# **Course Completion Report**

# on Seed Technology

Duration: 28 October - 06 November 2018



# National Agriculture Training Academy (NATA) Gazipur-1701.

# **Course Management Team**

| Course Advisor :          | <b>Dr. Md. Abu Sayeed Miah</b><br>Director General (In-charge)<br>NATA, Gazipur.                      |
|---------------------------|-------------------------------------------------------------------------------------------------------|
| Course Director :         | <b>Dr. Md. Ataur Rahman Howlader</b><br>Director, Administration (In-charge)<br>NATA, Gazipur.        |
| Course Coordinator :      | <b>Dr. Mohammad Shariful Islam</b><br>Deputy Director (Agronomy)<br>NATA, Gazipur.                    |
| Asst. Course Coordinator: | <b>1. Khabirunnahar</b><br>Senior Assistant Director<br>(Pulse & Oil Crops)<br>NATA, Gazipur.         |
|                           | <b>2. Hafsha Khatun</b><br>Senior Assistant Director<br>(Genetics & Plant Breeding)<br>NATA, Gazipur. |

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# Course at a glance

#### 1. Introduction

At the pace of progress in agricultural productivity, it has become necessary to ensure that seeds of good quality reach every farmer at the right time, at the right place and at affordable price. This is not an easy task, since seed production, processing, storage, marketing and quality control are a highly skilled job and we have few trained manpower in these field. We need as soon as possible a large number of seed technologists who are conversant with all aspects of seed industry.

Therefore, the officers of different organizations under the MoA need skills on different activities regarding quality seeds. The module on Seed Technology has been prepared in order to help organizing training course by NATA for the personnel of different organizations under the Ministry of Agriculture. The training on seed technology will help them to perform efficiently their jobs with seed related activities in order to achieve quality seeds.

#### 2. Course objectives

After completion of training course the participants will be able to:

- a) state the concept of seed quality and seed technology;
- b) explain the quality control mechanism of seed in Bangladesh;
- c) perform the production, processing, testing and storage of seed properly;
- d) illustrate the marketing system and planning of seed business for an entrepreneurs;
- e) comply the seed acts, rules and regulations of Bangladesh in their job area.

#### 3. Number of participants: 22

**4. Duration of the course:** 10 days (28.10.18 - 06.11.18)

### **5.** Course content

| Sl.        | Content                                                                                                                                            |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.         | Module - 1: Seed Technology and Quality Aspects                                                                                                    |
| 2.         | Lesson 1: Seed technology: Conceptual issues of seed and seed quality                                                                              |
| 3.         | Lesson 2: Concept on quality seed, dormancy and seed quality enhancement                                                                           |
| 4.         | Lesson 3: Seed system and status of quality seed in Bangladesh and abroad                                                                          |
| 5.         | Module - 2: Seed Quality Control and Assurance                                                                                                     |
| 6.         | Lesson 1: Seed quality control mechanism in Bangladesh and abroad                                                                                  |
| 7.         | Lesson 2: Seed generation and seed certification system in Bangladesh                                                                              |
| 8.         | Lesson 3: Field inspection of cereal crops and field & seed standards                                                                              |
| 9.         | Lesson 4: Field counting in rice seed crop (practical/group work)                                                                                  |
| 10.        | Lesson 5: National integrity and ethics in quality seed supply                                                                                     |
| 11.        | Module - 3: Varietal Development and Seed Maintenance                                                                                              |
| 12.        | Lesson 1: Varietal types and methods of their development                                                                                          |
| 13.        | Lesson 2: Maintenance of nucleus and breeder seed of rice and other crops                                                                          |
| 14.        | Lesson 3: Variety release and registration procedures in Bangladesh                                                                                |
| 15.        | Lesson 4: Identifying characters of important varieties of notified crops                                                                          |
| 16.        | Lesson 5: Special characters of important varieties of non-notified crops                                                                          |
| 17.        | Module - 4: Seed Multiplication and Processing                                                                                                     |
| 18.        | Lesson 1: General principles of seed production and seed research                                                                                  |
| 19.        | Lesson 2: Seed production techniques of open pollinated vegetable crops                                                                            |
| 20.        | Lesson 3: Hybrid seed production technology of important vegetables                                                                                |
| 21.        | Lesson 4: Seed production technology of hybrid rice                                                                                                |
| 22.        | Lesson 5: Harvesting and seed extraction methods of different vegetables                                                                           |
| 23.        | Lesson 6: Control measures of important insects of major crops                                                                                     |
| 24.        | Lesson 7: Control measures of important diseases of major crops                                                                                    |
| 25.        | Lesson 8: Processing of seeds (drying, cleaning, grading, treatment and packing)                                                                   |
| 26.        | Lesson 9: Seed preservation and storage management                                                                                                 |
| 27.        | Lesson 10: Control measures of pests in seed storage                                                                                               |
| 28.        | Module - 5: Seed Sampling and Quality Testing                                                                                                      |
| 29.        | Lesson 1: Seed sampling and sample preparation                                                                                                     |
| 30.        | Lesson 2: Seed sample registration and purity analysis                                                                                             |
| 31.        | Lesson 3: Seed moisture content, vigour and viability test                                                                                         |
| 32.        | Lesson 4: Seed germination test and seedling evaluation                                                                                            |
| 33.        | Lesson 5: Seed health test: Materials and testing procedure                                                                                        |
| 34.        | Lesson 6: Seed purity analysis (practical)                                                                                                         |
| 35.        | Lesson 7: Seed moisture content, vigour and viability test (practical)                                                                             |
| 36.        | Lesson 8: Seed setting for germination test and seedling evaluation (practical)                                                                    |
| 37.        | Lesson 9: Identification of seed borne pathogens of major crops (practical)                                                                        |
| 38.        | Module - 6: Seed Marketing and Seed Business                                                                                                       |
| <u>39.</u> | Lesson 1: Seed marketing and distribution system in Bangladesh                                                                                     |
| 40.        | Lesson 2: Seed business and seed enterprises development                                                                                           |
| 41.<br>42. | Lesson 3: Field visit to seed related organization on marketing/business                                                                           |
| 42.        | Module - 7: Seed Policy and Seed Legislation/Law<br>Lesson 1: Overview of the national seed policy and the agriculture policy                      |
| 43.<br>44. | Lesson 1: Overview of the national seed policy and the agriculture policy<br>Lesson 2: The Seed act of Bangladesh in comparison to other countries |
| 44.        | Lesson 2: The Seed act of Bangladesh in comparison to other countries<br>Lesson 3: The Seed rules of Bangladesh and problems in its enforcement    |
| 45.        | Lesson 3: The plant quarantine act & rules and nursery guidelines of Bangladesh                                                                    |
| 40.        | Lesson 4: The plant quarantine act & rules and nursery guidennes of Bangladesn<br>Lesson 5: Seed market monitoring and mobile court enforcement    |
| 4/.        | Lesson J. Seed market monitoring and moune court emoteement                                                                                        |

