iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** VII **Month of publication:** July 2021

DOI: https://doi.org/10.22214/ijraset.2021.36432

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue VII July 2021- Available at www.ijraset.com

Inter-District Variations in Agricultural Productivity of Jammu Division of Jammu & Kashmir

Sonia Khajuria
Research Scholar, Department of Economics, University of Jammu

Abstract: ***Jammu and Kashmir is primarily an agrarian state. Around 80 percent of its population is engaged in this sector. The state has huge variation in its agro-climate diversity as Jammu region has a subtropical and Kashmir has temperate climate. These variations make it idyllic for performing varied cultivation. The present research paper is an attempt to analyze the variations in agricultural productivity of major crops at the district level in the Jammu division for the period 2010-11 to 2016-17. The results show tremendous variations in the productivity of the crop sector across districts. The districts of the Jammu region have depicted very low productivity and wide variations across the districts. The variations in the productivity level of the major crops of the Jammu region have been found mainly in the hilly areas like Kishtwar, Doda, Poonch and Reasi thus depicting wheat and maize as the staple food of these districts. These variations at district level has indicated the need for evolving specific strategies at the district level for ensuring sustainable and inclusive agricultural growth in a state consequently in the country.***

Keywords: Productivity, Variations, Constraints, Population Growth

I. INTRODUCTION

With a population of 1.02 billion (Census of India, 2011), India is the world's second-most populous country. Agriculture and its allied sector is the main source livelihood of Indian population. Nearby 70 percent of its rural households, still depend primarily on agriculture, with 82 percent of farmers being small and marginal (Food and Agriculture Organization (FAO), 2018). The role played by agricultural development in the economies of developing countries like India is very significant. Economic development depends on the rate at which agriculture grows (Hande, 2014). In recent years, a consensus seems to have emerged that production growth in the agricultural sector is essential if the agricultural output is to grow at a sufficiently rapid rate to meet the demands for food and raw materials (Hayami and Ruth, 1970).

The agricultural sector has been a way of life and continues to be the single most important source of livelihood influencing the growth of the Indian economy (Arimohan and Balasubramanian, 2014). In the Indian economy, across decades, the government focusing on self-sufficiency and self-reliance in food grains production has adopted various agricultural policies. During the planning era, some of the State Governments accorded a high priority to agriculture thus leading to the Green Revolution in India when a large amount of the seeds of high-yielding varieties of wheat was imported. As the development gets started the new technological up-gradation with the use of new varieties of seeds and the use of organic manure, agriculture is on the platform of commercialization with the objective of the development of all the branches of agriculture. In India, development programs and several schemes have been launched for enhancing agricultural growth thereby creating employment generation for a huge population

II. SCENARIO OF AGRICULTURE IN JAMMU AND KASHMIR

Agriculture in Jammu and Kashmir has a significant history. The agricultural sector sustains the livelihood of 70 percent of the population. It is the main source of income and employment for the majority of the population in the state. Overall, the economic upliftment of the union territory (UT) is closely related to prosperous agriculture. The development of agriculture in our UT becomes more significant in the context of little progress made in the secondary sector. In comparison to other states and the rest of the country, the current situation of agriculture in the state of Jammu and Kashmir is not as satisfactory as the farmers are losing their interest in the farming sector (Kaloo and Choure, 2015). The impact of these aspects of agriculture varies district wise of Jammu and Kashmir. There are distinct variations in the magnitude of these concepts over both space and time. The level of agricultural development is also not the same throughout the districts of the Jammu region comprising of ten districts namely Jammu, Samba, Kathua, Udhampur, Rajouri, Reasi, Poonch, Ramban, Doda, and Kishtwar. This is because the area is geographically different. The nature of land used for cultivation by the farmers also varies from area to area district wise. Some districts of the region are very fertile which are used for the cultivation of various kinds of vegetables and food grains, while some are covered by sand and silt and are used for growing crops like oilseeds, pulses, maize, jute, etc.

III. REVIEW OF LITERATURE

The agriculture sector being the largest public sector has drawn a lot of attention from the leading authors and economists. They have brought focus to the trends, growth rates of major crop production and productivity, determinants of growth in agricultural productivity, and problems regarding its determinants as well as its impacts on agriculture.

