

Present Status and Future Prospectus of Agriculture in Jammu and Kashmir

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Abstract: Agriculture being the backbone of State economy and important contributor to SGDP is losing its status as it is subject to different constraints. This paper attempts to explain the present agriculture scenario of Jammu and Kashmir and cropping pattern with its future prospects. The current situation is not satisfactory in terms of food grains as the area under these crops have shown the disturbing trends and the farmers are losing their interest in farming sector because it has become less remunerative as a result the existing population is not able to cover the gap between deficit and requirement which has already gone to 81%. The scope of further increase in the area under these crops is less as they are not found of profitability. For ensuring inclusive growth still agriculture needs to get priority in order to make adequate dent to poverty reduction and providing food security to the people.

Keywords: Cropping pattern, Requirement, Deficit, Food grains, Jammu and Kashmir.

I. Introduction

Jammu and Kashmir is a hilly state having a varied topography with a large diversity in terms of culture, social and economic practices of its different regions (Jammu, Kashmir and Ladakh). Despite the structural changes taking place both at national and state level, agriculture has been the top priority at both the levels as this sector plays a strategic role in the process of economic development of Jammu and Kashmir and India, and on an average 70% of the population are still getting livelihood and employability from this sector coupled with its allied sectors as this sector contributes around 27% of the states income. Presently agriculture sector is contributing 13.7% of the GDP at national level and at state level it is contributing around 21.09%.

The state Jammu and Kashmir is fundamentally divided into three divisions namely as Jammu division, Kashmir division and Ladakh division having their own and distinct geographical outlook for their respective agro climatic zones which in turn determine their cropping pattern and productivity of crops. Jammu and Kashmir is well known for its Paddy crop followed by maize, oilseeds pulses, vegetables fodder and wheat where as in Jammu region the most eatable and produced crop is wheat which is followed by maize, paddy, pulses, oilseeds etc where as barley is the major cereal crop followed by wheat in Ladakh. Jammu and Kashmir has also got the monopoly in terms of Saffron crop (famous all over the world due to its quality) which is being produced in the district Pulwama 15KM away from Srinagar. At the same time Basmati Rice is being produced in R.S Pora of Jammu division and Rajmesh of Bederwah, Kishtiwari constitute the economic significance of the state which are functioning under the various departmental interventions in quality improvement, productivity enhancement, marketing etc. The growth rate in respect to agriculture and allied sectors for the 12th five year plan has been targeted to be around 2.99% and as per the advances estimates growth rate for the financial year 2014-15 has been projected to be around 3.84% but at the same time the growth rate in the sector, particularly in the crop sub sector is on a decline as the percentage of deficit is continue on a high, to meet the requirements of the growing population which has resulted in the import of these gaps from the central pool.

Objectives of the Study:

1. To find out the present status of Agriculture in terms of cropping pattern and production of various crops in Jammu and Kashmir.
2. To know about the future of Agriculture in Jammu and Kashmir on the basis of present scenario.

II. Research Methodology

Looking at the nature of the objectives the present study is based on the secondary data which has been collected from annual publications of various Economic and Non Economic surveys of Jammu and Kashmir and National bulletins. The time series data was collected through Directorate of Economics and Statistics government of Jammu and Kashmir, Agriculture Department of Jammu and Kashmir (Kashmir Division and Jammu Division Separately). To collect the data regarding the cropping pattern/production in Jammu and Kashmir various annual economic surveys from 2011 to 2015 were brought under consideration. We have

employed various statistical tools like mean, standard deviation and coefficient of variation to find out the variability in the data under various agriculture crops in terms of area and production. Apart from this we have collected information from various reputed journals both at national and international level, books, Mechanizes etc.

$$\sigma = \sqrt{\frac{\sum x^2}{N}} \sigma_{12} = \sqrt{\frac{N_1\sigma_1^2 + N_2\sigma_2^2 + N_1d_1^2 + N_2d_2^2}{N_1 + N_2}}$$

σ_{12} = Combined standard deviation, $d_1 = [\bar{X}_1 - \bar{X}_{12}]$ [$d_2 = \bar{X}_2 - \bar{X}_{12}$], C. V = $\frac{\sigma}{\bar{x}} \times 100$

Present Cropping Pattern and Production of different Agriculture crops in Jammu and Kashmir:

