



Food Research Institute



TRAINING OF TRANERS ON QUALITY MANAGEMENT OF HIGH QUALITY CASSAVA FLOUR (HQCF) PRODUCTION



**AN OUTPUT OF THE GHANA CASSAVA INDUSTRILISATION PARTNERSHIP PROJECT
(GCIPP)**

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1. BACKGROUND

The demand for fresh cassava roots is projected to increase based on significant on-going private sector investment in the cassava value chain in Ghana. Industrial cassava requirement is estimated at over \$20 million worth of cassava being supplied annually benefiting over 50,000 smallholder farmers. Smallholder farmers in Ghana are however, unable to access these markets to improve their livelihoods and incomes due to some factors. The key factors include lack of structured markets through forward contracts agreements with off-takers, lack of adoption of good planting materials which are required by the market, weak technical skills in good agronomic practices and postharvest technologies, low volume of supply of fresh cassava roots and poor quality of cassava products.

A 2-year project “The Ghana Cassava Industrialization Partnership Project (GCIPP)” funded by KfW through AGRA was instituted to resolve some of the challenges of the smallholder farmers to enhance their livelihoods. The project is being implemented by a consortium of six partners led by Agri Impact Consult (AIC). Other implementing partners are CSIR- Food Research Institute, CSIR- Crop Research Institute, Ohumpong Investment Limited, JOSMA Agro Industries Limited, Ghana Industrial Cassava Stakeholders Platform and Ministry of Trade and Industry, Ghana. The aim of the project was to catalyse and sustain an inclusive agricultural transformation in Ghana to increase incomes and improve household food security through consistent supply and processing of cassava for both industrial and food uses. Specific objectives of the project were;

- To enhance productivity of 110,000 smallholder farmers to cultivate 110,000ha of cassava farm, increase yield from 12tons/ha to 30tons/ha and produce at least 1.8million tons of fresh cassava roots.
- Increase and improve primary processing to reduce post-harvest losses by 50% and cost of supply.
- Increase capacity of smallholders farming households and agricultural system to be better prepared for and adapt to shocks and stresses.

- Facilitate affordable financing and non-financial incentives to smoothen value chain activities.

The role of CSIR- Food Research Institute on the project is to build the technical capacities of cassava processing firms in standard processing techniques and their adaption and facilitate the establishment and monitoring of quality management systems of processing facilities. As part of FRI's activities, two days training workshop was organised by CSIR-FRI in partnership with other consortium members on the project in December 2020 at CSIR-FRI, to train selected management staff (Production Managers/Other management staff) of forty-five (45) cassava processing facilities throughout Ghana to empower them with relevant technical knowhow of quality HQCF and ethanol production. Dr. Gregory Komlaga of CSIR-FRI was the key resource person for the training workshop. Processors were trained on all aspects of HQCF and ethanol production to ensure quality and safe products. Seventy-nine (79) participants from 45 cassava processing facilities were present at the training workshop.

2. SELECTION OF TRAINEES

The selection of processing facilities was facilitated by previous cassava processing engagements CSIR-FRI had through the C:AVA project with cassava processors. The owners of the cassava processing facilities were contacted and follow-up visits were made to the facilities after which decision on inclusion in the training program was based on the fact that the facility was actively processing cassava into various cassava products. Other key organisations and persons contacted to assist with the identification and selection of the processors were the 1D1F outfit of Ministry of Trade and Industry, MoFA Regional and District Directors and community leads. A final list of 45 processing facilities were identified and invited for the training. The General Manager and/or Production Manger of each of the identified processing facilities were invited to CSIR-FRI for the training.

3. PARTISIPATION AND APPROACH TO THE WORKSHOP

The two days' training workshop was organised at the Director's Conference room, CSIR-FRI, Accra on 16th and 17th of December 2020 from 9am to 4pm each day. Seventy nine

(79) participants from 45 processing facilities took part in the training workshop. One Production Manager and/or one (1) management staff from each of the processing facilities invited participated in the two days' workshop. The workshop was organized along three main segments for easy comprehension by the participants. The three segments were;

- Delivery of lectures by the resource person (Dr. Gregory Komlaga) on selected topics
- Tour session to observe the cassava processing equipment and facilities at CSIR-FRI.
- General discussions (questions & answers and comments) on the training.

