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Edited
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Wanda I. Lugo, Héctor L. Santiago, Rohanie Maharaj, and Wilfredo Colón

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Secretariat CFCS
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or from:

CFCS Treasurer
Agricultural Experiment Station
Jardín Botánico Sur
1193 Calle Guayacán
San Juan, Puerto Rico 00936-1118

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VALUE CHAIN STRENGTHENING OF PROTECTED AGRICULTURE AND ROOT AND TUBER INDUSTRIES IN JAMAICA THROUGH CARDI

N. Reid, D. Erskine-Jones, W. Lawrence, D. Clarke Harris, and L. Johnson. Caribbean Agricultural Research and Development Institute, The University of the West Indies, Jamaica

ABSTRACT: The Caribbean Agricultural Research and Development Institute (CARDI) through funding from the Common Fund for Commodities (CFC) and the European Union (EU) engaged in projects to strengthen and develop stakeholders in both the protected agriculture and root and tuber industries across six countries in the Caribbean viz. Jamaica, Haiti, Dominica, St. Vincent, Barbados and Trinidad & Tobago. These projects were launched in 2010, with an emphasis on targeting challenges in the respective value chains for each country. Our aim was to strengthen them with the appropriate interventions and necessary linkages among producers, processors, markets and consumers. With focus on the Jamaican value chains explored under the project, needs assessment were conducted to identify specific challenges being faced by the producer and processor groups. The output of these assessments gave rise to the development of appropriate group dynamics programmes, technical training sessions and group transformation interventions for one greenhouse producer group, and six root and tuber producer groups. Processor groups have been exposed to technical sessions on food safety; and strategic linkages developed along the value chain, promoting food security and providing sustainable economies through agribusiness. One of the main highlights which capture the essence of the project objectives is observed in a cassava producer group, Bernard Lodge United Progressive Farmers, being developed into a farmers' cooperative after going through the necessary training and sensitizations; and also being linked into clusters with processors and other stakeholders which promote the use of cassava in diverse culinary creations to encourage consumers to utilize these foods in new ways.

Keywords: CARDI, Value Chain, Agribusiness, Protected Agriculture, Roots and Tubers

Introduction

Under two projects supported by the Common Fund for Commodities (CFC) and European Union (EU) and being implemented by the Caribbean Agricultural Research and Development Institute (CARDI), the improvement of livelihoods along the protected agriculture and root and tuber crop commodity chains in the Caribbean is being achieved in part through the use of appropriate production technologies. The commodities prioritized were yams, sweet potato and cassava for the root and tubers, while vegetables and herbs were targeted for protected agriculture. An integrated approach to these production systems will increase productivity and enhance product quality thereby contributing increased incomes across the supply chain. By understanding how the value chain naturally operates for an industry, areas of

deficiencies can be acknowledged and targeted for strengthening to improve the overall efficacy.

Inappropriate agronomic practices have been identified as constraints hindering the development of protected agriculture and root and tuber crops in the Caribbean. Generally speaking, this is applicable to most Caribbean countries, however, there are certain intricacies associated with each nation's value chain systems, impacting on overall productivity. The two regional projects were launched in 2010 targeting: Jamaica, Haiti, Dominica, St. Vincent, Barbados and Trinidad & Tobago. Experiential learning is central to the range of methodologies used, as the producers are engaged and encouraged to be more grounded participants in their training programme. Processors are also another key linkage in the value chain, as their throughput and demand for fresh produce help to guide the marketability of value added goods in the value chain.

Although each of the participating countries involved in the execution of the project had its respective challenges in its own value chain, a general approach was taken in general which was applicable to all. With focus on the Jamaican arm of the project, greater details will be provided; using one of the targeted producer groups as a case study. The transformations that occurred within the group were indicative of value chain strengthening that would improve the livelihoods and lead to greater communities and efficiencies.

Materials and Methods

Based on the identified needs of target value chain systems, interventions were made with stakeholder groups under the guidance of the respective project document and the National Coordinating Committees made up of key stakeholders from government, industry and export divisions.

Demonstration Plots were established with farmer groups, where best practices were showcased at the respective sites for yams, cassava and sweet potato production. The farmer groups were recommended by the Rural Agricultural Development Authority (RADA), the government extension service which interfaces with farmers. Based on observed areas of weaknesses with producers and processors, training and group strengthening activities were scheduled in collaboration with specially identified facilitators. Farmer Field School methodology was used in training and with pre and post training questionnaires administered to measure knowledge changes. Infrastructural support was given in the form of equipment and expansion of existing laboratory and food processing facilities to improve capacities. Stronger linkages along the value chain were also forged through the use of dialogue platforms such as interviews and stakeholders' meetings.

