



**FOOD RESEARCH INSTITUTE**

## **TECHNICAL REPORT**



**REPORT ON  
INTENSIVE TRAINING COURSE ON MUSHROOM CULTIVATION TECHNOLOGY  
HELD FROM 24<sup>TH</sup> TO 28<sup>TH</sup> JULY 2017**

**by**

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**August, 2017**

## Table of Contents

INTRODUCTION .....	1
COURSE OBJECTIVES .....	2
OVERALL OBJECTIVE .....	2
SPECIFIC OBJECTIVES.....	2
EXPECTED LEARNING OUTCOMES.....	3
COURSE CONTENT .....	3
COURSE ACTIVITIES.....	4
DAY ONE (24 <sup>th</sup> July 2017).....	5
Facilitators.....	5
Activities for the day.....	5
Opening ceremony .....	5
Lecture sessions .....	6
DAY TWO (25 <sup>th</sup> July 2017).....	10
Facilitators.....	10
Activities for the day.....	10
Morning sessions .....	10
Afternoon sessions .....	12
DAY THREE (26 <sup>th</sup> July 2017).....	13
Facilitators.....	13
Activities for the day.....	13
Morning sessions .....	13
Afternoon sessions.....	14
DAY FOUR (27 <sup>th</sup> July 2017).....	16
Facilitators.....	16
Activities for the day.....	16
Morning sessions .....	16
Afternoon sessions.....	17
DAY FIVE (28 <sup>th</sup> July 2017).....	19
Facilitators.....	19
Activities for the day.....	19
Morning sessions .....	19
Afternoon sessions.....	20
TRAINING EVALUATION .....	22
Participants' gender, age and occupation .....	23
Answers to closed-ended questions .....	23
Answers to open-ended questions .....	24
CONCLUSION AND RECOMMENDATION.....	24
APPENDICES .....	25
PROGRAM .....	25
DIRECTORY OF RESOURCE PERSONS.....	26
DIRECTORY OF COURSE PARTICIPANTS .....	27

## **INTRODUCTION**

The Mushroom Research Lab of the CSIR – Food Research Institute (CSIR – FRI) is one of the Units of the Microbiology and Mushroom Research Division of CSIR – FRI. The Unit conducts research on mushrooms and has decades of experience in terms of technology transfer activities and consultancy services, one of which is the training program on mushroom cultivation. These training programs are hands-on and are periodically held on the premises of CSIR – FRI and include field trips to some mushroom cultivation facilities owned by some beneficiaries of this technology transfer activity.

The contents of the training program are based on existing knowledge about mushroom cultivation, improvements and modifications which are outputs of research carried out within the Mushroom Research Lab, and aspects incorporated as a result of outcomes of evaluation of previous training programs. The research outputs/technologies developed stem from research carried out either as part of funded projects such as the GRATITUDE Project and the CDEMM project in collaboration with partners or as outputs of research carried out in-house (unfunded projects).

The Mushroom Research Lab and the Business Development Section – a Section under the Commercial Division of CSIR – FRI collaborated to organise the training being reported on based on requests made by the trainees / participants.

There were 5 official participants on this training (Figure 1). However, students on attachment within the Mushroom Research Lab were allowed to participate in the training program (Figure 2).

The Repetitive Skill Practice Learning Model was employed in the training program.

This report outlines the course objectives, expected learning outcomes, the course content, detailed descriptions of activities covered on each day of the training, course evaluation and directories of resource persons and participants.



**Figure 1: The five official participants with Mrs. Mensah and Mr. Lawson (Resource persons)**



**Figure 2: The five official participants together with the attachment students and Mrs. Mensah**

## **COURSE OBJECTIVES**

The course objectives are as follows:

### ***OVERALL OBJECTIVE***

To transfer mushroom cultivation technologies to course participants.

