



# Accelerating Vegetable Productivity Improvement (AVPI) Monthly Report (June 2017)

Funded by the Walmart Foundation



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## Acronyms and Abbreviations

AVPI	Accelerating Vegetable Productivity Improvement
DAE	Department of Agricultural Extension
FDP	Fertilizer Deep Placement
FMO	Field Monitoring Officer
GAP	Good Agricultural Practice
ha	hectare
IFDC	International Fertilizer Development Center
IPM	Integrated Pest Management
kg	kilogram
mt	metric ton
NGO	Non-Governmental Organization
NPK	Nitrogen, Phosphate, and Potassium
SAAO	Sub-Assistant Agriculture Officer
Tk	Bangladeshi Taka
UDP	Urea Deep Placement

# Accelerating Vegetable Productivity Improvement (AVPI) Monthly Report (June 2017)

## Highlights

### Introduction

The Accelerating Vegetable Productivity Improvement (AVPI) project is the second partnership between the Walmart Foundation and the International Fertilizer Development Center (IFDC) to improve the livelihoods of low-income women vegetable and fruit farmers in Bangladesh. The project has three objectives:

- Objective 1: Consolidate and enhance the benefits of the 2013-15 IFDC-Walmart Foundation intervention by expanding the use of fertilizer deep placement (FDP) and related good agricultural practices (GAPs).
- Objective 2: Introduce and pilot a second improved vegetable production technology – the use of polynet houses with trickle irrigation – to participating women farmers.
- Objective 3: Improve the market knowledge of, and market information access for, women farmers.

The project targets the horticulture sub-sector (vegetables and fruits), which is particularly relevant to women farmers. The project is expected to reach an estimated 52,000 beneficiaries. This report contains a monthly update covering project activities in June 2017.

### Results

- **Good Management Practices, Including FDP Technology, in Winter 2016-17:** The project activities began in November 2016 with collecting information on GAP (use of good quality seed, balanced doses of fertilizers, integrated pest management [IPM] practices, maintaining proper spacing in crop plantation, improving water use efficiency, etc.) and FDP coverage from 28,360 women beneficiaries who were trained under IFDC-Walmart Foundation activities during 2013-15. Transplantation of winter season horticultural crops for 2016-17 was completed in January 2017, and interviews of all 28,360 beneficiaries by AVPI field-level staff were

