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Factors Influencing Level of Pesticide Usage among Small Scale Tomato Farmers in Kenya

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Abstract

Increasing demand for fresh agricultural produce due to rising population in urban areas, and pest proliferation are forcing small scale farmers to intensively use chemical pesticide in horticultural production in developing countries. This is in the context of weak regulations and enforcement of pesticide usage. However, inappropriate application of high level of chemical crop protectants has potential negative environmental and human health effects. Hence, this study aimed at evaluating the determinants of the level of pesticide usage among small scale tomato farmers in Nakuru County, Kenya. Multistage sampling procedure was used to select 384 households. Data was collected using semi-structured questionnaires administered by trained enumerators through face to face interviews. Based on the findings, the most commonly used types of pesticide were insecticide, fungicide and herbicide and there level of usage was determined. Majority of the pesticides used by small scale tomato farmers belonged to class II, class III and Class U. In order to determine the level of pesticide usage (in terms of under dose=1, recommended dose=2 and overdose=3), farmer's reported application rate was compared with the manufacturer's recommended application rate as per the information provided on the product label. The level of usage was estimated for insecticides, fungicides and herbicides. Subsequently, Trivariate ordered probit model was used to estimate determinants of the level of pesticide usage. Results indicated that number of extension contacts and farming experience increased the likelihood of farmers applying higher levels of pesticides. On the other hand, farmers' risk perception, group membership and participation in trainings negatively influenced the probability of applying higher levels of pesticides. The results from the study would facilitate in developing efficient and effective agricultural extension and training programs to enhance safe pesticide use leading to improved food safety and human health, environmental conservation and contribution towards sustainable agriculture.

Keywords: Chemical pesticide, food safety, pesticide usage, sustainable agriculture, Trivariate ordered probit model

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