Title: Impact of IPM Technology on Productivity and Technical Efficiency of Selected Crops in Bangladesh

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Reg. No.: 10-05-2523

Year: Autumn 2014

ABSTRACT

Pesticides are widely used by rice and vegetable growers of Bangladesh for controlling pests. The use of pesticides causes environmental polllution and health hazards and increases production cost. So Bangladesh has introduced Integrated Pest Management (IPM) program for growing rice and vegetables to avoid these problems. In view of these problems this study was undertaken to investigate the effects of pesticide application on human and animal health and environment, to compare the profitability and technical efficiency of selected major crops with and without IPM technologies and to find out the factors affecting the adoption of IPM technologies. To collect information, 240 Non-IPM and 240 IPM farmers from four regions of Bangladesh namely Jessore, Comilla, Narsingdi and Bogra were selected purposively on the basis of randomised sampling technique for this study. Primary data were collected from the IPM and Non-IPM respondent farmers using a set of pre-tested survey schedule during July 2011 to December 2012. The study revealed that the costs of boro rice, summer vegetable and winter vegetable production with Non-IPM technologies were higher than those of IPM technologies. The IPM farmers obtained higher yield, gross return, gross margin, net return and rate of return than the Non-IPM farmers. A significant part of output variability among farms is explained by the existing differences in the degree of technical efficiency. The overall results indicate that inefficiency factors significantly affect the technical efficiency of vegetable and rice production. There is a gap between the actual and maximum obtainable total return for both the vegetable and rice producers practicing IPM and Non-IPM technologies. Pesticides caused harmful effects on the applicators and the consumers' health. While spraying pesticides, the applicators suffered from eye irritation, nausea, suffocation, dizziness and stomach trouble. The consumers of the crops suffered from allergy, cancer, gangrene and their domestic animals and poultry birds were attacked with various diseases. The environment was severely affected due to the use of pesticides. Pesticide application by the Non-IPM farmers decreased soil fertility, made the crop land toxic, declined beneficial insects, spiders, earthworms, frog and fish population and presence of birds in the crop fields and the surrounding areas. On the other hand, adoption of IPM technology increased the number of natural enemy in rice and vegetable fields which was very helpful to keep the herbivore populations or harmful pests at low levels. IPM technologies were economically more profitable and environment friendlier than the Non-IPM technologies. Therefore, it was concluded that IPM technology should be introduced in wider areas of Bangladesh and the use of highly toxic pesticides should be banned to grow a healthy crop and to increase farm output and income on a sustainable basis with the improvement of environment and community health at the same time.