Discussion

From stakeholder consultations, the producer link in the value chain was deemed the most critical point for intervention. This conclusion was based on to the role of that

segment in determining the quantity and quality of primary product that is available to consumers. Based on the general observation of the widespread use of inappropriate agronomic practices, special focus was given to exposing the producer to good agricultural practices. The needs assessments conducted among the producer groups elucidated specific areas of challenges and relevant capacity building programmes were developed to address these issues. Issues arose with respect to group functionality and technical adeptness. Addressing the group functionality challenges, training modules targeting group dynamics were used, with sessions on: Leadership/ Team Building; Entrepreneurship; Conflict Resolution; and official ceremonial registration of a group. With respect to technical adeptness, good agricultural practices (GAPs) and integrated pest management (IPM) systems modules were delivered to build the groups capacity in: Marketing and Business Management; Land Preparation; IPM; Integrated Crop Management; Post/ Harvest Management; GLOBALGAP/ Food Safety and HACCP.

Training was conducted with the respective groups, facilitated by the expertise of officers from government and private sectors. A memorandum of understanding was signed off on with the extension division of the Ministry of Agriculture and Fisheries in Jamaica, RADA to assist with the technical training of the producer groups. Consultants with specialized expertise were also brought in for the group dynamics sessions from agencies such as the Dispute Resolution Foundation. The training sessions in the form of on-farm discussions and demonstrations were effective, as the producer groups were able to gather at a convenient location in their communities and participate freely. The short questionnaires distributed before and after each session were used as a marker to determine how effective the messages were delivered by the trainers, and how receptive the groups were to the new information. In every case, the sessions showed an overall improvement in scores between the pre and post training questionnaires, suggesting increased awareness of best practices and an understanding of group functionality.



Figure 1: Bernard Lodge United Progressive Farmers Co-op during team building training (left) and marketing training (right).

The case study of the Bernard Lodge farmers' group is described below. The group consists of mostly male farmers between ages 35 and 55¹ years. It is a very diverse and

¹ There is, however, very active and involved female member.

resourceful group: education levels vary from primary to tertiary; there is a combination of full time and part time farmers; a few members have formal agriculture training; and although two members have more than 30 years farming experience, most of the members have been farming for less than 10 years. Cassava is not the main crop for any member of the group. Only five of the 12 members interviewed had ever grown cassava. More than 80% of the members interviewed believed cassava could be a profitable crop. However, profitable production is perceived to be restricted by the low selling price, laborious and expensive harvesting procedures, and small and easily saturated markets. These were highlighted as serious constraints to expanding cassava production. The quantities that could be absorbed by the two processing facilities were not deemed adequate to support profitable production of the crop. With the exception of one member, cassava in the area is grown without fertilizer and pesticide.

The Needs Assessment conducted highlighted the following:

1. Marketing of cassava needed priority focus as the group was frustrated by minimal sales from large acreages of cassava produced.
2. Group formation needed to take place for the group to become a legally registered Cooperative.
3. Need RADA to assist in implementing a Production Plan to ensure efficient usage of land to improve financial returns to farmers within the group.
4. Stakeholder intervention needed to address pricing and marketing of produce.
5. Empowerment Training programme was a required intervention.

Having completed their training in the respective topics, a meeting was conducted by personnel from the Department of Cooperatives and Friendly Societies (DCFS) with the objective being for the group to participate in designing the rules and regulations which will dictate the operations of the group as a Cooperative, the ratification of the business plan as well as the share allocation inclusive of cost for its members. Approval was granted for their application to become a Cooperative, and an Inaugural Meeting (IGM) to formalize the registration process was conducted within 60 days of receipt of the Certificate of Incorporation. The group is now legally recognized as the Bernard Lodge United Progressive Farmers Co-operative Limited (BLUPF).

There are at least 75 persons employed (as full time, task or days workers) at the 12 operations that participated in the interviews. In most instances the farm workers were from depressed communities that were in close proximity to the farms. Farm operators were generally dissatisfied with male workers' attitudes and performances.

There are a number of stakeholders² with which the group currently has relationships for supply of various inputs, outputs and services that are related to cassava production

² CARDI; National Land Agency; Other persons providing sub-lease in the area; Bodles Research Station; RADA; Twickenham Industries; Central Food Packers; Farmers and other domestic markets; more than six land preparation services providers in the Bernard Lodge area; National Irrigation Commission, Jamaica Drip, Fersan, Agro-grace, Ace Supercentre, Evergrow, National Commercial Bank, Scotia Bank, Victoria Mutual

and marketing. Whilst some are within the Bernard Lodge area others extend to other parishes as far as Manchester. The relationships associated with markets, land preparation, finance and labour (and therefore planting and harvesting in-efficiencies) were deemed the most inadequate and in need of attention.