A vast majority of studies done across districts found that trends in growth rates in the area, production, and productivity under the crop sector were noticeably negative thus highlighting the instabilities in the growth of productivity. The instability in productivity continues to persist and there are wide variations in instability across different districts in a state (Kumar and Singh, 2014; Kumar and Jain, 2013). The trends in agricultural productivity at the national and state levels in different periods and different states analyzed that the growth of the sector of Indian agriculture has been highly rough across time and regions. After investigating the trends in the area, production, and productivity in different districts of J&K, it has been found that the area and yield in effects although not equal but had a contribution to the total change in output growth (Rather, 2014). There is relatively slow and positive significant growth rate for production and productivity and significantly very slow of process growth rate in area particularly during the period of study in cereals in India. Moreover, productivity of India rice, wheat and maize are statistically greater than that of Nigeria with the exception of sorghum and millet. Findings from Nigeria concluded that there is a relatively positive significant growth in production and productivity and significantly slow process of growth in area, of cereals in the particular years under consideration Ahmad et al. (2015).

In addition, the post-reform period witnessed a deceleration of growth in most of the major crops and as a whole, the use of primary inputs in the sector also slowed down, resulted in the yield levels of many crops stagnating or even declining Chand and Parappurathu (2012). Sengupta and Kundu (2008) analyzed the factor contribution and productivity growth in underdeveloped agriculture. They concluded that there exists a wide variation in the input wise efficiency changes for West Bengal agriculture. Both the technical change and input elasticity measures for all the inputs seemed to have been improving in the eighties in West Bengal agriculture.

On the other hand, the differences in the levels of agricultural development in particular districts are largely in terms of the difference in irrigation facilities, rural electrification, use of chemical fertilizers, and adoption of HYV seeds and so on (Khurrana, 1992). Modern varieties of seeds, irrigation, and fertilizers have greatly contributed to higher crop production growth in the country. The results found using the crop output growth model indicate that enhanced capital formation, better irrigation facilities, normal rainfall, and improved fertilizer consumption will help boost crop output in the country (Kannan, 2010). Imahe and Alabi (2005) examined the determinants of agricultural productivity in Nigeria.

The results showed that arable land, per capita, average rainfall, fertilizer distribution, the value of food imports, agriculture capital expenditure and the loans by commercial banks to agricultural sector contributed significantly to the systematic variation in agricultural productivity and output. The results pointed out that for the Nigerian agricultural sector to be one of the routes to her prosperity in the new millennium, the governments and the private investors should focus their attention on effective procurement and timely distribution of fertilizers.

Murgai et al (2001) attempted a study to determine the long-term productivity and sustainability of irrigated agriculture in the Indian and Pakistan Punjab by estimating the growth in total factor productivity since the start of the green revolution. The analysis shows that the Indian Punjab experienced a better overall growth rate than Pakistan in total factor productivity. However, despite these different growth rates, both states experienced comparable lags between the adoption of modern varieties and the realization of TFP gains. The results of this study also highlight the serious concerns about the long-term sustainability of intensive irrigated Green Revolution systems due to resource degradation. For Pakistan, this analysis provides the first quantitative indication of the impact of resource degradation, which is estimated to reduce productivity growth by one-third overall, and in the case of wheat-rice, to cancel the effect of technological change.

Understanding the causes and nature of variations in the levels of development across regions is important because inequality in any respect gives rise to unequivalent negative effects on subsequent growth and development and worsens economic, social and political tensions among regions leading to misallocation of resources (Newar and Sharma, 2017). There was a vast variation in productivity of crop sector across districts in the country and most of the states and cross-classification of districts according to their productivity and other factors (Chand et.al, 2009) whereas Rama et.al (1996) observed wide disparities in static use of fertilizers across different agro-climatic zones. Dorfman and Foster (1991) measured the Productivity growth by using suitable Coefficients. It showed considerably lower estimates of productivity growth than the traditional notion of total factor productivity.