The cropping pattern of a region reveals the proportion of area of land under different crops at a point of time, the rotation of crops and the area under double cropping. The cropping pattern changes in space and time. In fact, no cropping pattern can be good and ideal for all times to come. Cropping system is based on the climatic soil and the water availability has to be evolved for realizing the potential production levels through efficient use of available resources. The main aim of the cropping pattern system is to provide enough food for the family, fodder for the cattle and generate sufficient cash income for demotic and cultivation expenses. The objective is possible only by adopting the intensive farming¹ which include multiple cropping and intercropping. There are limits to increase production of different agriculture crops through expansion of cultivable land as with the growing population the total area is being getting shrink day by day, hence the only way out is to put more emphasis on increasing the productivity levels by adopting the modern technologies besides diversification towards high value crops.

Cropping pattern and Production of different agriculture commodities:

Table No:1 Details of Area, Production and Yield							
S.No	Crop	Area (000 Ha)		Production (000qtls)		Yield (qtl/ha)	
		2011-12	2012-13	2011-12	2012-13	2011-12	2012-13
Jammu Division							
1.	Rice (Kharif)	114.558	111.00	3201.00	2200.00	19.64	19.82
2.	Maize (Kharif)	206.401	200.00	7116.65	4500.00	34.479	22.50
3.	Wheat (Rabi)	236.56	248.00	4500.00	5200.00	19.02	20.97
4.	Pulses (kh+Rb)	30.02	32.74	367.30	480.00	12.24	14.66
Total Food grain		587.839	591.74	15185.04	12380.00	85.38	77.95
5.	Oilseeds (Kh+Rb)	36.91	38.09	345.30	510.00	9.35	13.39
6.	Vegetables (Kh+Rb)	32.91	32.07	6900.00	6980.00	212.31	213.46
7.	Fodder Green (Kh+Rb)	32.50	20.00	8000.00	8000.00	400.00	400.00
Total Food grain and other crops in Jammu Division		676.949	682.53	30430.34	27870.00	707.04	704.80
Kashmir Division							
1.	Rice (Kharif)	158.00	158.00	5410.00	5500.00	34.10	34.80
2.	Maize (Kharif)	100.00	100.00	2000.00	1200.00	20.00	12.00
3.	Wheat (Rb+kh)	8.25	8.25	148.00	148.00	18.00	18.00
4.	Pulses (kh+Rb)	24.50	24.50	223.00	152.00	9.10	6.70
Total Food grain		290.75	290.75	7781.00	7000.00	81.20	71.50
5.	Oilseeds (Kh+Rb)	85.50	85.50	855.00	855.00	10.00	10.00
6.	Vegetables (Kh+Rb)	30.03	30.06	8360.00	8500.00	278.38	282.76
7.	Fodder Green (Kh+Rb)	34.00	34.00	13600.00	13600.00	400.00	400.00
Total Food grain and other crops in Kashmir Division		440.28	440.31	30596.00	29955.00	769.58	764.26
Total Food grain (J&K)		878.29	882.49	22966.04	19380.00	166.58	149.45
Total Food grain and other crops in (J&K)		1117.23	1122.84	61026.34	57825.00	1476.62	1469.06

Source: Directorate of Economics and Statistics government of Jammu and Kashmir, Economic Survey 2012-13.

As from the above table it is being calculated that among the above food grains, the main food crops are Maize accounting 25.60% followed by Wheat 20.47% and Rice 22.77% which together accounts as 68.84% of the total cropped area in the state.

If we look at the table it clearly indicates area under the rice is continuously decreasing which has led to the downfall in the production of rice in Jammu but at the same time the new hope life line in this handicapped ecology is that there is a continuous rise in the productivity but there is no downfall in the area of Kashmir region in terms of but due to increase in the techniques of production, production and productivity is on a rise.

