An Economic Analysis of Agricultural production in Jammu and Kashmir with Special Reference to Rice

ABSTRACT

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Abstract

Introduction

Agricultural sector is considered as the backbone of Indian economy and more than 70 percent of the Indian population resides in rural areas (Economic survey 2011) are directly or indirectly depends upon this evergreen and flourishing sector. At the time of independence, the agricultural sector was considered as the main source of national income and was the main occupation of people. This agriculture and its allied sector contribute a handsome share in national income and engaged, provide work to 70 percent of working population. After independence the share of this sector was almost 50 percent in national income but it declines gradually and at present it contributes 18 percent to Gross Domestic Product (Department of agriculture cooperation & statistics, 2014). The agricultural sector of Indian economy is the largest sector presently employing 49 percent of the work-force. This sector is not only providing employment but along with this it also provides food security to its people which is the primary and most important need of human beings, animals and other living things.

As per the report of Food and agriculture organisation (FAO) 2014, India is the world largest producer of both fresh fruits and vegetables like, banana, mango, guava, apples, papaya and lemon and vegetables like chickpea, okra, and milk, major spices like pepper etc. Besides this India is the second largest producer of wheat and rice. At present India is the second or third largest producer of several dry fruits, agricultural based textile, raw material, pulses farmed fish eggs, coconuts, sugarcane and numerous vegetables. On an average more than half of income/ earning is spend on

food security by Indian people (NSSO 2013). The agriculture in India is mostly depends upon rainfall and a majority of area cultivated depends upon it so the growth rate of agriculture is fluctuating (Dev 2013).

After independence, in the initial period the agricultural sector was facing with negative growth rate, but after the year 1958 there seen a positive growth rate expect the year 2002-03 which was prone with drought. After the green revolution this sector was experienced with positive and impressive growth rates.

In the year 1954-55 the contribution of agricultural sector in Gross Domestic Product (GDP) was 45 percent (Arjun 2013). At present the contribution of this sector in Gross Domestic Product is 18 percent only. In the less developed economies like, India agriculture sector plays an important role in boosting up the pace of economic growth and development. Besides providing the food, this sector is the major supplier of agricultural products in the national as well as in the international market and earn foreign exchange. All these concerns and evidence shows that at the time of independence Indian economy was a backward and least developed economy and wholly based on agriculture

The share of agriculture declines by 32 percent from 1950 to 2007-08, but even contributing less share in national income yet it engaged 60 percent of the work-force of the country. The most important feature of the of Indian agriculture is that the growth of other sector and that of whole economy depends upon performance of agriculture sector. So, for this reason this sector can be recognised as the dominant sector in Indian economy both in engaging the maximum labour force and as well as in serving the other sectors and whole economy as well. The growth rate of agriculture before independence was only 1 percent annually which grew to 2.6

percent annually after independence. However, over the period of time the land under agriculture use has declined due to shifting of land to other sectors and land use pattern. The land area under agriculture and forests are continuously declining which is an alarming bell to future agrarian crises. In the early 1950-60 the increase of area under agriculture was the main source of growth and dependency on imported food grains. But the modern agriculture is not only concerned with output and yield rate but also with structural changes which has also contributed, land reforms, inauguration of agricultural price commission with objective to ensure remunerative price to producer extension services, provision of credit facilities and improvement of infrastructure in rural areas.

Research Gap

All the previous studies which have done they show agricultural production in general. Taking one district and only one division from whole of Jammu and Kashmir. But this study is very special study in context of whole Jammu and Kashmir representing both the divisions i.e., Jammu and Kashmir by selecting one district namely Poonch from Jammu division and one district Anantnag from Kashmir division. Previous studies have taken into account food crops and horticulture in Jammu and Kashmir. But this study has taken into account one major crop i.e., rice and make comparative analysis with other major crops. This study analyses the trend analysis of area, production and productivity of rice in Jammu and Kashmir since, 1991.

