RCTs for Agriculture: Exploring the Impact of a Text Message-based Intervention on Adoption of Blackberry Integrated Crop Management in Ecuador

Vanessa Carrión
Virginia Tech, Department of Agricultural and Applied Economics
320-A Hutcheson Hall, Blacksburg, VA, 24060
Email: vcarrion@vt.edu

Jeffrey Alwang
Virginia Tech, Department of Agricultural and Applied Economics
215-I Hutcheson Hall, Blacksburg, VA, 24060
Email: alwangj@vt.edu

George W. Norton
Virginia Tech, Department of Agricultural and Applied Economics
205-B Hutcheson Hall, Blacksburg, VA, 24060
Email: gnorton@vt.edu

Victor Barrera
Instituto Nacional Autónomo de Investigaciones Agropecuarias Panamericana Sur Km. 1, Sector Cutuglagua, Cantón Mejía, Pichincha, Ecuador
Email: vbarrera70@hotmail.com


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RCTs for Agriculture: Exploring the Impact of a Text Message-based Intervention on Adoption of Blackberry Integrated Crop Management in Ecuador

Vanessa Carrión*, Jeff Alwang*, George W. Norton*, Victor Barrera*

*Department of Agricultural and Applied Economics, Virginia Tech, Virginia, 24060
*Instituto Nacional Autónomo de Investigaciones Agropecuarias INIAP, Ecuador

Introduction

- Blackberry has experienced a continuous expansion and is now becoming a promising alternative for small-scale production and export.
- Yields of blackberry are low, due to high incidence of pests and diseases and poor crop management.
- Technology transfer is a major challenge in addressing farmers’ information gaps. Because of its low cost, technology-based interventions have promise compared with traditional information diffusion methods.
- This project tests the efficacy of cellphone based information transfer.

Figure 1. Areas of strategic intervention in Ecuador.

Objectives

- Calculate the impact of text messages on the adoption of simple and complex ICM practices by small-scale blackberry producers.
- Determine the effect of text messages on farmer knowledge.
- Understand the causal mechanisms behind adoption of blackberry ICM.

Methods

- The ICM information distributed through SMS to randomly selected farmers was tailored to blackberry-farming in the intervention areas.
- The adoption of simple practices is defined as the number of practices reported being used on the farm (i.e. pruning at particular stages of the crop, disinfection of tools between uses, and quick removal of pruned plant material from the field).
- Adoption of complex practices is measured as the fraction of recommended chemical products used in fertilizations and pest control weighted by the number of recommended chemicals products as a fraction of the total number of products used (i.e. use of caldo bordes, and use of organic fertilizer in combination with low-toxicity chemical products.
- Impact of the intervention is estimated by a simple comparison of mean adoption rates post-intervention of treated and untreated groups. Impacts are also examined in a regression framework.

The Intervention

BASE LINE

- 3 Field Days
- 292 blackberry farmers
- 68 communities

TREATMENT

- 154 treated farmers
- 11 weeks
- 3 messages per week

FOLLOW UP

- 229 farmers
- 55 communities

Results

ADOPTION OF SIMPLE PRACTICES

Number of practices reported being used on the farm

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<thead>
<tr>
<th></th>
<th>TREATMENT</th>
<th>CONTROL</th>
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<tbody>
<tr>
<td></td>
<td>5.82</td>
<td>5.39</td>
</tr>
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</table>

Mean difference is significant at the 0.05 level (p<0.04)

ADOPTION OF COMPLEX PRACTICES

Percentage of practices being used on the farm

<table>
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<tr>
<th></th>
<th>TREATMENT</th>
<th>CONTROL</th>
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<tbody>
<tr>
<td></td>
<td>5.74%</td>
<td>4.89%</td>
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</table>

Mean difference is not significant (p>0.13)

KNOWLEDGE

Correct answers in a 7 question knowledge test

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<thead>
<tr>
<th></th>
<th>TREATMENT</th>
<th>CONTROL</th>
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<tbody>
<tr>
<td></td>
<td>4.28</td>
<td>4.13</td>
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Mean difference is not significant (p>0.45)

Conclusions and Discussion

- Text message-based interventions can increase adoption of agricultural technologies.
- Receiving text messages with agricultural advice on ICM increased adoption of simple and complex practices by 8% and 17%, respectively. However, it did not affect knowledge.
- The nature of our experiment limits the extension of the results to the whole population. However, these results do shed light on how low cost programs of this kind could positively influence adoption decisions.
- Many individuals (23%) who entered the treatment did not receive the text messages. This is a factor to be taken into account as otherwise coefficients underestimate the impact of the intervention.
- Due to high weather-related losses occurred during the intervention, we were not able to estimate the impact of the text messages on farm profits. We hope future research will address this matter.

Acknowledgements

The Integrated Pest Management Collaborative Research Support Program (IPM CRSP) supported by USAID funded this study.