**CAUSAL ORGANISM**

**Bacteria:** Xanthomonas campestris pv. zeae

**HOST RANGE**

Zea mays (maize) - only known host.

**SYMPTOMS**

Under field conditions, symptoms may be found at all growth stages, but are most frequently observed at or after flowering. The initial leaf symptoms appear as dark-green, oil-soaked streaks. Often the lesions will begin at the edges or midrib of leaves. Lesions later enlarge to become narrow, yellowish-tan, translucent streaks, 2-3mm wide (Fig. 1). Lesions run parallel to, and are confined by, the leaf veins. As the disease progresses, streaks may coalesce to form elongated, irregular spots or streaks, which are brown to greyish-white in colour, surrounded by a yellow border (Fig. 2). Bacterial exudates in the form of small yellow droplets may be associated with the streaks when leaves are wet or during periods of high humidity. Under severe infection, paper-thin lesions may extend across all or much of the leaf blade to form large, necrotic areas resembling drought injury. Leaves eventually appeared tattered and shredded especially following windy conditions.

**SIMILARITY TO OTHER DISEASES**

This disease has previously been confused with Grey leaf spot (GLS) (see GLS fact sheet), a fungal disease, and farmers have applied, at great expense, fungicides to control the disease, a futile and very costly exercise. Although both diseases are restricted by veins, the margins of BLS are irregular whilst those of GLS have a rectangular appearance. Bacterial exudates can also be used to differentiate between the fungal GLS and BLS, where bacterial streaming can be observed by cutting the infected leaf and holding it in a glass of water against the light.

**DISEASE INFORMATION**

It is presumed that *X. campestris pv. zeae* survives in the debris left after harvest. Additional sources of inoculum for secondary infection may be bacteria present in irrigation water and bacterial cells in beads on leaves when moistened by dew or rain. Within fields, it is likely that *X. campestris pv. zeae* is most effectively disseminated by wind-driven rain or irrigation, but the pathogen may also be disseminated by aphids, wind and plant-to-plant contact. No research has been conducted on whether it is seedborne.

The bacterium penetrates the leaf through natural openings (such as stomata and hydathodes), thus it is likely that the highest infection occurs at midday, during which the leaf stomata are fully opened. Soon after lesions develop, bacterial exudates form on the surface of the lesions under moist conditions during the night. Under dry conditions, these exudates become small, yellow beads that eventually fall into the irrigation water, which may be responsible for long distance spread of the pathogen.

**CONTROL**

Very little information is available on control. The recommendations are given as guidelines.

**Cultural control:**

- At present no resistant hybrids have been identified for commercial release due to the sporadic occurrence of the disease, however there are genotype differences.
- Crop rotation since maize is the only host.
- Field sanitation is important. Crop debris and volunteer seedlings left after harvest can be destroyed to minimise the initial inoculum at the beginning of the season.
- Fallow field and allowing fields to dry thoroughly is also recommended.

**Chemical control:**

- Important to note that the maize fungicides on the market will not control this disease, so proper identification and confirmation of the disease is essential before farmers engage in a costly spray programme.

**IMPORTANCE**

Bacterial leaf streak (BLS) has only been reported in South Africa occurring primarily in the North West Province, Northern Cape (Orange River irrigation areas) and the Free State. This disease results in premature browning and drying of leaves and may reduce grain weight under severe infections, although yield losses have not been quantified to date.