

**Training Course
on
Soil Health Management**

21-25 November, 2021

Course Guideline



**National Agriculture Training Academy (NATA)
Ministry of Agriculture
Gazipur-1701
www.nata.gov.bd**

Training Course
on
Soil Health Management

21-25 November, 2021

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 programmes related to agriculture 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 as a training academy.

Initially, the Academy started its functions with only 10 faculty members. Though Government approved strength is 184, at present NATA has 74 staff members including 29 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. Develop human resource of all organizations under MoA by imparting quality training, research and development and publications;
- ii. Enhance linkage between education, research and extension to endow agriculture service delivery system;
- iii. Network with reputed institution of home and abroad for organizational capacity building; and
- iv. Foster a culture of continuous learning for development of knowledge-intensive agriculture service.

1.4 Functions

The NATA has been entrusted to perform the following functions:

- i. Human resource development of the government, semi-government, autonomous organization under MoA through training of modern and sustainable agriculture technology;
- ii. Transfer modern and sustainable agriculture technology developed by the research organizations for the development of socio-economic conditions of 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

The Academy is 25 km away from Dhaka city 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 have 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 physical facilities in organizing training programs though it began its journey 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
- Auditorium-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 one Digital Computer cum Language Lab in the Academy. It is located on the 1st floor of the Administrative building. IT facilities 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 available in recreation room for the participants.

1.6.4 Linkage with other Training Organizations

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

1.7 Evaluation:

Course Director and other faculty members are given responsibility to evaluate the participants. The course is evaluated during pre and post training situation within 50-100 marks. On the other hand the participants are also given chance to evaluate the faculties and guest 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 4:00 pm in the afternoon. There are two breaks started at 11.30 am and 01.00 pm for tea and lunch with prayer respectively. Participants are advised to attain the class in time without fail for avoiding any kinds of disciplinary action.

Daily Schedule

Activities	Duration
1 st Session	09:30-10:30
2 nd Session	10:30-11:30
Tea Break	11:30-12:00
3 rd Session	12:00-01:00
Lunch and Prayer	01:00-02:00
4 th Session	02:00-03:00
5 th Session	03:00-04:00
6 th session	04:00-05:00

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.
- Participants are not allowed to enter the dormitory after 10:00pm at night.

Course Outline

Soil health management is an important topic for designing a training course of different organizations under the ministry of Agriculture. For providing food of raising populations the world additional production is must. To increase the production of crop, keeping our soil healthy and productive is an important parameter. By using soil health systems and principles which include no-tillage, cover cropping, rotations and diversification farmers increasing their soil's organic matter and improving microbial activities. As a result, farmers are sequestering more carbon, increasing water infiltration, improving wildlife and pollinator habitat as well as harvesting better profits and often better yields. Soil health constraints beyond nutrient deficiencies and excesses limit agro ecosystem sustainability, resilience to drought and extreme rainfall, as well as progress in soil and water conservation.

COURSE OBJECTIVE

1. Increase understanding of soil biological processes that influence soil fertility in natural and managed ecosystems.
2. Provide a stimulating and collaborating environment for research on a wide range of soil organisms in diverse ecosystems.
3. Ensure strong links are maintained between research activities and teaching in the area of soil science, especially in relation to soil fertility and soil management

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 the training class in time;
- To be present at least 99% 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.

Course Content

Module 1: Introduction of Soil Health Management

Contents/Topics	Methods
Soils of Bangladesh – Variability within the physiographic regions/ AEZ.	L and D
Soil Health status in Bangladesh	L and D

Module 2: Management of Physical properties of soil

Contents/Topics	Methods
Soil physical properties and environment	L and D
Role of soil physical properties on crop production	L and D
Conservation agriculture based mechanization for sustainable crop production	L and D
Tillage options and residue management for soil moisture retention and carbon sequestration	L and D
Dynamics of Soil environmental Pollution and degradation causes and remedies.	L and D
Heavy metal pollution in soils and crops: consequence and remedies	L and D
Pesticides effect in soil and its management.	L and D

Module 3: Management of Chemical Properties of Soil

Contents/Topics	Methods
Soil chemical properties and its effects	L and D
Improved chemical properties of soil through organic matter	L and D
Management of soil chemical properties through INM and IPNS	L and D
Use of balance fertilizer based on soil test result	L and D
Industrial wastes in agriculture soil: Effects and remedies	L and D

Module 4: Management of Biological Properties of Soil

Contents/Topics	Methods
The biotic component of soils and their management	L and D
Immobilization, mineralization, and nutrient release from different types of organic manure and their values in plant nutrition.	L and D
Growth Promoting Microbes and Crop Production in Bangladesh	L and D
Management and utilization of Rhizobium bio fertilizer for pulse and oil seeds production.	L and D
Types of Bio fertilizers and its uses in Bangladesh. Preparation of Bio fertilizers	L and D
Exploration of beneficial microbes from soil and it's use	L and D

