoid symptoms of SDS. In Wisconsin, it has been demonstrated that the benefits to yield when planting early outweigh the benefits of reduced SDS symptoms if planting is delayed. Improve soil drainage by using tillage practices that reduce compaction problems. Rotation, while useful in managing other soybean diseases, does not appear to significantly reduce the severity of SDS. Even after several years of continuous production of corn, F. virguliforme populations typically are not reduced substantially. Research from Iowa State University has shown that corn (especially corn kernels) can harbor the SDS pathogen.

For more information CLICK HERE to download a full color fact sheet on SDS. A short video on SDS can also be viewed by CLICKING HERE.

Know Where White Mold is in 2019

Symptoms of white mold (Fig. 3) are becoming pretty apparent in some parts of central and northern Wisconsin. White fluffy growth (mycelium) is readily evident over the last week while weather has been humid and wet. Incidence in the northern half of the state is high in some fields. Fields in the northeast and northwest corridors of the state seem to be hardest hit, but severity is highly variable from one field to the next. This is likely due to a combination of variety and micro-environments that can influence the disease. Most of the soybean crop is at the R6 growth stage, with some earlier maturing fields
are almost through R7 or have made it to R8. Now the question is how much soybean yield might I lose from white mold?

Research has demonstrated that for every 10% increase in the number of plants that are infected with white mold at the R7 growth stage, you can expect between 2 to 5 bushels of yield loss. Thus, fields with low levels (say 3% incidence) will likely experience no detectable yield loss while fields with 20% incidence could lose as much as 10 bushels per acre.

What should I do if I see white mold in my soybean field now?

The first step is to get out and survey your fields for white mold. It is a good idea to determine how much white mold you have in your fields, so you can make some educated harvest decisions. One way to move white mold from one field to the next is via combines. You could clean your combine between each field, but this can be time consuming. So by determining which fields have no white mold and which fields have the most white mold, you can develop a logical harvest order by beginning your harvest on fields with no white mold and working your way to the heavily infested fields. This will help reduce spread of the white mold fungus to fields that aren’t infested. You can also make some decisions on your rotation plan and future soybean variety choices based on these late season observations.

If you would like to learn more about white mold and management of this disease, CLICK HERE to download a fact sheet from the crop protection network. You can also watch a short video about white mold by CLICKING HERE.

Watch for Phomopsis Seed Decay at Harvest

If you remember the 2018 harvest season, you are probably having nightmares right now. Extended rainy periods in October significantly delayed harvest and subjected the standing soybean crop to significant seed decay issues. Watch out for rainy periods during the 2019 harvest. If we end up in these wet patterns again in 2019, we could have a repeat of poor seed quality going into 2020.

What does Phomopsis seed decay look like?

The fungus that causes Phomopsis seed decay (Fig. 4) can infect soybean plants early in the season and colonize pods and infect seeds near, or at maturity. Infected seed will often be shriveled or undersized and can have a white or chalky appearance. If pods are opened in the field a white cottony “mold” (different than that of white mold) can be observed. Infected seed can pass the Phomopsis seed decay fungus on in seedlings of the next soybean crop. Therefore, it is important to identify Phomopsis seed decay especially in soybean-seed fields.
What conditions are favorable for Phomopsis seed decay?

Warm and wet weather during pod fill and maturity favor the development of Phomopsis seed decay. The conditions have been prevalent in areas of Wisconsin in 2019, especially where planting was delayed. Soybean varieties that mature early are also more prone to Phomopsis seed decay. Other stresses such as nutrient deficiencies or virus infections can also increase the occurrence of Phomopsis seed decay. Infested seed is a likely source of Phomopsis seed decay, however, the fungus can survive on soybean debris and certain weeds like velvetleaf.

How should I handle soybeans with Phomopsis seed decay?

Scout fields before harvest to get an idea of how much Phomopsis seed decay you might have in a field. Scout multiple plants in at least 5 locations in a field, opening pods to determine if Phomopsis seed decay is present. In fields where Phomopsis seed decay is observed, harvest should be prioritized as soon as combines can enter the field. Seed infected with the Phomopsis seed decay fungus will continue to rot in the pod until they are harvested.

How should I manage Phomopsis seed decay in the 2020 soybean crop?

Soybean seed producers should try to clean seed to achieve less than 20% damaged seed in a seed lot. Multiple cleaning steps might be needed to achieve this level. While testing germination now is recommended, remember that testing germination again next spring and potentially just prior to delivery will also help you to understand the germination rate and determine if other management strategies need to be employed such as fungicidal seed treatments.