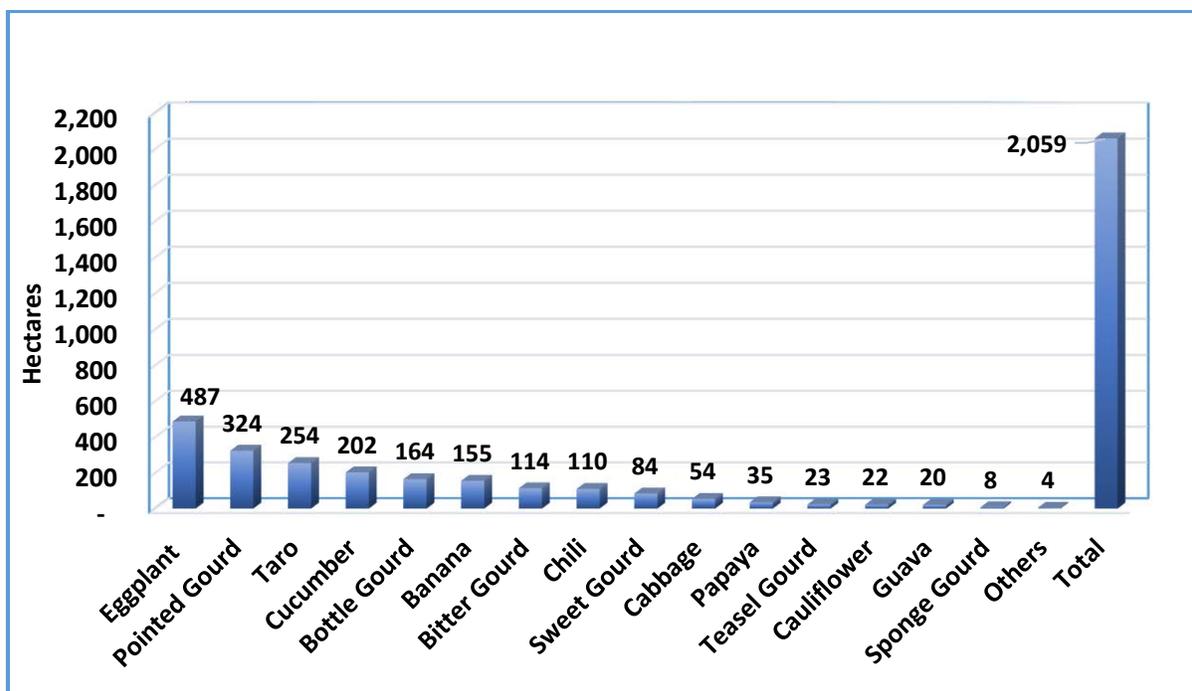
completed in May. The analyzed data shows that 21,892 of the 28,360 beneficiaries, or 77 percent, cultivated horticultural crops in the 2016-17 winter season.<sup>1</sup> Of these, 90 percent (19,702) used improved varieties, practiced IFDC's recommendations for spacing of seeds/seedlings, and applied a balanced dose of fertilizers and IPM practices. However, of the 19,702 women who applied GAPs, 7,066 women farmers (32 percent) also applied FDP technology on their horticultural crop fields in winter 2016-17. These women farmers have applied FDP on 765 hectares (ha) of land. Thus, each beneficiary applied FDP technology to more than 27 decimals of land, on average. In the last winter season of the IFDC-Walmart Foundation's first partnership (2014-15), the average was less than 24 decimals per beneficiary. This suggests that a number of IFDC-Walmart Foundation-trained beneficiaries continue to practice GAPs and FDP technology, obtaining good yields from their crops and, therefore, improving the nutrition and livelihoods of their family members through increased income. IFDC is organizing a motivational program for this group to increase the number of women using GAPs and FDP technology.

- **Good Management Practices, Including FDP Technology, in Summer 2017:** In the AVPI cluster villages, farmers transplanted summer vegetables from February until May 2017. According to weekly monitoring reports, the AVPI direct beneficiaries have brought about 2,058.63 ha of summer 2017 horticultural crops under GAPs and FDP technology through May 2017, against the target of 1,885 ha. Therefore, 109 percent of the targeted area for summer 2017 was brought under GAPs and FDP technology. Details by crop are provided in Figure 1.<sup>2</sup> This will be validated through a sample household survey and a village survey of key informants. Both surveys will begin in July, and results will be published in the monthly report of September 2017.

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<sup>1</sup> The reasons for dropout may be due to migration, marriage, death, loss of vegetable field, etc.

<sup>2</sup> Other vegetables include watermelon, yard long bean, okra, and elephant foot.



**Figure 1. GAP and FDP Coverage Area (ha) by Crop**

- FDP Product Production:** During June 2017, a total of 9.10 metric tons (mt) of urea deep placement (UDP) products (briquettes commonly known as *Guti* urea) were produced. To date, 1,462.45 mt of *Guti* urea have been produced. In addition, 6 mt of nitrogen, phosphate, and potassium (NPK) *Guti* were also produced. To date, 330.8 mt of NPK *Guti* were produced for the summer 2017 vegetable and fruit season. In total, 1,793.25 mt of *Guti* fertilizer products were manufactured for summer vegetables in the project locations.

### **A Successful Demo Farmer Leads Other Farmers to a Better Future**

Bilkis Begum, 35, a vegetable farmer of Shubidpur village, Sadar upazila, Meherpur, has grown seasonal vegetables in her family’s small yard for the past 18 years since her marriage. She completed school through grade VIII. Her husband, Amirul Islam, is a farmer and a local electrician. They have two daughters, who are students in grades VIII and V.

