Research Paper :

Efficacy of Different Newer Chemicals and Bio-insecticides Against Onion Thrips in *kharif* Season

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SUMMARY

The present investigation was undertaken to find out the effective and economical control measure for the management of onion thrips, for which ten new insecticides and bio-insecticides were tested *viz.*, *Beaveria bassiana* 4g/lit, Neem seed Kernel Extract 5%, *Verticilium lecanni* 2 x10^8 cfu 5g/ l, methyl demeton 25 EC @ 0.025%, carbosulfan 25 EC @ 0.025%, spinosad 45 SC @ 0.0135%, Deltamethrin 1EC + Triazophos 35EC @ 0.072%, indoxacarb 14.5 SC @ 0.0145%, flufenoxuran 10 DC @ 0.005% and novaluran 10 EC @ 0.01%. The pooled data for consecutive three years (2005-06 to 2007-08) pertaining to efficacy of various insecticides, biological and plant products revealed that all the treatments were significantly effective against control of onion thrips. The treatment with Deltamethrin 1 EC + Triazophos 35 EC @ 0.072% proved to be significantly most effective against onion thrips which recorded minimum number of thrips/plant at 4th, 7th and 14th days after spray. This treatment was statistically at par with the treatments of spinosad 45 SC @ 0.0135% and carbosulfan 25 EC 0.025%, at 4th, 7th and 14th days after spray. The treatment with Deltamethrin 1 EC + Triazophos 35 EC @ 0.072% recorded significantly higher yield of 24.32 t/ha over rest of the treatments and 11.08 t/ha in untreated control. This treatment was at par with the treatments of spinosad 45 SC @ 0.0135% and carbosulfan 25 EC 0.025%.The highest gross monetary returns (Rs.1,35,853/ha), net income (Rs.68,549/ha) and C:B ratio (1 : 2.02) were observed in the treatment with Deltamethrin 1 EC + Triazophos 35 EC @ 0.072%.

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Among all the vegetables, onion, (*Allium cepa* L.) the biannual bulbous herb, is the most important vegetable crop of India. The important onion growing states are Maharashtra, Karnataka, Gujarat, Uttar Pradesh, Orissa, Tamilnadu, Madhya Pradesh and Bihar. Onion is queen of kitchen (Selvaraj 1976) and is widely used in salad, pickles, chutneys, sauce and for preparation of other products like onion powders and salts. In case of nutritive value, onion has got considerable amount of carbohydrates and it also supplies proteins, vitamin B and vitamin C (Selvaraj, 1976).

Onion crop is attacked by several insects such as onion thrips, *Thrips tabaci* Lindemann; onion fly, *Delia (Hylema) antique* Meign; cutworm, *Agrotis epsilon* Hufnegel, tobacco leaf eating caterpillar, *Spodoptera litura* Fabricius and gram pod borer, *Helicoverpa arnigera* (Hubner). Among the insect pests, onion thrips (*Thrips tabaci)* is a major pest and reported to be most serious on onion by Rahman and Batra (1945) and Vevai and Talgeri (1948).

Thrips tabaci causes 40 to 60 per cent foliage injury and 10 to 20 per cent yield losses annually (Hajdu and Nagyimre,1984). Hence, it was thought worthwhile to study some important aspects of thrips management with view to find out effective control measures for reducing the economic losses caused by the thrips in *kharif* season.

MATERIALS AND METHODS

An experiment was conducted on onion cultivar Baswant-780 during *kharif* 2005-06, 2006-07 and 2007-08 at Onion-Grape Research Station, Pimpalgaon Baswant, Dist: Nasik (Mahatma Phule Krishi Vidyapeeth, Rahuri). Randomized Block Design with three replications and eleven treatments were adopted. The net plot size was 2.40 x 2.10m with 15 x 10cm plant spacing.

Three applications of insecticidal sprays were given at an interval of fifteen days starting from 30 days after transplanting as incidence of thrips was observed with the help of Knapsack sprayer. The observations were recorded on randomly selected five plants. The