

## **FOOD SECURITY AND POVERTY ALLEVIATION IN BUKOLWA VILLAGE, UGANDA – THE IMPACT OF BUKOLWA SUSTAINABLE AGRICULTURE GROUP (BSAG) FOR ITS MEMBERS**

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### **ABSTRACT**

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The research was conducted at Bukolwa village in Luweero district, Uganda during September 2007 to assess the impact of Bukolwa Sustainable Agriculture Groups' (BSAG) and Volunteer Efforts for Development Concerns' (VEDCO) activities on food security and poverty alleviation for the households. Stratified random sampling, resource map, focus group discussion and livelihood rankings were the tools used for both quantitative and qualitative data collection. The members of BSAG had increased diversification of vegetables and crops as a result of their membership in BSAG and working with VEDCO. Large gaps between respondents' expected nutritional value and the food they ate were found, especially in cereals/grains and fruits. Fifty percent of the respondents failed to consume essential protein components, due to inadequate market facilities and disease problems. The production had increased, but so had also the vulnerability to price fluctuation and diseases. The community now relied more on the market for both agricultural inputs and outputs. One main challenge for the BSAG is to build a common storage room so they can store their products and sell when the prices are higher. Lack of collaboration and group spirit in the BSAG may have delayed the process of constructing the storage facility for their crops.

**Key words:** Market development, food security, poverty alleviation

### **INTRODUCTION**

The Bukolwa Sustainable Agricultural Group was founded in 2003 as an offspring of Wekembe Mixed group and consists of small scale farmers. The main goal for creating BSAG was to increase the agricultural productivity through better access to high quality seeds, farming equipment and training in modern farming in order to improve the households' income and food security. Joining the group also meant to find collective market opportunities to enhance agricultural trade development. Bukolwa started working with VEDCO one year prior to this research. VEDCO is an indigenous NGO funded in 1986 as a response to poverty related challenges following a military conflict in the Luweero district. VEDCO's mission is to empower small/medium scale farmers and micro entrepreneurs to improve the quality of life through capacity building, agricultural trade development and access to micro finance (<http://www.vedcouganda.org/aboutus.html>).

VEDCO uses already existing farmer groups to improve dissemination of their goods and services. In the case of Bukolwa, VEDCO provided new varieties of food, like rice, and high quality seeds to the group members. VEDCO's aim is to strengthen the group through training in intensive production methods and advice services to enhance agricultural trade development. For this reason, VEDCO and the Bukolwa group planned to expand the storage capacity in the village in order to achieve food security through saving some of the harvest for bad times and to obtain higher prices on the market.

This research was conducted to find out whether the group activities and VEDCO's work had an impact on food security and poverty alleviation for the members of the BSAG in the Bukolwa village.

### **METHODOLOGY**

The study was carried out in Bukolwa village in Luweero district, central region of Uganda. The village is located on the western side of the Kampala Gulu main road, about 45 km north of Kampala. The three groups in the village were Kyagalanyi Piggery Farmers group, Wekembe Mixed Group and Bukolwa Sustainable Agricultural group, and the focus of this report is on the last group.

#### ***Resource map***

In the initiation of the research resource mapping was done to obtain information about the settlements, infrastructure, natural resources and social services in the village. Resource mapping is a participatory tool where the map is drawn in sand by the researchers and respondents together. It is a quick and reliable method to communicate between the participating group members and the researchers (Mikkelsen, 2005). The BSAG group members were gathered and the purpose of the exercise and what was expected of them was explained. The participants were asked to collect materials, such as rocks, leaves and fruits, to be used as symbols for the different resources in the village. They were encouraged to participate and contribute freely to get meaningful results. The

boundaries of the village were drawn and roads, pads, water sources, houses/farms, trading centers, churches, schools and health services were allocated on the map. Symbols for the different kinds of crops and livestock the participants were growing and rearing were added to the map by the participants. The whole process of resource mapping took about two hours and afterwards the map was copied to paper to be saved for later monitoring.

