Accelerating Vegetable Productivity Improvement (AVPI)

ANNUAL REPORT | NOVEMBER 2017 – OCTOBER 2018

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Acronyms and Abbreviations

AAPI	Accelerating Agriculture Productivity Improvement
AVPI	Accelerating Vegetable Productivity Improvement
BBS	Bangladesh Bureau of Statistics
BCIC	Bangladesh Chemical Industries Corporation
BMO	Briquetting Machine Owner
DAE	Department of Agricultural Extension
FC	Field Coordinator
FDP	Fertilizer Deep Placement
FMO	Field Monitoring Officer
GAPs	Good Agricultural Practices
GOB	Government of Bangladesh
GPS	Global Positioning System
ha	hectare
ICM	Integrated Crop Management
IFDC	International Fertilizer Development Center
IPM	Integrated Pest Management
kg	kilogram
M&E	Monitoring and Evaluation
M&S	Mymensingh and Sherpur
mt	metric ton
NGO	Non-Governmental Organization
NPK	Nitrogen, Phosphorus and Potassium
SAAO	Sub-Assistant Agriculture Officer
SWOT	Strengths, Weaknesses, Opportunities, and Threats
Tk	Bangladeshi Taka
UDP	Urea Deep Placement
USAID	United States Agency for International Development

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Annual Report for Year 2
November 2017 – October 2018

Introduction

On August 23, 2016, the Walmart Foundation signed a contract with the International Fertilizer Development Center (IFDC) for the implementation of the "Accelerating Vegetable Productivity Improvement" (AVPI) project for two years. However, the project started its implementation in November 2016. Due to an issue with the dates listed on the original agreement, the project agreement period was unintentionally listed as shorter than two years, to be completed by February 2018. However, both IFDC and the Walmart Foundation discussed the issue, and an amendment was signed on August 14, 2017, extending the project period through December 2018.

Drawing upon the lessons learned from the implementation of the first phase of the IFDC-Walmart Foundation partnership between 2013 and 2015, and opportunities for further progress, the Walmart Foundation and IFDC designed the AVPI project to address poverty and food insecurity by empowering low-income women horticulture farmers with enhanced agricultural production technologies and improved market knowledge. AVPI is consolidating and expanding the results of the 2013-15 Walmart Foundation-IFDC partnership in terms of the use of fertilizer deep placement (FDP) in horticultural production in the broader context of good agricultural practices (GAPs). In addition, the project also enhances marketing knowledge and introduces a second innovative production technology to farmers (polynet houses with trickle irrigation for seedling raising and crop production). The project will benefit an estimated 37,892 women farmers[1] and their household members. Care is being taken to ensure local ownership so that project activities spur local technology adoption and improved practices that will ultimately be sustained by local actors.

The AVPI project partners with private sector input dealers and retailers and women horticulture farmers to consolidate, deepen, and expand the results of the 2013-15 partnership between the Walmart Foundation and IFDC. The project also collaborates with the Government of

[1] During the preparation of the AVPI proposal, the number 52,000 was considered based on the assumption that AVPI will also work in the Mymensingh and Sherpur (M&S) districts where the first phase of the IFDC-Walmart Foundation component was implemented. But the USAID-funded Accelerating Agriculture Productivity Improvement (AAPI) project dropped these two districts in 2015 as they were outside the Feed the Future zone of influence. Therefore, AVPI concentrated its work area only in Feed the Future districts, and the number of direct-trained beneficiaries of AVPI decreased from 40,000 to 28,360, excluding the 11,640 trained farmers in M&S districts. AVPI conducted a census during winter 2016-17 to determine the current agriculture status of these 28,360 women farmers. A total of 21,892 farmers were found active in winter 2016-17. In addition, 16,000 new women farmers will be trained. Keeping the budget the same, the project management increased the number of new women farmers trained from 12,000 (as per project contract) to 16,000 since the number of earlier trained farmers had been reduced. Therefore, the number of AVPI direct beneficiaries will be 37,892 (21,892 + 16,000).

Bangladesh's (GOB) Department of Agricultural Extension (DAE), although no Walmart Foundation funds will flow to any public sector entity.

Project Goal and Objectives

The goal of AVPI is ***to enhance rural women's empowerment, and the food security status of their families, by increasing their capacity to produce and market horticultural crops***.

Achieving this goal will result from carrying out a set of integrated activities to develop the demand and supply sides of technology provision and use through technology transfer and training, not through the subsidized distribution of inputs or assets. The project emphasizes the provision of expertise, the creation of demand and willingness to pay, and the facilitation of a more robust supply chain, using a market development and knowledge transfer approach that discourages heavy project subsidies or inputs. Furthermore, rather than placing the highest priority on the number of farmers adopting new technologies, the project seeks both to increase the number of farmers adopting technologies and to increase the size of farmland covered by these technologies in order to achieve a greater income and empowerment dividend.

*The **objectives** of AVPI are to:*

1. Consolidate and enhance the benefits of the 2013-15 IFDC-Walmart Foundation intervention by expanding the use of FDP[2] and related GAPs.
2. Introduce and pilot a second improved vegetable production technology – the use of polynet houses with trickle irrigation – with participating women vegetable farmers.
3. Improve the market knowledge of women vegetable farmers and their access to market information.

Project Location

The project targets 24 upazilas (sub-districts) growing horticultural crops in 10 districts in southwestern Bangladesh and the southern coastal belt. Within these sub-districts, AVPI targets 47 village clusters containing a total of 233 villages. These target villages were identified under the 2013-15 Walmart Foundation-IFDC partnership. AVPI-targeted geographies are presented in Figure 1.

[2] FDP and urea deep placement (UDP) refer to the same basic technology. FDP involves the point placement of a large fertilizer pellet (up to 3.4 grams by weight) near the root zone of the plant. This reduces fertilizer nitrogen losses, increases crop uptake efficiency of the fertilizer, and is an environmentally friendly technology.

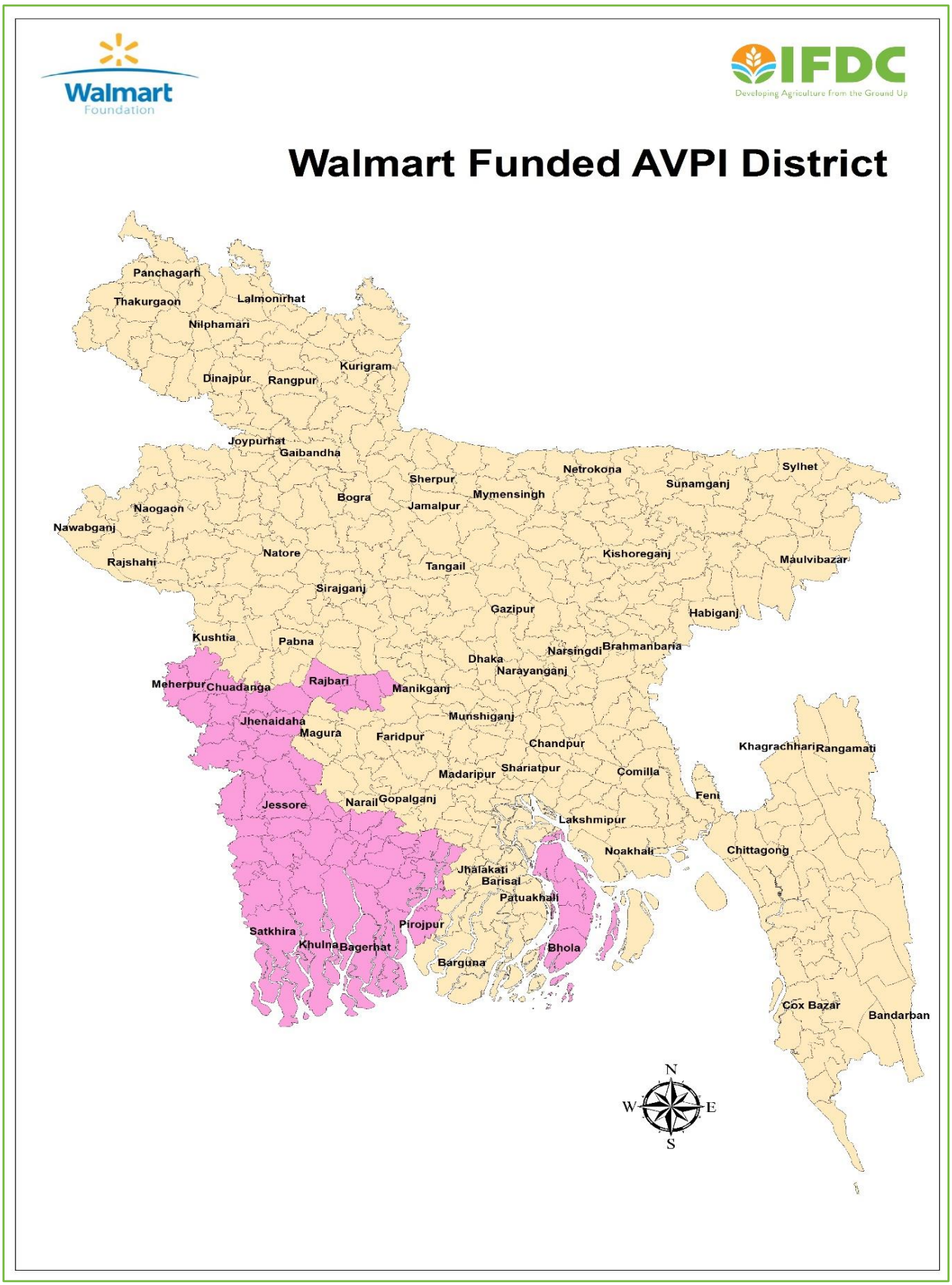

Figure 1. AVPI Districts in Bangladesh

Deliverables

As indicated in Table 1, all deliverables were submitted as planned. In addition, although not a contracted deliverable, AVPI submitted two additional survey reports in the first year of AVPI implementation: (i) an assessment of women vegetable and fruit farmers' knowledge on market information; and (ii) a vegetable and fruit seedling and sapling growers' survey to better understand whether women are involved in seedling/sapling production and marketing. In addition, the project prepared 51 weekly reports on project performance during this period (November 2017-October 2018) in order to facilitate project oversight. AVPI also conducted a census of all trained farmers of the Walmart Foundation Phase I (2013-15) project.

Table 1. List of Deliverables from November 2016 to October 2018

Deliverable	Year 1	Year 2 (November 2017-October 2018)												
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Work Plan	2													**2**
Monthly Progress Reports	10		1	1	1	1	1	1	1		1	1	1	**20**
Semi-Annual Report										1				**1**
Annual Report	1[a]	1												**2**
Census of 28,360 Trained Farmers of Phase I	1													**1**
Assessment of Women Vegetable and Fruit Farmers' Knowledge on Market Information	1													**1**
Vegetable and Fruit Seedling and Sapling Growers' Survey	1													**1**
Vegetable Market Study	1													**1**
Financial Report	1[a]	1												**2**

Source: AVPI documents.

a. The first annual report in February 2017 was submitted as a contractual requirement showing the progress of only three months. However, according to Contract Amendment 1 signed on August 14, 2017, the annual report was submitted in November 2017 for the period November 2016-October 2017.

Results

The results are reported against indicators and their targets specified in the contract between IFDC and the Walmart Foundation with interpretations via the Annual Work Plan. To align with reporting requirements, the results achieved against indicators are presented in Table 2, covering the period from November 2016 through October 2018. **The Year 2 period covers the results of winter 2017-18 and summer 2018. However, the results of winter 2017-18 already have been reported in the AVPI Semi-Annual Report (November 2017-June 2018) in detail.**

The summer 2018 horticulture crops were harvested during the reporting period. The planting of the winter 2018-19 crops commenced in August 2018, and harvesting or picking will continue through April 2019. Therefore, the results on GAPs and FDP users and area coverage for the

reporting period included winter 2017-18 and summer 2018. Averages for upazilas and districts are calculated from the original data sets of the village monitoring survey and crop cuts.

However, information related to the number of individuals who received Walmart-supported short-term agriculture sector productivity or food security training and the number of rural households benefiting directly from the Walmart intervention during the 2018-19 winter vegetable season (as per the target set in the Year 2 work plan) is included in the result indicators. AVPI also completed a survey on the change in market knowledge of women horticulture farmers in the 2018 summer season.

All 13 result indicators were active during Year 2 of the AVPI project. The results are measured against the total targets during the life of the project. AVPI has achieved or exceeded the targets in nine indicators (area under improved agricultural practices, women receiving Walmart-supported training, rural households benefiting directly from the Walmart intervention, increased yield of horticulture products, incremental vegetable production, increased value of production, average incremental value per hectare [ha], average incremental value per farm [ha], and change in market knowledge). The remaining four indicators (number of women farmers applying improved technologies [85%], urea savings [84%], value of urea saved [73%], and GOB savings on subsidy [67%]) are also making progress. AVPI expects that further achievement of these four indicators will be made after complete implementation of the project. More motivational trainings, meetings, and follow-ups are needed to reach the target for women farmers applying improved technologies. The indicator on value of urea saved and fertilizer subsidy are related to price fluctuations.

Table 2. Results Achieved Against Targets from November 2016 to October 2018

Sl. #	Result Indicators	Unit	Total Results Target	Baseline	Total Achievement November 2016-October 2018							Remaining	Remarks
					Winter 2016-17	Summer 2017	Winter 2017-18	Summer 2018	Winter 2018-19	Total	% of Target		
1		Vegetable and fruit area under improved technologies or management practices as a result of Walmart assistance[a]											
	A. GAPs application	**ha**	**9,000**	**3,679**	**3,150**	**2,678**	**6,865**	**4,885**		**11,750**	**131%**		Latest Two Seasons
	a. Improved quality of seed/seedling	ha			3,150	2,678	6,865	4,885		**11,750**			
	b. Improved seed variety	ha			3,137	2,675	6,839	4,873		**11,712**			
	c. Line transplanting	ha			2,863	2,576	6,603	4,654		**11,257**			
	d. Balanced fertilizer application	ha			2,278	2,103	5,702	3,991		**9,693**			
	e. Integrated pest management (IPM) method used	ha			1,639	1,662	4,813	3,118		**7,931**			
	f. Polynet house	ha					2.09	0.76		**2.85**			
	B. FDP application	**ha**	**9,000**	**3,679**	**765**	**1,434**	**4,364**	**3,157**		**7,521**	**84%**	**1,479**	
2		Number of women farmers and others who have applied new technologies											
	A. GAPs application	**No.**	**37,892**	**21,892**	**19,786**	**19,331**	**27,574**	**27,564**		**32,335**	**85%**		Latest Two Seasons
	a. Improved quality of seed/seedling	No.			19,786	19,331	27,574	27,564		32,335			
	b. Improved seed variety	No.			19,708	19,313	27,494	27,470		32,238			
	c. Line transplanting	No.			18,586	18,549	26,850	26,569		31,290			
	d. Balanced fertilizer application	No.			15,329	15,520	23,610	22,670		27,048			
	e. IPM method used	No.			10,974	12,217	18,588	16,293		20,287			
	f. Polynet house	No.					316	271		316			
	B. FDP application (unique number of farmers)	**No.**	**37,892**	**21,892**	**7,063**	**11,877**	**21,322**	**20,019**		**24,167[b]**	**64%**	**13,725**	
3	Number of individuals who have received Walmart-supported short-term agricultural sector productivity or food security training	No.	**44,945**	28,470		2,096	6,190	2,950	5,332	**45,038**	**100%**	(93)	Cumulative
4	Number of rural households benefiting directly from Walmart intervention (women farmers)	No.	**44,378**	28,378		2,000	6,000	2,800	5,200	**44,378[c]**	**100%**	-	Cumulative

Sl. #	Result Indicators	Unit	Total Results Target	Baseline	Total Achievement November 2016-October 2018							Remaining	Remarks
					Winter 2016-17	Summer 2017	Winter 2017-18	Summer 2018	Winter 2018-19	Total	% of Target		
5	Increased yield of vegetables and fruits	mt/ha	1 to 17	1 to 16.5		2.79 to 3.84	2.12 to 9.82	2.97 to 6.18		**2.97 to 9.82**	**297% to 58%**		
6	Incremental vegetable and fruit production	mt	35,500	21,559		1,390	20,571	9,132		**52,652**	**148%**	(17,152)	Cumulative
7	Increased value of vegetables and fruits	U.S. $ million	9.50	3.43		0.25	3.29	1.95		**8.92**	**94%**	0.58	Cumulative
8	Urea savings	mt	990	405		28.44	259.27	140.99		**833.70**	**84%**	156.30	Cumulative
9	Value of urea saved	U.S. $ million	0.40	0.16		0.009	0.080	0.043		**0.29**	**73%**	0.11	Cumulative
10	GOB savings on urea subsidy	U.S. $ million	0.24	0.10		0.004	0.034	0.02		**0.16**	**67%**	0.08	Cumulative
11	Average incremental value per hectare	U.S. $	840	688		624	874	922		**891**	**106%**	(51)	Latest Two Seasons
12	Average incremental value per farm	U.S. $	200	164		59	233	208		**372**	**186%**	(172)	Latest Two Seasons
13	Change in market knowledge	%	20				10-21	11-22			**100%**		

Source: *Trained Farmers' Sample Survey, Winter 2017-18 and Summer 2018; Cluster Village Monitoring Survey, Summer 2017, Winter 2017-18 and Summer 2018; Farmers' Field Crop Cut.*

Notes: **All the result targets and achievements are shown for AVPI locations**.

a. The FDP-applied area and GAP area are from the Cluster Village Monitoring Survey, Winter 2017-18 and Summer 2018.

b. It may be noted that some women farmers are using FDP technology in more than one crop. Field reports indicate that most women have used FDP technology in two to three crops. Therefore, the unique number of farmers for these crops have been calculated using the Bangladesh Bureau of Statistics (BBS) cropping intensity.

c. This includes only trained farmers from Phase I (28,360) + new trained farmers (16,000) + briquette machine owners (18).

The AVPI project has continued to achieve promising results based on targets established under contract result indicators. Although a couple of indicators have not achieved 100% of the target earmarked, the overall achievements are impressive, as indicated above. A brief summary of each of the results achieved against the targets follows.

Vegetable and Fruit Area under Improved Technologies or Management Practices

Direct Beneficiaries

Data on the area under GAPs and FDP coverage by direct beneficiaries in winter 2017-18 and summer 2018 were collected through a sample survey designed statistically. In addition, data were collected through cluster village monitoring surveys using a set format developed by AVPI.[3] The surveys were jointly conducted by AVPI field monitoring officers (FMOs) and sub-assistant agriculture officers (SAAOs) of DAE. The completed set of data was then sent to the AVPI Dhaka office, where the data were coded, entered, verified, and analyzed by the monitoring and evaluation (M&E) officers and project manager.

Table 3 shows that the direct beneficiaries have brought about 11,750 ha under GAPs and 7,521 ha under FDP technologies, combining the vegetable and fruit winter 2017-18 and summer 2018 seasons. Appendix 1 (A to C) presents FDP area coverage of vegetables and fruits by upazila and by crop for winter 2017-18 and summer 2018 horticulture seasons. Appendix 2 (A to C) presents the area of vegetables and fruits under GAPs by upazila.

Table 3. Vegetable and Fruit Area Under GAPs and FDP Technology by Direct Beneficiaries and by Districts During Winter 2017-18 and Summer 2018

District	GAPs Area (ha)			FDP Area (ha)		
	Winter 2017-18	Summer 2018	Total	Winter 2017-18	Summer 2018	Total
Bagerhat	141	80	221	115	58	173
Bhola	2,199	1,018	3,217	1,098	601	1,699
Chuadanga	1,363	1,175	2,538	975	780	1,755
Jessore	808	799	1,607	522	580	1,102
Jhenaidah	376	253	629	299	219	518
Khulna	181	118	299	118	63	181
Meherpur	1,100	911	2,011	711	467	1,178
Pirojpur	305	196	501	219	130	349
Rajbari	316	232	548	255	206	461
Satkhira	74	102	176	53	52	105
Total	**6,865**	**4,885**	**11,750**	**4,364**	**3,157**	**7,521**

Source: *Cluster Village Monitoring Surveys of Winter 2017-18 and Summer 2018.*

Table 4 presents FDP area of direct beneficiaries by crop during winter 2017-18 and summer 2018 vegetable and fruit seasons.

[3] This survey collects information from key informants, such as progressive women farmers, irrigation managers, local elites, members of different farmers' clubs/groups, etc.

Table 4. Vegetable and Fruit Area Under FDP Technology by Direct Beneficiaries and by Crops During Winter 2017-18 and Summer 2018

Crop	Winter 2017-18 FDP Area (ha)	Summer 2018 FDP Area (ha)	Total FDP Area (ha)
Cabbage	586.64		586.64
Bottle Gourd	501.36	268.02	769.38
Cauliflower	709.11		709.11
Chili	184.31	164.64	348.95
Country Bean	191.33		191.33
Eggplant	755.06	642.95	1,398.01
Knolkhol	101.49		101.49
Sweet Gourd	132.94	208.37	341.31
Tomato	269.62		269.62
Potato	336.66		336.66
Taro	2.67	407.59	410.26
Pointed Gourd		428.63	428.63
Cucumber		342.32	342.32
Banana		155.57	155.57
Bitter Gourd		237.15	237.15
Papaya		72.15	72.15
Guava		20.59	20.59
Teasel Gourd		60.01	60.01
Sponge Gourd		43.78	43.78
Snake Gourd		39.99	39.99
Ash Gourd		27.11	27.11
Other Crops	593.13	38.28	631.41
Total	**4,364.32**	**3,157.14**	**7,521.47**

Source: *Cluster Village Monitoring Surveys of Winter 2017-18 and Summer 2018.*

To validate the data of the cluster village monitoring survey, AVPI conducted a sample survey of trained women farmers in the summer 2018 season. Applying statistical tools, the survey used a 10% sample (3,274) of the total active women farmers (32,692 = 21,892 trained in Phase I + 10,800 trained by AVPI). The results of both the sample survey and cluster village monitoring survey were very close. The results of these two surveys on GAPs and FDP area are presented in Table 5.

Table 5. Area of GAPs and FDP Application in Two Surveys in Summer 2018

Name of Survey	GAPs Area	FDP Area
Trained Farmer Sample Survey	100%	53%
Cluster Village Monitoring Survey	100%	64%

Total Beneficiaries

Information about the area brought under GAPs and FDP by total women beneficiaries (direct plus indirect) for the winter 2017-18 and summer 2018 horticulture seasons was collected through cluster village monitoring surveys. Table 6 shows that the total beneficiaries have brought 16,530 ha under GAPs and 8,583 ha under FDP technology.