### ***SPECIFIC OBJECTIVES***

- ✓ To provide some information on the underlying principles, methods and techniques involved in the production of good quality compost bags
- ✓ To demonstrate appropriate methods and techniques involved in the production of high quality fresh mushrooms.
- ✓ To inform participants about the underlying principles and techniques involved in the selection of appropriate packaging materials or methods for mushrooms and mushroom products
- ✓ To inform participants about the underlying principles and techniques in Costing and Marketing of Mushrooms

## **EXPECTED LEARNING OUTCOMES**

The expected learning outcomes include:

- Participants have knowledge of what mushrooms are, types and varieties of mushrooms, an overview of the mushroom industry worldwide, terminology in mushroom cultivation, etc
- Participants acquire practical knowledge and skills in cultivation of various edible and medicinal mushrooms
- Participants have working knowledge about Good Agronomic Practices in Mushroom Cultivation
- Participants can make informed decisions about mushroom packaging methods and/or materials
- Participants can adequately cost their mushrooms and market them should they go into commercial cultivation

## **COURSE CONTENT**

The course encompassed four main contents:

1. Theoretical and practical aspects of mushroom cultivation
2. Good agronomic practices in mushroom cultivation
3. Mushroom Packaging Solutions
4. Business Development and Key Principles & Concepts in Marketing

## **COURSE ACTIVITIES**

This section describes activities undertaken during each day of the 5-Day intensive training course on Mushroom Cultivation Technology (See attached PROGRAM). The resource persons and supporting staff are also detailed. Unless otherwise stated, all resource persons were staff of CSIR – FRI. Training materials used included power point presentations, sample bagging materials which were exhibited during the lectures and a whiteboard for calculations and recap of salient points. The training package was a file containing copies of the presentation slides, a notepad and a pen.

Day 1 of the training program commenced with an Opening Ceremony followed by lectures on various topics related to mushroom cultivation technology. The four other days commenced with a prayer, a brief recap of activities carried out on the previous day and question time. This was done to assess the knowledge acquired by the participants and to answer any questions they might have. Each day also ended with a brief question time and/or evaluation of the day's activities, followed by a prayer said by a participant, after which the participants were dispersed. These sessions were facilitated by Mrs. Mensah. There was a Closing Ceremony to end the training program on Day 5.

Details of the facilitators and activities for each day are given under the sections titled DAY ONE to DAY FIVE.

## ***DAY ONE (24<sup>th</sup> July 2017)***

### ***Facilitators***

**Resource person:** Mrs. Deborah Louisa Narh Mensah

**Supporting staff:** Ms Sindy Williams

National Service Persons in the Mushroom Research Lab and the Business Development Section

### ***Activities for the day***

The mushroom cultivation training program began on Monday, 24<sup>th</sup> July 2017 at Apesiwa Conference Room located at the Institute (CSIR - Food Research Institute). At 09:30 am three out of the 5 registered participants were seated at the conference room. The activities for the day included the opening ceremony as well as lectures.

#### ***Opening ceremony***

The participants were welcomed by Mrs. Deborah L. Narh Mensah to the Institute and the training program (Figure 3). She introduced herself and Mr. Robert Lawson (the National Service Person assigned to assist in the training) to the participants. She mentioned that Mr. Takli will join in during the course of the day and will be a resource person during the practical aspects of the training program. She informed the participants that the Director of the Institute (Prof Mrs. Mary Obodai) was unable to attend the opening ceremony because of an on-going Technical Review Meeting. She welcomed the participants to the Institute and the training program on the Director's behalf and informed them the Director would be passing through to see them during the course of the training.

The participants were then given the opportunity to introduce themselves. Information given during the self-introduction were; name, occupation, purpose for joining the training and any other brief information they would like to share about themselves. Generally, most of their reasons were to start up their own mushroom farms for income generation, product development and for home consumption.

Mrs. Mensah assured the participants that by the end of the training program, the participants were expected to be able to produce their own compost bags and mushrooms. To end the opening ceremony, Mrs. Mensah run the participants through the program for the training. She encouraged all the participants to take notes, ask questions and feel free during the training.

She informed the participants that a group picture will be taken after lunch so as to have all participants captured in the picture.



**Figure 3: Mrs. Mensah welcoming the participants to the Institute and the training program during the opening ceremony**

#### *Lecture sessions*

Most of the lectures of the entire training were given on the first day (See attached PROGRAM).

#### Lecture content

The lectures delivered on Day 1 is detailed in the programme attached.