Begum and Islam have 170 decimals of cultivable land (5 decimals of their own and 165 decimals of rented land). They cultivate rice on 66 decimals and various vegetables (eggplant, cauliflower, cabbage, country bean, etc.) on 104 decimals of land. Her husband was not interested in applying improved cultivation practices in their vegetable fields. In 2013-14, they produced 2.6 mt of

eggplant on 33 decimals of land, 1.6 mt of country bean on the same area, 3 mt of cabbage on 23 decimals, and 1 mt of cauliflower on 15 decimals.

After her family's consumption, the remaining crops (between 90 and 94 percent) were sold in the market, earning a gross income of Tk 128,800.

### ***A Season for Change***

In 2014, Begum formed a group of vegetable farmers with 40 women for vegetable cultivation. In 2015, she and her group participated in a two-day IFDC-Walmart Foundation training program on vegetable production. They learned how to effectively cultivate vegetables using good varieties of seeds/saplings, optimum time of planting, spacing (plant-to-plant and row-to-row) for increased vegetable production, balanced fertilization, appropriate irrigation management, FDP technology, and IPM techniques to control disease and insects. This training also taught them about marketing their products effectively and the nutritional benefits of vegetable crops.

After the training, she and her group members applied the good farm practices they learned from the IFDC-Walmart Foundation training in their vegetable fields. She continued motivating other women farmers to use GAPs and FDP technology. According to Begum, yields of all the crops increased in 2015-16 after she applied the knowledge she gained from the training program. She produced 3.7 mt of eggplant on 33 decimals of land, 3 mt of country beans on the same area; 4.5 mt of cabbage on 23 decimals, and 2 mt of cauliflower on 15 decimals of land. Compared to 2013-14, her crop yields increased by almost double in 2015-16. As a result, she earned a gross income of Tk 228,500 and a net incremental income of about Tk 100,000 from the same amount of land. Begum said, "This is incredible!"

### ***Bilkis Begum as a Demo Farmer***

In January 2017, the AVPI project selected Begum as a cucumber demonstration farmer. She attended the orientation program at IFDC's AVPI Jessore office. Following orientation, she selected 10 decimals of her vegetable field for growing cucumber as a demonstration crop. Her demo plot was divided into two sections – one with 5 decimals using the traditional practice of



**Bilkis Begum, AVPI demo farmer, smiling at her husband after a good cucumber harvest from her UDP demonstration plot.**

applying broadcast urea and the other with 5 decimals for deep-placing urea briquettes, or *Guti* urea. She established the plots with the assistance of AVPI field staff and the sub-assistant agriculture officer (SAAO) of the Department of Agricultural Extension (DAE). The demonstration plot was established on March 28, 2017, and *Guti* urea was deep-placed on April 4, 2017. The purpose of the demo plot was to compare the results of GAPs using urea deep placement (UDP) with those of farmers' practice using broadcast urea. AVPI organized a field day for non-users of GAPs and UDP technology to show the difference in yield rates from these two demo plots. Plant heights of cucumber were markedly higher in the *Guti* urea plots, and the crop's color and vigor were much better than the prilled urea plot.

Begum mentioned to her fellow farmers and neighbors who attended the field day that she had used less urea in her cucumber UDP plot, compared to the broadcast urea plot, but obtained a yield more than 100 kilograms (kg) greater from the UDP plot. She further explained that the cucumbers were larger and more uniform in the UDP plot, compared to the broadcast urea plot, and sold at a higher price. Her husband assisted her with the demonstration plot setup, and her daughter occasionally helped pick the cucumbers. The entire family was happy with the higher yields from the UDP plot, and they plan to use GAPs and UDP in all 3 acres of their land. Nearby farmers were excited to see the results and expressed an interest in using GAPs with UDP in their various horticultural crops next season.