The new flexible technical change measure suggests a lower rate of productivity growth whereas the total factor productivity suggests no downturn or upturn in the rate of progress. It has concluded that the shift in the global resource base has not affected the comparative advantage of U.S. agriculture, probably because the U.S. is still well endowed with the resources essential for agricultural production.

Dayal (1984) examined a study to identify and interpret regional agricultural productivity patterns in India. The study has examined the regional variations in the land, labour and agricultural productivity in India. The association between urban- industrial development and land productivity showed a positive influence of market and social organization on agriculture. It has also been concluded that there is an improvement in the profitability of agriculture but profits have not been passed on the workers. Bhalla and Tyagi (1989) highlighted the spatial pattern of levels and growth in agricultural output in the country and the variations in labour productivity at the state level.

It was found that with the adoption of new seed-fertilizer technology, agriculture in major parts of India has undergone a significant transformation. Hu and Antle (1993) examined the relationship between agricultural policy and agricultural productivity. The results validated that the relationship between agricultural productivity and agricultural policy varies according to the degree of taxation or subsidization.

IV. RESEARCH GAP

Jammu and Kashmir has a hilly topography blessed with naturally occurring micro agro-climatic regions suitable for the cultivation of a wide range of agri-horticultural crops with a great potential for development. Thus, there are large possibilities for agriculture expansion and development in Jammu and Kashmir. But the constant contribution of Agriculture sector towards Gross State Domestic Product (GSDP) shows the beginning of declining trend of the sector. Both the divisions have their distinct geographical conditions which determine their respective cropping pattern and productivity of crops. Due to varying topography, the territory of Jammu and Kashmir shows a difference in its cropping patterns.

Despite this, a very few research works is so far done analyzing the agricultural productivity at the regional level in Jammu and Kashmir. There is a need to highlights the production, productivity of various crops grown in the region in order to improve the overall yield, farmer's income, and their way of life.

Also, for the adoption of appropriate planning and strategies for agricultural development, an in-depth study of the inter-district variation in respect to agriculture in the Jammu region is highly needed. The analysis of district-level data has revealed the need to have a pragmatic agricultural development planning and policy framework at the ground level of administrative units, the research study at the district level assumes importance.

V. OBJECTIVE OF THE RESEARCH PAPER

To analyze the inter-district variations in agricultural productivity of the Jammu region of J&K.

VI. METHODOLOGY OF THE STUDY

Jammu region has a high concentration of wheat, rice, maize, oilseeds, fodder and pulses. Maize is the first ranking crop of district Doda, Rajouri, Poonch and Udhampur of Jammu division, Also, Wheat is mainly grown in the district of Kathua and Jammu, adjacent to the province of Punjab.

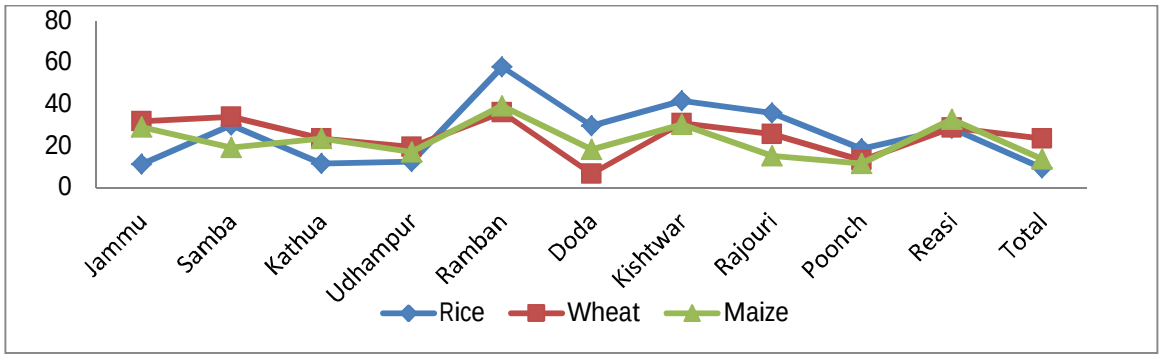
The production of paddy, maize and wheat in J&K is more than 90% of the total food grain production of all crops (Economic Survey of J&K, 2017). The present paper is based on secondary sources which mainly includes Directorate of Agriculture, Government of Jammu and Kashmir, Economic Survey of Jammu and Kashmir; Ministry of Agriculture and Farmers Welfare, Government of India; Digest of Statistics, Directorate of Economics and Statistics, Government of Jammu and Kashmir; and various other published reports, books, journals, websites, and official records.