Table 6. Vegetable Area Covered by GAPs and FDP Technology by AVPI Total Beneficiaries from Winter 2017-18 and Summer 2018

District	GAP Area (ha)			FDP Area (ha)		
	Winter 2017-18	Summer 2018	Total	Winter 2017-18	Summer 2018	Total
Bagerhat	164	117	281	122	67	189
Bhola	3,645	1,243	4,888	1,304	682	1,986
Chuadanga	2,116	1,432	3,548	1,131	897	2,028
Jessore	1,229	1,090	2,319	574	634	1,208
Jhenaidah	514	332	846	355	261	616
Khulna	297	155	452	146	68	214
Meherpur	1,422	1,130	2,552	782	525	1,307
Pirojpur	358	305	663	230	149	379
Rajbari	427	324	751	286	250	536
Satkhira	107	124	231	63	56	119
Total	**10,278**	**6,252**	**16,530**	**4,993**	**3,590**	**8,583**

Source: *Cluster Village Monitoring Survey, Winter 2017-18 and Summer 2018.*

Number of Women Farmers Who Have Applied New Technologies

Direct Beneficiaries

As discussed earlier, a total of 21,892 women beneficiaries were active in the winter 2016-17 season, while 28,360 were trained during Phase I of the Walmart program during 2013-15. Another 10,800 women farmers were trained in summer 2017, winter 2017-18, and summer 2018. Therefore, the total number of trained active farmers was 32,692 until summer 2018. Table 7 shows that combining the winter 2017-18 and summer 2018 seasons, the number of GAP users is 55,138, and the unique number of GAP users is 32,335.[4] Similarly, the number of FDP users in winter 2017-18 and summer 2018 is 41,341, and the unique number is 24,167. The number of direct beneficiaries using GAPs and FDP technology is presented in Appendix 3 by upazila for the winter 2017-18 and summer 2018 period.

Table 7. Direct Beneficiaries Using GAPs and FDP Technologies During Winter 2017 and Summer 2018

Total Active Trained Farmers Through Summer 2018	GAP Users in Winter 2017-18 and Summer 2018			FDP Users in Winter 2017-18 and Summer 2018		
	GAP Users	Unique Number of Farmers	% of GAP Users	FDP Users	Unique Number of Farmers	% of FDP Users
32,692	55,138	32,335	99%	41,341	24,167	74%

Source: *Cluster Village Monitoring Surveys of Winter 2017-18 and Summer 2018.*
Note: Unique number of farmers based on cropping intensity.

[4] As noted earlier, many women farmers used GAPs and FDP technology during more than one season and with more than one crop. Therefore, the Bangladesh Bureau of Statistics (BBS) cropping intensity was used to calculate the unique number of users.

As indicated in Table 8, the results of both surveys were very close regarding the number of GAPs and FDP users.

Table 8. Users of GAPs and FDP Application in Two Surveys in Summer 2018

Name of Survey	GAPs Users	FDP Users
Trained Farmer Sample Survey	100%	65%
Cluster Village Monitoring Survey	100%	72%

FDP Plot Size by Direct Beneficiaries

Table 9 shows the FDP plot size by AVPI direct beneficiaries for winter 2017-18 and summer 2018. Each beneficiary, on average, applied FDP technology on 51 and 39 decimals of land during winter 2017-18 and summer 2018, respectively. During the last winter season (2015-16) of Phase I of the Walmart Foundation project, the average FDP plot size was less than 24 decimals per beneficiary. This suggests that a number of IFDC-Walmart Foundation-trained beneficiaries are continuing to use GAPs, including FDP technology, and gradually increasing their crop area under GAPs and FDP technology. As a result, they are obtaining better yields from their crops and, therefore, improving the nutrition and livelihoods of their family members through increased consumption of horticultural crops and income.

Table 9. FDP Plot Size by Direct Beneficiaries During Winter 2017-18 and Summer 2018

Winter 2017-18				Summer 2018			
FDP Area Coverage (ha)	FDP Users	Plot Size		FDP Area Coverage (ha)	FDP Users	Plot Size	
		Hectares	Decimals			Hectares	Decimals
4,364	21,322	0.20	51	3,157	20,019	0.16	39

Source: *Cluster Village Monitoring Surveys.*

Total Beneficiaries

AVPI cluster village monitoring survey results further show that a total of 89,016 women farmers used GAPs and 52,352 used FDP in both winter 2017-18 and summer 2018 vegetable seasons. The unique number of women farmers using GAPs is estimated to be 51,991 and that of FDP users is 30,486, calculated using the BBS cropping intensity (Table 10). This indicates that the ratio of expanding GAPs and FDP technology through direct beneficiaries is 1:1.61 and 1:1.26, respectively. The low rate for FDP may be due to the non-availability of FDP products nearby women farmers' households.

Table 10. Total Beneficiaries Using GAPs and FDP Technology in Vegetable Seasons During Winter 2017-18 and Summer 2018

Districts	GAP Users in Winter 2017-18 and Summer 2018			FDP Users in Winter 2017-18 and Summer 2018		
	GAP Users	Cropping Intensity %	Unique Number of Farmers	FDP Users	Cropping Intensity %	Unique Number of Farmers
Bagerhat	2,116	121%	1,749	1,459	121%	1,206
Bhola	12,681	208%	6,097	7,967	208%	3,830
Chuadanga	24,979	166%	15,048	12,653	166%	7,622
Jessore	13,798	182%	7,581	8,267	182%	4,542
Jhenaidah	7,498	187%	4,010	4,865	187%	2,602
Khulna	2,436	127%	1,918	1,431	127%	1,127
Meherpur	12,402	165%	7,516	7,713	165%	4,675
Pirojpur	4,500	143%	3,147	2,902	143%	2,029
Rajbari	6,070	187%	3,246	4,088	187%	2,186
Satkhira	2,536	151%	1,679	1,007	151%	667
Total	**89,016**		**51,991**	**52,352**		**30,486**

Source: *Cluster Village Monitoring Surveys.*

Number of Individuals Who Have Received Walmart-Supported Short-Term Agricultural Sector Productivity or Food Security Training

The number of individuals who have received short-term training has been calculated based on farmer, briquetting machine owner (BMO), and agro-input retailer training programs. A total of 28,360 women farmers, 82 SAAOs, and 28 retailers/fertilizer BMOs participated in BMO workshops cum training programs during the 2013-15 Walmart Foundation Phase I project. Under AVPI, a total of 16,000 additional women horticultural farmers were trained through October 2018. In addition, 493 participants attended the BMO trainings, and 75 participants attended the agro-input retailer training. Thus, the total number of individuals receiving AVPI short-term training was 45,038. A summary of the training programs is presented in Table 11. Appendix 4, Appendix 5, and Appendix 6 provide the information separately by upazila.

Table 11. Number of Individuals Who Received IFDC-Walmart Foundation Short-Term Training Through October 2018

Type	Male	Female	Total
Farmer Training			
During 2013-2015		28,360	**28,360**
Year 1 (November 2016-October 2017)		8,000	**8,000**
Year 2 (November 2017-October 2018)		8,000	**8,000**
Motivational Workshop cum Machine Operation Trainings of BMOs			
During 2013-2015	82	28	**110**
Year 1 (November 2016-October 2017)	173	67	**240**
Year 2 (November 2017-October 2018)	189	64	**253**
AVPI Agro-Input Retailer Training			
Year 1 (November 2016-October 2017)	46		**46**
Year 2 (November 2017-October 2018)	28	1	**29**
Total	**518**	**44,520**	**45,038**

Source: *Project database.*

Number of Rural Households Benefiting Directly from Walmart Interventions

A household is a beneficiary if it contains at least one individual who is a beneficiary. A beneficiary is an individual who has engaged with a project activity and has shown benefit from the activity or has a high likelihood of benefiting due to a significant level of engagement with the project. This is calculated from the number of farmers trained during the two phases and the number of rural entrepreneurs who procured a fertilizer briquetting machine during 2013-15 under the Walmart Foundation Phase I project and directly benefited from an intervention. During the AVPI reporting period through October 2018, a total of 44,378 rural households directly benefited (Table 12).

Table 12. Number of Rural Households Directly Benefiting Through October 2018

Type	Total
Women Farmers' Training	
During 2013-2015	28,360
Year 1 (November 2016-October 2017)	8,000
Year 2 (November 2017-October 2018)	8,000
Fertilizer Briquetting Machines Sold to Women Entrepreneurs	
During 2013-2015	18
Total Through October 2018	**44,378**

Source: *Project database.*

Increased Yield of Vegetables

Summer Vegetable 2018

The incremental yield arising from FDP technology is derived from crop cuts in farmers' fields. Crop cuts were performed in FDP plots and farmers' fields where urea was broadcast. There were

30 FDP crop cuts (six crops with five replications). Each crop cut actually comprises two samples – one from an FDP field and one (as close as possible) from a broadcast urea field, using the same variety of seeds/seedlings of the same age, a similar soil type, and an equal number of plants; all other management practices were the same for both plots. Vegetable crop cuts were recorded for each harvest/picking according to a prescribed format prepared by AVPI staff. Table 13 presents the yield difference for six vegetable crops. Generally, farmers used FDP in many vegetable crops, but due to resource constraints, it was not possible to have a crop cut for each crop.

Table 13. Incremental Yield Calculated from Farmers' Field Crop Cuts, Summer 2018

Crop	Total No. of Samples	UDP Plot Yield (mt/ha)	Broadcast Urea Plot Yield (mt/ha)	Incremental Yield (mt/ha)	Incremental Yield (%)
Bitter Gourd	5	23.29	20.23	3.06	15%
Cucumber	5	30.18	26.04	4.14	16%
Eggplant	5	30.79	26.77	4.02	15%
Pointed Gourd	5	43.83	37.66	6.18	16%
Teasel Gourd	5	21.43	18.46	2.97	16%
Taro	5	28.53	24.66	3.87	16%

Source: *Farmers' Field Crop Cut of Six Summer Vegetable Crops 2018.*

The incremental yield target was set at 1-17 metric tons per hectare (mt/ha) for various horticultural crops in the Annual Work Plan. However, for summer 2018 crops, the incremental yield ranged from 2.97 mt/ha to 6.18 mt/ha. In terms of percentage, the incremental yield ranged between 15% and 16% for these six crops.

The results can be compared with the data for demonstrations plots reported in Table 26, where yield increments averaged 3.94 mt/ha for bitter gourd, 4.23 mt/ha for cucumber, 3.82 mt/ha for eggplant, and 4.12 mt/ha for taro. There was no demonstration plot of pointed gourd and teasel gourd in summer 2018. As expected, yields were generally higher in the demonstration plots compared to farmers' practice plots except with eggplant.

Incremental Vegetable Production

Incremental vegetable production is calculated from the area of FDP coverage, and the yield increments are measured by crop cuts in farmers' fields. A total of 30 crop cuts of the six crops were performed. Although more vegetable area has been brought under FDP coverage, the incremental production is shown for only the six crops in which crop cuts were done. If the harvests of all crops under FDP coverage were considered, the incremental production would be much higher than shown in Table 2. A detailed calculation of incremental production by crop for direct beneficiaries is shown in Table 14.

Table 14. Incremental Vegetable Production from Farmers' Field Crop Cuts, Summer Vegetable 2018

Crop	Incremental Yield (mt/ha)	UDP Area by Crop (ha)	Incremental Vegetable Production (mt)
Bitter Gourd	3.06	237.15	725.68
Cucumber	4.14	342.32	1,417.18
Eggplant	4.02	642.95	2,584.65
Pointed Gourd	6.18	428.63	2,648.91
Teasel Gourd	2.97	60.01	178.23
Taro	3.87	407.59	1,577.38
Total		**2,118.64**	**9,132.03**

Source: *Area from Cluster Village Monitoring Survey and Yield from Farmers' Field Crop Cut, Summer 2018.*

Increased Value of Vegetables

The increased value of vegetable crops produced by AVPI direct beneficiaries is calculated from the incremental production of the six vegetable crops and the value of the incremental production obtained during the crop cut. After each crop picking/harvesting, AVPI FMOs recorded the amount sold in the market and the value received by the women farmers. The total value received was then divided by the total quantity sold to obtain the average price. Details of the increased value by crop are presented in Table 15. The value was calculated for only six crops; this would be much more than estimated if crop cuts could be undertaken for all crops.

Table 15. Increased Value of Vegetables from Farmers' Field Crop Cuts, Summer Vegetable 2018

Crop	Total Incremental Vegetable Production (mt)	Average Price (Tk/mt)	Value of Incremental Vegetable Production (Tk)	Value of Incremental Vegetable Production (million U.S. $)
Bitter Gourd	725.68	16,200	11,756,000	0.14
Cucumber	1,417.18	15,900	22,533,227	0.27
Eggplant	2,584.65	17,694	45,732,743	0.55
Pointed Gourd	2,648.91	21,200	56,156,864	0.68
Teasel Gourd	178.23	18,100	3,225,958	0.04
Taro	1,577.38	14,368	22,663,866	0.27
Total	**9,132.03**		**162,068,658**	**1.95**

Note: U.S. $1 = Tk 83.

Urea Savings

Urea savings were also calculated from the crop cut data collected from farmers' fields. The results by crop are summarized in Table 16. The Annual Work Plan assumed urea savings of 10% per unit of land for each vegetable crop. However, the farmers' field crop cut data indicate that it ranged between 16% and 33% for the six vegetable crops. The actual amount of urea saved was about 38-102 kg/ha. A total savings of 140.99 mt, as expressed in Table 2, was calculated by multiplying savings per hectare for only the six crops by the total number of hectares under FDP of those crops. The urea savings would be higher if all crops were considered.

Table 16. Urea Savings

Crop	UDP Plot (kg/ha)	Broadcast Urea Plot (kg/ha)	Urea Savings		Total Area with UDP (ha)	Urea Saved (mt)
			kg/ha	%		
Bitter Gourd	161	208	47	23%	237.15	11.15
Cucumber	143	212	69	33%	342.32	23.62
Eggplant	270	333	63	19%	642.95	40.51
Pointed Gourd	133	184	51	28%	428.63	21.86
Teasel Gourd	197	235	38	16%	60.01	2.28
Taro	333	435	102	23%	407.59	41.57
Total					**2,118.64**	**140.99**

Source: *Farmers' Field Crop Cut of Six Summer Vegetable and Cluster Village Monitoring Survey, Summer 2018.*

The Annual Work Plan assumed urea savings of 990 mt during the project life. The actual amount saved was 833.70 mt, calculated by adding summer 2017, winter 2017-18, and summer 2018 seasons. The total urea savings achieved the target of 84%, which is showing a good achievement since savings from all crops could not be used in the calculation.

Value of Urea Saved

The value of urea saved is calculated using the international market price. The Annual Work Plan set the target using the price of U.S. $403/mt. The Bangladesh Chemical Industries Corporation (BCIC) average imported urea price during November 2016 to October 2018 of U.S. $307/mt[5] was used to calculate values of urea saved for six crops (Table 2). The value of urea saved was U.S. $43,283 from the six crops (Table 17). This value would be much higher if crop cuts of all other crops could be completed, as indicated earlier. Also, the international market price was lower than that anticipated during the preparation of the proposal, and this also led to the low value of urea saved.

Table 17. Value of Urea Saved

Crop	Urea Saved (mt)	Value of Urea Saved (U.S. $)	Value of Urea Saved (million U.S. $)
Bitter Gourd	11.15	3,422	0.003
Cucumber	23.62	7,251	0.007
Eggplant	40.51	12,435	0.012
Pointed Gourd	21.86	6,711	0.007
Teasel Gourd	2.28	700	0.001
Taro	41.57	12,763	0.013
Total	**140.99**	**43,283**	**0.043**

Source: *Farmers' Field Crop Cut of Six Summer Vegetable Crops 2018.*
Note: U.S. $1 = Tk 83.00.

[5] Source: Ministry of Agriculture and includes f.o.b. cost, freight, and local costs.

Government of Bangladesh Saving on Urea Subsidy

The Annual Work Plan assumed a GOB subsidy of U.S. $228/mt. However, the dealer price was lowered to Tk 14/kg, or U.S. $169/mt. Using the import parity price reported in the value of urea saved, the subsidy on 1 mt of urea is U.S. $138 (GOB import price of U.S. $307/mt – GOB subsidized price of U.S. $/mt169). Using this data, the savings on the urea subsidy for the six vegetables crops amounts to U.S. $19,502, or U.S. $0.020 million (Table 18).

Table 18. GOB Savings on Urea Subsidy

Crop	Urea Saved (mt)	GOB Savings on Urea Subsidy (U.S. $)	GOB Savings on Urea Subsidy (million U.S. $)
Bitter Gourd	11.15	1,542	0.002
Cucumber	23.62	3,267	0.003
Eggplant	40.51	5,603	0.006
Pointed Gourd	21.86	3,024	0.003
Teasel Gourd	2.28	315	0.000
Taro	41.57	5,751	0.006
Total	**140.99**	**19,502**	**0.020**

Source: *Farmers' Field Crop Cut of Six Summer Vegetable Crops 2018.*
Note: U.S. $1 = Tk 83.00.

Average Incremental Value per Hectare

The average incremental value per hectare was estimated by dividing the total incremental value by the total FDP area of the six crops (Table 2). The values by crop also are shown in Table 19. This reflects the higher incremental yield for all six vegetables discussed previously.

Table 19. Average Incremental Value per Hectare, Summer Vegetable 2018

Crop	UDP Area by Crop (ha)	Total Value of Incremental Vegetable Production (U.S. $)	Average Incremental Value (U.S. $/ha)
Bitter Gourd	237.15	141,639	597
Cucumber	342.32	271,485	793
Eggplant	642.95	550,997	857
Pointed Gourd	428.63	676,589	1,579
Teasel Gourd	60.01	38,867	648
Taro	407.59	273,059	670
Total	**2,118.64**	**1,952,634**	**922**

Source: *Farmers' Field Crop Cut of Six Summer Vegetable Crops 2018.*
Note: U.S. $1 = Tk 83.00.

The gross margin of the six summer 2018 crops was calculated using the crop cuts data. The results are presented in Table 20, which shows that the average gross margin is higher for all six crops with UDP technology compared with broadcast application of urea. Therefore, the benefit-cost ratio is also high for these crops. Details are presented in Appendix 7.

Table 20. Weighted Average Gross Margin/Hectare, Summer Vegetable 2018

Crop	Gross Margin (U.S. $/ha)			Benefit-Cost Ratio	
	UDP Plots	Broadcast Urea Plots	Difference	UDP Plots	Broadcast Urea Plots
Bitter Gourd	2,505	1,520	985	2.23	1.63
Cucumber	3,902	3,064	838	3.08	2.59
Eggplant	5,158	4,125	1,033	4.67	3.61
Pointed Gourd	8,701	7,048	1,653	4.49	3.74
Teasel Gourd	2,217	1,594	624	1.90	1.66
Taro	3,086	2,393	694	2.67	2.28

Source: *Farmers' Field Crop Cut of Six Summer Vegetable Crops 2018.*
Note: U.S. $1 = Tk 83.00.

Average Incremental Income per Farm

The average incremental value per farm was estimated by dividing the total incremental value of the six crops by the total FDP direct beneficiaries who cultivated those six crops in summer 2018. As a result, per-farm income is U.S. $208 (Table 21). As previously mentioned, this estimate is based on only six crops.

Table 21. Average Incremental Value per Farm, Summer Vegetable 2018

Crop	Number of Farmers	Value of Incremental Vegetable Production (U.S. $)	Average Incremental Value per Farm (U.S. $)
Bitter Gourd	1,845	141,639	77
Cucumber	2,527	271,485	107
Eggplant	4,878	550,997	113
Pointed Gourd	3,309	676,589	204
Teasel Gourd	562	38,867	69
Taro	3,132	273,059	87
Total	**16,253**	**1,952,634**	**208**
Number of Unique Farmers	**9,389**		

Source: *AVPI Farmers' Field Crop Cut and Cluster Village Monitoring Survey, Summer 2018.*
Note: Unique number of farmers calculated using BBS cropping intensity.
U.S. $1 = Tk 83.00.

Change in Market Knowledge

An analysis of vegetable and fruit market knowledge of AVPI women beneficiaries was completed. This was captured through a survey of sample farmers trained during summer 2018, which included 3,274 beneficiaries from 229 survey villages. The farmers were interviewed to obtain information on five parameters related to marketing: (1) knowledge of market location; (2) awareness of crop demand; (3) awareness of the supply situation; (4) knowledge of timing of premium price; and (5) knowledge of consumer preference on product quality. Table 22 presents

the results of the analyzed data as a percentage of respondents compared with baseline data.[6] AVPI direct beneficiaries' knowledge of marketing has increased considerably in all five parameters.

Table 22. Information on Market Knowledge

Item	Baseline January 2017	Current Knowledge October 2018	Percentage Change
Knowledge of Market Locations	68	90	22
Awareness of Crop Demand	3	22	19
Awareness of Supply Situation	5	19	14
Knowledge of Timing of Premium Price	3	14	11
Knowledge of Consumer Preferences	11	25	14

AVPI organizes vegetable and fruit marketing seminars and farmer training programs to improve the knowledge of its women beneficiaries on market information, including crop demand, supplies, and post-harvest practices for better income from their crop sales. These project activities are clearly making a positive impact on women's empowerment. AVPI women vegetable and fruit farmers are now assuming leadership roles in their communities.

Activities

The AVPI program focuses on private sector engagement, along with public sector (DAE) engagement, to ensure a robust supply chain for FDP fertilizer and to bolster farmer-level demand. In addition, AVPI activities encourage the application of GAPs by women farmers trained during Phase I (2013-15) and newly trained AVPI farmers. The number of activities and the intensity of engagement vary by season. According to the approved Annual Work Plan (Table 2),[7] the AVPI program requires implementation of activities in 18 "activity areas" during Years 1 and 2 during five horticulture seasons – winter 2016-17, summer 2017, winter 2017-18, summer 2018, and winter 2018-19 vegetable crop seasons – to achieve its three objectives. Table 23 highlights the progress of project technical activities. Of the 18 targets, 14 activities met the targets. Two are continuous activities – designing and developing technical leaflets, flyers, posters, signboards, flags, promotional bags, and caps, and providing direct technical assistance to farmers in introducing polynet houses with trickle irrigation and FDP technology. The other two activities (demonstrations and farmers' field crop cuts) will be completed in November 2018.

The project expects to lose the last season, i.e., winter 2018-19, since the project will be completed by December 2018.[8] However, IFDC is trying to complete all activities by December 2018.

