

Research Application Summary

Factors influencing cowpea grains demand and utilization in Nigeria

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Abstract

Cowpea (*Vigna unguiculata* L. Walp.) is an economically important and versatile indigenous African legume, used for food, feed, soil fertility enhancement and income generation for farmers and food vendors. Nigeria is the leading cowpea producing country in the world, contributing to about 58 percent of the worldwide production. Despite availability of cowpea products, there exists minimal underutilization at households, commercial eating-houses in urban and semi-urban areas in Nigeria. This paper therefore summarizes key factors influencing the demand and utilization of cowpea products. The study identified factors such as income level of consumers, taste of the product, prices of cowpea and that of its substitutes, population level, daily food intake, long processing and cooking time as factors influencing production cowpea in Nigeria. In addition, long processing and cooking time were identified as major constraints of utilizing cowpea products and worth being exploited. Diversified value addition services along cowpea value chain were recommended so as to enhance the demand and utilization of crop.

Key words: Beans, consumption constraints, underutilization, value addition products, *Vigna unguiculata*

Résumé

Le niébé (*Vigna unguiculata* L. Walp.) est une légumineuse économiquement importante et polyvalente d'Afrique, utilisée pour l'alimentation humaine et animale, l'amélioration de la fertilité des sols et la génération de revenus pour les agriculteurs et les vendeurs de nourriture. Le Nigéria est le premier pays producteur de niébé au monde, contribuant à environ 58 % de la production mondiale. Malgré la disponibilité des produits du niébé, il existe une sous-utilisation dans les foyers et les restaurants commerciaux des zones urbaines et semi-urbaines du Nigeria. Ce document met en exergue les facteurs clés qui influencent la demande et l'utilisation des produits du niébé. L'étude a identifié des facteurs tels que le niveau de revenu des consommateurs, le goût du produit, le prix du niébé et de ses substituts, le niveau de population, la consommation journalière, la difficulté de transformation et le temps de cuisson comme facteurs influençant la production de niébé au Nigéria. En outre, les longs temps de traitement et de cuisson ont été identifiés comme des contraintes majeures à l'utilisation des produits à base de niébé et qui méritent d'être étudiées. Des services diversifiés de valeur ajoutée le long de la chaîne de valeur du niébé ont été recommandés afin d'améliorer la demande et l'utilisation de la culture.

Mots clés : Haricots, contraintes de consommation, sous-utilisation, produits à valeur ajoutée, *Vigna unguiculata*

Introduction

In Nigeria, cowpea (*Vigna unguiculata* L. Walp.) commonly referred to as beans is one of the most economically important and versatile indigenous African legume, used for food, feed, soil fertility enhancement (Agriculture Nigeria, 2018) and income generation for farmers and food vendor (Boukar *et al.*, 2016). There are three popularly known varieties commonly consumed which are the honey beans, brown beans, and iron beans (Agriculture Nigeria, 2018). Most of the cowpea grains produced are used for direct consumption in both urban and rural areas (Kormawa *et al.*, 2002). The grains of cowpea can be consumed exclusively, as bean-staple mixes, or processed into flour for making steamed moin-moin, fried bean cake popularly known as akara, bean soup and for infant feeding (Kings *et al.*, 1985; FAO, 2004; Agriculture Nigeria, 2018).

Previous studies on cowpea market supply indicate that the share of cowpea production among various grain legumes in Nigeria has increased since 1988, making Nigeria the largest and leading cowpea producing country in the world (Kormawa *et al.*, 2002), and contributing to about 58% of the worldwide production (Giginyu, 2017). Yet the consumption of the crop in the country has been observed to be below (Giginyu, 2017; Agriculture Nigeria, 2018). The crop is underutilized in most households and almost not served in commercial eating-houses in Urban and semi-Urban areas in Nigeria (Obasi *et al.*, 2014). The objective of this paper therefore, was to summarize some of the factors influencing the demand and utilization of cowpea, and identify ways of exploiting these factors to increase demand and utilization of the crop.

