

Research Helps Stay Ahead Of Diseases In Crop Production

BATON ROUGE, LA.

Louisiana's subtropical climate can present numerous challenges to agricultural producers. Numerous insects thrive in this environment and can prove difficult and costly to manage.

At times, these insects damage crops, leaving them susceptible to diseases brought on by insect-induced stress. Then again, a number of diseases do not rely on insects but flourish in the warm and humid weather that dominates Louisiana much of the year.

So what are growers to do? According to Boyd Padgett, a plant pathologist with the LSU AgCenter, the first step in overcoming crop diseases is relatively simple. "The best way to fight crop diseases is chose a high-yield variety with disease resistance. That is the best tool to manage diseases," Padgett said.

Several diseases have caused problems in Louisiana crops over the past several years, Padgett said. Cercospora leaf blight is a major disease in soybeans. Leaf rust and stripe rust can cause problems in some wheat fields. Seedling disease is a concern for cotton growers. Corn producers have encountered isolated cases of northern corn leaf blight.

Complicating matters for producers is the cost associated with disease control.

"A producer must decide whether he or she is going to get any benefits from applying a fungicide," Padgett said. "The cost of the fungicide, the fuel involved in spraying, depreciation on equipment and labor costs all must be factored into the decision. In the end, will the yield gained from spraying pay for all this? Not to mention the time invested by the producer that could have been spent elsewhere."

Unfortunately for growers, environmental conditions in Louisiana usually favor disease development. One of the most common and potentially destructive diseases is Cercospora leaf blight in soybeans. Padgett said fungicides offer some protection against the disease, but they are costly to apply. "And in some years, a second application may be necessary," he said.

Plowing is an option to manage Cercospora leaf blight. However, farmers face the expense

of operating equipment as well as the loss of subsurface moisture. It may be counterproductive to plow, according to Padgett.

Padgett is cautiously optimistic that a new class of chemicals currently being evaluated may get a handle on this disease.

In wheat, Steve Harrison, an LSU AgCenter plant breeder, has done an excellent job of developing varieties with genetic resistance to diseases such as leaf rust or stripe rust, Padgett said. "These rust diseases do not overwinter in Louisiana," he said. "Spores of the fungus are blown into the state. Yield losses from 30-50 percent have been recorded in susceptible varieties."

Planting a rust-resistant variety is the first and best defense against diseases, Padgett said. It also is economical because it virtually eliminates the need for a fungicide.

In corn, the biggest disease problems have been associated with southern rust and northern corn leaf blight. "Both diseases are regional or sporadic, meaning they are generally isolated to a few fields," Padgett said.

Although fungicides are effective against southern rust, they may not be necessary. "The disease generally starts late in northern Louisiana and causes no yield loss," Padgett said.

In cotton, seedling disease can be a problem. Seed treatments are improving in providing protection and remain a viable option for managing seedling disease, Padgett said. The best defense against seedling disease is to plant when environmental conditions favor rapid seed germination and plant establishment.

Unfortunately for Padgett but good for Louisiana producers, the 2011 season has been relatively quiet on the disease front. Padgett attributes that to high temperatures and drier-than-normal conditions.

Moisture is a key ingredient for many diseases, so weather conditions this year have led to less disease pressure. "You can't get results when diseases aren't present," Padgett said of his research efforts. "But it's good for producers." △



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