Training Course on Food Processing and Preservation Techniques

10-14 October, 2021

Course Guidelines



National Agriculture Training Academy (NATA)

Ministry of Agriculture

www.nata.gov.bd

Training Course on

Food Processing and Preservation Techniques

10-14 October, 2021

Course Management

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Table of Contents

| Sl. No. | Subject | Page |
|---------|---------------------------|-------|
| 1. | Introduction to NATA | 3-5 |
| 2. | Course at a glance | 6 |
| 3. | Course Schedule | 7-8 |
| 4. | List of Resource Speakers | 9 |
| 5. | Faculty Members of NATA | 10-14 |

Introduction to National Agriculture Training Academy (NATA)

1.1 The Academy

National Agriculture Training Academy (NATA) is the apex training institute for human resource development of officers (grade-9 and above) under the Ministry of Agriculture (MOA) for providing training on diversified fields of professional interest in agriculture sector. The Academy organizes various training programs related to modern agricultural technologies and office management issues throughout the year. The academy is established in Gazipur as Central Extension Resources Development Institute (CERDI) on 14 March 1975 with the financial assistance of Japan International Cooperation Agency (JICA). Afterwards, on 27 June 1984, CERDI was undertaken to the Training Wing of Department of Agricultural Extension (DAE). On 03 April 2013, Government of the People's Republic of Bangladesh abolished CERDI and established NATA as an independent organization of MOA and on 07 June 2014, NATA has been started its journey as a training academy.

After emergence as NATA, the Academy began its training functions with only 10 faculty members. Though Government approved strength is 184, at present NATA has 84 staff members including 30 faculty members.

1.2Vision

National Agriculture Training Academy becomes a center of excellence for developing competent human resources in agriculture sector.

1.3Mission

We are pledged to achieve the shared vision through:

- i. Development of skilled human resources of all organizations under MOA by imparting quality training, research and development and publications;
- ii. Enhancement of linkage between education, research and extension to endow agriculture service delivery system;
- iii. Building a network with reputed institutions of home and abroad for organizational capacity development; and
- iv. Fostering a culture of continuous learning for development of knowledge-intensive agriculture service.

1.4 Functions

NATA has been entrusted to perform the following functions:

- i. Develop skilled human resources of the government, semi-government, autonomous organizations under MOA through imparting training program on modern and sustainable agriculture technology and office management topics;
- ii. Transfer modern and sustainable agriculture technology developed by the research organizations obtaining higher yield of crops of the farmers;
- iii. Conduct demonstration, adaptive research and research of proven technologies;

- iv. Impart all sorts of in-service training with special emphasis on induction, foundation and senior staff course;
- v. Exchange publications, participants and resource persons in seminars, workshops, conferences and training among the stakeholders;
- vi. Advice government and other organizations on training, achieving food and nutrition security, ICT, transfer of agriculture technology, agro-based industries and conservation environments etc.;
- vii. Help government and policy makers in framing and analyzing agricultural policies;
- viii. Conduct different training activities of academy in consonance with provision of the public administration training policy, 2003; and
- ix. Perform all kinds of duties directed by the government.

1.5 Location of the Academy

The Academy is about 25 km away from the capital city Dhaka and 3 km away from Joydevpur Chandana Chowrasta towards Gazipur district head quarter. It is located adjacent to Bangladesh Rice Research Institute (BRRI) and occupied 49 acres of land. The academy provides the trainees an ample scope to get free access to the adjacent institutions like Bangladesh Agriculture Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), Seed Certification Agency (SCA), Bangabondhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Telecommunication College, and other government offices in Gazipur.

1.6 Facilities

1.6.1 Physical Facilities

The Academy is well equipped with some physical facilities to run the training programs successful though it began its voyage recently. Existing facilities of the academy are as follows.