4. HIGHLIGHTS OF THE TRAINING ACTIVITIES

The training workshop was officially opened by the Ag Director of CSIR-FRI in the person of Prof. Charles Tortoe. He welcomed participants to CSIR-FRI after which he gave a brief background of the Institute. Prof Tortoe spoke about the establishment of the institute, its mandate, the facilities and staff strength, programmes that are run as well as services the Institute renders to the general public. He congratulated the participants on their selection for the workshop and thanked them for honouring the invitation. He finally wished the participants the best of the training session and implored them to actively participate in the workshop to derive full benefits of the training for betterment of their businesses.

The resource person, Dr. Komlaga, later took the participants through a presentation on how best to improve the quality of cassava products to meet the set standards of the product. He delivered lectures (powerpoint slides attached) with practical examples on various processing activities that affect the quality of cassava end products during cassava processing. The various topics discussed included;

- location of the cassava processing facility
- the processing plant design and layout
- cassava variety selection and harvesting
- cassava processing process (HQCF/Ethanol)
- personnel hygiene
- cleaning and maintenance of processing facility and equipment

The resource person after the presentation gave the opportunity to all present at the workshop for questions, contributions and comments on the presentation. The moderator of the workshop encouraged and allowed the participants to freely express their views about the presentation and contribute to the discussions. The participants actively took part in the deliberations and contributed effectively by sharing their experiences with others present at the workshop. This made the workshop very participatory and brought on board rich experiences from the participants. The participants at the end of the workshop were very delighted about new knowledge they acquired about processing cassava into quality cassava products.

5. WORKSHOP EVALUATION AND CLOSING

The training successfully addressed relevant issues confronting cassava processors on delivery of quality cassava products. The success of the training was reflective in the overall rating of the workshop by participants with 90% of them rating the workshop as Excellent and the rest 10% rating it as Good. The participants expressed their joy and appreciation to the organizers for the opportunity offered them. The processors promised to incorporate the new knowledge acquired during the workshop into their operations to ensure delivery of quality cassava products to end users for a more successful business.

6. SELECTED CAPTURED IMAGES OF THE WORKSHOP



A section of participants with the resource person in a group photo at the workshop.



Dr. G. Komlaga delivering the lecture on quality management of cassava processing at the workshop.



A section of participants on day two of the workshop during general discussion time.



The resource person, Dr. Komlaga, delivering the lecture on the second day of the workshop.



Sections of participants at the workshop

Appendices

Appendix i. The powerpoint presentation slides



COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH

**PRINCIPLES OF QUALITY
CASSAVA PRODUCTS
PROCESSING**

GREGORY A. KOMLAGA (PhD)
CSIR-FOOD RESEARCH INSTITUTE

Dec. 16, 2020

LEARNING OUTCOMES

- An understanding of how the location of a processing plant, handling of raw materials, plant layout and design, water sources, personal hygiene and cleaning/maintenance of equipment contribute in totality to a good quality product.
- A good understanding of the general principles of Good Manufacturing Practice (GMP) and its application in food processing

2

OUTLINE

- Location of processing plant/factory
- Plant design and layout
- Selection and harvesting of cassava
- Processing and water sources for cassava processing
- Personnel hygiene
- Cleaning and maintenance of processing surfaces and equipment

3

Location of processing plant/factory

- Site selection
- Raw materials
- Transportation
- Water, Energy and Labour
- Community acceptance

4

Plant design and layout

- Good/authentic structures
- Easy to clean floors, wall and windows
- Good drainage system
- Selection of right equipment for processing
- Proper arrangement of equipment
- Good ventilation
- Good storage facilities
- Screen on doors and windows

5

Selection and harvesting of cassava

- High starch/yielding cassava variety
- Maturity of cassava
- Harvest cassava with care and transport
- Harvest if possible after rainfall (early morning or late evening)
- Remove roots from stem with sharp cutlasses to avoid injuring the roots
- Load roots into baskets and trucks with care
- Make transport arrangements before harvest
- Provide shock absorbers during transport

6

Processing and water sources for cassava processing

- Cassava is highly perishable so must be processed just after harvest
- Processing facility and personnel must plan and be ready before cassava arrives
- Processing steps must thoroughly be carried out to ensure safety and quality
- Portable water sources such as Pipe borne water, Borehole water, etc. must be used for cleaning and processing.