The contents of the lectures included;

- introduction to mushrooms
- advantages of mushroom farming
- nutritional properties of mushrooms
- medicinal properties of mushrooms



Emphasis was placed on mushroom cultivation using;

- ❖ the plastic bag method
- ❖ cassava peels as substrate (Gratitude Project)
- ❖ rice straw as substrate
- ❖ the *Juncao* technology (CDEMM project)
- ❖ the low bed method

### Morning sessions

The lecture on Introduction to Mushrooms directly followed the opening ceremony at 10:00 am. This lecture was an interactive one facilitated by Mrs. Mensah (Figure 4).

The lecture outline was as follows;

- Mushroom description
- Types of mushrooms
- Advantages of mushroom cultivation
- Advantages of mushroom consumption
- Nutritional properties of mushrooms
- Medicinal mushrooms and their medicinal properties
- Industrially cultivated mushrooms
- Terminology in mushroom cultivation
- Living conditions of mushrooms
- Mushroom cultivation methods

The participants were taken through an ice-breaker exercise after 30 mins of an interactive lecture covering mushroom descriptions and types of mushrooms in order for the participants to familiarise themselves with the resource person and each other. The lecture was then continued and ended at 11:30 am (Figure 5). Participants were then given the 30 mins before lunch break to digest the information given to them and jot down questions to be answered before commencement of the lectures to be covered for the afternoon session. Lunch followed immediately.



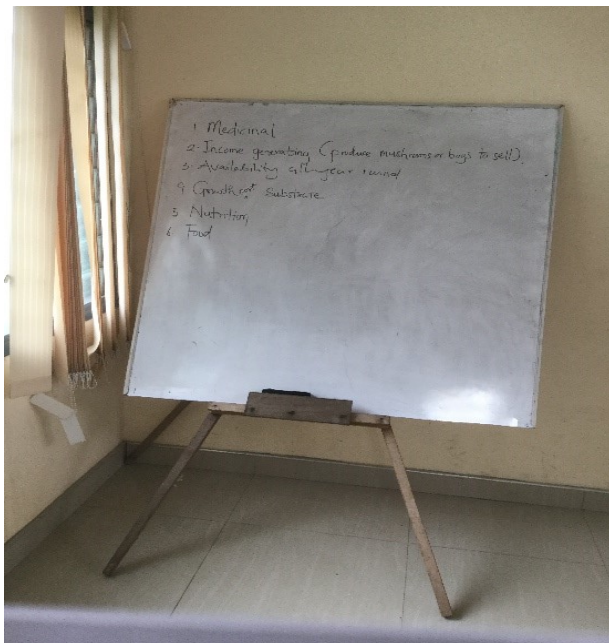
**Figure 4: A participant asking a question during the interactive Introductory lecture**



**Figure 5: Mrs. Mensah explaining some considerations for selecting a mushroom cultivation structure**

### Afternoon sessions

To commence the afternoon session, Mrs. Mensah gave a few minutes for questions, following which she asked participants questions to quickly have an oversight of how participants were assimilating the information being taught (Figure 6).



**Figure 6: Notes of responses participants gave to the question asked about the importance of mushroom cultivation and consumption**

Two lectures were given in the afternoon session, which began at 1:00 pm as scheduled. These were; Plastic Bag Methods of Mushroom Cultivation and the Oil palm mushroom Cultivation Methods. These lectures were also delivered by Mrs. Mensah (Figure 7).



**Figure 7: Mrs. Mensah commencing the lecture on Plastic Bag Methods of Mushroom Cultivation**

The outline for the lecture on Plastic Bag Methods of Mushroom Cultivation are as follows:

- Stages used in the plastic bag method
- Calculation of biological efficiency
- Substrate formulation using sawdust and cassava peels (GRATITUDE Project)
- Substrate formulation using sawdust and rice straw
- Juncao Technology (CDEMM Project)

One icebreaking session and one health break were taken after the participants were taught how to calculate the biological efficiency and how to formulate substrates using sawdust and rice straw. During the icebreaking session, participants were taken through an exercise to stimulate their familiarisation and team building. A playful exercise was held during the health break to enable participants stretch after the long hours of sitting. These activities were conducted to keep the participants active.

A 30 min health break was given after the lecture on Juncao Technology was given. This was followed by an interactive lecture on Oil palm Mushroom Cultivation Methods. The lecture outline for this session was as follows;

- Substrates for production
- Cultivation methods
  - Local or traditional method
  - Low bed method
  - Indoor or commercial method

At the end of this lecture, a summary of the day's salient points was reiterated and a brief question time was held. Mrs. Mensah informed the participants about the activities for Day 2 and informed the participants to wear working gear for the practical sessions. The day ended at 3:30pm as scheduled.