[6] "Study on Vegetable and Fruit Marketing Information" conducted by an independent consultant for the IFDC AVPI project in January 2017.
[7] Table 2 of the Work Plan.
[8] However, Walmart Foundation is considering extending the project for another six to nine months as a transition period, adding the amount to be required to complete all seasons in its full length. A brief note in this respect has been submitted to Walmart Foundation for its consideration.

Table 23. Activities Accomplished Against Targets for the Period November 2016-October 2018

Result Indicators	Unit	Total Target	Year 1 and 2 November 2016-October 2018						Remaining
			Summer 2017	Winter 2017-18	Summer 2018	Winter 2018-19	Total	% of Target	
Technology Transfer									
Farmer training	Batch	400	50	150	70	130	400	100%	
Farmers' orientation for demo establishment	Batch	4	1	1	1	1	4	100%	
Motivational meeting with trained farmers	No.	350	50	150	50	100	350	100%	
Motivational workshop and operational training of BMOs	No.	10	2	4	2	2	10	100%	
Field demonstration	No.	80	15	30	20	15	80	100%	
Crop cuts from									
➢ Demo plots	No.	80	15	30	20		65	81%	15
➢ Farmers' field	No.	128	28	50	30		108	84%	20
Field days	No.	50	10	25	10	1	46	92%	4
Design and develop technical leaflets, flyers, posters, signboards, flags, promotional bags, and caps		*					*		
Piloting Polynet Houses with Trickle Irrigation									
Farmers' orientation for demo establishment	Batch	2		1		1	2	100%	
Field demonstration	No.	25		15		10	25	100%	
Farmer training	Batch	25		15		10	25	100%	
Field days	No.	25		15		5	20	80%	5
Provide direct technical assistance to farmers in introducing polynet houses with trickle irrigation and FDP technology		*					*		
Agro-input retailer training	No.	5		3		2	5	100%	
Improving Farmer Access to Market Information									
Assessment of IFDC-Walmart women vegetable and fruit farmers' knowledge on market information	No.	1	1				1	100%	
Vegetable and fruit seedlings and saplings grower survey	No.	1	1				1	100%	
Study on vegetable and fruit market information	No.	1	1				1	100%	
Vegetable marketing seminar	No.	16	6	5	3	2	16	100%	

Source: *AVPI Database*.
* Continuous activities.

Technology Transfer

Farmer Training on GAPs and FDP Technology

AVPI farmer training program on GAPs, including FDP

The training programs for women horticulture farmers are designed to improve farmers' knowledge of vegetable crop management in general with emphasis on increasing awareness and knowledge on marketing and nutrition. A training module has been developed for farmer training. The training program continues for two days, with 3.5 hours each day either in the afternoon or in the morning to match the schedule of women farmers. Day 1 focuses on the theoretical aspects of vegetable and fruit production and marketing, while Day 2 focuses on practical demonstrations of FDP and GAPs application. Training topics include: (1) human nutrition from vegetables and fruits; (2) soil fertility, balanced fertilizer use, and benefits of FDP technology; (3) fertilizer briquette rates and application methods for selected vegetable and fruit crops; (4) integrated pest management (IPM) practices; (5) land preparation, plant spacing, and planting/harvesting times for selected fruit and vegetable crops; (6) quality seed and variety selection for selected crops; (7) gender issues related to the marketing of vegetables and fruits; (8) practical demonstration of FDP application; and (9) trainee feedback/question-and-answer session. In one batch, 40 women are trained by an SAAO of DAE as the resource person. In some instances, in the absence of a trained trainer, the AVPI FMO is the resource person. The FMO is responsible for the administration, according to guidelines set by the project. This arrangement helps build the farmer training into the mainstream of DAE field programs while maintaining accountability for the activity within the project. A total of 8,000 women horticulture farmers were trained in 200 batches during the reporting period from November 2017 to October 2018. Therefore, AVPI achieved its target of completing 400 batches of farmer training with a total participation of 16,000 women horticulture farmers. As mentioned above, Appendix 4 provides the details by upazila.

Orientation Training for Vegetable Demonstration

Orientation training is required to prepare the farmers to manage a demonstration. Two batches of orientation training programs were organized in summer 2018 and winter 2018-19 with the participation of 35 women horticulture farmers who established FDP demonstration plots (Table 24). The participants were selected by respective SAAOs-DAE and FMOs-AVPI based on the location of their land ownership, progressiveness, readiness to accept new technologies, and leadership role in the community. There is no target set for this activity in the Annual Work Plan for Year 2. The targets referred to in Table 23 were set for the seasonal work plan. The number and location of the orientation programs are set to ensure every farmer involved in a demonstration can attend. The objective of the orientation training on FDP demonstration was to inform the demonstration farmers about the benefits and methodology of FDP application through PowerPoint presentations. After the presentation, theoretical discussion, and question-and-answer session, the participants took part in practical training in nearby crop fields. This included

measuring and layout of the plot, raising beds, transplanting seedlings at the appropriate distances, and FDP application. Therefore, AVPI completed four batches of orientation training programs with a total participation of 80 women horticulture farmers who established FDP demonstration plots. Details of the demonstrations by crop and upazila are provided in Appendix 8.

Table 24. Orientation Training for Vegetable Demonstration Farmers from November 2017 to October 2018

District	Upazila	Season	Batch	Participants
Jessore	Jessore Sadar	Summer 2018	1	20
Jessore	Jessore Sadar	Winter 2018-19	1	15
		Total	**2**	**35**

Field Demonstrations

Technology results demonstration is one of the most important AVPI activities. AVPI demonstrates the results of FDP technology in selected vegetables. The demonstration plots consist of two plots, each measuring 200 square meters – one using FDP and the other broadcasting conventional urea, keeping all other inputs, such as seed and other fertilizers, and all other management practices the same. AVPI established 40 FDP demonstration plots during the reporting period from November 2017 to October 2018. Therefore, AVPI completed all 80 targeted demonstrations of selected crops (15 in summer 2017, 30 in winter 2017-18, 20 in summer 2018 and 15 in winter 2018-19). Details of the demonstrations by crop and upazila are provided in Appendix 9.

Farmers nursing FDP demonstration plot on eggplant

Status of Summer 2018 Vegetable Demonstrations

There were 20 field demonstrations planned in summer 2018. All 20 demonstrations were harvested. The status of summer demonstrations is presented in Table 25. Figure 2 shows the locations of summer demonstration plots using a global positioning system (GPS) device.

Table 25. Status of Summer 2018 Vegetable Demonstrations

Demonstration Crop	Target	Established	Harvest Completed
Bitter Gourd	5	5	5
Eggplant	5	5	5
Cucumber	5	5	5
Taro	5	5	5
Total	**20**	**20**	**20**

Results of Summer 2018 Vegetable Demonstrations

The harvesting of the 20 summer 2018 vegetable demonstrations on bitter gourd, cucumber, eggplant, and taro, with five replications for each crop, occurred in several pickings. Data are collected by AVPI FMOs as per a set format during each pick. The farmers are advised to keep all records of the harvest so that FMOs can obtain correct information. The results of harvested demonstration plots are presented in Table 26. Appendix 10 provides additional details by upazila.

Table 26. Results of Summer 2018 Vegetable Demonstrations

Crop	No. of Demos	*Guti* Urea Yield (mt/ha)	Broadcast Urea Yield (mt/ha)	Yield Difference (mt/ha)	Incremental Yield (%)
Bitter Gourd	5	25.01	21.07	3.94	19%
Cucumber	5	30.85	26.62	4.23	16%
Eggplant	5	31.68	27.86	3.82	14%
Taro	5	29.79	25.67	4.12	16%

Source: *AVPI Summer 2018 Vegetable Demonstration.*

Status of Winter 2018-19 Vegetable Demonstrations

There were 15 field demonstrations planned in the 2018-19 winter season, and all were established. The status of the 15 demonstrations by crop is presented in Table 27. Figure 3 shows locations of 15 winter demonstration plots using a GPS device.

Table 27. Status of Winter 2018-19 Vegetable Demonstrations

Demonstration Crop	Target	Established
Cabbage	7	7
Cauliflower	8	8
Total	**15**	**15**

Note: Harvesting of winter demonstration crops will be completed by the end of November 2018.

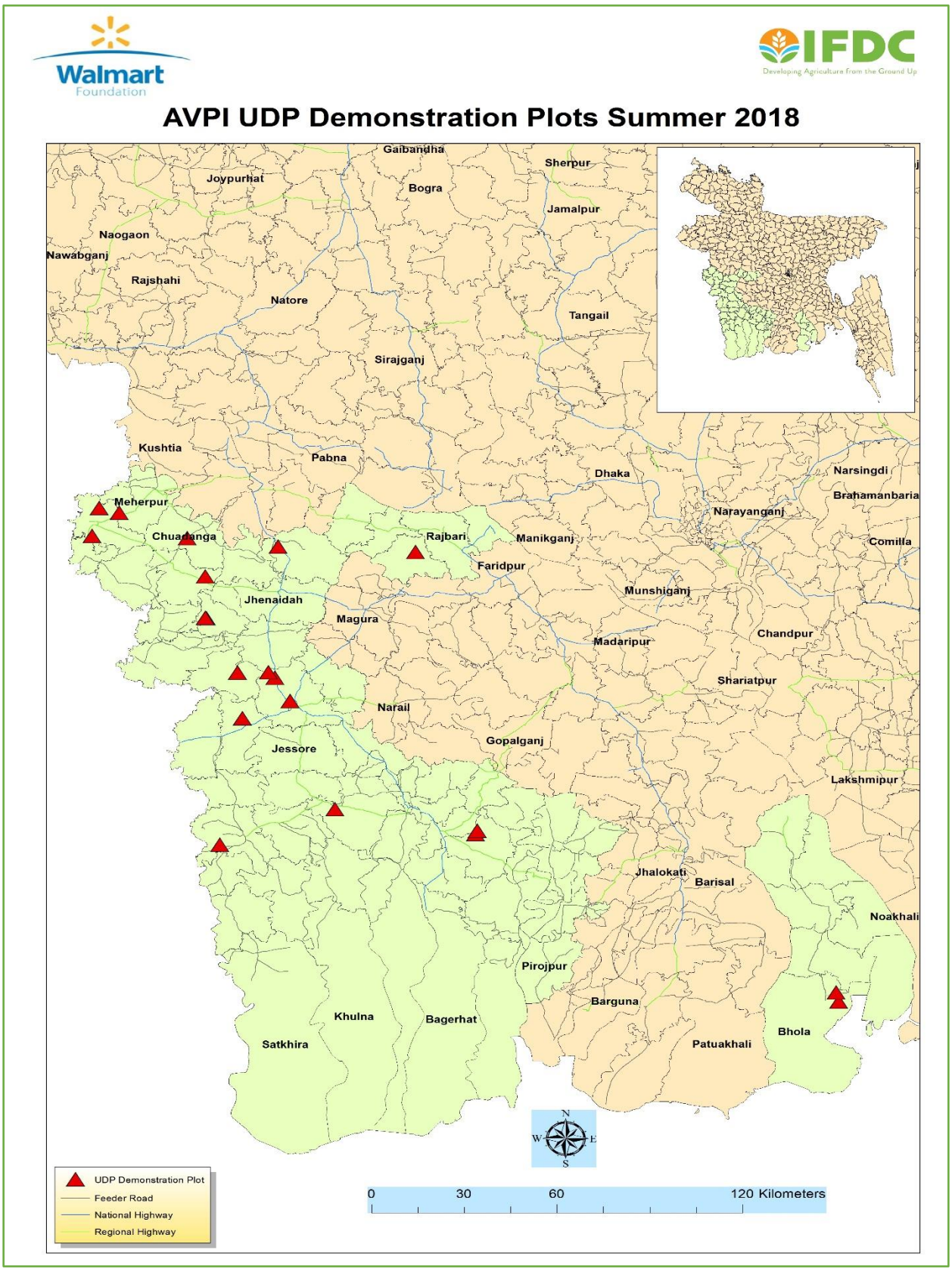

Figure 2. Location of Established AVPI Summer 2018 Demonstration Plots

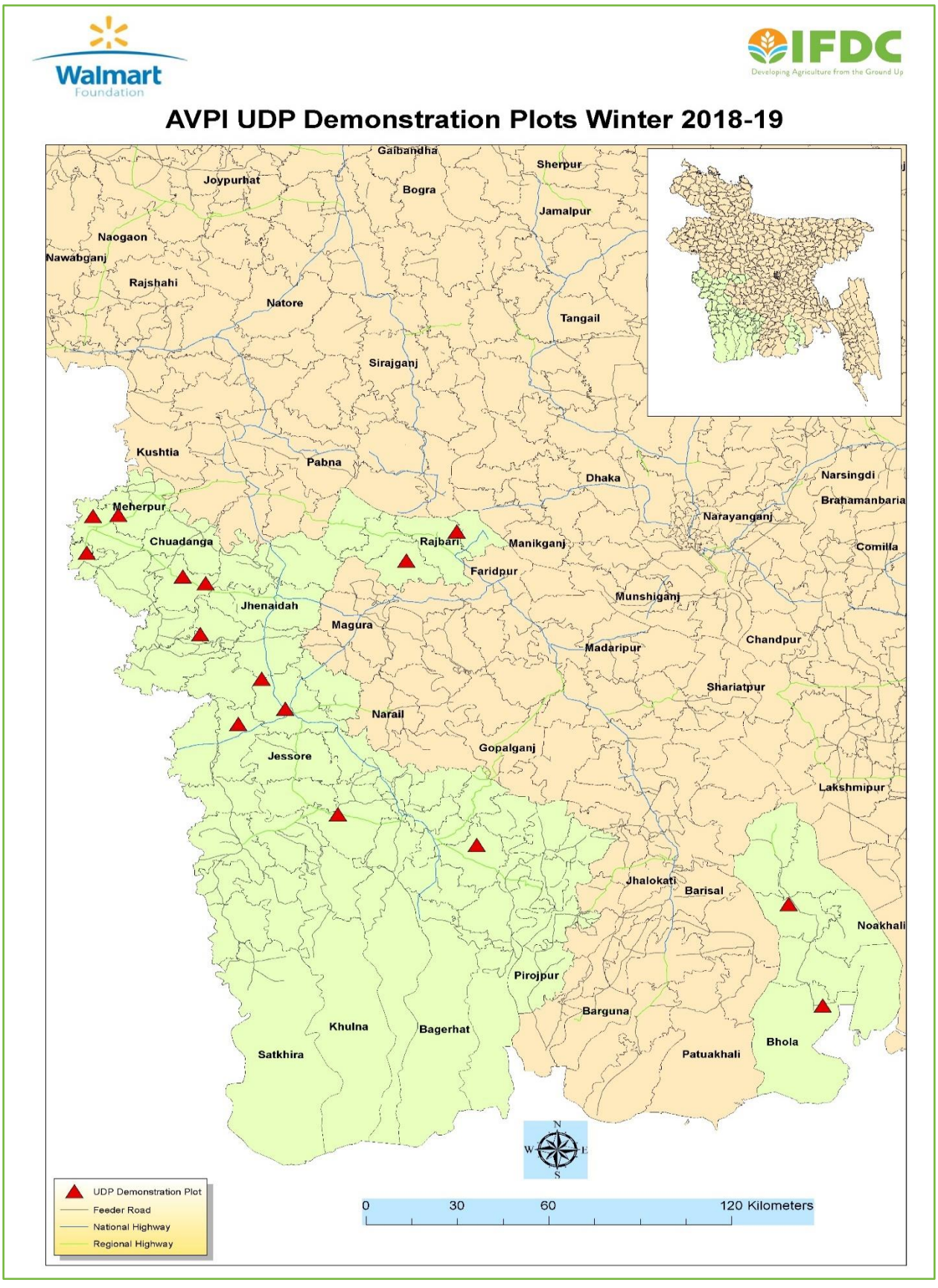

Figure 3. Location of Established AVPI Winter 2018-19 Demonstration Plots

Motivational Meeting with Women Early Adopters

This activity is used to maintain interest and encourage participation of early adopters. The project uses farmer meetings as an effective way to remind women farmers of the benefits that they received in the earlier phase when they used GAPs, including FDP technology. The purpose is to affirm farmers' commitment to use GAPs, including FDP technology, in the new season. As the project proceeds, the number of farmers who have already used FDP is growing to the point in which they are the majority. Motivational meetings are becoming the key to sustaining the numbers of adopters. The meetings are not difficult to organize and are inexpensive. In the reporting period, 200 batches of motivational meetings were organized with a total of 10,000 beneficiaries. Therefore, AVPI completed all 350 motivational meetings targeted with a total participation of 17,500 beneficiaries. Details by upazila are provided in Appendix 11.

UDP Demonstration Field Days

Field days are usually organized on the day of the crop cut of demonstration plots so that participating farmers can observe the method and results of FDP technology in the particular demonstration. They also share their experiences through question-and-answer sessions with demonstration farmers as well as with AVPI senior staff, DAE field staff, and other stakeholders. In the reporting period, 36 field days were held during winter 2017-18 and summer 2018 vegetable harvests of demonstration plots. This also included one field day for winter 2018-19. The remaining four field days for winter 2018-19 will be organized in November. A total of 1,800 participants attended the 36 field days, of which 1,455 were women farmers and 345 were male farmers. The DAE field officials, media personnel, briquetting machine owners, local leaders, and AVPI project officials also attended the programs. Appendix 12 indicates the total number of field days organized by upazila through October 2018.

Farmers with harvested cauliflower from AVPI FDP demonstration plot

Farmer Field Vegetable Crop Cuts

AVPI completed all 80 crop cuts planned in the reporting period. Of which, 50 crop cuts during winter 2017-18 were already reported in the AVPI semi-annual report. In summer 2018, AVPI completed 30 crop cuts, which included six crops with five replications (as mentioned in Table 13). Figure 4 shows locations of farmer field crop cuts using a GPS device.

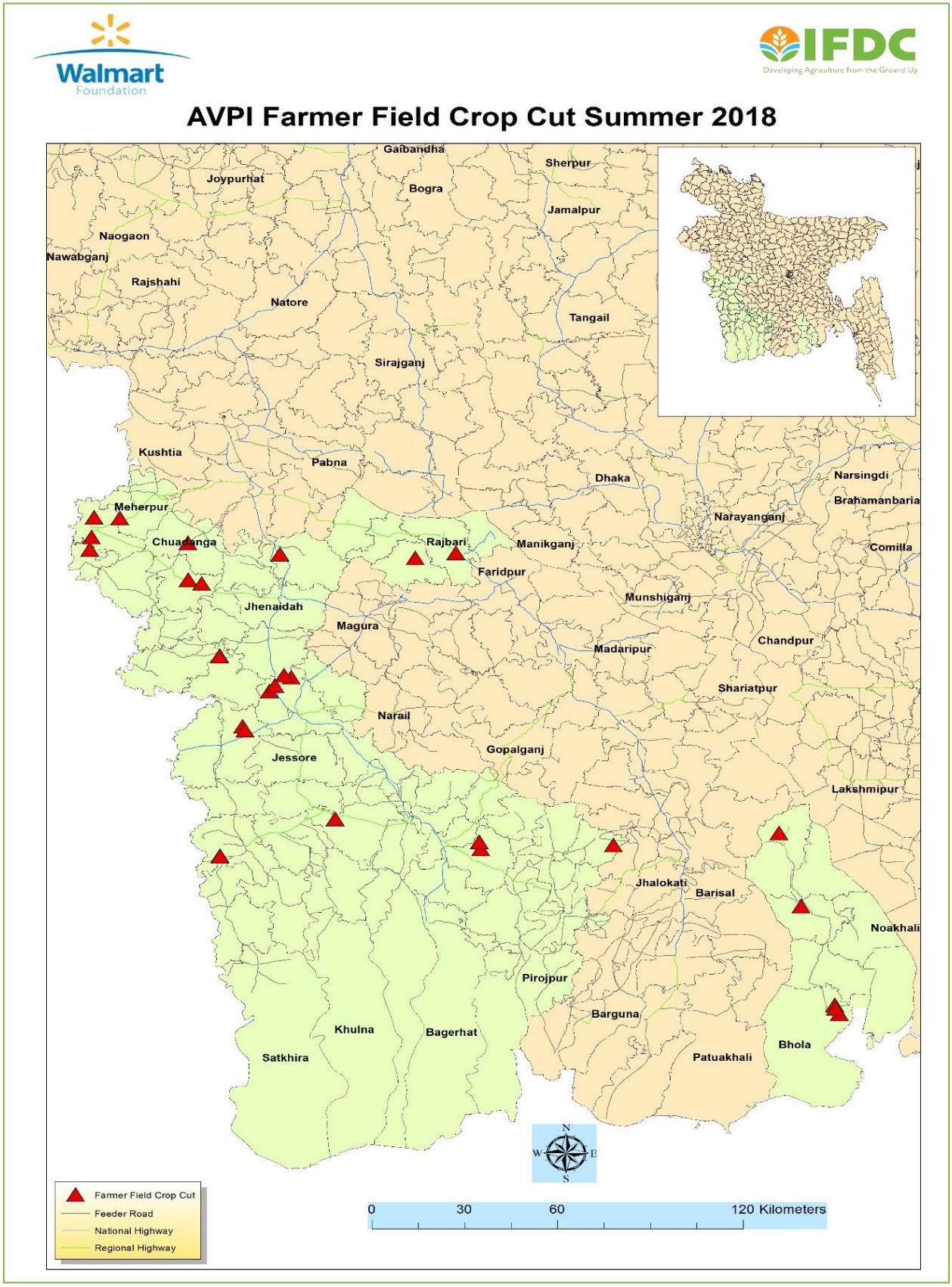

Figure 4. Locations of Farmer Field Crop Cuts, Summer 2018

Motivational Workshop and Machine Operational Training of BMOs

Motivational workshop and operational training of BMOs is a daylong activity following a highly participatory method. The discussions and interactions highlight the current fertilizer briquette (*Guti*) business and technical practices; review the status of participating BMOs; encourage more robust retailer network development; link BMOs to local mechanics for machine maintenance; and support the development of effective marketing techniques to increase the client base of each BMO. The program also includes group exercises and poster presentations on strengths, weaknesses, opportunities, and threats (SWOT) in carrying out their *Guti* business. The BMOs who are actively involved in briquette production, can truly affect the outcome of the project, and are interested in continuing sustainable *Guti* businesses are selected for the motivational workshop and operational training. During the reporting period, AVPI completed all five targeted programs with 253 total participants. Therefore, AVPI completed all targeted 10 motivational workshops and operational training. As mentioned above, Appendix 5 provides the details of the training program through October 2018.

