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Response of coconut cultivars to the burrowing nematode, *Radopholus similis*

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Twentyfour coconut (*Cocos nucifera* L.) cultivars (18 exotic and 6 indigenous were screened against *Radopholus similis*, under field conditions and the reactions are reported here. Five seedling each, of one year old *inter-se* pollinated seedlings of different coconut cultivars were planted in *R. similis* infested plots in field, at a distance of 1 × 1 m in July, 1980. On establishment (one year after planting) the seedlings were inoculated with 1000 nematodes (females and larvae) each, extracted from *R. similis* infested coconut roots from culture pots. Two years after inoculations, 10 semi-hard creamy-white to orange coloured main roots of each cultivar were collected and graded visually in five categories viz. 0—no lesions, 1—very thin elongated faint orange coloured lesions separate from one another, 2—reddish to dark brown lesions separate from one another, 3—reddish to dark brown lesions in the initial stage of coalescing with the adjacent one, 4—coalescing lesions with initial stages of rotting and 5—severe rotting, discolouration and cracking of epidermis. The roots were cut into 2 cm long bits, mixed thoroughly and an aliquot of 50 g roots was taken for extraction of nematodes.

The cultivars showed differential susceptibility to *R. similis* (Table 1).

TABLE 1. *Reactions of different coconut cultivars to* Radopholus similis *population on inoculation in field*

Name	Source	Root lession index	Population per g of root
1	2	3	4
Exotic cultivars			
Blanchissues	Carribean Islands	2.5	170
British Solomon Islands Tall	Solomon Islands	3.1	79
Ceylon Tall	Sri Lanka	2.3	70
Federated Malay State Tall (FMS)	Malaysia	2.5	118
Gothembili	Sri Lanka	3.5	70
Java Tall	Indonesia	1.7	7
Klapawangi	Malaysia	1.6	2
King Coconut	Sri Lanka	1.1	48
Kong Thien Young	Borneo	1.6	69

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Table 1—*Continued*

1	2	3	4
Nigerian Dwarf	Nigeria	2.9	38
Nigerian Tall	Nigeria	2.3	88
Phil. Lono	The Philippines	2.0	147
Phil. Ordinary	,,	3.1	51
San Ramon	,,	2.7	107
Seychelles	Seychelles	2.8	63
Standard Kudat	Borneo	2.6	112
Straits Settlement Green	Malaysia	3.0	355
Zanzibar Tall	Tanzania	2.4	167
Indigenous cultivars			
Andaman Giant	Andaman Islands	2.2	20
Andaman Ordinary	,,	3.1	96
Kappadam	Kerala	2.8	47
Kenthali	Karnataka	0.5	3
Laccadive Ordinary	Lakshadweep Islands	2.3	150
West Coast Tall	Kerala	2.1	306

The root lesion index had no direct correlation with the population/g root. The cultivars (Klapawangi and Kon thein Young) with the same root lesion index of 1.6 had 2 and 69 nematodes/g root respectively. Similarly, high root lesion index was also not associated with high population (Philippines Ordinary and SS Green) Koshy *et al.* (1975) have indicated already that roots with root lesion index (5 or 6) may have a nematodes only in comparison to those having root lesion index of two or three. With high root lesion index, rotting is an associated symptom and the nematodes probably migrate to fresh roots or certain root exudates may be released which inhibit nematode multiplication. Therefore, it was considered safe to classify a cultivar as tolerant/less susceptible only when both root lesion index as well as population per gram of root was less. Further the samples were collected two years after the inoculations and it was presumed that adequate interval has been given for nematode colonization. On this basis Java Tall from Indonesia and Klapawangi from Malaysia (exotics) and Andaman Giant and Kenthali (indigenous) were considered as fairly tolerant to *R. similis* (Table 1). In an earlier study (Sosamma *et al.*, 1980) Java Tall has been reported already as least susceptible to *R. similis*. The hybrid combination, with Java Tall as female parent and Malaysia dwarf as male parent, had only 2 nematodes/g root. Even other hybrid combinations, involving Java Tall, showed comparatively less nematode population in roots. The tolerant reaction of Java Tall has been confirmed in this study. Yield evaluation trials, at CPCRI, Kasaragod, also indicate the high yield potential of the cultivar in comparison to the local West Coast Tall. Java tall alone or in hybrid combinations with Malayan Dwarf Yellow,can be recommended for cultivation in nematode (*R. similis*) infested areas.

REFERENCES

KOSHY, P.K.; SOSAMMA, V.K. and NAIK, C.P.R. (1975). *Indian J. Nematol.* **5** : 26–35.

SOSAMMA, V.K., KOSHY, P.K. and BHASKARA RAO, E.V.V. (1980). *Indian J. Nematol.* **10** : 250–252.