Factors affecting the consumption and utilization of cowpea. Although there are no recent consumption data available for cowpea in Nigeria, the level of consumption of cowpea and many other commodities in urban and semi-urban households is determined by four major factors which are the income level of consumers, taste of the product, prices of cowpea and that of its substitutes, and population level. Changes in any of these variables especially prices and taste of cowpea grains have been reported to affect the absolute quantity purchased for consumption (Kormawa *et al.* (2002). In a report in 2002, the monthly prices of cowpea grains from two urban markets in four cities (Abuja, Kaduna, Kano, and Ibadan) from November 1999 to August 2000 showed that the product was generally cheaper during the harvest period and prices increased during the lean period indicating seasonal and temporal variations in prices (Kormawa *et al.*, 2002). However, in recent times, the prices of the commodity has soared by 48 percent year-on-year owing to the decline in output amid high consumer demand (BDN, 2017). The high demand and preference of consumers for cowpea is connected with its high protein and energy values (Kormawa *et al.*, 2002). Cultural practices and the dietary effects of cowpea has been accounted for the higher consumption of the crop. It is appreciated and different traditional African meals and seasonings are prepared from cowpea, among them homemade weaning foods. (Kormawa *et al.*, 2002). Cowpea is often consumed with other staple foods such as yam, rice, plantain, and maize. King *et al.* (1985) reported that cowpea was a very popular legume consumed twice a week or more often by 88% of a respondent, usually in the form of bean-staple mixes and 96% of the households used cowpea for infant feeding. However, the beanie taste and ease of cooking are also important factors that has contributed to the infrequent preparation of cowpea in many households (Kormawa *et al.*, 2002; FAO, 2004).

According to the FAO (2004) report, a good proportion of daily food intake of Nigeria consists of food purchased from vendors in commercial eating-places. The principal food sources are from indigenous African food crops such as yam (*Dioscorea*, sp.), cowpea (*Vigna unguiculata*); non-indigenous introduced crops such as cassava (*Manihot* sp.), plantain (*Musa* sp.) and rice (*Oriza sativa*); and imported crop such as wheat (*Triticum vulgare*). Lately, there is a concern about the erosion of African genetic resources because of change in taste and urbanization, which has favoured the importation of food and the neglect of indigenous food crops (Abiose, 1999). Cowpea has been observed to be underutilized in commercial eating-houses in Nigeria (Abiose, 1999). The major reasons why there is the infrequent preparation of cowpea is due to the required long processing and cooking time (Phillips *et al.*, 2003; Gomez, 2004) and relatively large amount of energy required to soften the grains (Yeung *et al.*, 2009). Other food preparation from cowpea such as akara are not served routinely in the hotels but it can be prepared for customers on request. (Abiose, 1999).

Increasing demand and utilization of cowpea grains. To enhance the demand and utilization of cowpea grains, diversifying the value added products (VAP) has been suggested as a way to mitigate the challenge of long processing and cooking time (Fig. 1; AATF, 2003). According to a study conducted by Otoo *et al.* (2010), the potential demand and willingness-to-pay for cowpea flour by women street food vendors was high. This further collaborated the findings of a survey that the consumption of cowpea increased more than double in areas where village mills were installed for processing its grains to flour, even when the price increased to 500 percent. (CANR, 2001; Otoo *et al.*, 2010). This indicated that there is a large market for cowpea products in the region (Otoo *et al.*, 2010). Although the processing of cowpea flour greatly simplified the task of paste preparation by eliminating the soaking, dehulling and milling steps, this was not well received by some consumers due to its poor performance when developing some products (Phillips *et al.*, 2003; Afoakwa *et al.*, 2004). Taiwo, (2009) suggested pre-cooking and canning of cowpea grains. Canning of cowpea grains have has proven to heighten retention of nutrients, effectively reduce the use of energy, increase shelf life of cowpea grains; reduce post-harvest storage losses and creates potential for the international export markets (Afoakwa *et al.*, 2006; Taiwo, 2009; Miller and Knudson, 2012). Other suggested VAP include cowpea flakes, and weaning food (Kings *et al.*, 1985; AATF, 2003). Unfortunately, there is low diversity of cowpea value added products available in Nigeria.

Prospective. To increase the demand and consumption of the cowpea, it is recommended that diversifying the VAP, increasing research of VAP, using proper market information systems and promotion of VAP, and developing user-friendly processing equipment will enhance the utilization of the cowpea in Nigeria (CANR, 2001, AATF, 2003; Taiwo, 2009). There is also need to study household consumption patterns, the consumption data will be important for planning purposes by policy-makers and other stakeholders in cowpea production. Currently there is an on-going study that will provide information on cowpea stakeholders' perceptions affecting cowpea utilization in Nigeria and a research focused on improving cowpea culinary qualities (Odogwu *et al.*, 2018).

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Figure 1. Cowpea traditional food and value added products (Photos: akara-alorskitchen.nianny.com; moin-moin-www.wakiki.com; plate of beans-www.africanrecipe.com; market-www.agronigerai.com.ng; cowpea flour-iyafoods.com; canned cowpea-www.onlinefresh.com)

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