Production of FDP Products

AVPI women BMOs produced 632.50 mt of FDP products between November 2017 and October 2018. There are also several briquette machines located in AVPI cluster villages that are owned by other farmers, and they produced 2,740.90 mt during the same period. Therefore, a total of 3,373.40 mt of FDP products (3,176.90 mt *Guti* urea and 196.50 mt NPK briquettes) were produced between November 2017 and October 2018 by briquette machines that are located in AVPI cluster villages (Appendix 13). However, there are also machines located outside of AVPI cluster villages, and farmers also get briquettes from them.

Printing and Distribution of Promotional Materials

AVPI is sharing information about project activities, including GAPs and FDP technologies, among beneficiaries and other stakeholders through leaflets, brochures, signboards, and flyers. These are being used in various activities, such as farmer training, motivational meetings with trained farmers, vegetable and fruit marketing seminars, field demonstrations, and field days. Materials were also distributed to representatives of integrated pest management (IPM)/integrated crop management (ICM) clubs and community leaders. A list of promotional materials prepared, printed, and displayed through October 2018 is presented in Appendix 14.

Media Coverage

In the reporting period, AVPI prepared three promotional videos on: (1) a successful woman farmer who is playing a key role in disseminating GAPs and FDP for crop production in the community; (2) a successful woman BMO who is running her briquetting business and earning good profits, ensuring the supply of fertilizer briquettes and motivating other farmers to use GAPs and FDP; and (3) overall AVPI project activities and results achieved. These videos will be shared with stakeholders of the AVPI project. The three videos have been posted on the IFDC website: https://wp.me/p4IvOU-4pk.

They are also available individually on IFDC's YouTube channel:

- Video 1: https://youtu.be/7UiHIc538Nc
- Video 2: https://youtu.be/Emgq9KKkipg
- Video 3: https://youtu.be/JeFjwGNI8Vo

The project regularly invites members of the electronic and print media to different events for wider coverage. These events are reported and broadcast on several television channels, in local/national newspapers, and online. Details on media coverage of the AVPI project are provided in Appendix 15.

Piloting Polynet Houses with Trickle Irrigation

Farmer Orientation for Polynet Houses with Trickle Irrigation Demonstration Plot Establishment

In Year 2, AVPI organized one orientation training program on the use of polynet houses with trickle irrigation for raising seedlings and crop production for women horticulture farmers who were selected to establish AVPI demonstration plots. The purpose of the program was to educate the female horticulture farmers about the benefit and application method of this technology. The polynet house or protected cultivation method will grow disease-free, good-quality seedlings because it reduces weather damage and the amount of insecticides required. The trickle irrigation system during crop production will also reduce the cost of irrigation. A total of 10 women farmers participated in the orientation program. Therefore, two orientation training programs on the use of polynet houses with trickle irrigation for raising seedlings and crop production were conducted. Details of the orientation by upazila are provided in Appendix 16.

Field Demonstrations

AVPI established 10 demonstration plots, which included five for seedling raising and five for crop production. This is a pilot program, and AVPI established the demonstration plots with eggplant. For the five demonstration plots on seedling raising, there were two treatments: (1) seedling raising under polynet houses; and (2) seedling raising without polynet houses. For the five demonstrations on crop production, there were also two treatments: (1) seedlings grown under polynet houses were transplanted in a separate plot under polynet houses with trickle irrigation and FDP and broadcast urea; and (2) seedlings grown without polynet houses were transplanted in a separate plot without polynet houses or trickle irrigation but with FDP and broadcast urea. Table 28 and Figure 5 show locations of demonstration plots on polynet houses with trickle irrigation. Therefore, AVPI completed all targeted 25 demonstration plots under polynet houses with trickle irrigation. Details of the demonstrations by crop and upazila are provided in Appendix 16.

Table 28. Demonstration Plots Under Polynet Houses with Trickle Irrigation

District	Upazila	Eggplant
Chuadanga	Alamdanga	2
	Chuadanga Sadar	2
Jessore	Jessore Sadar	2
	Jhikargachha	2
Jhenaidah	Kotchandpur	2
Total		**10**

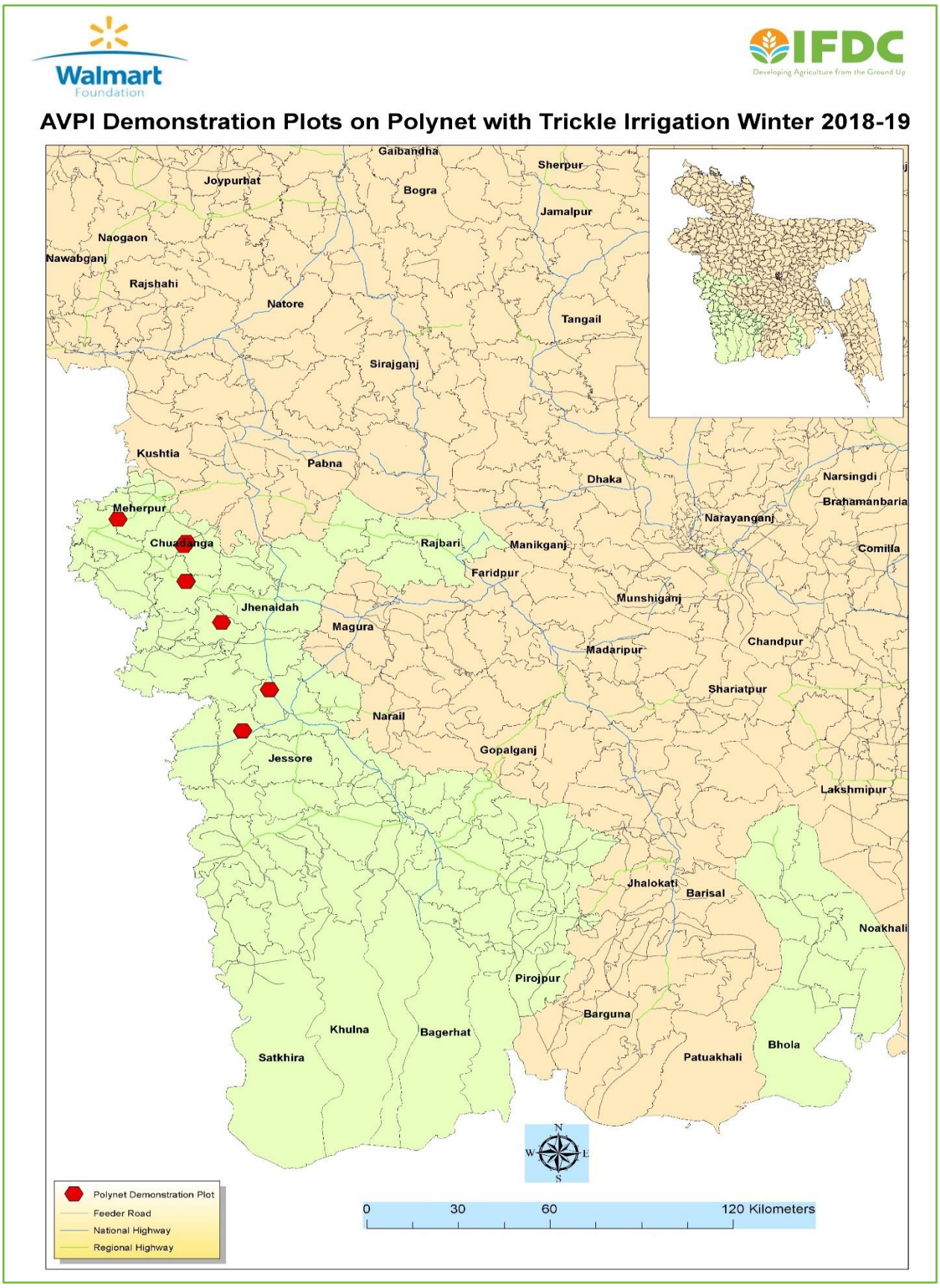

Figure 5. Locations of Demonstration Plots on Polynet With Trickle Irrigation

Results of Seedlings Grown Under Polynet and Without Polynet Houses

As discussed above, a total of five demonstration plots on eggplant seedling raising were established with and without polynet houses. The quality of seedlings grown under polynet was found uniform with high vigor, good size, shape and color, and maximum root formation. The seedlings were strong compared to farmers' practices without polynet houses. No insecticides were used on polynet seedlings, whereas on three occasions insecticides were sprayed on seedlings without polynet houses. The selling price was Tk 1.08 per seedling grown under polynet compared to Tk 0.92 per seedling grown without polynet houses (Table 29).

Without Polynet Houses *With Polynet Houses*

Table 29. Results of Seedling Raising With Polynet and Without Polynet Houses

Items	Demonstration Plots	
	With Polynet	Without Polynet
Germination Rate (%)	91	84
Vigor	More Vigor	Less Vigor
Strength	Stronger	Less Strong
Seedling Color	Brighter	Less Bright
Seedling Selling Price (Tk/Seedling)	1.08	0.92

Farmer Training

AVPI completed 10 batches of training for women farmers on seedling raising and crop production under polynet houses with trickle irrigation using UDP and prilled urea with a total participation of 400 women horticulture farmers (Table 30). The training topics included indoor discussion and interaction on the benefits and use of these technologies, followed by practical training near demonstration plots. Therefore, AVPI completed its target of 25 batches of farmer training on the use of polynet houses with trickle irritation with a total participation of 1,000 women horticulture farmers. Details of the farmer training by upazila are provided in Appendix 18.

Table 30. Farmer Training on the Use of Polynet Houses with Trickle Irrigation

District	Upazila	Batches	Total Participants
Chuadanga	Alamdanga	2	80
	Chuadanga Sadar	2	80
Jessore	Jessore Sadar	2	80
	Jhikargachha	2	80
Jhenaidah	Kotchandpur	2	80
Total		**10**	**400**

Field Days

During the reporting period, AVPI completed 15 field days, of which 10 were already reported in the semi-annual report (November 2017-June 2018). A total of 200 participants (157 female and 43 male) attended the remaining five field days on seedlings grown under polynet houses (Table 31). Therefore, AVPI completed 20 field days on polynet houses with trickle irritation demonstration with a total participation of 800 women horticulture farmers. Details of the field days by upazila are provided in Appendix 19.

Table 31. Field Days on Polynet Houses with Trickle Irrigation

District	Upazila	Number of Batches	Total Participants		
			Male	Female	Total
Chuadanga	Alamdanga	1	8	32	40
Chuadanga	Chuadanga Sadar	1	6	34	40
Jessore	Jessore Sadar	1	10	30	40
Jessore	Jhikargachha	1	9	31	40
Jhenaidah	Kotchandpur	1	10	30	40
	Total:	**5**	**43**	**157**	**200**

Agro-Input Retailer Training

AVPI organized two batches of agro-input retailer training programs in the reporting period (Table 32). A total of 24 agro-input retailers and five BMOs attended the training programs. The program included theoretical discussion and presentations on the benefits and use of polynet and trickle/drip irrigation technologies followed by practical demonstrations of these technologies in the field. By introducing these technologies, AVPI expects that the attendee retailers/BMOs will ensure supply and provide the materials of these technologies as per farmers' needs. AVPI also provided the contact information of the manufacturer of these materials to the participants. As mentioned above, Appendix 6 provides the details of the training program through October 2018.

Table 32. Agro-Input Retailer Training from November 2017 to October 2018

District	Upazila	Number of Participants								
		Retailers			BMOs			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Chuadanga	Alamdanga	11		11	2	1	3	13	1	14
Jessore	Jhikargachha	13		13	2		2	15		15
Total		**24**		**24**	**4**	**1**	**5**	**28**	**1**	**29**

Note: (a) Chuadanga training participants from Chuadanga (12) and Meherpur (2).
(b) Jessore training participants from Jessore (11) and Jhenaidah (4).

Improving Farmers' Access to Market Information

Vegetable and Fruit Marketing Seminar

Poster presentation on SWOT analysis by a woman farmer during an AVPI vegetable and fruit marketing seminar

To enhance the knowledge and practices of women farmers regarding market requirements, market information systems, the timing of sales, quality assurance, and creating linkages between producers and buyers, AVPI organized eight vegetable and fruit marketing seminars in the reporting period (Table 33). A total of 319 participants (139 female and 180 male) attended the programs, which included women horticulture farmers, market actors, district marketing officers, DAE officials, NGO representatives, and media personnel. Therefore, AVPI completed all targeted 16 vegetable marketing seminars with a total participation of 619 participants (276 female and 343 male) through October 2018. Findings of three surveys were shared among participants, followed by a group discussion on SWOTs and poster presentations. Appendix 20 provides detailed information on the market seminar. Appendix 21 provides major findings of different studies and the SWOT analysis from seminars.

Table 33. Vegetable and Fruit Marketing Seminar

District	Upazila	No. of Events	Total Participants		
			Male	Female	Total
Bhola	Char Fassion	1	19	17	36
Jessore	Jessore Sadar	1	22	15	37
Jhenaidah	Kotchandpur	1	21	19	40
Khulna/Satkhira	Dumuria	1	24	16	40
Meherpur	Sadar	1	20	20	40
Meherpur	Gangni	1	26	18	44
Pirojpur	Nesarabad	1	26	18	44
Rajbari	Rajbari Sadar	1	22	16	38
Total:		**8**	**180**	**139**	**319**

AVPI Team Mobilization

To achieve the project goals and targets, it is important to set up the field staff as close as possible to the project locations and beneficiaries. AVPI has its regional office in Jessore district, with headquarters in Dhaka. Under the guidance of the regional director of Asia, the AVPI project manager, gender specialist, and three M&E officers are carrying out their activities from the IFDC Dhaka office and making frequent visits in the field to oversee and monitor the work of field staff and interacting with AVPI beneficiaries. Some of the activities, such as the retailer training

program and seminar on marketing, are being implemented directly by the project manager and gender specialist with the assistance of field staff. Two field coordinators (FCs), six FMOs, and two junior horticulturists[9] are posted at the upazila (sub-district) level to carry out their activities smoothly and efficiently. The organogram of AVPI is presented in Figure 6. Job responsibilities for each position are described briefly as follows.

Project Manager: He is responsible for overall supervision of the project, under the guidance of the regional director of Asia, and for monitoring the day-to-day activities of the project staff. He prepares the M&E plan, seasonal and annual work plans, and weekly/monthly/annual reports under the close supervision of the regional director of Asia. He conducts training for project staff and stakeholders. He ensures accuracy of implementation and timely achievement of program activities and results indicators as well as ensures timely delivery of outputs. He also maintains regular liaison with project partners and stakeholders and updates the regional director of Asia with information on the progress of project activities, outputs, and outcomes. He makes regular field visits to monitor the quality of work of the field officers and the progress of the work. He also participates in field-level project activities, such as field days, crop cuts, seminars, workshops, and training. He also conducts an orientation training program for all AVPI staff before the start of each crop season.

Gender Specialist: She is responsible for identifying potential women farmer groups to include in project activities. She participates in field-level project activities and prepares manuals, promotional materials, case studies, and proceedings of seminars and workshops under the guidance of the regional director of Asia. She explores potential women groups for setting up new briquetting machines and conducts training on gender issues.

Field Coordinators: They are responsible for monitoring and supervising field-level activities performed by FMOs and junior horticulturists. They provide guidance and support to FMOs/junior horticulturists as needed for better achievement of project goals. They organize and attend field-level project activities, such as farmer training, demonstration establishment, field days, workshops, and seminars. They collect field data from FMOs/junior horticulturists, verify the data, and send data to the IFDC Dhaka office. They serve as liaisons with public and private sector stakeholders to implement project activities efficiently. The FCs are also responsible for mitigating crisis management, such as visiting all active BMOs to ensure adequate quantity of FDP products are available in the market as per demand. They link the BMOs with local mechanics to keep the machines in good condition.

Monitoring and Evaluation Officers: They are responsible for monitoring the flow of field-level data and its quality and timing in line with the work plan. They prepare database structure, data identification, checking, coding, verification, analyzing, and mapping of field-level data. They make surprise visits to verify task audits of project activities and the quality of data being collected by the FMOs.

Field Monitoring Officers/Junior Horticulturists: They are responsible for locating previously trained women farmers, selecting new progressive farmers, selecting demonstration sites,

[9] It may be noted that the project had one senior horticulturist/farming system specialist who died in August 2017. Therefore, the project management tried to replace this position with a senior horticulturist, but IFDC could not find a suitable candidate for such a short period of time and appointed two junior horticulturists with adequate experience working with IFDC in activities such as AVPI.

organizing farmer training, assisting famers in establishing demonstrations, organizing field days, and conducting crop cuts. They regularly visit fertilizer briquetting machine shops and ensure supply of FDP products to farmers by the BMOs. They also conduct regular motivational meetings with trained farmers and provide support to them in applying GAPs and FDP products as well as linking them with the proper marketing channel for selling their crops. They are also responsible for linking the beneficiaries with nearby BMOs. They are responsible for crisis management, such as visiting all active BMOs to ensure adequate quantity of FDP products are available in the market as per demand. They link the BMOs with local mechanics to keep the machines in good condition. They are also mainly responsible for collecting field-level data on crop cuts, area coverage, and other project activities and sending the data to FCs.

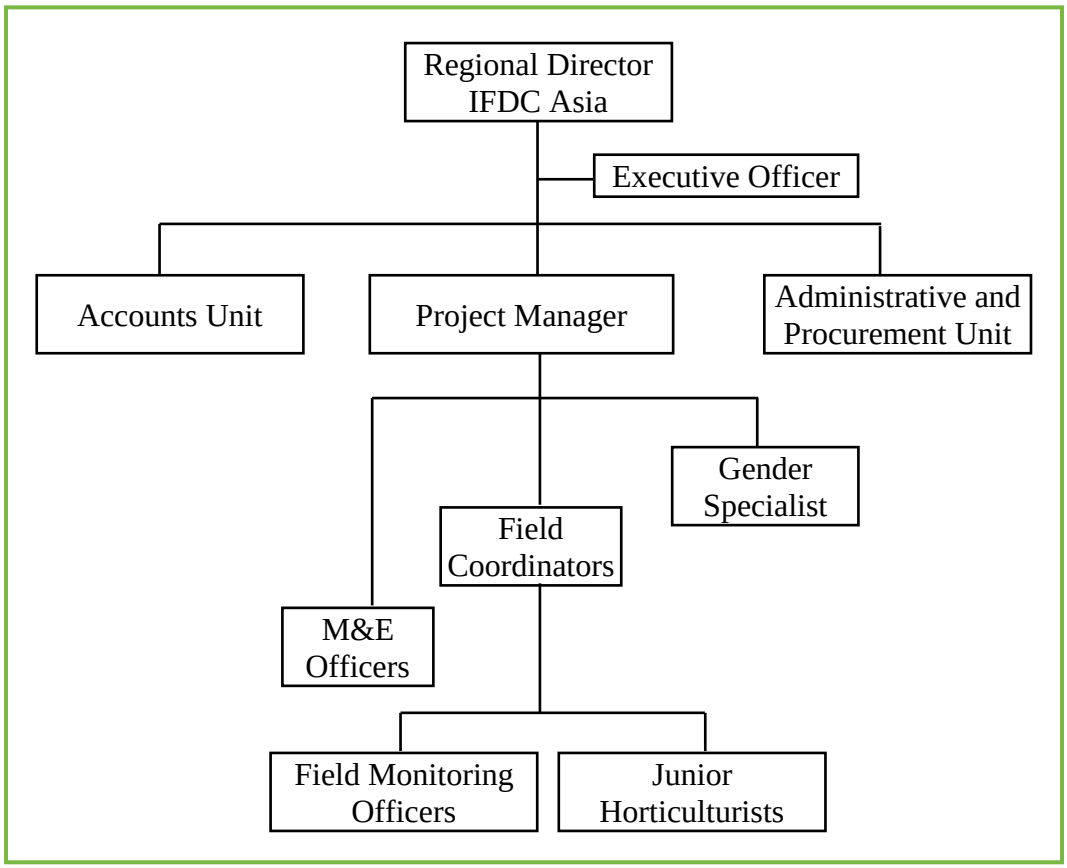

Figure 6. AVPI Organogram

Challenges and Issues

In the first phase of the Walmart Foundation Activity, IFDC employed only women field officials to work with women, but they faced problems in traveling into remote villages with public transport as most of them did not know how to drive motorcycles. Therefore, they had to spend a long time moving from one place to another using public transport, such as cycle rickshaw, public bus, baby taxis, etc. Therefore, IFDC decided to appoint men to work in the field with the women beneficiaries. However, it is not easy to work with women farmers initially. In general, the rural society is conservative, and there are also social barriers for women to take part in development activities. In the course of implementation of the project, AVPI has experienced a few such

challenges and taken measures to overcome those challenges. Some of the major challenges faced by AVPI include:

All-Women Beneficiaries: AVPI field-level staff are mainly men because of remote field-level movement and communication. At the beginning, it was a challenge for the male staff to have contact with women beneficiaries and bring them into project activities. So, AVPI field staff first engaged local men and women leaders, as well as the heads of family members, who were mainly men, by organizing informal and formal meetings to make them aware that women's economic empowerment is directly linked to the inter-related problems of food insecurity and poverty. Rural women are disproportionately affected by malnutrition as well as by poverty as a direct result of their disempowerment. IFDC, through the AVPI project, wants to address these issues working directly with women, especially those who are intimately involved in horticultural production, both at the homestead and also at the field level. AVPI staff discussed with the men about the goal and objectives of the AVPI project and managed to convince them that it will benefit the entire family if they allow the women farmers to participate in project activities as they (women) mostly grow horticultural crops. DAE field staff also provided full support to AVPI staff to overcome this challenge. Where necessary, AVPI staff also brought male family members of the women beneficiaries to attend different events so that they could discuss and understand the importance of involving women in development activities and how AVPI is helping women by improving their knowledge on increasing crop productivity to increase income of the family.

Lack of Technical Knowledge on GAPs by Women Farmers: Women farmers' technical knowledge on GAPs is very limited, although they are engaged in many horticultural crop production-related activities. It was observed that women are more inquisitive learners compared to men, and they spread their knowledge more quickly to their family members and neighbors compared to men. AVPI, through its farmer training programs and motivational meetings, is educating women on GAPs. In many events, the men also participate as an associate, which helps them to learn more about GAPs. After attending these trainings and meetings, the women beneficiaries are now well-educated in horticultural production, and most of them are practicing GAPs and FDP technology in their crop production. AVPI field staff, while following up with the women beneficiaries, found that they also share their knowledge with the male members of the family.

