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Research Paper

Role of Modern Agro-Technological Products Marketing in Agricultural Development: An Assessment of Awareness and Demand-Supply Situation among the Root Level Farmers

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ABSTRACT
This study intended to identify the relationship between the marketing of modern agro-technology and agricultural development. It also aims to measure the awareness level and the demand supply situation regarding modern agro-technology among the root level farmers. For the purpose, a semi-structured questionnaire has been developed. Data has been collected from 200 household from Dinajpur district. Regression analysis and some descriptive statistics have been done to retrieve the result. The study found a direct and positive relationship of productivity and profitability with the use of modern agro-technology products. We also found that farmers are well known about some of regular farm machinery products but most of them are not aware about the modern farm machinery equipments. The farmers demand more and more availability and affordability of these equipments. But the supplies of these machineries are not up to the demand. Government is initiating some project to distribute these modern farm machineries with subsidy to facilitate the farmers as well as the entrepreneurs. This study will help the polity maker to reinforce the decision making as well as the marketer to make these technologies available in the market.
KEYWORDS*: Modern Farm machinery, agro-technology, marketing, agricultural development, Firm Mechanization*

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I. INTRODUCTION

Bangladesh is a major agricultural country. Agriculture is our lifeblood. Farmers are the artisans of our economic development. Prosperity in the agricultural sector means ensuring national food security, winning the fight to survive against hunger. If agriculture and farmers survive, Bangladesh will survive. The awakening of Bengali civilization started around agriculture. There is no alternative to agriculture everywhere from birth to death. One of the most significant economic sectors of the nation is agriculture. Currently, the agriculture industry contributes around one fifth of the country's GDP. Moreover, agriculture is the major and one of the primary sources of nutrition and food security for the citizens of this nation. For a considerable portion of the population in this nation, agriculture continues to be the primary source of employment.

Bangladesh's success in agriculture is enviable. Due to population growth, climate change and declining agricultural land, it is a big challenge for the country to produce sufficient food grains to meet the demand. But Bangladesh is now an example in the world in food grain production in such a flood, drought, salinity and hostile environment. Bangladesh is significantly moving ahead in average production of paddy, wheat and maize in the world. Bangladesh is now fourth largest producer of rice and the third largest producer of vegetables. Bangladesh is land of Agriculture. It plays a vital role in economy. The sector currently contributes 13.2% to GDP and employs 43% of the population (BBS,2019-20). Now a day's traditional farming is replaced by technology. In every sector of agricultural farming, technology has brought a rapid change.

Agro Tech have revolutionized agriculture and reduced drudgery for millions of farmers and workers, but the machinery of tomorrow will have to do more than that. It will also have to contribute to sustainable agricultural development. In Bangladesh agricultural machinery market is projected to witness significant

growth on account of upcoming technologies in the industry coupled with improved economic conditions and rising farm income.

In technical operations of farming for which machines are used are very much diverse. Activities include handling of residues from previous crops; primary and secondary tillage of the soil; fertilizer application, seeding, planting, and transplanting, cultivation, pest control, harvesting, transportation, storage, premarketing processing, drainage, irrigation and erosion control and water conservation, every spheres technology has grown drastically. In Livestock production a lot of sophisticated tools are used for better production. Traditional farming has certain disadvantages such as lack of uniformity and producer fatigue among others. These negative factors can be overcome by the mechanization of the farming process which helps in providing consistency while performing various agricultural tasks. This paper tries to measure the awareness among farmers regarding the modern farm machinery equipments consequences in agricultural output by producing more agricultural commodities and profitability.

Objectives of the study:

The study has following basic objectives-

I. To measure the impact of modern farm machinery equipment on agricultural development.
II. To measure the awareness of the root level farmers regarding the modern farm machinery equipments.
III. To assess the demand and interest of farmers in the modern farm machinery equipments.
IV. To assess of availability or supply of modern farm machinery equipments in the market.