1. It is the ratio of Net Area Sown to the Total Cropped Area.

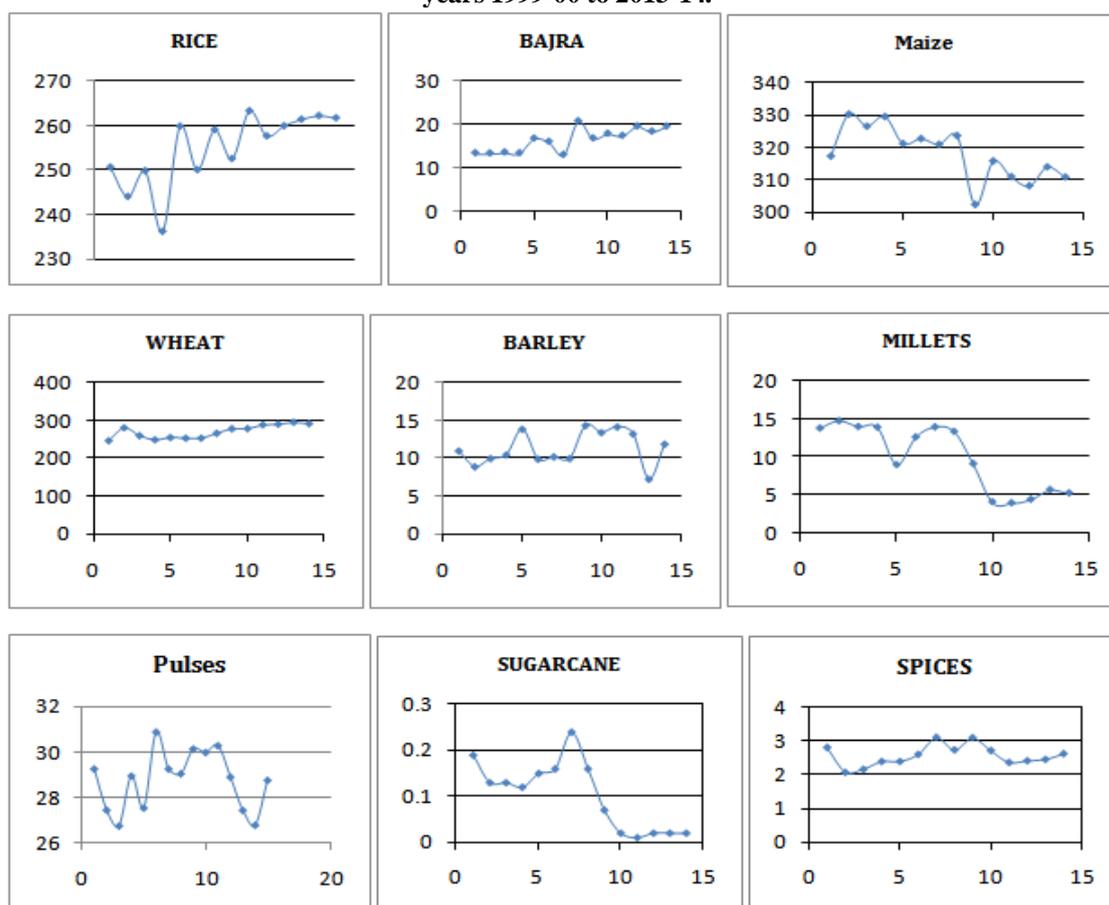
Maize crop is almost the monopoly of Jammu division is continuously on a decline as it has shown a continuous decline in the field of area, production and productivity, wheat being the most cultivatable crop in Jammu region in terms of consumption and economic value is gradually on a high and is earning the status of foreign exchange earnings, and employment opportunities.

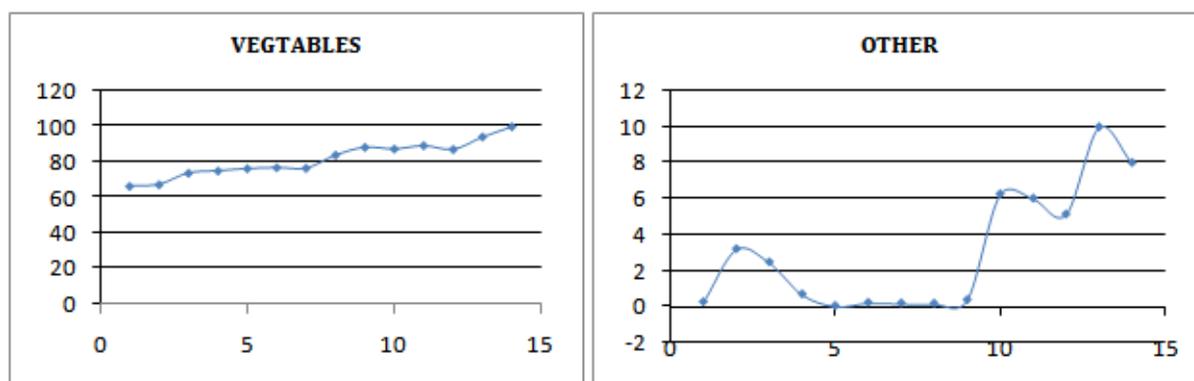
S.No	Kind of Crop	Area (000ha)		Production (000qtls)		Yield (qtls/ha)	
		2013-14	2014-15	2013-14	2014-15	2013-14	2014-15
1.	Rice	271.49	265.88	5567.38	4548	20.51	17.11
2.	Maize	298.68	308.62	5305.3	2735	17.76	8.86
3.	Wheat	392.07	290.99	6018.81	5819.5	20.16	20.00
4.	Barley	12.52	12.63	71.6	71.6	5.67	5.67
5.	Pulses	25.79	26.57	84.1	84.1	5.37	3.17
6.	Oilseeds	65.73	65.95	583.36	583.8	8.95	8.85
	Total	966.28	970.64	17689.25	13842	18.22	14.26