- Office building-4
- Training Complex-1
- Residential Building-15
- Class room- 7
- Laboratory (Subject wise technical)-4
- Plant protection museum- 1
- Conference room- 2
- Auditorum-1
- Library- 2
- Dormitory- 6
- Cafeteria- 2
- Greenhouse- 3
- Workshop-1
- Store-1
- Mosque-1

1.6.2. Digital Computer cum Language Lab. and IT facilities

There is two Digital Computer cum Language Lab in the Academy. It is located on the 1st floor of the Administrative building. IT facilities available include LAN and Wi-Fi and the whole campus under Wi-Fi coverage. To expedite foreign language learning, NATA set up a Digital Computer cum Language Lab as part of the Academy's drive for capacity building of government officials. Participants can avail the opportunity of learning the foreign language while they stay in NATA.

1.6.3 Recreational Facilities

The Academy has a recreation room with color T.V in the dormitory. The daily newspapers are also available in recreation room for the participants.

1.6.4 Linkage with other Training Organizations

NATA maintains good relations with other training Academies in the country including BPATC, RPATC,BCS Administration Academy, BIAM, FIMA and so on. NATA has a plan to collaborate with international training institutes for improvement its human resources. NATA also collaborate with national research organizations for research in agriculture sector.

1.7 Evaluation

Course coordinator and assistant course coordinators are given the responsibility to evaluate the participants. The course is evaluated during pre and post training situation. Furthermore, the participants are given the chance to evaluate the resource speakers by using a prescribed format.

1.8 Sessions

Every day the session is started at 9.30 am in the morning and ends at 5:00 pm in the afternoon. There are two refreshment breaks started at 11.30 am for snacks and 5.00 pm for tea as well as lunch with prayer-break at 1.00-2.30 pm respectively. Participants are advised to attend the class in time without fail for avoiding any kinds of disciplinary action.

Daily Schedule

| Activities | Duration |
|-------------------------|-------------|
| 1st Session | 9.30-10.30 |
| 2 nd Session | 10.30-11.30 |
| Tea Break | 11.30-12.00 |
| 3 rd Session | 12.00-1.00 |
| Prayer and Lunch Break | 1.00-2.30 |
| 4 th Session | 2.30-3.30 |
| 5 th Session | 3.30-4.30 |
| 6 th Session | 4.30-5.00 |
| Evening Tea | 5.00-5.30 |

1.9 Norms to be followed during the training

- No casual leave is allowed during training period;
- Participants living in the dormitory are advised to follow the norms of the dormitory;
- The campus area is a "Non Smoking Zone". Participants are advised to refrain from smoking inside the Academy; and
- Participants are not allowed to enter the dormitory after 10:00pm at night.

Course at a glance

Introduction

Food processing and preservation is a set of physical, chemical and biological processes that are performed to prolong the shelf life of foods and at the same time retain the features that determine their quality, like color, texture, flavor and especially nutritional value. Food preservation is achieved by destroying enzymes and microorganisms using heat (blanching, pasteurization), or preventing their action by: removal of water, or increasing acidity or using low temperatures.

Course Objectives:

- 1. To improve participant's skills in designing and implementing food processing operations in their own jurisdiction.
- 2. To develop advanced knowledge and idea of participants to investigate various parameters involved in food processing and preservation with respect to their influence on final product quality and safety.
- 3. To develop knowledge of personnel working in agriculture about processing steps involved in a range of contemporary and novel manufacturing operations.

Target population: Officers (Grade-9 and above) of different organizations under Ministry of Agriculture.

Duration of each session: 60 minutes.

Prerequisites of the course:

- To attend in the training class in time;
- To be present at least 99% of the classes otherwise certificate may not be awarded;
- Maintain the norms in dormitory and cafeteria;
- Absent from any session is not allowed without prior permission from the course coordinator even in case of emergency;
- Enthusiastic to learn and share ideas in training session.

