Assessing the Reuse of PICS bags in Jigawa, Kano and Katsina States of Northern Nigeria

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Abstract

In 2010, a survey was carried out in Jigawa, Kano and Katsina States to ascertain the level of reuse of the Purdue Improved Cowpea Storage (PICS) bags (technique for cowpea storage) among 2008 users. The PICS project has recommended to farmers to reuse their PICS bags as long as they are not punctured. Survey results suggest that the majority of farmers (both demonstrators-DF [farmers that were used in the initial demonstrations] and non-demonstrators-NDF; those who bought PICS bags without participating in demonstrations) were reuse their PICS bags (66.2%, i.e., 90 respondents out of 136) for cowpea storage in 2009, while the remaining 33.8% (i.e., 46 respondents) reused their bags for other purposes such as storage of other crops, as bedding and roofing material, and given out to others. Among the reusers, 68.9% (82 respondents out of 90) were farmers and 31.1% (28 respondents) were non-demonstrators. To ascertain the determinants of reuse of PICS bags, a Logit model was fitted on the data with independent variables such as Farmer type, Age, Gender, Household size, Education, Membership of association, and quantity of cowpea harvested. The result on determinants of reuse of PICS for cowpea storage was significant at 1% level of probability. The result revealed, among others, that the probability of reusing the bag for cowpea storage statistically increased if the user was a demonstrator, an experienced farmer (age), male (gender), a member of a farmers’ association; the quantity of cowpea harvested also affected reuse.

Introduction

The PICS bag was introduced in 2008 into Nigeria as a pilot project in 4 states (Kano, Jigawa, Katsina, and Plateau) to address cowpea storage problems without the use of chemicals. PICS bags were used by 2 groups of farmers in 2008. The first group called “demonstrators” are those farmers who received the bags from the project as members of the pilot group that volunteered to demonstrate the effectiveness of the bags with their own cowpea. The second group are those who purchased the bags on the market after hearing about the technology or attending project demonstrations and/or open-the-bag ceremonies. The project has recommended to farmers to reuse their PICS bags as long as they are not punctured. However, the farmers had a choice of using their PICS bags for other purposes at the end of the storage period. In 2010, a study was conducted in 3 of the 4 pilot states (Plateau was not included due to civil unrest). The objective of the study is to understand the reuse pattern of PICS bags by the cowpea farmers.

Methodology

The survey was carried out in 2010 in the Jigawa, Kano, and Katsina States because farmers in those states had 2 storage periods in 2008 and 2009 with the PICS bags. Data were collected from 150 respondents in the 15 villages of the 3 states. Respondents were purposively sampled to include the 5 demonstrators (DF) used by the project and 5 other users of PICS bags (adopters/ NDF) for a total of 10 respondents in each village. However, information from only 136 respondents (69 of DF and 67 of NDF) was used for the analysis due to incomplete information from other respondents. Descriptive statistics were used to assess the level of PICS bag reuse and a Logit regression model was used to explain determinants of PICS bag reuse for cowpea storage.

Results

• Survey results show that a relatively high number of farmers (both demonstrators and non-demonstrators) was reusing their PICS bags for cowpea storage (66.2%) in 2009, i.e., 90 out of the 136 respondents. The remaining 33.8% (i.e., 46 respondents out of 90) reused their bags for other purposes such as storage of other crops, as bedding and roofing material, and given out to others.
• Among the reusers for cowpea storage (90 farmers), 68.9% were demonstrators (62 farmers out of 90), and 31.1 were non-demonstrators (28 farmers out of 90).
• For the demonstrators’ group, the reuse of PICS bags for cowpea storage was very high probably because the message came directly from the extension agents: 89.9% (62 out of 69 farmers) of the demonstrators reused their PICS bags for cowpea storage; for the non-demonstrators, 41.8% (28 out of 67 farmers) reused the bags for cowpea storage.
• The result of the LOGIT model revealed, among others, that the probability of reusing the bag statistically increased if the user is a demonstrator (significant at 1% level), a male farmer (gender), an experienced farmer (age), a member of a farmers’ association. The quantity of cowpea harvested also increased the probability of reuse. All the other factors are significant at 5% level (Table1). Those farmers who were in direct contact with the extension agents understood and applied the PICS “message” better than the others, as expected.
• Among the states, Kano came out strongest in reuse of PICS bags for cowpea storage which is probably a reflection of the quality of extension services in that state.

Table 1: Determinants of reuse of PICS bags for cowpea storage

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1=demonstrator, 0=nondemonstrator)</td>
<td>23.29**</td>
</tr>
<tr>
<td>Age</td>
<td>0.05*</td>
</tr>
<tr>
<td>Gender (1=male, 0=female)</td>
<td>3.50*</td>
</tr>
<tr>
<td>Household size</td>
<td>0.02</td>
</tr>
<tr>
<td>Education (1=tertiate, 0=bayteriate)</td>
<td>-2.08</td>
</tr>
<tr>
<td>Member of association (1=member, 0=nonmember)</td>
<td>9.47*</td>
</tr>
<tr>
<td>Quantity of cowpea harvested</td>
<td>0.02*</td>
</tr>
<tr>
<td>Intercept</td>
<td>-4.52</td>
</tr>
</tbody>
</table>

Conclusion

1. A relatively large number of respondents reused their PICS bags for cowpea storage after the first use. This shows that farmers understood the PICS “message” transmitted by extension agents and media.
2. Demonstrator farmers have an edge over non-demonstrators in applying the PICS message, therefore more reinforcement and follow-up messages are needed to get the general public to better understand the PICS technology.
3. The study results show that contact with extension agents and direct messages to farmers are critical for understanding messages. Using one farmer to “give” a message can help since farmers tend to help build one another’s capacity, leading to farmer-to-farmer diffusion of messages.

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