

## Socio-economic Study of Small Farmers of Jammu and Kashmir

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### ABSTRACT

The present study was conducted in Jammu and Kathua districts of Jammu and Kashmir. From each district, three villages were selected randomly. Thus, a total of six villages were selected. A study was carried out prior to the research study to know about the major crops grown for food grains, livestock and the availability of water for irrigation. Wheat and paddy constitute the major crops grown in these villages. Potato is also cultivated by limited number of families. *Barseem* is grown for live - stock and mustard is also grown by some respondents. Almost the entire area is irrigated. From each selected village fifteen respondents were selected purposively. The selection of respondents was on the basis of their size of land holdings. Farmers having land holdings up to 2 hectares were selected. The final sample, thus consisted of 90 respondents. Data was obtained by a well prepared semi-structured interview schedule, which also consisted of a set of eight statements related to non adoption of technology. The huge yield gap between the yields obtained and the maximum obtainable yields have to be narrowed. There is a considerable potential to increase production and yield per hectare by the introduction of new inputs and improved practices of cultivation.

**Key words :** Socio-economic, land fragmentation,

### INTRODUCTION

The South Asian region despite being the second fastest growing region of the world is dominated by the small holders. This is unlike Latin America characterized by large holdings (Joshi *et. al*, 2007). Indian agriculture is characterized by the predominance of small and marginal farmers. The fragmentation of holdings within each passing generation has reduced the per capita availability of land in India. This is accompanied by rapid urbanization and preference of people for nuclear families has further aggravated the situation. As per government of India surveys, the marginal farmers having land holdings less than 1 hectare constituted 61.6 per cent of the total land holdings in 1995-96. In the same period, the small farmers having land holdings less than 2 hectares were about 18.7 per cent. Thus, the small and marginal farmers constituted 80.30 per cent of the total in 1995-96. Just in a short span of seven years in 2002-03 the percentage of small and marginal farmers rose to 86 per cent from that of 80.30 per cent in 1995-96 (Agrawal, 2012). Average land holding size has decreased from 2.28 ha in 1971 to 1.84 ha in 1981 and now it is less than one ha (Sharma, 2011). At the same time various policies of the government are pushing farmers off the land, and peasants out of agriculture. Majority of small and marginal farmers cultivate mainly low value, subsistence crops. In the absence of adequate farm and non-farm employment opportunities, they are also forced to live below poverty

line. Such marginal and small land holdings are economically less feasible and a barrier in farm mechanization. These farms have lower productivity since the farmer's practice subsistence farming without the generation of any surplus. The yields for almost all the crops in these farms are 4 to 6 times less than world's best countries. The farmers have low income level and are still out of reach of modern technological knowhow. According to a World Bank report, as much as 87 per cent of marginal and 70 per cent of small farmers do not get credit through institutions (Rao, 2010). In fact, 51 per cent of all farmers (big and small) enjoy no banking services at all, let alone credit. Small holdings have made economic viability of farming a big issue. This group is still outside the reach of the technological interventions. Bunch (1985) suggested that the gap between agricultural research, and the developing nation's small-scale, resource poor farmers has been increasing due to decline in the technology generated, which can actually be put to practical use by the poor farmer. Shanner, Philipp, and Schmehl (1982) have reported that, farmers with limited resources often do not adopt new technologies because their conditions are not like those where the technologies were developed, they do not have resources to purchase the required inputs, the technologies do not apply to the crops grown or the livestock raised on their farms or the way they operate, or they do not know about the new technologies". The real challenge, thus, is to increase the productivity of such small and marginal farms by

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providing them the latest technological interventions and ensuring timely delivery of services. This in turn will raise their income. The present study was, thus planned to know about the socio-economic profile of the marginal and small farmers of the selected area and to know whether the technology reaches them or not and if it reaches what are the possible reasons for their non adoption. The specific objectives of the study were:

- a. To study the social profile of the respondents
- b. To find out the economics of the crops cultivated by them.
- c. To find out the reasons for their non-adoption of new technology

