

amongst themselves, lights of different wave lengths did not show any significant difference in their effects on extraction efficiency. Exposures of light for 4 hours and 24 hours significantly influenced the extraction efficiency.

INTER RELATIONSHIPS OF INFECTIVITY BETWEEN THE BURROWING AND ROOT KNOT NEMATODES IN BLACK PEPPER, PIPER NIGRUM L: M. S. Sheela and T. S. Venkitesan* Department of Entomology, College of Agriculture, Kerala Agricultural University, Vellayani - 695 522.

In Kerala serious damage to black pepper crop is caused due to infestation by the burrowing nematode, *Radopholus similis* and the root-knot nematode, *Meloidogyne incognita*. These species have been observed to infest the vines jointly as well as separately. A pot culture experiment was conducted to study the relative infectivity of these nematodes under the above situations. One thousand nematodes/1.51L. of soil as initial inoculum separately, jointly or in succession was tested under six treatments.

The treatments involving nematodes either in combinations or otherwise suppressed the growth of vines. Simultaneous inoculation of both nematodes suppressed plant growth to the maximum extent. Inoculation of *R. similis* and *M. incognita* in succession led to the reduction in leaf area, internode length, top and root development. The population build up of the nematodes was found to be accelerated when the two species were inoculated separately and there was decline in the population under combined inoculations. The root gall development was suppressed in plants inoculated with *M. incognita* and *R. similis* in succession.

HOST RANGE OF THE SPIRAL NEMATODE *HELICOTYLENCHUS ABUNAAMAI*: N. N. Padhi and S. N. Das, Department of Nematology, Orissa University of Agriculture and Technology, Bhubaneswar-751003.

Of the 61 plant types, belonging to 21 families, tested in replicated pot culture experiment as possible hosts of *Helicotylenchus abunaamai*, 38 botanical species were found to be susceptible and favourable hosts taking into consideration of multiplication of the initial level of nematode inoculum. The highest nematode

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population was recorded on little millet "gulji" followed by rice. The rest of the 23 plant species were unsuitable, of which 12 were regarded as poor hosts and 11 (niger, marigold, rape seed, mustard, karanja, radish, coriander, bitter gourd, knolkhol, and margosa) were graded non-hosts.

CYST NEMATODE, *HETERODERA ORYZICOLA*, ON RICE IN KERALA
I. ESTIMATION OF LOSS IN RICE DUE TO *H. ORYZICOLA* INFESTATION, IN FIELD CONDITIONS : Usha Kumari and K. John Kuriyan, College of Agriculture, Vellayani.

The extent of crop loss caused by cyst nematode, *H.oryzicola* at different levels of inoculum in rice variety, Triveni, was estimated in a field experiment. It was found that the extent of damage caused to the crop increased with the increase of inoculum levels of 6000, 9000, 12000 and 18000 larvae per sq.m. There was a reduction of 4.39 to 7.65% in the height of the plant, 19.38 to 28.51% in the number of tillers, 10.07 to 28.13% in the number of leaves, 7.36 to 17.10% in the length of earhead, 11.62 to 35.36% in the weight of shoot, 13.76 to 43.37% in the root weight, 7.32 to 28.62% in yield per plot of 1 sq.m. and 7.75 to 36.28% in grain weight per plot of 1 sq.m. over the control. The yield loss per plant was 16.83 to 35.76% and 20.65 to 41.91% in grain weight per plant. There was a corresponding increase of cyst nematode population and cysts in soil and plant also. The reduction in growth and yield characters of the rice plant was maximum at the highest level of inoculum, showing that the more the nematode population, the more the damage to the plant.

HISTOPATHOLOGICAL STUDIES OF MAIZE CYST NEMATODE *HETERODERA ZEA* ON MAIZE : A. C. Verma, B. S. Yadav and A. K. Pathak, Department of Nematology, Rajasthan College of Agriculture Udaipur.

Histopathological changes in maize roots were studied when inoculated with the maize cyst nematode, *Heterodera zea*. Second stage larvae mostly oriented parallel to longitudinal axis in the cortex and moved intracellularly as indicated by broken cell walls posterior to the nematode. Cell walls surrounding nematode were dissolved to form a funnel and multinucleate condition was observed indicating early stages in syncytial formation. Enlarged cells bordered by darkened and thickened cell walls and hypertrophy of cortical, pericycle and endodermal cells resulting in giant cells were observed. Nematode presence accounted