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Department of Agricultural Research and Extension - Ministry of Agriculture
P.O. Box 226 - Amman - Jordan

PLANT-PARASITIC NEMATODES ASSOCIATED WITH POMEGRANATE (*PUNICA GRANATUM* L.) IN JORDAN AND AN ATTEMPT TO CHEMICAL CONTROL

by
Z. HASHIM

In an irrigated pomegranate (*Punica granatum* L.) orchard at Wadi Dhulail, Jordan, several of the trees showed symptoms of severe decline. These included stunting, poor vegetative growth, desiccation and defoliation of branches and yellowing of leaves (often with brown necrotic tips). Soil samples from this orchard contained large numbers of *Helicotylenchus pseudorobustus* (Steiner) Golden (up to 3,400 nematodes/100 ml of soil); *Tylenchorhynchus clarus* Allen, *Longidorus* sp. and larvae of *Meloidogyne* spp. were also present, but were usually less numerous. Roots of some trees had galls and were sometimes distorted and necrotic; examination of root samples immersed in boiling lactophenol/cotton blue (3 mins) and then differentiated in clear lactophenol showed *H. pseudorobustus*, *M. incognita* (Kofoid *et* White) Chitw. and *M. javanica* (Treub) Chitw. in their feeding positions. Sampling in various districts in northwest Jordan revealed the presence of several plant-parasitic nematodes in the rhizosphere of pomegranate (Table I).

A simple experiment with 16 trees at the Wadi Dhulail orchard was initiated in May, 1982 to assess the efficacy of Carbofuran for the control of soil populations of nematodes. Eight of the trees were treated with the chemical, at the rate of 2 g a.i. per tree applied as granules in a 15 cm deep furrow around each tree; eight trees were left untreated as controls. The orchard was irrigated two days after treatment. Nematodes were extracted from soil samples taken from the rhizosphere of each tree immediately prior to and two months

Table I - *Plant-parasitic nematodes associated with pomegranate in Jordan.*

Nematodes	Districts
Amplimerlinius macrurus (Goodey) Siddiqi	Salt.
Criconemella antipolitana (de Guiran) Luc *et* Raski	Jerash, Mahis, Salt.
C. xenoplax (Raski) Luc *et* Raski	Al-Fuhais, Mahis.
Helicotylenchus digonicus Perry in Perry, Darling *et* Thorne	Jerash.
H. minzi Sher	Al-Fuhais, Mahis, Salt, Wadi Seer.
H. pseudorobustus (Steiner) Golden	Al-Hallabat, Wadi Dhulail.
H. tunisiensis Siddiqi	Jerash, Salt.
Helicotylenchus sp.	Salt.
Longidorus sp.	Wadi Dhulail.
Meloidogyne incognita (Kofoid *et* White) Chitwood	Wadi Dhulail.
M. javanica (Treub) Chitwood	Wadi Dhulail.
Merlinius brevidens (Allen) Siddiqi	Arrumman, Jerash.
M. microdorus (Geraert) Siddiqi	Salt.
Neolobocriconema n. sp.	Salt.
Nothocriconema loofi De Grisse	Salt, Wadi Seer.
Paktylenchus tuberosus Maqbool	Arrumman.
Paratrichodorus tunisiensis (Siddiqi) Siddiqi	Al-Fuhais, Salt.
Pratylenchus penetrans (Cobb) Filipjev *et Sch.* Stek.	Arrumman.
Rotylenchulus macrosomus Dasgupta, Raski *et* Sher	Mahis.
Tylenchorhynchus clarus Allen	Wadi Dhulail.
Tylenchorhynchus n. sp.	Jerash.
Xiphinema index Thorne *et* Allen	Jerash, Salt.
X. pachtaicum (Tulaganov) Kirjanova	Al-Fuhais, Mahis, Salt.

after treatment. During this period, population levels of *H. pseudorobustus* decreased by approximately 65% around both treated and untreated trees and the treatment had no discernible effect on decline symptoms.

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