Lack of Knowledge on Post-Harvest Management and Marketing: The baseline survey found that the knowledge of women beneficiaries on post-harvest management and marketing of products is very low. Male members are primarily engaged in marketing and making decisions. One of the major objectives of AVPI is to improve women's knowledge on marketing and empower them in decision-making. To overcome this challenge, AVPI included technical information on crop production and marketing in its farmer training module and also organized vegetable marketing seminars, which are used as a "matchmaker" for women producers and market actors. The seminars are helping women beneficiaries to learn more about post-harvest management and marketing. AVPI is establishing linkages between producers and market actors through these seminars.

Maintenance of Briquette Machines: Two of the four briquetting machine producers have closed their workshops because of to tend to family responsibilities. It is now a significant challenge to replace major spare parts once the machines are broken. AVPI field staff are providing support to the BMOs by linking them with local machinery workshops for managing their spare parts from those shops. Also, they are linking them with other BMOs whose machines are out of order and

the spare parts from these machines are being used by those BMOs who are running their business in full swing in different locations. In the 2017-18 winter season, more than 11 BMOs have changed their spare parts with the assistance of AVPI staff. The AVPI project organizes workshops cum operational training for BMOs and local mechanics prior to each vegetable season. This workshop helps to establish linkages between machine owners and local mechanics, which play an important role in keeping machines in operation.

Availability of *Guti* (Briquettes) Fertilizer: Availability of *Guti* products is an issue for some women farmers as no machines are located near their farms. They have to walk long distance to buy *Guti* products. To mitigate this problem, AVPI staff have requested that BMOs sell their products through retailers, and this will also increase their sales and profitability. The project organizes workshops, which include BMOs and agro-input retailers, and motivate the retailers to keep some *Guti* products in their shops, along with other items, so that women farmers can get *Guti* fertilizer near their farms. Generally, the agro-input retailers are located very close to farmers and their relationship is quite good. Many women farmers are purchasing *Guti* fertilizers from these shops.

Lessons Learned

In the agriculture sector of Bangladesh, the formal participation of women is not widely recognized, although women play multiple formal and informal roles in the agriculture sector. Here, we have outlined some of the key lessons learned during the two years of AVPI project implementation.

Women Farmers Need More Skilled Training and Follow-Up Visits: The women famers are more progressive than anticipated. However, they need more skilled training in managing their farm products. Unfortunately, there are very few projects that are exclusively educating and training women farmers in improving their crop productivity, income, and nutrition and then empowering them. Walmart Foundation deserves thanks as this is the only organization in Bangladesh that is exclusively working with women farmers and, with implementation by IFDC, producing impressive results for Bangladesh. The women farmers need proper training on improving their crop productivity, especially of horticultural crops, which is mainly their domain at the homestead level and to some extent in the field. They also need some follow-up discussions after the training to clarify many issues related to crop productivity that they face while applying their skills in the actual field. AVPI staff are regularly playing an important role for these women farmers, visiting them regularly even after providing training.

Women Farmers Disseminate Their Skills Faster Than Men: During the implementation of AVPI, project field staff, through informal discussions, found that women share their knowledge not only with their male family members but also with their neighboring women farmers. They spread the message faster than male farmers.

Women's Knowledge Has Improved on Vegetable Production and Nutrition: Through farmer training, the AVPI intervention has improved women's knowledge on fruit and vegetable production practices, nutrition, and market information. After the training was completed, the women farmers were requested to complete an evaluation form; most of the women agreed that their knowledge on each subject fulfilled their expectation, indicating that their skills and knowledge have improved. However, they informally requested for a follow-up visit by AVPI staff to further improve their confidence. In their homestead gardens, crop diversity has increased with

application of GAPs and FDP technology. Their knowledge on nutrition has also improved substantially, not only in terms of food intake but also on health hygiene.

Families' Diets Have Improved: Most trained women farmers during the informal meetings and during crop cuts and field days admitted that after AVPI intervention, their crop productivity has increased and, therefore, their income has increased. As a result, many of them admitted that their dietary diversity has improved.

Women Are More Empowered: Informal discussion with women revealed that they are more empowered across all AVPI interventions. They can share their suggestions with their husbands and other family members, and most of them also take part in the household and agriculture-related decision-making process together with their husbands and other family members. The AVPI beneficiaries admitted that the attitude of male partners is gradually improving. Many women recognized that they make important contributions to the community.

Associate Male Farmers: Although AVPI direct beneficiaries are women, the male family members are encouraged to participate in most activities, and it is very helpful for them to make decisions jointly. It also helps women to participate smoothly/confidently in different activities and improve work abilities. In particular, allowing the female BMOs to bring their husbands to the trainings has added value toward establishing and running successful enterprises, as the husbands were able to provide more insights toward marketing and operational procedures, due to their external exposure.

Women Entrepreneurs: Overcoming sociocultural, educational, and financial challenges in creating women-run *Guti* fertilizer business establishments in rural Bangladesh requires collaboration at all levels – family, community, government, NGOs, and other private businesses. Private initiatives are crucial for greater acceptance and entrepreneur development for these women.

Women's Knowledge Has Improved on Market Information: Knowledge on marketing is very limited for women farmers. It is not easy for them to communicate with market channels, because their male family members primarily handle it. AVPI vegetable marketing seminars played an important role to link these groups of women with different market actors and also improve their capability in post-harvest management to receive better income of their crop sales. The women farmers now communicate with market actors through mobile phones and sometimes through visiting the marketplace with other family members. The changing of livelihoods and socio-economic scenarios of AVPI women beneficiaries is visible. The AVPI intervention has considerably improved the knowledge of direct beneficiary women farmers on vegetable markets.

Designing Activities in the Context of Social Aspects: Implementing a gender-transformative project requires greater attention to, and appreciation for, the distinctions of social and cultural aspects. Although the lesson is not new, it again emerges as an important finding from AVPI implementation: it is critical to understand the gender roles along the given value chain in all of their difficulty. In the case of vegetable production and marketing in Bangladesh, women's participation is very limited. Enabling participation of women in the use of improved agricultural technologies through capacity building will likely produce significant, multiple impacts (improved nutrition, income, yields, etc.) at the farm household level.

As a result, a little accommodation in project implementation can make a huge difference toward successful participation of women in rural communities. For instance, the following have led to successful participation of women in large numbers over a short period of time: designing trainings to match women's schedules, providing childcare facilities, allowing their male family members to attend, conducting training very close to their locations, using more visual and pictorial materials, demonstrations, training using women mentors or extension agents, and using hands-on teaching techniques. Therefore, in short, the following are four important takeaways from the AVPI intervention:

1. The project has achieved impact on women's knowledge and practices as a result of training in agricultural production, nutrition, and marketing.
2. However, greater impact can be revealed if an approach is used combining agriculture, nutrition, marketing, and gender.
3. Training husbands and wives in the household, or a whole-family approach, is a key to more success.
4. It is important to involve DAE field officials to reach women farmers and train them considering the sustainability of project interventions.

Estimated Budget and Actual Expenditure

AVPI is incurring costs as planned. Although AVPI activities started in November 2016, virtually all project activities in the field began in January 2017 after appointment of all staff. Therefore, the project's actual expenses started from January 2017, and the expenses reported here are through October 2018. The total budget of the project is U.S. $1,191,087. Of this, the actual expenses incurred totaled U.S. $801,633 through October 2018, or 67%. Details of the expenses are provided in Table 34.

Table 34. Financial Achievement Against Estimated Budget in U.S. $

Line Item	Year 1 Budget	Year 1 Expense Through May 2018	Percent Achieved
Personnel, fringe benefits, and allowances	577,468.00	450,783.91	78%
Travel and transportation	147,012.00	58,112.41	40%
Procurement (equipment/ supplies/contracts/grants)	29,300.00	23,995.32	82%
Program activities	280,379.00	150,140.21	54%
Other direct costs	48,728.00	45,725.53	94%
Total direct costs	**1,082,887.00**	**728,757.38**	67%
Overhead	**108,200.00**	**72,875.74**	**67%**
Total Walmart Activity Amount	**1,191,087.00**	**801,633.12**	**67%**

Appendix 1. Area Under FDP Coverage by Direct Beneficiaries by Upazila

A. Winter 2017-18

District	Upazila	Total Active Trained Farmers Through Winter 2017-18	Crop Area Under FDP Coverage (ha)												
			Cabbage	Bottle Gourd	Cauliflower	Chili	Country Bean	Eggplant	Knolkhol	Sweet Gourd	Tomato	Potato	Taro	Others	Total
Bagerhat	Sadar	886	35.42	6.07	27.33	0.51	11.13	24.29	1.00	3.03	5.57	0.50	-	-	114.86
Sub-Total		**886**	**35.42**	**6.07**	**27.33**	**0.51**	**11.13**	**24.29**	**1.00**	**3.03**	**5.57**	**0.50**	**-**	**-**	**114.86**
Bhola	Bhola Sadar	634	12.50	68.98	6.00	-	7.00	35.51	-	8.00	32.00	35.00	-	10.39	215.39
	Burhanuddin	1,038	15.51	60.01	11.51	40.92	-	52.01	-	15.02	33.00	35.05	-	21.53	284.56
	Char Fasson	1,650	32.00	109.00	24.51	74.50	24.00	146.00	-	10.50	81.00	40.00	-	56.61	598.13
Sub-Total		**3,322**	**60.01**	**237.99**	**42.02**	**115.42**	**31.00**	**233.52**	**-**	**33.52**	**146.00**	**110.05**	**-**	**88.53**	**1,098.07**
Chuadanga	Alamdanga	1,939	8.00	20.10	8.41	9.31	10.19	43.00	2.00	9.59	8.01	9.04	0.14	38.43	166.20
	Sadar	3,432	41.97	38.50	145.00	20.98	24.07	58.00	5.85	22.00	9.55	42.01	-	30.28	438.21
	Damurhuda	1,722	27.00	26.00	38.98	11.99	19.99	75.92	1.00	11.00	23.61	24.00	-	39.94	299.43
	Jibannagar	641	10.81	20.41	8.58	-	-	17.37	-	-	-	0.81	-	12.90	70.87
Sub-Total		**7,734**	**87.78**	**105.01**	**200.97**	**42.28**	**54.25**	**194.28**	**8.85**	**42.58**	**41.16**	**75.86**	**0.14**	**121.54**	**974.71**
Jessore	Bagherpara	185	2.00	-	2.00	-	-	2.50	-	-	1.00	-	-	4.00	11.50
	Chaugachha	814	6.00	-	4.00	-	16.00	27.00	-	-	-	-	-	17.00	70.00
	Sadar	2,105	56.00	1.00	24.00	2.00	50.24	80.34	-	-	-	-	-	51.47	265.05
	Jhikargachha	1,404	17.00	-	15.00	-	-	20.00	-	-	3.00	23.00	-	97.00	175.00
Sub-Total		**4,508**	**81.00**	**1.00**	**45.00**	**2.00**	**66.24**	**129.84**	**-**	**-**	**4.00**	**23.00**	**-**	**169.47**	**521.55**
Jhenaidah	Kaliganj	759	0.36	11.52	0.32	-	-	11.94	-	-	6.76	-	-	11.09	42.00
	Kotchandpur	693	3.97	25.55	7.98	-	-	33.96	-	9.04	1.01	12.45	-	6.66	100.61
	Maheshpur	982	0.51	5.06	0.53	-	-	26.15	-	10.57	10.04	15.99	-	35.02	103.87
	Shailkupa	684	3.97	5.99	14.39	-	-	16.98	-	-	5.10	-	-	6.05	52.49
Sub-Total		**3,118**	**8.81**	**48.12**	**23.22**	**-**	**-**	**89.04**	**-**	**19.61**	**22.92**	**28.44**	**-**	**58.83**	**298.98**
Khulna	Dumuria	1,093	8.58	5.84	46.79	2.53	14.28	15.04	0.88	2.54	5.27	0.16	-	16.23	118.13
Sub-Total		**1,093**	**8.58**	**5.84**	**46.79**	**2.53**	**14.28**	**15.04**	**0.88**	**2.54**	**5.27**	**0.16**	**-**	**16.23**	**118.13**
Meherpur	Gangni	1,275	84.00	15.50	73.00	-	-	9.80	17.50	-	-	16.00	-	4.55	220.35
	Sadar	2,300	129.81	40.41	115.31	4.57	-	7.90	42.00	-	-	41.50	-	-	381.50
	Mujibnagar	747	24.50	13.00	24.50	-	-	-	13.50	-	-	18.00	-	16.00	109.50
Sub-Total		**4,322**	**238.31**	**68.91**	**212.81**	**4.57**	**-**	**17.70**	**73.00**	**-**	**-**	**75.50**	**-**	**20.55**	**711.35**
Pirojpur	Nesarabad	1,871	45.54	13.40	40.99	13.16	5.06	25.30	11.64	19.23	14.17	9.10	-	21.25	218.82
Sub-Total		**1,871**	**45.54**	**13.40**	**40.99**	**13.16**	**5.06**	**25.30**	**11.64**	**19.23**	**14.17**	**9.10**	**-**	**21.25**	**218.82**
Rajbari	Baliakandi	903	11.74	6.69	42.00	1.75	4.09	7.83	1.75	5.03	6.00	13.29	2.53	22.96	125.65
	Sadar	1,427	8.75	7.77	26.14	2.11	4.86	15.57	-	6.07	24.10	-	-	34.04	129.40
Sub-Total		**2,330**	**20.49**	**14.46**	**68.14**	**3.85**	**8.95**	**23.41**	**1.75**	**11.09**	**30.09**	**13.29**	**2.53**	**57.00**	**255.05**

District	Upazila	Total Active Trained Farmers Through Winter 2017-18	Crop Area Under FDP Coverage (ha)												
			Cabbage	Bottle Gourd	Cauliflower	Chili	Country Bean	Eggplant	Knolkhol	Sweet Gourd	Tomato	Potato	Taro	Others	Total
Satkhira	Sadar	708	0.69	0.57	1.85	-	0.41	2.64	4.38	1.34	0.44	0.75	-	39.73	52.80
Sub-Total		**708**	**0.69**	**0.57**	**1.85**	**-**	**0.41**	**2.64**	**4.38**	**1.34**	**0.44**	**0.75**	**-**	**39.73**	**52.80**
Grand Total		**29,892**	**586.64**	**501.36**	**709.11**	**184.31**	**191.33**	**755.06**	**101.49**	**132.94**	**269.62**	**336.66**	**2.67**	**593.13**	**4,364.32**

Source: *Cluster Village Monitoring Survey, Winter 2017-18, AVPI.*

B. Summer 2018

District	Upazila	Total Active Trained Farmers Through Summer 2018	Crop Area Under FDP Coverage (ha)												
			Eggplant	Pointed Gourd	Taro	Cucumber	Bottle Gourd	Banana	Bitter Gourd	Chili	Sweet Gourd	Papaya	Guava	Others Crops	Total
Bagerhat	Bagerhat Sadar	1,046	11.28	2.47	-	7.91	1.46	0.43	6.89	0.91	3.00	0.25	-	23.52	58.11
Sub-Total		**1,046**	**11.28**	**2.47**	**-**	**7.91**	**1.46**	**0.43**	**6.89**	**0.91**	**3.00**	**0.25**	**-**	**23.52**	**58.11**
Bhola	Bhola Sadar	754	19.52	-	8.01	16.01	18.51	1.00	23.51	-	18.51	-	-	16.51	121.58
	Burhanuddin	1,158	30.51	-	4.01	21.51	26.01	1.00	26.51	2.51	24.00	-	-	14.53	150.60
	Char Fasson	1,770	56.51	-	11.01	73.51	65.01	-	53.00	11.51	53.01	-	-	5.51	329.05
Sub-Total		**3,682**	**106.54**	**-**	**23.03**	**111.03**	**109.53**	**2.00**	**103.02**	**14.01**	**95.52**	**-**	**-**	**36.55**	**601.23**
Chuadanga	Alamdanga	2,179	26.00	20.50	30.59	2.59	10.00	9.53	2.13	8.93	9.01	-	-	0.30	119.57
	Chuadanga Sadar	3,552	49.98	57.05	93.92	21.00	45.15	16.97	9.50	21.13	28.36	-	-	1.32	344.38
	Damurhuda	1,882	80.00	57.00	21.00	12.00	30.50	11.41	6.50	17.60	18.50	-	-	-	254.50
	Jibannagar	641	15.55	13.75	7.00	-	-	7.87	11.18	-	-	-	7.02	-	62.37
Sub-Total		**8,254**	**171.52**	**148.30**	**152.52**	**35.59**	**85.65**	**45.78**	**29.30**	**47.66**	**55.87**	**-**	**7.02**	**1.62**	**780.82**
Jessore	Bagherpara	225	4.50	6.50	-	1.01	1.00	-	1.00	-	-	0.99	-	1.00	16.00
	Chaugachha	894	24.00	20.00	12.00	7.00	12.00	-	7.00	-	13.00	-	-	3.00	98.00
	Jessore Sadar	2,305	84.00	87.00	18.00	5.00	32.00	-	20.00	-	8.00	-	-	34.00	288.00
	Jhikargachha	1,524	23.00	40.00	14.50	2.00	20.00	-	10.00	-	5.50	63.00	-	-	178.00
Sub-Total		**4,948**	**135.50**	**153.50**	**44.50**	**15.01**	**65.00**	**-**	**38.00**	**-**	**26.50**	**63.99**	**-**	**38.00**	**580.00**
Jhenaidah	Kaliganj	759	8.10	6.07	6.34	-	-	5.06	8.10	-	-	-	-	-	33.66
	Kotchandpur	813	15.28	8.81	3.85	-	-	10.00	7.09	-	-	-	9.27	-	54.29
	Maheshpur	1,022	21.05	3.20	11.58	-	-	14.47	19.96	-	-	-	4.29	-	74.55
	Shailkupa	764	21.38	9.11	5.06	7.09	-	7.09	6.07	-	-	1.01	-	-	56.80
Sub-Total		**3,358**	**65.81**	**27.19**	**26.82**	**7.09**	**-**	**36.62**	**41.21**	**-**	**-**	**1.01**	**13.56**	**-**	**219.31**

District	Upazila	Total Active Trained Farmers Through Summer 2018	Crop Area Under FDP Coverage (ha)												
			Eggplant	Pointed Gourd	Taro	Cucumber	Bottle Gourd	Banana	Bitter Gourd	Chili	Sweet Gourd	Papaya	Guava	Others Crops	Total
Khulna	Dumuria	1,173	18.30	6.79	2.18	12.64	2.25	-	4.65	0.24	2.99	0.41	-	12.66	63.10
Sub-Total		**1,173**	**18.30**	**6.79**	**2.18**	**12.64**	**2.25**	**-**	**4.65**	**0.24**	**2.99**	**0.41**	**-**	**12.66**	**63.10**
Meherpur	Gangni	1,355	10.00	5.50	37.50	40.50	-	14.00	2.00	27.00	-	-	-	-	136.50
	Meherpur Sadar	2,540	26.00	10.00	78.70	57.50	-	14.00	2.00	42.00	-	-	-	-	230.20
	Mujibnagar	867	7.00	2.00	25.00	23.00	-	27.00	-	16.00	-	-	-	-	100.00
Sub-Total		**4,762**	**43.00**	**17.50**	**141.20**	**121.00**	**-**	**55.00**	**4.00**	**85.00**	**-**	**-**	**-**	**-**	**466.70**
Pirojpur	Nesarabad	2,071	11.87	3.97	1.82	19.49	3.62	6.63	9.06	0.83	16.43	2.53	-	53.33	129.57
Sub-Total		**2,071**	**11.87**	**3.97**	**1.82**	**19.49**	**3.62**	**6.63**	**9.06**	**0.83**	**16.43**	**2.53**	**-**	**53.33**	**129.57**
Rajbari	Baliakandi	1,023	31.63	5.32	9.11	1.52	-	8.10	-	7.11	3.77	3.97	-	13.08	83.60
	Rajbari Sadar	1,627	34.64	32.10	5.30	10.12	-	1.01	1.01	8.34	3.12	-	-	27.07	122.71
Sub-Total		**2,650**	**66.27**	**37.43**	**14.41**	**11.64**	**-**	**9.11**	**1.01**	**15.45**	**6.88**	**3.97**	**-**	**40.15**	**206.31**
Satkhira	Satkhira Sadar	748	12.87	31.50	1.11	0.92	0.52	-	-	0.55	1.18	-	-	3.36	52.00
Sub-Total		**748**	**12.87**	**31.50**	**1.11**	**0.92**	**0.52**	**-**	**-**	**0.55**	**1.18**	**-**	**-**	**3.36**	**52.00**
Grand Total		**32,692**	**642.95**	**428.63**	**407.59**	**342.32**	**268.02**	**155.57**	**237.15**	**164.64**	**208.37**	**72.15**	**20.59**	**209.18**	**3,157.15**

Source: *Cluster Village Monitoring Survey, Summer 2017, AVPI.*

*Other crops under FDP coverage include Teasel Gourd (60.01 ha), Sponge Gourd (43.78 ha), Snake Gourd (39.99 ha), Ash Gourd (27.11 ha), Betel Leaf (12.70 ha), Okra (11.30 ha), Sugarcane (4.53 ha), Watermelon (3.82 ha), Yard long Bean (2.74 ha), Country Bean (1.99 ha), Ridge Gourd (1.21 ha).

