Pacific Pests, Pathogens & Weeds - Fact Sheets

https://apps.lucidcentral.org/ppp/

Maize northern leaf blight (226)

Photo 1. Large elongated grey spots of maize northern leaf blight, *Setosphaeria turcica.*

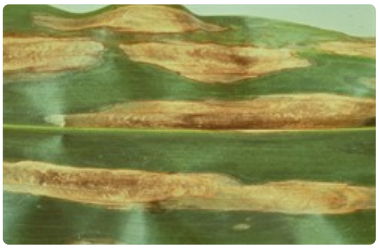

Photo 2. Spots of maize northern leaf blight, *Setosphaeria turcica,* starting to form dark masses of spores.

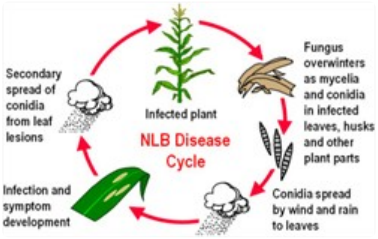

Diagram. Disease cycle of maize northern leaf blight (NLB). The spores are called "conidia", and the cottony growth of the fungus, "mycelia").

Common Name

Maize leaf blight, maize northern leaf blight

Scientific Name

Setosphaeria turcica; the asexual stage name is *Exserohilum turcicum.* It has also been known as *Helminthosporium turcicum*. There are many races or strains of the fungus.

Distribution

Worldwide. Common wherever maize is grown: Asia, Africa, North, South and Central America, the Caribbean, Europe, Oceania. It is recorded from Australia, Fiji, French Polynesia, New Caledonia, New Zealand, Papula New Guinea, Tonga, and Wallis & Futuna.

Hosts

Maize, sorghum, and wild grasses (*Echinochloa*, *Panicum*, *Pennisetum*, and more).

Symptoms & Life Cycle

Large, usually oval, grey or light brown leaf spots, sometimes with dark margins, 25-150 mm long (Photos 1&2). The spots merge covering large parts of the leaves. Symptoms occur first on the lower leaves, except when plants become infected by large numbers of spores from the atmosphere. In moist weather, brown fungal growth containing spores occurs on the spots, often in concentric zones. The disease causes the leaves to dry out, wither and die.

Spread occurs as spores carried in rain splash and air currents to new plantings (Diagram). Large storms can carry the spores over long distances. Survival is on plant remains - leaves, husks, and other plant parts - as fungal growth and spores. Thick walled spores

('chlamydospores') are produced, allowing survival of the fungus for up to 2 years. Survival also occurs on "volunteer" plants. There is no evidence that it is seedborne, although it is in sorghum.

Heavy dews, frequent light showers, high humidity and moderate temperatures favour the disease. Water covering the leaves for 6-18 hours, and temperatures in a range of 18-27°C, are needed for spore germination and infection.

Impact

An important disease causing loss of grain and also animal fodder, but one that can be controlled by growing resistant varieties. If not controlled, spots occur on the ear leaf and above and there is significant loss of green leaf area, and consequently loss of yield.

Detection & inspection

Look for the long grey tapering leaf spots, more than 100 mm long. Look to see the black fungal mould on the spots.

Look to see differences between maize northern leaf blight and southern leaf blight (*Cochliobolus heterostrophus*). Spots caused by maize northern leaf blight are larger, and fewer than spots caused by southern leaf blight, and they are mostly on the leaves (**see Fact Sheet no. 80**).

Management

CULTURAL CONTROL

Before planting:

- Choose hybrid varieties with known resistance to maize northern leaf blight; this is the most important way of managing the disease.

During growth:

- Make sure that the plants have adequate nutrients. Do not over supply nitrogen, but make sure phosphorus and potassium are at optimal levels.
- Control weeds, especially grasses that might be alternative hosts of the fungus.

After harvest:

- Collect the remains of the crop and destroy by burning or burying.
- Practise crop rotation; rotate with non-grass crops.

RESISTANT VARIETIES

There are resistant hybrid varieties to this disease; check those available from retailers in your country.

CHEMICAL CONTROL

Chemical control should not be necessary for the management of this disease, and its use is unlikely to bring economic returns. However, if fungicides are needed, use chlorothalonil or mancozeb.

AUTHOR Grahame Jackson

Information from CABI (2012) *Setosphaeria turcica* (maize leaf blight) Crop Protection Compendium. (http://www.cabi.org.cpc/). Photos 1&2 Kohler F, Pellegrin F, Jackson G, McKenzie E (1997) *Diseases of cultivated crops in Pacific Island countries*. South Pacific Commission. Pirie Printers Pty Limited, Canberra, Australia. Diagram (and information) Svec L, Dolezal B *Crop insights: managing northern corn leaf blight race shifts*. Pioneer. (https://www.pioneer.com/home/site/us/agronomy/library/managing-nclb/).

Produced with support from the Australian Centre for International Agricultural Research under project PC/2010/090: *Strengthening integrated crop management research in the Pacific Islands in support of sustainable intensification of high-value crop production*, implemented by the University of Queensland and the Secretariat of the Pacific Community.

Australian Government

Australian Centre for
International Agricultural Research