## ***DAY TWO (25<sup>th</sup> July 2017)***

### ***Facilitators***

**Resource person:** Mrs. Deborah Louisa Narh Mensah

Mr. Richard K. Takli

**Supporting staff:** Ms Sindy Williams

Mr. Ababase Akanzinam

Mr. Moses Mensah

National Service Persons in the Mushroom Research Lab and the  
Business Development Section

### ***Activities for the day***

The second day of the training mostly involved practical sessions. The day commenced at 9:30 am with a prayer said by one of the participants. This was followed by a few minutes during which there was a recap of the lectures given on Day 1. The practical sessions held for the day were Composting, Bagging and Sterilization and Oil palm mushroom cultivation. These sessions were facilitated by Mr. Takli. Mr. Akanzinam and Mr. Moses Mensah assisted in the practical activities during this session. Mrs. Mensah came in periodically to oversee the training and answer questions asked by the participants. Details of these practical sessions are given below.

#### ***Morning sessions***

Participants moved to the Mushroom Unit grounds for the practical session on composting. The participants were taken through all the stages of composting of sawdust. Mr. Takli explained the calculation of additives and their corresponding percentages to the participants (Figure 8). All participants had hands-on experience on mixing the additives, watering and heaping the sawdust to start the composting process including performing the squeeze test (Figure 9).



**Figure 8: Mr. Takli giving practical training on composting**



**Figure 9: Participants trying their hands on compost mixing**

The practical session on bagging and sterilization was started at 10:35 am and facilitated by Mr. Takli (Figure 10). The items and calculation of additives needed for bagging and sterilization were listed and explained thoroughly during the process. Each participant was tasked to complete 10 bags (Figure 11).

The Deputy Director (Dr. Charles Tortoe) passed through to say hello to the participants and to encourage the participants to take the course very serious. Shortly afterwards, The Director and Mr. Nketia also passed through to say hello. The Director informed the participants she will be present at the Question and Answer Session to be held on Friday to join in answering questions, as well as the closing ceremony.

The bagged substrates were then packed into oil drums for the sterilization process to begin just before lunch.



**Figure 10: Mr. Takli explaining the bagging process**



**Figure 11: Participants including attachment students actively participating in the Bagging practical session**

### *Afternoon sessions*

After lunch, a practical session on Oil Palm Mushroom Cultivation was given by Mr. Takli. Participants were taken through a hands-on session on the various steps of Oil Palm Mushroom Cultivation using the low bed method. Mr. Takli emphasised on salient points in the process. The training for the day ended on schedule at 3:30pm.

## ***DAY THREE (26<sup>th</sup> July 2017)***

### ***Facilitators***

**Resource persons:** Mrs. Deborah Louisa Narh Mensah

Mr. Richard K. Takli

Mr. Robert Lawson

**Supporting staff:** Ms Sindy Williams

Mr. Ababase Akanzinam

Mr. Moses Mensah

National Service Persons in the Mushroom Research Lab and the Business Development Section

### ***Activities for the day***

A recap of the previous day's activities was done at 9:30 am at the Apesiwa Conference Room, following a prayer said by one of the participants. Mrs. Mensah responded to questions posed by the participants from the previous day's practical sessions. Participants were then directed to the mushroom cultivation facilities of CSIR-FRI, where some practical sessions were held. The practical session on Bagging and Sterilization was a repeat of the practical sessions taught on Day Two, in accordance with the Repetitive Learning Method which was being used for the training. There was also a practical session on Cropping. A lecture was given on Good Agronomic Practices in Mushroom Cultivation as well. Details are discussed below.

### ***Morning sessions***

The first practical session for the day was on Inoculation. During this session, participants were taught safety and sanitary measures needed for the inoculation stage, as well as techniques used during inoculation. This aspect was done by Mr. Lawson with supervision by Mrs. Mensah, who chipped in information or demonstrations when necessary (Figure 12). Participants had a hands-on feel of the inoculation process, by the end of which they were conversant with Inoculation (Figure 13).



