

Adoption of New Technology and Remunerative Price through Self-Help Groups in Uttar Pradesh

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ABSTRACT

Diversified Agriculture Support Project (DASP) was implemented in the identified 157 blocks of 32 districts of Uttar Pradesh with the objective to increase agricultural productivity and production through diversified production system, encouragement to privatization in agriculture and improvement in rural infrastructure. 17986 Self Help Groups (SHGs) were formed to promote diversification of agriculture and its marketing out of which 3785 SHGs were actively involved in the marketing of agricultural produce and they were termed as Active Marketing Farmers' Interest Groups. The study was conducted to assess the impact of group marketing on technology adoption and economic return. It was observed that 67 per cent farmers are using seed treatment followed by soil treatment (58 per cent). Fifty seven per cent farmers are using HYV and 47 per cent of gross cropped area was covered under soil testing. When marketing of produce was done through group approach, higher return was realized in all agricultural products. This increase was highest in vegetables and lowest return (11 per cent) in case of cereals. SHGs members realized 20 per cent higher return as compared to non SHGs members in case of vegetables. Market access was denied due to lack of market information. In some cases group Mandi officials and local police harassed members. Efforts should be made to form more number of Active Marketing Self Help Groups and improve market access through comprehensive market information and better regulatory framework.

Key words: *Diversified agriculture support project; Agricultural productivity; Self-help groups;*

Uttar Pradesh with annual production of 41.8 million tons of food grains (22 per cent of the Country's total production) from 17.48 million hectares of cultivated land contributes significantly to the national food supply. With 166 million people, it is home to one-sixth of the nation's population and almost one-fifth of the country's poor, and ranks below the national average in a wide range of economic and social indicators. The state's prosperity gap is also widening, per capita income was 3 per cent lower than national average in the early 1950s, but it had slipped to 38 per cent lower by 2000. Almost 80 per cent people of UP lives in rural areas, and out of these, 21.5 per cent or more than 28 million, live below poverty line. Agriculture is the dominant economic sector of the state, employing 78 per cent of the labor force and contributing 36 per cent of state's GDP. But this sector exhibits weak and uneven growth in production, averaging only 2.2 per cent annually over the last decade, and just 1.2 per cent annually over the last five years.

More rapid and sustained agricultural growth is

constrained by inefficient extension and irrigation systems, weak agricultural and marketing support services. In the new millennium, the challenges faced by agricultural sector are quite different from those encountered in previous decades. Declining trend in the total factor productivity is alarming. At the same juncture, it is getting difficult to manage the stockpiling of certain agricultural produces. With opening of the world market under new international trade order (WTO regime), Indian farmers and farmers' organizations have virtually unlimited opportunities to enhance their net return and income from farm-based activities by raising production and productivity, provided they are able to meet international quality standards and requirement of product presentation. The opportunities of globalization can be translated to increase the farmer's income in present scenario with the help of reorientation towards emerging market demand at national and international level through creating effective extension system and institutional as well as supportive environment.

At country level, farmers' participation in producers' organization is limited. The National Sample Survey (NSS) of farm households in 2002-03 found that only 2.2 per cent household had at least one member participating in a registered farmers' organization. Fostering formal or informal associations will be helpful in improving bargaining power of small and marginal farmers, strengthening access to market information and ultimately higher return to farmers. The State of Uttar Pradesh experimented the World Bank supported "Diversified Agriculture Support Project (DASP)" from 1998 to 2004. This project has not only addressed several core issues relevant to present day agricultural needs but has also provided a platform on which state can now build up a sustainable, cost effective, environment-friendly and market driven agriculture. DASP was implemented in the identified 157 blocks of 32 districts of the state with the objective of increasing agriculture productivity and production through support of UP's diversified production system, encouragement to privatization in agriculture and improvement in rural infrastructure. Major focus in the project was the technology dissemination through group approach. For this purpose, the specializations of various Non Governmental Organizations (NGOs) were used in each of the project districts to strengthen the human capital in the project area. Various Self Help Groups (SHGs) were formed with the basic norms of social capital which refers to the social cohesion, common identification with the forms of governance, cultural expression and social behavior that makes society more cohesive and more than a sum of individuals, in short, to the social order that promotes a conducive environment for development and solidarity. Social capital also plays an important role in encouraging solidarity in overcoming market failures through collective action and common pooling of resources. Under DASP, Self Help Groups were formed to promote diversification of agriculture and the marketing of agricultural produce. The present study has been conducted with following specific objectives:

1. To examine the impact of SHGs members on technology dissemination and its adoption.
2. To work out the impact of group marketing on farmers' economic return.
3. To find out the constraints in Group Marketing.
4. To suggest suitable measures to enhance market access and information.

METHODOLOGY

There were 17986 SHGs formed to promote diversification of agriculture and its marketing. Out of these 3785 SHGs were actively involved in the marketing of agricultural produce and they were termed as Active Marketing Farmers' Interest Groups. It was thought that this type of coordinated efforts can provide a mechanism to enhance the bargaining power of the farmers, lower marketing costs of output as well as inputs, increased technological dissemination and its adoption.

