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HETERODERA TRIFOLII ASSOCIATED WITH *FUSARIUM* ROOT ROT OF *TRIFOLIUM SUBTERRANEUM* IN NORTHERN TUNISIA

by

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Larvae and cysts of species of *Heterodera* Schmidt were recovered from soil samples taken from the rhizosphere of subterranean clover, *Trifolium subterraneum* L., growing on experimental fields in the Ras Rajel, Sedjenane, and Grombalia-Cap Bon regions of northern Tunisia in 1974 and 1975. The samples were taken from sites where severe clover decline was detected (Fig. 1). The diseased plants were often severely stunted and in most cases supported by a deformed and rotted, primary and secondary root system (Fig. 2). Several cultivars examined also exhibited various degrees of leaf reddening and to a lesser extent leaf chlorosis. Cysts were found on the roots of the Australian cultivars, Clare, Yarloop, Geraldton, Woogy, Mt. Barker, Woogenellup and on 11 Tunisian ecotypes. The number of cysts per 100 ml of soil ranged from 1 to 115 and the number of eggs and larvae per cyst between 80 and 120. The nematode was identified in Bonn as *H. trifolii* Goffart, 1932 and the identification verified by colleagues in Münster, Wageningen and St. Albans. The fact that populations of *H. trifolii* in New Zealand do not develop on the above mentioned cultivars indicates that a great deal of variation exists within the species (Yeates *et al.*, 1972). This is believed to be the first report of this nematode causing economic damage to subterranean clover in the field and the first report of this nematode in Africa (Thomas and Taylor, 1968). Two species of *Fusarium*, *F. oxysporum* Schlecht ex Fr. and *F. avenaceum* (Fr.) Sacc., were consistently isolated from *H. trifolii* diseased plants. The rate of

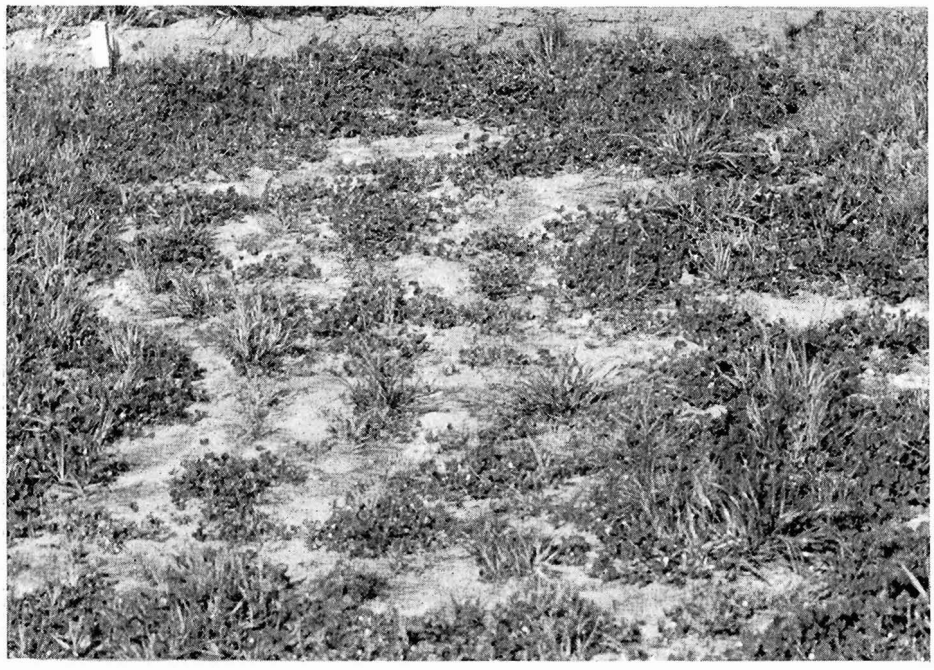

Fig. 1 - *Trifolium subterraneum* showing severe decline, growing on a research plot heavily infested with *Heterodera trifolii.*

Fig. 2 - Healthy *T. subterraneum* (left) compared with diseased plants (right), demonstrating the intensity of stunting and root rot associated with simultaneous infection by *Heterodera trifolii* and species of *Fusarium.*

recovery seemed to be positively correlated with the presence and population density of *H. trifolii*. Both species of *Fusarium* are associated with a similar form of *T. subterraneum* decline in Australia (Kellock and McGee, 1972). The possibility that an interaction exists between *H. trifolii* and the two species of *Fusarium* is being studied.

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