# 6. Resource person and guest speaker

| Sl. No. | Name & Designation                | Address                                    | Mobile No.  |
|---------|-----------------------------------|--------------------------------------------|-------------|
| 1       | Dr. M. Moynul Haque               | Dept. of Agronomy, Agriculture             | 01711908640 |
|         | Professor & Dean                  | Faculty, BSMRAU, Gazipur                   |             |
| 2       | Dr. M. Mofazzal Hossain           | Dept. of Horticulture, BSMRAU, 01819433225 |             |
|         | Professor                         | Gazipur                                    |             |
| 3       | Dr. Md. Golam Rasul               | Dept. of Genetics & Plant Breeding,        | 01715401448 |
|         | Professor                         | BSMRAU, Gazipur                            |             |
| 4       | Dr. Md. Abu Ashraf Khan           | Dept. of Plant Pathology, BSMRAU,          | 01711193457 |
|         | Professor                         | Gazipur                                    |             |
| 5       | Mr. M. Shahjahan Ali              | BSFIC, Dhaka and Seed Technologist         | 01730013391 |
|         | Member Director (Ret.)            | & Regulation Specialist                    |             |
| 6       | Mr. Mir Nurul Alam                | Planning, Project Implementation and       | 01755507728 |
|         | Director                          | ICT Wing, DAE, Dhaka                       |             |
| 7       | Mr. Md Khairul bashar             | Seed Certification Agency, Gazipur         | 01720379535 |
|         | Director                          |                                            |             |
| 8       | Dr. Md. Abdul Khaleque            | Seed Technology Division, BARI,            | 01712768569 |
|         | CSO                               | Gazipur                                    |             |
| 9       | Md. Ahsan Ullah                   | BPAE Project, DAE, Dhaka                   | 01715041099 |
|         | AD & Consultant (PRA)             |                                            |             |
| 10      | Dr. Md. Jamil Hasan               | Hybrid Division, BRRI, Gazipur             | 01718289331 |
|         | PSO & Head                        |                                            |             |
| 11      | Sarder Md. Salauddin              | Horticulture, BADC, Dhaka                  | 01712406777 |
|         | Joint Director (Ret.)             |                                            |             |
| 12      | Dr. Md. Shariful Islam            | NATA, Gazipur                              | 01743051115 |
|         | Deputy Director (Agronomy)        |                                            |             |
| 13      | Md. Azim Uddin                    | Seed Wing, MoA                             | 01556341143 |
|         | Chief Seed Technologist           |                                            |             |
| 14      | Md. Hasan Kabir                   | Seed Certification Agency, Gazipur         | 01625805717 |
|         | Deputy Director (Finance)         |                                            |             |
| 15      | Dr. Shukdev Kumar Das             | Seed Certification Agency, Gazipur         | 01720078274 |
|         | DD (Planning & Evaluation),       |                                            |             |
| 16      | Md. Shahidul Islam                | NST Lab., SCA, Gazipur                     | 01924084994 |
|         | Chief Seed Technologist           |                                            |             |
| 17      | Dr. Md. Abdul Mazed               | Attached to NATA, Gazipur                  | 01814849190 |
| 10      | Deputy Director (LR)              |                                            | 01015440000 |
| 18      | Dr. Md. Sadek                     | Seed Marketing, BADC, Dhaka                | 01915448929 |
| 10      | Deputy Manager                    |                                            | 01722005205 |
| 19      | Khabirunnahar, Sr. Ast. Director  | NATA, Gazipur                              | 01733995286 |
| 20      | (Pulse and Oil Crops)             | NATA Cariner                               | 0171(007400 |
| 20      | Jharna Begum, Sr. Ast. Director   | NATA, Gazipur                              | 01716227489 |
| 21      | (Field Crop Pest)                 | NATA Cariner                               | 01710174775 |
| 21      | Nilufa Akhtar, Sr. Asst. Director | NATA, Gazipur                              | 01719174775 |
|         | (Food Processing Technology)      |                                            |             |

