

Assessment of Pesticide Application Pattern and their Residues in Major Vegetables of Palpa, Nepal

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Abstract

This study was conducted to determine cost contribution of pesticide to total cost of vegetable production along with criteria for the choice of pesticides, its handling and application pattern. It also includes amount of pesticides imported and level of organophosphates and carbamates residue in cauliflower, cabbage, tomato, cowpea and cucumber at Tansen Municipality of Palpa district. Ten samples of each vegetable ready for sending to market were obtained to analyse pesticide residue in laboratory by acetylcholinesterase test at Rapid Bioassay for Pesticide Residue Laboratory, Butwal. Fifty farmers and 15 agro-vets were selected for pretested questionnaire schedule. Microsoft-Excel and Statistical Package for Social Sciences were used to analyse the data. Mean and standard deviation was used to categorize the age of respondents. Contribution of pesticides was 3% to total cost of vegetable production. Farmers were rarely aware of safe application procedures, 64% used different pesticides based on their efficacy alone and 54% didn't adopt any safe disposal mechanism. Highest annual consumption of organophosphate pesticide was malathion dust (2287 kg) and carbamate was mancozeb (196 kg). Among different chemical class of pesticide used for vegetable production, organophosphates constitute the highest i.e. 80%. All the samples of vegetables were found to have inhibition percentage below 35 for both organophosphates and carbamates residue indicating that vegetables produced in Palpa is safe for consumption based on this two categories of pesticides. Among five vegetables, average percentage inhibition was found highest in cucumber for organophosphate residue and in cauliflower for carbamates.

Keywords: Cost contribution; Farmers' perception; Organophosphates; Carbamates; Pesticide residues;