



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

MONTHLY REPORT | FEBRUARY 2018



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Acronyms and Abbreviations

BARI	Bangladesh Agricultural Research Institute
BRRI	Bangladesh Rice Research Institute
DAE	Department of Agricultural Extension
FC	Field Coordinator
GAP	Good Agricultural Practice
GOB	Government of Bangladesh
ha	hectare
ICARDA	International Center for Agricultural Research in the Dry Areas
IFDC	International Fertilizer Development Center
m	meter
mt	metric ton
NPSB	Nitrogen, Phosphate, Sulfur, and Boron
OFRD	On-Farm Research Division
SRDI	Soil Resource Development Institute
SSMC	Sustainable Soil Management Component
TSP	Triple Superphosphate
UAO	Upazila Agriculture Officer
Zn	Zinc

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

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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 Resources 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 February 2018.

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 deliverable and aimed at achieving the project goal.

Field Trials

- Senior staff and field coordinator (FC) of SSMC monitored two on-station maize and lentil trial plots at the BARI Regional Research Station, On-Farm Research Division (OFRD), Rangpur, and three on-farm trial sites on lentil and *Boro* at Ulipur of Kurigram and Pirganj of Rangpur. At OFRD, BARI station, Rangpur, maize and lentil crops were found in good condition. The TSP-Zn treatment looks better in the lentil crop, but in maize, the NPSB fertilizer treatment looks better than the other treatments. In the on-farm trial for lentil at Ulipur, Kurigram, the crop was found stunted in seven sub-plots under the tree shed condition in the balanced fertilizer trial. In the macro- and micronutrient omission trial plots, the lentil crop was in good morphological condition. Scientific assistants were advised to weed the plot soon.
- In on-farm trial plots at Pirganj of Rangpur, the *Boro* crop was at recovery stage. Overall crop condition was good. Due to excess irrigation water, some plots were flooded. The farmer was advised to irrigate the plot in a controlled way.
- Senior staff and FC of SSMC also monitored two on-farm trial sites on maize and potato at Sadar of Dinajpur. The potato crop was nearly ready to harvest. The entire vegetative portion was already cut from the trial plots during the last week of February. The maize crop was in good condition, and it was at flowering to cob formation stage. Treatment effect was clearly noticed.

Field Demonstrations

- In this reporting month, four SSMC *Boro* demonstrations were established at Chirirbandar and Sadar of Dinajpur district and Gabtoli and Shahjahanpur of Bogra district. Layout, fertilization, and seedling transplantation were done properly. Concerned sub-assistant agriculture officers (SAAOs) of DAE and SSMC senior staff and FC actively participated in all the activities. In the various locations, seedling age varies from 32 to 48 days. Detailed information on the four demonstrations is given below.

Sl. No.	District	Upazila	Crop		Target	Achievement	Date of Transplantation
			Name	Variety			
1.	Bogra	Gabtol	Boro	BRRIdhan 28	1	1	February 1, 2018
2.	Bogra	Shahjahanpur	Boro	BRRIdhan 28	1	1	February 8, 2018
3.	Dinajpur	Sadar	Boro	BRRIdhan 28	1	1	February 3, 2018
4.	Dinajpur	Chirirbandar	Boro	BRRIdhan 28	1	1	February 4, 2018
			Total		4	4	

- Senior staff and FC of SSMC, focal point, upazila agriculture officer (UAO), and SAAO of DAE monitored all the demonstration plots on potato, maize, wheat, lentil, and *Boro* at Saidpur and Sadar of Nilphamari, Sadar and Chirirbandar of Dinajpur, Sadar and Nageswari of Kurigram, Gabtoli of Bogra, Lalpur of Natore, and Gomostapur and Nachole of Chapai Noawabganj districts throughout the month. Wheat and lentil were at flowering stage. All the maize demo plots were in good condition, and crops were in flowering to cob formation stage during the last week of February. *Boro* crops were also in good condition and at tillering stage during the last week of February. In the OCP fertilizer treatment sub-plot, crop condition was better than other treatment plots in almost all the demonstrations. Potatoes were at a matured stage in various demonstration plots and gradually harvested as per guidelines.
- In some potato demonstration plots, crops were affected by early and late blight. Control measures have been taken in all the potato demonstration plots. In some lentil demonstration plots, a few crops became whitened in patches and died due to stemphylium disease. Overall crop condition was good. Control measures have been taken in all the demonstration plots.
- During the last week of February, it was observed that in Gomostapur one lentil demonstration plot was badly affected by stemphylium disease. In Dinajpur Sadar, one wheat demonstration plot was significantly affected by a rat attack. Wheat was lodged in one demonstration plot at Gabtali due to strong winds and surges. All other demonstration plots were in good condition.

