

Research Application Summary

**Promoting underutilised legumes through food service sector: A case of
bambara groundnuts in Malawi**

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Abstract

Bambara groundnut is an underutilized yet nutritious legume that is mostly produced by women subsistence farmers on marginal lands. Lack of proper markets and beliefs are among factors that hinder growth in production of the crop. A study was conducted to determine restaurant consumer acceptance of bambara relish at Lilongwe, Mzimba and Ntchisi districts of Malawi. The food service units did not serve bambara groundnuts yet the consumers liked the relish. Beliefs and taboos did not influence consumer decisions to order bambara groundnuts from a menu. Consumers were willing to order bambara groundnuts at least once a week and pay more than for the comparable kidney beans. Therefore, food service units are a potential promotion avenue for this under utilized pulse.

Key words: Consumer, acceptability, Malawi, *Vigna subterranean*

Résumé

L'arachide bambara est une légumineuse encore sous-utilisé mais nutritif qui est principalement produite par les femmes d'agriculteurs de subsistance sur des terres marginales. Le manque de marchés et de croyances propres sont parmi les facteurs qui entravent la croissance de la production de la récolte. Une étude a été menée afin de déterminer l'acceptation par les consommateurs de restaurant qui se régale de l'arachide bambara à Lilongwe et dans les districts de Mzimba et de Ntchisi du Malawi. Les consommateurs aimait déjà le goût avant que les unités de services alimentaires ne se mettent à servir l'arachide bambara. Les croyances et les tabous n'ont pas influencé les décisions des consommateurs de commander l'arachide bambara à partir d'un menu. Les consommateurs étaient prêts à commander l'arachide bambara au moins une fois par semaine et payer plus que pour les graines comparables. Par conséquent, les unités de services alimentaires sont une avenue de promotion potentielle pour cette impulsion sous-utilisée.

Mots clés: la consommation, l'acceptabilité, le Malawi, *Vigna subterranean*

Background

Bambara groundnuts (*Vigna subterranean*) is an annual crop mostly grown by subsistence women farmers in sub Saharan Africa. The crop is mostly grown in marginal lands and is resilient to hot and dry conditions where other pulse crops would not thrive. Bambara groundnut yields are modest, ranging from 500 to 1200 kg/ha which is on a lower side as compared to the yields of other pulses (Barimalaa and Anoghalu, 1997). Efforts to improve bambara groundnuts through variety selection and development of optimum agronomic practices have been undertaken mostly in West and Southern Africa.

Bambara nutritional properties are comparable to those of other pulses such as kidney beans and cowpeas. The bambara grain seed contains sufficient quantities of protein (19%), carbohydrate (63%) and fat (6.5%). Bambara groundnut is usually consumed as a stew, a snack or milled into flour, which is used as ingredient in a variety of dishes. The crop is mostly traded on the local market where it usually attracts premium price due to its scarcity. To address the shortage of bambara groundnuts on the market, there is need to stimulate a stable local demand for the grain, that would assure farmers of a market. Therefore the aim of this study was to explore the inclusion of bambara groundnut in local food service units as a way of popularizing the grain among consumers. The hypothesis was that demand in bambara groundnut would emanate from the requirement of the food services units and the consumers who would in turn purchase the grains for their own household consumption. Consumer choice of food served in a restaurant is a function of service, type of food and pricing, restaurant location, consumer religious and cultural beliefs, health concerns and previous experience with the restaurants or products served (Parasuram *et al.*, 1994). Some of these aspects were considered in this study.

