

Animated Videos on Smartphones for Training Farmers to Improve Bean Storage: A Field Experiment in Gurúè, Mozambique

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Introduction

While a number of studies have confirmed the effectiveness of hermetic storage of beans and cowpeas in sealed containers to reduce losses due to bruchids (weevils) and other insects (Baoua, Margam, Amadou & Murdock, 2012), adoption of this method has been slow in much of Africa. In some cases, this is due to a lack of triple bags, jerry cans, or other technologies that can prevent oxygen from passing through the material. However, in most cases it is due to lack of knowledge and training of farmers in how to use these methods. With the increase in diffusion of chemicals such as malathion dust, rat poison and aluminum phosphide, which can have both short and long-term negative impacts from eating, handling or inhaling the vapors, it is important that farmers understand that chemical-free methods can be safer and more effective.

In Mozambique, the ability of the country's agricultural extension agents to reach farmers via face-to-face training is severely limited due to lack of personnel and support (Uaiene, Arndt & Masters, 2009). Davis (2008; 2009) found that in Mozambique, only 13% of farmers were reached by extension. The purpose of the current study is to test whether or not animated video messages about hermetic storage of beans delivered via smartphones can effectively supplement extension training or be effective in stand-alone training.

Methods

The study was a field experiment, with a pre-/post-test design. A total of 314 bean-growing farmers from two different administrative posts in Gúruè district, Zambezia Province, Mozambique, participated. Farmers were assigned randomly by groups to one of four experimental treatments: 1) traditional extension training alone, (2) animation in a mobile phone screen alone, (3) traditional extension training plus animation in a mobile phone screen and, (4) animation in a mobile phone screen then traditional extension training. The animation demonstrated the use of a plastic jerry can to hermetically store beans after harvest.

Results

Results indicated that the four experimental treatment groups did not differ significantly from each other in knowledge about the jerry can storage method prior to the experiment. Women knew significantly less than men prior to the experiment. After treatment, all four experimental groups increased their knowledge of the storage method significantly, but the extension only treatment showed the least learning. About 98% of farmers said that they intend to use this technique in the future.



Conclusions

Results suggest that the use of agricultural messages designed as animations and delivered via smartphones result in at least as much learning as receiving the same information via a traditional extension presentation. Women, who knew less about the recommended bean storage method prior to the training, learned even more from the animations than men did, suggesting that animations may be effective in overcoming gender barriers to agricultural learning. Several limitations must be considered: (1) Farmers had never seen agricultural animations before, and there may have been a "novelty effect" causing them to learn more because it was new; (2) Farmers were shown the animations in small groups of 4-5, which may have had an effect on learning.

O1: Pre-test

Subjects completed a questionnaire on previous knowledge and demographics

X: Treatments

T1: Extension only
T2: Extension THEN Animation
T3: Animation THEN Extension
T4: Animation ONLY

O2: Post-test

Subjects completed a questionnaire on knowledge gains and intent to adopt

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