#### **Jammu and Kashmir:**

Agriculture is called the mainstay of state's economy. Its contribution to the state's gross domestic product is less per cent and still declining. About 49 per cent of the work force is absorbed in agriculture of which 42 per cent are cultivators. This means rest 7 per cent are landless wage laborers. Agriculture growth rate is 1.41 per cent with major share of livestock. If we consider agriculture alone growth rate has been consistently low at 0.67 per cent (2008-09), 0.83 per cent (2009-10) and 0.82 per cent (2011-12). If we exclude horticultural crops, agricultural performance in Jammu and Kashmir may come to a standstill. About 56 per cent of the cultivable area of the state is under rainfed conditions (Singh and Sharma, 2011). The state has 13.77 lakh operational holdings and the average size of holdings is 0.67 hectare (Kumar, 2012). It is less than the national average. Food grains production on small fragmented lands does not produce any surplus and hence the state has to import food grains. The annual food consumption in the state was 1.99 million tonnes whereas the production in the state stood at 1.57 million tonnes, (Prasad, 2009). We are deficit by about 0.42 million tonnes. The annual food consumption in the state was 1.99 million tonnes whereas the production in the state stood at 1.57 million tonnes, a gap of 0.42 million tonnes (Prasad, 2009).

#### **METHODOLOGY**

The present study was conducted in Jammu and Kathua districts of Jammu and Kashmir. From each district three villages were selected randomly. Thus, a total of six villages were selected. A study was carried prior to the research study to know about the major crops grown for food grains, livestock and the availability of water for irrigation. Wheat and paddy constitutes the major crops grown in these villages. Potato is also cultivated by limited number of families. *Barseem* is grown for live - stock and mustard is also grown by some

respondents. Almost the entire area is irrigated. From each selected village fifteen respondents were selected purposively. The selection of respondents was on the basis of their land holdings size. Farmers having land holdings up to 2 hectares were selected. The final sample thus consisted of 90 respondents. Data was obtained by a well prepared semi structured interview schedule, which also consisted of a set of eight statements related to non adoption of technology. The interview schedule was administered personally by the researcher. Analysis was done using frequency and percentages.

#### **RESULTS AND DISCUSSIONS**

A cursory look at the data in the table 1 revealed that 50 per cent of the respondents were in the old age category vindicating that youth still are reluctant to take on their ancestral profession. As far as education is concerned, 57 per cent of the respondents were illiterate; 42 per cent of the respondents were educated up to primary level and a little more than thirteen per cent up to middle level. A majority (60%) of the respondents had small families whereas 40 per cent of the respondents were having large families. This is perhaps due to the growing preference of the people towards nuclear families. A majority (53.3%) of the respondents were marginal farmers whereas near about 47 per cent of the respondents were small farmers.

**Table 1: Socio-personal and resource profile of the farmers**

Socio-personal characteristics	No.	Percentage
<b>Age</b>		
Young ( up to 35)	18	20.00
Middle (36-50)	22	24.40
Old (more than 50)	50	50.00
<b>Education</b>		
Illiterate	34	37.70
Primary	38	42.20
Middle	12	13.30
Secondary	4	4.44
Higher secondary	2	2.22
Above	-	-
<b>Family size</b>		
Small (up to 5 members)	54	60.00
Large( more than 5 members)	36	40.00
<b>Land holding size</b>		
Marginal (less than 1 ha )	48	53.30
Small ( 1-2 ha)	42	46.70
<b>Source of Irrigation</b>		
Canal	72	80.00
Bore well	12	13.30
Both	6	6.70

The benefit-cost ratio analysis is an important tool to assess the economics of farming. It is the ratio of net value of crop produce after deducting the cost of different inputs from their summation. It indicates the rate of net returns from use of an input. The data in the Table 2 revealed that the cost benefit ratio was 1:1.34 in case of wheat, 1:1.39 in