There are 10 districts in the Jammu region of Jammu and Kashmir. To get a comprehensive picture of inter-district variations in productivity of major crops including rice, wheat, maize, pulses, oilseeds and Bajra has been selected purposively. Secondary data for the period of seven years from 2010-11 to 2016-17 has been collected due to the lack of fully furnished data of crop production issued by the Directorate of Agriculture, Jammu. To analyze the variations in productivity among the selected districts of the Jammu region, Co-efficient of Variation has been used.

VII. DATA INTERPRETATION AND ANALYSIS

Inter-district variations in agricultural productivity of major crops of selected districts of the Jammu region can be studied by observing the co-efficient of variation of selected crops during the study period.

A. The graphs below show the Inter-district Variations in Productivity of Major crops in Jammu Region from the period 2010- 11 to 2016-17



Source: Directorate of Agriculture, Government of Jammu and Kashmir, 2017 (complied by scholar)

B. Variation In Productivity Rate Of Rice Crop

Variation in yield/productivity rate of rice during the study period is lowest in Jammu district (11.29 percent) followed by Kathua (11.49 percent) and Udhampur (12.57 percent). It has been observed from the above chart that Ramban district (57.98 percent) has the highest variation in productivity rate of rice followed by Kishtwar (47.86 percent) which is much higher than the regional level variation (9.54 percent).

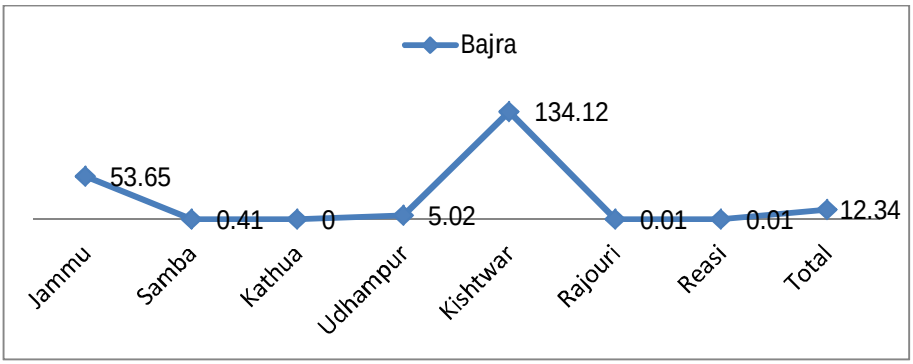
C. Variation In Productivity Rate Of The Wheat Crop

The most consistent district in productivity rate of wheat during the study period is Doda district (6.66 percent) followed by Poonch district (13.25 percent). Ramban district has the highest variation in productivity rate of wheat with a variation of 36.12 percent followed by Jammu district (31.81 percent) higher than the total variation (23.49 percent) of Jammu region.

D. Variation In Productivity Rate Of Maize Crop

In the case of productivity rate of maize crop, Poonch district is highly consistent (11.51 percent), followed by Rajouri (15.31 percent), Udhampur (17.31 percent), and Doda district (18.27 percent) while the highest variation is observed in the Ramban district (39.30 percent) followed by Kishtwar (30.33 percent).

