RADOPHOLUS SIMILIS, *THE BURROWING NEMATODE IN NEW GUINEA*

J. M. Fisher* and Dorothy E. Shaw†

ABSTRACT

Radopholus similis (Cobb, 1893) Thorne, 1949 is recorded on three occasions on unthrifty bananas at two sites at Lae and in the Lower Markham Valley, these being the first records of this nematode in New Guinea.

DURING November, 1970 a banana sucker showing signs of root disease was studied at the Konedobu laboratories. The sucker came from a stool of green-bracted cooking bananas of the *Musa acuminata* type from Lae, New Guinea. The grower stated that it came from a plant which showed sickness for some weeks as evidence by production of very small leaves, premature shooting of a weak bunch, abundant production of water suckers and later collapse of the pseudostem with the inflorescence. An examination of the base showed that most of the roots were dead and rotten and were in a similar condition to the main stool and could be lifted out of the ground without any digging.

Amongst the nematodes extracted by the Baermann funnel at Port Moresby from the decaying roots and surrounding soil were various nematodes, including numerous specimens of *Radopholus similis* (Cobb, 1893) Thorne, 1949,, as identified by the senior author (TPNG 7396). The bananas surrounding the infested site have been kept under observation, but no other unthrifty plants have been noted.

A survey was then undertaken of bananas (cooking, fresh eating and non-edible) at seven localities in the lower Markham Valley. Only at one site at one locality were some unthrifty suckers found, in a stool of Dwarf Cavendish (*M. acuminata*). Extraction from roots and soil by the Baermann funnel at Port Moresby was carried out, and specimens of the nematodes were again identified by the senior author as *R. similis* (TPNG 7580 and 7581). Another extraction carried out from a further set of suckers from the same site several weeks later also included nematodes identified as *R. similis* (TPNG 7593).

Although no unthrifty bananas were found at the other six localities, extractions of soil from each were carried out as a check but no *R. similis* was recorded. The bananas included *M. acuminata* (1 area), *M. acuminata* type (1 area), *Musa* sp. with characteristics of *M. acuminata* and *M. schizocarpa* (1 area), *M. schizocarpa* (1 area) and *M. balbisiana* type (2 areas) (TPNG 7620-5 inclusive).

The nematode is regarded as a serious pest of bananas in most countries where bananas are grown, including New South Wales, Queensland, Indonesia, Fiji, West Indies and the U.S.A., and was first recorded from Fiji in 1893.

Symptoms produced by the nematode on bananas include reddish-brown lesions in the cortex of affected lateral or 'cord' roots which gradually expand, and if they coalesce they may encircle the cortex and eventually that part of the root distal to the lesion will be killed. If the population of nematodes is dense, the root system may be reduced to a few short stubs at the base of the corm such that anchorage becomes tenuous and the plants topple easily. Lesions close to the corm may extend with the roots into the superficial layers of the corm. Thus, young suckers in an infested area are likely to be affected. Therefore, new planting material should be obtained from uninfested areas.

The nematode exists in a number of races, one of which attacks citrus and is responsible for 'spreading decline' of citrus in Florida, U.S.A., on the control of which millions of

*Nematologist, Waite Agricultural Research Institute, Adelaide, South Australia.

†Chief Plant Pathologist, Department of Agriculture, Stock and Fisheries, Port Moresby, Papua New Guinea.

dollars have been spent. It is not known as yet which race or races are present in Papua New Guinea.

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