case of paddy, 1:1.53 in case of mustard and 1:1.47 in case of potato. In case of food grains it was the lowest whereas in case of oilseed crops it was the highest. One of the important reasons for the low benefit cost ratio of the food grains crop is the high cost of cultivation of these crops. The high cost of inputs and the labour charges increase the cost of cultivation whereas in case of mustard the inputs like fertilizers and weedicides are seldom used which decrease its cost of cultivation. Also the labour both human as well as machine is not required in as much quantity as in case of wheat and paddy. The average size of farm in case of marginal farmers is 0.62 ha and in case of small farms is 1.37 ha. The average yield of wheat worked out to be 5.6 qtls/ha whereas the same in case of paddy was 6.4 qtls/ha. The overall cropping intensity worked out to be 207.4 with marginal farms having cropping intensity of 204.37 and small farms having cropping intensity of 210.43. Another interesting aspect is that only 30 per cent of the respondents cultivated mustard whereas in case of Potato this percentage was just seventeen. Canal was the main source of irrigation used by eighty per cent of the respondents

**Table 2: Agro economic aspects of the farmers**

Crop	Measurements
<b>Cost-Benefit ratio (No. of respondents)</b>	
Wheat (90)	1:1.34
Paddy (90)	1:1.39
Mustard (27)	1:1.53
Potato (16)	1:1.47
<b>Average size of farm</b>	
Marginal Farms	1.99 ha
Small Farms	0.62 ha
<b>Average yield</b>	
Wheat	1.37 ha
Paddy	5.6 qtls./ha
<b>Cropping Intensity</b>	
Marginal farms	6.4 qtls/ha
Small farms	169.98
	152.42
	187.54

The statements in the Table 3 showed the reasons for non adoption of new technology by the selected farmers. Only thirteen per cent of the respondents were unaware of the new technology. Reasons for non adoption were grouped into three types namely attributes of technology, resources and market. There were three possible attributes of technology, four resource reasons and two market reasons. There were total nine reasons. The remaining 78 respondents more than seventy five per cent of the respondents feared the high cost of the technology and seventy three per cent of the respondents owed the non adoption to the risk associated with the technology. The small size of land holdings was reported as reason for non adoption of new technology by eighty five per cent of the respondents. The small size of holdings acts as a barrier in farm mechanization process. Insufficient capital was reported as a reason for non adoption by more than eighty

per cent of the respondents. As the small holdings are economically not viable the farmers do not have the required capital to go for new technology. The least preferred reason was the non availability of labourers by only sixteen per cent of the respondents. This is an indication that still there is a lot of unemployment in rural areas and there is no dearth of labourers for farm activities.

**Table 3: Reasons for non adoption of new technology**

Reasons	No.	Percentage
Lack of awareness about new technology	12	13.3
<b>Attributes of Technology</b>		
Risk associated with technology	57	73.0
High cost	62	79.4
Cultural incompatibility	23	29.4
<b>Resources</b>		
Small size of land holdings	67	85.8
Non availability of input	52	66.6
Insufficient capital	63	80.7
Non availability of labourers	13	16.6
<b>Market</b>		
Lack of Marketing facilities	56	71.7
Lack of food processing and value addition	43	55.1

The data in the Table 4 represents the livestock resources of the selected respondents. The size of livestock was up to 4 for about sixty four per cent of the respondents whereas the remaining the size was more than 4. Sixty percent of the respondents had Kacha cattle sheds whereas forty per cent of the respondents had pucca cattle sheds. The benefit cost ratio for cow was 1:1.12 whereas in case of buffalo the cost- benefit ratio was a slightly higher at 1:1.19. Seventy per cent of the respondents had local breed of cattle and only thirty per cent had hybrids. This is one of the reasons for low milk yields and low benefit cost ratio.

**Table 4: Livestock profile of the respondents**

Item	No	Percentage
<b>Livestock</b>		
Up to 4	58	64.4
More than 4	32	35.6
<b>Type of Cattle shed</b>		
Kacha	54	60
Pucca	36	40
<b>Type of livestock</b>		
Local	63	70
Hybrid	27	30
<b>Cost-Benefit ratio</b>		
Cow	1:1.12	—
Buffalo	1:1.19	—

#### **Extension strategies for development of small and resource poor farm holders**

**Last mile delivery:** Last mile delivery implies delivering the latest, need based and improved location specific farm technology well in time and in a manner, which is simple and easily understandable to the farmer. Agricultural extension is one of the seven essential agri-inputs for

successful intensive farming thereby ensuring the high production and productivity.

