April 29, 2019

Volume 1, Issue 7

Blacklands IPM Update

Texas IPM Partners With Nature

Texas A&M AgriLife Extension

GENERAL:

The month of April has been wet, keeping cotton planting to a minimum, stopping side dressing of corn, and limiting the number of corn acres that could receive a herbicide application. At this point we could use some drying weather, high temperatures and wind to help dry fields to be able to plant and complete field work. These saturated soil conditions are also slowing down growth of all crops making cotton that is up, or emerging more susceptible to thrips damage, and it is making corn and sorghum more susceptible to seedling diseases, post emergence damping off and root rots. This cooler, wet weather is also causing disease issues in some wheat fields. Currently, black chaff or bacterial leaf streak is showing up in wheat fields in the area and can have major implications on how we manage these fields from now through harvest.

WHEAT:

Wheat across the area looks, with a handful of fields for as late as the wheat crop was planted. Some lodging is starting to be observed around terrace channels and low-lying areas of fields. This can be explained by planting a variety with a little weaker wheat straw, excessive soil moisture, and excessive plant stands. Rust diseases are minimal in fields, and most of the hard-red winter wheat in the area is at the late milk to soft dough stage. The percent yield loss we could see from leaf rust at this time in our hard-red winter wheat crop would make it hard to justify a fungicide application when wheat prices are only 450 a bushel. Our soft-red winter wheat fields are a little later, and the ones in the scouting program are just now starting to flower, fields at this growth stage can still lose a good percentage of their yield potential and depending on the severity of rust in the fields could a fungicide application could be beneficial.

Insect pest in area wheat is very low, with a few true armyworms present in area fields. These true armyworm populations are still well below the economic threshold that would justify an insecticide application. Aphids are not present, but the English grain aphid could still move into area fields and become an economic pest. However, we do still have a decent beneficial insect population for the bird cherry oat aphid outbreak earlier this year that could help keep the English grain aphid suppressed below the economic threshold.

Bacterial streak or black chaff is a disease being observed in area wheat fields. Wheat fields in the scouting program from the Irene area all the way north to between Covington and Itasca are expressing symptoms of black chaff. These infected fields are expressing symptoms in random small patches across the fields, but with the weather conditions we currently have symptoms are moving rapidly. This is a rare disease of wheat for this area, and I would like to use the rest of this newsletter to discus black chaff/bacterial streak in wheat.

Figure 1. Brown discoloration on the wheat stem between the head and flag leaf., caused by black chaff.

Figure 2. Glume discoloration caused by black chaff.

Black chaff/bacterial leaf steak is a bacterial disease caused by *Xanthomonas* bacteria that can infect both the leaf (termed bacterial leaf streak) and wheat heads (termed black chaff). This disease is favored by wet and/or humid weather conditions, much like we have experienced over the last three weeks. The symptoms of black chaff can be easily confused with that of glume blotch, which is caused by the fungus *Stagonospora nodorum*, because of the darkening of glumes in infected wheat heads. Yield loss from black chaff can reach as much as 40 percent under very severe conditions, however, currently I would not risk predicting the potential yield loss we could see because of black chaff because it depends on multiple factors. Factors that can affect the percent of yield lost to black chaff include weather conditions from now up to harvest, the incidence and severity of the whole field, the susceptibility of the variety to black chaff, and the severity of any other diseases. Currently there are no documented varieties with resistance to black chaff, but research conducted by Universities outside the state of Texas have observed that some varieties seem to be more susceptible than others. Black chaff will cause glumes of infected plants will turn a purple to black color, and the awns have bands of necrotic and healthy tissue, which is a key symptom when distinguishing between black chaff and glume blotch. Them stem of the plant above the flag leaf and below the head will develop a brown to purple discoloration, and during wet and/or humid weather conditions a cream to yellow colored bacterial ooze can be produced by infected plants.

The black chaff bacterium can survive both on and in the seed, on crop residue, and is suspected within the soil. This bacterium is also known to live on the plant surface without causing any symptoms. Black chaff is move short distances by plant to plant contact, splashing water from rain and/or irrigation, and even insects. Long distance spread of black chaff/bacterial leaf streak is from planting contaminated seed. Due to this disease being caused by a bacterium, there are no in season management options that can be utilized for rain fed wheat production. Our management options we can utilize here include planting certified pathogen free seed, controlling volunteer cereals and grassy weeds, burying infected crop residue, and crop rotation.

Figure 3. Symptoms of black chaff from a distance. Notice the brown discoloration of the awns in a small area.

Figure 4. Severe glume discoloration caused by black chaff.

Blacklands IPM Update is a publication of Texas A&M AgriLife Extension IPM Program in Hill & McLennan Counties.

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