Managing Grain Sorghum Diseases

- Unfavorable growing conditions can subject grain sorghum plants to a number of diseases that may reduce yield potential.
- An integrated management approach, such as crop rotation, removing disease-infested debris, using fungicide-treated seed, and avoiding planting susceptible sorghum products is strongly recommended. However, effective control measures can only be implemented with an accurate disease identification.

Foliar Diseases

The diseases listed in Table 1 are among several foliar diseases that can cause infection and become severe under certain conditions. In most years, disease development occurs from the whorl through maturity growth stages. Foliar diseases are rarely a problem if sorghum is to be harvested for silage, as they generally appear at later stages of plant growth.

Yield reduction is seldom significant enough to warrant specific control practices; however, yield loss can be expected if damage occurs to the upper leaves at the grain filling stage. Sorghum products vary in their susceptibility to these diseases.

Head Smut

Head Smut is a disease caused by the fungus Sphacelotheca reilianum. The disease is most prevalent along the Gulf Coast and into central Texas. Soil-borne smut spores from previous crops can infect young sorghum seedlings, which may remain relatively healthy in appearance. At heading, a large mass of dark-brown smut spores appear in place of the panicle (Figure 1).

The spores fall to the ground and can initiate infection in a subsequent sorghum crop.

Planting head smut susceptible products in the same field for several years can rapidly increase the percentage of infected plants. In addition to using fungicide-treated seed, planting products with compact heads should be avoided. When possible, promptly removing and burning head smut is recommended to prevent scattering of the spores.

Crazy Top Downy Mildew

Crazy Top Downy Mildew is a disease caused by the fungus Sclerophthora macropora. The disease can often be most noticeable in fields where overflow occurs or in low spots where water stands, as high soil moisture levels and flooding are favorable conditions for the disease to develop. Wild and cultivated grasses can become as a source of inoculums.

Infected plants have thick, stiff, twisted, pale green leaves with bumpy surfaces. The leaves often turn downward and the plants produce many shoots or suckers, giving the plant a bunched appearance. Infected plants produce a proliferation of leafy tissue instead of producing heads.

Management

- Fields should be adequately drained.
- Tolerant sorghum products should be used; although there are differences in susceptibility among grain sorghum products, these differences are not significant.
- Rotation is not useful as the fungus infects many wild and cultivated grasses.

Table 1. Symptoms of Foliar Diseases in Grain Sorghum.

<table>
<thead>
<tr>
<th>Disease</th>
<th>Symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaf Blight</td>
<td>Large elongated spots with gray centers and tan-to-reddish borders.</td>
</tr>
<tr>
<td>Sorghum Ergot</td>
<td>Amber-colored sticky fluid exudation from the infected flowers, which often drips onto leaves and soil surface.</td>
</tr>
<tr>
<td>Rust</td>
<td>Small blisters on the upper and lower leaf surface that can release reddish spores.</td>
</tr>
<tr>
<td>Sooty Stripe</td>
<td>Elongated spots having a sooty appearance because of the black fungal bodies (sclerotia).</td>
</tr>
</tbody>
</table>

Source: Grain sorghum disease, The Texas A&M AgriLife, http://sanangelo.tamu.edu
Managing Grain Sorghum Diseases

Anthrascnose

Anthrascnose is a disease caused by the fungus *Colletotrichum graminicola* and can damage leaves, panicles, and stems. Infected stems cut lengthwise may show brick-red sections while the pith is healthy and white in color (Figure 2). Anthracnose development is weather dependent and has been mostly restricted to the more humid Gulf Coast of Texas. Severe infection can greatly reduce yield potential.

Management

- Sorghum products that are rated as "susceptible" should be avoided.
- Rotating to a crop that is unrelated to grain sorghum is highly recommended.
- Good residue management should be adopted.

Maize Dwarf Mosaic Virus

Maize Dwarf Mosaic Virus (MDMV) causes a distinctive leaf mottling (light-green blotchiness), plant stunting, and reduction in yield potential. Another distinct symptom is "red leaf"; a reddish discoloration and tissue death on leaves, sheaths, and peduncles (Figure 3). The red coloration of the leaf is dependent on the sorghum product, virus strain, and cool night temperatures (below 60° F).

Johnsongrass serves as the source of the virus, which is maintained in the underground rhizomes until it moves into the young Johnsongrass shoots in the spring. Aphids, feeding on the infected Johnsongrass, acquire the virus and move it to other non-infected Johnsongrass plants and/or to young grain sorghum plants. Most grain sorghum products are susceptible to MDMV; however, some products may show less symptoms and little or no yield loss.

Planting "susceptible" or "very susceptible" grain sorghum products where Johnsongrass is prevalent should be avoided. In addition, Johnsongrass rhizomes should be controlled in the field.

Sorghum Downy Mildew

Sorghum Downy Mildew (SDM) is a disease caused by the fungus *Peronosclerospora sorghi* and most prevalent along the Gulf Coast of Texas. Outbreaks of SDM have been associated with metalaxyl-resistant strains of the fungus and the use of susceptible sorghum products. Systemically infected seedlings are pale yellow or have light-colored striping or motting on the leaves. Infected plants can be stunted and may die prematurely. Later infection may partially or completely prevent grain formation. The fungus may produce a fuzzy, white growth on the underside of leaves (Figure 4).

A three-pronged management approach of crop rotation, sorghum product selection, and using fungicide-treated seed should be adopted. A field infected with SDM should be out of sorghum for at least two years. Cotton, wheat, soybean, or a forage crop should be rotated with grain sorghum.

Summary

Severity of disease infection depends on environmental conditions and the presence of organisms and host plant resistance. Potential yield losses can be minimized by selecting tolerant/resistant grain sorghum, using fungicide-treated seed to prevent seed rot and seedling blights, removing infected field residue, planting crops other than grain sorghum in an infected field, and adopting good growing season management.

Sources:

For additional agronomic information, please contact your local seed representative. Developed in partnership with Technology Development & Agronomy by Monsanto.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. All other trademarks are the property of their respective owners. ©2015 Monsanto Company. 140602060402 6214SMK.