### ***Livelihood ranking***

The purpose of the ranking was to find out more about food security and market opportunities for the respondents. “Problem, preference and opportunity ranking” was used because it may quickly identify the main problems, opportunities and preferences experienced by individuals or groups of stakeholders. The divergence of peoples ranking will give an impression of different interests or options which will be compared and discussed in the part of analyses (Mikkelsen, 2005). On the fourth day the respondents were gathered for a collective ranking. They were asked about the previous week’s food preferences, expected nutritional values and market opportunities for their crops and livestock.

### ***Focus group discussion***

After the Livelihood ranking a group discussion around the theme, “What are the biggest challenges for poverty for you?” was held. Valuable information about what poverty meant to the participants and how to alleviate it was obtained. We consciously did not lay the premises for the discussion, because we wanted the community to identify poverty, opportunities and constraints in relation with poverty alleviation.

### ***Household interviews***

Stratified random sampling was used by choosing 100 % of the farmers who showed up on the first introduction meeting in the village. The only condition for being in the sample was to be a member of the Bukolwa Sustainable Agriculture group. From the introduction meeting 30 respondents were identified and 15 of these were selected for interviews.

Semi- structured interview with a checklist in form of questions was used. The questions were divided into sections to maintain a certain order to not confuse the respondents or the researchers. The sections were: 1. Demographics, 2. Livelihood, 3. The BSAG group and VEDCO, 4. Funding schemes and 5. Development agencies. The questions were open-ended, giving unexpected and relevant issues the chance to be followed up with further questions or probing (Mikkelsen, 2005). Each interview was conducted by one student in order to not confuse the respondent. After finishing the checklist, other students from our group could ask questions and the respondent was free to pose the researchers questions as well.

### ***Analytical procedures***

Qualitative and quantitative interpretation was used for the analysis. Qualitative data was transformed into a quantitative coding system, whereas Excel was used to perform ANOVA and Correlation. The results of the livelihood ranking were used to formulate the Change Assessment Scoring Tool (CAST). The resource map was used to have an overlook of what resources the community regarded as the most important. Even though the resource map was not directly used in the analysis, it gave us new ideas, raised new research questions and was helpful for formulating the questions for the household survey.

## **RESULTS AND DISCUSSION**

### ***Bukolwa Sustainable Agriculture Group and its activities***

According to the chairman of the BSAG some of the group’s objectives were getting access to agricultural training, selling agricultural products for the market collectively, advising its individual members on how to establish enterprises and to attract outside funding. Measures for increasing the production of maize, beans, cassava and rice had been undertaken, as well as attempts to improve rearing of goats and chicken. The founding members set up the organizational structure where the leadership was elected yearly and consisted of the chairman, vice-chairman, treasurer, secretary and a person whose task was to mobilize the members of the group. BSAG also had a disciplinary committee, whose task was to look at the members’ behavior. A respondent said that one of the conditions for joining the group was meeting certain moral standards so that the group would not get a bad reputation.

There is considerable literature on “the feminization of poverty” and women’s role in development. Wekembe Mixed Group was named precisely because they were gender sensitive and recognized empowerment of women as an important aspect. An important observation in relation to this is that the present leadership of BSAG consisted of four men and one woman. Due to insufficient historical data on the previous leaderships it could not be stated whether the leadership was gender biased.

The conditions for joining BSAG were to pay an initial fee, attending training sessions and meeting certain standards for moral behavior. The fee was contributing to the group activities and was originally set to 3 000 US\$, but rose to 7 000 US\$. The disciplinary committee had mandate to issue fines for members not meeting for the training sessions. The fine could be between 500 and 1000 US\$, but so far no members had been fined.