**Figure 12: Mr. Lawson demonstrating the inoculation process**



**Figure 13: A participant trying his hands on the inoculation process**

A practical session on Bagging and Sterilization followed. This was facilitated by Mr. Takli. As was done on Day 2, the participants tried their hands on the Bagging process. Precautions to take during this process were reiterated.

#### *Afternoon sessions*

The practical session on Cropping was the last practical held for the day. This was held immediately after lunch. The time change was due to the extra time used for the practical sessions held in the morning of Day 3.

Sanitary conditions during cropping were discussed, the techniques in Cropping were demonstrated and participants actually tried their hands on the Cropping technique. This aspect was given by Mr. Takli.

The lecture on Good Agronomic Practices in Mushroom Cultivation was delivered by Mrs. Mensah after lunch (Figure 14).

#### Lecture expected outcomes

The expected outcomes of this lecture were given as follows;

- ✓ Participants acquire knowledge about good agronomic practices in mushroom production to ensure high yields and mushroom quality
- ✓ Participants have a general overview of steps to take to ensure safety of workers
- ✓ Participants have working knowledge of steps to take to prevent or eradicate pest infestation



### Lecture outline

Based on the above mentioned expected outcomes, the lecture outline given was as follows:

- Introduction
- Measures to produce high yields of mushrooms
- How to maintain high relative humidity in the cropping house
- Steps to ensure safety of mushrooms
- Steps to ensure safety of workers
- Measures to prevent and/or eradicate pests
- Measures to minimize/ avoid environmental pollution

The general do's and don'ts in mushroom production were covered in this interactive session. A health break was taken at the end of the lesson on Steps to Ensure Safety of Mushrooms in order to boost the participant's concentration (Figure 15). The lessons then continued with lessons on steps to ensure safety of workers, measures to prevent and/or eradicate pests and measures to minimize/avoid environmental pollution (Figure 16). The session ended with a prayer said by Mrs. Mensah.



**Figure 14: A cross-section of participants being lectured by Mrs. Mensah on Good Agronomic Practices in Mushroom Cultivation**



**Figure 16: Lecture being delivered about Measures to prevent and/or eradicate pests**



**Figure 15: A very active health break during the lecture session**

## ***DAY FOUR (27<sup>th</sup> July 2017)***

### ***Facilitators***

**Resource persons:** Mrs. Deborah Louisa Narh Mensah  
Mr. Richard K. Takli  
Mr. Steven Nketia  
Mr. Robert Lawson

**Supporting staff:** Ms Sindy Williams  
Mr. Ababase Akanzinam  
Mr. Moses Mensah  
National Service Persons in the Mushroom Research Lab and the  
Business Development Section

### ***Activities for the day***

A practical session on Inoculation was repeated in conformity to the Repetitive Learning Method adopted for the training program. Other practical methods of straw mushroom cultivation were taught, followed by the lecture on Costing and Marketing of Mushrooms. Details are given below.

### ***Morning sessions***

There was a short period of brief recap of the previous day's work and a short question time by Mrs. Mensah at 9:30am. This was followed by a repeat of the inoculation practical session. This was facilitated by Mr. Lawson under Mrs. Mensah's supervision. One participant gave a summary of all she had learnt about inoculation from the previous day. Mrs. Mensah repeated a demonstration of the process of shaking the inoculum, emphasized the need for participants to always examine their spawns for good mycelia colonization and absence of contaminants, and supervised the Inoculation practical session (Figure 17). Mr. Lawson assisted all participants while they took turns to inoculate the compost bags, by the end of which the participants had mastered the technique of inoculation (Figure 18).



**Figure 17: Mrs. Mensah supervising the Inoculation practical session**



**Figure 18: A participant completing the Inoculation process**

The participants were not taken on the field trip after the inoculation practical as planned due to an unforeseen event. An immediate alternative arrangement was made to keep the participants occupied and give them more practical skills in the Straw Mushroom Cultivation. For this purpose, Mr. Takli took the participants through the method of producing the straw mushroom in baskets using various substrates. Participants were so interested in this aspect, so much so that the session ate into the lunch break. Participants had lunch at 1:00pm.

