

Title: Cost-Benefit Analysis of the Botanical Insecticide Against Mango Leaf Hopper.

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Abstract:

The critical concentration of botanical insecticide formulated by using *Strychnous nux vomica* leaf extract and neem oil proved to be effective against mango leafhopper. The cost-benefit analysis was carried out for both botanical insecticide and its competitive chemical insecticides i.e. Imidacloprid. The *Strychnos nux-vomica* is a very common tree in the Konkan region, India. The cost of neem oil is comparatively more than that of other materials. The quantity of 'Sudasol NMK' (emulsifier) used in oil to emulsifier ratio i.e. 10:1. Therefore in emulsifier cost is taken into account for further analysis. The cost incurred (INR) for the preparation of 1 liter of botanical insecticide is Rs.8.605/-. Therefore, the cost for the preparation of 500-liter spray water of botanical insecticide is Rs. 645/- and the cost for the preparation of 500-liter spray water of Imidacloprid is Rs. 700/-. Though the cost involved is close to each other, botanical insecticide is safe and ecofriendly. Labor cost is more in the case of botanical insecticide i.e. Rs. 7600/- and that of Imidacloprid is Rs. 6000/- for all six sprays. The extra labor cost is due to the collection of *Strychnos nux-vomica* leaves and the preparation of bioinsecticide in the backyard. However, the total cost for spraying of botanical insecticide is Rs. 34,690/- and that of Imidacloprid is Rs. 35,400/-. Eventually, the difference in both is 710/- for all six sprays per acre area. The unsprayed orchard was considered as a control for further economic analysis. Other cost per acre (INR) for control was comparatively less because hiring charges for spray pump, fuel and manpower was excluded. The net benefit /acre was calculated by subtracting the total cost of orchard management from the total income. The benefit of sprays over the control was obtained by subtracting the income of control from that of the sprayed orchard. Lastly, the cost-benefit ratio (CBR) was calculated by subtracting the income of control from the net income of each sprayed orchard /acre. The cost-benefit ratio for the botanical insecticide is comparatively high i.e. 1:1.83 to that of Imidacloprid is 1:1.25. Therefore, the feasibility of the botanical insecticide was confirmed.

Biography

Dr. Tari Vinaya Satyawan Savitri is currently working as an "External Consultant" at GauEcoGram Agrovikas Producer Company Limited, Pune, Maharashtra, India. She has completed her Ph.D. in Environmental Science from the University of Mumbai. She did under graduation studies in Zoology, M.Sc. in Environmental Science, and a Diploma in Biotechnology (2 years) from the University of Mumbai and B.Ed. from S.N.D.T. University. She has qualified State Level Eligibility Test for Assistant Professorship valid in the states of Maharashtra and Goa, India. She has been awarded the 'Young Scientist Award' from Deccan Environmental Research Organization (DERO). She has attended around 34 conferences/ workshops/ webinars/ faculty development programme. She has published more than 22 research items in reputed journals, Magazines/e-Newsletters, and conferences. She is an Associate Researcher at the Australian Centre for Sustainable Development, Research and Innovation (ACSDRI) and South Asian Institute of Sustainable Development (SAISD), Australia. Also appointed as a Scientific Reviewer and Writer

(Part-time) at ‘The BrainAura’, a United Kingdom-based organization. Her current research interests are Environmental economics, sustainable crop protection practices, botanical pesticide formulations & Environmental pollution. She has also engaged as a reviewer for various reputed journals. She has co-authored book chapters with several reputed publishers. She is a certified mentor on 'Expertrons’, for guiding students and professionals on their career paths. She has collaborated with abroad countries such as Thailand, Malaysia, Turkey, Qatar, Indonesia, Australia, etc.

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