The yield from the UDP plot was 647.6 kg/ha, compared to 546.8 kg/ha from the broadcast urea plot, indicating the incremental yield from the UDP plot was more than 18 percent. The cucumber

was sold at an average price of Tk 14/kg. This rate could have been even higher if the cucumber had been cultivated a month late to cover the month of Ramadan.

Family and financial circumstances offered Begum the opportunity to step out of her traditional role as housewife. She demonstrated to others in her village the extent to which women can contribute with proper training. She is now a successful farmer, who is helping lead other farmers to a better future.

## Technical Activities

- FDP Demonstration Field Day:** In the reporting month of June 2017, AVPI organized four FDP demonstration field day programs (three with bitter gourd and one with cucumber) of summer vegetable crops. The purpose of the field day programs was to compare results of GAPs using UDP technology with those of farmers' practice using broadcast urea. A total of 200 farmers (160 female and 40 male) visited the



Farmers visit the bitter gourd demo plot at Chaugachha upazila in Jessore district to see the crop conditions.

demonstration plots to see the crop conditions. After observation of UDP and broadcast urea plots, the crops from both 5-decimal plots were harvested and weighed separately in view of the participants. The yield results from these demonstration plots were compared and presented to the participants (Table 1).

**Table 1. Yield Comparison Between UDP and Broadcast Urea Plots**

District	Upazila	Crop	Yield (kg)		Yield Difference	
			UDP Plot	Broadcast Plot	kg	Percentage
Bhola	Char Fasson	Bitter gourd	33.80	22.50	11.30	50
Jessore	Jessore Sadar	Bitter gourd	15.40	8.30	7.10	86
Jessore	Chaugachha	Bitter gourd	16.30	12.50	3.80	30
Jhenaidah	Maheshpur	Cucumber	26.50	17.20	9.30	54

During the field days, AVPI women demonstration farmers, who established their demonstrations plots with the assistance of AVPI staff, shared their experiences with other farmers who did not practice GAPs with UDP. They stated that they had used less urea in UDP plots, compared to the broadcast urea plots, but obtained a much higher yield. The produce was larger and more uniform in the UDP plots, compared to the broadcast urea plots. They also explained that their husbands and other family members assisted with demonstration plot setup, day-to-day management, and harvesting of the crops. The attending farmers were happy to hear the reports from these demonstration farmers and expressed their interest in using GAPs with UDP in their various horticultural crops next season. Upazila agriculture officers, agriculture extension officers, SAAOs, the DAE sub-assistant plant protection officer, the Union Parishad chairman/member, NGO representatives, media representatives, AVPI senior officers, and field-level staff attended these programs. A total of five field days, against the target of 10, have been organized thus far in summer 2017.

- **Follow-Up of 2013-15 IFDC-Walmart Foundation-Trained Women Vegetable and Fruit Farmers:** As of June 2017, data collection from 28,360 direct beneficiaries was completed to assess the degree to which previously trained farmers continued to use GAPs and FDP technology in horticultural crops in winter 2016-17.
- **Village Monitoring Survey:** As of June 2017, cluster village monitoring surveys for all 233 AVPI villages were completed for winter 2016-17. The analyzed data on GAP and FDP usage by AVPI direct female beneficiaries are presented in Table 2.

**Table 2. Use of GAP and FDP Technology by AVPI Direct Female Beneficiaries**

Technology	Total Trained Farmers*	Total Horticulture Crop Growers*	Total Users of Technology	Percent of Users	Total Area under Technology (ha)	Average Area by Each Beneficiaries	
						Hectares	Decimals
GAP	28,360	21,892	19,702	90	3,150	0.16	40
FDP	28,360	21,892	7,066	32	765	0.11	27

Sources: AVPI cluster village monitoring survey and \* Trained farmers follow-up survey.

