Management of Root-Knot Nematodes in Tomato Under Plastic House in Jhaukhel, Bhaktapur District, Nepal

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Abstract

Root-knot nematodes(Meloidogyne spp.) are one of the most excruciating problems, due to intensive monoculture of tomato year round in the country. Inspite of many efforts, there is not yet efficient, durable and environmental friendly management technology for the control of Root-knot Nematodes(RKN). Therefore, the study was carried out to find out the efficacy of different biological, botanical and chemicals in the management of RKN in tomato (variety Srijana) under plastic house at Jhaukhel, Bhaktapur, during March to November, 2019 using RCBD with six treatments and four replications.Thirty-five days old twenty seedlings were transplanted on 27thApril, 2019 at 45cm spacing in rows placed 60 cm apart in plots of 4.185m2 area.The treatments included BioActPrime(Paecilomyces lilacinus strain 251, 6%), Serenade ASO(Bacillus subtilis strain QST713,1.34%),Velum Prime(Fluopyram, 41.5%), Neem extract (Azadirachtin,1%,), combination of BioAct Prime and Serenade ASO and Control, applied to the roots.Observations were taken on plant growth, yield and disease parameters from 6 plants selected systematically. The treatments varied significantly in yield, single fruit weight, egg population in roots, root length and plant height taken during final harvest.Mean yield was highest in Serenade ASO(112.23kg/plot), followed by Velum Prime(105.27kg/plot) with significant difference between two treatments, while average single fruit weight was maximum in Velum Prime(47.60g) and Serenade ASO(47.58g). Root-gall index appeared minimum in Velum Prime(3.04),accompanied by Serenade ASO(3.083). Significantly lowest egg population in roots appeared in Serenade ASO(69687), followed by Velum Prime(78250).Serenade ASO, a bio-nematicide, appeared to be a good substitute of Velum Prime, a chemical nematicide, in supression of RKN and high yield of tomato with safe environment.

Keywords: *Meloidogyne spp., Lycopersicon esculentum, Management, Plastic house, Nematicides.*