



18-21 September 2016: University of Natural Resources and Life Sciences (BOKU Vienna), Austria

## Orange-fleshed Sweetpotato (OFSP) Adoption Improved Diet Quality: Evidence from Women and Children in Western Kenya

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### Introduction

- Despite significant reduction in income poverty and improvement in food security; micronutrient malnutrition, vitamin A, in particular, is continued to be major public health problem in developing countries.
- Globally, micronutrient malnutrition accounts for **3.5 million** deaths and about **35% disease burden** in children under five years of age.
- The recent joint UNICEF, WHO, and World Bank groups report indicated that stunting is on rise in Africa; in 2014 alone, there were more than **58 million** children under five years of age suffering from irreversible chronic malnutrition stunting (low height for age), which is **23%** increase then there were in 1990.
- Kenya is facing serious malnutrition; despite significant reduction in chronic malnutrition (stunting) from **36% in 2003 to 26%** and underweight from **16% to 11%** in 2014.
- Malnutrition claims the lives of **35,000** Kenyan children ever year.
- Lack of adequate micronutrients, such as vitamin A, iodine, and iron, are the main causes of malnutrition.
- Concurrently, *lack of dietary diversity in food consumed is the major cause for vitamin A deficiency.*
- Agriculture based nutrition intervention is proven to be a cheap alternative means to address malnutrition in developing countries.

### Materials and Methods

- The data used in this study obtained from the endline survey of Sweetpotato Action for Security and Health in Africa (Mama SASHA) project in western Kenya collected in December-November, 2014.
- The survey was conducted in four districts of Kenya: Bungoma North (n=1,381), Bungoma East (n=375), Kimilili (n=449), and Bunyala (n=300).
- The project linked access to OFSP vines to public health services for pregnant women and children under five.
- Two-stage instrumental variable and ordered logit regression models were employed to test the role of OFSP adoption and adoption intensity on food diet quality.

### Acknowledgements

We would like to thank BMGF for funding this research through Mama SASHA project.

### Results

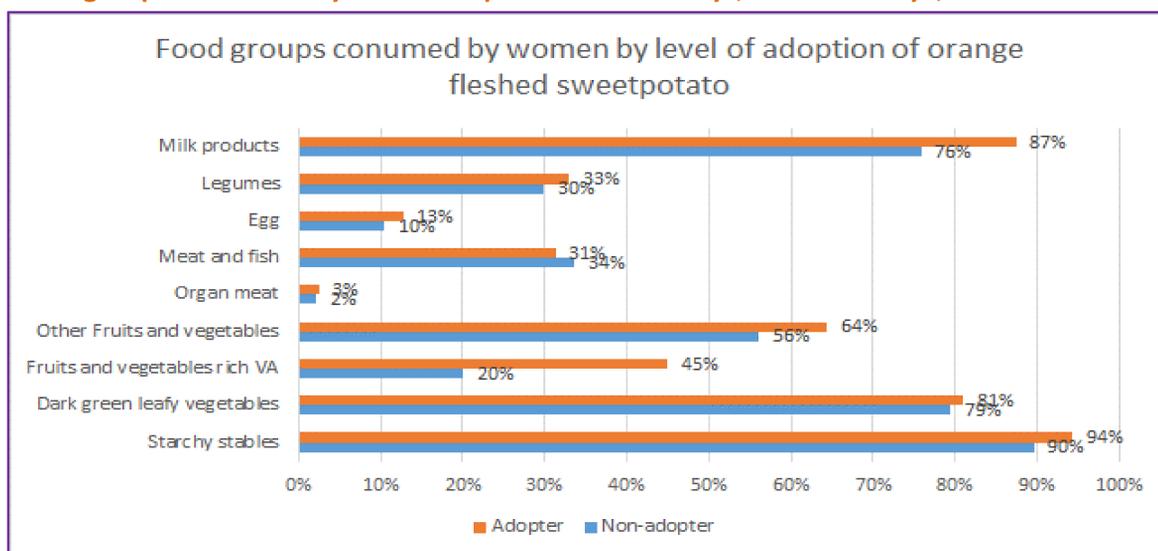
- Women and children in OFSP adopting households have **15%**, and **18%**, higher diet diversity score, respectively, than non-adopters.
- Frequency of intakes of vitamin A rich food is **10%**, and **20%**, higher for women and children in OFSP adopter households, respectively, than non-adopters.
- OFSP adoption is positively associated (at 1% significance) with **1.42** more points for child dietary diversity.
- Households growing OFSP found to have **two** and **three-point** higher vitamin A intake for women ( $p < 0.01$ ), and the child ( $p < 0.10$ ), respectively, compared to households who do not grow OFSP.
- The average number of food groups consumed by children in OFSP adopter households is **3.6** compared to **2.9** for the children in non-adopter households.
- Significantly higher proportion of children who live in households growing OFSP have consumed grain, roots, and tuber foods compared to children in households not growing OFSP.
- Larger proportion (**85%**) of adopter children consumed dairy product against **76%** of the non-adopter children.
- About 10% of children in sampled households consumed biofortified foods including OFSP. However, the proportion of children consuming biofortified food in OFSP adopter households is **29%** against **2%** of those children in non-adopter households.

Women and children Dietary diversity and frequency of vitamin A rich foods intake in Western Kenya, 2014

Growing OFSP	Women DDS	Child DDS	VA-Intake Mother	VA-intake child
No(N=1,831)	3.97 (0.03)	2.86 (0.04)	6.11 (0.09)	4.6 (0.09)
Yes(N=674)	4.51 (0.05)	3.6 (0.06)	6.82 (0.18)	5.73 (0.18)
Total(N=2505)	4.12 (0.03)	3.06 (0.03)	6.3 (0.08)	4.91 (0.09)
P-value, diff	0.000	0.000	0.000	0.000

Source: Authors computation from Mama-SASHA 2014, Endline survey. Note: DD (Dietary diversity score); VA (Frequency of vitamin A rich foods in the past seven days); diff (difference for adopters and non-adopters); standard errors in parenthesis

### Food groups consumed by women in previous seven days, western Kenya, 2014



Source: Authors computation from Mama-SASHA 2014, Endline survey.

### Conclusions

- OFSP adoption and adoption intensity have significantly increased the diet quality of households.
- Agricultural-nutrition based intervention has significantly improved the nutritional status of women and children in

western Kenya.

- Agriculture-nutrition intervention has increased the dietary diversity of even non-targeted food groups.

