



Food and Agriculture Organization  
of the United Nations



## SUPPORT FOR THE DEVELOPMENT OF THE GINGER VALUE CHAIN IN JAMAICA

September 2019

SDGs:



Countries:

Jamaica

Project Codes:

TCP/JAM/3602

FAO Contribution:

212 000 USD

Duration:

1 December 2016 – 31 July 2019

Contact Info:

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## Implementing Partners

Ministry of Industry, Commerce, Agriculture and Fisheries (MICAFA) and its related agencies, including Rural Agricultural Development Authority (RADA) and Research and Development Division (R&DD).

## Beneficiaries

Government of Jamaica, through MICAFA and its related agencies, such as RADA, R&DD and Export Division; stakeholders in the value chain, including marketers, agriprocessors, producers, nursery operators, technical and public-sector managers, support services, exporters and input suppliers.

## Country Programming Framework

Priority area 1: Value Chain Development for Strengthening Food Systems.



## BACKGROUND

Boosting the production of ginger in Jamaica has been identified by the Government as an important means of increasing diversity and creating opportunities for improved livelihoods in rural areas, especially among smallholder farmers. This can contribute to enhancing decent rural employment, reducing poverty, and increasing food security among a vulnerable segment of the rural population. The potential also exists for expansion to meet new markets, such as export. However, ginger production is not currently meeting its potential, primarily because of a lack of coordination among stakeholders, a limited framework in which to undertake policy direction, a lack of strategies that take advantage of market opportunities, and the occurrence and spread of ginger rhizome rot disease in key growing areas. The project aimed to provide technical assistance to develop improved governance and management structures for the ginger value chain, in order to achieve greater market development for the crop, and enhanced livelihood opportunities for all stakeholders.

## IMPACT

Strong foundations were laid within the Ministry of Industry, Commerce, Agriculture and Fisheries (MICAFA) and with selected ginger stakeholders, to develop a technically sound and commercially viable certification system for ginger production. Technical capacity and coordination among stakeholders within the sector improved significantly; collaboration among ministry agencies was enhanced; and strong national ownership of the strategic planning process for the industry was generated. These results are expected to contribute to improving the livelihoods of the majority of smallholder farmers in the sector. In turn, this should contribute to decreasing rural poverty in ginger-producing parishes (main units of local government in Jamaica).

## ACHIEVEMENT OF RESULTS

The project provided critical technical support for certified ginger production. Value Chain Development (VCD) training was organized for a core Value Chain Team established within the MICAFA. An applied training course on the introduction to VCD was also held for 25 participants from a wide range of relevant public-sector agencies, private-sector firms, and partner institutions. As a result of the interest generated by this training course, additional partners volunteered to participate in the ginger Value Chain Coordinating Committee, contributing to ongoing coordination efforts for sector development. In addition, there is now a strong cohort of MICAFA staff who have been introduced to the VCD approach, and improved their knowledge and skills in its application.

A certification framework for the production of certified ginger planting material and the application of mass multiplication methods was developed, based on local conditions. Field production trials were undertaken to test the technology, with encouraging results. Technical officers in Plant Quarantine (PQ), the Rural Agricultural Development Authority (RADA), the Jamaica Agricultural Commodities Regulatory Authority (JACRA), the Scientific Research Council (SRC) and the Research and Development Division (R&DD) were trained in certification protocols, from tissue culture to nursery production. A manual for nursery production and a field production manual outlining good agricultural practices were developed to document these protocols. Initial application of the protocols in national tissue culture laboratories showed improved results.



A first-generation production system was established at the Ministry research station, under greenhouse conditions. Tissue culture plantlets received from the SRC were successfully transplanted into the greenhouse. Ministry staff and other relevant support agencies were trained in the certified production of F1 material conditions, and completed the full production cycle. Production protocols were developed to support further application and replication of this training.

A thorough end-market assessment and value chain analysis for the national ginger sector was completed, which was included as a central applied learning tool for all VCD training sessions of MICA staff. In combination with the certification framework developed during the project, the results of this analysis laid the foundations for the development of a public-private sector pilot model for the implementation of the certification system, which will be submitted to the Government for funding.

### IMPLEMENTATION OF WORK PLAN

Delays were experienced in the procurement of appropriate shade house equipment for the technical demonstration project activities. This held up the delivery of technical training sessions. In addition, minor delays were experienced in the completion of the Value Chain Analysis. Two no-cost project extensions of six months each allowed for the adequate completion of all activities. The delays did not compromise the quality of technical delivery. All activities were implemented within the planned budget.

