Title Bio-efficacy of neem formulations (Azadirachtin 1% and 5%) on important insect pests of grapes and their effect on shelf life

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Abstract

Chemical based, bio-intensive based and neem-based modules were tested for their bio-efficacy on insect pests of grapes. Chemical based module was found most effective treatment in reducing insect population and it was reflected in yield obtained (13.90 kg/vine) followed by Bio-intensive based–module (combination of neem formulations+bio-pesticides+chemical pesticides) (12.50 kg/vine) and only neem based modules (11.22 kg/vine and 10.20 kg/vine). All the modules were superior over untreated check (7.80 kg/vine) in reducing insect population as well as yield. Bio-intensive module consisting of Azadirachtin 1% and 5% formulations along with chemical insecticides and bio-pesticides was better alternative for minimizing pesticide residues in grapes. No phytotoxicity symptoms were observed in any of neem formulation treated plots. Good natural enemy activity (1–2 grub/adults/vine) of ladybird beetle was observed in neem treated plots. Compatibility studies revealed that Azadirachtin 1% at concentrations up to 50 ppm had no adverse effect on growth of *Trichoderma harzianum* Tul. or *Verticillium lecanii* Zimmerman in vitro. Reduction in growth was noticed only at 100 ppm and higher concentrations. Studies on shelf life and berry rot studies with or without *Trichoderma harzianum* sprays revealed that the number of rotten berries was least in Azadirachtin 1% at 3 ml/L + *T. harzianum* 5 ml/L (containing 1 x 106 cfu/ml) treatment followed by Azadirachtin 1% at 3 ml/L treatment and Azadirachtin 1% @ 2 ml/L + *T. harzianum*. No difference was found in number of fallen berries on any day.