#### *Afternoon sessions*

The last session for the day was a lecture on Business Development and Key Principles & Concepts in Marketing of Mushrooms. This was delivered by Mr. Nketia, who was introduced to the participants by Mrs. Mensah (Figure 19).

#### Lecture content

The content of the lecture included;

- Business development (Upstream, factory/ industry and downstream)
- Marketing (principles, concepts and niche development)
- Challenges and way forward

This was an interactive session during which participants asked relevant questions concerning the business aspect of mushroom cultivation. Participants were taught how to start-up their mushroom business, the risks involved as well as the potential benefits. The participants really appreciated this lecture which was delivered by Mr. Nketia and ended at 3:00 pm (Figure 20).



**Figure 19: Mrs. Mensah introducing Mr. Nketia to the participants**



**Figure 20: Mr. Nketia delivering his lecture on Business Development and Key Principles & Concepts in Marketing of Mushrooms**

## ***DAY FIVE (28<sup>th</sup> July 2017)***

### ***Facilitators***

**Resource persons:** Mrs. Deborah Louisa Narh Mensah  
Mr. Richard Takli  
Mr. Thomas Abaidoo

**Supporting staff:** Ms Sindy Williams  
National Service Persons in the Mushroom Research Lab and the Business Development Section

### ***Activities for the day***

Activities undertaken on Day 5 included a practical session on composting, a lecture on Mushroom Packaging Solutions, question and answer session, course evaluation and the closing ceremony.

### ***Morning sessions***

The practical session on composting was facilitated by Mrs. Mensah (Figure 21). Participants were reminded of all the necessary measures to take during composting and the signs to look out for to determine if complete composting had been achieved. Participants actively participated in turning the layers of compost and observed changes that had occurred in the compost heap (Figure 22).



**Figure 21: Mrs. Mensah explaining some details of the compost turning process**



**Figure 22: Participants actively participating in the compost turning practical**

A lecture session on Mushroom Packaging Solutions followed the composting practical session. The lecture was delivered by Mr. Thomas Abaidoo (The Packaging Company) from 10:30am to 12:30pm (Figure 23).

#### Lecture content

The content of the lecture was as follows;

- Introduction
- Product composition and acceptance
- Packaging in the marketing mix
- Concepts and functions of packaging
- Packaging system levels
- Considerations for choosing a packaging machine
- Conclusion

Participants learned about the various packaging materials and the most conducive ones for fresh and dry mushrooms. Participants were impressed about this and were eager to package their mushrooms when they start their mushroom businesses.



**Figure 23: Mr. Abaidoo delivering his lecture on Mushroom Packaging Solutions**

#### *Afternoon sessions*

The afternoon session included the Question time and final course evaluation as well as the closing ceremony as described below

#### Question time and final course evaluation

The Director joined in during the final Question Time of the training to answer questions the participants may have had. The facilitators, Mrs. Mensah, Mr. Takli and Mr. Nketia were also available and answered questions as required (Figure 24). By the end of this session, the participants were confident they could set up their mushroom cultivation businesses.

Mrs. Mensah handed over the evaluation forms to the participants. She informed the participants that the evaluation form was to help the organisers measure how they had fared during the training program. She therefore entreated them to be as honest as possible while completing the form. The evaluation forms were then completed by the participants. Details of the outcome of the evaluation is given in the next section (see TRAINING EVALUATION).



**Figure 24: The Director, resource persons and participants, during the final question time**

#### Closing ceremony

The closing ceremony was chaired by the Director, Prof. Mary Obodai (Figure 25). Mrs. Mensah, Mr. Takli and Mr. Nketia were also seated at the high table. The Director gave a brief speech during which she thanked the participants for signing up for and attending the course and encouraged them to keep in touch with the Institute for any further assistance or any further collaboration. She further encouraged the participants to quickly start utilising the knowledge and skills they had acquired during the training so that they do not lose their zeal. She and Mrs. Mensah then presented some of the certificates to some of the participants including the only female among the participants (Figure 26). Mr. Nketia presented some of the certificates supported by Mrs. Mensah (Figure 27). In addition to the certificates, the participants were also given Directory of the resource persons and other relevant contacts at CSIR – FRI (See attached DIRECTORY OF RESOURCE PERSONS) as well as the Directory of the course participants (See attached DIRECTORY OF COURSE PARTICIPANTS). The program ended with a closing prayer said by Mr. Takli. A group picture was then taken to end the program (Figure 28).