Source: Directorate of Economics and Statistics government of Jammu and Kashmir, Economic Survey 2012-13, Economic Survey 2014-15.

Prices of the food grains has been rising at a very fast rate which have compelled the farmers to start food grains for the market, in the same way they grow oilseeds and other commercial crops or one can say that the traditional classification between food crops and commercial crops is losing its significance. Among the food grains the largest increase in area has been recorded in wheat, but the increase in the area under rice has been quite modest. The increase in the area of commercial crops/coarse cereals have recorded only marginal increase indicating a positive shift from minor to major crops. Increase in the area under pulses and barley has been modest. The traditional crops that is oilseeds, barley, pulses has made an impressive increase in acreage much more than the food crops (with the exception of rice) as they have become remunerative under the impact of new technology. All this is happening only due to increase in the economic values and the influences of prices subject to income.

Trends (Fluctuation) in the area of different Agricultural crops of Jammu and Kashmir from last fifteen years 1999-00 to 2013-14.





Source: Directorate of Economics and Statistics government of Jammu and Kashmir Annual publication 2013-14.

Trends (Fluctuation) in the Production of different Agricultural crops of Jammu and Kashmir from last fifteen years 1999-00 to 2013-14.



Source: Directorate of Economics and Statistics government of Jammu and Kashmir Annual publication 2013-14.

Variability in terms of Area under different crops in J&K				Variability in terms of Production under different crops in J&K			
Crop	Mean	Standard Deviation	Coefficient of Variation	Crop	Mean	Standard Deviation	Coefficient of Variation
Rice	254.86	7.68	3.02	Rice	5015.65	629.14	12.54
Maize	318.17	7.94	2.50	Maize	50503.2	99.183	23.54
Wheat	270.45	17.42	6.44	Wheat	4218.21	99.0183	23.55
Pulses	28.770	1.30	4.56	Pulses	144.14	13.72	9.52
Barley	11.370	2.12	18.65	Others	218.36	11.205	11.21
Sugarcane	1.1000	0.072	70.72	----	----	----	----
Spices	2.5400	0.29	11.60	----	----	----	----
Vegetables	81.62	6.64	11.80	----	----	----	----
Bajra	16.430	2.59	15.75	----	----	----	----
Others	3.050	3.27	107.12	----	----	----	----

Source: Authors Calculation.

Rice being the mostly and widely consumed crop in Jammu and Kashmir has shown less variation in terms of area (3.02%) but has slightly higher variation in terms of production (12.56%); the reason behind the low variation in terms of area is that there is no further scope in increasing the area as there is lot of crop diversification taking place to other commercial crops and the area under the crop is replaced by other such crops.

Sugarcane has got the highest coefficient of variation (70.72%) as there is a continuous decline in terms of area due to its low economic value at the same time spices (11.60%), vegetables (11.80%) has shown an increase in terms of area and production as these crops are gaining importance day by day and are subjected to income and employment generation. Wheat is the only food grain crop which has shown an upward trend in terms of area (with a coefficient of variation 6.44%) and has also shown an upward trend in terms of production, but at the same time the coefficient of variation of wheat 23.54% which is only increasing due to its continuous increase in output subjected to improved means of technology and there is further scope in the area and output under the crop which in the coming years will be seen. Barley and pulses (commercial crops) has shown in increase in area and production as these crops are getting importance due to the economic value and income generation.