# **Training Schedule**

#### Day-1: 28/10/2018 (Sunday)

| Time          | Topic/Session                                                       | Speaker/Facilitator                 |
|---------------|---------------------------------------------------------------------|-------------------------------------|
| 08:45 - 09:15 | Registration                                                        | Mrs. Sadekunnahar, Demonstrator,    |
|               |                                                                     | NATA                                |
| 09:15 - 09:30 | Pre-evaluation/perception test                                      | Hafsa Khatun, Sr.AD, NATA           |
| 09:30 - 09:35 | About training norms & formation of PMC                             | Khabirunnahar, Sr.AD, NATA          |
| 09:35 - 09:55 | Inaugural ceremony                                                  | DG/Directors, CC, ACC & Faculty     |
|               |                                                                     | Members                             |
| 09:55 - 10:55 | Seed science and technology: Conceptual issues of                   | Prof. Dr. M. Moynul Haque, Dean,    |
|               | seed and seed quality                                               | Faculty of Agriculture, BSMRAU      |
| 10:55 - 11:15 | Tea Break                                                           |                                     |
| 11:15 - 12:15 | Concept on quality seed, seed dormancy and seed/quality enhancement | Do                                  |
| 12:20 - 01:20 | Seed system and status of quality seed in Bangladesh                | Md. Shahjahan Ali, MD (Ret.), BSFIC |
|               | & abroad                                                            | & Seed Technologist and Regulation  |
|               |                                                                     | Specialist                          |
| 01:20 - 02:30 | Prayer & Lunch                                                      |                                     |
| 02:30 - 03:30 | Seed quality control mechanism in Bangladesh and                    | Do                                  |
|               | abroad                                                              |                                     |
| 03:40 - 04:40 | Seed generation and seed certification system in                    | Dr. Mohammad Shariful Islam         |
|               | Bangladesh                                                          | DD (Agronomy), NATA                 |

#### Day-2: 29/10/2018 (Monday)

| Time          | Topic/Session                                       | Speaker/Facilitator                 |
|---------------|-----------------------------------------------------|-------------------------------------|
| 09:20 - 09:35 | Review of previous day                              | Hafsa Khatun, Sr.AD, NATA           |
| 09:35 - 10:35 | Field inspection of cereal crops and field & seed   | Dr. Mohammad Shariful Islam         |
|               | standard of notified crops                          | DD (Agronomy), NATA                 |
| 10:35 - 10:55 | Tea Break                                           |                                     |
| 11:00 - 12:00 | Field counting in rice seed crop (practical)        | Do                                  |
| 12:10 - 01:10 | Varietal types and methods of their development     | Prof. Dr. Md. Golam Rasul           |
|               |                                                     | Dept. of Genetics & Plant Breeding, |
|               |                                                     | BSMRAU                              |
| 01:10 - 02:30 | Prayer & Lunch                                      |                                     |
| 02:30 - 03:30 | Maintenance of nucleus and breeder seed of rice and | Do                                  |
|               | other crops                                         |                                     |
| 03:40 - 04:40 | Variety release and registration mechanism in       | Khabirunnahar, Sr.AD                |
|               | Bangladesh                                          | (Pulse & Oil Crops), NATA           |