Previous studies have focused on one category of farmer, whether they are marginal, small medium or large farmers. But this study has taken into consideration all categories of farmers and mainly focus on marginal and small farmers in Jammu and

Kashmir. Various factors which influence agricultural production and productivity, causes of low productivity i, e climatic condition, hilly terrain, dependency on rainfall, lack of irrigation facilities, internal disturbance, lack of marketing facilities.

Significance of the Study

This study is very special in context of north India with special reference to Jammu and Kashmir. The agrarian crises of India are demanding great attention as our economy is facing challenges of jobless growth and agrarian distress, farmer's indebitness and what not. But Jammu and Kashmir is one of the states where agriculture is quite different from rest of India in every aspect of agricultural sector like, production, agricultural-employment, land use, irrigation, exports etc. Agricultural sector is the major contributor to state economy and its contribution is around 16 percent in Gross State Domestic Product (GSDP). This sector provides not only employment but also boost the economic growth of the state economy and feed to a major portion of Population. In spite of being a dominant sector of the state economy yet it faces some major problems and issues which are not in common but unique as compared to the rest of states. The unique problems of state agriculture are hilly terrain, lack of irrigation facilities, climatic conditions, wholly dependent upon rainfall, Lack of marketing facilities, transport problems in hilly area, internal disturbances. Among all these issues climatic condition and internal disturbances are the major issues which effects the agricultural sector largely. When there are unfavourable/unstable conditions in the state it effects the agricultural production, sowing of crops, harvesting of crops at the time when conditions become unfavourable and it becomes very difficult for farmers and cultivators to take care/look after their crop properly, to make the use of fertilizers, insecticides,

pesticides and other essential requirement for the proper growth of crops. On the other hand, the second major issue is climatic conditions which effects the crops very largely almost 4 to 5 months the weather remain unfavourable and snowfall damage the major portion of crops. Therefore, keeping in views all these unique features this study is the special study which will insight the challenges of Jammu and Kashmir agricultural-sector and its contribution to economy. This study will help policy makers to get aware of ground reality issues and challenges and to come with a policy which will be beneficial for farmers as well as for the economy as a whole.

Objectives of the study

1. Trend analysis of area, production and yield of rice in India since 1991
2. To find out the trends in area, production and productivity of rice in Jammu and Kashmir since 1991.
3. To analyse the socio-economic conditions of marginal, small, medium and large farmers in Jammu and Kashmir
4. Comparative analysis of production and productivity of rice crop in Poonch and Anantnag districts

Hypothesis

1. H_0: Landholding size is significantly determining the socio-economic conditions of farmers.

   H_1: The Landholding size is not significantly determining the socio-economic conditions of farmers.
2. H_0: Rice production in Anantnag district is significantly better than Poonch district.

   H_1: Rice production in Anantnag district is not significantly better than Poonch district.

Methodology

The study has been analysed from both quantitative and qualitative data sources. The study is based on both primary and secondary data sources.

Primary data is collected through well-structured schedule and personal interview. ***Sampling technique,*** the sampling technique is simple random sampling and multi-stage random sampling. The study area are two districts of Jammu and Kashmir by selecting one district from Jammu division and one district from Kashmir division. Districts were selected at the *first stage- sampling unit.* Blocks at the *second stage,* and villages at the *third stage* and farmers at the *fourth stage*.