- **Farmers' Field Crop Cuts:** As of June 2017, a total of 14 farmers' field crop cuts were completed, against the target of 28, in summer 2017. There were six cucumber, five bitter gourd, and three teasel gourd crop cuts. The purpose of the farmers' field crop cuts was to

gather yield results and total production costs for using GAPs, including UDP, as well as farmers' practice using broadcast urea. The gross margin analysis will be done after completion of all 28 farmers' field crop cuts and collection of yield data and production costs. AVPI field monitoring officers (FMOs) and SAAOs of DAE jointly conducted the vegetable crop cuts.

- **Final Harvest of FDP Demonstration Plot:** As of June 2017, a total of four final harvests (three cucumber and one bitter melon) of FDP demonstration plots, against the 15 established demonstration plots, were completed.
- **Leaflet Design for Farmer Training Program:** Design of pictorial leaflets for the farmer training program has been finalized and is ready for printing.
- **Seasonal Work Plan for Winter 2017-18:** The draft seasonal work plan for winter 2017-18 has been completed and will be finalized after the orientation meeting and discussion with all field staff.

Table 3 provides information on the activities accomplished as of June 2017 against targets for summer 2017.

**Table 3. Activities Conducted Through June 2017**

Activities	Unit	AVPI Progress Through June 2017			Remarks
		Target	Actual	%	
<b>Objective 1: Fertilizer Deep Placement (FDP)/Good Agricultural Practices (GAPs)</b>					
Training manuals	Number	2	2	100%	
Demonstration plot protocols for summer crops	Number	3	3	100%	
Farmer training on GAPs and FDP	Number	50	50	100%	
Demonstration farmer orientation training	Number	1	1	100%	
Establishment of demonstration plots	Number	15	15	100%	
FDP demonstration field days	Number	10	5	50%	
Farmers' field crop cuts	Number	28	14	50%	
Motivational meetings with beneficiaries trained under the 2013-15 IFDC-Walmart Foundation partnership	Number	50	50	100%	
Motivational workshops and operational training for agro-input retailers/briquetting machine owners	Number	2	2	100%	
Design and development of technical booklets, leaflets, flyers, posters, signboards, flags, promotional bags, and caps	Number	1	1		Continued
<b>Objective 2: Piloting Polynet Houses With Trickle Irrigation</b>					
Conduct informal market studies on seedling markets for fruits and vegetables	Number	1	1	100%	
<b>Objective 3: Improving Farmer Market Knowledge/Access to Market Information</b>					
Conduct a vegetable market information study	Number	1	1	100%	
Conduct a survey to understand the current sources of market information for women vegetable and fruit farmers	Number	1	1	100%	
Conduct vegetable marketing seminars	Number	6	4	67%	

The media campaign for AVPI activities during June 2017 is shown in Table 4, covering daily national newspapers, local print media, and online news.

**Table 4. Newspaper and Television Reports, News, and Publicity, June 2017**

Sl. No.	News Heading	Media	Date/Time	Remark
<b>A. Print Media</b>				
<b>(i) National News Paper</b>				
1.	Field Day Program on Cucumber at Maheshpur upazila in Jhenaidah district	The Daily Manobkantha	June 21, 2017	Hard copy of news documented.
<b>(ii) Local News Paper</b>				
1.	Field Day Program on Bitter Gourd at Char Fasson upazila in Bhola district	The Daily Bhorer Angikar	June 15, 2017	Hard copy of news documented.
2.	Save production cost of farmer by using <i>Guti</i> urea: speaker at bitter gourd field day program at Char Fasson	The Daily Bhorer Samoy	June 15, 2017	Hard copy of news documented.
3.	Field Day Program on Bitter Gourd Cultivation at Jessore Sadar upazila in Jessore district	The Daily Spandan	June 15, 2017	Hard copy of news documented.

## Reporting

The AVPI Monthly report of May 2017 was submitted to the Walmart Foundation.