Farmer Training

- In this reporting month, four batches of farmer training programs were conducted with 120 progressive farmers. The training programs were conducted at Gabtali and Shahjahanpur of Bogra, Chirirbandar of Dinajpur, and Sadar of Nilphamari districts. Of the 120 trained farmers, 77 were men and 26 (22%) were female progressive potato farmers;¹ four demonstration farmers also attended the training program. In addition, 17 agro-input retailers were also present. Modules during the training

¹ Progressive farmers are those who are willing to use the good farm practices (GAPs – such as using good quality seed, 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 demo plots, share their knowledge, and encourage their neighboring farmers to use GAPs along with improved technologies.

program included PowerPoint and oral presentations, group discussions using the participatory approach, and practical demonstrations on identification techniques of adulterated micronutrient fertilizers. Senior staff and FC of SSMC and AVPI; the IFDC Deputy Director of Asia; DAE Deputy Director/District Training Officers from Bogra, Dinajpur, and Nilphamari districts; DAE UAOs/Agriculture Extension Officers from Gabtali, Shahjahanpur, Dinajpur Sadar, and Nilphamari Sadar attended the program as resource persons. Concerned SAAOs also attended the programs. At this point, a total of 39 farmer training programs on potato, maize, lentil, wheat, and *Boro* have been completed. The number of farmers present for the farmer training programs is provided below.

Sl. No.	Training Venue	Participants			
		Male	Female	Fertilizer Retailer	Total
1.	Farmer's premises, Keshaberpara, Gabtali, Bogra	17	8	5	30
2.	Potato demonstration site, Subrul, Shahjahanpur, Bogra	22	5	3	30
3.	Upazila Parishad Auditorium, Chirirbandar, Dinajpur	21	4	5	30
4	Training Room, UAO Office, Sadar, Nilphamari	17	9	4	30
	Total	77	26	17	120

Crop Cuts

- Seven crop cut programs from potato demonstration plots have been completed by IFDC SSMC staff and DAE at Shahjahanpur of Bogra, Chirirbandar of Dinajpur, and Sadar of Nilphamari districts during February 5-27, 2018. The IFDC Deputy Director of Asia, SSMC senior staff and FC, IFDC Senior Data Management Specialist, SSMC FCs, DAE UAO and SAAOs, Shahjahanpur, and local farmers attended the program. In Gabtali, Chirirbandar, Dinajpur Sadar, and Nilphamari Sadar, the DAE Deputy Director of Bogra, DAE UAOs/Agriculture Extension Officers and SAAOs, and demonstration farmers, as well as local farmers, participated in the crop cut program in various locations. At all the sites, crop cuts were done from one sample site in each demonstration sub-plot. The area of each sample site was 20 m² (5 m x 4 m). The variety used was BARI Alu 25 (Asterix). In all demonstration sites, the lowest yield observed was in the farmer practice plot and the highest was in the OCP compound and straight fertilizer treatment plots. Recommended fertilizer treatment plots also performed better than farmer practice plots. In Nilphamari Sadar, the crop was significantly affected by late blight disease. Of the 10 demonstration plots, crop cuts have been completed in seven plots at various sites. The yield was assessed in metric tons per hectare (mt/ha). Details are presented below.

Sl. No.	Location	Variety	T1 (Farmer Practice)	T2 Reco. Fert. Dose (without lime)	T3 Reco. Fert. Dose (with lime)	T4 OCP Compound + Straight Fertilizer (with lime)
			mt/ha			
1.	Gab tali, Bogra	Asterix	22.9	26.5	30.7	33.1
2.	Gab tali, Bogra	Asterix	31.0	31.6	30.9	35.1
3.	Shahjahanpur, Bogra	Asterix	24.6	29.5	34.7	35.6
4.	Shahjahanpur, Bogra	Asterix	27.0	35.0	32.5	42.8
5.	Sadar, Dinajpur	Asterix	37.0	38.0	35.5	44.0
6.	Chirirbandar, Dinajpur	Asterix	24.2	24.5	23.5	28.4
7.	Sadar, Nilphamari	Asterix	18.0	16.5	17.0	19.0

The average potato yield of 2017-18 is presented in Figure 1. The performance of OCP compound fertilizer along with straight fertilizer (muriate of potash) yielded the highest production in all districts; in Dinajpur, yield was 36.80 mt/ha compared to the farmer practice plot with 30.60 mt/ha. However, the demonstration plots in Dinajpur did not significantly respond to lime in the first year due to less acidic soil. In Bogra and Nilphamari districts, though, crop production increased significantly in response to lime.