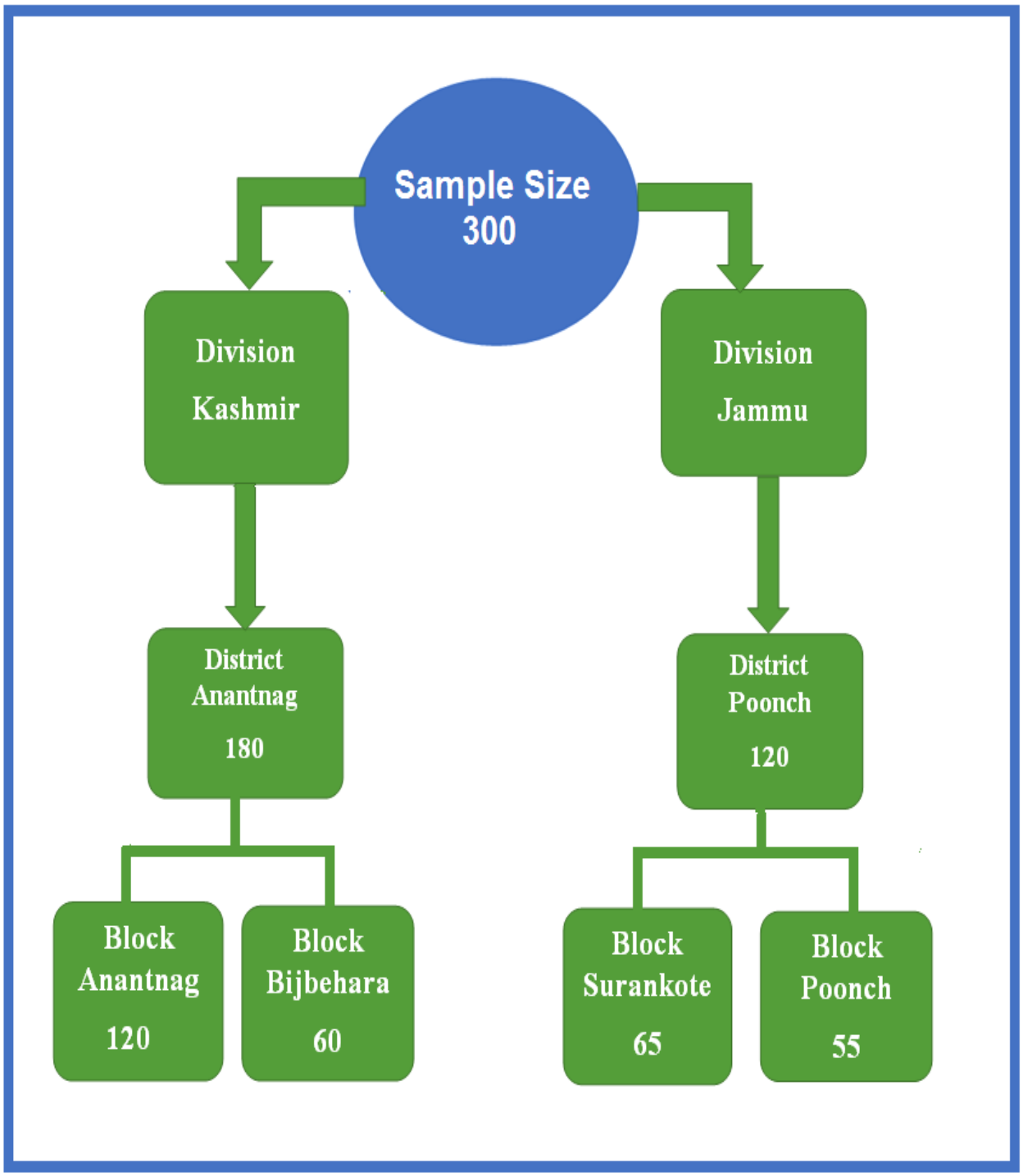
Selection of Districts. As there are different climatic zones of Jammu and Kashmir divisions. Jammu division has sub-tropical climate while Kashmir division has temperate climate in valley. Two districts are selected from Jammu and Kashmir, one district namely, Poonch from Jammu division and one district Anantnag from Kashmir division based on the productivity of rice in kilograms per hectare.

Selection of Blocks. Further 2 blocks from each district (total 4 blocks) are selected. Surankote and Poonch blocks from district Poonch and Anantnag and Bijbehara blocks from district Anantnag are proportionate randomly selected than two villages from each block (8) villages are randomly selected and finally samples have been taken from each village.

Sample size, sample size is 300 respondents (farmers) by taking 180 respondents/farmers from one district and 120 from other district on the basis of proportionate sampling the population is homogeneous in nature and majority of farmers are marginal farmers.