7

Personnel hygiene

- Provision of changing/washrooms
- Washing of hands before processing, after washroom use and at end of unit operations
- Habits such as smoking, spitting, sneezing close to unprotected food etc should be avoided
- Wearing of personal effects like rings, watches, bracelets etc should be avoided
- Wearing of protective clothing
- Ill personnel should not be allowed to process food

8

Cleaning/Maintenance of processing surfaces and equipment

- Cleaning and maintenance should be carried out regularly
- Standard operating procedures must be followed
- Appointment of a Sanitation Officer at the processing facility
- Personnel who violate sanitation rules must be reprimanded
- Documentation of cleaning and maintenance records

9

THANK YOU

Appendix ii. Training evaluation form



Food Research Institute



Training Evaluation Form

Thank you for participating in the HQCF production quality management training workshop. Kindly help us to know how well or otherwise the workshop performed by answering the few questions below. Please rate the aspects of the workshop based on your observation by indicating (with a tick): **Totally agree (5), Strongly agree (4), Partially agree (3), Partially disagree (2) or Totally disagree (1)** as your response.

Name of Participant:

Company Represented

Position in Company:

Gender:

Date:

	5	4	3	2	1
My expectations about the training were met.					
The training objectives were met.					
The training was relevant to my company					
The training contents were easy to understand					

Participation and interaction during the workshop was good					
Questions were well answered.					
Training was well organised.					
The consultant delivered excellently on the training topics					
The logistics for the training was excellent					

1. Which part of the training did you like best?
 - a. Lecture sessions
 - b. Interaction sessions
 - c. None of the above

2. How would you evaluate the over all quality of the training?
 - a. Excellent
 - b. Good
 - c. Average
 - d. Poor
 - e. Very poor

3. Any other comments? :

-

-

Thank you for your time!

Appendix iii. Attendance list of participants

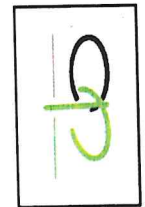
WORKSHOP ON QUALITY ASSURANCE FOR CASSAVA PROCESSORS (HQCF)

VENUE: FRI CONFERENCE ROOM

DATE: 16TH DECEMBER, 2020

ATTENDANCE SHEET

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WORKSHOP ON QUALITY ASSURANCE FOR CASSAVA PROCESSORS (HOCP)

VENUE: FRI CONFERENCE ROOM

DATE: 16TH DECEMBER, 2020

ATTENDANCE SHEET

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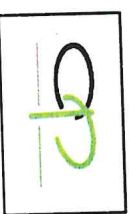
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ATTENDANCE SHEET

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WORKSHOP ON QUALITY ASSURANCE FOR CASSAVA PROCESSORS (HQCF)

VENUE: FRI CONFERENCE ROOM

DATE: 16TH DECEMBER, 2020

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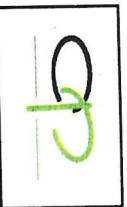
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ATTENDANCE SHEET

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WORKSHOP ON QUALITY ASSURANCE FOR CASSAVA PROCESSORS AND BUYERS (STARCHÐANOL)

DATE: 17TH DECEMBER, 2020

VENUE: FRI CONFERENCE ROOM

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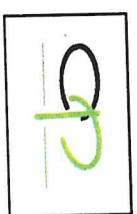
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DATE: 17TH DECEMBER, 2020

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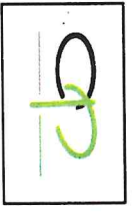
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WORKSHOP ON QUALITY ASSURANCE FOR CASSAVA PROCESSORS AND BUYERS (STARCHEÐANOL)

DATE: 17TH DECEMBER, 2020

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