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“Development on the margin”

Variety Adoption of Orphan Crops by Smallholder Farmers in Tanzania — a Survey Based Choice Experiment

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Abstract

In Sub-Saharan Africa, 75 % of the extreme poor are living in rural areas and agriculture is one of the principle ways out of poverty for them. As possibilities to extend the cultivated area are limited, productivity gains will be needed to increase future agricultural production. The improvement of seed technologies is expected to play a crucial role in this context. In the last decades, research was mostly undertaken in regard to crops for high potential areas and so called orphan crops that are especially suitable for semi-arid areas have been overlooked.

Sorghum and finger millet are two orphan crops that are widely grown in the semi-arid regions of Tanzania. For sorghum, a number of improved varieties has already been released, but adoption rates have generally been very low. Previous studies point out several reasons for low adoption rates, but they also have some shortcomings. One of them is that farmers' stated preferences for variety traits are not considered. Thus an important factor for explaining adoption behaviour and proposing seed technology improvements is missing.

The objective of our paper is to provide recommendation for the promotion of improved varieties of orphan crops. We use a unique data set from a household survey that was conducted with 360 households in two major finger millet and sorghum growing regions in Central Tanzania in September 2010. A choice experiment for finger millet was embedded in the survey. The collection of revealed and stated data allows us to assess the adoption behaviour of smallholder farmers from two different angles. First, we estimate a binominal probit model to identify general adoption constraints, and second we assess farmer's trait preferences by estimating a conditional logit model that is based on the data from the choice experiment. This analysis gives us insights about the major constraints that farmers face in the adoption of improved sorghum and finger millet varieties and at the same time identifies farmers' trait preferences. Hence, this study will provide policy recommendations as well as priorities for future research on seed technology improvements.

Keywords: Adoption, choice experiment, improved varieties, orphan crops, Tanzania