

# Adoption of Nutritionally Enhanced Sweetpotato Varieties: The Role of Household Food Insecurity and Knowledge of Nutritional Benefits

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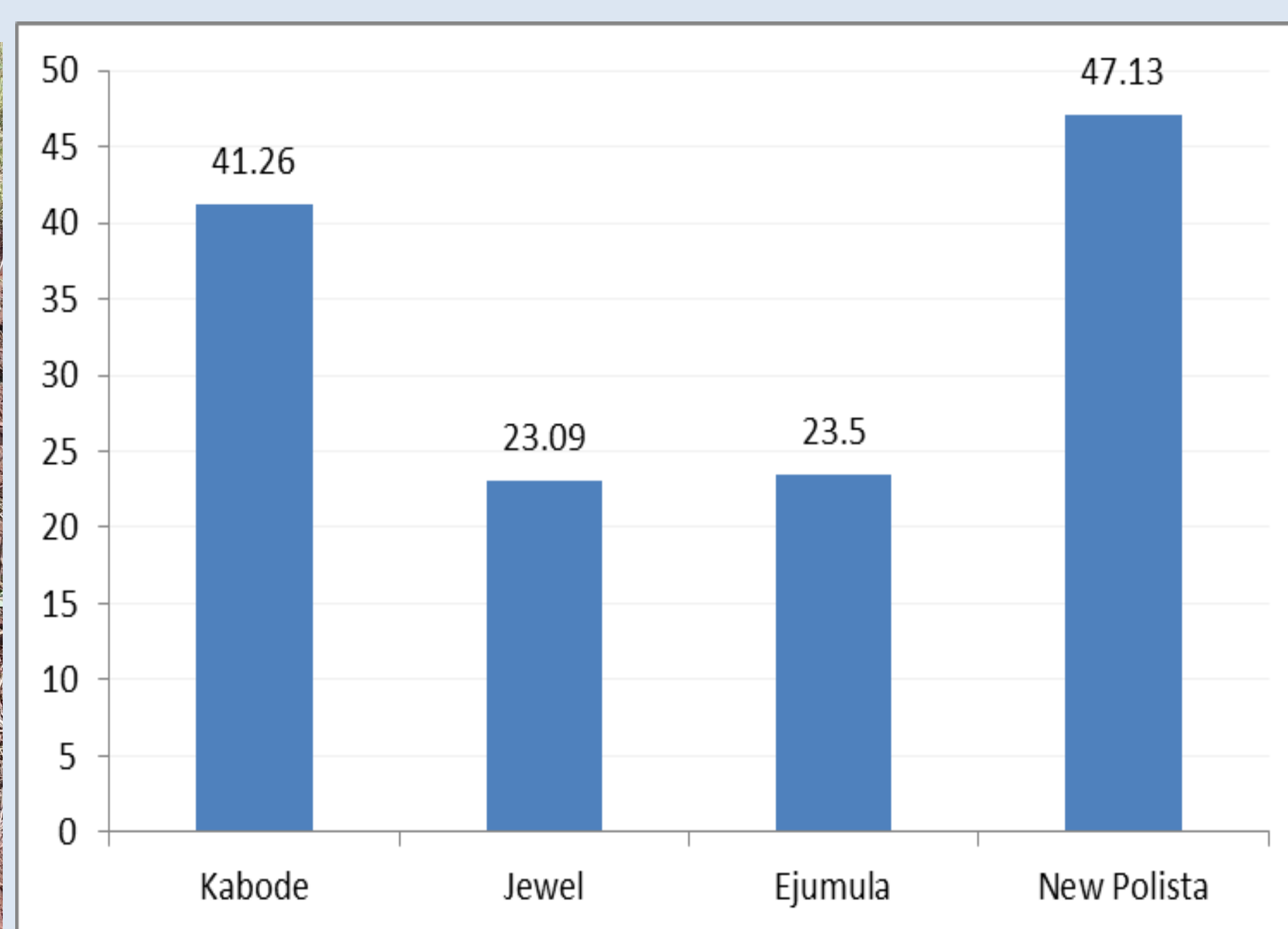
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## Introduction & Study Objective

- Hidden hunger has become a major issue in the world development.
- Thus plant breeding efforts have focused on producing varieties that confer micronutrient in developing country staple crops.
- These food-based approach for combating hidden hunger is seen as a more sustainable way of tackling hidden hunger than food supplements.
- In tandem with breeding efforts, there is even greater effort at promoting the growing and consumption of the nutritionally enhanced foods (NEF) in developing countries.
- The efforts include sensitization of farmers on the benefits of consuming NEF, including food security and health.
- This paper uses rich dataset collected from 732 households in Tanzania to examine the effect of household food insecurity and nutritional knowledge on the adoption of NEF varieties.
- The study focused on orange fleshed sweetpotato (OFSP), developed to target vitamin A deficiency in Africa.
- Vitamin A deficiency affects 127 million pre-school children globally, with up to 0.5 million becoming blind annually.



Farmer planting sweetpotato



% of farmers growing study varieties

## Results of the multivariate probit reg. model

Variable	Kabode	Jewel	Ejumula	New Polista
Nutrition knowledge	+	+	+	+
Food insecurity	+	+	+	
Age	-		+	
Education		+		
Distance to market				
Farm size		-	-	
Crop income		-	+	+
Group member		+	+	
Taste				+
Very dry zone		-	-	
Moderately dry zone	-			+

N=732; Wald Ch-square = 6408; p-value = 0;  $\text{arrho}_{ij} = 0.000$  for  $i \neq j$  for  $i = \text{variety}$

■ = 1% ; ■ = 5% ; ■ = 10% sig level

## Methodology

- The study focused on smallholder sweetpotato farmers, in the Mara, Mwanza, Kagera and Shinyanga regions of Tanzania, that had been targeted by a 4-year project on OFSP production and consumption.
- Data were collected through personal interviews with farmers stratified by project participation, using pre-designed questionnaires
- A multivariate probit (MVP) regression model is estimated due to likely interdependence in decision-making in the adoption of various varieties.
- The OFSP varieties in the estimated MVP model were Ejumula, Kabode, and Jewel. New Polista, the most popular local variety, and also promoted by the project, was also included.
- The dependent variable in each of 4 equations in the estimated model is a dummy variable equal to 1 if a farmer planted the variety, 0 otherwise
- The food insecurity status of the household was measured using an index based on the Rash model which computes an index using statements about actions taken by the household in response food inadequacy.
- Nutritional knowledge is proxied by participation in the project.
- The conditioning variables used included: gender, age, education, farm size, distance to market, crop income, group membership, credit, yield and agroecology of the area.

## Discussion, conclusions & implications

- As hypothesized, household food insecurity and knowledge of the benefits of consuming NEF increases the likelihood all the orange fleshed sweetpotato (OFSP) varieties. However, the food insecurity does affect the likelihood of adopting the local variety
- Also, as expected the results indicate that there is interdependence in decision to adopt the various OFSP varieties and the local variety
- Distance to market (a proxy for transaction costs) reduced the adoption of 2 of the 3 varieties promoted by the project
- Other conditioning factors (age, farm size, crop income, group membership and agroecology) also affect the adoption of OFSP varieties, but the effect is variety specific.
- The study concludes that household food insecurity status and nutrition knowledge affect adoption of nutritionally enhanced foods.
- The findings imply that a project that sensitizes farmers about the benefits of NEF can increase the uptake of such crops.
- The findings also imply the need to continue up-scaling OFSP production and consumption among poor households
- Further, efforts to spur greater adoption of OFSP should target the reduction of transaction costs

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