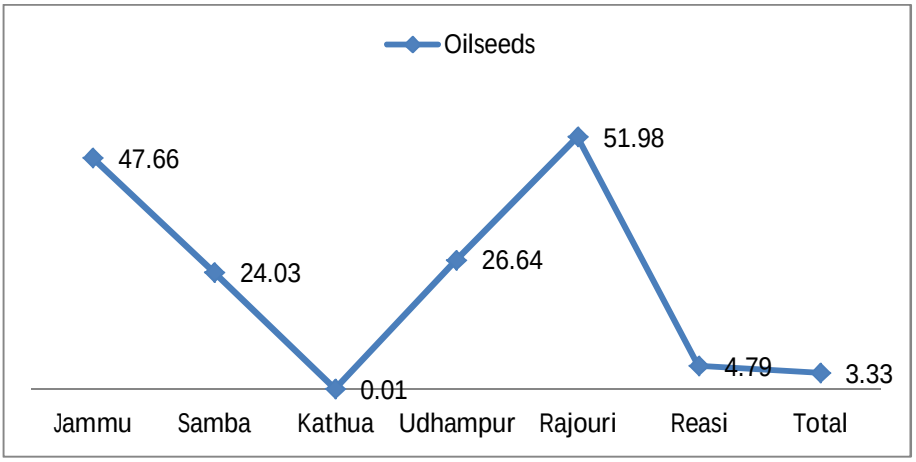
E. Variation In Productivity Rate Of Bajra Crop



Source: Directorate of Agriculture, Government of Jammu and Kashmir, 2017 (complied by scholar)

The variation in the productivity rate of the Bajra crop in the Kishtwar district is quite high (134.12 percent) in comparison to other districts and total variation of the Jammu region. There is no variation in Kathua while it is near about zero percent in Rajouri and Reasi districts (0.01 percent). In the Udhampur district, the variability is 5.02 percent.

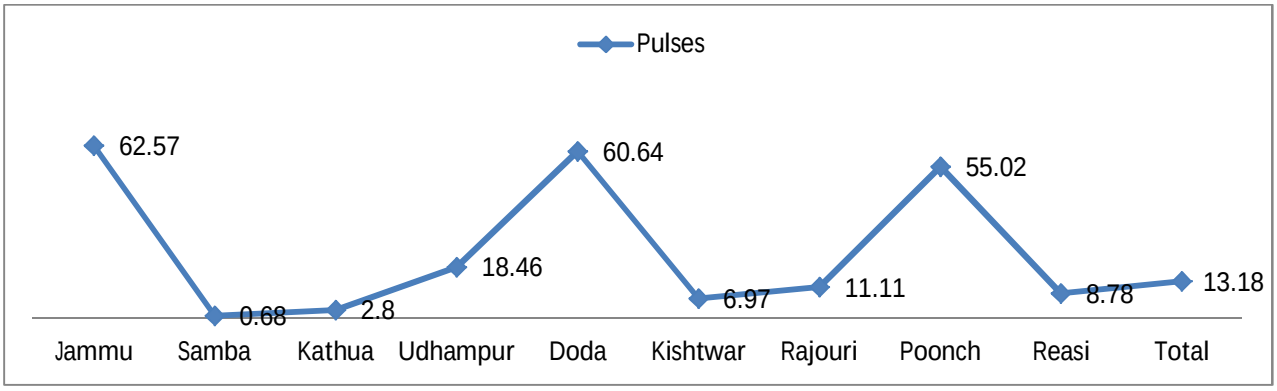
F. Variation In Productivity Rate Of Oilseeds Crop



Source: Directorate of Agriculture, Government of Jammu and Kashmir, 2017 (complied by scholar)

In the productivity rate of oilseeds, the lowest variation founds to be in the Kathua district with 0.01 percent variability followed by Reasi (4.79 percent). In the Jammu district, it is high with 47.66 percent variation much higher than the regional level (3.33 percent).

G. Variation In Productivity Rate Of Pulses Crop



Source: Directorate of Agriculture, Government of Jammu and Kashmir, 2017 (complied by scholar)

The coefficient of variation in productivity rate of Pulses is lowest in Samba district (0.68 percent) followed by Kathua district (2.80 percent) and Kishtwar (6.97 percent). There is a high variability in productivity rate in Jammu district (62.57 percent) followed by Doda district (60.64 percent) which is much higher than the total variation of Jammu region (13.18 percent).