Module 5: Action plan of problem soil / rectifying problem soil

Contents/Topics	Methods
Problem soils of Bangladesh (Saline, Alkaline and Acidic soil)	L and D
Management of problem soil	L and D
Amendment of problem soils	L and D
Crop zoning and land utilization in Bangladesh	L and D

**** L – Lecture, D – Discussion**

Training Schedule on “ Soil Health Management”

Duration: 21-25 November, 2021

Day -01 (21/11/2021) Sunday

Time	Topics	Methods	Speaker
08:30-09:00	Registration	-	Sadiquin Nahar
09:00-09:30	Inaugural session, Pre evaluation	-	DG/Directors/Faculties /CC/ ACC
09:30-10:30	Pesticides effect in soil and its management.	L and D	Dr. Habibur Rahman Professor & Head Department of Entomology Faculty of Agriculture BSMRAU, Gazipur 01715296456
10:30-11:30	Industrial wastes in agriculture soil: Effects and remedies	L and D	Do
11:30- 12:00	Tea Break		
12:00-01:00	Soils of Bangladesh – Variability within the physiographic regions/ AEZ.	L & D	Prof. Dr. AZM. Moslauddin BAU, Mymensingh, 01712220033
01:00-02:00	Lunch and prayer		
02:00-03:00	Soils of Bangladesh – Variability within the physiographic regions/ AEZ	L & D	Prof. Dr.AZM. Moslauddin BAU, Mymensingh, 01712220033
03:00-04:00	Crop zoning and land utilization in Bangladesh	L & D	Prof. Dr.AZM. Moslauddin BAU, Mymensingh, 01712220033

Day -02 (22/11/2021) Monday

Time	Topics	Methods	Speaker
09:30-10:30	Dynamics of Soil environmental Pollution and degradation causes Soil chemical properties and its effects and remedies.	L and D	Prof.Dr.Md. Mofizur Rahman Jahangir Head,Department of Soil Science BAU, Mymensingh, mmrjahangir @bau.edu.bd 01719-648448
10.30-11.30	Heavy metal pollution in soils and crops: consequence and remedies	L and D	Do
11:30- 12.00	Tea Break		
12:00-01:00	Types of Bio fertilizers and its uses in Bangladesh. Preparation of Bio fertilizers	L and D	Prof.Dr. Md. Abul Hashem , Former Dean,BAU, Mymensingh 01712196199 mahashem@bau.edu.bd
01.00-02.00	Lunch and prayer		
02:00-03:00	Exploration of beneficial microbes from soil and it’s use	L and D	Prof.Dr. Md. Abul Hashem. Former Dean,BAU, Mymensingh 01712196199 mahashem@bau.edu.bd
03:00-04:00	Problem soils of Bangladesh(Saline, Alkaline and Acidic soil)	L and D	Dr. Umme Aminun Naher PSO, Soil Science Division BRRI, Gazipur
04:00-05:00	The biotic component of soils and their management	L and D	Dr. Umme Aminun Naher PSO, Soil Science Division BRRI, Gazipur01913151914

Day -03 (23/11/2021) Tuesday

Time	Topics	Methods	Speaker
09:30-10:30	Soil physical properties and environment	L and D	Prof. Dr. Mohammad Mosharraf Hossain, Department of soil Science, Sher-e-Bangla Agricultural University, Dhaka, 01716597406, e-mail: mosharraf6791sau@gmail.com
10:30-11:30	Soil chemical properties and its effects	L and D	Do
11:30- 12:00	Tea break		
12:00-01:00	Soil Health status in Bangladesh	L & D	Prof. Dr. Mizanur Rahman BSMRAU, Gazipur 01710659303 mizan@bsmrau.edu.bd
01:00-02:00	Lunch and prayer		
02:00-03:00	Tillage options and residue management for soil moisture retention and carbon sequestration	L & D	Prof. Dr. Mizanur Rahman BSMRAU, Gazipur
03:00-04:00	Improvement of soil health (physical, chemical and biological) through organic amendments/ organic matter management	L and D	Dr.Sohela Akhter Director, Tuber Crop Research Centre, BARI, Gazipur, 01922242737
04:00-05:00	e-governance & innovation plan	L and D	Nilufa Aktar DD(Planning & publication), NATA, Gazipur, 01719174775