Training schedule on Food Processing and Preservation Techniques Duration: 10 -14 October, 2021

Ist Day: 10/10/2021 (Sunday)

| Time | Topics | Methods | Resource Person |
|-------------|---|---------|--|
| 08:30-09.00 | Registration | - | Sadikun Nahar |
| 09.00-09.30 | Pre evaluation | - | CC/ ACC |
| 09:30-10:15 | Inaugural session | - | DG/Directors/Faculties |
| 10:20-11:20 | National Food Policy, Rules | L&D | Prof. Dr. M. Burhan Uddin, |
| | & Regulation | | Dept. of Food tech. & Rural Ind, BAU |
| 11:30-12.00 | Tea Break | - | Aharjoo Cafeteria |
| 12.00-1.00 | Food Processing & Preservation: Implications for Assuring Food Security | L&D | Prof. Dr. M. BurhanUddin, Dept. of Food tech. & Rural Ind, BAU |
| 1.00-2.00 | Concept on Safe and Nutritious Foods | L & D | Prof. Dr. Mohammad Gulzarul Aziz, Dept. of Food tech. & Rural Ind, BAU |
| 2.00-3.00 | Prayer and Lunch Break | | Aharjoo Cafeteria |
| 3.00-4.00 | Concept on Safe and Nutritious Foods | L & D | Do |
| 4.00-5.00 | Principles and Methods of Food Preservation | L & D | Do |
| 5.00-5:30 | Evening Tea | - | Aharjoo Cafeteria |
| 9.00-10.00 | Dinner | - | Aharjoo Cafeteria |

2nd Day: 11/10/2021 (Monday)

| Time | Topics | Method | Resource Person |
|-------------|----------------------------------|--------|---------------------------------------|
| 0.20.0.20 | D 10 / | | |
| 8.30-9.20 | Breakfast | - | Aharjoo Cafeteria |
| 9.30–10.30 | Food Processing by Drying | L & D | Dr. Md. Ayub Hossain |
| | | | CSO, Farm Machinery Division, BARI |
| 10.30-11.30 | Do | L & D | Do |
| 11.30-12.00 | Tea Break | - | Aharjoo Cafeteria |
| 12.00-1.00 | Traditional Food Processing | L & D | Dr. Abdullah Iqbal, |
| | and Preservation Techniques | | Professor |
| | | | Dept. of Food tech. & Rural Ind, BAU |
| 1.00-2.30 | Prayer and Lunch Break (| - | Aharjoo Cafeteria |
| | Lunch Starts at 2.00 PM) | | |
| 2.30-3.30 | Food Processing and | L & D | Dr. Abdullah Iqbal, |
| | Preservation by Heat | | Professor |
| | Treatment | | Dept. of Food tech. & Rural Ind, BAU |
| 3.30-4.30 | Overview on Washing and | L & D | Md. Hafizul Haque Khan |
| | Cooling of Fresh Produces | | CSO, Post-Harvest Technology |
| | | | Division, BARI, Gazipur |
| 4.30-5.00 | Principles and Methods of | L & D | Dr. Golam Ferdous Ahmed |
| | Osmotic Dehydration | | Chowdhury |
| | | | SSO, Post-Harvest Technology |
| | | | Division, BARI,Gazipur |
| 5.00-5.30 | Evening Tea | - | Aharjoo Cafeteria |
| 9.00-10.00 | Dinner | - | Aharjoo Cafeteria |

3rd Day: 12/10/2021 (Tuesday)

