



Cost Benefit Analyses of Rabi and Kharif Crops in Kashmir Valley: A Case Study of District Anantnag

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Abstract

The present study is an attempt to evaluate the cost benefit analyses of two main crops cultivated in district Anantnag of Kashmir valley. In order to satisfy the objectives of the present study a primary survey was conducted in which information were collected about the production cost, market price, perception of farmers about the cultivation, and other necessary aspects of the rice and mustard crops. The study has revealed that cultivation of rice is comparatively more profitable than the cultivation of mustard. It also shows that the production cost of rice is comparatively higher than that of mustard. The study also indorses that more number of hired labours are required for the cultivation of rice than the mustard on land area of same size. The low supply of this hired labour in other districts is considered an important factor of conversion of land from cultivation of rice in to apple fields. The low supply of the rural labour has occurred due to the structural changes in our economic system as a large group of the rural labour force has adopted non –farm activities to earn their lively hood. The result of Chi-square also shows that there is significant difference between the profitability of Rice and Mustard production.

Keywords: Crops, Anantnag, Land, Rice, Mustard.

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1. Introduction

Cultivation of crops is the dominant occupation in Jammu and Kashmir, which directly and indirectly supports 81% of total population of state. It contributes nearly 60% of the state revenue which adequately explains the over dependence of the state on agriculture, there are many crops cultivated in Jammu and Kashmir and among them there are some cash crops which are grown here such as apple and saffron which are famous not in India but also in whole world. Apart from this the topography of Jammu and Kashmir is divided into four different zones.

- The Wind ward (Jammu region)
- The Leeward (Ladakh region)
- The high altitude Kashmir (Himadri, Pir Panjal)
- The Kashmir valley.

In above four regions, different crops have been cultivated like rice, wheat, maize, saffron, mustard, apple etc. among them two main crops have been cultivated in district Anantnag are rice and mustard which has been taken as two samples in this study.

2. Literature Review

The world is experiencing rising demands for crop production, stemming from one of the key forces namely continuous enhancing human population. To meet these growing demands as well as to provide food security, some good researches on the trend analysis of important crops with respect to their area, production and yield has become a need of the hour (Ramandeep *et al.*, 2015) To sustain continuous growth in productivity in agriculture, profitability and sustainability is must. There is a need to create a general awareness about the knowledge, skill and techniques to enhance production, productivity and quality of food grains so that the farmers could earn a sustainable income for survival (Mysir and Tapan, 2015). The immediate need for interventionist action precludes traditional models of research and support systems and requires alternative but urgent programmatic interventions, led by farmers' institutions and their local resources, knowledge and innovations (Kumuda, 2014).

3. Research Methodology

This study is based on both primary and secondary data. For the collection of primary data, a questionnaire was introduced among a sample of 60 farmers. Among them 30 were those who cultivated Rice and the rest 30 were those who have done the cultivation of Mustard in 2017. The respondents were selected through purposive sampling. To make the study easy and simple cost benefit analysis of 4 Kanals of land of the selected crops was made. It was done with purpose to facilitate clear and better understanding about the various aspects of cultivation of Rice and Mustard. (1 hecter = 10,000 square meters or 1 hecter = 10739 square feet's, 1 Marla = 272 square feet's, 80 Marla's = 4 kanal, 4 kanals = 21760 square feet's). Interaction with farmers has also been done during survey. On the other hand, secondary data has been collected from, books, journals, newspapers, and various search engines, are also used.

3.1. Objectives of the Study

1. To find out the total food grain production in Jammu and Kashmir
2. To study the cost benefit analysis of Rabi crop (Mustard) and Kharif crop (Rice).
3. To understand the perception of farmers about the profitability of Mustard and Rice Cultivation.

3.2. Hypothesis

H₀: There is no significant difference between the profitability in the cultivations of Rice and Mustard in district Anantnag

3.3. Main Idea

The State of Jammu and Kashmir is predominantly an agriculture State. In J&K state cultivators and those who engaged in primary occupation constitute about 64.8 per cent of the total work force. Nearly 3.1 per cent are agricultural labourers and 4 per cent involved in other primary activities like livestock, forestry, plantation, mining, quarrying and other allied activities. About 21.0 per cent work force is dependent on construction works and 7.7 per cent involved in trade and commerce, transport, communication, storage activities etc. Other services provide employment to 11.6 per cent of the total work force.