The group met on a monthly basis and the activities were workshops, trainings and knowledge sharing. It was unclear whether the group cultivated land collectively or did their trainings on individual members land as the information obtained regarding this issue was contradicting. At least some of the members grew maize and rice together, and shared the income from these products. Some of the land this group utilized was collectively owned, and some rented. Sometimes the group hired labor for planting and harvesting the crops. It is important to remark that BSAG was not formed by VEDCO. VEDCO only worked through already organized groups and stressed that the initiative must come from the communities they worked with. When BSAG linked with VEDCO, one year prior to this research, the group had been functioning for two years, and had improved the livelihoods for its members. VEDCO's approach towards BSAG was participatory, meaning that BSAG as a whole suggested activities to VEDCO, which they either supported or disapproved. VEDCO had provided subsidized seeds for "improved" maize and beans varieties after the BSAG prioritized these crops. Access to these seeds was one of the main reasons given by many new BSAG members to join. BSAG was working actively to increase their production in order to convince VEDCO about the necessity of building a storage facility for their products.

### ***Livelihood activities***

All the households included in the research had adopted diversification of crops and livestock. The crops grown in Bukolwa were maize, rice, beans, cassava, yams, sweet potato, Irish potato, banana, matooke, coffee and peas. Additionally some respondents had vanilla and fruits like papaya. The rice and the hybrid varieties of maize and beans were brought in by VEDCO. Some respondents had also established vegetable gardens on promotion from VEDCO. Among the livestock chicken and goat was the far most common, but also pigs and cows were reared in various households. The pigs were of the local variety while an exotic variety of cow has been introduced.

The change to cropping high yielding hybrid varieties gave an opportunity for increased income. The extra income could be used as inputs to increase the production on the farm, for school fees and health care to alleviate the poverty and increase the food security. On the other hand the farmers had to buy the hybrid seeds and fertilizers every season to maintain high yields, which made them more dependent on the seed supply from VEDCO. The new varieties of maize and beans were more susceptible to pests and required use of pesticides, which might harm the environment. In the community there was lack of proper training in handling and application of pesticides as well as confusion regarding which pesticides to use on which crops. When VEDCO introduced new varieties they should also give proper training in integrated pest management. The group could have one common plot where they could test the best ways to grow the new variety, to reduce pests and optimize yields. The group could be linked up with International Institute of Tropical Agriculture (IITA) in Uganda to get information and advice regarding integrated pest management and how to carry out experiments themselves.

The introduction of a new variety of banana by the extension service led to an outbreak of diseases on the banana plants. The farmers responded by reducing the amount of banana grown and the ones who used to brew banana wine stopped that business and lost that source of income. Other constraints are the price fluctuations on agricultural products. The farmers once got advised by an extension officer to grow maize and beans because they could get high prices for those commodities. Many farmers changed their crops with the results that the prices decreased due to large supply maize and beans. One solution to the price fluctuation could be to build a storage facility so the farmers could store the crops and sell when the prices are favourable.

Some of the respondents lacked labour and did not have economic resources to hire it, so not all their farmland was utilized. Unpredictable weather is a risk for farmers and an adoption strategy in dry areas has been to crop drought tolerant species. Rice was introduced to Bukolwa the season prior to the survey and one respondent said the rice faced problems due to too much sun. Many of the respondents had problems to market their products as their harvest was not large enough. As a group the farmers had larger output and might increase their bargaining power. In other areas VEDCO had helped linking farmer groups to enterprises that could buy their output. This could also be done in BSAG and it should be a binding contract with a fixed minimum price to secure the farmers' income.

The conditions for the loans (especially short pay back time) were hindering many farmers to access it. The fear of not being able to pay back in time was the reason why many did not take up loans. In Wekembe mixed group the conditions for loans were so strict, so even the chairman of the group could not access loans. The explanation given by the chairman for why they did not change the bank to get better conditions for the loans was that Wekembe was

started on initiative from a catholic bishop and therefore the group kept the money in the catholic funded Cetenary Bank. Since Wekembe was a group for the farmers they should work to get better conditions for loans to improve the accessibility to their members. Other NGOs in the area that gave loans were CARITAS, UN Habitat and Adventist Development and Relief Agency (ADRA).

