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How Much Do Farmers Care about Pesticide Externalities? A Choice Experiment among Thai Vegetable Farmers

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Abstract

Agricultural pesticides are widely used to control pests globally in market-oriented farming systems especially in vegetable production. High and incorrect use has led to high external costs to ecosystems and human health. This paper aims to explore farmers' choice preference for alternative pest management methods, ranging from environmentally harmful to benign. External costs of pesticides were reviewed and alternative pest management practices were studied for selected vegetables in Thailand. Farmers' preference for certain pest management methods and outcomes were investigated using a choice experiment. About 300 vegetable farmers were sampled in three sub-urban provinces of Bangkok, including Ratchaburi province, Nakorn Pathom province and Pathum Thani province. Attributes of pest management methods and outcomes included farm ecosystems, human health, eco-labeling, market opportunities, training in integrated pest management, and the additional farm cost. A mixed logit model was employed in order to investigate the effect that each attribute can have on the respondents' preferences for the pest management practices and outcomes and to estimate farmers' marginal willingness to pay for each attribute. Levels of pesticide use in vegetable production were found to be high as farmers tried to protect their investment from a wide range of pests and diseases. Alternative methods were not widely available and used in an *ad-hoc* manner to complement pesticides rather than substitute them. Biological control products available in Thailand need improvement to better meet farmers' preferences. To make vegetable farming in Thailand more environmentally friendly, alternative pest management practices need to be disseminated in combination with intensive farm-level training.

Keywords: Agricultural pesticides, choice model, integrated pest management, sustainable agriculture

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