II. LITERATURE REVIEW

There are very few study has been done regarding agro-technological product marketing and distributions. Despite many problems and constraints a quiet agricultural revolution has taken place through development and adoption of modern varieties, mechanization of tillage operation, irrigation and other management technologies (Kashem 2010).

Mechanization is the process of putting machinery and power between people and materials in a production process (Khalequzzaman and Karim, 2007). In order to increase farm productivity and cropping intensity, agricultural mechanization is the art and science of applying agricultural machinery, tools, and implements. Large-scale canal networks and Deep Tube Wells were initially the main focal points of Bangladesh's irrigation program in the 20th century. After gaining independence, Bangladesh's irrigation policy shifted more in favor of using shallow tube wells for irrigation rather (Biggs & Justice, 2015).

According to Islam (2018), about 80% of the land is cultivated by power tiller and 18% by the tractors. However, the modern farming equipments like bed maker, seeder, weeders, harvesters and so on are very rarely used by the farmers (Islam, 2009). Most of the modern farm machinery equipments are imported from abroad. Thus the owner of the machinery serves a service provider by renting and selling to the farmers (Krupnik et. al., 2013). That why the small farmers also can afford the machinery by renting form the owners of those machineries. Ahmmed, (2014) studied on mechanization prospects, problems and challenges in agriculture in Bangladesh. He found a impactful differential effect semi-mechanized and mechanized harvesting process labor, cost and time efficient than the non-mechanized process.

Shin, (2013) Says that the domestic demand and the export expansion are needed through developing a model of agricultural machinery of having competitiveness to domestically activate agricultural machinery industry. Chandra, (2017), have found that All farmers have expressed their need for machinery and mentioned agricultural credit with easy terms and conditions, subsidy for buying machinery and the ensuring of a fair market price for their rice.

Fuad, (2019) found undoubtedly the "farm mechanization" as an essential agricultural input in Bangladesh that has the potential to significantly improve the lives and livelihoods of millions of rural communities. According to Aurangzeb et al. (2007), the introduction of small-scale mechanization caused a substantial change in the way power is used in agriculture, and it appeared that the usage of power tillers for tillage has grown quickly. (Reza & Khan, 2013) studied on impact of farm mechanization on productivity and profitability of rice farm in Rajshahi district. Here researchers examined the differential effect of mechanization and non-mechanization on rice production and found a positive impact of the mechanization of agriculture.

The domestic demand and the export expansion are needed through developing a model of agricultural machinery of having competitiveness to domestically activate agricultural machinery industry (Shin & et. al. 2013). Faroque (2013) found that to face the future agricultural problem under the global warming and climate change issue it is essential to improve, enhance and adopt the various technological advancement. In addition, it is essential to give weather services, increased research and extension services, agro advisories, insurance, community banks, an intensified and diversified crop production system, modern high yielding varieties, and management technologies for future sustainable agriculture the highest priority for reducing the effects of climate change on agriculture. Faroque (2011) also found Broad-policy measures, including the creation of

mass awareness of adverse health effects of agrochemical-based products, are outlined for the promotion of sustainable agriculture.

From the above study we can find that there are no such significant researches on this topic. Hence this study will provide some real contribution in the field of business as well as agriculture.

III. METHODOLOGY

This study is both exploratory and causal in nature. To attain the objectives needs both primary and secondary data.

i) Data collection:

Primary data has been collected from the farmers from rural households using a structured questionnaire through face-to-face interview method. The questionnaire includes detailed information on agricultural production , especially, crop production, cost of production including input cost and labor cost, use of farm mercenaries, adoption of modern technologies, profitability, farmer's socio economic characteristics etc. data has been collected form 200 household among them 1 data is rejected due to sampling error. Hence the total respondent is 199.

