Adoption Analysis and Impact Evaluation of Potato IPM in Ecuador

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Introduction

- Farmers in Ecuador use large quantities of pesticides and chemical fertilizers.
- Potato is a crop with relatively high input requirements and also a very important staple in the average Ecuadorian diet.
- Carchi is currently the most important potato production area of the country (43% of the production using only 13% of the total national area dedicated to this crop).
- Carchi was one of the IPM CRSP’s primary research sites in Ecuador.

Objectives

- To establish and estimate the relative contribution of various factors affecting IPM adoption.
- To determine why IPM adoption has occurred over time.
- To evaluate the environmental impact of potato IPM adoption by determining whether the implementation of IPM technologies has reduced pesticide expenditures.

Methods

- Primary data was collected from 404 farmers in three municipalities in the province of Carchi, Ecuador.
- An ordered-probit estimation was used to assess factors responsible for explaining differences in levels of IPM adoption.
- The farm level decision making process on pesticide expenditures was evaluated using maximum likelihood estimation of an ordered-probit selection model [1].
- Average pesticide expenditures at each level of adoption were estimated and aggregate savings were calculated.

Results

- IPM technologies were spread through Farmer Field Schools (FFSs), field days, interactions among farmers, and other means. (Fig. 2).
- It was possible to identify changes in IPM adoption over time (Fig.3a) due to availability of a survey conducted in Carchi by Mauceri in 2003 [2].
- We found that time and farmers’ perceptions of ineffectiveness of IPM techniques were limiting factors for wider adoption (Fig. 3b).

Conclusions and Discussion

The adoption and impact assessment of potato IPM technologies in Ecuador suggest the following:
- Information sources (FFSs, field days, other farmers, other sources) had positive and strong effects on IPM adoption.
- Adopters of IPM spent less money on pesticides than non-adopters.
- The calculated aggregate cost savings per production cycle were $823,000.
- The current analysis can be extended as follows:
  - Incorporate the interactions among multiple information sources as possible determinants of farmers learning about IPM.
  - Evaluate the overall economic impacts of the potato IPM program.

References


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