Secondary data. is collected from different sources i.e., statistical digest of Jammu and Kashmir (J&K), Regional digest of statistics of J&K, Economic survey of J&K, Agriculture production department, Economic survey of India, India stat, Journals, research papers articles and websites. The structure of secondary data will be time series data, so as to study the past behaviour of data and to forecast the future. Division as well as districts level analysis of data pertaining to land-holding size, area, production and productivity of rice has been analysed through *trend analysis*. Descriptive statistics and different statistical and econometric tools as per the requirement of study. Data has been be analysed in software like Excel, Stata, and SPSS etc.

Flow chart of Sample collection



Chapter Plan

Present study consists of **Seven Chapters**

first chapter **entitled "Introduction and Review of Literature"** consists introduction of the topic, Introduction of agriculture in context of India, agriculture in Jammu and Kashmir, Review of literature, Socio-economic profile of Jammu and Kashmir, objectives of study, hypothesis, significance of study, research gap and research methodology.

Second Chapter entitled' **Conceptual and Theoretical framework of Agricultural Production'** related to various concepts like agriculture, production, productivity, various theories relating to agricultural production and productivity.

Third Chapter entitled **An Overview of rice production in India since, 1991**. Consists of changing scenario and trend analysis in area, production and productivity under major food crops especially of rice in India, overview of rice production and productivity of Asian countries, state wise area, production and yield of rice in India. Zone wise comparison of states in terms of area, production and yield, Data analysis from descriptive statistics.

Fourth Chapter entitled **'Trend in area, production and productivity of rice in Jammu and Kashmir since,1991.** Consisting of variation and trend in area, production and productivity of rice crop in Jammu and Kashmir, compound annual growth rate (CAGR), percentage change in area, production and productivity of rice during the study period.

Fifth Chapter entitled **'Socio-Economic conditions of Marginal, Small, Medium and Large farmers in Jammu and Kashmir.** Consists of Socio-economic conditions i.e. education, caste, family size, family income, land holding size, sources of irrigation, income, employment and consumption pattern and wages in agriculture.

Sixth Chapter entitled **'Comparative analysis of production and productivity of rice crop in Poonch and Anantnag districts''** it consists of area under rice cultivation, production and productivity of rice, variation in production and productivity in terms of area and acreage, occupation of farmers and agricultural labour, employment in agriculture as labour and employment in other sectors.

Seventh chapter entitled, *Summary, findings, conclusion and recommendations.*

Conclusions

India is the centre of rice production among Asian nations. India is the largest consumer and producer of rice which is producing approximately 43.20 million tonnes of rice annually. In terms of rice production, sometimes India surpasses China. Agriculture in India is highly dependent on the monsoon, which greatly affects both production and yield. In the context of rice production in India, there are various zones and regions with their own physiography and topography, seasonal variation, and distinctive characteristics which affect rice production and productivity. As far as rice cultivation and production is concerned, some states are very rich in rice production, and their average productivity is higher than the national average. On the other hand, depending on their topography and infrastructure, the average productivity of other states is much lower. As we can see, some states have the largest area devoted to rice production, but their output is significantly lower than that of other

states, which have fewer hectares devoted to rice cultivation but level of productivity that exceeds the national average. As a general rule, there are fluctuations in area, production, and productivity. In some years, the area under rice cultivation increases, and in other years, it declines. This shifting of land from agriculture to other sectors and downscaling of land for rice production poses a significant threat to Indian agriculture and rice production, which is cultivated in nearly every state and region and is the most desired and widely accepted crop in the nation.

Agricultural output, advancement, and change play a very important and dominant role in the development of agriculture. However, the various theories are not self-sufficient and comprehensive, as some of them focus primarily on the capabilities of labour and farm people while giving less importance to land. While others emphasise economic factors, cultural factors, and technological factors. No doubt, these theories are discussing and focusing on important factors which are very important for increasing agricultural production. However, in addition to these factors and inputs, certain other factors are very important for increasing agricultural production and yield. Such as location and geographical differences in land, climatic conditions, quality and fertility of the land, economic conditions of the economy, the use of modern science and technology, focus on research and development, and focus on agricultural research and development.