There are four economic zones in Uttar Pradesh viz. Eastern, Western, Central and Bundelkhand. Two DASP districts from each economic zone were selected randomly for data collection. Thus, total eight DASP districts viz Kushinagar and Varanasi from Eastern zone; Meerut and Muzaffarnagar from Western zone, Lucknow and Farrukhabad from Central Zone, Jhansi and Jalaun from Bundelkhand zone were randomly selected for the purpose of the study. One hundred fifty Active Marketing Farmers' Interest Groups from above eight districts were selected randomly and data were collected from the SHGs and Non SHGs members to assess the impact. A simple tabular analysis was carried out to compute the averages and percentages to observe the effect of SHGs formation on technology dissemination, adoption and marketing of produce.

RESULTS AND DISCUSSION

The information about different categories of farmers was given in Table 1 In Uttar Pradesh more than 90 per cent farmers were in the category of small and marginal and the average size of holding is 0.86 ha. Positive relationship between size of holding and marketable surplus was found in the study. In case of UP,

Table 1: Size of farm holdings in Uttar Pradesh (1995-96)

Category	Area ('000ha)	Number ('000)	Av. holding size (ha)
Marginal (<1 ha)	6,033 (34.00)	15,573 (75.60)	0.4
Small (1-2 ha)	4,214 (24.00)	2,983 (14.50)	1.4
Medium (2-10 ha)	6,901 (39.00)	2,009 (09.70)	3.5
Large (>10 ha)	562 (3%) (03.00)	38 (00.20)	15.0
Total	17,710 (100.00)	20,603 (100.00)	0.86

Figures in parentheses showed percentage of total.

Source: Statistical Bulletin of Uttar Pradesh 2005.

the marketable surplus of small and marginal farmers was small. Therefore, their bargaining power was very low, which resulted in high marketing costs.

Table 2. Adoption of soil testing technology

Land holding	SHGs			Non-SHG		
	Total growers	Farmers involved area	Soil testing (ha.)	Total growers	Farmers involved area	Soil testing (ha.)
Marginal	852	594 (70.0)	408.1 (39.0)	693	105 (15.0)	57.6 (9.0)
Small	456	318 (70.0)	477.6 (42.0)	255	54 (21.0)	73.6 (13.0)
Large	559	429 (77.0)	1821.4 (50.0)	261	67 (26.0)	256.9 (18.0)
	559	1341 (72.0)	2707.0 (47.0)		226 (19.0)	388.1 (14.0)
Overall	1867	1341 (72.0)	2707.0 (47.0)	1209	226 (19.0)	388.1 (14.0)

Figures in parentheses are per centages of total

Source: DASP evaluation report 2004.

Table 3. Adoption of important improved farming practices

Activities	Group			Non-group		
	Awar-ness	Adop-tion	Adop-tion (%)	Awar-ness	Adop-tion	Adop-tion (%)
Soil treatment	1536 (82.0)	1079 (58.0)	70.2	561 (46.0)	144 (12.0)	25.7
Seed treatment	1624 (87.0)	1252 (67.0)	77.1	636 (53.0)	249 (21.0)	39.2
No use of banned pesticides	1061 (57.0)	451 (24.0)	42.5	431 (36.0)	153 (13.0)	35.5
Seed production	1296 (69.0)	711 (38.0)	54.9	440 (36.0)	143 (12.0)	32.5
Zero tillage	686 (37.0)	195 (10.0)	28.4	197 (16.0)	30 (03.0)	15.2
HYV	1431 (77.0)	1063 (57.0)	74.3	616 (51.0)	368 (30.0)	59.7 59.7
Total farmers		1867			1209	

Figures in parentheses are per centages of total

Source: DASP Evaluation Report 2004.

Impact of group approach on technology dissemination and its adoption: Table 2 showed that around 72 per cent sample farmers from SHGs have adopted the technique of soil testing with a view to know the nutrient requirement of soil before sowing of the

crops. About 47 per cent of gross cropped area was covered by soil testing technique, which is a major breakthrough. The practice of soil testing technique was applied mainly for the purpose to apply the recommended dozes of fertilizer in their field. However, in case of Non SHGs only 19 per cent farmers adopted this technique in 14 per cent cropped area.

Table 3 indicated that the adoption of improved farming practices such as soil treatment, seed treatment, non use of banned pesticides, seed production, application of zero tillage and use of HYV. Adoption of these practices was much higher among SHG members as compared to Non-SHG members. About 67 per cent SHG members adopted seed treatment followed by soil treatment (58 per cent) and use of HYV (57 per cent) as compared to 21, 12 and 30 per cent, respectively in Non SHG farmers. Therefore, it was concluded that technology dissemination and its adoption was very effective through group approach.