C. Total (Winter 2017-18 and Summer 2018)

District	Upazila	Total Active Trained Farmers Through Summer 2018	Crop Area Under FDP Coverage (ha)																	
			Cabbage	Bottle Gourd	Cauliflower	Chili	Country Bean	Eggplant	Knolkhol	Sweet Gourd	Tomato	Potato	Taro	Pointed Gourd	Cucumber	Banana	Bitter Gourd	Papaya	Guava	Other Crops	Total
Bagerhat	Bagerhat Sadar	1,046	35.42	7.53	27.33	1.41	11.13	35.57	1.00	6.03	5.57	0.50	-	2.47	7.91	0.43	6.89	0.25	-	23.52	172.96
Sub-Total		**1,046**	**35.42**	**7.53**	**27.33**	**1.41**	**11.13**	**35.57**	**1.00**	**6.03**	**5.57**	**0.50**	**-**	**2.47**	**7.91**	**0.43**	**6.89**	**0.25**	**-**	**23.52**	**172.96**
Bhola	Bhola Sadar	754	12.50	87.49	6.00	-	7.00	55.03	-	26.51	32.00	35.00	8.01	-	16.01	1.00	23.51	-	-	26.90	336.96
	Burhanuddin	1,158	15.51	86.02	11.51	43.43	-	82.52	-	39.02	33.00	35.05	4.01	-	21.51	1.00	26.51	-	-	36.06	435.16
	Char Fasson	1,770	32.00	174.01	24.51	86.01	24.00	202.51	-	63.51	81.00	40.00	11.01	-	73.51	-	53.00	-	-	62.12	927.18
Sub-Total		**3,682**	**60.01**	**347.52**	**42.02**	**129.43**	**31.00**	**340.05**	**-**	**129.04**	**146.00**	**110.05**	**23.03**	**-**	**111.03**	**2.00**	**103.02**	**-**	**-**	**125.08**	**1,699.30**
Chuadanga	Alamdanga	2,179	8.00	30.10	8.41	18.24	10.19	69.00	2.00	18.59	8.01	9.04	30.73	20.50	2.59	9.53	2.13	-	-	38.73	285.78
	Chuadanga Sadar	3,552	41.97	83.65	145.00	42.11	24.07	107.98	5.85	50.36	9.55	42.01	93.92	57.05	21.00	16.97	9.50	-	-	31.60	782.59
	Damurhuda	1,882	27.00	56.50	38.98	29.58	19.99	155.92	1.00	29.50	23.61	24.00	21.00	57.00	12.00	11.41	6.50	-	-	39.94	553.93
	Jibannagar	641	10.81	20.41	8.58	-	-	32.92	-	-	-	0.81	7.00	13.75	-	7.87	11.18	-	7.02	12.90	133.24
Sub-Total		**8,254**	**87.78**	**190.66**	**200.97**	**89.94**	**54.25**	**365.81**	**8.85**	**98.45**	**41.16**	**75.86**	**152.66**	**148.30**	**35.59**	**45.78**	**29.30**	**-**	**7.02**	**123.16**	**1,755.53**
Jessore	Bagherpara	225	2.00	1.00	2.00	-	-	7.00	-	-	1.00	-	-	6.50	1.01	-	1.00	0.99	-	5.00	27.50
	Chaugachha	894	6.00	12.00	4.00	-	16.00	51.00	-	13.00	-	-	12.00	20.00	7.00	-	7.00	-	-	20.00	168.00
	Jessore Sadar	2,305	56.00	33.00	24.00	2.00	50.24	164.34	-	8.00	-	-	18.00	87.00	5.00	-	20.00	-	-	85.47	553.04
	Jhikargachha	1,524	17.00	20.00	15.00	-	-	43.00	-	5.50	3.00	23.00	14.50	40.00	2.00	-	10.00	63.00	-	97.00	353.00
Sub-Total		**4,948**	**81.00**	**66.00**	**45.00**	**2.00**	**66.24**	**265.34**	**-**	**26.50**	**4.00**	**23.00**	**44.50**	**153.50**	**15.01**	**-**	**38.00**	**63.99**	**-**	**207.47**	**1,101.55**
Jhenaidah	Kaliganj	759	0.36	11.52	0.32	-	-	20.04	-	-	6.76	-	6.34	6.07	-	5.06	8.10	-	-	11.09	75.67
	Kotchandpur	813	3.97	25.55	7.98	-	-	49.24	-	9.04	1.01	12.45	3.85	8.81	-	10.00	7.09	-	9.27	6.66	154.91
	Maheshpur	1,022	0.51	5.06	0.53	-	-	47.21	-	10.57	10.04	15.99	11.58	3.20	-	14.47	19.96	-	4.29	35.02	178.42
	Shailkupa	764	3.97	5.99	14.39	-	-	38.36	-	-	5.10	-	5.06	9.11	7.09	7.09	6.07	1.01	-	6.05	109.30
Sub-Total		**3,358**	**8.81**	**48.12**	**23.22**	**-**	**-**	**154.85**	**-**	**19.61**	**22.92**	**28.44**	**26.82**	**27.19**	**7.09**	**36.62**	**41.21**	**1.01**	**13.56**	**58.83**	**518.29**
Khulna	Dumuria	1,173	8.58	8.08	46.79	2.77	14.28	33.34	0.88	5.53	5.27	0.16	2.18	6.79	12.64	-	4.65	0.41	-	28.88	181.23
Sub-Total		**1,173**	**8.58**	**8.08**	**46.79**	**2.77**	**14.28**	**33.34**	**0.88**	**5.53**	**5.27**	**0.16**	**2.18**	**6.79**	**12.64**	**-**	**4.65**	**0.41**	**-**	**28.88**	**181.23**
Meherpur	Gangni	1,355	84.00	15.50	73.00	27.00	-	19.80	17.50	-	-	16.00	37.50	5.50	40.50	14.00	2.00	-	-	4.55	356.85
	Meherpur Sadar	2,540	129.81	40.41	115.31	46.57	-	33.90	42.00	-	-	41.50	78.70	10.00	57.50	14.00	2.00	-	-	-	611.70
	Mujibnagar	867	24.50	13.00	24.50	16.00	-	7.00	13.50	-	-	18.00	25.00	2.00	23.00	27.00	-	-	-	16.00	209.50
Sub-Total		**4,762**	**238.31**	**68.91**	**212.81**	**89.57**	**-**	**60.70**	**73.00**	**-**	**-**	**75.50**	**141.20**	**17.50**	**121.00**	**55.00**	**4.00**	**-**	**-**	**20.55**	**1,178.05**
Pirojpur	Nesarabad	2,071	45.54	17.02	40.99	13.99	5.06	37.17	11.64	35.65	14.17	9.10	1.82	3.97	19.49	6.63	9.06	2.53	-	74.58	348.39
Sub-Total		**2,071**	**45.54**	**17.02**	**40.99**	**13.99**	**5.06**	**37.17**	**11.64**	**35.65**	**14.17**	**9.10**	**1.82**	**3.97**	**19.49**	**6.63**	**9.06**	**2.53**	**-**	**74.58**	**348.39**
Rajbari	Baliakandi	1,023	11.74	6.69	42.00	8.85	4.09	39.46	1.75	8.79	6.00	13.29	11.64	5.32	1.52	8.10	-	3.97	-	36.04	209.25
	Rajbari Sadar	1,627	8.75	7.77	26.14	10.45	4.86	50.21	-	9.19	24.10	-	5.30	32.10	10.12	1.01	1.01	-	-	61.10	252.11
Sub-Total		**2,650**	**20.49**	**14.46**	**68.14**	**19.30**	**8.95**	**89.67**	**1.75**	**17.98**	**30.09**	**13.29**	**16.94**	**37.43**	**11.64**	**9.11**	**1.01**	**3.97**	**-**	**97.15**	**461.36**
Satkhira	Satkhira Sadar	748	0.69	1.09	1.85	0.55	0.41	15.51	4.38	2.53	0.44	0.75	1.11	31.50	0.92	-	-	-	-	43.09	104.80
Sub-Total		**748**	**0.69**	**1.09**	**1.85**	**0.55**	**0.41**	**15.51**	**4.38**	**2.53**	**0.44**	**0.75**	**1.11**	**31.50**	**0.92**	**-**	**-**	**-**	**-**	**43.09**	**104.80**
Grand Total		**32,692**	**586.64**	**769.38**	**709.11**	**348.96**	**191.33**	**1,398.01**	**101.49**	**341.31**	**269.62**	**336.66**	**410.26**	**428.63**	**342.32**	**155.57**	**237.15**	**72.15**	**20.59**	**802.31**	**7,521.46**

Source: *Cluster Village Monitoring Survey, Winter 2017-18 and Summer 2018, AVPI.*

Appendix 2. Area Under GAPs by Direct Beneficiaries by Upazila

A. Winter 2017-18

District	Upazila	Good Quality Seed Area	Improved Variety Area	Line Transplanting Area	Balanced Fertilizer Area	IPM Applied Area	*Guti* Applied Area
		(ha)					
Bagerhat	Bagerhat Sadar	141.40	141.40	120.09	54.83	28.32	114.86
Sub-Total:		**141.40**	**141.40**	**120.09**	**54.83**	**28.32**	**114.86**
Bhola	Bhola Sadar	408.07	407.26	386.56	352.73	338.16	215.39
	Burhanuddin	651.64	651.64	617.66	501.91	483.63	284.53
	Char Fasson	1,139.74	1,139.74	1,086.88	999.33	942.34	598.13
Sub-Total:		**2,199.46**	**2,198.65**	**2,091.09**	**1,853.96**	**1,764.13**	**1,098.04**
Chuadanga	Alamdanga	262.13	261.32	260.22	249.05	167.03	166.21
	Chuadanga Sadar	619.79	618.87	618.87	585.97	431.58	438.21
	Damurhuda	399.25	399.25	399.25	378.85	291.32	299.43
	Jibannagar	81.56	78.64	77.55	54.33	41.28	70.87
Sub-Total:		**1,362.73**	**1,358.08**	**1,355.90**	**1,268.20**	**931.20**	**974.71**
Jessore	Bagherpara	19.05	19.05	17.92	14.34	12.84	11.50
	Chaugachha	114.29	114.29	114.29	85.45	78.32	70.00
	Jessore Sadar	388.22	387.41	371.72	290.69	268.24	265.05
	Jhikargachha	286.60	284.84	273.47	198.85	181.14	175.00
Sub-Total:		**808.16**	**805.59**	**777.40**	**589.33**	**540.54**	**521.55**
Jhenaidah	Kaliganj	66.62	65.81	64.56	54.74	37.90	42.00
	Kotchandpur	121.70	118.54	115.85	91.16	59.59	100.61
	Maheshpur	122.71	117.41	111.64	91.80	69.56	103.87
	Shailkupa	64.96	61.74	56.60	40.67	27.71	52.49
Sub-Total:		**376.00**	**363.50**	**348.64**	**278.36**	**194.75**	**298.97**
Khulna	Dumuria	181.36	181.18	177.13	175.63	129.72	118.13
Sub-Total:		**181.36**	**181.18**	**177.13**	**175.63**	**129.72**	**118.13**
Meherpur	Gangni	301.96	301.96	301.96	287.95	262.61	220.35
	Meherpur Sadar	593.11	593.11	593.11	557.17	532.43	381.50
	Mujibnagar	205.31	205.31	205.31	192.64	183.01	109.50
Sub-Total:		**1,100.38**	**1,100.38**	**1,100.38**	**1,037.76**	**978.04**	**711.35**
Pirojpur	Nesarabad	304.82	304.82	259.76	124.21	61.00	218.86
Sub-Total:		**304.82**	**304.82**	**259.76**	**124.21**	**61.00**	**218.86**
Rajbari	Baliakandi	151.90	149.68	145.42	128.68	98.06	125.65
	Rajbari Sadar	164.02	161.15	157.52	124.47	63.21	129.40
Sub-Total:		**315.92**	**310.83**	**302.95**	**253.15**	**161.27**	**255.05**
Satkhira	Satkhira Sadar	74.29	74.29	69.45	66.23	23.83	52.81
Sub-Total:		**74.29**	**74.29**	**69.45**	**66.23**	**23.83**	**52.81**
Total:		**6,864.51**	**6,838.71**	**6,602.78**	**5,701.67**	**4,812.80**	**4,364.32**

Source: *Cluster Village Monitoring Survey, Winter 2017-18, AVPI.*

B. Summer 2018

Chuadanga	Upazila	Good Quality Seed Area	Improved Variety Area	Line Transplanting Area	Balanced Fertilizer Area	IPM Applied Area	Guti Applied Area
		(ha)					
Bagerhat	Bagerhat Sadar	79.60	79.60	58.84	27.52	17.27	58.11
Sub-Total		**79.60**	**79.60**	**58.84**	**27.52**	**17.27**	**58.11**
Bhola	Bhola Sadar	188.49	188.09	166.94	159.88	150.47	121.58
	Burhanuddin	280.28	280.28	252.25	237.09	224.22	150.60
	Char Fasson	549.56	549.56	494.61	467.13	439.65	329.05
Sub-Total		**1,018.33**	**1,017.92**	**913.79**	**864.09**	**814.34**	**601.23**
Chuadanga	Alamdanga	187.92	187.92	186.84	186.84	118.26	119.567
	Chuadanga Sadar	524.17	524.17	520.85	515.18	342.62	344.38
	Damurhuda	391.60	391.60	391.21	391.21	247.95	254.50
	Jibannagar	71.62	69.47	66.96	47.85	16.19	62.37
Sub-Total		**1,175.30**	**1,173.16**	**1,165.87**	**1,141.09**	**725.03**	**780.82**
Jessore	Bagherpara	22.90	22.90	21.28	16.03	14.94	16.00
	Chaugachha	141.26	141.26	136.40	98.48	91.60	98.00
	Jessore Sadar	393.32	393.32	375.10	276.06	256.47	287.99
	Jhikargachha	241.92	241.92	235.85	169.74	157.36	178.00
Sub-Total		**799.40**	**799.40**	**768.63**	**560.30**	**520.36**	**579.99**
Jhenaidah	Kaliganj	40.39	39.33	38.08	26.78	11.29	33.66
	Kotchandpur	63.20	61.03	59.80	48.46	22.31	54.29
	Maheshpur	88.63	86.14	83.38	68.18	41.40	74.56
	Shailkupa	61.11	60.02	58.93	42.35	16.05	56.80
Sub-Total		**253.32**	**246.52**	**240.18**	**185.77**	**91.05**	**219.31**
Khulna	Dumuria	118.24	118.24	113.34	105.15	94.35	63.10
Sub-Total		**118.24**	**118.24**	**113.34**	**105.15**	**94.35**	**63.10**
Meherpur	Gangni	232.19	232.19	227.79	192.05	177.25	136.50
	Meherpur Sadar	497.15	497.15	496.00	395.58	367.86	230.20
	Mujibnagar	181.79	181.79	179.94	142.60	132.17	100.00
Sub-Total		**911.12**	**911.12**	**903.73**	**730.23**	**677.28**	**466.70**
Pirojpur	Nesarabad	195.76	195.76	164.35	93.09	58.97	129.58
Sub-Total		**195.76**	**195.76**	**164.35**	**93.09**	**58.97**	**129.58**
Rajbari	Baliakandi	92.02	90.33	89.03	79.47	14.29	83.59
	Rajbari Sadar	139.66	138.66	138.18	114.50	30.20	122.71
Sub-Total		**231.68**	**228.99**	**227.21**	**193.97**	**44.49**	**206.30**
Satkhira	Satkhira Sadar	102.18	102.18	97.60	89.78	74.88	52.00
Sub-Total		**102.18**	**102.18**	**97.60**	**89.78**	**74.88**	**52.00**
Total		**4,884.94**	**4,872.89**	**4,653.53**	**3,991.00**	**3,118.02**	**3,157.15**

Source: *Cluster Village Monitoring Survey, Summer 2018, AVPI.*

C. Total (Winter 2017-18 and Summer 2018)

District	Upazila	Good Quality Seed Area	Improved Variety Area	Line Transplanting Area	Balanced Fertilizer Area	IPM Applied Area	Guti Applied Area
		(ha)					
Bagerhat	Bagerhat Sadar	221.00	221.00	178.93	82.35	45.59	172.97
Sub-Total		**221.00**	**221.00**	**178.93**	**82.35**	**45.59**	**172.97**
Bhola	Bhola Sadar	596.57	595.35	553.49	512.61	488.63	336.96
	Burhanuddin	931.92	931.92	869.91	738.99	707.85	435.13
	Char Fasson	1,689.30	1,689.30	1,581.49	1,466.46	1,381.99	927.18
Sub-Total		**3,217.78**	**3,216.57**	**3,004.89**	**2,718.06**	**2,578.47**	**1,699.27**
Chuadanga	Alamdanga	450.04	449.23	447.06	435.89	285.30	285.77
	Chuadanga Sadar	1,143.96	1,143.04	1,139.73	1,101.15	774.20	782.59
	Damurhuda	790.85	790.85	790.47	770.06	539.27	553.93
	Jibannagar	153.18	148.11	144.51	102.19	57.47	133.24
Sub-Total		**2,538.03**	**2,531.24**	**2,521.77**	**2,409.29**	**1,656.23**	**1,755.53**
Jessore	Bagherpara	41.95	41.95	39.20	30.37	27.78	27.50
	Chaugachha	255.54	255.54	250.69	183.93	169.92	168.00
	Jessore Sadar	781.54	780.73	746.82	566.75	524.71	553.04
	Jhikargachha	528.52	526.76	509.32	368.59	338.50	353.00
Sub-Total		**1,607.56**	**1,604.98**	**1,546.02**	**1,149.64**	**1,060.90**	**1,101.54**
Jhenaidah	Kaliganj	107.01	105.14	102.63	81.52	49.19	75.67
	Kotchandpur	184.90	179.57	175.64	139.62	81.89	154.90
	Maheshpur	211.34	203.54	195.02	159.98	110.95	178.42
	Shailkupa	126.08	121.76	115.53	83.02	43.77	109.29
Sub-Total		**629.32**	**610.02**	**588.82**	**464.14**	**285.80**	**518.28**
Khulna	Dumuria	299.60	299.42	290.47	280.78	224.06	181.23
Sub-Total		**299.60**	**299.42**	**290.47**	**280.78**	**224.06**	**181.23**
Meherpur	Gangni	534.14	534.14	529.75	480.00	439.85	356.85
	Meherpur Sadar	1,090.26	1,090.26	1,089.11	952.76	900.29	611.70
	Mujibnagar	387.09	387.09	385.24	335.24	315.18	209.50
Sub-Total		**2,011.50**	**2,011.50**	**2,004.10**	**1,767.99**	**1,655.32**	**1,178.05**
Pirojpur	Nesarabad	500.58	500.58	424.11	217.30	119.97	348.44
Sub-Total		**500.58**	**500.58**	**424.11**	**217.30**	**119.97**	**348.44**
Rajbari	Baliakandi	243.93	240.00	234.45	208.15	112.35	209.24
	Rajbari Sadar	303.67	299.82	295.70	238.97	93.41	252.11
Sub-Total		**547.60**	**539.82**	**530.15**	**447.12**	**205.76**	**461.35**
Satkhira	Satkhira Sadar	176.47	176.47	167.04	156.01	98.71	104.81
Sub-Total		**176.47**	**176.47**	**167.04**	**156.01**	**98.71**	**104.81**
Total		**11,749.44**	**11,711.60**	**11,256.31**	**9,692.67**	**7,930.81**	**7,521.47**

Source: *All areas obtained from Cluster Village Monitoring Surveys, Winter 2017-18 and Summer 2018.*

Appendix 3. Number of Direct Women Beneficiaries Using GAPs and FDP by Upazila During Winter 2017-18 and Summer 2018

District	Upazila	Total Active Trained Farmers Through Summer 2018	GAP Users in Winter 2017-18 and Summer 2018			FDP Users in Winter 2017-18 and Summer 2018		
			GAP Users	Cropping Intensity %	Unique Number of Farmers	FDP Users	Cropping Intensity %	Unique Number of Farmers
Bagerhat	Bagerhat Sadar	1,046	1,372	121%	1,134	1,235	121%	1,021
Sub-Total:		**1,046**	**1,372**	**121%**	**1,134**	**1,235**	**121%**	**1,021**
Bhola	Bhola Sadar	754	1,347	208%	648	1,110	208%	534
	Burhanuddin	1,158	1,952	208%	938	1,632	208%	785
	Char Fasson	1,770	3,218	208%	1,547	2,882	208%	1,386
Sub-Total:		**3,682**	**6,517**	**208%**	**3,133**	**5,624**	**208%**	**2,704**
Chuadanga	Alamdanga	2,179	4,090	166%	2,464	2,335	166%	1,407
	Chuadanga Sadar	3,552	6,844	166%	4,123	3,967	166%	2,390
	Damurhuda	1,882	3,511	166%	2,115	2,350	166%	1,416
	Jibannagar	641	1,087	166%	655	912	166%	549
Sub-Total:		**8,254**	**15,532**	**166%**	**9,357**	**9,564**	**166%**	**5,761**
Jessore	Bagherpara	225	377	182%	207	282	182%	155
	Chaugachha	894	1,621	182%	891	1,190	182%	654
	Jessore Sadar	2,305	4,203	182%	2,309	3,203	182%	1,760
	Jhikargachha	1,524	2,808	182%	1,543	2,252	182%	1,237
Sub-Total:		**4,948**	**9,009**	**182%**	**4,950**	**6,927**	**182%**	**3,806**
Jhenaidah	Kaliganj	759	848	187%	453	595	187%	318
	Kotchandpur	813	1,082	187%	579	952	187%	509
	Maheshpur	1,022	1,505	187%	805	1,272	187%	680
	Shailkupa	764	984	187%	526	835	187%	447
Sub-Total:		**3,358**	**4,419**	**187%**	**2,363**	**3,654**	**187%**	**1,954**
Khulna	Dumuria	1,173	1,503	127%	1,183	1,073	127%	845
Sub-Total:		**1,173**	**1,503**	**127%**	**1,183**	**1,073**	**127%**	**845**
Meherpur	Gangni	1,355	2,630	165%	1,594	2,017	165%	1,222
	Meherpur Sadar	2,540	4,840	165%	2,933	3,685	165%	2,233
	Mujibnagar	867	1,614	165%	978	1,208	165%	732
Sub-Total:		**4,762**	**9,084**	**165%**	**5,505**	**6,910**	**165%**	**4,188**
Pirojpur	Nesarabad	2,071	2,773	143%	1,939	2,425	143%	1,696
Sub-Total:		**2,071**	**2,773**	**143%**	**1,939**	**2,425**	**143%**	**1,696**
Rajbari	Baliakandi	1,023	1,527	187%	817	1,342	187%	718
	Rajbari Sadar	1,627	2,350	187%	1,257	1,867	187%	998
Sub-Total:		**2,650**	**3,877**	**187%**	**2,073**	**3,209**	**187%**	**1,716**
Satkhira	Satkhira Sadar	748	1,052	151%	697	720	151%	477
Sub-Total:		**748**	**1,052**	**151%**	**697**	**720**	**151%**	**477**
Total:		**32,692**	**55,138**		**32,335**	**41,341**		**24,167**

Source: *All information obtained from Cluster Village Monitoring Surveys, Winter 2017-18 and Summer 2018.*

Appendix 4. Women Farmers Trained Through October 2018 by Upazila

District	Upazila	No. of Clusters	Year 1 (November 2016-October 2017)		Year 2 (November 2017-October 2018)		Total	
			Batches	Participants	Batches	Participants	Batches	Participants
Bagerhat	Bagerhat Sadar	2	7	280	10	400	17	680
Sub-Total:		**2**	**7**	**280**	**10**	**400**	**17**	**680**
Bhola	Bhola Sadar	2	6	240	8	320	14	560
	Burhanuddin	2	6	240	8	320	14	560
	Char Fasson	5	12	480	10	400	22	880
Sub-Total:		**9**	**24**	**960**	**26**	**1,040**	**50**	**2,000**
Chuadanga	Alamdanga	2	13	520	16	640	29	1,160
	Chuadanga Sadar	2	22	880	13	520	35	1,400
	Damurhuda	3	14	560	9	360	23	920
	Jibannagar	1	1	40	1	40	2	80
Sub-Total:		**8**	**50**	**2,000**	**39**	**1,560**	**89**	**3,560**
Jessore	Bagherpara	1	1	40	2	80	3	120
	Chaugachha	1	4	160	7	280	11	440
	Jessore Sadar	3	14	560	12	480	26	1,040
	Jhikargachha	2	11	440	11	440	22	880
Sub-Total:		**7**	**30**	**1,200**	**32**	**1,280**	**62**	**2,480**
Jhenaidah	Kaliganj	1	2	80	1	40	3	120
	Kotchandpur	2	6	240	7	280	13	520
	Maheshpur	2	8	320	6	240	14	560
	Shailkupa	1	4	160	6	240	10	400
Sub-Total:		**6**	**20**	**800**	**20**	**800**	**40**	**1,600**
Khulna	Dumuria	1	7	280	7	280	14	560
Sub-Total:		**1**	**7**	**280**	**7**	**280**	**14**	**560**
Meherpur	Gangni	2	6	240	5	200	11	440
	Meherpur Sadar	4	16	640	15	600	31	1,240
	Mujibnagar	1	8	320	7	280	15	600
Sub-Total:		**7**	**30**	**1,200**	**27**	**1,080**	**57**	**2,280**
Pirojpur	Nesarabad	2	8	320	14	560	22	880
Sub-Total:		**2**	**8**	**320**	**14**	**560**	**22**	**880**
Rajbari	Baliakandi	2	5	200	8	320	13	520
	Rajbari Sadar	2	13	520	12	480	25	1,000
Sub-Total:		**4**	**18**	**720**	**20**	**800**	**38**	**1,520**
Satkhira	Satkhira Sadar	1	6	240	5	200	11	440
Sub-Total:		**1**	**6**	**240**	**5**	**200**	**11**	**440**
Grand-Total:		**47**	**200**	**8,000**	**200**	**8,000**	**400**	**16,000**

Source: *AVPI database*.
Note: A total of 28,360 women farmers were trained during the 2013-15 IFDC-Walmart activity period.