Apart from farming activities some members of BSAG had their own business. One respondent made bricks together with friends. The group had a bank account and they decide together what to use the money on. The group was a safety net and provided help to its members for medical treatment. Other respondents made extra money by driving boda-boda in the spare time. Two of BSAG members were traders and bought up crops from the farmers in Bukolwa and sold it to Kampala. One farmer grew watermelon and wanted to grow other crops or fruits, which could generate high income. Many of the farmers requested machines to help them in the farming. ADRA, an NGO operating in Bukolwa, provided farming equipment on credit and information about ADRA should be spread in the community.

#### ***Advantages and disadvantages of being a member in the BSAG***

Most of the respondents had only been a member of the Bukolwa sustainable agriculture group for a few months, and had yet to experience the advantages and disadvantages. The few respondents, who had been member since the beginning, provided very useful information. Almost all the informants were very positive about being a member in the group. Only one informant was negative to that other group members were unwilling to share information and surpluses. The most commonly mentioned advantage was the sharing of knowledge. Being a member of the group created a forum for sharing own experiences and local knowledge. It also gave opportunities to work with organizations like VEDCO, which provided training activities. One of the pioneers of BSAG said that social capital, meaning the building of relationships between members of the group, was a great advantage of being a member. With more relationships one had more people one could trust and ask for advice when needed. Another important advantage for the group members was the access to a bank account. For an individual farmer it was difficult to open and operate a personal bank account, but the security of the group made it easier.

As a member of a group they had access to organizations working with organized groups, like VEDCO. Through VEDCO they got subsidized seeds and were introduced to new varieties, which they would not get as non-members. According to the respondents the help they received from VEDCO had increased the yields and this was very positive for the households. When they worked as a group, gathered all the output and sold it in bigger quantities, it was easier to get a better price and reach other markets. The training sessions were held on land owned by group members and the land they worked on would shift from session to session. The disadvantage was that the members who did not have any land available for training would loose this opportunity to get their land worked on by others. The harvests from the crops used for training were a benefit for the land owner. Some of the informants mentioned the fee for not showing up at meetings and other activities held by the group as a disadvantage. Since the group was seeking new members they had not yet made anyone pay the fee because they didn't want to "scare" away possible members. The disciplinary committee and the fees for not meeting were seen as positive by many members because it showed that the group was properly organized and therefore attractive to NGOs like VEDCO.

#### ***Impact on food security and poverty alleviation***

The focus group discussion and the problem, preference and opportunity ranking of (Mikkelsen, 2005) weekly household food consumption (last week prior to the interview) were analyzed. Figure 1 shows the general trend of food consumption and the respondents' expectations of the nutritional values of their food.

