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To: Local News

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Corn and Sorghum Stalk Rot

It is important to check corn and sorghum fields for stalk rot diseases at this time. The two most common types of stalk rot in grain sorghum and corn are charcoal rot and Fusarium stalk rot. Both diseases are known to survive in crop residue and can survive in the soil for many years.

The best estimates are that at least 5% of the sorghum crop is lost each year to stalk rot. The incidence of stalk rot in individual fields may reach 90 to 100% with yield losses of 50%. The most obvious losses occur when plants lodge. More important may be the yield losses that go unnoticed. In sorghum, yield losses are caused by reduced head size, poor filling of grain, and early head lodging as plants mature early.

Diseased stalks can be easily crushed when squeezed between the thumb and finger and are more susceptible to lodging. The most characteristic symptom of stalk rot is the shredding of the internal tissue in the lowest internodes of the stalk, which can be observed when the stalk is split. This shredded tissue may be tan colored (Fusarium stalk rots); red or salmon, (Fusarium and Gibberella stalk rots); or grayish-black (charcoal rot).

While it is difficult to separate the effects of charcoal rot from simple drought stress, a good rule of thumb is that plants infected with charcoal rot will die about two weeks earlier from dry weather than plants that do not have charcoal rot.

When stalks are split, the typical shredded appearance in the lower stalk associated with all stalk rots will be present. Additionally, there will be a gray to black discoloration of the inner stalk caused by numerous sclerotia (small, black survival structures of the fungus) forming on the vascular bundles and decaying tissue.

Fusarium and stalk rot is generally found in the same areas where charcoal rot develops. The pith of Fusarium stalk rot infected plants will have a shredded appearance and is typically tan in color, but in some hybrids the pith in the lower stalk may be pink to red in color. Plants may die prematurely or lodge.

Fusarium stalk rot is favored by wet conditions early in the season when denitrification or nitrogen loss from leaching may occur. Later in the season, following pollination, warm (82 to 86 degrees F), wet weather can leach remaining nutrients from the soil resulting in late-season nitrogen stress and an increase in stalk rot.

Stalk rot is a stress-related disease. Research has indicated that when the carbohydrates used to fill the grain become unavailable due to nutrient shortage, drought stress, leaf damage from

insects, hail, disease or reduced sunlight, the plant uses nitrogen and carbohydrate reserves stored in the stalk to complete grain fill. When sugarcane aphid pressure is heavy, there will likely be an increase in the incidence of stalk rot and producers should be prepared to harvest as soon as the grain is ready.

No hybrid has complete immunity to the stalk rotting pathogens. When choosing a hybrid, a grower should select a hybrid that is not only a high yielder, but one that has good standability and “stay-green” characteristics. This will help assure that if stalk rot does occur, losses due to lodging will be minimal.

Producers can check their sorghum for stalk rots by squeezing the lower stem with their thumb and fingers. If the stalks crush easily, they are probably infected with one of the stalk rot organisms and may lodge at any time. Check 100 plants across the field to determine the percent of affected plants. If the percentage of stalk-rot-infected plants is high, sorghum should be harvested as soon as possible, even if it hasn't dried down adequately in the field. If the stalks are firm, the plants will probably be able to stand just fine in the field for several more weeks if necessary.

For more information, see “Stalk Rots of Corn and Sorghum,” K-State publication L-741, at: <http://www.plantpath.k-state.edu/extension/publications/L741.pdf>