#### Day-3: 30/10/2018 (Tuesday)

| Time          | Topic/Session                                        | Speaker/Facilitator                 |
|---------------|------------------------------------------------------|-------------------------------------|
| 09:20 - 09:35 | Review of previous day                               | Khabirunnahar, Sr.AD, NATA          |
| 09:35 - 10:35 | National integrity and ethics in quality seed supply | Mir Nurul Alam, Director, Planning, |
|               |                                                      | Project Implemt. and ICT Wing, DAE  |
| 10:35 - 10:55 | Tea Break                                            |                                     |
| 11:00 - 12:00 | Identifying characters of important varieties of     | Khabirunnahar, Sr.AD (Pulse & Oil   |
|               | notified crops                                       | Crops), NATA                        |
| 12:10 - 01:10 | Special characters of important varieties of non-    | Dr. Mohammad Shariful Islam         |
|               | notified crops                                       | DD (Agronomy), NATA                 |
| 01:10 - 02:30 | Prayer & Lunch                                       |                                     |
| 02:30 - 03:30 | General principles of seed production and review &   | Dr. Md. Abdul Khaleque, CSO &       |
|               | scope of seed research & development                 | Head, Seed Tech. Div., BARI,        |
|               |                                                      | Gazipur                             |
| 03:40 - 04:40 | Seed production technology of hybrid rice            | Dr. Md. Jamil Hasan, PSO & Head,    |
|               |                                                      | Hybrid Division, BRRI, Gazipur      |

| Time          | Topic/Session                                                              | Speaker/Facilitator                                            |
|---------------|----------------------------------------------------------------------------|----------------------------------------------------------------|
| 09:20 - 09:35 | Review of previous day                                                     | Hafsa Khatun, Sr.AD, NATA                                      |
| 09:35 - 10:35 | Special seed production techniques of important open pollinated vegetables | Prof. Dr. M. Mofazzal Hossain<br>Dept. of Horticulture, BSMRAU |
| 10:35 - 10:55 | Tea Break                                                                  |                                                                |
| 11:00 - 12:00 | Hybrid seed production technology of important vegetables                  | Do                                                             |
| 12:10 - 01:10 | Harvesting and seed extraction methods of different vegetables             | Do                                                             |
| 01:10 - 02:30 | Prayer & Lunch                                                             |                                                                |
| 02:30 - 03:30 | Control measures of important insects of major crops                       | Dr. Md. Abdul Mazed, DD (LR)<br>Attached to NATA, Gazipur      |
| 03:40 - 04:40 | Seed sampling and sample preparation for testing                           | Dr. Mohammad Shariful Islam<br>DD (Agronomy), NATA             |

#### Day-4: 31/10/2018 (Wednesday)

### Day-5: 01/11/2018 (Thursday)

| Time          | Topic/Session                                   | Speaker/Facilitator                    |
|---------------|-------------------------------------------------|----------------------------------------|
| 09:20 - 09:35 | Review of previous day                          | Khabirunnahar, Sr.AD, NATA             |
| 09:35 - 10:35 | Processing of seeds (drying, cleaning, grading, | Dr. Md. Sadek, Deputy Manager          |
|               | treatment and packaging)                        | (Seed Marketing), BADC, Dhaka          |
| 10:35 - 10:55 | Tea Break                                       |                                        |
| 11:00 - 12:00 | Seed preservation and storage management        | Do                                     |
| 12:10 - 01:10 | Seed marketing and distribution system in       | Md. Salauddin, Ret. JD (Horticulture), |
|               | Bangladesh                                      | BADC                                   |
| 01:10 - 02:30 | Prayer & Lunch                                  |                                        |
| 02:30 - 03:30 | Seed business and seed enterprises development  | Do                                     |
| 03:40 - 04:40 | Seed sample registration and purity analysis    | Nilufa Akhtar, Sr. Asst. Director      |
|               |                                                 | (Food Processing Technology), NATA     |

# Day-6: 02/11/2018 (Friday): Weekly Holiday

#### Day-7: 03/11/2018 (Saturday)

| Time          | Topic/Session                                     | Speaker/Facilitator                 |
|---------------|---------------------------------------------------|-------------------------------------|
| 09:20 - 09:35 | Review of previous day                            | Hafsa Khatun, Sr.AD, NATA           |
| 09:35 - 10:35 | Seed moisture content, vigour and viability test  | Md. Hasan Kabir                     |
|               |                                                   | DD (Finance), SCA, Gazipur          |
| 10:35 - 10:55 | Tea Break                                         |                                     |
| 11:00 - 12:00 | Seed germination test and seedling evaluation     | Do                                  |
| 12:10 - 01:10 | Control measures of important diseases of major   | Prof. Dr. Md. Abu Ashraf Khan       |
|               | crops                                             | Dept. of Plant Pathology, BSMRAU    |
| 01:10 - 02:30 | Prayer & Lunch                                    |                                     |
| 02:30 - 03:30 | Seed health test: Materials and testing procedure | Do                                  |
| 03:40 - 04:40 | Seed market monitoring and mobile court           | Dr. Shukdev Kumar Das, DD (Planning |
|               | enforcement                                       | & Evaluation), SCA, Gazipur         |