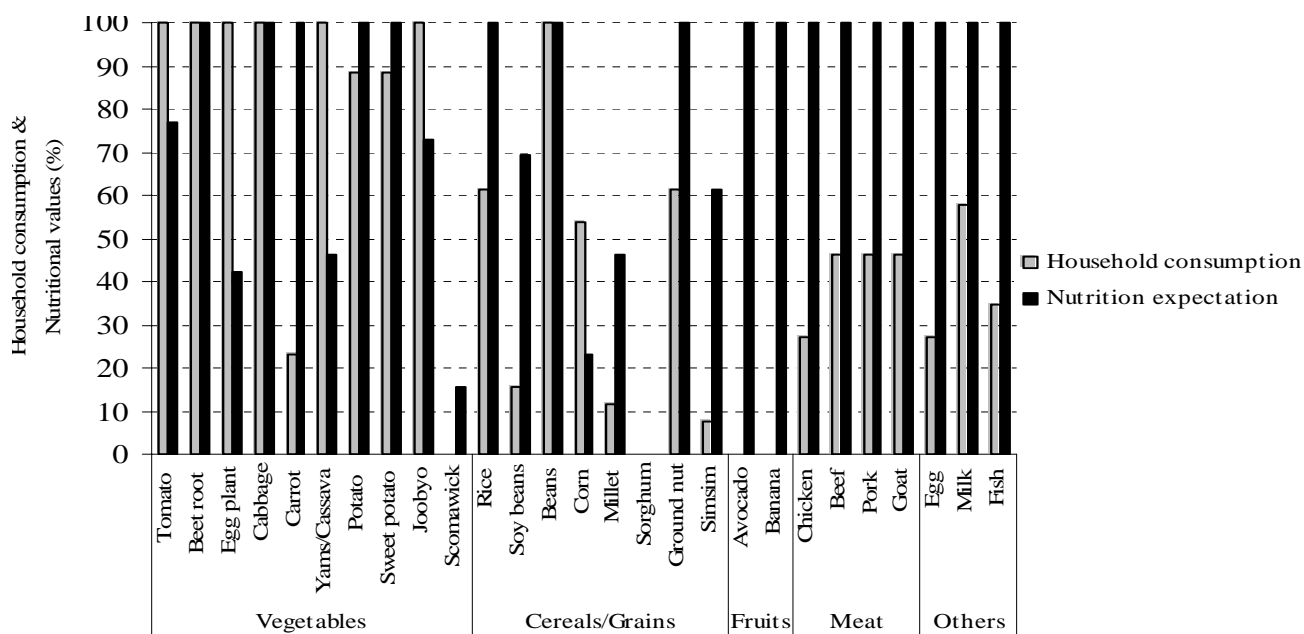


Figure 1: Relationship between food consumption and the respondents’ expectation of nutritional value in their food.

More than 80 % of the respondents consumed most of the vegetables, but considerable gaps between consumption and nutritional expectation were found among cereals/grains and fruits. All cereals and grains, except beans, were less accessible as they were not commonly cultivated due to unsuitable climatic and soil conditions and little availability of certified seeds for planting. Some of the members, who joined the Bukolwa Sustainable Agriculture Group in an early phase, had got seeds for cultivation. Banana cultivation had been abandoned due to heavy banana-weevil attack and the community expected that appropriate research would be able to exterminate this disease as they did not know about any control measures (Figure 2). Avocado is a seasonal fruit, which was not available for the community during the period of study. More than 50 % of the respondents failed to consume essential protein components, due to inadequate market facilities and poor livestock practices. The result show no significant correlation ( $r < 0.3$ ) between the consumption of foods and its expected nutritional values.

The group members did not have any adequate storage facility for their agricultural outputs (Figure 2 and 3). The middlemen and trades took advantage of that man farmers were selling the same products at the same time and the prices decreased. The group members stored beans by local means, but this was not enough to prevent a surplus of bean seeds or other agricultural products on the market. Farmers faced the same problems for livestock. Diseases were a major challenge for the community in relation to livestock management as measures to control diseases were inadequate.

Most of the group members practiced traditional subsistence agriculture with limited income generation from agricultural products (Figure 3). The farming practice was restricted by unavailability of certified seeds and lack of modern farming practices.

