

## SUMMARY

Cercospora spot disease of avocados caused by Pseudocercospora purpurea (Cke) Deighton is described for the first time in South Africa, where it was found to be the most important pre-harvest fruit disease at Westfalia Estate, in the North Eastern Transvaal (longitude 30°10' and latitude 23°45'). Losses caused by the disease were investigated in relation to rainfall, cultivar, time of harvest, root rot severity of trees and the position of the fruit on the tree.

A detailed description of Cercospora spot symptoms is given. The analysis of spore trap results and weather data produced statistical models suitable for forecasting conidia production by the pathogen. These models may be used to determine high risk infection periods, thereby facilitating accurate timing of fungicidal sprays.

Infections taking place early in the growing season were found to give the highest disease incidence at harvest. There is a latent period of about three months in duration in the disease cycle.

Cercospora spot disease can be controlled by benomyl and also by some of the non-benzimidazole fungicides such as captafol, Cu-hydroxide and Cu-oxychloride. It was found that several years' continued use of benomyl results in a significant decrease in the efficacy of the fungicide against the disease.

On the basis of symptoms and the pathogens involved, the following post-harvest diseases were recognised at Westfalia Estate:

Stem-end rot caused by Thyronectria pseudotrichia (Schw.) Seeler, Colletotrichum gloeosporioides (Penz.) Sacc., Dothiorella aromatica (Sacc.) Petr. and Syd., Phomopsis perseae Zerova, Fusarium decemcellulare Brick and to a lesser extent Pestalotiopsis versicolor (Speg.) Steyart, Lasiodiplodia theobromae (Pat.) Griff. and Maubl., Rhizopus stolonifer (Ehr. ex Fr.) Lind., Fusarium sambucinum Fuckel, Fusarium solani (Mart.) Sacc. and Drechslera setariae (Sawada) Subram. and Jain.

Anthraxnose caused by Colletotrichum gloeosporioides (Penz.) Sacc.

Dothiorella/Colletotrichum complex fruit rot caused by Dothiorella aromatica (Sacc.) Petr. and Syd. and Colletotrichum gloeosporioides (Penz.) Sacc.

Losses caused by these post-harvest diseases were studied with respect to oil content of fruit, root rot severity of trees and the position of the fruit on the tree. A comprehensive description of the post-harvest disease symptoms is given.

The pathogenicity of the fungi involved in post-harvest diseases was thoroughly studied. Infections taking place later in the growing season are more critical and result in a higher post-harvest disease incidence at harvest than infections occurring early in the growing season. The natural latent infections by C. gloeosporioides and D. aromatica build up in the fruit during the growing season and decrease again during the dry harvest season.

Pre-harvest sprays with benomyl, captafol, bitertanol, Cu-hydroxide and Cu-oxychloride were found to control postharvest diseases to some extent.

In post-harvest handling of avocados, the length of the ripening time has a marked influence on the incidence of post-harvest diseases and any post-harvest treatment that extends shelf-life increases the disease incidence. This increase could not be fully counteracted by the addition of fungicides to waxes.

Moisture on the fruit at harvest was found to aggravate post-harvest diseases whereas the sealing of the fruit pedicel with wax plus fungicides as well as the removal of the pedicel reduced losses due to stem-end rot.

By accurate identification of the organisms involved in pre-and post-harvest diseases of avocados, studying their epidemiology and selecting effective fungicides, it has been possible to give growers in this area a better understanding of what measures should be taken for the control of these diseases.