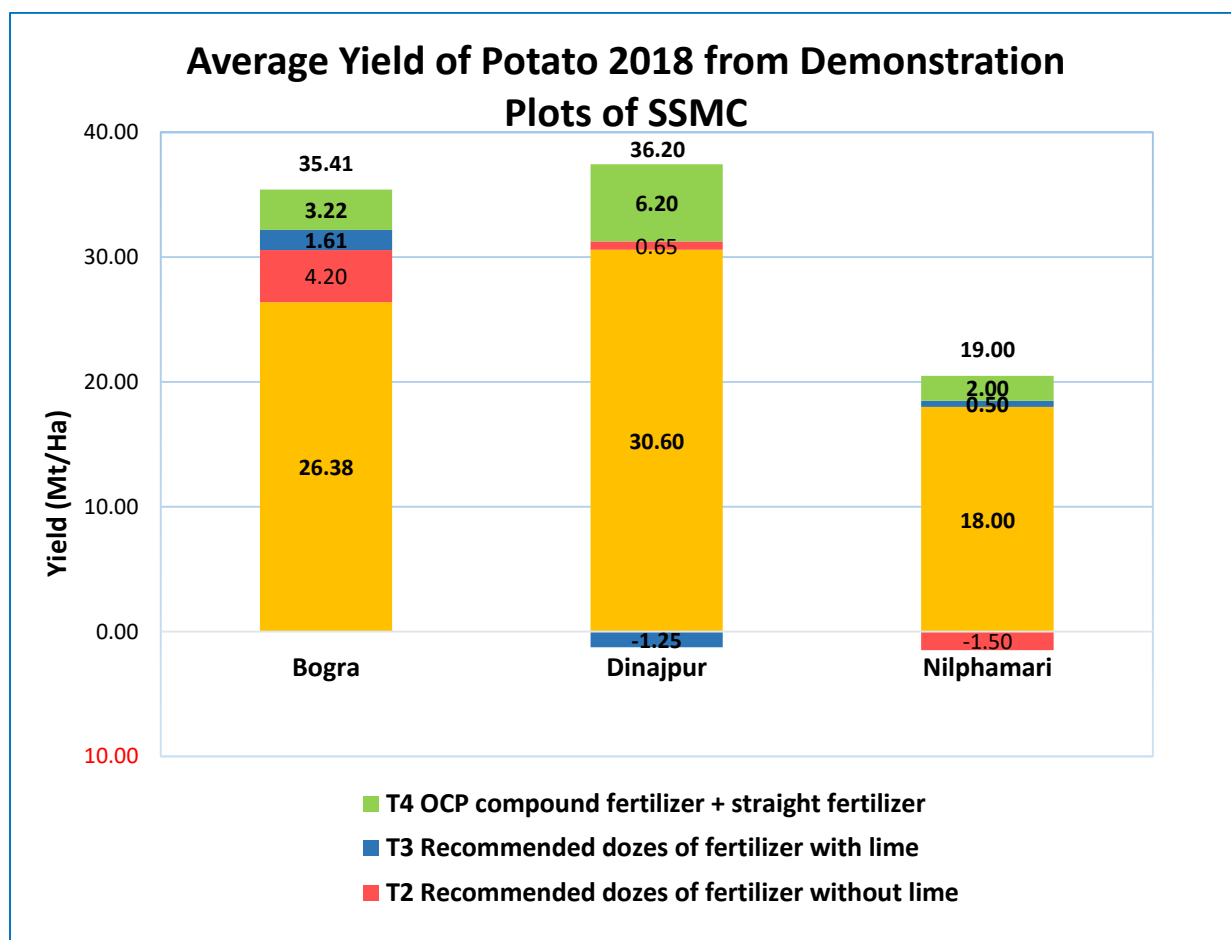


Figure 1. Average Yield of Potato Demonstrations

Field Days

- Four field day programs were organized by SSMC and DAE after crop cuts were completed from each potato demonstration plot at Gabtali and Shahjahanpur of Bogra and Chirirbandar and Sadar of Dinajpur districts during February 7-26, 2018. The IFDC Deputy Director of Asia, senior staff of IFDC and FC of SSMC, UAO and SAAOs of DAE, Shahjahanpur, and local farmers attended the program on February 25, 2018. In other locations, deputy directors, UAOs, and SAAOs of DAE and senior staff and FC of SSMC, the Union Parishad Chairman, and demonstration farmers, as well as local farmers, attended the program. About 100 men and women participated in each program.

Other Activities

- IFDC's Data Management Unit arranged an orientation program at Rajshahi on the monitoring and evaluation (M&E) plan and data collection methodologies. The training focused on collecting data through a village survey and a sample household survey as per set format. IFDC senior data management specialist conducted the training, and SAAOs and FC of SSMC attended the program.
- In the reporting month, FC of SSMC and SAAOs of DAE interviewed 120 farmers using structured questionnaires in 10 upazilas. A total of 116 data collection sheets were submitted to IFDC's Data Management Unit in Dhaka for data analysis.
- Figure 2 provides a map showing the trial, demonstration, and farmer training venues using geographical positioning system (GPS) coordinates.