**Figure 25: Prof. Obodai (The Director) delivering her remarks as the chairperson at the closing ceremony**



**Figure 27: Mr. Nketia handing out some certificates**



**Figure 26: Prof. Obodai handing out the certificate to the only lady among the participants**



**Figure 28: Group picture taken after closing ceremony**

## **TRAINING EVALUATION**

This section describes outputs of the completed Evaluation forms and has been captured under the subheadings; Participants' gender, age and occupation, Answers to closed-ended questions, and Answers to open-ended questions. It must be noted that two of the participants missed out on most of the lectures and practical sessions because they went to work first in the morning before coming to join in for the training either at late morning or early afternoon on each day of the training. These two participants therefore ended up missing out on the Introductory lecture given on Day One as well as the practical sessions on Composting, Bagging and Sterilization and Compost Turning.



### ***Participants' gender, age and occupation***

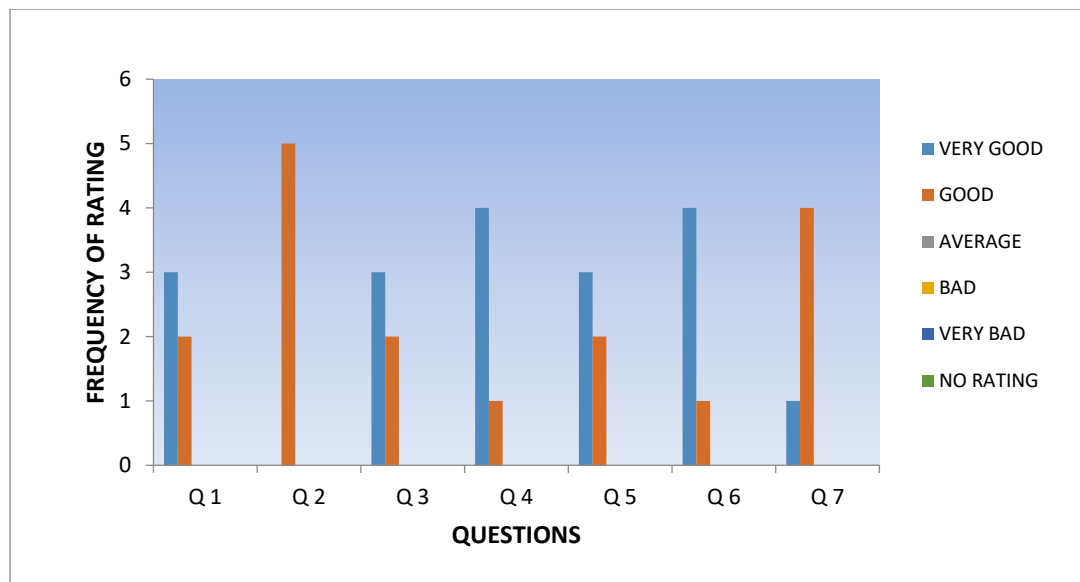
There were five (5) participants in total. Only one participant was female. The ages of the participants ranged from 24 to 73. The ages were 24, 38, 52, 63 and 74 years.

The occupations of the participants were wood processor and exporter, media (marketing) person, trader, retired veterinary surgeon and a university professor (lecturer).

### ***Answers to closed-ended questions***

The closed-ended questions on the evaluation forms were Questions 1 to 7. These questions were meant to assess participants' satisfaction with the general organization of the training, meals, general content of the training, knowledge shared during the lectures, skills acquired during the practical sessions, resource persons, and answers given to questions respectively.

Responses given by the participants are presented in (Figure 29). All the parameters were rated very good or good. In terms of the general organization, 3 participants said it was very good, the other two participants rated this aspect as good. All the participants said the meals were good. Three (3) participants said the general content of the training was very good while the rest of the participants said it was good. Four out of the 5 participants indicated they were very satisfied with the knowledge shared during the lectures. In general, the participants were very satisfied with the entire course in terms of the skills acquired during the practical sessions, the resource persons and the answers given to questions they asked during the training program.