Table 4. Marketing of cereals (Wheat and Paddy) at different location

Particulars	Wheat		Paddy	
	SHGs	Non SHGs	SHGs	Non SHGs
Total growers (No.)	1423	1423	1159	1159
Farmers sold produce (No.)	1142 (80.0)	996 (70.0)	786 (68.0)	674 (58.0)
<i>Produce sold at different location</i>				
Government Procurement Centres	134 (12.0)	142 (10.0)	82 (11.0)	69 (10.0)
Mandi	458 (40.0)	427 (30.0)	341 (43.0)	159 (24.0)
Local Market	332 (29.0)	498 (35.0)	236 (30) (30.0)	237 (35) (35.0)
Within Village	218 (19.0)	356 (25.0)	127 (16.0)	209 (31.0)

Figures in parentheses are per cent ages of total

Impact of group marketing on Farmers' Sale Pattern and Return: Marketing of all the crop produce is common in the study area but the number of farmers involved in marketing other than wheat and paddy crop is very small. Thus, only wheat and paddy crops were considered to assess the marketable surplus. Table 4 indicated that the numbers of farmers having marketable surplus in case of wheat and paddy in SHGs were much higher than the Non-SHG. In wheat, 80 per cent SHG member farmers had marketable surplus whereas in

case of Non SHG members, only 70 per cent farmers had marketable surplus. In paddy, 68 per cent and 58 per cent SHG and non-SHG farmers had marketable surplus, respectively. In case of wheat, maximum number of farmers (40 per cent) in SHGs sold their produce in Mandi directly whereas in case of Non SHGs, maximum number of farmers (35 per cent) sold their produce in local market. Similar pattern was observed in case of paddy.

Producers' share in consumers' rupee was found maximum when Aonla was marketed through SHGs (Singh 2005). Table 5 revealed the economic return realized by the SHGs members. It was observed that when marketing of produce was done through SHGs, higher return was realized in all agricultural products. It was the highest in vegetables (20 per cent) and lowest (11 per cent) in cereals. Earlier, in case of vegetables, small and marginal farmers used to sell their produce in village or local market where they didn't get better prices. They also spent more time and transportation cost but through group marketing they were able to sell their produce at Mandi in bulk and realized better prices, which was almost 20 per cent higher than the non-SHG members. Similar trend was observed in case of fruits, flowers and mushroom. In case of cereals (wheat and paddy), the procurement /purchase were done by Government and the individual farmer found it a reliable location for sale of his produce That is why lower return was realized in cereals.

Table 5. Higher return realized by SHGs members

Particulars	Increased Return of SHGs
Cereals	+11%
Vegetables	+20%
Fruits	+19%
Flowers	+15%
Mushroom	+17%

+ Indicates higher return realized by SHGs members over Non SHGs members

Above results revealed that Group Marketing increases the marketable surplus, bargaining power of producers and decreases transportation cost of

marketing. Group members preferred to sell their produce in Mandi instead of village or local markets.

Constraints: On the basis of above results held with farmers, traders and other stakeholders following constraints were observed:

Marketing infrastructure is under government control and essentially organized around cereal crops and pulses and it did not cater very well to the perishable and non-traditional products which hold huge scope for both income and employment generation. Advice on post-harvest technology and management activities was not readily available and there are few backward and forward linkages with agribusiness sector. Lack of updated market information about the prices of important products in the major markets. Very weak expertise of marketing in the line department and extension worker. Lack of supply chains, weak linkages between producers, traders and processors.

CONCLUSION

It was concluded that the technology dissemination and adoption of important improved farming practices like soil testing, soil treatment, seed treatment, non use of banned pesticides, seed production, use of HYV and application of zero tillage were very effective through Group Approach. When marketing of produce was done through groups, higher return was realized in all agricultural products. It was the highest in vegetables and lowest in cereals. Group Members realized 20% higher return as compared to non group members in case of vegetables. Market access was hampered due to lack of market information. In some cases group members were harassed by Mandi officials and local police because bulk purchase was not permitted under existing APMC Act 1964. An effort should be made to form more number of Active Marketing Self Help Groups. Government should try to improve market access through comprehensive market information and better regulatory framework. Mandi Board should act as a facilitator.

REFERENCES

1. Anonymous (2003). Situation Assessment Survey of Farmers, Report No. 497, NSSO, Govt of India.
2. Anonymous (2004). AMC, IIM, Lucknow Impact of Diversified Agricultural Project on Socio economic condition.
3. Anonymous (2005). Statistical Bulletin of Uttar Pradesh, Ministry of Agriculture, Uttar Pradesh.
4. Singh H. P., Stivastava, S. C., Shukla N. K. and C. Sen (2005) "Economic Analysis of Processing and Marketing of Aonla products in District Prartapgarh." Proceeding of the National Seminar on Rural Marketing held in College of Agribusiness Management, G.B.Pant University of Agril. And Technology Pantnagar during March18-19 , 2005 pp12