VIII. RESULTS AND DISCUSSIONS

The districts of the Jammu region have depicted very low productivity and wide variations across the districts. The variations in the productivity level of the major crops of the Jammu region have been found mainly in the hilly areas like Kishtwar, Doda, Poonch and Reasi thus depicting wheat and maize as the staple food of these districts. The regional disparities can be attributed to many factors such as it has different soil conditions, climatic conditions and different facilities in the form of irrigation facilities, as well as different levels of groundwater existence. In such circumstances, the same results in the form of output from the field are not expected. Fluctuations in crop output happen to be a regular feature in agriculture in Jammu and Kashmir. The higher difference in growth rates of food grains and non food grains can be explained almost by the more rapid expansion of area denoted to them and also reflect the conditions under which they are grown. The main reason for this is the dependence on nature i.e. rainfall for the cultivation crops in Jammu and Kashmir. Natural hazards like floods and droughts are also responsible for such fluctuations. Most of the districts of Jammu and Kashmir are hilly areas with inadequate irrigation facilities and erosion has further compounded the problem in the state. The economic development of the state can sustain a reasonable growth rate of development if the productions of main crops attain a consistent return over the years.

IX. POLICY IMPLICATIONS & SUGGESTIONS

The policy of evolving an agricultural system with due importance on the development of subsistence farming, intensive farming and mixed farming is likely to be very effective in agricultural planning.

A. There is a need for the government to the expansion of technical knowledge as well as in organizing the programmes for providing practical knowledge to farmers for achieving high yield increment in yield rate. The strong foundation of the agriculture sector is necessary to condition for a rapid economic and social development of our economy.

B. There are very poor technical sectors such as mechanical power, water management, land reclamation, renewable energy and post-harvest as well as a lack of efficient implements in the level of farm mechanization.

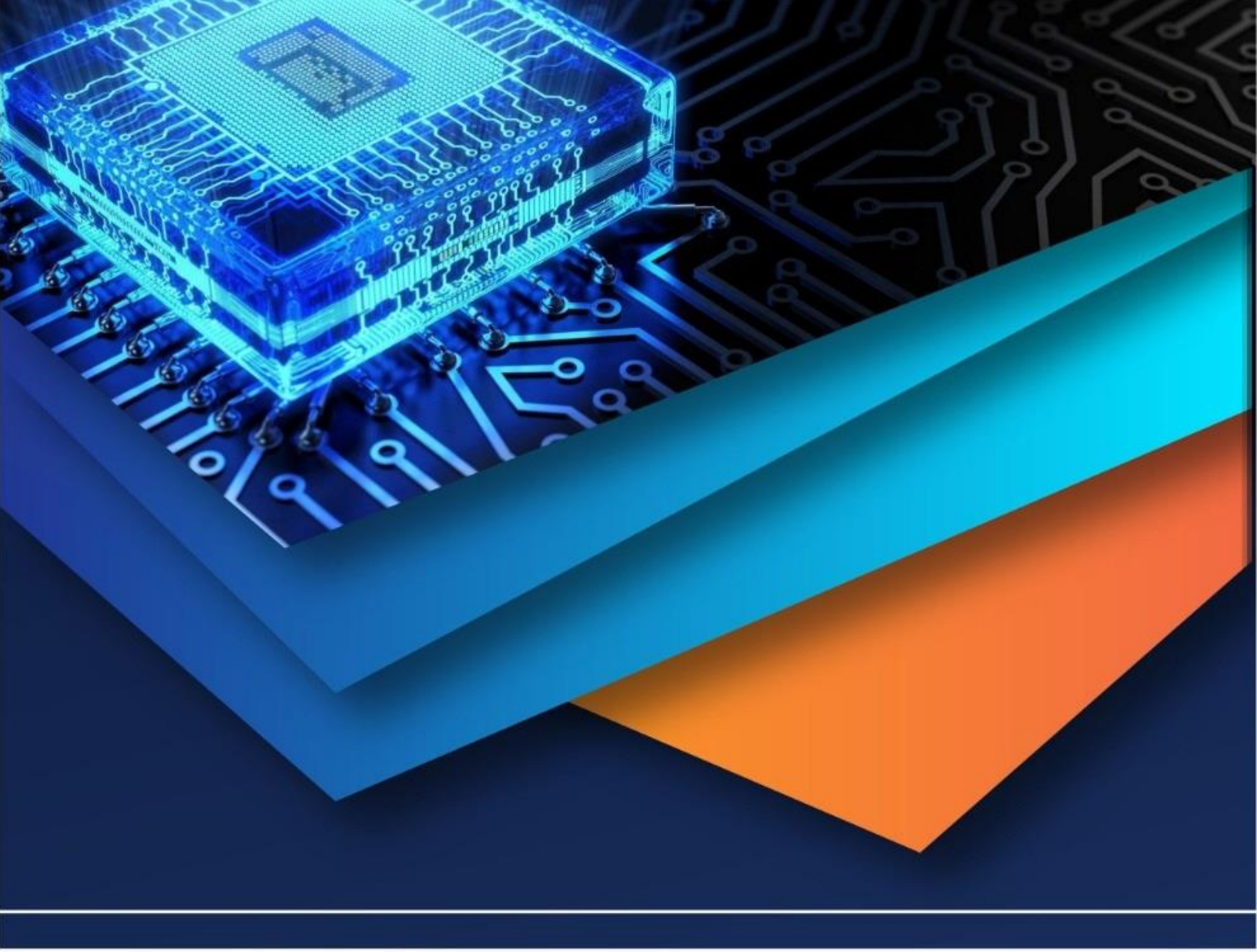
C. The use of good quality seeds plays important role in output and its quality, the quality of seeds in the field should be used with utmost care for achieving the output capable of competing in international markets. Soil- health checkups are also important for raising the level of production.