#### Day-8: 04/11/2018 (Sunday)

| Time          | Topic/Session                                    | Speaker/Facilitator                |
|---------------|--------------------------------------------------|------------------------------------|
| 09:20 - 09:35 | Review of previous day                           | Dr. Shariful Islam, DD (Agronomy), |
|               |                                                  | NATA                               |
| 09:35 - 10:35 | Seed purity analysis (practical)                 | Md. Shahidul Islam Khan            |
|               |                                                  | CST, NST Lab., SCA, Gazipur        |
| 10:35 - 10:55 | Tea Break                                        |                                    |
| 11:00 - 12:00 | Seed moisture content, vigour and viability test | Do                                 |
|               | (practical)                                      |                                    |
| 12:10 - 01:10 | Seed setting for germination test and seedling   | Do                                 |
|               | evaluation (practical)                           |                                    |
| 01:10 - 02:30 | Prayer & Lunch                                   |                                    |
| 02:30 - 03:30 | Identification of seed borne pathogens of major  | Dr. Md. Ashik Iqbal, SSO, BRRI,    |
|               | crops (practical)                                | Gazipur                            |
| 03:40 - 04:40 | Control measures of pests in seed storage        | Jharna Begum, Sr. Asst. Director   |
|               |                                                  | (Field Crop Pest), NATA            |

### Day-9: 05/11/2018 (Monday)

| Time          | Topic/Session                                      | Speaker/Facilitator           |
|---------------|----------------------------------------------------|-------------------------------|
| 09:00 - 09:30 | Visit to breeder seed production plot, BRRI,       | Representative Officers, BRRI |
|               | Gazipur                                            |                               |
| 09:50-10:20   | Visit to seed processing centre, BADC, Gazipur     | Representative Officers, BADC |
| 10:20 - 10:35 | Tea Break                                          |                               |
| 11:00 - 01:00 | Visit to R & D Farm, Lal Teer Seed Ltd., Bason,    | Representative Officers, LTSL |
|               | Gazipur                                            |                               |
| 01:00 - 02:00 | Prayer & Lunch                                     |                               |
| 02:00 - 03:00 | Visit to R & D Farm, Lal Teer Seed Ltd., Bason,    | Do                            |
|               | Gazipur                                            |                               |
| 03:30 - 04:30 | Preparation of presentation of group assignment on | All participants              |
|               | visit                                              |                               |

### Day-10: 06/11/2018 (Tuesday)

| Time          | Topic/Session                                      | Speaker/Facilitator                |  |  |  |
|---------------|----------------------------------------------------|------------------------------------|--|--|--|
| 09:00 - 10:00 | The National Seed Policy, the Agriculture Policy   | Md. Azim Uddin, CST, MoA /         |  |  |  |
|               | (Seed related) and the Nursery Guidelines of       | Dr. Shariful Islam, DD, NATA       |  |  |  |
|               | Bangladesh                                         |                                    |  |  |  |
| 10:05 - 11:05 | Overview of the Seed Act of Bangladesh in          | Md. Khairul Bashar, Director, SCA, |  |  |  |
|               | comparison to abroad                               | Gazipur                            |  |  |  |
| 11:05 - 11:20 | Tea Break                                          |                                    |  |  |  |
| 11:25 - 12:25 | The Seed Rules of Bangladesh and problems in its   | Md. Khairul Bashar, Director, SCA, |  |  |  |
|               | enforcement                                        | Gazipur                            |  |  |  |
| 12:30 - 01:30 | Salient features of the Plant Quarantine Act & the | Md. Ahsan Ullah, AD, DAE, Dhaka /  |  |  |  |
|               | Plant Quarantine Rules of Bangladesh               | Dr. Shariful Islam, DD, NATA       |  |  |  |
| 01:30 - 02:30 | Prayer & Lunch                                     |                                    |  |  |  |
| 02:30-03:15   | Group work/assignment presentation                 | Chairman of the session & Faculty  |  |  |  |
|               |                                                    | Members                            |  |  |  |
| 03:15 - 03:45 | Post-evaluation/perception test and course         | Course Coordinator and ACC         |  |  |  |
|               | evaluation                                         |                                    |  |  |  |
| 03:45 - 04:30 | Closing Ceremony                                   | DG/Directors, CC, ACC & Faculty    |  |  |  |
|               |                                                    | Members                            |  |  |  |

\*This schedule is subject to change.

