Towards a Micronutrient-Rich, Aflatoxin-Free Peanut Value Chain in Ghana: Results of a Comprehensive Assessment

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ABSTRACT

This study identifies investment and intervention opportunities in the value chain for peanuts (groundnuts) in Ghana, to improve nutrition and livelihoods on a commercial scale. The central challenge is to offer nutritionally vulnerable farm households new income-earning opportunities, expanding availability and access to nutrient-rich peanuts while protecting consumers from toxin contamination. This can be done through both spot and contract purchases by aggregators using new low-cost methods for toxin detection, combined with the spread of new higher-productivity seed varieties, production and storage techniques.

INTRODUCTION

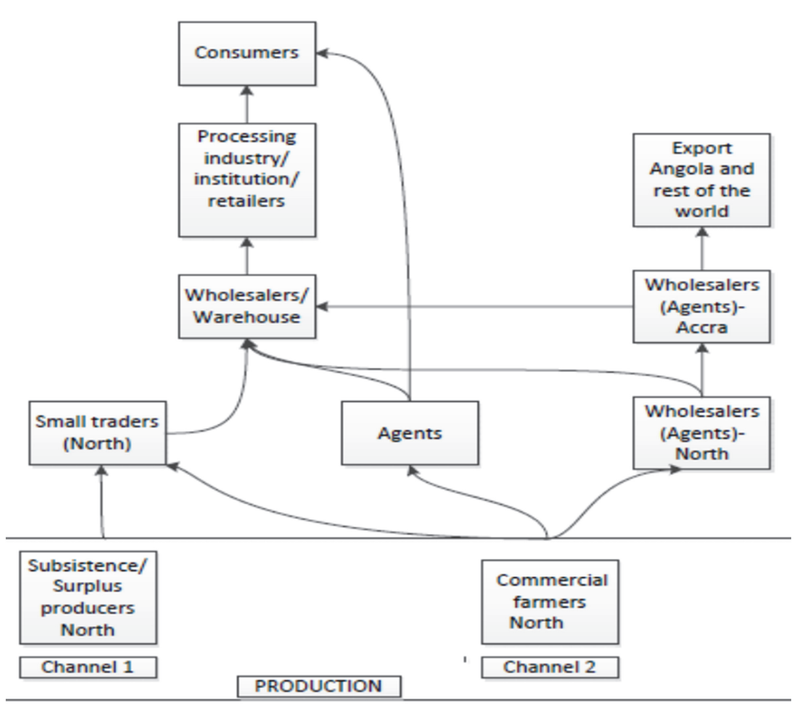
Our research combined an extensive desk review of the available data, project reports and published literature, followed by key informant interviews in Ghana during July and August of 2013. Our focus is on the nutritional content of peanut-based products, particularly regarding the extent of aflatoxin contamination and opportunities for aflatoxin control.

OBJECTIVES

The study's goal is to describe and assess the potential for high-value peanut production, processing and marketing to improve nutrition and livelihoods on a commercial scale. Our assessment spanned the regulatory and technological constraints on all stages of the value chain shown in Figure 1 below, notably:

-- Production and input use
-- Postharvest handling, storage and processing
-- Aflatoxin measurement and control
-- Marketing, consumption and final demand

Figure 1. Value chain distribution channels for peanuts in Ghana



Source: Adapted from J. Mockshell and I.S. Egyir. "Assessing the Market Integration of Locally Produced Groundnut in Ghana." *Tropentag*, September (2010): 14-16.

DATA

The study is based on detailed interviews with 21 farmers to produce enterprise budgets and qualitative assessments of production constraints, plus 16 key informants at all stages of the value chain, combined with secondary data on prices and aflatoxin contamination as illustrated below.

Figure 2. Markets and prices for shelled peanuts, August 2013

Source: Authors' adaptation from data reported through Esoko.com for various dates in August 2013, in Ghana cedis per 82 kg bag of shelled peanuts (http://app.esoko.com).

Table 1. Aflatoxin levels in selected peanut products, 2010

Raw peanuts	
New crop	1.7
In shell	7.6
Old crop	88.8
Rejects	288.8
Cottage industry processed products	
Roasted peanuts	1.0
Dawadawa	2.9
Nkati cake	7.6
Dakwa	10.9
Pounded raw peanut	15.8
Paste	52.6
Kulikuli	76.9
Manufactured groundnut products	
Crispy Nut Cracker	1.1
Uni-mix (product #1)	1.9
Burger®	5.0
Tom Brown	104.0
Uni-mix (product #2)	296.0

Source: Extracted from Figures 1, 2 and 3 of W.J. Florkowski and S. Kolavalli, Aflatoxin control strategies in the groundnut value chain in Ghana. Accra: IFPRI, June 2013.

RESULTS

Our findings can be summarized as follows:

(a) New investments in the peanut value chain can be commercially viable and provide significant improvements to the livelihoods and nutritional status of farm households in northern Ghana;

(b) The central challenge is to procure large quantities of aflatoxin-free peanuts, which requires development of a new and more secure supply chain in the midst of the larger uncontrolled market;

(c) The most robust new supply chain for aflatoxin-free peanuts is likely to involve aggregators' spot and contract purchases from rainfed smallholder producers, including women farmers in particular, potentially supplemented by other sources such as imports and contracts for production under irrigation;

(d) The most important mycotoxins include aflatoxin and fumonisin. These are known carcinogens and also suppress various aspects of disease immunity and cell function. Aflatoxins are known to cross the placental barrier, and in utero exposure has been shown to impact subsequent infant growth in the first year of life, with two studies in West Africa showing clearly the relationship between aflatoxin exposure and growth retardation.

(e) Building supply for this new value chain will require equipping farmers and aggregators with new technologies they do not yet have access to, including improved seed varieties and techniques for aflatoxin control.

(f) The investments and interventions introduced for this innovation are likely to generate potential spillovers benefits for other households producing peanuts for other end-uses, with possible gains in livelihoods and nutritional status especially for women and children.

CONCLUSIONS

Ghana is a very promising site for new peanut-based products, offering both sufficient scale of production in the north, and sufficient demand in the south, with adequate infrastructure as well as institutional frameworks for development.

Building supply for this new value chain will require equipping farmers and aggregators with select new technologies to which they do not yet have access, including both methods for aflatoxin detection and improved seed varieties as well as agronomic and storage techniques to increase the volume of uniformly toxin-free products. The result could be commercially viable on a large scale, and offer correspondingly large improvements in earnings and nutritional status especially for women and children..

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