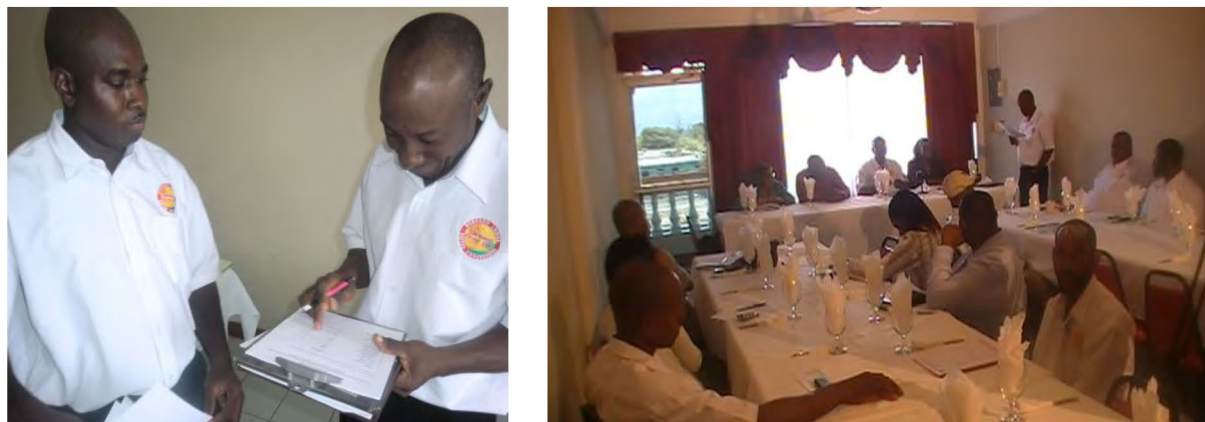


Figure 2: Members of the Bernard Lodge United Progressive Farmers Co-operative conducting their Inaugural General Meeting.

Mechanical land preparation is the dominant mode of land preparation in the group; however, the systems are currently plagued by long and unpredictable waiting periods with the rental services available. Most of the land preparation activities in BLUPF are carried out by a member of the group at a reduced cost. However, it is under resourced (an older tractor that is prone to breaking down and borrowed land preparation equipment). Other small service providers in the area have the same limitation. Although RADA also provides the service, the number of tractors in the parish is still inadequate to provide timely delivery. Consequently, land preparation problems are a serious constraint to the efficient production of cassava and other crops in the area. Cassava harvesting is done manually and is seen as a laborious task that is avoided unless absolutely necessary. It is also very costly, as it can account for USD\$40.00 out of every USD\$100.00 (or USD\$120.00³) earned from the crop. Current production trends and limited access to capital have not encouraged further investments in land preparation and harvesting equipment. However, it was felt that if the group could be supported in acquiring some of the equipment to improve their production (mainly the tractor and harvester), they could influence a change in the way cassava production is done in the flat plains of Jamaica.

The small size of the cassava market currently accessible to farmers in Bernard Lodge is a major deterrent to cassava production. Initially, Twickenham Industries (one of the major processor in the area was only able to absorb very small quantities from the group (1400 kg weekly). This quantity makes the crop not economically viable for the

Building Society; Jamaica National Building Society; St. Catherine's Cooperative Credit Union; World Net; GSB Credit Union; Jamaica Business Development Commission.

³ USD\$100.00 if the selling price is USD\$0.10 per lb but USD\$120.00 if the selling price is USD\$0.27 per kg.

group to pursue. Another processor, Central Packers, was not ready to absorb a lot more due to prior market contracts. Organizations were reluctant to enter formal relationships (contracts) with the group. Members of the group pointed out that because of the small profit margins cassava's profitability is dependent on farmers producing larger quantities. Consequently, accessing new and larger markets is crucial. Since then, the facilities of Twickenham Industries have been upgraded and their production capacities increased through funds provided under the CFC EU project. The funds were provided to commission the fabrication of two purpose-built roll away trolleys (1.8 m x 1.5 m x 2.1 m) with 10 shelves each, for use in a previously acquired oven (5.95 m³). The trolleys allow conveyor stacking for efficient loading. The project also assisted with the installation of a mill which was donated to Twickenham from a previous EU intervention. Civil works (assembly and electrical works) were undertaken to put the unit into operation.