# List of participants

| SL. | Name                     | Designation                                                 | Mobile and Email                    |
|-----|--------------------------|-------------------------------------------------------------|-------------------------------------|
| 1   | MD. ABDULLAH AL<br>NOMAN | Agriculture Extension                                       | 01736602631<br>nomansau69@gmail.com |
|     |                          | Officer, Upazila Agriculture<br>Office, Kaliganj, Jhenaidah | nomansau0) @ gman.com               |
| 2   | MD. AHSANUL HAQUE        | Agriculture Extension<br>Officer, Upazila Agriculture       | 01723948277<br>ahsanulsau@gmail.com |
|     |                          | Office, Shahjadpur,<br>Sirajgonj                            |                                     |
| 3   | TANZILA RAHMAN           | Agriculture Extension                                       | 01670014124                         |
|     |                          | Officer, Upazila Agriculture<br>Office, Sadar, Gazipur      | almueez208@gmail.com                |
| 4   | MASUD PARVEZ             | Agriculture Extension                                       | 01722552734                         |
|     |                          | Officer, Upazila Agriculture<br>Office, Sadar, Cox's Bazar  | parvezrock4@gmail.com               |
| 5   | MARJINA AKTHER           | Agriculture Extension                                       | 01721697679                         |
|     | (MUNNI)                  | Officer, Upazila Agriculture                                | marjinadae@gmail.com                |
|     |                          | Office, Netrokona Sadar,                                    |                                     |
|     |                          | Netrokona                                                   |                                     |
| 6   | MD. ABDUL MATIN          | Agriculture Extension                                       | 01731453344                         |
|     |                          | Officer, Upazila Agriculture                                | krishibid.matin@gmail.com           |

| SL. | Name                        | Designation                                                                                | Mobile and Email                            |  |  |  |
|-----|-----------------------------|--------------------------------------------------------------------------------------------|---------------------------------------------|--|--|--|
|     |                             | Office, Khoksa, Kushtia                                                                    |                                             |  |  |  |
| 7   | MUHAMMAD MORSHED<br>ALAM    | Agriculture Extension<br>Officer, Upazila Agriculture<br>Office, Adarsha Sadar,<br>Cumilla | 01734995818<br>sophisticated.id14@gmail.com |  |  |  |
| 8   | ABU SALEK                   | Horticulturist, Horticulture<br>Center, Natore                                             | 01724392261<br>asbau09a@gmail.com           |  |  |  |
| 9   | MOST. ARIFUNNAHAR           | Scientific Officer, Plant<br>Pathology Division, BARI,<br>Gazipur                          | 01719247502<br>bonitplpa@yahoo.com          |  |  |  |
| 10  | MD. MIZANUR RAHMAN          | Scientific Officer,<br>Horticulture Research<br>Center, RARS, BARI,<br>Moulvibazar         | 01911884287<br>mizan_sau1057@yahoo.com      |  |  |  |
| 11  | MD. TOWHIDUL KARIM          | Assistant Manager, Seed<br>Distribution Division,<br>BADC, Krishi Bhaban,<br>Dhaka         | 01868565622<br>towhidulkarim91@gmail.com    |  |  |  |
| 12  | MD. MAHMADUL<br>HASSAN KHAN | Assistant Director, BADC,<br>Pabna                                                         | 01717412887<br>mhksumon07@gmail.com         |  |  |  |
| 13  | MD. MAMUNUR RASHID          | Scientific Officer, RSRS,<br>BSRI, Thakurgaon                                              | 01724861861<br>mamun.sau67@gmail.com        |  |  |  |
| 14  | Z.M. RAKIBUL ISLAM          | Cotton Development<br>Officer, Cotton<br>Development Board,<br>Mymensingh Zone             | 01717385469<br>torun2844@yahoo.com          |  |  |  |
| 15  | MD. SHARIFUL ISLAM          | Assistant Engineer, BMDA,<br>Rajshahi                                                      | 01712536768<br>ae_tanore_raj@bmda.gov.bd    |  |  |  |
| 16  | MD. MAHMUD AL NOOR          | Scientific Officer, BINA,<br>Mymensingh                                                    | 01797371659<br>alnoormahmud4@gmail.com      |  |  |  |
| 17  | MD. MUKUL MIA               | Scientific Officer, Breeding<br>Division, BJRI, Dhaka                                      | 01520053088<br>mukulbjribreeding@gmail.com  |  |  |  |
| 18  | SEFAT-E-JAMAL               | Seed pathologist, Seed<br>Certification Agency,<br>Gazipur                                 | 01710583348<br>pathologist.1@sca.gov.bd     |  |  |  |
| 19  | MD. ARIFUZZAMAN             | Seed Analyst, Seed<br>Certification Agency,<br>Gazipur                                     | 01710540789<br>arifsau2839@gmail.com        |  |  |  |
| 20  | MD. RAZIB HOSSAIN           | Seed Analyst, Regional<br>Seed Certification Office,<br>Chattogram                         | 01735635656<br>razib321@gmail.com           |  |  |  |
| 21  | MD. SABER ALAM              | Seed Certification Officer,<br>District Seed Certification<br>Office, Chapainawabganj      | 01757336683<br>md.saber.ag@gmail.com        |  |  |  |
| 22  | MD. RUHUL AMIN              | Seed Pathologist, Regional<br>Seed Certification Office,<br>Rangpur                        | 01755386140<br>ruhulsau222@gmail.com        |  |  |  |

