Farmer Preferences for Attributes of Conservation Agriculture in Eastern Uganda

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Selected Poster/Paper prepared for presentation at the Agricultural & Applied Economics Association’s 2014 AAEA Annual Meeting, Minneapolis, Minnesota, 27-29 July 2014
ABSTRACT

Conservation agriculture has many potential benefits for small farmers. This study seeks to estimate the value that farmers in eastern Uganda place on some of these benefits. Data from a choice experiment study are analyzed with a mixed logit model to determine farmers’ willingness to pay for increases in maize yield, reductions in erosion, and reductions in land preparation labor requirements. It finds that farmers have a statistically significant willingness to pay for increases in yield and reductions in erosion, but not for reductions in land preparation labor.

RESULTS

Variable definitions are given in Table 1 and mixed logit results are given in Table 2. All attribute coefficients are significant at a 5% level except for labordecrease. The variables ASC, additionalyield, and total exhibit random preference heterogeneity.

OBJECTIVES

This study has two main objectives:
1. To estimate willingness to pay for increased yield, a 50% and “near total” reduction in erosion, and reductions in land preparation labor.
2. To determine if preferences for these attributes vary by district, gender, past farming practices, education, or age.

DATA AND METHODS

This study uses choice experiment data collected in June and July of 2013 in Tororo and Kapchorwa districts in Uganda. Two hundred farmers in each district were surveyed. The survey included questions regarding demographics and farming practices, followed by the choice experiment. An example question from the survey is shown below.

Choice experiments are a type of discrete choice model in which respondents are asked to choose between different alternatives that contain varying levels of different attributes. By asking a series of such questions, it is possible to determine how each individual attribute impacts the likelihood that the respondent will make a particular choice.

Data were analyzed using a mixed logit model. The mixed logit model has a more flexible functional form than other types of logit models, relaxing the Independence of Irrelevant Alternatives (IIA) assumption and allowing for random preference heterogeneity. Interaction terms between demographic and farming practice variables with attribute variables were also included in the model to determine if farmers with different traits had different preferences.

CONCLUSIONS

Results indicate that farmers are willing to pay a premium for some of the potential benefits of conservation agriculture. This is encouraging for policy makers and extension workers who wish to promote the practices. In addition, the specific outcomes of conservation agriculture in the region may make it better suited to one district over another. If erosion control is a major benefit, farmers in Kapchorwa place more value on erosion control and less value on yield increases than do farmers in Tororo. This is expected, as Kapchorwa is a more mountainous district and has much higher average maize yields than Tororo.

REFERENCES