**Robust extension services:** Agricultural extension has characteristically searched for and provided extension services for the innovative, progressive, wealthy, educated and commercial farmers. Agricultural research has sought out and generated technologies, which were especially designed for the innovative, progressive, wealthy, and educated farmer and/or agriculturally favorable regions. One of the conclusions of the 1989 FAO Global Consultation on Agricultural Extension was that all farmers especially those who are resource poor and operating at or below the subsistence level should receive equal attention from extension. There is increasing recognition that if extension is to meet the diverse needs of modern farming, a fundamental change of approach is called for, towards educating and enabling farmers to define and solve their own problems, and to determine and take some responsibility for the extension service they require. Millions of farmers who raised subsistence crops needed better knowledge of how to grow more food and achieve greater crop stability. Extension services, therefore, had to be strengthened by creating a cadre of extension functionaries at the grass root level to meet the needs of farming community. The institutions of *Panchayats* can be effectively used to disseminate the new technology.

**Farming system approach:** The needs of the small, resource poor farmers can also be addressed by the development of Farming Systems Research Approach. Shanner, Philipp and Schmehl (1982) emphasized that, "research and development programs had often been undertaken without having small farmers in mind or without knowing much about them. In contrast the Farming Systems Research and Development approach starts and ends with small farmers and thereby focused specifically on their conditions and aspirations" FSR involves research on farmer's fields as well as on research stations. Farming Systems Research and Development assumes that the technology that fits the need of the small farmers is not available and that it needs to be generated locally, therefore clients with researchers work to identify needs of the clients and of the household in a participatory experimental process

**Participatory technology development:** FAO (1996) report suggested that the basic fault in the conventional approach has been that the rural poor are rarely consulted in development planning and usually have no active role in development activities. Much can be learned not only from recommendations based on knowledge generated, but also on the methodologies used. Participatory

approaches help practitioners develop a different kind of relationship with the people that are supposed to benefit from their work. Generally the extensionist lacked close regular contact with farmers and lacked ties with research. Extension worker has to maintain close contact with researcher and farmer. Another major contributor to non-adoption of technology by the small-scale, resource poor farmer has been the incompatibility of the technology and/or the extensionist, with cultural beliefs. The participatory approaches help in generating technologies, which are culturally compatible thus increasing their rate of adoption.

**Climate awareness:** Farmers need to be made aware of the effect of climate change on various crops and the agronomic modifications, soil conservation measures and water harvesting techniques as well as technological modification to combat the effects of rising temperature. Suitable drought tolerant varieties be made available to the small farmers.

**Diversification:** Farmers should be encouraged to go for diversification with allied agricultural enterprises like goatry, apiculture, horticulture and others. Diversification compensates for the failure in one enterprise. It also helps in using the local resources efficiently and creation of more men days of employment. Farmers should be taught of how to reduce the cost of cultivation by reducing the use of chemicals and practicing modern agronomic approaches like zero or minimum tillage and integrated measures for nutrient management and control of weeds, pests and diseases.

**Recommendations:** Small holdings have a chain reaction type of effect. Low income, less savings, low purchasing power, and poor credit worthiness completes the vicious cycle of poverty of the farmers. No doubt, the small holdings and the fragmentation of holdings is a serious bottleneck but we cannot afford to leave the problem as it is. It is not that only Indian agriculture is grappling with the problem of such small holdings. Hence, some innovative and out of box solutions to this challenge are the need of the hour. Here are some recommendations:

**Microfinance:** Microfinance took root in India in 1992-93 with the launch of self help group and Bank linkage programme by NABARD. The kisan credit card is also in operation to meet the short term credit requirements of the farmers. But the small farmers are still in the grip of money lenders. The reach of the institutional credit should be widened to include the small and marginal farmers and eliminate the money lenders. Credit cooperatives should be set up at the village level.