### 7. Training method and material

### a) Method

Lecture and discussion, practical, field visit, group work, question & answer, etc.

### b) Material

Multimedia, white board & marker, VIP card, different sample, etc.

#### 8. Sports and recreation

The academy has a recreation room with a colour TV in the dormitory and two daily newspapers are available there for the participants.

| ক্রম<br>নং | কর্মসম্পাদন সূচক             | অসাধারণ<br>(১০০%) |    | অতিউত্তম<br>(৯০%) |    | উত্তম<br>(৮০%) |    | চলতিমান<br>(৭০%) |    | চলতিমানের নিম্নে<br>(৬০%) |    |
|------------|------------------------------|-------------------|----|-------------------|----|----------------|----|------------------|----|---------------------------|----|
|            |                              | জন                | %  | জন                | %  | জন             | %  | জন               | %  | জন                        | %  |
| ক.         | নিরবচ্ছিন্ন প্রশিক্ষণ সুবিধা | ৬                 | ২৭ | જ                 | 82 | رد             | ২৭ | 2                | ¢  | -                         | -  |
| খ.         | পরিচ্ছন্নতা                  | b                 | ৩৬ | ዮ                 | ৩৬ | 8              | ንዑ | ર                | \$ | -                         | -  |
| গ.         | সুষ্ঠ খাবার ব্যবস্থাপনা      | ৬                 | ২৭ | \$                | 82 | હ              | ২৭ | 2                | ¢  | -                         | -  |
| ঘ          | লাইব্রেরী সুবিধা             | ૨                 | જ  | و                 | 28 | 8              | ንዑ | ٩                | 28 | 8                         | ንዮ |
| હ.         | অডিও ভিজ্যুয়াল সুবিধা       | ٩                 | かり | ٩                 | ৩২ | رو             | ২৭ | ¢                | ২৩ | 2                         | Ŷ  |

# 9. Course Evaluation by the Participants

#### 10. Pre and post perception/evaluation test report (Full marks -100)

| Sl.<br>No. | Participants<br>and | Address                            |      | arks<br>ained | Comments |
|------------|---------------------|------------------------------------|------|---------------|----------|
| 110.       | designation         |                                    | Pre- | Post-         | -        |
|            | ucsignation         |                                    | test | test          |          |
| 1.         | MD. ABDULLAH        | Agriculture Extension Officer,     | 85   | b8            |          |
| 1.         | AL NOMAN            | Upazila Agriculture Office,        |      | 00            |          |
|            |                     | Kaliganj, Jhenaidah                |      |               |          |
| 2.         | MD. AHSANUL         | Agriculture Extension Officer,     | 60   | 64            |          |
|            | HAQUE               | Upazila Agriculture Office,        |      |               |          |
|            |                     | Shahjadpur, Sirajgonj              |      |               |          |
| 3.         | TANZILA             | Agriculture Extension Officer,     | ২৪   | <b>ኮ</b> ৫    |          |
|            | RAHMAN              | Upazila Agriculture Office, Sadar, |      |               |          |
|            |                     | Gazipur                            |      |               |          |
| 4.         | MASUD PARVEZ        | Agriculture Extension Officer,     | ৬০   | ৬২            |          |
|            |                     | Upazila Agriculture Office, Sadar, |      |               |          |
|            |                     | Cox's Bazar                        |      |               |          |
| 5.         | MARJINA             | Agriculture Extension Officer,     | 88   | ৭৯            |          |
|            | AKTHER              | Upazila Agriculture Office,        |      |               |          |
|            | (MUNNI)             | Netrokona Sadar, Netrokona         |      |               |          |

