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ROOT-KNOT NEMATODES ON TANNIA (*XANTHOSOMA SAGITTIFOLIUM*)

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Root-knot nematodes (*Meloidogyne* spp.) are common pests in tropical soils and cause yield reduction in many major food crops. Steiner (1931) was the first to observe root-knot nematode parasitizing *Xanthosoma* sp. and later Brathwaite (1972) and Naylor (1974) reported root-knot nematode attacking tannia. Acosta (1979) reported high populations of *M. incognita* juveniles in the cortex tissue of *Xanthosoma* sp. in Puerto Rico. However, yield reductions were not referred to in any of these reports. Therefore, a trial was initiated to determine the effects of parasitism by the root-knot nematode, *M. incognita*, race 2 (Sasser and Triantaphyllou, 1977) on the growth of tannia.

Uniform sized « head setts » of tannia each about 20 cm were planted singly into microplots containing sandy loam (Barker *et al.*, 1979; Jones, 1956). Each microplot was 0.26 m^2 by one metre deep. Residual populations of root-knot nematode juveniles remaining from the previous cowpea crop had been determined for each microplot. These populations were grouped into five categories (Table I). Plots were completely randomized and replicated 5 to 14 times for each nematode category. Because the tannia followed a cowpea crop, no fertilizer was added. The microplots were watered as necessary. Corms were harvested 14 months after planting the setts.

Mean corm weight was significantly less in soils with an initial

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Table I - *The effects of the root-knot nematode* (Meloidogyne incognita, *race 2*) *on yields of tannia* (Xanthosoma sagittifolium).

Mean initial soil population No. juveniles/l soil	Mean corm wt (a) kg	Mean petiole length mm	Mean lamina length mm	Mean sucker number/plant	Vigour (b)
0	4.0 b	879	395	3.8	100
800	3.5 b	770	324	4.9	76
1,500	3.2 b	815	370	4.6	75
2,500	4.2 b	833	382	2.2	86
5,000	1.8 a	672	295	4.0	50
P = 0.05		NS	NS	NS	

(a) Any two means followed by the same letter are not significantly different.
(b) Subjective rating for vigour on a scale of 1 to 100 where 100 was equal the the vigour of control plants.

nematode population density of 5,000 juveniles per litre of soil compared with other categories, indicating that high nematode densities at transplanting can inhibit the full development of the plant (Table I). Petiole and lamina lengths and the number of suckers at harvest were not significantly affected by initial population density. However, a visual estimate of plant vigour 38 weeks after planting indicated weakened plants at the highest nematode density.

At harvest the mean number of root-knot nematode juveniles for all treatments was 14 per litre of soil indicating that *X. sagittifolium* is not a satisfactory host for this race of root-knot nematode as the nematode population was unable to maintain itself. Root-knot nematode populations significantly increased on tomato and cowpea in microplots similarly treated.

The results show that high numbers of root-knot nematodes can reduce corm yield. However, a crop following tannia would not be damaged by *M. incognita*, race 2 because of low residual soil populations. Therefore, where soils are infested with this root-knot nematode race at levels below 5000/l, *X. sagittifolium* would be a good crop to use in a nematode control rotation.

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