### FOLLOW-UP FOR GOVERNMENT ATTENTION

- Submission of public-private funding proposal to implement ginger certification pilot programme;
- Implementation of the certification pilot programme;
- Printing and distribution of the two finalized certification manuals; and
- Continued convening of the national Ginger Working Group to oversee implementation of the agreed work plan.

## SUSTAINABILITY

### 1. Capacity development

The ministry agencies represented in the National Tissue Culture Working Group (NTCWG), which was established during the project, developed and submitted a Memorandum of Understanding to formalize their coordination. It is expected to be formalized in early 2020. The NTCWG also expanded its membership to include other public-sector stakeholders that provided support to the ginger value chain, including RADA, JACRA and Agro-Investment Corporation (AIC). JACRA agreed to take over the chairpersonship of the ginger Value Chain Coordinating Committee structure, which was a good indication of national ownership and formalization of the Committee structure. This group continues to convene monthly, and is overseeing the implementation of the work plan developed during the project, suggesting strong sustainability or results.

A good working relationship was established among the agencies involved in national tissue culture production, namely the SRC, the R&DD, Northern Caribbean University (NCU), and the College of Agriculture, Science and Education (CASE). In addition, the relationship among these agencies and other support institutions involved in the ginger sector, including RADA, JACRA, PQ and Agricultural Services Unit, has been strengthening slowly as the ginger Value Chain Coordinating Committee structure convenes regularly, and better understands each other's roles and responsibilities. The establishment and strengthening of these relationships through the ginger Value Chain Coordinating Committee structure is, and will remain, integral for future sustainability.

Project stakeholders developed an integrated work plan of activities for the Committee, based on the key outputs of the project, namely the Value Chain Analysis and Certification Framework. A public-private partnership pilot for the implementation of the certification system was developed with contributions from all representatives of the agencies on the Committee. This proposal is an integrated, cross-agency funding proposal, and will be submitted to the Government for funding in the new financial year. These two outputs represent a comprehensive exit strategy that is already being actioned.

### 2. Gender equality

The inclusion of gender aspects in the project design was relatively minimal. However, equitable gender representation was achieved throughout project activities. Women were active participants in all technical training sessions and Value Chain Coordinating Committee meetings.



### 3. Technological sustainability

The productive technology introduced during the project was highly appropriate to the current needs of the industry. Rapid multiplication technology is flexible and easily adoptable. The certification framework developed was particularly suitable for ginger and other Jamaican sectors. However, strong public and private-sector collaboration will be required to implement the system. The value chain (VC) approach utilized is highly appropriate for ginger and can be applied in all other agricultural sectors in the country.

The applied case-study approach to VC strengthening provided accessible and innovative ways of cross-ministerial collaboration, and improved national ownership of strategy development and implementation. Ministry counterparts are now trained in best practices for certified ginger production, using a training-of-trainer (ToT) approach. The Ministry has planned to lead replication training sessions with private-sector stakeholders in the coming year. With regard to the VC component, Ministry counterparts have improved their understanding of the applied VCD approach, and strong foundations have been laid for existing committee members to continue to lead and facilitate ongoing implementation work with the Ginger Value Chain Coordinating Committee.

### 4. Economic sustainability

The outputs of the project were used to develop a technically sound and commercially feasible public-private partnership model for certifying ginger. This proposal includes a tailored funding proposal to be submitted to Government for funding, as well as a full investment profile that is now being presented to agroprocessing firms in Jamaica to attract joint financing to the value chain.

Economic sustainability was a central component of the project. The integration of the production components with the market analysis ensured the development of a proposal for the implementation of a certification model that was commercially viable for nursery operators, farmers and processors.