Sustainable Soil Management Component (SSMC) Project Locations of Demo, Trial and Training Venue

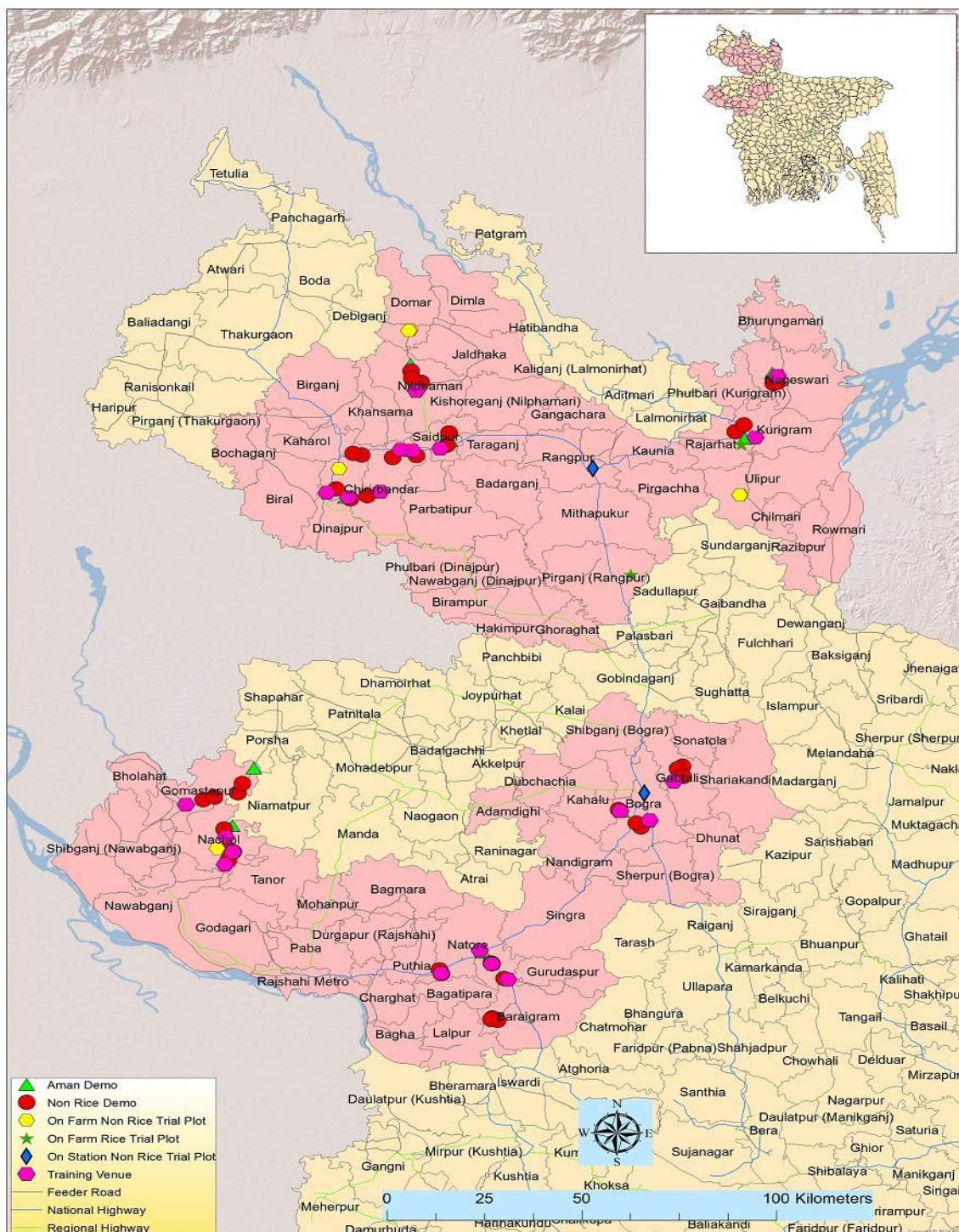


Figure 2. GPS Coordinates of SSMC Project Locations – Demonstrations, Trials, and Training Venues

Photographs of SSMC Activities



On-farm field trial on *Boro* at Pirganj, Rangpur, on February 6, 2018



Senior Staff of SSMC monitored maize demonstration plot at Dinajpur Sadar on February 26, 2018



IFDC Deputy Director of Asia at a farmer training program in Shahjahanpur, Bogra, on February 25, 2018



Field day on potato demonstration at Chirirbandar, Dinajpur, on February 27, 2018



IFDC Deputy Director of Asia at a potato crop cut in Gabtali, Bogra, on February 7, 2018



Potato harvest at a demonstration plot in Shahjahanpur, Bogra, on February 25, 2018