| Time | Topics | Method | Resource Person |
|--------------|---|--------|---|
| 8.30-9.20 | Breakfast | - | Aharjoo Cafeteria |
| 9.30-10.30 | Food Adulteration and Safety | L & D | Dr. Md. Monirul Islam |
| | | | Director (Nutrition), BARC, Dhaka |
| 10.30 –11.30 | Use of food Additives and Preservatives | L & D | Do |
| 11.30-12.00 | Tea Break | - | Aharjoo Cafeteria |
| 12.00-1.00 | Food Preservation by Increasing Solids | L & D | Dr. Golam Ferdous Ahmed Chowdhury |
| | | | SSO, Post-Harvest Technology Division, BARI,Gazipur |
| 1.00-2.30 | Prayer and Lunch Break (Lunch Starts at 2.00 PM) | - | Aharjoo Cafeteria |
| 2.30-3.30 | Good Agriculture Practice (GAP) and Standard Operating Procedure (SOP) for preservation & Processing of Agricultural Products | L & D | Md. Mahmud Hasan Director (Training), NATA, Gazipur |
| 3.30-4.30 | Packaging and Transportation of Fresh fruits and Vegetables | L & D | Md. Eskandar Hossain DD, NATA, Gazipur |
| 4.30-5.00 | Evening Tea | - | Aharjoo Cafeteria |
| 9.00-10.00 | Dinner | - | Aharjoo Cafeteria |

4th Day: 13/10/2021 (Wednesday)

| Time | Topics | Method | Resource Person |
|--------------|---|-----------|--|
| 8.30-9.20 | Breakfast | - | Aharjoo Cafeteria |
| 9.30-10.30 | Food Processing by Frying | L & D | Dr. Golam Ferdous Ahmed Chowdhury |
| | | | SSO, Post-Harvest Technology Division, BARI,Gazipur |
| 10.30 –11.30 | Overview on Minimal Processing of Fruits and Vegetables | L & D | Dr. Mohammad Mainuddin Molla SSO, PHTD, BARI, Gazipur |
| 11.30-12.00 | Tea Break | | |
| 11.30-12.00 | Preparation of Jam/Jelly/Marmalade | Practical | Dr. Mohammad Mainuddin Molla SSO, PHTD, BARI, Gazipur |
| 12.00-1.00 | Overview on Minimal Processing of Fruits and Vegetables | Practical | Dr. Mohammad Mainuddin Molla SSO, PHTD, BARI, Gazipur |
| 1.00-2.30 | Lunch Break | | |
| 2.30-3.30 | Preparation of Fried Products | Practical | Dr. Golam Ferdous Ahmed Chowdhury |
| | | | SSO, Post-Harvest Technology Division, BARI,Gazipur |
| 4.30-5.00 | Evening Tea | - | Aharjoo Cafeteria |
| 9.00-10.00 | Dinner | - | Aharjoo Cafeteria |

5th Day: 14/10/2021 (Thursday)

| Time | Topics | Method | Resource Person |
|-------------|---|-----------|---|
| 8.30-9.20 | Breakfast | - | Aharjoo Cafeteria |
| 9.30-10.30 | Fermentation as the Methods of Food processing and preservation | L & D | Dr. Md. Shahjahan Professor , Zarman University, Gazipur |
| 10.30-11.30 | Pickling (Practical) | Practical | Do |
| 11.30-12.00 | Tea Break | - | Aharjoo Cafeteria |
| 12.00-1.00 | Pickling (Practical) | Practical | Dr. Md. Shahjahan Professor , Zarman University, Gazipur |
| 1.00-2.00 | Prayer and Lunch Break(Lunch Starts at 2.00 PM) | - | Aharjoo Cafeteria |
| 2.00-3.00 | Sustainable Development Goals (SDG) And NIS | L & D | Abul Kalam Azad DD (Agriculture Extension), NATA, Gazipur |
| 3.00-4.00 | Causes of Food Spoilage and Remedies | L & D | Dr. Md. Mayen Uddin DD(Food Technology), NATA, Gazipur |
| 4.00-4.30 | Post Evaluation & Course Evaluation | | CC/ACC/Participants |
| 4.00-5.00 | Awarding of Certificate & Closing Session | | DG/Directors/Faculties/CC |

Training Course: Food Processing and Preservation Techniques List of Resource Speaker

| SL No. | Name | Designation | Organization | e-mail and mobile No. |
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| 6 | Dr. Golam Ferdous Ahmed Chowdhury | SSO | Post-Harvest Technology Division, BARI,Gazipur | ferdous613@gmail.com |
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