| 6.  | MD. ABDUL<br>MATIN             | Agriculture Extension Officer,<br>Upazila Agriculture Office, Khoksa,<br>Kushtia        | 80   | 98     |  |
|-----|--------------------------------|-----------------------------------------------------------------------------------------|------|--------|--|
| 7.  | MUHAMMAD<br>MORSHED ALAM       | Agriculture Extension Officer,<br>Upazila Agriculture Office, Adarsha<br>Sadar, Cumilla | 8৮   | ЪO     |  |
| 8.  | ABU SALEK                      | Horticulturist, Horticulture Center,<br>Natore                                          | 88   | ዓዽ     |  |
| 9.  | MOST.<br>ARIFUNNAHAR           | Scientific Officer, Plant Pathology<br>Division, BARI, Gazipur                          | ২8   | ৮২     |  |
| 10. | MD. MIZANUR<br>RAHMAN          | Scientific Officer, Horticulture<br>Research Center, RARS, BARI,<br>Moulvibazar         | ২০   | የኦ     |  |
| 11. | MD. TOWHIDUL<br>KARIM          | Assistant Manager, Seed<br>Distribution Division, BADC, Krishi<br>Bhaban, Dhaka         | ২০   | ዓ৮     |  |
| 12. | MD.<br>MAHMADUL<br>HASSAN KHAN | Assistant Director, BADC, Pabna                                                         | ২8   | የ৮     |  |
| 13. | MD. MAMUNUR<br>RASHID          | Scientific Officer, RSRS, BSRI,<br>Thakurgaon                                           | ২৮   | б<br>К |  |
| 14. | Z.M. RAKIBUL<br>ISLAM          | Cotton Development Officer, Cotton<br>Development Board, Mymensingh<br>Zone             | 8৮   | હ      |  |
| 15. | MD. SHARIFUL<br>ISLAM          | Assistant Engineer, BMDA,<br>Rajshahi                                                   | 80   | હર     |  |
| 16. | MD. MAHMUD<br>AL NOOR          | Scientific Officer, BINA,<br>Mymensingh                                                 | ৬০   | ৫৩     |  |
| 17. | MD. MUKUL MIA                  | Scientific Officer, Breeding<br>Division, BJRI, Dhaka                                   | 88   | ৮২     |  |
| 18. | SEFAT-E-JAMAL                  | Seed pathologist, Seed Certification<br>Agency, Gazipur                                 | 88   | ৭৯     |  |
| 19. | MD.<br>ARIFUZZAMAN             | Seed Analyst, Seed Certification<br>Agency, Gazipur                                     | 88   | ዓ৮     |  |
| 20. | MD. RAZIB<br>HOSSAIN           | Seed Analyst, Regional Seed<br>Certification Office, Chattogram                         | 88   | ৬০     |  |
| 21. | MD. SABER<br>ALAM              | Seed Certification Officer, District<br>Seed Certification Office,<br>Chapainawabganj   | 80   | ንଏ     |  |
| 22. | MD. RUHUL<br>AMIN              | Seed Pathologist, Regional Seed<br>Certification Office, Rangpur                        | ৩৬   | ৬১     |  |
|     |                                | Average                                                                                 | ৩৯.৭ | ৭৪.৯   |  |

# 11. Concluding session

# a) Feedback from the participants

After completion of the training two participants were asked to give their opinion on the training course on behalf of the twenty five participants. The feedbacks from the participants are given bellow:

The training course was time demanded. The topics were contemporary. Selected resource persons were skilled, knowledgeable and experienced of their concerned topic. Time

management during the course was appreciable. The training program was carried out in a disciplined way. Residential and dormitory facilities were good enough. There was five minutes break between two sessions to energize the participants. It would be better if more practical classes were included in the course. Duration of the course should be increased and number of session should be decreased. It would be better if the lecture sheets are provided prior to the session starts.

# b) Speech by the Chairperson

"Good seed, Good crop". Seed is the basic input on which the effectiveness of other inputs depends. Quality seed alone can give an increased production to t5he extent of 15-20% over the poor quality seed. At present about 20 % quality seed are supplied from public and private sector. Rest about 80% seeds used by the farmers is of their own which are of unknown quality or of poor quality. By using poor quality seeds farmers are getting poor yield which is the loss of the individual farmer as well as greater loss of the nation. Hope this training programme will enrich the participants with quality seed production and management techniques. The participants will be able to apply the acquired knowledge and skill in their respective working place.

### c) Awarding of the certificate

The certificates are distributed among the participants after successfully completion of the training.

### 12. Recommendation by the course management team

- a) Duration of the course should be increased according to the need of the participants.
- b) Management of dormitory and cafeteria should be improved for providing proper services.

# Speech by the Chairperson

To feed 160 million people of the country and to achieve sustainable food and nutrition security, we must develop high quality seed to increase yield. Quality seed is the main prerequisite for higher yield. Such as trueness to species and variety, capacity for high germination, free from diseases and free from admixture. Ensuring use of quality seed, crop production can be increased to an extent of 15-20%. This training program is time demanded. The participants will be able to apply their acquired knowledge and skill in their respective areas. Wish all of the participant's sound health and safe return to their work place.