Research Paper :

Integrated management of root-knot nematode, *Meloidogyne incognita* infesting okra [*Abelmoschus esculentus* (L.) Moench]

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SUMMARY

The micro plot experiment was conducted for the integrated management of root-knot nematode, *M. incognita* infesting okra with thirteen treatments including an untreated control. All the treatments were significantly superior over an untreated control in reducing the root-knot nematode population, number of root-gall and gall index and increasing length, fresh and dry weights of root and shoot and yield of okra at termination. However, soil application of carbofuran 3G @ 2 kg a.i./ha was found to be most effective in reducing root-knot nematode population (59.49 %), number of root galls (69.57 %) and gall index (39.33 %) and increasing the length of root (64.28 %) and shoot (71.37 %), fresh weight of root (93.41) and shoot (83.67 %), dry weight of root (103.13 %) and shoot (87.58 %) and the fruit yield of okra (32.94 %) in micro plots.

Key words : Rust disease, *Puccinia penniseti*, Bajra, Ahmedpur

The root-knot nematodes, *Meloidogyne* spp. are basically parasites of roots cause root galls or knots as a below ground symptoms. The above ground symptoms, hence, are those of slow debility of roots in its function of nutrient and water uptake and translocation. The plants may be dwarfed, yellowish with smaller foliage and poor and fewer fruits. The symptoms are often mistaken for macro or micro nutrient deficiency or moisture stress. Nematodes in addition to their own pathogenic effects may also play a role with other disease causing agencies like fungi, bacteria and viruses acting as incitants or vectors thus helping other organisms to be more effective in causing diseases. Nematodes themselves are also capable of breaking disease resistance.

MATERIALS AND METHODS

The experiment was conducted in root knot nematode sick microplots (1.8x1.1m size) of AICRP on nematodes, Department of Entomology, Mahatma Phule Krishi Vidyapeeth, Rahuri during *Rabi*, 2008. There were thirteen treatments accommodated in a randomized block design with three replications. Okra (cv.ARKA ANAMIKA) sown at 30x15 cm spacing was grown by following recommended agronomic practices. The bioagents *P. fluorescens*, *T. viride*, *P. lilacinus* and *T. plus* were applied as seed treatment (5 g/kg seed) and soil application (5 kg/ha).The nematicides, Carbosulfan 25 DS and Abamectin 400 FS as seed treatment at 3 % w/w and 1 ml /kg seed, respectively. and soil application of Carbofuran 3G at 2 kg a.i./ha.were given before sowing. Similarly, the neem cake at 2 t/ha was applied in soil 15 days before sowing.

The observations pertaining to initial root knot nematode population before sowing, final root knot nematode population, number of root galls and egg masses/plant, gall index/plant were recorded at the time of termination of experiment.Similarly,the fruit yield of okra was recorded and incremental cost benefit ratio of treatment was worked out.

RESULTS AND DISCUSSION

All the treatments were significantly superior over an untreated control in reducing root-knot nematode population, number of root galls and gall index and increasing the length, fresh and dry weights of root and shoot and yield of okra at termination. However, soil application of carbofuran 3G @ 2 kg a.i./ha was found to be most effective in reducing root-knot nematode population (59.49 %), number of root galls (69.57 %) and gall index (39.33 %) and increasing length of root (64.28 %) and shoot (71.37 %), fresh weight of root (93.41 %) and shoot (83.67 %), dry weight of root (103.13 %) and shoot (87.58 %) and the yield

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