## DOCUMENTS AND OUTREACH PRODUCTS

- ❑ FAO partners with Jamaican Government to revive ginger sector. FAO website. 1 April 2017.  
<http://www.fao.org/jamaica-bahamas-and-belize/news/detail-events/en/c/899177/>
- ❑ FAO Presentation on Ginger Certification System in Jamaica. Caribbean Health Directors' Forum. July 2017.
- ❑ Jamaica looking to harness value chain to revive ginger production. Jamaica Observer. 3 August 2017.  
[http://www.jamaicaobserver.com/news/jamaica-looking-to-harness-value-chain-to-revive-ginger-production\\_106222?profile=1373](http://www.jamaicaobserver.com/news/jamaica-looking-to-harness-value-chain-to-revive-ginger-production_106222?profile=1373)
- ❑ Ginger Value Chain Analysis in Jamaica. B. Romuld. November 2017. 53 pp.
- ❑ Revitalizing our roots: Upscaling Ginger Production in Jamaica. FAO website. 30 March 2018.  
<http://www.fao.org/jamaica-bahamas-and-belize/news/detail-events/en/c/1127136/>
- ❑ FAO Presentation on Ginger Certification System in Jamaica. Caribbean Health Directors' Forum. July 2018.
- ❑ Poster: Tips for producing ginger free from the Rhizome Rot Disease. 2018 Denbigh Agriculture Show. August 2018.
- ❑ Exhibition on the stages of ginger production (planting to processing) at the Denbigh Agriculture Show. August 2018.
- ❑ FAO stimulates thoughts and taste buds at Denbigh 2018. FAO website. 24 August 2018.  
<http://www.fao.org/jamaica-bahamas-and-belize/news/detail-events/en/c/1172407/>
- ❑ Thirty trained in certified ginger production. FAO website. 29 October 2018.  
<http://www.fao.org/jamaica-bahamas-and-belize/news/detail-events/en/c/1181480/>
- ❑ FAO Consultant (D. Saravanakumar) discussion with participants at ginger nursery training hardening at G1 workshop. MICAf website. 1 November 2018.  
<http://www.micaf.gov.jm/content/fao-consultant-dr-duraisamy-saravanakumar-discussion-participants-ginger-nursery-training>
- ❑ Re-rooting Jamaican Ginger to the World. Jamaica Observer and FAO website. 23 24 November 2018.  
[http://www.jamaicaobserver.com/news/re-rooting-jamaican-ginger-to-the-world\\_150510?profile=1373](http://www.jamaicaobserver.com/news/re-rooting-jamaican-ginger-to-the-world_150510?profile=1373) and <http://www.fao.org/jamaica-bahamas-and-belize/news/detail-events/en/c/1172290/>
- ❑ Revitalization of Jamaican ginger industry: Building strong relationships with big and small producers in order to create a 'ginger hub'. Fresh Plaza Online. 17 January 2019.  
<https://www.freshplaza.com/article/9062773/jamaica-building-strong-relationships-with-big-and-small-producers-in-order-to-create-a-ginger-hub/>
- ❑ FAO Presentation on Ginger Certification System in Jamaica. Caribbean Health Directors' Forum. July 2019.
- ❑ Guidelines for Production of Seed Rhizome in Shade House Facility Under a Certification Programme in Jamaica. D. Saravanakumar. August 2019. 41 pp.
- ❑ A Guide to Good Agricultural Practices for Commercial Production of Ginger under Field Conditions in Jamaica. D. Saravanakumar. August 2019. 61 pp.

## ACHIEVEMENT OF RESULTS - LOGICAL FRAMEWORK

Expected Impact	Food security improved and poverty reduced		
Outcome	The ginger value chain is strengthened to increase productivity and market access for small farmers		
	Indicators	<ul style="list-style-type: none"><li>– Number of institutions capacitated to apply value chain methodology in agriculture.</li><li>– Number of nursery operators trained in mass propagation technology for rapid multiplication of clean ginger planting material.</li><li>– Number of updated protocols developed for mass propagation of certified clean planting material.</li></ul>	
	Baseline	<ul style="list-style-type: none"><li>– No institutions with institutionalized value chain mechanisms.</li><li>– 0 persons trained.</li><li>– 0 protocols.</li></ul>	
	End Target	<ul style="list-style-type: none"><li>– One formal mechanism is established and operational in MICAFA, which has responsibility and authority to support a ginger Value Chain Coordinating Committee to effectively implement value chain methodology improved industry alignment.</li><li>– At least 20 nursery operators and technical staff trained in certified mass propagation technique for production of clean ginger planting material.</li><li>– One protocol designed and developed for production of clean, certified planting material using mass propagation.</li></ul>	
	Comments and follow-up action to be taken	Strong foundations to coordinate, improve capacity, and align various public-sector actors that provide support services to the ginger sector have been laid. Public-sector actors have improved their strategic understanding of the current and potential performance of the ginger value chain, a strategic plan has been developed, and implementation is under way that will enhance productivity of farmers and increase market access by improving the supply of raw materials to industry. The Ministry's ability to provide strategic leadership to the industry has been enhanced, which, in turn is predicted to provide an important contribution to improved sector performance.	
Output 1	Improved capacity of the Ministry of Industry, Commerce, Agriculture and Fisheries to develop and implement value chain upgrading strategies		
	Indicators	Target	Achieved
	Number of institutions capacitated to apply value chain methodology in agriculture.	One	Yes
Baseline	No institutions with institutionalized value chain mechanisms.		
Comments	A core Value Chain Team was established within MICAFA, under the Agricultural Services Unit. It consisted of four core staff members representing different technical areas, and they were capacitated through introductory VCD training. An applied training course on the introduction to VCD was held in November 2018 for 25 participants from a wide range of relevant public-sector agencies, private-sector firms, and partner institutions. Members from this group continue to serve as a resource in ongoing VCD initiatives within the Ministry, and several of them have been engaged in ongoing activities related to developing the ginger sector, most notably as core members of the Ginger Sector Working Group. There is now a strong cohort of MICAFA staff who have been introduced to the VCD approach, and have improved their knowledge and skills in its application.		
Activity 1.1	Conduct an analysis of the VC expertise and requirements of the Ministry		
	Achieved	Yes	
	Comments	A comprehensive assessment of the VC expertise and institutional requirements, to further mainstream the VCD approach with MICAFA, was undertaken in 2017; and a strategic set of twelve recommendations for institutionalization was completed. The initial recommendations included: i) the development of a national and sectoral policy; ii) consensus building on the VC approach within MICAFA; iii) the establishment of an interdepartmental VC monitoring working group; iv) the completion of a VC analysis; v) the presentation to sector stakeholders; and vi) the establishment of a VC working group. The majority of these steps were completed; the VC working group continues to convene the ginger sector, and the implementation of the VC approach is now being integrated into the onion subsector.	