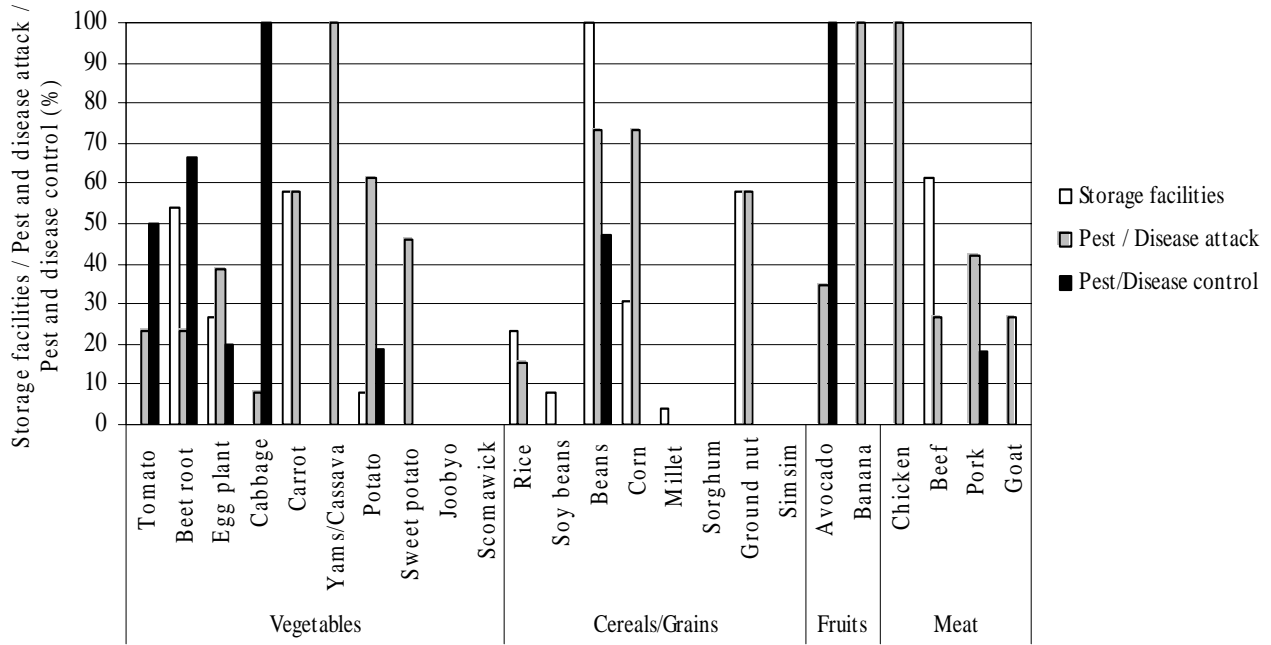


Figure 2. The group members’ storage facilities for their agricultural products. The pest and disease attack during field and local storage conditions and control attempts by the respondents observing pest and disease attack.