Appendix 5. Motivational Workshops and Operational Trainings with BMOs and Retailers Through October 2018

District	Upazila	Year 1 (November 16-October 17)				Year 2 (November 17-October 18)				Total (Years 1 and 2)			
		B	M	F	T	B	M	F	T	B	M	F	T
Bagerhat	Sadar				-	1	37	14	51	1	37	14	51
Sub-Total		**-**	**-**	**-**	**-**	**1**	**37**	**14**	**51**	**1**	**37**	**14**	**51**
Bhola	Char Fasson				-	1	40	7	47	1	40	7	47
Sub-Total		**-**	**-**	**-**	**-**	**1**	**40**	**7**	**47**	**1**	**40**	**7**	**47**
Chuadanga	Chuadanga Sadar	1	33	16	49					1	33	16	49
Chuadanga	Chuadanga Sadar	1	36	12	48					1	36	12	48
Chuadanga	Chuadanga Sadar				-	1	38	14	52	1	38	14	52
Chuadanga	Chuadanga Sadar				-	1	41	16	57	1	41	16	57
Sub-Total		**2**	**69**	**28**	**97**	**2**	**79**	**30**	**109**	**4**	**148**	**58**	**206**
Jessore	Jessore Sadar	1	33	14	47					1	33	14	47
Jessore	Jessore Sadar	1	37	10	47					1	37	10	47
Jessore	Jessore Sadar					1	33	13	46	1	33	13	46
Sub-Total		**2**	**70**	**24**	**94**	**1**	**33**	**13**	**46**	**3**	**103**	**37**	**140**
Rajbari	Rajbari Sadar	1	34	15	49					1	34	15	49
Sub-Total		**1**	**34**	**15**	**49**	**-**	**-**	**-**	**-**	**1**	**34**	**15**	**49**
Total:		**5**	**173**	**67**	**240**	**5**	**189**	**64**	**253**	**10**	**362**	**131**	**493**

Source: *AVPI database*.
Note: B=Batches, M=Male, F=Female, and T=Total.

Appendix 6. Agro-Input Retailer Trainings Through October 2018

District	Upazila	Year 1 (November 16-October 17)				Year 2 (November 17-October 18)				Total (Years 1 and 2)			
		B	M	F	T	B	M	F	T	B	M	F	T
Bagerhat	Bagerhat Sadar	1	16		16					1	16		16
Chuadanga	Chuadanga Sadar	1	15		15					1	15		15
Chuadanga	Alamdanga					1	13	1	14	1	13	1	14
Jessore	Sadar	1	15		15					1	15		15
Jessore	Jhikargachha					1	15		15	1	15		15
Total:		**3**	**46**		**46**	**2**	**28**	**1**	**29**	**5**	**74**	**1**	**71**

Source: *AVPI database.*
Note: B=Batches, M=Male, F=Female, and T=Total.

Appendix 7. Weighted Average Gross Margin by Crop (Tk/ha), Summer 2018

Item	Bitter Gourd		Cucumber		Eggplant	
	UDP Plot	Broadcast Urea Plot	UDP Plot	Broadcast Urea Plot	UDP Plot	Broadcast Urea Plot
Total Return	377,298	327,726	479,862	414,036	544,798	473,668
Total Cost	**169,383**	**201,591**	**155,959**	**159,687**	**116,657**	**131,279**
Gross Margin	207,915	126,135	323,903	254,349	428,141	342,389
Gross Margin in U.S. $	**2,505**	**1,520**	**3,902**	**3,064**	**5,158**	**4,125**
Gross Margin (%)	123%	63%	208%	159%	367%	261%
Benefit-Cost Ratio (BCR)	2.23	1.63	3.08	2.59	4.67	3.61

Item	Pointed Gourd		Taro		Teasel Gourd	
	UDP Plot	Broadcast Urea Plot	UDP Plot	Broadcast Urea Plot	UDP Plot	Broadcast Urea Plot
Total Return	929,196	798,392	409,919	354,315	387,883	334,126
Total Cost	**207,010**	**213,417**	**153,779**	**155,736**	**203,843**	**201,848**
Gross Margin	722,186	584,975	256,140	198,579	184,040	132,278
Gross Margin in U.S. $	**8,701**	**7,048**	**3,086**	**2,393**	**2,217**	**1,594**
Gross Margin (%)	349%	274%	167%	128%	90%	66%
Benefit-Cost Ratio (BCR)	4.49	3.74	2.67	2.28	1.90	1.66

Source: *AVPI Farmers Field Crop Cut, Summer 2018.*
Note: U.S. $1 = Tk 83.

Appendix 8. Orientation Training of Demonstration Farmers Through October 2018

District	Upazila	Year 1		Year 2		Total	
		Batch	Participants	Batch	Participants	Batch	Participants
Jessore	Jessore Sadar	2	38	2	35	4	73

Appendix 9. UDP Demonstrations Established for Vegetable Crops by Upazila Through October 2018

District	Upazila	No. of Clusters	Total Year 1	Total Year 2	Winter 2018-19		Total Year 2	Total Project
				Up to June 2018	Cabbage	Cauliflower		
Bagerhat	Bagerhat Sadar	2	4	2	1	1	4	8
Sub-Total:		**2**	**4**	**2**	**1**	**1**	**4**	**8**
Bhola	Bhola Sadar	2	1	-			-	1
	Burhanuddin	2		-	1		1	1
	Char Fasson	5	4	2	1		3	7
Sub-Total:		**9**	**5**	**2**	**2**	**-**	**4**	**9**
Chuadanga	Alamdanga	2	1	2			2	3
	Chuadanga Sadar	2	3	2	1	1	4	7
	Damurhuda	3		1			1	1
	Jibannagar	1		-			-	-
Sub-Total:		**8**	**4**	**5**	**1**	**1**	**7**	**11**
Jessore	Bagherpara	1	2	-			-	2
	Chaugachha	1	2	1			1	3
	Jessore Sadar	3	4	2	1		3	7
	Jhikargachha	2	1	1		1	2	3
Sub-Total:		**7**	**9**	**4**	**1**	**1**	**6**	**15**
Jhenaidah	Kaliganj	1	1	-			-	1
	Kotchandpur	2		2		1	3	3
	Maheshpur	2	3	-			-	3
	Shailkupa	1		1			1	1
Sub-Total:		**6**	**4**	**3**	**-**	**1**	**4**	**8**
Khulna	Dumuria	1	1	-		1	1	2
Sub-Total:		**1**	**1**	**-**	**-**	**1**	**1**	**2**
Meherpur	Gangni	2	3	2		1	3	6
	Meherpur Sadar	4	4	2		1	3	7
	Mujibnagar	1		2	1		3	3
Sub-Total:		**7**	**7**	**6**	**1**	**2**	**9**	**16**
Pirojpur	Nesarabad	2		-			-	-
Sub-Total:		**2**	**-**	**-**	**-**	**-**	**-**	**-**
Rajbari	Baliakandi	2	1	-		1	1	2
	Rajbari Sadar	2	4	2	1		3	7
Sub-Total:		**4**	**5**	**2**	**1**	**1**	**4**	**9**
Satkhira	Satkhira Sadar	1	1	1			1	2
Sub-Total:		**1**	**1**	**1**	**-**	**-**	**1**	**2**
Total:		**47**	**40**	**25**	**7**	**8**	**40**	**80**

Source: *AVPI database.*

Appendix 10. Detailed Data by Upazila for Summer 2018 Vegetable Demonstrations

District	Upazila	Variety	Farmer Name	Transplanting Date	Final Harvest Date	Picking No.		Fertilizer Used (kg/ha)			Yield (kg/ha)		
						Guti Plot	Prilled Urea Plot	*Guti* Urea	Prilled Urea	Difference	*Guti* Plot	Prilled Urea Plot	Difference
Bitter Gourd													
Bagerhat	Bagerhat Sadar	Hybrid-Lal Teer	Monoara Begum	20-Mar-18	22-Jul-18	15	15	160.06	176.06	16	22,254	18,723	3,531
Bhola	Char Fasson	Hybrid-Tia	Salma Begum	02-Apr-18	21-Jul-18	15	15	160.06	176.06	16	34,715	29,553	5,163
Jessore	Chaugachha	LIV-Gaj Korola	Mukti Khatun	18-Mar-18	18-Jul-18	15	15	160.06	176.06	16	21,810	18,875	2,935
Jessore	Jhikargachha	LIV-Gaj Korola	Rozina Begum	31-Mar-18	21-Jul-18	15	15	160.06	176.06	16	22,315	19,235	3,080
Jhenaidah	Kotchandpur	LIV-Goz Korolla	Beauty	08-Apr-18	06-Aug-18	10	10	160.06	176.06	16	23,945	18,965	4,980
Cucumber													
Bagerhat	Bagerhat Sadar	Hybrid-Thailand-1	Shanti Lata Hoi	25-May-18	13-Aug-18	12	12	142.27	156.50	14	30,465	26,033	4,432
Bhola	Char Fasson	Hybird-Hira	Khadiza Begum	17-Apr-18	10-Jul-18	14	14	142.27	156.50	14	27,083	23,638	3,445
Meherpur	Meherpur Sadar	Hybrid	Joli Begum	24-Apr-18	14-Jul-18	13	13	142.27	156.50	14	36,030	31,125	4,905
Meherpur	Mujibnagar	Hybrid	China Begum	07-Apr-18	17-Jun-18	11	11	142.27	156.50	14	34,815	30,060	4,755
Rajbari	Rajbari Sadar	Hybrid-Daigi	Johora Begum	05-Mar-18	06-Jun-18	13	13	142.27	156.50	14	25,835	22,245	3,590
Eggplant													
Chuadanga	Chuadanga Sadar	LIV	Shaleha Khatun	17-Apr-18	15-Aug-18	12	12	270.12	300.11	30	26,295	24,565	1,730
Jessore	Jessore Sadar	LIV-Gol Begum	Fatema Begum	30-Mar-18	10-Aug-18	15	15	270.12	300.11	30	28,605	24,960	3,645
Jhenaidah	Shailkupa	Eyered	Safiya Begum	12-Apr-18	01-Aug-18	15	15	270.12	300.11	30	34,335	30,805	3,530
Rajbari	Baliakandi	Saila	Shagori Podo Modok	15-Mar-18	31-Jul-18	19	19	270.12	300.11	30	39,930	33,930	6,000
Satkhira	Satkhira Sadar	Sada Goal (Soly Makra)	Kabita Rani Sarker	01-Apr-18	08-Aug-18	15	15	270.12	300.11	30	29,225	25,015	4,210
Taro													
Chuadanga	Alamdanga	LIV	Lima Khatun	25-Feb-18	24-Jul-18	1	1	329.00	361.90	33	28,000	23,150	4,850
Chuadanga	Chuadanga Sadar	LIV	Rashida Khatun	22-Feb-18	07-Jul-18	1	1	329.00	361.90	33	27,700	22,850	4,850
Jessore	Jessore Sadar	Saro Kachu	Salma Begum	13-Mar-18	26-Jul-18	1	1	329.00	361.90	33	31,825	28,575	3,250
Meherpur	Gangni	Meherchandi	Parula Begum	21-Feb-18	30-Jul-18	1	1	329.00	361.90	33	30,850	26,800	4,050
Meherpur	Meherpur Sadar	Meherchandi	Shirina Begum	27-Mar-18	07-Aug-18	1	1	329.00	361.90	33	30,550	26,950	3,600

Source: *AVPI Demonstration Plot Crop Cuts, Summer 2018*

Note: LIV = Local Improved Variety

Appendix 11. AVPI Motivational Meeting with Trained Women Farmers Through October 2018

District	Upazila	Year 1 (November 2016-October 2017)		Year 2 (November 2017-October-2018)		Total	
		Batches	Total Participants	Batches	Total Participants	Batches	Total Participants
Bagerhat	Bagerhat Sadar	6	300	9	450	15	750
Sub-Total:		**6**	**300**	**9**	**450**	**15**	**750**
	Bhola Sadar			10	500	10	500
	Burhanuddin			11	550	11	550
Bhola	Char Fasson	5	250	22	1,100	27	1,350
Sub-Total:		**5**	**250**	**43**	**2,150**	**48**	**2,400**
Chuadanga	Alamdanga	9	450	12	600	21	1,050
	Chuadanga Sadar	12	585	20	1,000	32	1,585
	Damurhuda	15	750	4	200	19	950
	Jibannagar	3	150	2	100	5	250
Sub-Total:		**39**	**1,935**	**38**	**1,900**	**77**	**3,835**
Jessore	Bagherpara	2	100	3	150	5	250
	Chaugachha	6	300	5	250	11	550
	Jessore Sadar	15	765	11	550	26	1,315
	Jhikargachha	6	300	6	300	12	600
Sub-Total:		**29**	**1,465**	**25**	**1,250**	**54**	**2,715**
Jhenaidah	Kaliganj	2	100	4	200	6	300
	Kotchandpur	5	250	7	350	12	600
	Maheshpur	7	350	4	200	11	550
	Shailkupa	4	200	3	150	7	350
Sub-Total:		**18**	**900**	**18**	**900**	**36**	**1,800**
Khulna	Dumuria	6	300	5	250	11	550
Sub-Total:		**6**	**300**	**5**	**250**	**11**	**550**
Meherpur	Gangni	3	150	8	400	11	550
	Meherpur Sadar	7	350	20	1,000	27	1,350
	Mujibnagar	6	300	5	250	11	550
Sub-Total:		**16**	**800**	**33**	**1,650**	**49**	**2,450**
Pirojpur	Nesarabad	9	450	10	500	19	950
Sub-Total:		**9**	**450**	**10**	**500**	**19**	**950**
Rajbari	Baliakandi	6	300	6	300	12	600
	Rajbari Sadar	11	550	8	400	19	950
Sub-Total:		**17**	**850**	**14**	**700**	**31**	**1,550**
Satkhira	Satkhira Sadar	5	250	5	250	10	500
Sub-Total:		**5**	**250**	5	250	10	500
Total:		**150**	**7,500**	**200**	**10,000**	**350**	**17,500**

Source: *AVPI database*.
Note: Year 2 includes Winter 2017-18 (50 batches) and Summer 2018 (50 batches).

Appendix 12. Field Days Organized Through October 2018

District	Upazila	Year 1 (Nov 2016-Oct 2017)				Year 2 (Nov 2017-Oct 2018)				Total Through October 2018			
		Batches	Participants			Batches	Participants			Batches	Participants		
			Male	Female	Total		Male	Female	Total		Male	Female	Total
Bagerhat	Bagerhat Sadar				-	5	50	200	250	5	50	200	250
Sub-Total:		**-**	**-**	**-**	**-**	**5**	**50**	**200**	**250**	**5**	**50**	**200**	**250**
Bhola	Bhola Sadar				-	1	10	40	50	1	10	40	50
	Char Fasson	1	9	41	50	3	25	125	150	4	34	166	200
Sub-Total:		**1**	**9**	**41**	**50**	**4**	**35**	**165**	**200**	**5**	**44**	**206**	**250**
Chuadanga	Alamdanga	1	10	40	50	2	20	80	100	3	30	120	150
	Chuadanga Sadar	1	10	40	50	3	28	122	150	4	38	162	200
	Damurhuda				-	1	10	40	50	1	10	40	50
Sub-Total:		**2**	**20**	**80**	**100**	**6**	**58**	**242**	**300**	**8**	**78**	**322**	**400**
Jessore	Chaugachha	2	20	80	100	-	-	-	-	2	20	80	100
	Jessore Sadar	1	8	42	50	3	30	120	150	4	38	162	200
	Jhikargachha				-	2	20	80	100	2	20	80	100
Sub-Total:		**3**	**28**	**122**	**150**	**5**	**50**	**200**	**250**	**8**	**78**	**322**	**400**
Jhenaidah	Kaliganj				-	1	10	40	50	1	10	40	50
	Kotchandpur				-	2	20	80	100	2	20	80	100
	Maheshpur	1	6	44	50	-	-	-	-	1	6	44	50
Sub-Total:		**1**	**6**	**44**	**50**	**3**	**30**	**120**	**150**	**4**	**36**	**164**	**200**
Khulna	Dumuria				-	1	9	41	50	1	9	41	50
Sub-Total:		**-**	**-**	**-**	**-**	**1**	**9**	**41**	**50**	**1**	**9**	**41**	**50**
Meherpur	Gangni	1	9	41	50	3	24	126	150	4	33	167	200
	Meherpur Sadar	2	20	80	100	3	29	121	150	5	49	201	250
	Mujibnagar				-	2	20	80	100	2	20	80	100
Sub-Total:		**3**	**29**	**121**	**150**	**8**	**73**	**327**	**400**	**11**	**102**	**448**	**550**
Rajbari	Baliakandi					1	10	40	50	1	10	40	50
	Rajbari Sadar				-	3	30	120	150	3	30	120	150
Sub-Total:		**-**	**-**	**-**	**-**	**4**	**40**	**160**	**200**	4	40	160	200
Total:		**10**	**92**	**408**	**500**	**36**	**345**	**1,455**	**1,800**	**46**	**437**	**1,863**	**2,300**

Source: *AVPI database*.

Note: Year 2 includes Winter 2017-18 (25 batches) and Summer 2018 (10 batches).