To conclude, the varying disparities in the crop sector at the district level has emerged the need for developing precise strategies at the district level ensuring sustainable and inclusive agricultural growth in the region. The policy framework and impacts of various agricultural policies can be evaluated by working out changes in agricultural productivity during that period.

BIBLIOGRAPHY

[1] Ahmad, K., Chaudhary, M. A., Ilyas, M., Ahmad, K., Chaudhary, M. A., & Ilyas, M. (2018). Trends in Total Factor Productivity in Pakistan Agriculture Sector. Pakistan Economic and Social Review, Volume 46, No. 2 (Winter 2008), pp. 117-132
[2] Ahuja, U. R., Tyagi, D., Chauhan, S., & Chaudhary, K. R. (2011). Impact of MGNREGA on Rural Employment and Migration: A Study in Agriculturally-backward and Agriculturally-advanced Districts of Haryana. Agricultural Economics Research Review, 24, 495–502.
[3] Antle, J. M. (1995). Climate Change and Agriculture in Developing Countries. American Journal of Agricultural Economics, 77(3), 741–746.
[4] Pakistan Economic and Social Review
[5] Bazaz, N. H., & Haq, I. (2013). Crop Diversification in Jammu and Kashmir : Pace, Pattern and Determinants. IOSR Journal of Humanities and Social Science (IOSR-JHSS) Volume 11, Issue 5 (May. - Jun. 2013), 01-07.
[6] Bhalla, G. S., & Tyagi, D. S. (1989a). Spatial Pattern of Agricultural Development in India. Economic and Political Weekly, 24(25), 46--56.
[7] Bhalla, G. S., & Tyagi, D. S. (1989b). Spatial Pattern of Agricultural Development in India. Economic and Political Weekly, 24(25), 46-56.
[8] Burja, C., & Burja, V. (2016). Farms Size and Efficiency of the Production Factors in Romanian Agriculture. Economics of Agriculture, 2(15), 361–374.
[9] Chand, R., & Parappurathu, S. (2012). Temporal and Spatial Variations in Agricultural. Economic & Political Weekly, XLVII (26 & 27), 55–64.
[10] Dorfman, J. H., Foster, K. A., Dorfman, J. H., & Foster, K. A. (2018). Estimating Productivity Changes with Flexible Coefficients. Western Agricultural Economics Association, 16(2), 280–290.
[11] Eswaran, N., & Revathi, R. (2017). A Study on Growth and Performance of Food Grains in India with Special Reference to Maize. IOSR Journal of Humanities and Social Science (IOSR-JHSS), Volume 22, Issue 12, Ver. 6 (December. 2017), PP 28-36.
[12] 868Agricultural Policy and Productivity : International Evidence: Source : Review of Agricultural Economics, 15(3), 495-505.
[13] Gopinath, M., & Kennedy, P. L. (2019). Agricultural & Applied Economics Association Agricultural Trade and Productivity Growth : A State-Level Analysis Published by : Oxford University Press on behalf of the Agricultural & Applied Economics Association Stable , 82(5), 1213–1218.
[14] Hayami Y., & Ruttan, V. W. (1970). Agricultural Productivity Differences among Countries. The American Economic Review, 60(5), 895–911.
[15] Heston, A. (2018). Variations in Agricultural Growth and Output between and within Regions of India , Published by : University of California Press Stable, 3(1), 43–50.
[16] Hiremath, J. R., & Katarki, P. A. (2005). Classification of Districts Based on Agricultural Development in Karnataka, 18(2).
[17] Kaloo, M. J., & Choure, P. T. (2015). Present Status and Future Prospectus of Agriculture in Jammu and Kashmir, 20(11), 62–67.
[18] Kannan, E. (2009). Trends in India's Agricultural Growth and Its Determinants. Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), vol. 8(2), pages 79-99, December.
[19] Kumar, A., & Jain, R. (2013a). Growth and Instability in Agricultural Productivity : A District Level Analysis. Agricultural Economics Research Review, 26(7), 31–42.
[20] Kumar, A., & Jain, R. (2013b). Growth and Instability in Agricultural Productivity : A District Level Analysis. Agricultural Economics Research Review, 26(7), 31–42.
[21] Luh, Y., & Stefanou, S. E. (2018). Productivity Growth in U . S . Agriculture Under Dynamic Adjustment, Agricultural and Applied Economics Association, vol. 73(4), pages 1116-1125.
[22] Madanjeet, U. (2014). Production and Productivity Trends of Paddy Cultivation in Jammu and Kashmir, (June), 42–44.
[23] Mohanty, B. B. (2009a). Regional disparity in agricultural development of Maharashtra. Economic & Political Weekly, February 7, 63–69.
[24] Mohanty, B. B. (2009b). Regional disparity in agricultural development of Maharashtra. Economic & Political Weekly, February 7, 63–69.
[25] Nadkarni, M. V, & Deshpande, R. S. (1982a). Agricultural Growth, Instability in Productivity and Rainfall: Case of Karnataka. Economic and Political Weekly, 17(52), A127--A134.