**Figure 29: Bar chart showing frequency of rating for closed-ended questions on evaluation forms**

### *Answers to open-ended questions*

Open-ended questions were numbered 8 to 12. The questions sought to determine the part of the training participants liked best and disliked most, topics participants would have needed more clarification on, topics the participants would have preferred to be presented and other comments respectively.

In response to the question about the aspect of the training they liked best, one participant said inoculation, one said inoculation and bagging, one said bagging and sterilization, and the other two like the entire practical sessions. Two of the participants did not dislike any aspect of the training. One each disliked the inoculation, compost turning and the lectures on marketing and packaging most. In relation to topics they would have needed more clarification on, two of the participants wrote medicinal mushrooms, and one each wrote marketing, the Juncao technology and Good Agronomic Practices, Packaging and Composting respectively. Concerning topics participants would have preferred to be presented, one participant said hazards on growing mushrooms, three indicated more on application of medicinal mushrooms and one said export marketing and mushroom processing.

When asked if they had any other comments, the following responses were given;

“No”

“I was expecting to go on a field trip even though I went through practicals”

“Well organised but short”

“It is a pleasure to be here”

“Very satisfied and commendable”

### **CONCLUSION AND RECOMMENDATION**

Overall, the training was a success and participants appreciated it very much. More of such training programs should be organised by the Institute to transfer the mushroom cultivation technology further in order to expand the mushroom industry in Ghana for job creation and improved nutritional status of consumers.

## APPENDICES



### Food Research Institute

## INTENSIVE TRAINING COURSE ON MUSHROOM CULTIVATION TECHNOLOGY 24<sup>TH</sup> – 28<sup>TH</sup> JULY 2017

### *PROGRAM*

DAY/DATE	TIME	ACTIVITY	FACILITATOR(S)
Monday 24/07/2017	9:30am- 10:00am	Opening Ceremony	Mrs. Mensah
	10:00am- 12:00pm	Introduction to Mushrooms: General Aspects	Mrs. Mensah
	12:00pm-1:00pm	Lunch Break	
	1:00pm-2:30pm	Plastic bag methods: Theory	Mrs. Mensah
	2:30pm-3:30pm	Oil palm mushroom cultivation methods: Theory	Mrs. Mensah
Tuesday 25/07/2017	9:30am-10:30am	Compost formulation (1): Composting	Mrs. Mensah
	10:30am-12:00pm	Compost formulation (2): Bagging and Sterilization	Mr. Takli
	12:00pm-1:30pm	Lunch	
	1:30pm-3:00pm	Oil palm mushroom cultivation: Demonstration	Mr. Takli
	3:00pm-3:30pm	Question and Answer session	Mrs. Mensah, Mr. Takli
Wednesday 26/07/2017	9:30am-10:00am	Inoculation	Mr. Lawson
	10:00am-11:00am	Compost formulation: Bagging and Sterilization	Mr. Takli
	11:00am-12:00pm	Cropping	Mr. Lawson
	12:00pm-1:30pm	Lunch Break	
	1:30pm-2:30pm	Good Agronomic Practices: Lecture	Mrs. Mensah
	2:30pm-3:00pm	Question and Answer session	Mrs. Mensah, Mr. Takli
Thursday 27/07/2017	9:30am-10:30am	Inoculation: Practical	Mr. Lawson
	10:30am-2:00pm	Field trip / Lunch Break	Mr. Takli
	2:00pm-3:00pm	Packaging of mushrooms	Mr. Abaidoo
Friday 28/07/2017	9:30am-10:30am	Compost Formulation: Turning of compost heap	Mr. Takli
	10:30am-12:30pm	Costing and Marketing of Mushrooms	Mr. Nketia
	12:30pm-1:30pm	Lunch Break	
	1:30pm-2:30	Question and Answer session, Course Evaluation	Mrs. Mensah; Mr. Takli
	2:30pm-3:00pm	Closing Ceremony, Group Picture	Mrs. Mensah



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**MUSHROOM CULTIVATION PROGRAMME**

24<sup>th</sup> – 28<sup>th</sup> July, 2017

***DIRECTORY OF RESOURCE PERSONS***

<b>Name</b>	<b>Affiliation/Address</b>	<b>E-Mail Address</b>	<b>Telephone</b>
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**MUSHROOM CULTIVATION PROGRAMME**  
24<sup>th</sup> – 28<sup>th</sup> July, 2017

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