

# Quality improvement of peanut products at NARO<sup>1</sup>, Uganda

## Masette, M.<sup>1</sup>, Chinnan, M. S.<sup>2</sup>, Resurreccion, A.V.A.<sup>2</sup> and Florkowski, W. J.<sup>2</sup>

<sup>1</sup>National Agricultural Research Organization, Kwanda, Uganda; <sup>2</sup>University of Georgia, Griffin, USA



UGA investigators demonstrating use of infrared thermometer to NARO investigator and industry partner, followed by visit to HOMETECH Foods facilities, Uganda.



Nutritious Ground Nut Cookies manufactured by Industry partner HOMETECH Foods, displayed and sold at the NARO Booth, Uganda International Trade Fair, Kampala, Uganda.



UGA and NARO investigators at NARO booth, Uganda International Trade Fair, Kampala, Uganda.



### Development and commercialization of groundnut cookies in Uganda



By  
M. Masette<sup>1</sup>, G. Aluoch<sup>2</sup>, E. Okot<sup>2</sup>, A. Resurreccion and M. Chinnan  
W. Florkowski<sup>1</sup> Food Bioscience Research Centre –NARL/NARO;  
<sup>2</sup>HOMETECH Food Processors (U) Ltd; <sup>3</sup>University of Georgia (USA)

Groundnuts or peanuts (*Arachis hypogea* L.) are grown in most parts of Uganda with annual production of 140,000 metric tonnes; the product utilization base has remained narrow. Despite the enviable potential of two cropping seasons, good soils and border effect, the profitability of groundnut enterprise in the country has persistently remained below the expected levels. Farmers, groundnut vendors and local processors have failed to reap tangible economic benefits out of the crop. Lack of cottage technologies for value addition and product development have impacted negatively on the realization of actual economic benefits from groundnut production in the country. As such, the USAID through CRSP project awarded a research grant to a multi-disciplinary research team including private sector to develop commercially viable technologies with the view of broadening the utilization base and profitability of groundnuts enterprises in the country. The purpose of the project was to develop and commercialize a safe highly nutritive groundnut cookie for market enhancement of groundnuts that will nutritionally and economically benefit the consumers and agro-processors respectively. The intended target consumer group includes school children and security forces. The project was designed and implemented using “CRSP” principles. The project implementation started from May 2011 and it will run for the next six months or so.

Project overall objective:

- To develop and commercialize groundnut cookie

Red Beauty is one of the many varieties of groundnuts grown in Uganda. It is red in colour and most preferred by consumers living in the Central Region of Uganda where the Capital city is located.



Fig 1. Healthy groundnut plant

Traditionally, Red beauty is used singly as stew or added to green vegetables as a sauce. In the absence of other varieties, it may be used as a snack. From the safety view point, it is less susceptible to aflatoxin contamination than other varieties like Serenut 2 and 4 (Candia and Masette, 2010)

The use of Red beauty as a confectionery is new innovation in Uganda and as such, relevant processing information is scanty. However, necessity demands full grain seed, clean and free from fungal contamination (Fig. 2)



Fig. 2 Clean and full grain seed

Using basic baking protocols and ingredients, prototype cookies were developed from groundnut meal supplemented by varying amounts of wheat flour. The resultant prototype (Fig 3) was golden brown and crunchy. Since seed was sorted to reduce risk of fungal contamination, the product was assumed safe and nutritive. Subsequent, preliminary consumer testing showed high demand from potential consumers.

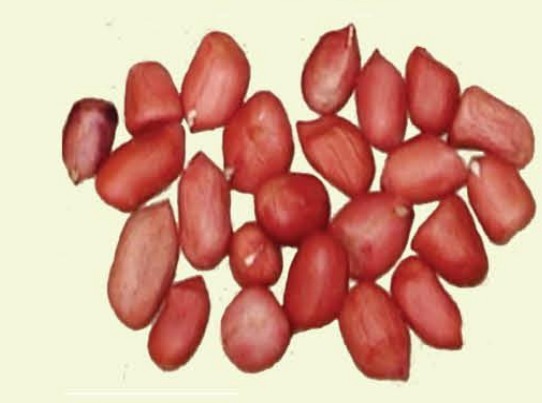


Fig 3. Crunchy safe and nutritive groundnut cookie

Table 1. Sensory evaluation mean scores for groundnut cookie

Prototype code	G.nuts input (%)	Sensory parameters evaluated (Mean scores)				No of panellists
		Taste	Flavour	Appearance	Crunchiness	
P1	87.5	2	1	0	2	20
P2	75	2.5	4	2.5	5	18
P3	50	3.5	4	2.5	5	18
P4	25	4	4	4	4	20
P5	12.5	2	1	2	0	20
P6	40	4	5	5	5	20

Key 0= very poor; 1= Poor; 2= Fair; 3= Good; 4= Very good; 5= Excellent

From preliminary sensory evaluation results, it appears any sample with groundnut composition between 25-50% would be economically more viable than samples with either less or more groundnuts. Considering that groundnuts currently cost expensively, P4 combination should be recommended for further development and subsequent commercialization.

General remark

The prospects of developing a commercially viable groundnut cookie from Red beauty variety are fairly high.

Acknowledgement

USAID/CRSP project through University of Georgia (UGA) for funding and HOMETECH for provision of facilities.



Project supported by Peanut Collaborative Research Support Program