Rabi and Kharif food grain production in Jammu and Kashmir

Table-1.1. Total production of food grains in Jammu & Kashmir Yield (Kg/hectare)

Year	Total food grains	Total Kharif crop production	Total production of rice (Kharif crop)	Total rabi crop production	Total production of oil seeds (Rabi crop)
2005-06	1680	1656	2150	1740	405
2006-07	1733	1691	2194	1829	630
2007-08	1711	1710	2133	1713	893
2008-09	1851	1935	2186	1671	790
2009-10	1405	1611	1914	980	788
2010-11	1639	1713	1942	1490	850
2011-12	1690	1706	2078	1656	854
2012-13	1962	2161	3126	1550	817
2013-14	1915	1877	2250	1990	933
2014-15	1379	1485	1710	1164	692
2015-16	1566*	1554*	1913*	1455*	750* (*estimated)

Source: Agricultural Statistics at a glance 2015

In the above Table 1.1 it seems fluctuation in the production of food grains especially rice and oil seeds. It clearly depicts that during the year 2014-2015 there is very low production in food grains because in September 2014 Kashmir valley face an unexpected flood which damage our crops mostly, that is why our food grain production during this year is very low. After that big loss of our agriculture sector shows slowly an increasing trend as estimate in the above table.

3.4. Discussion on Primary Data Collecting from Anantnag District.

Anantnag is one among the 22 districts of Jammu and Kashmir situated in its south and south-western direction. The district lies geographically between 33°-30' to 34°-15' North latitude and 74°-30' to 75°-35' East Longitude. The district Anantnag acquires the name from its main town and the district headquarter which during Hindu rule was named after the spring Chashma or Anantnag (countless springs). Anantnag is rich in landscape of lush green meadows, the nature has been generous in gifting the district with places of unparalleled beauty. The district has a features of possessing the largest number of health resorts in the whole state (Census of India, 2011). Anantnag is known as Granary of valley which means a fertile grain growing region. Rice and Mustard are most dominant crops in district Anantnag. Large number of farmers growing these two main crops in Anantnag district, among these two crops rice is known as staple food for Kashmir.

Table-1.2. Production of Kharif crop rice with in 4 kanals of fertile land

50 respondent s (farmers)	4 kanals of fertile land			
	Paddy seeds after harvesting	Rice which is ready to consume	Dry paddy grass	Food stuff for cattle
13-14 quintals	10-11 quintals	1,000 pieces of grass (bundle of four little pieces)	2.88-3.70 quintals	

Source: Primary survey

Table-1.3. Costs for the production of Kharif crop rice with in 4 kanals

50 respondent s (farmers)	4 kanals of fertile land		
	At the time of planting the paddy	At the time of harvesting	Fertilizers, tilling and other costs
700-800 per kanal "2800-3200 (4 kanals)"	1200-1300 "4800-5200 (4 kanals)"	1600 (rupees)	

Source: Primary survey

3.5. Cost Benefit Analysis of Rice

The above Tables 1.2 and 1.3 shows the production of paddy crop and its costs with in four kanals of land under time duration of six months from 20 April to 20 October. It has been observed that during the planting of paddy crop we hired labours who has been paid 7 to 8 hundred rupees per kanal which means 2,800 to 3,200 rupees has been paid for 4 kanals of paddy field. And also at the time of harvesting again, we paid 1,200 to 1,300 per kanal which means 4,800 to 5,200 rupees for 4 kanals, after that fertilizers, tilling and other capital charges(threshing) which bring our paddy on the stage of finished good it costs 1,600, these all costs when we calculate make a figure of 9,200 to 10,000. After that when we look at the benefit side, we observe that the 4 kanals of land produce 13 to 14 quintals of paddy which finally turn out to be 10 to 11 quintiles of rice after using some capital processing. Now if we compare the cost and benefit of rice production we find that the price of per quintal of domestic rice is 2,500 rupees, and 4 kanals of land produce 10 to 11 quintiles of rice which means 4 kanals of land generates 25,000 to 27,500 rupees of income. Apart from this the food stuff for cattle is also derived out from paddy during threshing, with in the 4 kanals of land 2.88 to 3.70 quintiles of food stuff for cattle have been separated from rice in the rice mill which got price of 800 per quintile that means 2,304 to 2,960 rupees we got apart from rice. And also we got dry brown paddy grass which we use during the long winters of Kashmir valley for rearing our cattle's. By calculating, this dry paddy grass, the price of it is worth 15,000 to 16,000 rupees which is coming out from 4 kanals of land. Now we see the benefit from rice which is 42,304 to 46,460 rupees and the costs are 9,200 to 10,000 which means that the benefit from cultivating the paddy within 4 kanals of land are 33,104 to 36,460 rupees in six months.

