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RESPONSE OF CULTIVARS OF WHEAT TO *MELOIDOGYNE ARTIELLIA*

by
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Meloidogyne artiellia Franklin, is an important nematode in the Mediterranean area especially on leguminous crops as chickpea (*Cicer arietinum* L.) (Greco, 1984), but also it causes severe damage to durum wheat (*Triticum durum* Desf.) in Italy (Di Vito *et al.*, 1987), Greece (Kyrou, 1969), France (Ritter, 1972) and Spain (Tobar-Jimenez, 1973). The nematode has a wide host range and can reproduce very well on cereals, cruciferous and leguminous plants (Di Vito *et al.*, 1985). Therefore its control, by crop rotations, is difficult as well as chemical control. A glasshouse experiment was undertaken to investigate the response of some Italian cultivars of wheat to *M. artiellia*.

Materials and Methods

Clay pots were filled with 600 cm^3 of sterilized sandy soil and artificially infested with 45 eggs and juveniles of an Italian population of *M. artiellia*/cm^3 soil. The nematode had been reared on chickpea variety «Ghabi 1» in glasshouse at 20-24°C. The same number of pots were left without nematodes as control. Six infested and six non-infested pots were sown on 20 October 1986 each with five seeds per pot of one of the wheat cultivars (Table I). Pots were arranged in a randomized block design on benches in a glasshouse maintained at 18-24°C, and watered daily. Seventy five days after sowing, tops and roots of the plants in each pot were weighed. Eggs and juveniles in the egg masses were extracted by sodium

Table I - *Effect of* Meloidogyne artiellia *on top weights of wheat cultivars*

Cultivar tested	Fresh top weight (in g)		% difference with respect to non inoculated
	Inoculated	Non inoculated	
Triticum vulgare L.:			
Fortunato	15.7	19.2	—18
Irmerio	17.8	19.6	— 9
Morocco	12.7	12.1	+ 4
Triticum durum Desf.:			
Appulo	14.8	16.7	—11
Belvedere	22.9	23.8	— 4
Capeiti 8	15.7	16.9	— 7
Creso	16.5	16.0	+ 3
Grifone	17.1	17.3	— 1
Guasila 593	12.1	16.3*	—26
Karel	11.6	17.0*	—32
Patrizio	13.2	16.2*	—19
Pepe 64	12.8	20.3**	37
Polesine	12.1	22.0**	—45
Produra	7.5	12.7**	—41
Sansone 201P	9.7	14.0**	—31
Tito	17.0	18.4	— 7
Trinakria	13.1	12.8	+ 2
Valgerardo	14.0	18.0*	—22
Vallezisa	14.8	18.2*	—19
Valoriolo	10.1	15.4**	—35

* Significant for P=0.05; ** significant for P=0.01.

hypochlorite method (Hussey and Barker, 1973) and nematodes in the roots by Coolen's method (1979) and counted. Data were compared with analysis of variance.

Results and Discussion

Top weights of three cultivars of *Triticum vulgare* and of seven cultivars of *T. durum* were not significantly (P=0.05) affected by *M. artiellia* (Table I). Of the other ten cultivars of *T. durum* tested, four (Guasila 593, Patrizio, Valgerardo and Vallezisa) were moderately stunted with top weight reduction ranging from 19 to 26% with respect to the control plants, while Karel, Pepe 64, Polesine, Produra, Sansone 201 P and Valoriolo suffered weight losses between 31 and 45%.

The nematode numbers in the roots were generally high (Table II), with reproduction rates between 20 and 37 for two cultivars of *T. vulgare* and six cultivars of *T. durum*. The reproduction rate was lower for the remaining cultivars, but always higher than 10.

These results would indicate that all the genotypes tested were, to different extents, susceptible to *M. artiellia*.

Table II - *Reproduction rate (Pf/Pi) of an Italian population of* Meloidogyne artiellia

Cultivar tested	Specimens/5 g roots	Eggs and juveniles/ root system (×1000)	Pf/Pi
Triticum vulgare L.:			
Fortunato	1574	825	30.5
Irmerio	1612	1005	37.2
Morocco	1417	506	18.7
Triticum durum Desf.:			
Appulo	1536	623	23.0
Belvedere	1244	455	16.8
Capeiti 8	1635	585	21.6
Creso	1208	534	19.7
Grifone	1097	577	21.4
Guasila 593	1379	586	21.7
Karel	1514	830	30.7
Patrizio	1612	423	15.7
Pepe 64	1569	416	15.4
Polesine	1485	518	19.1
Produra	1528	320	11.8
Sansone 201 P	1027	278	10.3
Tito	526	380	14.0
Trinakria	1142	320	11.8
Valgerardo	1264	346	12.8
Vallezisa	1333	452	16.7
Valoriolo	1863	329	12.2
LSD P=0.05	412	179	
P=0.01	548	238	

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