Activity 1.2	Train ministry personnel in relevant aspects of VC application, utilizing the ginger value chain as example		
	Achieved	Yes	
	Comments	Twenty-five participants representing a wide range of relevant public-sector agencies, private-sector firms and partner institutions were trained in sustainable, market-led development, using the completed ginger VC as an applied case study, in November 2018. As a result of the interest generated by this training activity, additional partners volunteered to participate in the ginger Value Chain Coordinating Committee, contributing to ongoing coordination efforts for sector development. In addition, on request from the MICAF, additional training in VCD was organized for senior managers at RADA, AIC, R&DD and JACRA, using the ginger sector as a case study.	
Activity 1.3	Support the establishment of a VC development support mechanism in the Ministry		
	Achieved	Yes	
	Comments	A Value Chain Unit (VCU) was established within MICAF, consisting of four core members. This team was trained in the VC methodology, using ginger as a case study. The core members of this unit are now applying skills learned in the operationalization of the VCD assessment approach in another priority sector. The VCU is not yet a formal mechanism, but its continued use in other priority sector places enables its gradual institutionalization. Senior management understanding and support of the VCD approach was improved.	
Output 2	Increased stakeholder participation in the development and upgrading of the ginger value chain working directly with stakeholders to strengthen the value chain for ginger		
	Indicators	Target	Achieved
			Yes
Activity 2.1	Conduct ginger market and VC analysis		
	Achieved	Yes	
	Comments	A thorough end-market assessment and value chain analysis for the national ginger sector was completed in November 2017. This case study was included as a central applied learning tool for all VCD training sessions of MICAF staff. In combination with the certification framework developed during the project, the results of this analysis laid the foundations for the development of a public-private sector pilot model, which was presented to the Ministry for implementation.	
Activity 2.2	Establish ginger Value Chain Coordination Committee		
	Achieved	Yes	
	Comments	A ginger National Tissue Culture Working Group (NTCWG) was established in early 2018. The group met to oversee the coordination of a work plan of activities to upgrade the ginger sector as a result of the Value Chain Analysis. The NTCWG was initially formed to coordinate public agencies engaged in tissue culture production (SRC, R&DD, Northern Caribbean University [NCU], CASE). As activities expanded during the project to include marketing research and the engagement of agroprocessing firms, the NTCWG group was enlarged to include other relevant agencies, including JACRA and AIC. In addition, the discussions of the group expanded from coordinating tissue culture to the development of a commercially viable implementation mode to implement the certification framework developed during the project. Initially convened by the R&DD, the NTCWG was moved under the leadership of JACRA, which was given the mandate to promote the development of the sector. At the close of the project the group was continuing to meet regularly, and is expected to continue doing so, and eventually include private-sector representatives.	