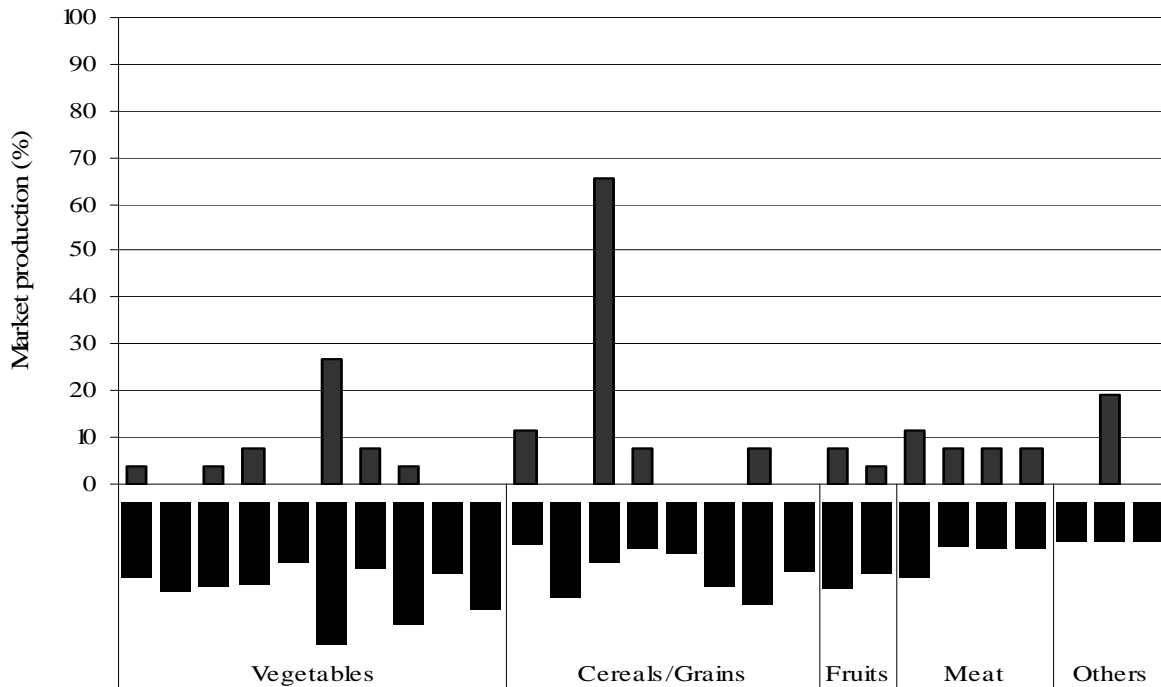


Figure 3. The group members’ income generation of agricultural products sales

The major causes of poverty, according to the participants of the focus group, are listed below in Table 1. The causes were mainly exerting impacts on the communities’ livelihood activities such as nutrition level which lead to vulnerability and lack of livelihood diversification.

Table 1. Major causes hindering livelihood improvement and poverty alleviation.

Economic factors	<ul style="list-style-type: none"> <li>• Expensive agricultural equipments for modern technology</li> <li>• Reduced market demand for agricultural products</li> <li>• Expenditure is more than yield (cost &gt; benefit)</li> <li>• Labor shortage</li> <li>• Lack of modern farming practices</li> <li>• Unstable prices for agricultural inputs and yields</li> </ul>
Social factors	<ul style="list-style-type: none"> <li>• Low motivation and unity among communities</li> <li>• Famine – low output, not enough food for consumption</li> <li>• Low man power</li> <li>• Poor accommodation (household)</li> </ul>
Environmental factors	<ul style="list-style-type: none"> <li>• Climatic change – unexpected drought, shortage of rain</li> <li>• Loss of soil fertility</li> </ul>
Health factors	<ul style="list-style-type: none"> <li>• Poor feeding</li> <li>• No or poor medicinal availability – mainly privately owned, access to private health centre is difficult</li> <li>• Malaria</li> <li>• Government support – not enough to cater whole community</li> <li>• Not enough child care</li> </ul>
HIV / AIDS	<ul style="list-style-type: none"> <li>• Confusion between awareness and availability of medicinal care</li> <li>• Hopeless to use condom – among already infected members</li> <li>• Just increasing</li> <li>• Insufficient awareness</li> </ul>
Transport	<ul style="list-style-type: none"> <li>• Less accessible and poor</li> </ul>
Education	<ul style="list-style-type: none"> <li>• Low level</li> <li>• Not enough qualified teachers</li> </ul>

The Change Assessment and Scoring Tool (Mikkelsen, 2005) was applied for monitoring respondents' perceptions of poverty related changes (Table 2). The results show a significant ( $F_{\text{observed}} < F_{\text{standard}}$ ) change, but it is not an indication of remarkable change in their livelihood practices. Most of the parameters, about 60 %, remain unchanged while the rest of the parameters such as income from sale of agricultural products, employment, ownership of assets, technical skills and private sector participation shows a positive impacts change. This is due to outliers and do not represent any trend.

Table 2: Change Assessment and Scoring Tool (CAST)

Criteria	Scoring				
	Very (+)	(+)	No change	(-)	Very (-)
<b>Improvement (Livelihoods)</b>					
• Income from sale		✓			
• Employment		✓			
• Child health			✓		
• Adult health			✓		
• Nutrition level			✓		
• Ownership of assets		✓			
<b>Access (Services)</b>					
• Quantity / quality of transport				✓	
• Markets			✓		
• Schools			✓		
• Local shops			✓		
• Health centre			✓		
• Security			✓		
<b>Improvement (Knowledge / Practices)</b>					
• Technical skills		✓			
• Management skills			✓		
• Environmental protection			✓		
• Private sector participation		✓			

### **Funding schemes in Bukolwa village**

There were several formal and informal funding schemes in Bukolwa. The group of the respondent making bricks saved their earnings in the bank and they could borrow this money for emergency cases. There was no interest for this loan. Only few of the formal funding schemes gave cash as loan and only a few of the respondents wanted to borrow money from formal funding schemes. The main reasons were that the interest was too high and they had to pay back half of the loan within one week. The chairwomen of Wekembe Mixed Group, which was a funding scheme, said that they could borrow money from 50.000 to 500.000 Uganda Shilling with 15 % interest. The loan had to be paid back within six months. The student group doing interviews with the Wekembe mixed group informed that the Wekembe group members did not have to pay back half of the loan within a week, but they had to pay back parts of the loan every week.

