



Interdisciplinary Report

The Options for Sustainable Agriculture

In Relation to Soybean Production

Chereponi-North East Ghana

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Presented by

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Introduction

Background

The concept of sustainable productivity and increased revenues through improved technologies, increased yields, and incomes for farmers form the basis for several development-based agricultural organizations. In Ghana, and particularly in northern Ghana, agriculture and its activities serves the major source of employment for several people located in remote rural areas. As a result, food insecurity and poverty continue to increase rapidly. In the light of this, options for agricultural development and rural development have gained attention in recent times especially amongst development agencies, support programs and non-governmental organizations (NGOs). These organizations seek to increase competitiveness of farmers in the food supply chain through crop improvements and linkages to other agri-business firms. In this study the concept of increased livelihoods through good soil and cropping management, NGO services and organizational structure, and soybean value chains and value addition is analyzed as part of research focusing on soybean production in Chereponi.

Soybean is an important nitrogen-fixing leguminous which serves as an important source of industrial raw material for food processing companies, oil processing companies with the industrial residue used for animal feed production(ODI & CEPA, 2005; Plahar, 2006). Furthermore soybean is well noted for its role in improving household nutrition as it is rich in proteins, which if adequately included in household diets will help in fighting against mal-nutrition which is prevalent in rural households (Mbanya, 2011; Nagai, Staatz, Bernsten, Sakyi-Dawson, & Annor, 2009; Shannon & Mwamba, 1994). With its introduction into Ghana's agriculture, several farmers opted for its production purposely to rotate with maize for those with excess land for improved soil fertility and also a traditional notion of low production cost compared to maize, and it also serves as a food crop and major cash crop alternative to groundnut (Mbanya, 2011; ODI & CEPA, 2005; Shannon & Mwamba, 1994).

Consequently, it is important to note that soybean production in Ghana is relatively new, not widespread and is limited to the three northern regions and some parts of the Volta region (Akramov & Malek, 2012). Presently in Ghana, there a few soybean processing units yet the local production is insufficient to feed these units, therefore relying on imports primarily from Brazil and USA (Fintrac, 2012; ODI & CEPA, 2005). Several community-level Non-Governmental Organizations (NGOs) and Farmer-Based Organizations (FBOs) adopted it into their activities such as food programs through soybean recipes and means of incorporating soybeans into regular diet, creation of market channels and linking small scale farmers to regional and global markets and value chain for pro-poor growth and women empowerment in agriculture (GIZ, 2013; KIT, Agri-ProFocus, & IIRR, 2012; Mbanya, 2011; Seville, Buxton, & Vorley, 2011). Over time it is believed that soybean will be a major crop for cultivation in Ghana.

Problem Statement

Throughout decades, every year many women farmers in Ghana are practicing self-sufficient agriculture, in terms of providing enough food for their families. Today's picture totally differs from the past, mainly due to new century challenges such as climatic change issues, decreasing soil productivity, old fashioned agricultural techniques, access to market and sociological challenges. The main aim of the north east Ghanaian women farmers to provide security to their families in terms of enough food supply seems unattainable these days.

Sabab-Lou is a registered NGO from the German Charitable foundation located in Stuttgart. The NGO officially started in May, 2009 aiming to support those who are seriously affected by poverty in developing countries. The main objectives are to provide development aid in a way for less fortunate people to be able to help themselves through the means of capacity.

Sabab-Lou is currently in partnership with the NGO Anoshe Women Group (AWG) and they are working on sustainable agricultural production system in Chereponi district, Northern Ghana, where there is high food insecurity. The main activities of the AWG are to provide services for a group of women (around 350) the main services being ploughing their land for soybean production. In return the company gets a one bag return of soybean from the women which they then market and sell on.

Therefore, in the summer of 2013 University of Hohenheim with collaboration of Sabab Lou Foundation established an interdisciplinary research project. The goal was to identify the challenges and opportunities for Anoshe Women's Group farmers in terms of being more productive and sustainable in the future, and to give guiding recommendations on how to improve their livelihood. Four master students funded with a budget of €3,600 for research were sent to North East Ghana (Chereponi), each with individual topics for four months dating July-October with to conduct the field research, provide a general review of the agricultural system, and to give a leading point for improving the livelihood of the women farmers by providing the indigenous people on site with options for sustainable and productive agriculture in the near future. The students will work in the main cropping season which is the rainy season of the area and should observe the production patterns to find specific limitations and challenges. On the basis of the identified limitation or challenge, it will then be possible to give recommendations.

The four research topics covered were soil science, crop production system, socio economic and livelihood impact and value chain management. The aim was to work in an interdisciplinary team throughout the research project and at the end produce a summary of results for the NGO to put forward new policy implementations, as well as to lay down the foundation for another team of students to undertake research on the same project in 2014. The four disciplines of research in 2013 and the designated students were as follows:

Agronomy/Ecophysiology: Harun Ar Rashid

Soil Science: Krasimir Stoyanov

Sociological: Danielle Haddad

Economy/Value Chains: Felicity Addo

Objectives

The objective of this project is to find options for sustainable agriculture for the Anoshe Women's Group focusing on the four individual topics. Individual objectives are outlined in each of the four sections of this report.

This research paper highlights the research experience of the four month period. It documents Crop, Soil, Sociological and Value Chain challenges and sets suitable recommendations that all parties involved in this project can work towards.

Scope and Limitations

1. An adaptation period to the harsh climate of between 1-2 months for the group with all group members falling sick within this period.
2. The study highlights on a new dimension of research in the field of agricultural production system in Northern Ghana resulting in the researchers being unable to provide sufficient evidence to equip the study report with relevant literature reviews. Available information sources were considered a major constraint.
3. The study area was located very rurally with little or no means for a communication system.
4. Lack of available transport at times for all four students and their translators made group activities and singular activities challenging and at times sacrifices had to be made as to who was able to travel.
5. Translator's time and availability was also somewhat limited and whilst the team remains with the upmost gratefulness with the work that was completed, the translators still had independent lives and jobs to also attend to.
6. Environmental conditions such as heavy rainfall meant that there were often periods of a few days before travelling to the communities could commence again. The village of Bumburiga was completely cut off due to heavy rainfall from the second to fourth month of the project.