Day -04(24/11/2021) Wednesday

Time	Topics	Methods	Speaker
09:30-10:30	Immobilization, mineralization, and nutrient release from different types of organic manure and their values in plant nutrition.	L and D	Prof. Dr. Mohammad Saiful Alam BSMRAU, Gazipur 01724720655 saifulbsmrau@yahoo.com
10.30-11.30	Growth Promoting Microbes and Crop Production in Bangladesh	L and D	Do
11:30- 12.00	Tea break		
12:00-01:00	Management and utilization of Rhizobium bio fertilizer for pulse and oil seeds production.	L and D	Dr. Md. Eyakub Ali SSO, Soil Science Division BARI, Gazipur 01716611209
01.00-02.00	Lunch and prayer		
02:00-03:00	Role of soil physical properties on crop production	L & D	Prof. Dr.Shafiqul Islam BSMRAU. 01552420855 shafiq_bsmrau@yahoo.com
03:00-04:00	Use of balance fertilizer based on soil test result	L and D	Do
04:00-05:00	Management of soil chemical properties through INM and IPNS	L and D	Dr. M.M. Masud, SSO, Soil Science Division, BARI, Gazipur, 01552334898 e-mail: masudsoil@yahoo.com

Day -05(25/11/2021) Thursday

Time	Topics	Methods	Speaker
09:30-10:30	Management of problem soil	L and D	Dr. Md..Rafiqul Islam, CSO and Head Soil Science Division, BRRI, Gazipur,01725395749
10.30-11.30	Amendment of problem soils	L and D	Do
11:30- 12.00	Tea break		
12:00-01:00	Conservation agriculture based mechanization for sustainable crop production	L and D	Dr. Nirmal Chandra Shil CSO, BARI, Gazipur 01718201499,01551066548
01.00-02.00	Lunch and prayer		
02:00-03:00	Conservation agriculture based mechanization for sustainable crop production	L and D	Dr. Nirmal Chandra Shil CSO, BARI, Gazipur 01718201499,01551066548
03.00-4.00	Post Evaluation & Course Evaluation		CC/ACC/Participants
04:00-5:00	Closing Ceremony		DG/Directors/CC/ACC

*This Schedule is subject to change

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LIST OF RESOURCE SPEAKERS

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1.	Dr. Md. Mofizur Rahman Jahangir	Professor , Head,Department of Soil Science,BAU, Mymensingh,	Mobile: 01719-648448 e-mail::mmrjahangir @bau.edu.bd
2.	Dr.AZM Moslauddin	Professor , Department of Soil Science,BAU, Mymensingh,	Mobile: 01712220033 e-mail:zofar@bau.edu.bd
3.	Dr. Md. Abul Hashem	Professor , Department of Soil Science,BAU, Mymensingh,	Mobile: 01712-196199 e-mail:mahashem@bau.edu.bd
4.	Dr. Mizanur Rahman	Professor , Department of Soil Science,BSMRAU, Salna, Gazipur	Mobile: 01710659303 e-mail: mizan@bsmrau.edu.bd
5.	Dr. Mohammad Saiful Alam	Professor , Department of Soil Science,BSMRAU, Salna, Gazipur	Mobile:01724720655 e-mail: saifulbsmrau@yahoo.com
6.	Dr. Umme Aminun Naher,	PSO , Soil Science Division BRRI, Gazipur	Mobile:01913151914 e-mail: naher39@gmail.com
7.	Dr.Shafiqul Islam	Professor , Department of Soil Science,BSMRAU, Salna, Gazipur	Mobile: 01552420855 e-mail: shafiq_bsmrau@yahoo.com
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10.	Dr. Sohela Akhter	PSO ,Soil Science Division, BARI, Gazipur	Mobile: 01922242737 e-mail: sohela_akhter@yahoo.com
11.	Dr. Nirmal Chandra Shil	CSO, BARI, Gazipur	Mobile: 01718201499 e-mail: nirmal_shil@yahoo.com
12.	Dr. Rafiqul Islam	CSO and Head Soil Science Division BRRI, Gazipur	Mobile: 01725395749 e-mail: rafiqbrri@yahoo.com

SL. No.	Name of speaker	Designation & Organization	Mobile No. and e-mail
13.	Dr. Mohammad Mosharraf Hossain	Professor, Department of soil Science, Sher-e-Bangla Agricultural University	Mobile: 01716597406 e-mail: mosharraf6791sau@gmail.com
14.	Dr. Md. Habibur Rahman	Professor & Head Department of Entomology, Faculty of Agriculture, BSMRAU, Salna, Gazipur	Mobile: 01715296456 e-mail: hrahman@bsmrau.edu.bd
15.	Nilufa Aktar	DD (Planning & publication), NATA, Gazipur	Mobile: 01719174775 e-mail: nilufaa@yahoo.com

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