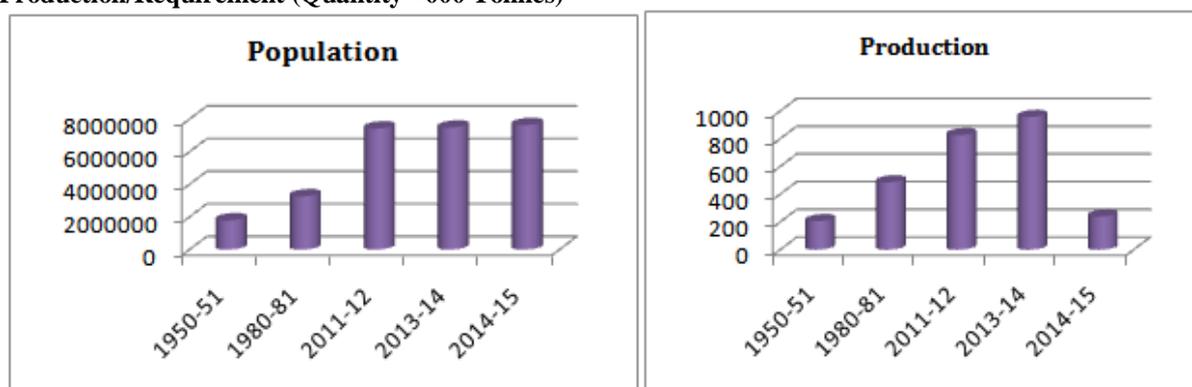
Looking at the present scenario the area under the food grain crops in Jammu and Kashmir is continuously decreasing as the state is not able to feed its own people. According to the provisional figures of census 2011; the state Jammu and Kashmir has got the population of 12.54 million for which the per capita consumption of food grain is not available on its own. Rice and Wheat being the mostly consumed food grain crops is subject to different constraints as the area under rice is on a decline because people are shifting to other commercial crops which has compelled to import from the rest of the states/nation. As per the data (right from 1947) the state Jammu and Kashmir has never able to produce up to an extent so that it is going to feed its own people in terms of food grains as a result the gap between requirement and deficit is increasing.

Year	Production	Population	Requirement	Deficit%
1950-51	206.30	1795304	307.00	32.00
1980-81	486.92	3269276	559.05	23.00
2011-12	826.72	7426575	1260.0	34.00
2013-14	957.92	7488918(P)	1271.05	24.63
2014-15	240.00	7638696 (P)	1296.47	81.50

Source: Government of Jammu and Kashmir, Agriculture department of Kashmir Division (Abridged Account).

Table number 4 has been deployed to see the current scenario of Jammu and Kashmir in terms of food grain requirement in relation to population growth, and deficit. As from the table it is been estimated that right from 1947 the growth rate of population has surpass the food grain production which has resulted in the mounting gap of deficit to requirement. Looking at the current scenario right from 2011-12, the gap between deficit and requirement has shown an increasing trend from 1980-81 but during the year 2013-14 the gap between the former has declined up to a large extent. The current situation of Jammu and Kashmir is worse as there in a huge and a mounting gap of 81.50% of deficit compared to the requirement of current population. The gap has been recorded as the highest compared to last years, as from the data the land diverfication from agriculture to other commercial crops has gone up to 10times. The present scenario is not good as there is no alternate and the per capita consumption is on a decline and by the time it is going to increase which is going to compel the people to import and in the coming two to three years there will be 100% deficit in terms of food grains which will mount the pressure on the economy as there is a mismatch between demand and supply which is going to led into inflation.

Food Grain Production in Jammu and Kashmir in relation to population Growth Production/Requirement (Quantity =000 Tonnes)





The decline in the growth rate and area under the food grain crops is attributed to low productivity, lack of adequate agriculture research, low seed replacement below 25%, lack of irrigation facilities as 58% of the net area sown is rainfed, single cropping season, inadequate and unorganized marketing infrastructure, limits to mechanized farming and transportation of products, fragile soil in hilly areas susceptible to soil erosion and small size of holding. According to the latest estimates 94% of the holding falls in the size class of less than two hectares and around 81.5% in less than one hectare.

III. Conclusion

Looking at the present situation in Jammu and Kashmir the figures in terms of production, area and yield rate are not satisfactory as the gap between deficit and requirement is increasing at an increasing rate which has gone up to 81% against the current population growth. Even though green revolution in 1967-68 has led to bumper harvest of major crops especially rice and wheat which in turn has contributed to a large extent in uplifting the rural population, but the late figures are very disturbing and the trends have started emerging in the said sector as the farmers are losing interest subject to less remunerative. 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.

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