Secondary data has been collected from different journals, articles, different organization like Bangladesh Bureau of Statistics, Agricultural Extension office and prior research conducted by different researchers.

ii) Study area: As the northern region represents the most of the agricultural production of the country, that's why Dinajpur district is purposively selected as study area.

iii) Sampling Technique: Dinajpur is one of biggest agriculture based district of Bangladesh. Some respondents are reluctant and unable to provide information because of their illiteracy. That's why to cover whole district sample has been selected conveniently and judgmentally.

iv) Econometric models:

In the proposed study, agricultural sustainability will be measured through two proxy measurement, namely, agricultural productivity and profitability. Agricultural productivity will be measures by looking into the per acre crop production of the farmer and profitability will be measured by the difference between total revenue and total cost of production.

Therefore, in order to assess the impact of modern firm machinates on the agricultural sustainability we will use the following regression models:

Model 1: For agri productivity:

$P_i = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_n + \varepsilon_i$

Where,

P_i= agricultural productivity

X_1= whether the farmer adopt modern technology/ number of modern tech. usage

X_n= Other control variable

ε_i = stochastic disturbance term.

Model 2: For profitability:

$\Pi_i = \beta_0 + \beta_1 X_1 + \beta_2 X_n + \varepsilon_i$

Where,

Π_i= average profit from per unit of land of the farmer.

X_1= whether the farmer adopt modern technology/ number of modern tech. usage

X_n= Other control variable

ε_i = stochastic disturbance term.

There are two regression model is tested where model 1 will determines the relationship the agricultural productivity (dependent variable) and the adoption of modern technology/ number of modern technology use (independent variable).

Similarly model 2 determines the relationship the agricultural profitability (dependent variable) and the adoption of modern technology/ number of modern technology use (independent variable)

IV. ANALYSIS, DISCUSSION AND FINDINGS

Summary statistics

The following table (Table 1) represents the summary of the data that have been collected from the respondents.

Table 1: Summary Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	199	18	75	42.57	10.921
Amount of land (acre)	199	0	4	.94	.629

Do you know that there are many types of modern agricultural equipments?	199	1	1	1.00	.000
Do you think the use of modern technology has increased agricultural production?	199	1	1	1.00	.000
Do you use modern farm machinery:	199	0	1	.85	.359
Production/acre	199	2400	5200	4320.60	531.557
Profit/acre	199	15000	55000	39361.81	6808.324
Agricultural production has increased with the use of modern irrigation technology.	199	4	5	4.38	.486
Government encouraged you to use modern irrigation equipment	199	2	4	3.56	.801
Private companies organize workshop for you to raise awareness about modern machineries.	199	2	4	3.55	.715
Adequate supply of modern irrigation technology in your area.	199	2	4	3.85	.529
The development of agriculture requires more technologies.	199	4	5	4.40	.492
If you are offered more new technologies you will accept.	199	3	5	4.40	.540
Your local agricultural extension department is constantly trying to provide you with new irrigation technology.	199	1	4	3.35	.956
There is an ample supply of all the equipment in the market as per your demand.	199	2	4	3.79	.562
you know that there is a machine name drumsider for scattering seeds?	199	0	1	.88	.326
Do you know that there is a machine called rice transplanter for planting rice seedling?	199	0	1	.88	.326
Do you use these modern machineries?	199	0	0	.00	.000
Do you get ample supply of these machines on local market according to your demand?	199	0	0	.00	.000
Who informed you about these machines?	199	0	1	.88	.321
Crop production is increased by cultivating land with modern technology.	199	4	5	4.56	.497
Cost of production is increased is increased by cultivating land with modern technology.	199	1	2	1.53	.500
Government is subsidizing the purchase of modern farming technology.	199	2	3	2.30	.458
The Subsidy is given by the govt. is enough.	199	3	3	3.00	.000
Government is inspiring you to buy this farming technology.	199	2	4	2.93	.907
All kinds of modern ploughing technologies are available on your area.	199	1	4	3.52	.869
Do you know there are some modern technologies for fertilizer spreading?	199	0	1	.68	.468
Do you use modern insecticides spray machines?	199	1	1	1.00	.000
Do you get ample supply of these machines on local market according to your demand?	199	1	1	1.00	.000
Do you know there is a machine called back pack weedier for weed clean?	199	0	1	.68	.468
Do these machineries is reduce work hour?	199	0	1	.68	.468
Hand reaper, Power reaper, Combine harvester, do you know about these harvesting machineries?	199	1	1	1.00	.000
Many crops are wasted during harvesting using these modern machineries	199	1	2	1.37	.485
Cost of harvesting with modern machine is high.	199	2	4	2.12	.370
Do you know about Ventilating Dryer, Circulating Dryer?	199	0	0	.00	.000
These Machines is use to your area?	199	0	0	.00	.000
Number of Modern technology use	199	6	7	6.20	.402
Valid N (listwise)	199				