Activity 2.3	Train ginger value chain stakeholders	
	Achieved	Partially
	Comments	The majority of the Ginger Working Committee members were trained as part of the VCD training course undertaken in November 2018. Informal training on the VCD approach continued during committee meetings. This improved their capacity and knowledge to provide leadership and support for the systematic application of the value chain methodology and the systems approach used in implementation. Informal training of additional members of the coordinating committee, including private- sector actors, continued as part of the Ginger Sector Working Group meetings. The number of ginger farmers and processors trained in the VCD approach was lower than anticipated. Given that the core focus of the project was on strengthening public capacity, this made sense. Farmers and processors are likely to be engaged through the VCD process, as Ministry staff increasingly begin to facilitate sector dialogues, and communicate the benefits of the VCD approach.
Activity 2.4	Prepare ginger Value Chain Upgrading Strategy and Action Plan	
	Achieved	Yes
	Comments	A draft VC upgrading strategy and Action Plan was developed in 2017. This was then presented as part of the VCD training programme carried out in 2018 for Ministry staff. This working group contributed their feedback and expertise in a range of technical areas, to further integrate and refine the strategy. The output of the VC training programme was a revised and finalized Action Plan for the sector. The Action Plan is the key working document used by the Ginger Value Chain Committee, which continues to meet regularly to implement key activities under this Plan.
Activity 2.5	Support implementation of ginger Value Chain Upgrading Strategy and Action Plan	
	Achieved	Yes
	Comments	The Ginger Sector Working Group adopted the Action Plan for the sector, and oversaw its execution. Implementation began with the development of a three-year public-private pilot partnership proposal, which included certification infrastructure upgrades; additional training for nursery operators and farmers; research and development activities to support the development of the industry; and the operationalization of a commercially viable certification pilot. The proposal will be submitted to the Ministry for funding, and agroprocessors have been approached to explore partnership opportunities. Approximately seven meetings with relevant public and private-sector stakeholders took place, starting in January 2018, to build collaborative partnerships with key stakeholders in the sector for implementation. If endorsed, it was proposed that implementation begin in January 2020.

Output 3	Enhanced production system, leading to increased availability of certified clean planting material to farmers		
	Indicators	Target	Achieved
	<ul style="list-style-type: none"><li>– Number of nursery operators trained in mass propagation technology for rapid multiplication of clean ginger planting material.</li><li>– Number of updated protocols developed for mass propagation of certified clean planting material.</li></ul>	<ul style="list-style-type: none"><li>– 20.</li><li>– One.</li></ul>	Yes
Baseline	No nursery operators trained; no protocols existing.		
Comments	A certification framework for the production of certified ginger planting material and the application of mass multiplication methods (single bud technology) was developed, based on local conditions. Field production trials were undertaken to test the technology, with encouraging results. Technical officers in PQ, RADA, JACRA and R&DD were trained in certification protocols, from tissue culture to nursery production. A manual for nursery production and a field production manual outlining good agricultural practices was developed to document these protocols. Initial application of the protocols in national tissue culture laboratories showed improved results. Broad stakeholder discussions were initiated, and a public-private partnership model is now being developed to implement the ginger certification framework in a pilot project. The developed proposal will require both public and private-sector funding for operationalization, and at the close of the project, relevant stakeholders from both sectors were engaged.		
Activity 3.1	Conduct a rapid evaluation of the clean planting material production system to identify gaps		
	Achieved	Yes	
	Comments	An expert plant pathologist was recruited to undertake a review of current tissue culture (TC) facilities and the protocols of various TC institutions. A report outlining recommended interventions for improvement was completed.	
Activity 3.2	Establish improved tissue culture and hardening protocols for production of plantlets		
	Achieved	Yes	
	Comments	Standard Operating Procedures for primary and secondary hardening were developed, and technicians were trained in this protocol during a two-day training course. Technical assistance for the development of a hardening greenhouse facility was provided. Full guidelines and protocols for all stages of certified ginger planting material production were designed and completed. This included operational protocols for in vitro tissue culture multiplication, production and certification of quality disease-free rhizomes (G1) from TC plants, certification requirements; and mass propagation of seedlings using single bud nursery technique. Agencies that applied the protocols recorded an overall improvement in the TC protocol and techniques for ginger multiplication. Two manuals were developed, detailing crop production guidelines, certification standards, and requirements for the production of G1 rhizome, an application form for enrolment in the production of disease-free planting material, and the issuance of certification, based on compliance with the guidelines and protocols.	
Activity 3.3	Establish first-generation (F1) production system		
	Achieved	Yes	
	Comments	A first-generation production system was established at the Ministry research station in Montpellier, under greenhouse conditions. Tissue culture plantlets received from SRC were successfully transplanted into the greenhouse. Ministry staff and other relevant support agencies were trained in certified production of F1 material conditions, and completed the full production cycle. Production protocols were developed to support further application and replication of this training.	
Activity 3.4	Establish mass propagation techniques among nursery operators		
	Achieved	Yes	
	Comments	Twenty-five participants were trained in certified Ginger Nursery, from tissue culture hardening to first generation rhizome production and mass propagation systems. Participants included nursery operators, laboratory technicians, academicians and research assistants from Crop Research of R&DD, PQ, NCU, SRC, Research Stations and CASE.	



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