

Successful Reintroduction of Landrace Orange Maize in Rural Malawi is Not Necessarily Related to Understanding of Nutritional Advantages



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Background

The ProFarmer project in Malawi has successfully re-introduced landrace orange maize (MW5021) to replace or complement white hybrid varieties on over 2000 farms. Orange maize is a sustainable approach for increasing carotenoid intake and potentially decrease Vitamin A deficiency.

As part of the ProFarmer project, all participating farmers underwent a training program run by local Agriculture Extension workers prior to receiving the orange maize seeds for cultivation.

The training not only included agricultural topics but also provided an explanation of the rationale behind reintroducing landrace maize and nutrition education regarding the health aspects of providing provitamin A through locally grown foods.

Some of the farming families that took part in this study received the training three years ago and other families were recent additions to the program.



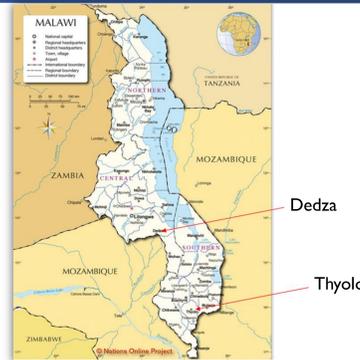
Prof. Katundu presenting the orange maize

In Malawi maize is consumed as a staple food. It is either processed into porridge or thick porridge (nsima). Orange maize is also processed into these products. In order to achieve population acceptance of the landrace orange maize sensory evaluation was also conducted among the school age children.

Objectives

- ❖ To determine the acceptability of foods made with orange maize in children
- ❖ To assess the knowledge, attitudes and behaviors (KAB) of women in farming families that currently grow orange maize.

Study location



Methods

Organoleptic evaluation of white and orange maize food products was carried out in school age children (n=160) of ProFarmer families. Acceptability of orange maize food products was determined using a 7-point hedonic scale.



A cross sectional study was completed in female household members (n=336) living on farms that produce orange maize. Participants were interviewed regarding reintroduction of orange maize and diet quality was assessed using the Minimum Dietary Diversity questionnaire (MDD-W).



Results

Table 1 presents organoleptic results of three foods prepared with orange or white maize in 80 children of parents that have grown orange maize for ~3 years (old farmers) and 80 children of parents who are new cultivators of the crop (new farmers)

	Color		Taste		Sweetness	
	Orange Maize	White Maize	Orange Maize	White Maize	Orange Maize	White Maize
Old Farmers	6.62±1.1**	5.89± 1.1	6.24±1.3**	5.39± 1.9	5.97±1.9**	4.97± 2.2
New Farmers	6.35±1.3**	5.63± 1.9	5.65±1.7*	5.26± 2.0	5.46±1.8*	5.00± 2.1

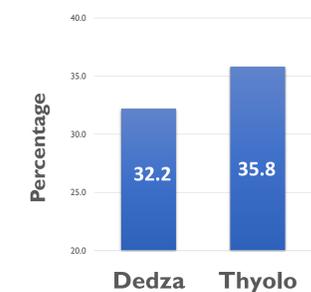
** Significantly different between Orange and White Maize P<0.01 * P<0.05

Results cont.

Nutrition Knowledge of Female Family Members:

Nutritional Benefit		Dedza (%) N=171	Thyolo (%) N=165
Orange maize provides Vitamin A	No	0.6	0
	Yes	33.9	34.5
	Don't know	65.5	65.5
Orange maize provides protein	Yes	33.9	36.4
	Don't know	66.1	63.6
	No	1.2	1.2
Orange maize provides carbohydrates	Yes	24.0	23.0
	Don't know	74.9	75.8

Women Achieving Minimum Dietary Diversity by District



Discussion/Conclusion

Despite low levels of nutritional knowledge, landrace orange maize is well accepted by both children and adults in rural Malawi and is an option for increasing dietary sources of provitamin A.

Nutrition education emphasizing the advantages of eating carotenoid-rich foods and expanding diet diversity are imperative for improving food consumption patterns of families in the ProFarmer project.