

Training Course
on
**Food Processing and
Preservation Techniques**

20-24 September, 2020

Course Guidelines



National Agriculture Training Academy (NATA)
Ministry of Agriculture
www.nata.gov.bd

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on
Food Processing and Preservation Techniques

20-24 September, 2020

Course Management

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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.

1.2 Vision

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

1.3 Mission

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-2
- Class room- 3
- Laboratory (Subject wise technical)
- Plant protection museum- 1
- Conference room- 1
- Auditorum-1
- Dormitory- 4
- Cafeteria- 1
- Greenhouse- 3
- Workshop-1
- Mosque-1

1.6.2. Digital Computer cum Language Lab. and IT facilities

There is one 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 asst. 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

Everyday the session is started at 9.00 am in the morning and ends at 5:00 pm in the afternoon. There are two health breaks started at 10.30 am for snacks and 03.30 pm for tea as well as lunch with prayerbreakat 01.05p mrespectively. Participants are advised to attend the class in time without fail for avoiding any kinds of disciplinary action.

Daily Schedule

Activities	Duration
1 st Session	09:00-10:00
2 nd Session	10:00-11:00
Tea Break	11:15-11:45
3 rd Session	11:45-12:45
Lunch & Prayer	12:45-02:00
4 th Session	02:00-03:00
5 th Session	03:00-04:00

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 colour, 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 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: 20 -24 September 2020

1st Day : 20/09/2020

Time	Topics	Methods	Speaker
08:30-09.00	Registration	-	Lucky
09.00-09.30	Pre evaluation		CC/ ACC
09:30-10:15	Inaugural session	-	DG/Directors/Faculties
10:15-11:15	National Food Policy, Rules & Regulation	L&D	Prof. Dr. M. Burhan Uddin, Dept. of Food tech. & Rural Ind, BAU
11:15-11:45	Tea Break		
11:45-12:45	Food Processing & Preservation: Implications for assuring food security	L & D	Do
12:45-02:15	Prayer and lunch break		
02:15-03:15	Concept on Safe and Nutritious Foods	L & D	Prof. Dr. Mohammad Gulzarul Aziz, Dept. of Food tech. & Rural Ind, BAU
03:15-04:15	Do	L & D	Do
04:15-04:30	Tea Break		
04:30-05:30	Principles and methods of Food Preservation	L & D	Do

2nd Day : 21/09/2020

Time	Topics	Method	Resource person
09:15 - 10:15	Food Processing by Drying	L & D	Dr. Md. Ayub Hossain CSO, Farm Machinery Division, BARI
10:15-11:15	Food Processing by drying	L & D	Do
11:15-11:45	Tea Break		
11: 45-12:45	Traditional Food Processing and Preservation Techniques	L & D	Dr. Abdullah Iqbal, Professor Dept. of Food tech. & Rural Ind, BAU
12:45-02:15	Prayer and lunch break		
02:15-03:15	Food Processing and Preservation by Heat Treatment	L & D	Dr. Abdullah Iqbal, Professor Dept. of Food tech. & Rural Ind, BAU
03:15-03:30	Tea Break		
03:30-04:30	Overview on Washing and Cooling of fresh produces	L & D	Md. Hafizul Haque Khan CSO, Post-harvest Technology Division, BARI
04:30-05:30	Principles and Methods of osmotic dehydration	L & D	Dr. Mohammad Mainuddin Molla SSO, PHTD, BARI

3rd Day : 22/09/2020

Time	Topics	Method	Resource person
09:15 - 10:15	Food Adulteration and Safety	L & D	Dr. Md. Monirul Islam Director (Nutrition), BARC, Dhaka
10:15 –11:15	Use of food additives and preservatives	L & D	Do

11:15-11:45	Tea Break		
11:45-12:45	Food Preservation by increasing solids	L & D	Md. Hafizul Haque Khan, CSO, Post-harvest Technology Division, BARI
12:45 - 02:15	Prayer and lunch break		
02:15-03:15	Food Processing by Frying	L & D	Dr. Golam Ferdous Ahmed Chowdhury, SSO, Post-harvest Division, BARI
03:15-03:45	Tea Break		
03:45-04:45	Overview on Minimal Processing of Fruits and Vegetables	L & D	Dr. Taslima Ayesha Akter Nasrin SSO, Horticulture Division, BARI