Productivity and Profitability

In this section we have analyzed the data with the help to SPSS software and tested the relationship between the dependent and independent variables. In the regression model-1 describes the relationship between agricultural productivity and the use of modern technology From the table-2 we can see that the value of R Square is .452 that means the independent variables are able to describes 45.2% dependent variable and the test is statistically significant (p=.000)

Table 2: Model Summary									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.673[a]	.452	.447	395.328	.452	80.987	2	196	.000
a. Predictors: (Constant), No. of modern technology use, use									

Table 3: Coefficients[a]								
		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
Model		B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound
1	(Constant)	2437.475	434.565		5.609	.000	1580.451	3294.499
	Use	950.603	79.114	.641	12.016	.000	794.579	1106.628
	No. of tech.	173.493	70.637	.131	2.456	.015	34.188	312.799
a. Dependent Variable: Production								

From the table 3 we can better understand the relationship. Result shows that the both those who use the modern technology and those who use more the number to modern technology has the direct positive (respectively .641 and .131) relationship with the agricultural productivity and the result is statistically significant (respectively .000 and .015). it can be said that the use of modern technology can raise the agricultural productivity by 64.1% and more the number of modern technology use will increase the productivity by 13.1%.

Similarly the regression model-2 describes the relationship between the profitability and the use of modern technology and the number of modern technology. From the table-4 we can see that the value of R Square is .513 that means the independent variables are able to describes 51.3% dependent variable and the test is statistically significant (p=.000)

Table 4: Model Summary									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.716[a]	.513	.508	4773.679	.513	103.377	2	196	.000
a. Predictors: (Constant), No._Use1, use									

From the table 5 we can better understand the relationship. Result shows that the both those who use the modern technology and those who use more the number to modern technology has the direct positive (respectively .690 and .118) relationship with the profitability and the result is statistically significant (respectively .000 and .020). it can be said that the use of modern technology can raise the agricultural profitability by 69% and more the number of modern technology use will increase the profitability by 11.1%.

Table 5: Coefficients[a]								
		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	15870.772	5247.481		3.024	.003	5521.997	26219.546
	use	13102.554	955.325	.690	13.715	.000	11218.519	14986.589
	No._Use1	1993.829	852.956	.118	2.338	.020	311.680	3675.978
a. Dependent Variable: Profitability								

Awareness Analysis:

As the technology developing rapidly in the current world, the adoption of these technologies in rural side is much slower than urban. Now a day, for the goodness of a wide range of media spreading all over the rural and urban areas, rural people are getting more current news about the different types of development. Though most of the respondents are responded positively (91%) when they are asked about whether they are aware about the modern farm machinery equipment. But when they are asked with particular farm machinery equipment like fertilizer applicator, dram seeder, rice transplanter, harvester, reaper etc. the percentage is

reduces and reaches tends to zero. Those who know about these technologies responded that they aware by different media and private companies and dealers of these machineries.

According to 24.6 percent farmers, the government has not given them any incentive to use modern irrigation technology but 85.4 per cent farmers have got these benefits. (See table 6) on the other hand Private companies make awareness about modern machineries in this statement 13.1% farmer are disagreed 67.8% is agreed and 19.1 are neutral. (See table 7) Department of Agriculture Extension constantly trying to provide new technology, here 67.8% farmers are disagreed & 33.2% farmers are agreed (See table 8) only 12.1% farmers are don't know about Drumseeder but 87.9% farmers are know that similarly 12.1% farmers are now aware about Rice transplanter but 87.9% farmers are know that, 67.8% is known about fertilizer applicator, 67.8% is known about weedier machine. It is a matter of joy that now 100% farmer is known about Napsack sprayer ,Hand reaper, Power reaper, Combine harvester (See table 9,10,11,12,13,14).

Table:6 Government encouraged you to use modern irrigation equipment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	39	19.6	19.6	19.6
	Neutral	10	5.0	5.0	24.6
	Agree	150	75.4	75.4	100.0
	Total	199	100.0	100.0	

Table: 7 Private companies organize workshop for you to raise awareness about modern machineries.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	26	13.1	13.1	13.1
	Neutral	38	19.1	19.1	32.2
	Agree	135	67.8	67.8	100.0
	Total	199	100.0	100.0	

Table: 8 your local agricultural extension department is constantly trying to provide you with new irrigation technology.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.0	1.0	1.0
	Disagree	62	31.2	31.2	32.2
	Agree	135	67.8	67.8	100.0
	Total	199	100.0	100.0	

Table: 9 Do you know that there is a machine name drumsider for scattering seeds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	24	12.1	12.1	12.1
	Yes	175	87.9	87.9	100.0
	Total	199	100.0	100.0	

Table: 10 Do you know that there is a machine called rice transplanter for planting rice seedling

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	24	12.1	12.1	12.1
	Yes	175	87.9	87.9	100.0
	Total	199	100.0	100.0	

Table: 11 Do you know there are some modern technologies for fertilizer spreading?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	64	32.2	32.2	32.2
	Yes	135	67.8	67.8	100.0
	Total	199	100.0	100.0	

Table: 12 Do you use modern insecticides spray machines

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	199	100.0	100.0	100.0

Table: 13 Do you know there is a machine called back pack weedier for weed clean?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	64	32.2	32.2	32.2
	Yes	135	67.8	67.8	100.0
	Total	199	100.0	100.0	

Table: 14 Hand reaper, Power reaper, Combine harvester, do you know about these harvesting machineries?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	199	100.0	100.0	100.0

Impact of modern farm machinery equipment on sustainable agricultural development:

Agricultural technology is an important of the development of agricultural sector. Modern machinery is playing the most important role in the sustainable development of agriculture. Plowing, water management, seed, fertilizer, sprayer and harvester are the main agricultural machinery used in our country. 62.3% farmer are agreed and 37.7% famers are strongly agreed that Agricultural production has increased with the use of modern irrigation technology (see table 15)

Table: 15 Agricultural productions have increased with the use of modern irrigation technology.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	124	62.3	62.3	62.3
	Strongly Agree	75	37.7	37.7	100.0
	Total	199	100.0	100.0	

In this survey we have seen that 100% of the farmers have said that their crop production has increased by cultivating the land with modern tractors and power tillers, (see Table 16). 100% of the farmers said that modern machinery has reduced the production cost of their crops, 67.8% said that it's reduced the labor cost, (see tables 17 and 18).

Table: 16 Crop Production is increased by cultivating land with modern technology					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	87	43.7	43.7	43.7
	Strongly Agree	112	56.3	56.3	100.0
	Total	199	100.0	100.0	

Table: 17 Cost of production is increased is increased by cultivating land with modern technology					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	93	46.7	46.7	46.7
	Disagree	106	53.3	53.3	100.0
	Total	199	100.0	100.0	

Table: 18 Back pack weedier machineries is reduce work hour.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	64	32.2	32.2	32.2
	Yes	135	67.8	67.8	100.0
	Total	199	100.0	100.0	