[26] Nadkarni, M. V, & Deshpande, R. S. (1982b). Agricultural Growth, Instability in Productivity and Rainfall: Case of Karnataka. Economic and Political Weekly, 17(52), A127–A134.
[27] Nayak, D. K. (2016). Changing Cropping Pattern , Agricultural Diversification and Productivity in Odisha – A District-wise Study, 29(1), 93–104.
[28] Newar, M. S., & Sharma, N. (2017). Inter District Disparities in Agriculture Development of Rajasthan : Some Policy Implications for Lagged Districts, 4(April), 53–62.
[29] Patra, R. (2014). Agricultural Development in Odisha : Are the Disparities Growing ? International Journal of Food and Agricultural Economics, 2(3), 129–144.
[30] Quddus, M. a. (2009). Crop Production Growth in Different Agro-Ecological Zones of Bangladesh. J. Bangladesh Agril. Univ., 7(2), 351–360.
[31] Raman, R., & Kumari, R. (2012). Regional Disparity in Agricultural Development : A District- Level Analysis for Uttar Pradesh. Journal of Regional Development and Planning, vol. 1(2), pages 71-90.
[32] Ramasamy, C. (2004). Constraints to Growth in Indian Agriculture :Needed Technology, Resource Management and Trade Strategies. Indian Journal. of Agricultural Economics, Vol.59, No.1, Jan.-March 2004.
[33] Rather, S. (2014). Production and Productivity Trends of Paddy Cultivation in Jammu & Kashmir. Paripex– Indian Journal of Research, 3(6).
[34] Siddiqi, A.H. (2018). Agricultural Changes in Punjab in the Nineteenth Century : 1850 — 1900, Published by : Springer Stable, 12(1), 43–56.
[35] Shankar, P. (2005). Four decades of agricultural development in MP: An agro-ecological sub-region approach. Economic and Political Weekly, 40(48), 5014–5024.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY