Sustainable Soil Management Component (SSMC) of OCP Foundation's Agricultural Development Project in Bangladesh – Stage 1

MONTHLY REPORT | October 2017

INTERNATIONAL FERTILIZER DEVELOPMENT CENTER
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Table of Contents

Figure

Acronyms and Abbreviations

BARI	Bangladesh Agricultural Research Institute
BLB	Bacterial Leaf Blight
BPH	Brown Plant Hopper
BRRI	Bangladesh Rice Research Institute
DAE	Department of Agricultural Extension
FC	Field Coordinator
GAP	Good Agricultural Practice
GOB	Government of Bangladesh
GPS	Global Positioning System
ICARDA	International Center for Agricultural Research in the Dry Areas
IFDC	International Fertilizer Development Center
NPKSZnB	Nitrogen, Phosphate, Potassium, Sulfur, Zinc, and Boron
OFRD	On-Farm Research Division
PI	Panicle Initiation
SAAO	Sub-Assistant Agriculture Officer
SRDI	Soil Resource Development Institute
SSMC	Sustainable Soil Management Component
UAO	Upazila Agriculture Officer

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Introduction

The OCP Foundation signed an agreement with the International Fertilizer Development Center (IFDC) for implementation of the Sustainable Soil Management Component (SSMC) of OCP Foundation's Agricultural Development Project in Bangladesh – Stage 1 for a period of three years, from January 2017 to December 2019. SSMC is addressing many of the increasing, serious soil fertility concerns of the northern districts of Bangladesh while also helping farmers enhance crop productivity and profitability through the implementation of improved soil management methods in the overall context of market-sensitive good agricultural practices (GAPs).

OCP Foundation's comprehensive project also includes input from OCP Foundation and the International Center for Agricultural Research in the Dry Areas (ICARDA). The overall objective of this agricultural development project is "sustainable management of soil to enhance yields and farmers' incomes under resilient production systems in Bangladesh, resulting in food and nutrition security, improved health and livelihoods." The project includes the SSMC in addition to monitoring and capacity building inputs by OCP Foundation and work related to the promotion of GAPs, entrepreneurship, and farmer organizations by ICARDA. The project targets rice, maize, potato, pulses, and, to a lesser extent, wheat.

SSMC is being implemented with Government of Bangladesh (GOB) counterparts – Bangladesh Agricultural Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), Department of Agricultural Extension (DAE), and Soil Resource Development Institute (SRDI). Additionally, agro-input retailers are also involved to promote balanced plant nutrient and GAP solutions for improving crop productivity, crop profitability, and soil fertility. The primary approach of the project for IFDC is to conduct trials with BRRI and BARI and field extension activities with DAE. This monthly report shows the progress achieved in October 2017.

Technical Program Activities

As per the annual work plan, major technical activities conducted during the reporting month included the following, which are linked to cropping season and deliverables and aimed at achieving the project goal.

Field Trials

- The focal point of the BARI On-Farm Research Division (OFRD) reported that 11 on-station and on-farm non-rice crop field trial sites have been selected on the basis of crop suitability. All trial sites with selected crops are listed below.

  On-Station Trial:

  - OFRD Rangpur station, BARI (two) – maize and lentil
  - OFRD Bogra station, BARI (two) – wheat and potato

  On-Farm Trial:

  - Domar, Nilphamari (two) – potato and maize
  - Ulipur, Kurigram (two) – lentil
  - Dinajpur Sadar, Dinajpur (two) – potato and maize
  - Amnura, Chapai Noawabganj (one) – wheat

- Senior staff and field coordinator (FC) of SSMC and sub-assistant agriculture officer (SAAO) of DAE jointly monitored the *Aman* trial plot at Kurigram Sadar. It was abruptly affected by bacterial leaf blight (BLB) disease during the first week of October 2017. All treatment plots were affected except the T_1 plot.[1] The trial farmer promptly reported the BLB attack to the concerned BRRI scientist, who advised the necessary steps to take. The farmer mentioned that the BLB attack was not controlled. All the adjoining farmers' fields were also affected by BLB.

- The BRRI scientist visited the trial plot on October 17, 2017. He informed the farmer that BLB did not affect the trial plot significantly and would not hamper the crop yield. All the flag leaves of the crops were in good condition (green).

[1] Nitrogen, phosphate, potassium, sulfur, zinc, and boron minus lime (NPKSZnB -lime)

- The plot labels were surrounded by the crop and were not clearly visible. The main signboard was also damaged by an intruder. SSMC staff and the BRRI scientist advised the farmer to raise the plot labels above plant height and erect the main signboard again.

- Moisture stress was also noticed in the trial plots. SSMC staff and the BRRI scientist also advised the concerned farmer to irrigate all the plots soon. They also advised another application of insecticide to control the BLB attack.

- The BRRI focal point was briefed by the SSMC soil scientist about the current crop condition. The BRRI focal point mentioned that crop yield would not be significantly reduced. The SSMC soil scientist requested that he personally visit the trial site as soon as possible.

- The SSMC senior staff and FC also visited the *Aman* balanced fertilizer trial plot at Pirganj, Rangpur district. Crop condition was good. It was at milk to soft dough stage. It is expected that the crop will be harvested in 20-25 days. No pest or insect attack was observed. The BRRI scientist also visited this trial plot. The signboard and all the plot labels were properly placed.

- The SSMC senior staff and FC visited the BARI OFRD research station in Bogra and discussed SSMC on-station research activities with the OFRD scientists. A wheat trial plot will be established by the second week of November. The layout of the potato trial plot will be completed at the same time. Two on-station trials will be established at the Bogra research station. IFDC SSMC staff stay in close contact with the focal point of the BARI OFRD.

Field Demonstrations

- The SSMC agriculture extension specialist and FC have visited the *Aman* demonstration plots at Nilphamari Sadar of Nilphamari and Chirirbandar of Dinajpur district twice. They closely monitored the crops from panicle initiation (PI) to hard dough stages. Treatment differences were clearly visible and overall conditions were good. The crop at Nilphamari Sadar may be harvested in the first week of November 2017.

- The agriculture extension specialist and FC also visited the *Aman* demonstration plot at Saidpur and observed that it had been further damaged by a rodent attack. The demonstration farmer has now taken the necessary steps to control rodent attacks. Adjacent plots also had been affected by the attack.

- The SSMC agriculture extension specialist and FC have also visited eight *Aman* demonstration plots at Nilphamari Sadar, Saidpur, Kurigram Sadar, Dinajpur Sadar, Chirirbandar of Nilphamari, Kurigram, and Dinajpur districts, respectively, during PI to hard dough stages. Overall, crop conditions were good.

- After flood stress on the *Aman* crop, the condition of the Dinajpur Sadar demonstration plot has improved significantly. The SSMC agriculture extension specialist and FC and DAE field officers visited the plot and held discussions with the farmers during the heading to flowering stages. Patches of the crop that had been gap-filled were at heading stage, but the remaining areas of the plot were at flowering stage. Gaps had been filled with seedlings collected from adjacent plots (of the same variety) after removal of floodwater.

- The SSMC agriculture extension specialist and FC also visited four *Aman* demonstration plots at Shahjahanpur of Bogra, Natore Sadar of Natore, and Nachole and Gomostapur of Chapai Noawabganj districts, respectively. Crops were at milk to hard dough stage, and overall crop conditions were good. The crop in the demonstration plot at Shahjahanpur was at milk to soft dough stage and may be harvested after the second week of November.

- In Natore Sadar, the crop was monitored by the SSMC agriculture extension specialist during milk to soft dough stage. Due to heavy and continuous rainfall and strong winds, some crop lodging occurred in a few patches of the demonstration plot. That crop is expected to be harvested on November 23, 2017. The DAE deputy director of Natore and upazila agriculture officer (UAO) of Natore Sadar have requested to arrange crop cuts and a field day of that demonstration plot on the scheduled date. The DAE SAAO has been advised to keep in contact with the demonstration farmers regarding the crop cut date.

- In Nachole and Gomostapur, crops were at hard dough stage. Crop conditions in these demonstration plots were also good. In Nachole, the demonstration plot crop had patches of lodging and was slightly infested by brown plant hopper (BPH). However, prompt action by the farmers allowed the crop to recover. In Gomostapur and Nachole, crop cuts will be done on November 13 and 17, 2017, respectively.

- Six sites for demonstration plots on non-rice crops (maize, potato, and lentil) have been selected at Natore Sadar (one), Shahjahanpur (two), Gabtoli (one), Nachole (one), and Gomostapur (one) by the DAE SAAOs and SSMC FC. Five proposed demonstration sites at Natore Sadar, Shahjahanpur,

Gomostapur, and Nachole also were visited by the SSMC agriculture extension specialist and were suitable for demonstration plots. Of the 50 demonstration sites (excluding *Aman*), 45 have been identified in the selected upazilas.

Farmer Training

Seven batches of farmer training programs were conducted, with the participation of 210 men and women. Lentil, wheat, potato, and maize farmers attended the program during October 17-25, 2017. The training programs were conducted at Dinajpur Sadar of Dinajpur, Kurigram Sadar of Kurigram, Saidpur of Nilphamari, Gabtoli and Shahjahanpur of Bogra, Natore Sadar of Natore, and Nachole of Chapai Noawabganj districts. Of the 210 trained farmers, 37 (18 percent) were women. Of the 210 trained farmers, 168 were progressive potato, wheat, maize, and lentil farmers;[2] seven demonstration farmers selected earlier also attended the training programs. In addition, 35 agro-input retailers were also present. Modules during the training programs included PowerPoint and oral presentations, group discussions in a participatory approach, and practical demonstrations on identification techniques of adulterated micronutrient fertilizers. The SSMC senior staff and FC, DAE deputy director of Dinajpur, Nilphamari, Bogra, Natore, and Chapai Noawabganj districts, and DAE UAOs of Dinajpur Sadar, Saidpur, Gabtoli, Shahjahanpur, Natore Sadar, and Nachole attended the programs as resource persons. Concerned SAAOs also attended. The number of farmers participating in the seven programs during October 2017 are presented below.

Sl. No.	Training Venue	Male Farmers	Female Farmers	Fertilizer Retailers	Demo Farmers	Total
1.	Training Hall, UAO Office, DAE, Dinajpur Sadar, Dinajpur	19	5	5	1	30
2.	Training Hall, DD Office, DAE, Kurigram	19	5	5	1	30
3.	Training Hall, UAO Office, DAE, Saidpur, Nilphamari	19	5	5	1	30
4.	Training Hall, DAE, Gabtoli, Bogra	15	9	5	1	30
5.	Training Hall, DAE, Shahjahanpur, Bogra	19	5	5	1	30
6.	Training Hall, DAE, Natore Sadar, Natore	20	4	5	1	30
7.	Auditorium, Upazila Complex, Nachole, Chapai Noawabganj	20	4	5	1	30
	Total	**131**	**37**	**35**	**7**	**210**

[2] Progressive farmers are those who are willing to use the good farm practices (GAPs, such as using good quality seed and balanced doses of fertilizers, maintaining proper spacing from line to line and plant to plant, integrated pest management [IPM] practices with improved technologies, etc.), establish their own demonstration plots, share their knowledge, and encourage their neighboring farmers to use GAPs along with improved technologies.

Other Activities

- The SSMC FC collected global positioning system (GPS) coordinates of seven farmer training venues at Dinajpur Sadar, Kurigram Sadar, Saidpur, Gabtoli, Shahjahanpur, Natore Sadar, and Nachole. An updated SSMC project location map prepared by the IFDC Data Management Unit shows all 15 of the farmer training venues (Figure 1).

- The SSMC FC collected GPS coordinates of 217 trained farmers' locations (residences) from Gabtoli and Shahjahanpur, Dinajpur Sadar, Natore Sadar, and Nachole with the assistance of DAE field officials. The coordinates will be provided in the next monthly report.

- In three demonstration sites at Gabtoli and Shahjahanpur for maize and potato, demonstration farmers used lime (dolomite) before sowing/planting the crops.

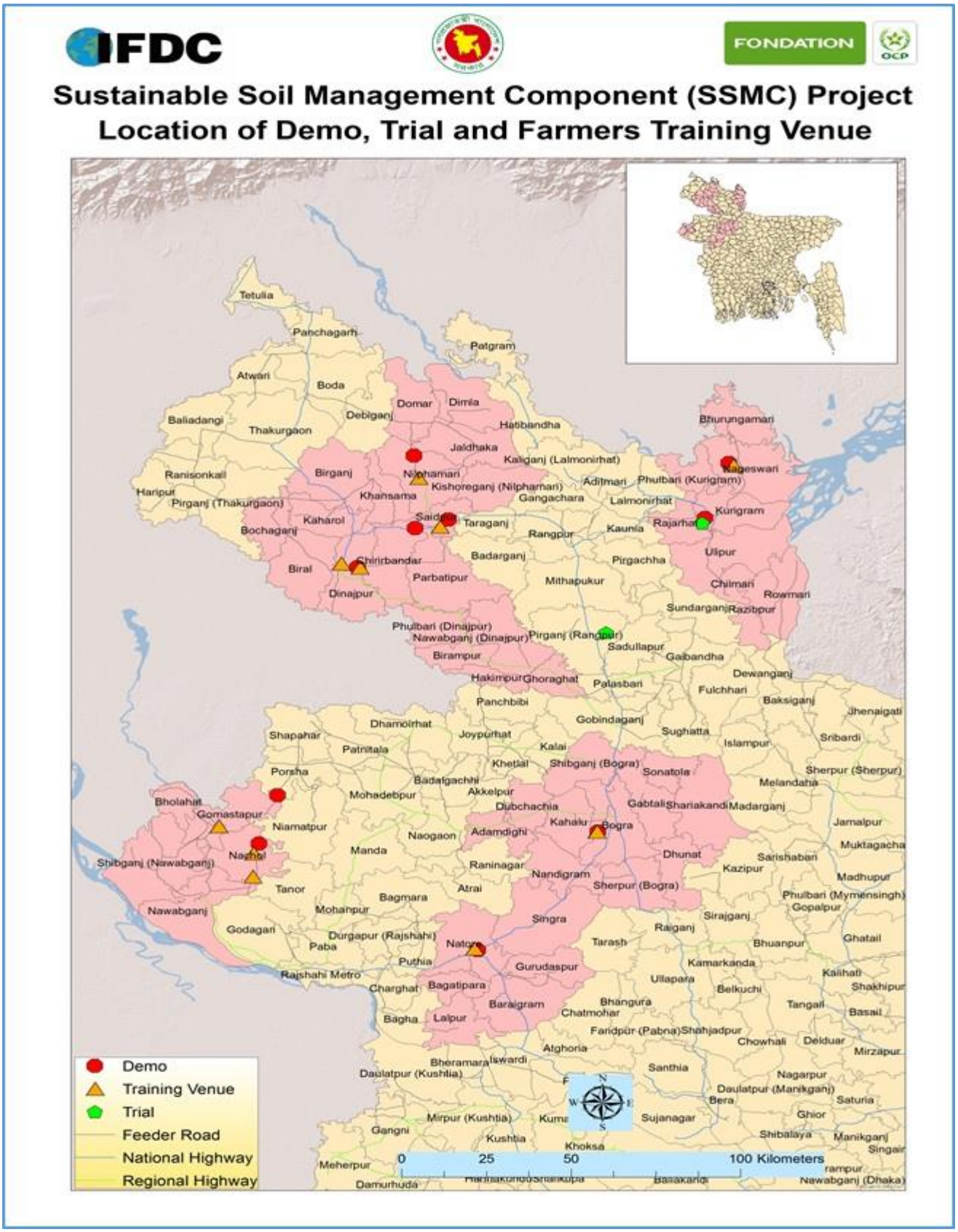

Figure 1. GPS Coordinates[3]

[3] SSMC FC is still collecting data and therefore the map is incomplete.

Photographs of SSMC Activities

Crop conditions in *Aman* trial plots at Pirganj of Rangpur and Kurigram Sadar in October 2017

DAE SAAO, SSMC FC, and demonstration farmer monitor *Aman* crop conditions at Nilphamari Sadar in October 2017

Motivational activity for local farmers to select a potato demonstration site by SSMC staff and DAE SAAO at Shahjahanpur in October 2017

Participation of lentil growers in farmer training program at Natore Sadar in October 2017

Demonstration farmer using lime before sowing maize at Shahjahanpur in October 2017