Another formal funding scheme was Caritas, which is a catholic NGO. The condition for being a member of Caritas was to buy shares for 50.000 US\$. There was no interest on these loans, but the amount was a lot of money for many farmers. ADRA, one of the NGOs, did not give money as loan but offered banana and pineapple seeds on credit and the farmers could pay after the harvest. Many farmers preferred this kind of credit than loans, as the credit was easy to get and did not have any interest. VEDCO subsidized maize and bean seeds with 50 % of the price to the members and also here the members could pay back after the harvest. VEDCO did not give loans, but could subsidize agricultural equipment and one respondent said that VEDCO would give him a caterpillar which he would pay back over several years.

Only one respondent mentioned the NGO Habitat. They did not give loans to the farmers, but lend out tools for farming and helped the farmers to repair or build houses. The farmers had to write a proposal to Habitat, explaining how much money they need to build a house and Habitat would try to provide what the farmers requested including labor. After five years the farmer had to pay back the expenses.

Plan International focused on health and education and built a health center and a primary school in Bukolwa in addition to providing scholarships for some students. In Uganda primary education should be free of charge, but students need books and stationary, which the government cannot provide. Even though Plan international did not give scholarship to all the students, these scholarships helped some people who otherwise could not afford to send their children to school.

Intervention from outside is not always positive and the farmers had experienced false development agencies. One respondent said that an NGO came to present their project and disappeared after they had collected the membership fees. This experience created confusion among the farmers about which are 'real' development agencies. Although many development agencies were working in Bukolwa and some also operated as funding schemes, the farmers still faced challenges to improve their livelihood and from our understanding, they needed loans with low interest and longer time to pay back.

### **CONCLUSION**

The findings show that the respondents of the BSAG had high expectations to yield increase as a result of the new varieties and modern farming practises they learned from VEDCO. The farmers would use the expected surplus on school, health and agricultural investments. However, the majority of the respondents joined BSAG within the last few months and therefore it was hard to state whether there had been a considerable change in the livelihood of the farmers. With the subsidies on seeds and agricultural training given to the farmers from VEDCO, many of the respondents had experienced increased yields. On the other hand, the farmers got more reliant on the market and more vulnerable to price fluctuation.

The question is if the higher income will be used on food to the household. If this is not the case and the farmers prioritise cash crops instead of food diversification it cannot be said that there is a relationship between higher income, food security and good nutrition. The focus group discussion revealed lack of knowledge about nutrition. On the other hand some respondents had started to grow vegetable gardens after advice and help from VEDCO. Market access is a challenge for the farmers in the BSAG and one recommendation is to link their group with enterprises who can buy their products. The BSAG should use their bargaining power to get a contract and to secure a fixed minimum price for their products.

We recommend BSAG to have a common land for trainings. To have a land in common may increase the cooperation and group feeling and the farmers can experiment to find best cropping practices and pest management methods. The BSAG can contact IITA Uganda to help them with trainings and information regarding pest management.



Most of the respondents joined the BSAG to get access to better seeds. Many of the respondents complained that storage facilities was a problem, but hardly any of them mentioned working together in a group and building a storage facility together as a reason for joining the group. If the members in BSAG teamed together and contributed some money and labour maybe they could afford to construct a joint storage facility. One of the respondents was making and selling bricks, so he might be able to provide cheaper bricks for a storage facility. We felt that the group spirit and cooperation was lacking. As there are many NGOs in the community some farmers may expect to get things provided from the NGOs instead of taking initiative themselves. Our recommendation is that BSAG should build cooperation and social capital within the group. They should see which resources are within the group and how they can use the available resources.

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