**Cooperatives:** An agricultural cooperative, also known as a farmer's co-operative, is a cooperative where farmers pool their resources in certain areas of activity. Hence, a cooperative allows for consolidation of land holdings to drive efficiency and adoption of best practices. Sir Horace Plunkett, the founder of Irish cooperation movement gave three famous maxims for agricultural cooperatives: a.) Better farming *i.e.* the farmers objective of higher production is realized only when the resources are available in adequate quantities through supply cooperatives, which provide timely inputs to the members of the respective cooperatives by pooling them b.) Better business *i.e.* the toiling efforts of the farmer bear fruit only when an efficient marketing system is accessible to him through cooperative marketing structures and c.) Better living by cooperative efforts, which help the producers in fulfilling their objective in production & consumers to get their domestic requirements at reasonable prices. The Anand Milk Union Limited (AMUL) in Gujarat is an excellent example of the milk cooperative. It has become a dairy cooperative movement.

**Leasing out:** In China too, the number of small farmers having land less than 2 hectares is 95 per cent. The average land holding size in China is 0.6 ha nearly half of that in India but their productivity is 2-4 times more than that of ours (Agrawal, 2012). They do not practice fragmented agriculture. The small farmers in China rent out their land to large farmers who invest in it by cultivating through scientific methods. This model can be tried in India also. The small holders can lease out their land to the large farmers for a definite period of time to an individual who is a agri-preneur who generates high returns from the same piece of land. The consolidated land allows him to invest in farm mechanization.

**Contract farming:** Contract farming is a commitment that involves a pre-agreed price between the company and the farmer. The agreement is defined by the commitment of the farmer to provide an agricultural commodity of a certain type at a time and a price and in the quantity required by a committed buyer, mostly a large company. It has the provision of forward as well as backward linkages. The company provides the forward linkages in the form of assured prices of the produce and backward linkages in the form of timely supply of inputs. A single farmer with one hectare or even twenty such farmers will not be able to own a tractor to cultivate their land, but with contract farming, the corporate could furnish the tractors which will plough the fields of all the contracted farmers in a given area. Similarly other inputs can be provided by companies. Maybe with time there will be consolidation in landholding also - with many agri-businesses coming up, some farmers with tiny holding will sell off to other

farmers, and with larger holding, it may become feasible to grow and market their crops without having to resort to contract farming. The prime advantage of a contractual agreement for farmers is that the sponsor will normally undertake to purchase all produce grown, within specified quality and quantity parameters. At the same time the government to step in and monitor the contract farming so that it could not turn out to be another mode of capitalist penetration of agriculture for capital accumulation and exploitation of the farming sector by agribusiness companies.

**Information and communication technology:** It is a transformational technology. Every village should be made a knowledge center in order to take the benefits to rural masses. The *Grameen Gyan Abhiyaan* provides greater opportunity for taking the benefits of ICT to rural poor based on last mile and last person connectivity.

## CONCLUSION

The never ending split of a land is a reality and the low yield of such holdings is another one. Fragmentation of land is a social issue also. Population stabilization can also help in arresting the further split of land. The huge yield gap between the yields obtained and the maximum obtainable yields have to be narrowed. There is a considerable potential to increase production and yield per hectare by the introduction of new inputs and improved practices of cultivation. Small farm holders by virtue of being the largest farm group have a greater role in overall agricultural production and ensuring food security for all. But, unfortunately this group which forms the core of our production is still being neglected. From old varieties model which earned little we need to graduate towards premium varieties model, which realize better earnings with reduced operating cost. This group needs to be educated about the climate aspect of the agriculture also. A vast majority of the respondents were not aware of the new technology. Every effort should be made to ensure last mile delivery of extension services. The institutions of local self governance are in place in the state. These can be utilized for improving the access of farmers to the technology. Small farms can be consolidated by cooperative farming to make them more remunerative. Risk was also perceived as a major factor for non adoption of new technology. The scientific community has to go to the fields and demonstrate to the farmers the results of the new high yielding varieties and other innovations. The extension functionaries need to motivate them to adopt the new technology. The vast small sector of India can be a strong feature of the Indian economy rather than a drag on it. The only thing is the creation of suitable institutions and their proper scaling up

to come up to the expectations of those who provide food to all of us.

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