Rice is one of the most important and dominant crops in Jammu and Kashmir, and it is grown and widely accepted in all rice producing districts. Though its cultivation from ploughing of land through harvesting and obtaining the final product is a difficult and time-consuming task. As a whole, it is possible to conclude that rice production in Jammu and Kashmir depends on the monsoon and faces a number of

obstacles. In some years, the production and productivity of rice in Jammu and Kashmir increase significantly, while in other years, it declines. As a result of the green revolution and economic reform, its production and productivity have increased, but they are significantly lower than those of neighbouring and other rice growing states. Few districts have higher production and productivity than the national average, but production and productivity continue to fluctuate due to various issues and concerns, necessitating a major and positive check. When climatic conditions and other factors are favourable, there are years in which production is positive. Since a decade ago, the government has taken important and appropriate steps and measures to increase rice production. However, due to unfavourable and undesirable circumstances such as lack of irrigational facilities, lack of modern tools and technology, timely non-availability of HYVs, debit problems, high price of fertilisers, lack of transport, small size of land holding, conversion of land to other uses, hilly terrain, climatic conditions, and internal disturbances there becomes less possibilities to increase rice production.

Sixty percent of the sample population of marginal and small farmers analysed are from the Srinagar division, while forty percent are from the Jammu division. The majority of farmers, 35 percent, belong to the age group of 41 to 50 years, while the age group of 30 to 40 years comprises 22 percent. Jammu and Kashmir is a predominantly Muslim region, with 5.7 percent Hindus, 85.7 percent Muslims, and 9 percent Sikhs constituting the sample population. 86 percent of farmers belong to the general social category, 8 percent to the OBC category, and 6 percent to the ST category. 30 percent of farmers are illiterate and 28.7 percent have a primary education, while 13.7 percent are illiterate and less than 3 percent are in higher education, according to the educational status. One of the significant determinants of

socioeconomic conditions is occupation, which reveals that 92.3 percent of the population is comprised of farmers, 5.7 percent of wage workers, and 2 percent of self-employed. 85 percent of families live in a joint family system, while 15 percent reside in nuclear/single family units. The dwelling condition is discovered. 83.7 percent of the population resides in Semi-Pacca houses, 15.7 percent in Kutcha houses, and 0.7 percent in pucca houses. In Jammu and Kashmir, 98.7 percent of the population owns land, 94 percent has land near their homes, and 6 percent has land far away. 77 percent of farmers' income is determined by agricultural activities, 6 percent by livestock, and 16 percent by other agricultural activities.

The majority of illiterate people are engaged in marginal farming, whereas the majority of highly educated people are engaged in small farming. The reasons may include differences in income, etc. Occupation distribution and land ownership indicate that the majority of agricultural farmers are marginal and small farmers. The majority of people in the general and OBC categories own marginal or small parcels of land. Medium and large farming are comparable, but the ST category demonstrates greater disparities due to the prevalence of small farms. Therefore, the ST population has sufficient land compared to other social categories. In terms of religion, the majority of small farm lands are owned by Muslims, while Hindus and Sikhs rely on subsistence farming. In both the divisions of Jammu and Kashmir caste and education plays a significant and positive role in land ownership.

The analysis reveals that in both the districts of Anantnag and Poonch, 70.1 percent of farmers use land for agricultural purposes in district Anantnag, whereas only 29.9 percent do so in district Poonch. Similarly, the percentage of land in Anantnag that is not used for agricultural purposes is the highest as compared to that of Poonch, which

is 33.3 percent. In district Anantnag, the total percentage of marginal farmers is 60.0 percent the highest compared to district Poonch, where the percentage is only 40.0 percent. Similarly, the total percentage of small farmers in district Anantnag is 61.9 percent, which is the highest percentage compared to district Poonch, which has only 38.1 percent. In contrast, the frequency of unleased land in both districts is 292 or 97.3 percent, with district Anantnag having a higher percentage of 59.9 percent than district Poonch, which has a percentage of 40.1 percent. Chenab is the most popular HYV rice variety, while China-1039 is the least popular. The majority of farmers do not use HYVs because they are expensive. Only 27.3 percent of samples from both districts treat seeds with chemicals, while the remaining 72.7 percent do not. Thus, the majority of samples do not apply the chemicals to the seeds. The majority of samples do not employ the seed replacement technique. The majority of samples employ the technique at a rate of less than 20 percent per Kanal. The majority of samples do not use fertilisers because they believe that fertiliser prices are too high, and some believe that it does not affect production and productivity to a significant amount.