Study description

Lilongwe University of Agriculture and Natural Resources (LUANAR) in collaboration with the National Plant Genetic Resources Center of the Ministry of Agriculture at Chitedze has been implementing a project to promote production and utilization of Bambara groundnut in Mzimba and Ntchisi districts. This particular study was conducted in 11 local restaurants in Mzimba (5 Units), Ntchisi (4 Units) and Area 13 market in Lilongwe (2 units) that serve various traditional meals and were willing to participate in the study. Bambara groundnut stew was not a menu item for all the restaurants, so it was served as a side dish in addition to a consumer's choice of a meal in the restaurant. The menus in these restaurants consisted of steamed rice and *nsima* (a stiff porridge made from refined maize flour) as staples served with an entrée options that included stewed or braai chicken, stewed beef or goat meat and stewed beans. Leafy vegetables in season were also available. Three kilograms of bambara groundnut was prepared by each restaurant by boiling the grains for two and a half hours, after which it was removed from the fire and kept aside. Frying chopped two medium sized onions, three big tomatoes and one tablespoon of salt in 500 ml oil made the tomato gravy used in this study. The cooked tomato gravy was added to the boiled bambara groundnuts and allowed to simmer for about 5 - 10 minutes.

A total of 210 consumers participated in the study, 75 each in Mzimba and Ntchisi and 60 in Lilongwe. The short questionnaire covered consumer knowledge of bambara groundnuts and involved a 5 point hedonic scoring on sensory properties and willingness to order that dish if it were available on the menu. Since the questionnaire was administered during lunch hour, care was taken to limit the interview to 20 minutes at most.

The findings

Of the 146 male and 64 female restaurant consumers who participated in the study, 73% were aged 20 to 40 years. Most of the consumers (43%) were in rural centers as compared to 57% who were from the urban centers of Lilongwe, Ntchisi and Mzimba. The consumers rarely consumed the pulse in their households, but 19% had consumed bambara groundnuts within six months of the study. Bambara groundnut was mostly consumed as freshly boiled and stewed dry grains.

Bambara groundnut was not featured on the regular menu in all the restaurants used in this study because it was not readily available and common bean (*Phaseolus vulgaris*) were the dominant pulse on the menu. However, there is an emerging trend of interest in traditional indigenous foods in the country, with a number of restaurants offering traditional meals on designated days. This present a local market opportunity for bambara groundnut farmers.

In some parts of Malawi, bambara groundnuts are associated with beliefs and taboos that restrict some categories of men from consuming it (Forsythe *et al.*, 2015). However, 59% of the consumers were not aware of the beliefs and taboos on consumption of bambara groundnuts and as such beliefs and taboos were not a significant factor in restaurant consumer decision in ordering foods. The consumers liked the sensory characteristics of the bambara groundnut relish that was served (Table 1). Furthermore, 76% of the respondents indicated that they would order the bambara groundnut relish on a weekly basis if it were provided on the restaurant menu. More than 53% of the respondents indicated that they would pay more than the price of common beans for bambara groundnut relish because it was a scarce dish. Hence there is potential for inclusion of bambara groundnut relish as a special item on the weekly menu of the restaurants.

The results of this research suggest that bambara groundnut relish can be promoted among consumers in the food service sector. Consumers patronizing food service units were not

Table 1. Restaurant consumer (%) hedonic scoring of bambara groundnut relish in Lilongwe, Mzimba and Ntchisi districts (N=210)

Hedonic scale	Colour	Grain size	Broth	Smell	Taste
Dislike it alot	0.95	0	4.28	2.38	0.95
Dislike	4.28	5.71	6.19	3.33	4.28
Neither liked or disliked	5.23	10.00	8.57	6.67	4.28
Liked	20.95	6.19	10.95	15.71	14.76
Like it alot	68.67	73.81	69.52	72.38	75.71

inhibited by beliefs and taboos around bambara groundnut consumption. One dish was tested in this study, but there is potential for diversifying bambara groundnut menu items to include sauces, soups and salads. The diversity of dishes coupled with nutrition education emphasizing the low glycemic carbohydrates, high dietary fiber, antioxidants and fat content of the pulse is bound to appeal to the emerging health conscious consumers in urban centers. In addition, there is need for development of the bambara groundnut value chain to increase production of quality grain and provide consistent supply for the restaurants. This is an important aspect if food service units are to incorporate the underutilized bambara groundnut item in their menus (Will, 2008).

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