Appendix 13. Status of Briquette Production by Walmart Machine Owners During November 2017-October 2018

Sl. No.	Name of Briquetting Machine Owner	Husband's Name	Cluster No.	Block	Upazila	District	Production During November 2017-October 2018 (mt)
1	Saifya Khatun	Abdul Wadut	12	Baradi	Alamdanga	Chuadanga	31.00
2	Hazera Begum	Dokhu Mia	14	Khajura & Haiderpur	Chuadanga	Chuadanga	104.00
3	Tahmina Akther	Mizanur Rahman	17	Damurhuda	Damurhuda	Chuadanga	11.00
4	Majeda Begum	Robjel Mondle	18	Binshnupur	Damurhuda	Chuadanga	59.00
5	Gulshan ara Begum	Mominul Islam Moinul	19	Paka & Andalbaria	Jibannagar	Chuadanga	29.50
6	Parvin Akther	Palash Biswash	21	Patibila	Chaugachha	Jessore	
7	Salena Begum	Sariful Islam	21	Patibila	Chaugachha	Jessore	
8	Sabina Khatun	Rafiqul Islam	27	Mirzapur	Kaliganj	Jhenaidah	
9	Saheda Begum	Abdur Rajjak	32	Mirzapur	Soilkupua	Jhenaidah	35.00
10	Rashida Begum	Sattar Gaji	33	Chuknagar	Dumuria	Khulna	4.00
11	Rojina Begum	Kamul Islam	33	Titna	Dumuria	Khulna	47.50
12	Chandana Rani	Dinobondhu Sarker	43	Natapara Nalia	Baliakandi	Rajbari	67.00
13	Hosneara Begum	Humayun Kabir	44	Indurdi	Baliakandi	Rajbari	
14	Aleya Begum	Gofur Hawlader	46	Sahidwahabpur	Rajbari Sadar	Rajbari	128.50
15	Rikta Begum	Murad Hossain	47	Mahmudpur	Sadar	Satkhira	35.50
16	Anar Koli	Mosrref Kazi	11	Dakhinfassion	Charfassion	Bhola	
17	Rinku Rani	Tapos kumar Day	5	Chokdous	Burhanuddin	Bhola	
18	Sapna Rani Mondol	Tapon Kumar Mondol	42	Madra	Nesarabad	Pirojpur	80.50
Total FDP Product Produced by Walmart Machines:							**632.50**
Total FDP Product Produced by Other Machines:							**2,740.90**
Total:							**3,373.40**

Source: *AVPI database.*

Appendix 14. Inventory of Promotional Materials Produced, Distributed, and Displayed Through October 2018

Sl. #	Description of Material	January-October 2017			November 2017–October 2018			Total		
		Purchased	Distributed	Closing Balance	Purchased	Distributed	Closing Balance	Purchased	Distributed	Closing Balance
1	Farmer ID	32,000	16,870	15,130		15,130		32,000	32,000	
2	Booklet	3,500	1,480	2,020		1,879	141	3,500	3,359	141
3	Flyer	50,000	27,190	22,810		22,454	356	50,000	49,644	356
4	Project Profile	50,000	14,340	35,660		35,104	556	50,000	49,444	556
5	Leaflet – Manob Pusti	37,500	11,400	26,100		25,549	551	37,500	36,949	551
6	Leaflet - Matir Unborata	37,500	11,400	26,100		25,549	551	37,500	36,949	551
7	Leaflet – Unnata Krishi	37,500	11,400	26,100		25,549	551	37,500	36,949	551
8	Leaflet – Sobji O Phal	37,500	11,400	26,100		25,549	551	37,500	36,949	551
9	Umbrella				180	162	18	180	162	18
10	Signboard – Demo	67	67		35	35		102	102	
11	Signboard – Lebel	114	114		50	50		164	164	
12	Yellow Fabric Bag				1,000	709	291	1,000	709	291
13	Yellow Flag				10,000	9,700	300	10,000	9,700	300
14	Cap				2,500	2,041	459	2,500	2,041	459

Source: *AVPI database.*

Appendix 15. Media Coverage of AVPI Activities Through October 2018

Sl. No.	News Heading	Media	Date/ Time	Remark
A. Electronic Media				
1.	Bangla Vision News	Bangla Vision	10-Jul-18	Hard copy of news documented.
2.	Somoy News	Somoy TV	24-Jul-18	Hard copy of news documented.
3.	Desher Sangbad	Ekushey TV	24-Jul-18	
4.	Vegetable and fruits marketing seminar at Gangni	DBC News	09-Oct-18	https://youtu.be/1HBhq5VZBnE
5.	Farmer training and field days program at Chuadanga Sadar	Anando TV	24-Oct-18	https://youtu.be/saXqlHhbxXM
B. Print Media				
(i) National Newspaper				
1.	Farmers training program at Jhikargachha	The Daily Jaijaidin	02-Sep-18	Hard copy of news documented.
2.	Field Day on Polynet Houses at Chuadanga Sadar	The Daily Kalerkantho	03-Sep-18	Hard copy of news documented.
3.	Vegetable and fruits marketing seminar at Pirojpur	The Daily Ittefaq	19-Sep-18	Hard copy of news documented.
4.	Vegetable and fruits marketing seminar at Pirojpur	The Daily Manab Kantha	19-Sep-18	Hard copy of news documented.
5.	Vegetable and fruits marketing seminar at Pirojpur	The Daily Vorer Darpon	19-Sep-18	Hard copy of news documented.
6.	Vegetable and fruits marketing seminar at Pirojpur	The Daily Vorerpata	19-Sep-18	Hard copy of news documented.
7.	Farmers training program at Jhikargachha	The Daily Jaijaidin	16-Oct-18	Hard copy of news documented.
8.	Farmers training program at Bagerhat Sadar	The Daily Sangbad	31-Oct-18	Hard copy of news documented.
(ii) Local News Paper				
1.	Demonstration plot crop cut and field days program at Kotchandpur	The Daily Purbanchal	10-Jul-18	Hard copy of news documented.
2.	Demonstration plot crop cut and field days program at Kotchandpur	The Daily Nabochitro	10-Jul-18	Hard copy of news documented.
3.	Demonstration plot crop cut and field days program at Baliakandi	The Daily Amar Barta	11-Jul-18	Hard copy of news documented.
4.	Demonstration plot crop cut and field days program at Baliakandi	The Daily Sangbad	12-Jul-18	Hard copy of news documented.
5.	Demonstration plot crop cut and field days program at Bagerhat Sadar	The Daily Nabochatona	24-Jul-18	Hard copy of news documented.
6.	Demonstration plot crop cut and field days program at Bagerhat Sadar	The Daily Probaho	24-Jul-18	Hard copy of news documented.
7.	Demonstration plot crop cut and field days program at Bagerhat Sadar	The Daily Amar Sangbad	24-Jul-18	Hard copy of news documented.

Sl. No.	News Heading	Media	Date/ Time	Remark
8.	Demonstration plot crop cut and field days program at Alamdanga	The Daily Akash Khabar	25-Jul-18	Hard copy of news documented.
9.	Demonstration plot crop cut and field days program at Alamdanga	The Daily Paschimanchal	25-Jul-18	Hard copy of news documented.
10.	Demonstration plot crop cut and field days program at Chuadanga Sadar	The Daily Akash Khabar	26-Jul-18	Hard copy of news documented.
11.	Demonstration plot crop cut and field days program at Chuadanga Sadar	The Daily Pashchimanchal	26-Jul-18	Hard copy of news documented.
12.	Demonstration plot crop cut and field days program at Jessore Sadar	The Daily Spandon	27-Jul-18	Hard copy of news documented.
13.	Demonstration plot crop cut and field days program at Jessore Sadar	The Daily Kalyan	27-Jul-18	Hard copy of news documented.
14.	Demonstration plot crop cut and field days program at Jessore Sadar	The Daily Projanmer Bhabna	27-Jul-18	Hard copy of news documented.
15.	Demonstration plot crop cut and field days program at Jessore Sadar	The Meherpur Pratidin	31-Jul-18	Hard copy of news documented.
16.	Demonstration plot crop cut and field days program at Bagerhat	The Daily Sangbad	02-Aug-18	Hard copy of news documented.
17.	Farmers training program at Khulna	The Daily Probaha	07-Aug-18	Hard copy of news documented.
18.	Farmers training program at Jhenaidah	The Daily Samajer Katha	09-Aug-18	Hard copy of news documented.
19.	Farmers training program at Rajbari	The Daily Amar Barta	12-Aug-18	Hard copy of news documented.
20.	Farmers training program at Jhenaidah	The Daily Probaha	21-Aug-18	Hard copy of news documented.
21.	Field Day on Polynet Houses at Chuadanga Sadar	The Daily Notunkhobor	27-Aug-18	Hard copy of news documented.
22.	Field Day on Polynet Houses at Alamdanga	The Daily Akash Khabar	28-Aug-18	Hard copy of news documented.
23.	Field Day on Polynet Houses at Alamdanga	The Daily Sokaler Khojkobor	28-Aug-18	Hard copy of news documented.
24.	Field Day on Polynet Houses at Alamdanga	The Daily Pashchimanchal	28-Aug-18	Hard copy of news documented.
25.	Organized BMO workshop at Chuadanga	The Daily Akash Khabar	30-Aug-18	Hard copy of news documented.
26.	Farmers training program at Jhikargachha	The Daily Protidiner Katha	30-Aug-18	Hard copy of news documented.
27.	Organized BMO workshop at Jessore	The Daily Spandan	31-Aug-18	Hard copy of news documented.
28.	Field Day on Polynet Houses at Chuadanga Sadar	The Daily Spandan	03-Sep-18	Hard copy of news documented.
29.	Farmers training program at Baliakandi	The Daily Diner Khobor	13-Sep-18	Hard copy of news documented.
30.	Farmers training program at Baliakandi	The Daily Matrikantha	13-Sep-18	Hard copy of news documented.
31.	Farmers training program at Baliakandi	The Dainik Kushtia	13-Sep-18	Hard copy of news documented.
32.	Farmers training program at Baliakandi	The Daily Matrikantha	14-Sep-18	Hard copy of news documented.

Sl. No.	News Heading	Media	Date/ Time	Remark
33.	Field Day on Polynet Houses at Chuadanga Sadar	The Daily Sokaler Khojkobor	14-Sep-18	Hard copy of news documented.
34.	Field Day on Polynet Houses at Chuadanga Sadar	The Daily Pashchimanchal	14-Sep-18	Hard copy of news documented.
35.	Field Day on Polynet Houses at Chuadanga Sadar	The Daily Pashchimanchal	14-Sep-18	Hard copy of news documented.
36.	Farmers training program at Baliakandi	The Dainik Kushtia	15-Sep-18	Hard copy of news documented.
37.	Farmers training program at Bhola Sadar	The Daily Banglar Kantha	17-Sep-18	Hard copy of news documented.
38.	Field Day on Polynet Houses at Alamdanga	The Daily Akash Khabar	17-Sep-18	Hard copy of news documented.
39.	Field Day on Polynet Houses at Alamdanga	The Daily Sokaler Khojkobor	17-Sep-18	Hard copy of news documented.
40.	Field Day on Polynet Houses at Alamdanga	The Daily Paschimanchal	17-Sep-18	Hard copy of news documented.
41.	Farmers training program at Burhanuddin	The Daily Banglar Kantha	20-Sep-18	Hard copy of news documented.
42.	Farmers training program at Rajbari Sadar	The Daily Matrikantha	20-Sep-18	Hard copy of news documented.
43.	Field Day on Polynet Houses at Jhikargachha	The Dainik Kalyan	21-Sep-18	Hard copy of news documented.
44.	Field Day on Polynet Houses at Jhikargachha	The Daily Samajer Katha	21-Sep-18	Hard copy of news documented.
45.	Field Day on Polynet Houses at Jhikargachha	The Dainik Noapara	21-Sep-18	Hard copy of news documented.
46.	Farmers training program at Baliakandi	The Daily Ganasonghoti	25-Sep-18	Hard copy of news documented.
47.	Agro input retailer training program at Alamdanga	The Daily Sokaler Khojkobor	26-Sep-18	Hard copy of news documented.
48.	Agro input retailer training program at Alamdanga	The Daily Pashchimanchal	26-Sep-18	Hard copy of news documented.
49.	Agro input retailer training program at Alamdanga	The Daily Akash Khabar	26-Sep-18	Hard copy of news documented.
50.	Farmers training program at Rajbari Sadar	The Daily Diner Khobor	26-Sep-18	Hard copy of news documented.
51.	Farmers training program at Rajbari Sadar	The Daily Matrikantha	26-Sep-18	Hard copy of news documented.
52.	Farmers training program at Rajbari Sadar	The Dainik Kushtia	26-Sep-18	Hard copy of news documented.
53.	Field Day on Polynet Houses at Jessore Sadar	The Daily Spandan	28-Sep-18	Hard copy of news documented.
54.	Field Day on Polynet Houses at Kotchandpur	The Daily Nobochitro	01-Oct-18	Hard copy of news documented.
55.	Farmers training program at Baliakandi	The Daily Matrikantha	03-Oct-18	Hard copy of news documented.
56.	Farmers training program at Baliakandi	The Daily Kushtia	03-Oct-18	Hard copy of news documented.
57.	Farmers training program at Rajbari Sadar	The Daily Ganasonghoti	03-Oct-18	Hard copy of news documented.
58.	Vegetable and fruits marketing seminar at Gangni	The Daily Meherpur Pratidin	10-Oct-18	Hard copy of news documented.
59.	Farmers training program at Rajbari Sadar	The Daily Ajker Alo	10-Oct-18	Hard copy of news documented.
60.	Farmers training program at Rajbari Sadar	The Daily Diner Khobor	10-Oct-18	Hard copy of news documented.
61.	Farmers training program at Baliakandi	The Daily Matrikantha	12-Oct-18	Hard copy of news documented.
62.	Farmers training program at Char Fasson	The Daily Banglar Kantha	12-Oct-18	Hard copy of news documented.
63.	Field Day on Polynet Houses at Jhikargachha	The Daily Spandan	16-Oct-18	Hard copy of news documented.
64.	Field Day on Polynet Houses at Jessore Sadar	The Daily Spandan	18-Oct-18	Hard copy of news documented.
65.	Field Day on Polynet Houses at Jessore Sadar	The Daily Kalyan	19-Oct-18	Hard copy of news documented.
66.	Farmers training program at Rajbari Sadar and Baliakandi	The Daily Matrikantha	22-Oct-18	Hard copy of news documented.

Sl. No.	News Heading	Media	Date/ Time	Remark
67.	Farmers training program at Rajbari Sadar and Baliakandi	The Daily Diner Khobor	22-Oct-18	Hard copy of news documented.
68.	Farmers training program at Rajbari Sadar and Baliakandi	The Daily Ajker Alo	22-Oct-18	Hard copy of news documented.
69.	Demonstration plot crop cut on cauliflower and field days program at Chuadanga Sadar	The Daily Akash Khabar	25-Oct-18	Hard copy of news documented.
70.	Demonstration plot crop cut on cauliflower and field days program at Chuadanga Sadar	The Daily Sokaler Khoj Kobor	25-Oct-18	Hard copy of news documented.
71.	Farmers training program at Bhola	The Daily Ajkal	26-Oct-18	Hard copy of news documented.
72.	Farmers training program at Bhola	The Daily Banglar Kantha	26-Oct-18	Hard copy of news documented.
73.	Farmers training program at Bhola	The Daily Vorer Angikar	26-Oct-18	Hard copy of news documented.
74.	Farmers training program at Bagerhat Sadar	The Daily Probaho	31-Oct-18	Hard copy of news documented.
(iii) Online News				
1.	Demonstration plot crop cut and field days program at Bagerhat	Bagerhat24.com	23-Jul-18	http://www.bagerhat24.com/news/2655/বাগের হাটে-শষ্য-কর্তন-ও-মাঠ-দিবস-পালিত-#.W1bzNT3WMec.facebook
2.	Farmers training program at Jhenaidah	e-kantho24.com	08-Aug-18	http://e-kantho24.com/%E0%A6%B8%E0%A6%BE%E0%A6%B0%E0%A6%BE%E0%A6%A6%E0%A7%87%E0%A6%B6/districts_38/%E0%A6%95%E0%A7%8B%E0%A6%9F%E0%A6%9A%E0%A6%BE%E0%A6%81%E0%A6%A6%E0%A6%AA%E0%A7%81%E0%A6%B0%E0%A7%87-%E0%A6%86%E0%A6%87%E0%A6%8F%E0%A6%AB%E0%A6%A1%E0%A6%BF%E0%A6%B8%E0%A6%BF%E0%A6%B0-%E0%A6%86/
3.	Demonstration plot field days program on raising of seedling in polynet house with trickle irrigation at Chuadanga	The Daily Kalerkantho	26-Aug-18	http://www.kalerkantho.com/online/country-news/2018/08/26/673108
4.	Organized BMO workshop at Chuadanga	Bangladesh Protidin	29-Aug-18	http://www.bd-pratidin.com/country/2018/08/29/356171
5.	Farmers training program at Baliakandi	www.trust24news.com	12-Oct-18	http://www.trust24news.com/২-দিনব্যাপী-কৃষাণী-প্রশি-2/
6.	Farmers training program at Rajbari Sadar	www.trust24news.com	15-Oct-18	http://www.trust24news.com/২-দিন-ব্যাপি-কৃষাণী-প্রশি/
7.	Farmers training program at Rajbari	dailymatrikantha.com	22-Oct-18	http://dailymatrikantha.com/2018/10/22/রাজবাড়ীতে-৪৮০-জন-কৃষাণীক/
8.	Farmers training program at Rajbari Sadar and Baliakandi	www.trust24news.com	22-Oct-18	http://www.trust24news.com/৪৮০-জন-কৃষাণীর-মধ্যে-সফলভ/
9.	Farmers training program at Chuadanga Sadar	Kaler Kantho	24-Oct-18	http://www.kalerkantho.com/online/country-news/2018/10/24/695405

Appendix 16. Farmer Orientation for Polynet Houses with Trickle Irrigation Through October 2018

District	Upazila	Year 1		Year 2		Total	
		Batch	Participants	Batch	Participants	Batch	Participants
Jessore	Jessore Sadar	1	10	1	10	2	20

Source: *AVPI database.*

Appendix 17. Demonstration Plots Under Polynet Houses with Trickle Irrigation Through October 2018

District	Upazila	Year 1		Total Year 1	Year 2	Total Year 2	Total
		Cabbage	Cauliflower		Eggplant		
Bagerhat	Bagerhat Sadar		3	**3**			**3**
Chuadanga	Alamdanga				2	**2**	**2**
	Chuadanga Sadar	3		**3**	2	**2**	**5**
Jessore	Jessore Sadar	3		**3**	2	**2**	**5**
	Jhikargachha				2	**2**	**2**
Jhenaidah	Kaliganj		3	**3**			**3**
Meherpur	Meherpur Sadar	3		**3**			**3**
	Kotchandpur				2	**2**	**2**
Total		**9**	**6**	**15**	**10**	**10**	**25**

Source: *AVPI database.*

Appendix 18. Farmers' Training on the Use of Polynet Houses with Trickle Irrigation Through October 2018

District	Upazila	Year 1		Year 2		Total	
		Batches	Participants	Batches	Participants	Batches	Participants
Bagerhat	Bagerhat Sadar	3	120			3	120
Chuadanga	Alamdanga			2	80	2	80
	Chuadanga Sadar	3	120	2	80	5	200
Jessore	Jessore Sadar	3	120	2	80	5	200
	Jhikargachha			2	80	2	80
Jhenaidah	Kaliganj	3	120			3	120
	Kotchandpur			2	80	2	80
Meherpur	Meherpur Sadar	3	120			3	120
Total:		**15**	**600**	**10**	**400**	**25**	**1,000**

Source: *AVPI database.*

Appendix 19. Field Days on Polynet Houses with Trickle Irrigation Through October 2018

District	Upazila	Year 1				Year 2				Total			
		Batches	Male	Female	Total	Batches	Male	Female	Total	Batches	Male	Female	Total
Bagerhat	Bagerhat Sadar	1	10	30	40	2	19	61	80	3	29	91	120
Chuadanga	Alamdanga					1	8	32	40	1	8	32	40
	Chuadanga Sadar	1	10	30	40	3	26	94	120	4	36	124	160
Jessore	Jessore Sadar	1	10	30	40	3	29	91	120	4	39	121	160
	Jhikargachha					1	9	31	40	1	9	31	40
Jhenaidah	Kaliganj	1	10	30	40	2	19	61	80	3	29	91	120
	Kotchandpur					1	10	30	40	1	10	30	40
Meherpur	Meherpur Sadar	1	10	30	40	2	18	62	80	3	28	92	120
	Total:	**5**	**50**	**150**	**200**	**15**	**138**	**462**	**600**	**20**	**188**	**612**	**800**

Source: *AVPI database*.

Appendix 20. Vegetable and Fruit Marketing Seminar Through October 2018

District	Upazila	Year 1 (November 2016-Oct 2017)				Year 2 (November 2017-October 2018)				Total			
		Number of Events	Total Participants			Number of Events	Total Participants			Number of Events	Total Participants		
			Male	Female	Total		Male	Female	Total		Male	Female	Total
Bagerhat	Bagerhat Sadar	1	19	19	38					1	19	19	38
Bhola	Bhola Sadar				-	1	19	17	36	1	19	17	36
Chuadanga	Chuadanga Sadar	1	21	16	37					1	21	16	37
Chuadanga	Gangni					1	26	18	44	1	26	18	44
Jessore	Jessore Sadar	1	21	16	37	1	22	15	37	2	43	31	74
Jhenaidah	Kaliganj	1	22	15	37	1	21	19	40	2	43	34	77
Khulna	Dumuria				-	1	24	16	40	1	24	16	40
Meherpur	Meherpur Sadar	1	20	17	37	1	20	20	40	2	40	37	77
Pirojpur	Nesarabad	1	19	19	38					1	19	19	38
Pirojpur	Nesarabad					1	26	18	44	1	26	18	44
Rajbari	Rajbari Sadar	1	21	17	38	1	22	16	38	2	43	33	76
Satkhira	Satkhira Sadar	1	20	18	38					1	20	18	38
Total:		**8**	**163**	**137**	**300**	**8**	**180**	**139**	**319**	**16**	**343**	**276**	**619**

Source: *AVPI database*.

Appendix 21. Findings from Various Studies and Seminars

a. Study on Vegetable and Fruit Market Information (Individual Consultant)

- Only 5 percent of women farmers have knowledge on harvesting time.
- Only 3-10 percent of women farmers grade their harvested crops.
- Only 3-10 percent of women farmers have knowledge on market demand of quality products, peak demand season, and premium price of the products.
- Only 7 percent of women farmers know the buyer availability.
- Sixty-seven percent of women farmers know the selling location.
- Ninety-nine percent of women farmers receive market price information from their husband or neighbors.
- Ninety-eight percent of market actors receive the market price information for vegetables and fruits by cellphone.
- About 6 percent of women follow post-harvest cleaning, sorting, and washing.
- About 6 percent of farmers know the supply time information, and 4 percent know the market price information.

b. Assessment of the Knowledge of IFDC-Walmart Women Vegetable and Fruit Farmers on Market Information (AVPI Field Staff)

- Eighty-one percent of women farmers are aware of the marketplace where inputs are purchased.
- About 4 percent of women farmers make decisions on selecting the types of crops to grow and sell those in the market.
- About 6 percent of the crops are used for family consumption, and over 90 percent are sold.
- Women farmers sell their crops to local markets (98 percent) within 2 kilometers of their farm and they also sell from their crop field (61 percent).
- Almost 100 percent of the women farmers know the communication status for vegetable and fruit transportation.
- About 5 percent of women farmers know the harvesting time.
- Ninety-nine percent of women farmers use local small transport to carry their crops to market.
- Almost 100 percent of the women farmers want to know the market demand and prices.
- Eighty-three percent of women farmers reported high input costs, followed by lack of knowledge of market demand (68 percent) and low sale price (67 percent), as their main constraint to selling their crops.

c. Vegetable and Fruit Seedlings/Saplings Grower Survey (AVPI Field Staff)

- Only 3 percent of women farmers are commercial seedling growers.
- Only 30 percent of women farmers are aware of a horticultural seedling market/sales center.
- Sixteen percent of women farmers have knowledge on the sale price of seedlings at various times.
- Ninety percent of women farmers received information on the horticultural seedling/sapling demand in markets from their husband.

- About 93 percent of women farmers received information on the market price of horticultural seedling/sapling from husband.
- Thirty-eight percent of women farmers reported a lack of market demand, followed by low sale price (26 percent), as their main constraint to selling their crops.

d. Vegetable and Fruit Marketing Seminars (AVPI Field Staff)

Strengths

- Quality (fresh; disease- and insect-free; good size, shape, and color) vegetables and fruits are available for purchase.
- Skilled sorting and grading of vegetables and fruits for marketing.
- Vegetables and fruits can be directly purchased from women farmers.
- A large variety of vegetables and fruits are produced as per demand of the market.

Weaknesses

- Shortage of funds for business.
- Low bargaining capacity on price.
- Linkages with different markets are not properly maintained.
- Lack of storage facilities.
- No information about market demand and supply.
- Lack of quality seed.

Opportunities

- Good reputation with farmers to purchase vegetables and fruits.
- Road condition and transportation system are good.
- More profits.
- Local markets are within nearest distance (within 2 kilometers).
- Good linkages with farmers for vegetables and fruits.
- Cellphone facilities for market information.

Threats

- Natural/political disaster.
- Storage facilities are not available.
- Illegal toll.
- Diseases and insect infestations are problematic for vegetable production.