At present, agriculture and farmers are benefiting in many ways including increasing production, reducing post-harvest waste, increasing crop density and creating employment through the use of modern machinery. The Ministry of Agriculture took up a project for implementation from July 2012 to June 2019. It cost 339 crore 94 lakh taka to implement. Intensive monitoring is done to check the extent to which the objectives of the project have been implemented. According to the report, before the project was taken up, 97.40 percent of the 2,000 farmers said that the use of farm equipment has increased production and reduced costs in 2018 as compared to 2012. 98.30 percent farmers said that the use of machinery has reduced post-harvest waste by a maximum of 90 percent and a minimum of 20 percent. Most of the farmers said that earlier the average density of the crop was 190.14, but as a result of the use of machinery, the density increased to

204.6 in 2017-18. 90.60 percent of the farmers who took part in the survey said that the project activities have resulted in increased employment in the area.

Demand and interest of farmers in the modern farm machinery equipments:

Demand: Since the agricultural mechanization sector has developed in the country so far in isolation, it is not possible to determine its exact status at present. However, from this information in isolation, its necessity, demand, expansion and future possibilities can be easily understood. Table 18 represents the different mode of irrigation data over few decades. Here it can be easily understood that the demand trend is rising very sharply. Table 19 demonstrates the country's current scenario of firm machinery. Table says that some of firm machinery tools are very common to farmers and are being used widely. But some machineries like seeder, rice transplanter, granular urea applicator, reaper, combined harvester etc. are very rarely used by the farmers.

Table 18: Demand growth in irrigation machine during early 1970 to 2008

Type of Pump	**Early 1970s**	**2000**	**2007**	**2008**
Low Lift Pump (LLP)	24,000	71,570	107293	1,38,630
Deep Tube Wells (DTW)	1,000	25,104	29177	31,302
Shallow Tube Wells (STW)	<1,000	757,044	1202728	13,04,973
Total	26,000	8,53,728	13,39,198	14,74,905

Source: Minor irrigation survey report 2007-2008, BADC, MoA

Table 19: Present Status of Farm Machinery in Bangladesh

Name of machine	**Quantity, no.**
Diesel engine	25,00,000
Power tiller	7,00,000
Tractor	60,000
Seeder	5,000
Rice transplanter	300
Weeder	2,50,000
Granular urea applicator	800
Prilled urea applicator	18,000
Sprayer	13,00,000
Reaper	500
Combine harvester	130
Open drum thresher	1,50,000
Closed drum thresher	2,20,000
Winnower	3000
Power driven pump	1,67,175
Deep tube well	35,566
Shallow tube well	15,48,711

Source: Fuad and Flora (2019)

According to a report 2012 conducted by Md. Manjurul Alam, Professor of Agricultural Energy and Machinery, Bangladesh Agricultural University. Agricultural machinery and other agricultural implements worth Tk 71.16 crore are traded in Bangladesh every year, of which Tk 80 billion is transacted in the agricultural machinery sector alone. Of this, Tk 33.85 billion was transacted in the home-made agricultural machinery sector. Taka 13,000 million in power tiller, Taka 5,525 million in tractor, Taka 1,400 million in centrifugal pump, Taka 20,000 million in some type of engine, Taka 670 million in threshing machine, Taka 42 million in impeller parts, engine, power tiller and pump spare Taka 3200 million is being transacted in the sector. At present about 6,50,000 power tillers are being used in the country and on an average about 60,000 power tillers are being imported every year. On the other hand, the supply of centrifugal pumps used for shallow tube wells depends mainly on the local manufacturers in the country. At present there are about 8,50,000 shallow tube wells and the demand for its pumps is about 1,50,000 every year. Among the sprayers used in the country, almost all types of hand and foot driven sprayers are being manufactured in the country except power sprayers only. The demand is about 1 lakh 40 thousand per year. Of the sprayers manufactured in the country, 30% are transacted in Dhaka and the remaining 70% are transacted in other districts of the country. The threshing machines used in the country are also being made in the local factories of the country. The number of different types of threshing machines used in the country has now exceeded 4 lakh and the demand is about 60,000 per year (Agricultural Information Service, 2018).

