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Sigatoka disease — incidence under Surinam climate conditions —

Ir P. W. Th. Maas

In Surinam and other banana producing regions the most important disease of bananas is Sigatoka caused by the fungus **Mycosphaerella musicola.** The assimilating leaf surface of the plant may be reduced considerably by the disease, whereby smaller bunches are produced that are unsuitable for export, because they ripen irregularly and faster.

For the development of an economical and efficient control prgram it is necessary to get a clear view of the epidemiology of the disease.

On this subject important work has been done by STAHEL in Surinam, LEACH and STOVER in the Caribbean, by CUILLE and BRUN in the former French territories in Africa and the Antilles, and by PONT in Australia.

When we divide weather conditions into temperature, humidity, light and wind, it appears that on the basis of what is known from earlier investigations we may expect the greatest influence from humidity and to a lesser extend from temperature in Surinam.

A significant effect of light has never been found. There is only an indirect influence of shade, in the manner that bananas growing under shade are affected to a lesser extend by the disease. This effect has to be attributed to the fact that there is no formation of dew rather than to lower light intensity under shade.

In Surinam wind will have little influence on disease incidence during the year, because heavy winds seldom occur and there is always enough wind for dispersal of ascospores.

Temperature will also have a limited influence on the epidemiology of the disease because it is known that only when the temperature drops below 20°C (or 68°F) and rises above 31°C (or 88°F) the disease goes down. These lower temperatures seldom occur and the higher temperatures are limited to August, September and October.

Dispersal of spores and infection require humidity. When we consider the rainfall distribution during the year in Surinam, we notice a short rainy season in December and January and a longer rainy season in May, June, July and August.

When we take into consideration one month for the incubating period, (this is between infection and first symptoms) we will observe many early symptoms in January and February and in June, July, August and September.

As we know that a leaf will become more affected when it becomes older because it has longer been exposed to infection, we shall understand that the disease will attract most attention when leaf number 12, counted from the top of the plant, becomes severely damaged. Taking into account the leaf formation period at 10 days, this will be at about 3 months after the onset of infection.

So heavy affection will be noticeable in March and April and during August, September, October and November.
This exactly what we observed in the field.

These relationships mean that we will observe heavier affections in the dry seasons as a result of the infections that took place during the rainy seasons.

This means also that the disease does not have a "dead" season in Suri-nam. In the dry seasons sufficient spores are formed every time again to guarantee a mass-infection during the following rainy seasons

Everyone is inclined to control a disease only when it becomes obvious. In the case of Sigatoka it is too late than, because the calamity took place appoximately three months before and the curative action of fungicides is limited.

Control with mineral oil-fungicide emulsion tends to keep the younger leaves free from attack, because primary infection occurs on the youger leaves. The older leaves become infected by spores dripping down from spots on younger ones.

Fungicides kill spores and prevent spore germination. Mineral oil how-ever has a curative action and is most effective against (young) infec-tions, when the first symptoms appear.

Therefore control with mineral oil-fungicide emulsion should be carried out especialy during the rainy seasons and one month thereafter.

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