Phaeosphaeria leaf spot

CAUSAL ORGANISM

Fungus: *Phaeosphaeria maydis* and *Phoma sorghina* (possible disease complex).

IMPORTANCE

Phaeosphaeria leaf spot (PLS) is increasingly being considered a major disease of maize in parts of South Africa, especially in KwaZulu-Natal in the mist belt, Winterton and Bergville areas and is considered a potential threat to maize production in regions where high humidity and low night time temperatures are prevalent during the growing season. Yield losses can be most severe when upper leaves are severely blighted by PLS during the early reproductive growth stages of the maize plant. In many maize growing regions however, conditions favourable for PLS exist only towards the end of the growing season and hence yield loss is minimal. In Brazil, PLS is considered a particularly important disease of maize where yield losses as high as 60% have been recorded. However, PLS remains a late season disease and is considered of minor importance in most maize growing regions.

SYMPTOMS

Leaf lesions initially appear as small, pale green or chlorotic spots scattered over the leaf surface. As lesions mature they become bleached and dried with dark brown margins (Fig. 1), similar to paraquat herbicide (trade name - Gramoxone) damage. Lesions are circular, elongate to oblong measuring 0.3-2.0cm. Lesions may coalesce becoming irregular in shape and blight the entire leaf (Fig. 3). Pinpoint, black fruiting bodies (perithecia) and, less frequently, pycnidia develop within lesions on the underside of the leaf blade (Fig. 2). Lesions are usually first visible on the edges of maize fields or on the top leaves of plants, exposed to spore deposition and, more importantly, cold conditions towards the end of the season as winter approaches. Maize plants inside the field normally show fewer symptoms.

DISEASE INFORMATION

P. maydis overwinters on crop debris. During subsequent growing seasons, in response to favourable climatic conditions (high rainfall and moderate temperatures), spores are rain splash and wind disseminated to freshly planted maize where they germinate on foliar tissue. Spores produced in disease lesions initiate secondary cycles of infection during the season. Humidity levels above 70% and night time temperatures above 14°C strengthen disease severity.

COMMON NAMES

Phaeosphaeria leaf spot; PLS

HOST RANGE

Zea mays (maize) - only known host.

Figure 1. *Bleached, circular lesions.*

Figure 2. *Black fruiting bodies.*

Figure 3. *Blighting of entire leaf.*

CONTROL

Cultural control:

- In regions where PLS is a serious foliar disease, the use of resistant hybrids is the most cost-effective and practical means of disease management.
- Management of infected crop residue will reduce disease inoculum at the onset of the subsequent growing season.
- Cultivation of maize during periods that are unfavourable for disease development can also reduce crop damage.

Chemical control:

- In South Africa, fungicides currently used and registered to control Common rust, Grey leaf spot and Northern corn leaf blight in spray programmes does not seem to provide adequate control against PLS. New combinations and timing of applications are currently being investigated.

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