4th Day : 23/09/2020

Time	Topics	Method	Resource person
09:15 - 10:15	Preparation of Jam/Jelly/Marmalade	Practical	Md. Hafizul Haque Khan,CSO, Post-harvest Technology Division, BARI
10:15 –11.15	Preparation of fried products	Practical	Dr. Golam Ferdous Ahmed Chowdhury, SSO, Post-harvest Division, BARI
11:15-11:45	Tea Break		
11:15-12:45	Overview on Minimal Processing of Fruits and Vegetables	Practical	Dr. Taslima Ayesha Akter Nasrin SSO, Horticulture Division, BARI
12:45 - 02:15	Prayer and lunch break		
02:15-03:15	Good Agriculture Practice (GAP) and Standard Operating Procedure (SOP) for preservation & Processing of Agricultural Products	L & D	MD. Mahmud Hasan DD (Horticulture), NATA
03:15-03:45	Tea Break		
03:45-04:45	Packaging and Transportation of Fresh fruits and Vegetables	L & D	MD. Eskandar Hossain SAD, NATA

5th Day: 24/09/2020

Time	Topics	Method	Resource person
09:15 - 10:15	Fermentation as the methods of food processing and preservation	L & D	Dr. Md. Shahjahan Professor , Zarman University, Gazipur
10:15 –11.15	Pickling (Practical)	Practical	Dr. Md. Shahjahan Professor, Zarman University, Gazipur
11:15-11:45	Tea break		
11:45-12:45	Do	Practical	Do
12:45 - 02:15	Lunch and prayer		
02:15-03:15	Sustainable Development Goal (SDG)		Dr. MD. Akhtaruzzaman Director (Admin), NATA
03:15-04:15	Causes of Food Spoilage and Remedies	L & D	Dr. Abdul Mazed DD (LR) DAE, Attached NATA
04:15-05:00	Closing session		DG/Directors/Faculties

Course Coordinator
Dr. Md. Mayen Uddin
Deputy Director (Food Technology)
NATA, Gazipur

Training Course: Food Processing and Preservation

List of Resource Speaker

SL No.	Name	Designation	Organization	e-mail and mobile No.
1	Dr. M. BurhanUddin	Professor	Dept. of Food tech. & Rural Ind, BAU	01711-110509 burhan.ftri@bau.edu.bd/ burhan992003@yahoo.com
2	Dr. Mohammad Gulzarul Aziz	Professor	Dept. of Food tech. & Rural Ind, BAU	01631-748866 aziz_ftri@bau.edu.bd
3	Dr. Md. Abdullah Iqbal	Professor	Dept. of Food tech. & Rural Ind, BAU	iqbal21155@bau.edu.bd
4	Dr. Md. Monirul Islam	Director (Nutrition)	BARC, Dhaka	01777-686866 dmmislam@yahoo.com
5	Dr. MD. Miaruddin	CSO	Post-harvest Technology Division	01713-273806/ 01199-825632
6	MD. Hafizul Haque Khan	SSO	Post-harvest Technology Division	01556-631691 hafiz_hkhan@yahoo.com
7	Dr. MD. Mayeen Uddin	DD	NATA	01711-969688
8	Dr. Md. Ayub Hossain	CSO	Farm Machinery Division, BARI	01716-979034 mahossain.fmpe@gamil.com
9	Amdadul Hoque	Associate Professor	Dept. Agroprocessing, BSMAU, Gazipur	01934-499867
10	Dr. Golam Ferdous Ahmed Chowdhury	SSO	Post-harvest Division, BARI	01712-271163
12	Dr. Mohammad Mainuddin Molla	SSO	PHTD, BARI	mainuddinmolla@yahoo.com 01712-231121
13	Maruf Ahmed	Head of Q/C	PRAN RFL	pblqc@pip.prangroup.com 01912-257201
14	Dr. Shahjahan Ali	Professor	German University, Gazipur	shah_phd@yahoo.com 01716-174288
15	Dr. Taslima Ayesha Akter Nasrin	SSO	Horticulture Division, BARI	01751-904470
16	Dr. Md. Abdul Mazed	DD, DAE(LR)		
17	Md. Eskandar Hossain	Senior Assist. Director	NATA	01938-615225 eskandarhossain@yahoo.com
18	Nilufa Akter	Senior Assist. Director	NATA	01719-174775 nilufaa@yahoo.com

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	Deputy Director (Agril. Machinery & Water Management)	01718-970041 badal.rafiqul@gmail.com
	Dr. MD. Jamal Uddin Deputy Director (Plant Pathology)	01712-272859 jamaldae@yahoo.com

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