Interest:

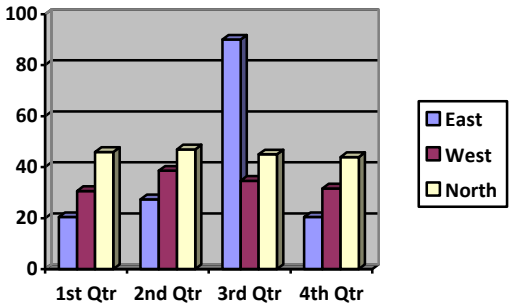
We asked the farmer, do you believe development of agriculture requires more technology, here 59.8% farmers are agreed & 40.2% are strongly agreed with that statement, (see table no 20). We also see that farmers are very excited for accepting new update machineries 55.3% farmers are agreed & 42.2% farmers are strongly agreed to accept modern updated technology, (Table 21).

Table: 20 The development of agriculture requires more technologies.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	119	59.8	59.8	59.8
	Strongly Agree	80	40.2	40.2	100.0
	Total	199	100.0	100.0	

Table: 21 If you are offered more new technologies you will accept.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	5	2.5	2.5	2.5
	Agree	110	55.3	55.3	57.8
	Strongly Agree	84	42.2	42.2	100.0
	Total	199	100.0	100.0	



Availability or supply of modern farm machinery equipments in the market:

In our survey area, 7.5% of the farmers say that they are not getting adequate supply of modern irrigation equipment but 92.5% of the farmers are getting adequate supply, (see table 22). In this survey we also see that in local market there is no supply of Rice transplanter, Drumsider, weedier & Fertilizer applicator machines but farmer get 100% supply of pesticide sprayers in local market, (Table 23).

Table: 22 adequate supply of modern irrigation technology in your area.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	15	7.5	7.5	7.5
	Agree	184	92.5	92.5	100.0
	Total	199	100.0	100.0	

Table: 23 Do you get ample supply of these machines on local market according to your demand?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	199	100.0	100.0	100.0

V. CONCLUSION

Over the last few years, the difficulties of the farmers in the use of technology and equipment have been alleviated a lot. The use of machinery in agriculture continues to increase. However, those who have undeniably contributed to the mechanization of the agricultural system are the agro-technology marketing companies and marketing officers who are trying their best to bring these technologies to the doorsteps of the farmers. They Teaching farmer about the use of technology, giving information to farmers about modern technology, farmers also learning about the advantages and disadvantages of modern technology and finally they reaching out the technology to them through various farmer cooperatives or personally. Then these modern agricultural technologies lead the country's agricultural sector towards prosperity.

Out of the old idea the use of modern technology is changing the life of the farmer. As a result, production capacity is increasing as costs are declining. The use of modern technology or machinery has revolutionized agriculture. Now everything is happening through the instrument. Farming, sowing, weeding, fertilizing, harvesting, threshing, threshing and packing are all done with the help of modern technology. As a result of the mechanical causes of agriculture, on the one hand, the amount of production is increasing and on the other hand, the cost of production is decreasing. At the same time, the wastage of crops is also decreasing. Now the farmers do not have to count the days waiting for the workers. As a result of the use of technology and equipment, a few acres of land are being cultivated in a short period of time. Traditional and traditional agriculture of Bangladesh is now in a new era. Agriculture has now become a lot with the touch of advanced seeds, fertilizers, technology and various sophisticated materials. As a result, as production has increased several times, so has productivity.

Agriculture plays a vital role in economy. As a result the yield in production and development of agricultural sector is the one of the main concern of the policy maker. This study may help the policy maker to justify the use of modern agro-technology to increases the productivity. Hence the policy makers may put emphasis on marketing and distribution of the modern agro-technological equipment according the demand of the root level farmers.

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