Seed treatments can help improve the germination rate of seed damaged by Diaporthe. However, you will need more than metalaxyl or mefonoxam active ingredients in your seed treatment. Metalaxyl and mefonoxam are good against Phytophthora and Pythium, but not effective against other organisms, like Diaporthe. Seed treatments with Phomopsis on the label have an additional fungicide (either a DMI or SDHI). Table 3-8 of the publication A3646 – Pest Management in Wisconsin Field Crops has a table of some of the seed treatments with Phomopsis on the label. Also available, as stated above, is the seed treatment efficacy table from the Crop Protection Network (CPN). You can download that publication by clicking here.

As farmers begin to look forward to the 2020 growing season we also recommend that you double check the percent germination on every seed lot prior to planting and adjust your seeding rates accordingly. Here are our recommendations for soybean seeding rate based on yield potential and white mold risk: The Soybean Seeding Rate Conundrum.
An Additional Phomopsis Seed Decay Resource

A fact sheet about Pod and Stem blight and Phomopsis seed decay has been developed by a consortium of soybean extension pathologists. You can download that fact sheet by clicking here.

NEONICOTINOID SOYBEAN SEED TREATMENTS PROVIDE NEGLIGIBLE BENEFITS TO US FARMERS

SHAWN P. CONLEY, SOYBEAN AND WHEAT EXTENSION SPECIALIST, DEPARTMENT OF AGRONOMY

In summary:

Across the entire region, the maximum average observed yield benefits due to fungicide (FST = fungicide seed treatment) + neonicotinoid use (FST+NST) reached 2 bu/ac.

Specific combinations of management practices minimally increased the effectiveness of FST+NST by 0.2 to 3.3 bu/ac.

Across the entire region, a partial economic analysis showed inconsistent evidence of a breakeven cost of FST or FST+NST.

These results demonstrate that the current widespread prophylactic use of NST in the key soybean-producing areas of the US should be reevaluated by producers and regulators alike.

Read the full article at: https://coolbean.info/wp-content/uploads/sites/3/2019/09/2019_Soybean_neonics_FINAL.pdf

NEW VIDEO: WHITE MOLD ON SOYBEAN, SYMPTOMS AND MANAGEMENT OPTIONS

DAMON SMITH, EXTENSION FIELD CROPS PATHOLOGIST, DEPARTMENT OF PLANT PATHOLOGY, UNIVERSITY OF WISCONSIN-MADISON

In this video, Dr. Damon Smith with the University of Wisconsin-Madison, discusses white mold on soybean. The growth and pathogenic activity of the white mold fungus is particularly favored by dense soybean canopies created by planting in narrow row widths, high seeding densities, early planting, high soil fertility and other factors that promote plant health.

https://youtu.be/xfJ8u6RqsaY

Follow on the next page for links to resources and a free management app. Also visit Damon’s website at https://badgercropdoc.com
For in depth management, refer to “Pest Management in Wisconsin Field Crops” UW-Madison Extension bulletin

http://learningstore.uwex.edu/Assets/pdfs/A3646.pdf

Sporecaster, Soybean White Mold Forecaster, app tutorial. A free smartphone application designed to help farmers predict the need for a fungicide application to control white mold in soybean during flowering. Tutorial video link -


White mold can be spread during harvest when equipment is not cleaned between fields. Combine Cleaning checklist and demo video link -

https://youtu.be/nDMq1UanSkE

WISCONSIN FRUIT NEWS VOL. 4, ISSUE 12

CHRISTELLE GUEDOT, FRUIT CROP ENTOMOLOGY AND EXTENSION SPECIALIST, WISCONSIN-MADISON FRUIT PROGRAM

This week in fruit news:

Fruit quality data Brix and TA from berries sampled from the West Madison Agricultural Research Station (WMARS) in Madison, WI, as of September 10th.

Reports have come in that low to large levels of codling moth and moderate levels of apple maggot were caught in monitoring traps this week.

As harvest time approaches, we have noticed a sudden shriveling of berries and wilting of clusters. Read more in Berry Shriveling in grapes: Late Bunch Stem Necrosis.

Updates from the UW-Madison, Division of Extension Insect Diagnostic Lab.

Peninsular Agricultural Research Station Vineyard Scouting Report.

Grape Scouting Report: Not much to report but be on the lookout for multi-colored Asian lady beetles and wasps.

Door County Fruit Crop Pest Report, September 9, 2019.

Grape Variety Fruit Maturity Evaluation – September 4, 2019

VEGETABLE CROP UPDATES #23

KRISTA HAMILTON, ENTOMOLOGIST, WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

Update 23 – September 16, 2019

Swede midge first detections in Wis., Potato Soil Health national program updates, Cucurbit downy mildew updates, Late blight in tomato/potato updates, DSVs and PDays in potato