WILLINGNESS TO PAY FOR POSTHARVEST TECHNOLOGIES AMONG SMALLHOLDER MANGO FARMERS IN KENYA

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Introduction

- It is estimated that 90% of food produced for human consumption is lost in the supply chain (HLPE, 2014). The losses are higher (40-50%) in perishables such as mango.
- Reducing food loss and waste (FLW) is an important target and a means to achieve the Sustainable Development Goals (FAO, 2019).
- Lack of on-farm cold storage and processing facilities is reported as one of the key drivers of FLW in horticultural value chain (HLPE, 2014).
- Innovative cold storage and small-scale processing technologies exist, and their effectiveness has been demonstrated (Ambuko et al., 2018).
- However, adoption of these technologies among smallholder farmers is limited due to lack of awareness, access and the cost.

This study therefore sought to establish the willingness to pay (WTP) for selected low-cost storage and small scale processing technologies.

Materials and Methods

- Study area: Embu & Machakos Counties.
- Postharvest (PH) technologies installed: Zero energy brick coolers, evaporative charcoal coolers and tunnel solar dryer.
- Household survey: 320 smallholder mango farmers.

Data Collected on:
- Awareness on PH technologies.
- WTP amount for PH technologies.
- Socio economic, demographic and institutional factors.

Data analysis

- Descriptive methods.
- Double Hurdle Model.
- 1st Hurdle: Probability of WTP for zero energy brick coolers, evaporative charcoal coolers and tunnel solar dryer (Probit Model).
- 2nd Hurdle: WTP amount for zero energy brick coolers, evaporative charcoal coolers and tunnel solar dryer (Truncated regression model).

Results and discussion

- Results from Figure 2 show that PH technologies are acceptable.
- Most respondents in both Counties were willing to pay for charcoal coolers that are more affordable.
- Figure 3 reveals that mean WTP amount is lower than market prices.
- Producers’ WTP has been demonstrated to be significantly lower than market prices (Channa, 2019).
- This is often the case when there is lack of prior awareness of the proposed technologies.
- The farmers’ probability to pay for the PH technologies was positively influenced by marital status, initial bid, agricultural group membership, market access and income from mangoes (Table 1).

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Factors influencing farmers’ WTP for postharvest technologies

<table>
<thead>
<tr>
<th>Variables</th>
<th>Probability of WTP</th>
<th>WTP Amount</th>
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<tbody>
<tr>
<td>Experience</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Gender</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td>+</td>
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<tr>
<td>Initial bid</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Credit Access</td>
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<tr>
<td>AGM</td>
<td>+</td>
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<tr>
<td>Market access</td>
<td>-</td>
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<tr>
<td>Tenure</td>
<td>-</td>
<td></td>
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<tr>
<td>Age</td>
<td>-</td>
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<tr>
<td>Mango income</td>
<td>+</td>
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</tbody>
</table>

Gender influenced probability to pay for PH technologies negatively and positively in Embu and Machakos, respectively.

The WTP amount for PH technologies was positively influenced by the initial bid, agricultural group membership and income from mangoes.

Experience, credit access, market access, land tenure and age significantly influenced WTP amount negatively.

Conclusions & policy implications

- Awareness campaigns are necessary to raise awareness on postharvest technologies.
- Charcoal coolers that are cheaper than the more efficient zero energy brick coolers and solar driers were found acceptable.
- The WTP amount for all the PH technologies suggested that most of the farmers would prefer the technologies at lower than the current market prices.
- Short term price subsidies and/or tax exemption on fabrication materials are recommended.
- Credit access negatively influenced WTP amount and there is need to invest in measures that would make credit work for value addition in horticulture.
- Informal land tenure systems discouraged WTP for PH technologies. The government needs to strengthen land tenure security to avert uncertainty.

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Reference