In Anantnag, the input sources are superior to those in Poonch. The regions are almost equally impacted by the production constraints. Marginal farmers contribute more to rice production than other types of farmers, according to the results of dummy regression analysis. Anantnag district produces more rice than Poonch district.

Findings of the Study

- India is the principal rice producing nation in Asia. India is the large user and producer of rice, with an annual production of roughly 43.20 million tonnes. India beats China in terms of rice output sometimes.

- Agriculture in India is largely dependent on the monsoon, which has a substantial effect on both production and productivity.
- Land, labour capital, and organisational factors all influence agricultural productivity. Current agricultural practises have demonstrated that factors including land location, climate, soil quality and fertility, economic situations, the use of current research and technology, and the transition from traditional to contemporary agricultural approaches all affect crop output.
- The area, output, and the output per unit area fluctuate. The area devoted to rice farming goes on declining. This reallocation of land to other use and decrease in rice production pose a grave threat to Indian agriculture.
- In Jammu and Kashmir, rice is one of the most significant and prominent crops.
- The green revolution and economic reform of 1991 in Jammu and Kashmir considerably increased rice production and productivity.
- The government has been unable to boost rice production due to unfavourable and undesirable circumstances, such as a lack of irrigation facilities, lack of contemporary tools and technology, non-availability of HYVs in a timely manner, debt issues, high cost of fertilisers, and lack of transportation. The government's ability to increase rice production has been hampered by the difficult terrain, adverse weather, and internal disturbance.
- In Jammu and Kashmir, 98.7 percent of the population is landowners.
- Agricultural endeavours make for 77 percent of a farmer's revenue, while livestock ownership and management contribute 6 percent and other agricultural endeavours provide 16 percent respectively.

- The majority of illiterate as well as highly educated individuals are engaged in marginal farming and small farming.
- The majority of agricultural farmers, daily wage workers and self-employed are marginal farmers, according to occupation distribution and land ownership. The majority of persons in the General and the OBC category own marginal or tiny plots of land. whereas the ST category both comprises equal percentage of marginal and small farmers due to the abundance of small farms,
- Due to the presence of small farms, the ST population displays significant differences.
- The bulk of tiny farm lands are held by Muslims, while Hindus and Sikhs practise subsistence agriculture.
- In both the divisions of Jammu and Kashmir caste and education have a substantial and beneficial impact in land ownership.
- 60 percent of the land in Anantnag and 40 percent of the land in Poonch is used for agricultural purposes.
- There are 60.4 percent marginal farmers in the district of Anantnag, 39.6 percent in the district of Poonch, and an almost identical proportion of small farmers.
- Farmers in Jammu and Kashmir avoid utilising HYVs because to the high costs involved and also avoid using pesticides for seed treatment.
- The input sources in Anantnag are superior and costly to those in Poonch.
- Almost all regions are affected by the production limits. Marginal and small farmers contribute more than other types of farmers to rice production, and the Anantnag district produces more rice than the Poonch district.

Policy Recommendations

- Innovations in agriculture should be fostered and designed in accordance with the local geography.
- Rice farming should be prioritised, and stringent limits should be put on the expanding use of agricultural land for purposes other than agriculture.
- Low-cost and high yielding varieties of seeds and fertilisers should be made available to all marginal and small farmers without exception.
- The environment and high altitude of Jammu and Kashmir necessitate a particular and distinct policy framework for the development of agriculture in Jammu and Kashmir.

Limitations of the study

- This study is limited to two districts of Jammu and Kashmir.
- This study only examined Rice cultivation in Jammu and Kashmir.
- The sample size of 300 samples is not appropriate to generalise the results to Jammu and Kashmir as a whole.
- This study is also limited to Jammu and Kashmir due to its unique climate and environment compared to the rest of India.