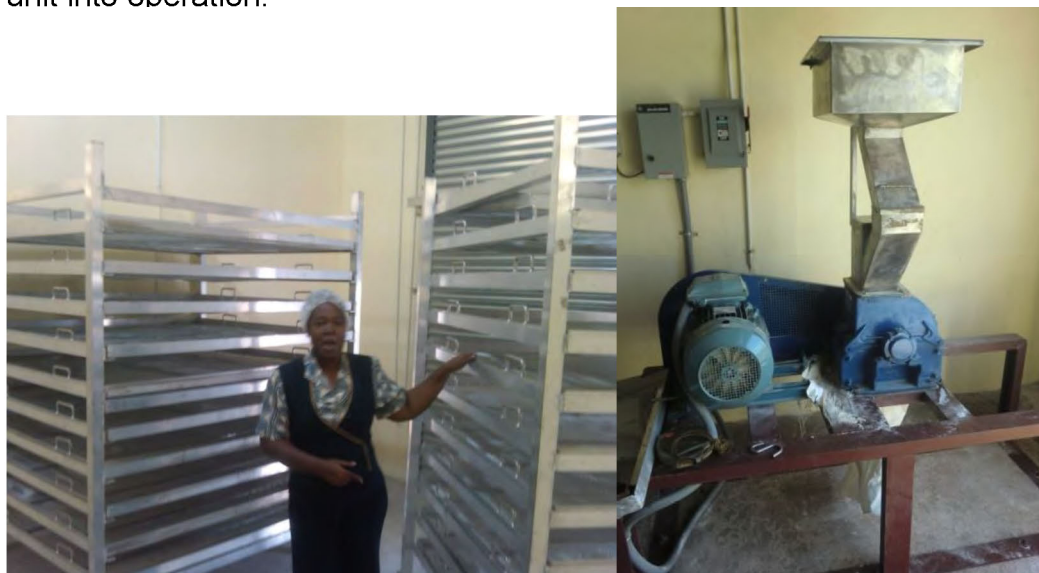


Figure 3: The constructed trolleys of drying racks (left) which can be loaded and rolled in and out of the oven and the mill (right) installed.

The pieces of equipment are being used to dry and grind cassava for making flour, cereals, and pancake mixes. From discussions with the management of the factory, the increase in the throughput of the factory operations has facilitated the recruitment of two additional persons; one to operate the oven and the other to operate the mill.

The Management of Twickenham Industries has also reported that with the purpose-built oven racks and mill installation, the number of value added products made by the Twickenham Industries operation will be increased three-fold. The milling and drying facilities will also be rented by other cottage industry groups/entities as a means of generating additional income for Twickenham Industries.

CARDI organized activities to facilitate discussions with and among players, building relationships with stakeholders that have the potential to improve access to reliable and large enough markets; improve access to finances; lessen land preparation and harvesting inefficiencies; improved access to quality planting material and production

technologies; and increase information sharing. Using a multi-agency effort (involving the farmers group and four other organizations/institutions) a Demonstration Field Plot was established. A Cassava Field Day hosted at the site aimed to demonstrate technological options for cassava tuber production and increase stakeholder awareness of these and the activities of the agencies and group involved. A joint effort with the University of Technology Jamaica was also undertaken to organize a Cassava Day which consisted of technical sessions, booth exhibitions and a cassava based luncheon which formed the backdrop of the launch of a cassava recipe book entitled “Celebrating the Wonders of Cassava”. This event, which featured numerous industry actors as presenters or exhibitors, was to facilitate networking, increase awareness and promote relationships along the cassava value chain. The activities at the event were also designed to increase stakeholder awareness of trends, constraints and opportunities in the cassava industry while increasing consumer awareness and acceptance for various cassava products that are currently available.

Conclusion

By group formation and strengthening activities conducted across the region under these CFC-EU funded projects, producers have been empowered by improved skills in group dynamics and linkages to critical players along their respective value chains. The case of the Bernard Lodge United Progressive Farmers Co-operative Limited demonstrates the potential opportunities of formal farmers’ groups being strategically linked to stakeholders which add value to the overall industry. By providing the necessary training and giving the right exposure to other players in the value chain, farmers and other actors are able to contribute more effectively and have a greater appreciation for the other players involved. Multi-stakeholder events such as the Cassava Day were able to highlight the possibilities and facilitate dialogue among stakeholders along the value chain, networking and sharing information with the consumer to promote the consumption of locally grown foods thus contributing to reduced food imports, food security and food sovereignty.

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