Table-1.4. Production of Rabi crop mustard within 4 kanals of fertile land

50 respondents (farmers)	4 kanals of fertile land		
	Oil seeds after harvesting	Mustard oil which is ready to consume	Food stuff for cattle
160-175 kg's	52-57 kg's	104-116 kg's	

Source: Primary survey

Table-1.5. Costs for the Rabi crop mustard within 4 kanals

50 respondents (farmers)	4 kanals of fertile land	
	At the time of harvesting	Fertilizers, tilling and other costs
	600-700 per kanal "2400-2800 (4 kanals)"	1200 (rupees)

Source: Primary survey

In the above Table 1.4 and 1.5 it shows that the production of mustard crop and its costs with in four kanals of land under time duration of six months from 20 October to 20 April it has been proved that during harvesting the mustard crop, hired labour has been paid 600 to 700 rupees per kanal which means 2,400 to 2,800 rupees for 4 kanals and also it has been observed during the primary survey 1,200 rupees has been spend on this crop by the farmers on fertilizers, tilling of land and other costs like threshing etc. within 4 kanals of land, the sum total of money spend for the cultivation of this crop is 3,600 to 4,000. On the other hand, the profit side of this crop shows that by utilization of 4 kanals of land we produce 160 to 175 kg's of mustard oil seeds which give us 52 to 57 kg's of oil in which per kg got price of 106.67. It means that this crop generates the income between 5,546.84 to 9,158.19 apart from this it also provides the food stuff for our cattle 104-116 kg's having price of 7 Rs per kg's. After adding these all figures we got cost and benefit results which are 3,600 to 4,000 are costs and 6,274.84 to 9,970.19 are benefits of this crop within six months which seems much less profit than the rice cultivation, but it has been seen that this crop will increase the fertility of land as compare to rice.

H₀: There is no significant difference between the profitability in the cultivations of Rice and Mustard in district Anantnag

Table-1.6. Observed Frequency

	Production Profitability		Total
	More	Less	
Rice	26	4	30
Mustard	11	19	30
	37	23	60

Source: Field Survey

Table-1.7. Expected Frequency

	B	b	Total
A	18.5	11.5	34.00
A	18.5	1.5	16.00
Total	33.00	17.00	50.00

Source: Field Survey

Table-1.8. Calculation of Chi- Square

	O_{ij}	E_{ij}	$(O_{ij} - E_{ij})$	$(O_{ij} - E_{ij})^2$	$(O_{ij} - E_{ij})^2 / E_{ij}$
	26	18.5	7.5	56.25	3.04
	4	11.5	-7.5	56.25	4.89
	11	18.5	-7.5	56.25	3.04
	19	11.5	7.5	56.25	4.89

Source: Field Survey

$$\chi^2 = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}} = 15.86$$

Degrees of freedom in this case = $(r - 1)(c - 1) = (2 - 1)(2 - 1) = 1$

The table value of χ^2 for 1 degree of freedom at 5 per cent level of significance is 3.841. The calculated value of χ^2 is 15.86 which is much higher than this table value and hence our null hypothesis gets rejected and we accept the alternative hypothesis that there is significant difference between the profitability of Rice and Mustard cultivation in district Anantnag.

4. Conclusion

Agriculture the backbone of our economy, still supports and absorbs a large group of population, who derive their livelihood directly or indirectly from this key sector of our economy. The study shows that cultivations of both Rice and Mustard are profitable as these crops are generating huge amount of money which has increased the income of the farmers of district Anantnag. The results of cost benefit clearly show that cultivation of Rice is comparatively more profitable than the Mustard. It is necessary to mention that cost benefit analysis supports the perception of the farmers that rice has more income generation potential than Mustard. One of the important reasons behind this is that rice is a staple food Kashmir of valley and there is still enough demand for rice produced within the Kashmir valley. Even though the price of the same quality of rice, which is produced in the Kashmir valley is higher than the imported rice, but due to delicious taste and freshness of the local produced rice people demand the local produced rice at a higher price. Due to the structural changes in the economic system the supply of rural labour has decreased due to the diversification of

large number of households to non –farm activities, which resulted increase in the cost of production of both Rice and Mustard. But even after the increase in the labour cost these crops the production of Rice is more profitable than Mustard. Methods and ways should be developed through the introduction of high yielding varieties of seeds, increased use of natural manures and new scientific methods of cultivation so that the profitability of both the crops will enhance in positive way. This scientific line of cultivation will not only benefit the farmers but will also increasing the fertility of the land by which in near future we can provide food for our growing population in a sustainable manner which is a challenge in front of our country. The results of Chi Square shows that the farmers are well aware about the comparative profitability of Rice and Mustard, but efforts should be made to make these two important, crops more attractive and productive.

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