International Journal of Education, Modern Management, Applied Science & Social Science (IJEMMASSS)
ISSN : 2581-9925, Impact Factor: 6.340, Volume 04, No. 01(I), January - March, 2022, pp.189-194

A GEOGRAPHICAL STUDY OF CHANGING AGRICULTURE SCENARIO IN BHAKHRA NAGAL CANAL CATCHMENT AREA IN HANUMANGARH DISTRICT OF RAJASTHAN

Dr. Surendar Choudhary*

ABSTRACT

Job of agriculture stays imperative in empowering the State to accomplish and keep up nourishment self-sufficiency, particularly, in a poverty-stricken State. Supportable development of agriculture depends essentially on the procedure of horticultural change, which thus is very much associated with movements in cropping patterns. Lazy move in the cropping pattern towards no sustenance grain crops in the State is because of moderate development of irrigation, low degree of fertilizer utilization, slow technology adoption and low degree of infrastructure. The lull during the time spent cropping pattern change implies that most government endeavors to diversify agriculture have neglected to take off. Covering just about seven districts of Rajasthan, the Bhakhara nagal canal has radically caused an adjustment in land use land spread. This examination focuses on Hanumangarh locale, which is beginning stage of Bhakhara nagal canal in Rajasthan. The land use and land spread pattern of an area is a result of the natural and financial factor and their usage by man in existence. The paper examines the structure and nature of Change in Cropping Pattern and Agriculture Productivity in Bhakhara nagal Canal Catchment Area.

Keywords: *Agriculture Productivity, Cropping Pattern, Canal, Irrigation, Fertilizer Utilization.*

Introduction

Rajasthan is where agriculture development is quicker than different states of the nation even a water deficient state. Irrigation offices, great nature of seeds, use of fertilizer and other institutional and infrastructure variables are assuming noteworthy job for improvement in agriculture division in the state. Rajasthan is predominantly isolated into two sections that are desert and non-desert. The state has 61% of desert area where 40% of the populace are living. The greater part of the populace rely upon agriculture in desert and non-desert districts. Since it is water frightened state so there is much potential in wheat and bajra crops yet not in rice crop because rice is water escalated crop in which one kg of rice requires 3000-5000 liters of water. So the state focused on the improvement of generation of wheat and there is much possibility in this regard. Rajasthan is the biggest state as far as area, which has 10.41 percent of area, 5.67 percent of populace, 10.70 percent of live stocks and 8.48 percent of milk generation of India. Further, all out forest area 4.24, tree secured area 8.92, gross irrigated area 8.95, net irrigated area 9.88, absolute cropped area 11.67 and net area planted is 12.42 percent of India1GOR (2012). Gross domestic product development pace of Rajasthan in 2012-13 is 5.31 percent. The part astute commitment of GSDP at consistent price of 2004-05 in agriculture 19.88, in Industry 31.31 and in administration segment is 48.81 percent. It is proposed in twelfth multiyear plan (2012-17) that the expense on agriculture and unified administration is 5.57 percent. Despite the fact that the state has 61% desert area however the efficiency of significant crops in most recent two decades in desert were developing a lot quicker than in non-desert.

[G] Assistant Professor, Geography, Government Girls College Nohar, Hanumangarh, Rajasthan, India.

Change in Cropping Pattern

Cropping pattern implies both existence grouping of crops. It incorporates the escalation of the most productive crops of the district which is viewed as a homogenous soil and climatic qualities, the turn wherein the crop fits in and the force of cropping. Along these lines the term cropping pattern is used Sunil Kumar1 * Dr. Shamsher Singh Dhull2 www.ignited.in 1031 Change in Cropping Pattern and Agriculture Productivity in Bhakhara nagalCanal Catchment Area: A Geographical Study of Hanumangarh District of Rajasthan in increasingly far reaching sense when we examine in term of cropping pattern for farmers it will mean notwithstanding cropping plan and cropping force most appropriate to the farmers. Cropping pattern alludes to the proportionate area under various crops during an agricultural year. It implies the arrangement of crops at a point of time. Cropping pattern must guarantee the best effectiveness of man, fertilizers, irrigation and different information sources. It is dynamic idea as no cropping pattern can be reasonable for all occasions to come. An effective cropping pattern infers the most productive use of arable land, endless supply of water resources, bio-chemical data sources and the like. Likewise, it must offer the cultivators the likelihood to boost agricultural efficiency per unit area per unit of time. A cropping pattern is dictated by the connection of physical and financial factors over some undefined time frame. No cropping pattern can be useful for all occasions to come. Be that as it may, there is regularly a propensity for the cropping pattern to balance out over some undefined time frame in various agro-climatically homogeneous cultivating area. Change in cropping pattern is one of the significant parts of changing agricultural situation of Bhakhara nagal Canal Catchment Area. In the prior investigation, it has been seen that the cropping pattern has been experiencing ceaseless changes as far as real estate designation or production creation since 1970-71. The expansion in real estate portion or production arrangement has been described by a noteworthy move of area from different crops to boro rice, potato and mustard or increment in part of boro rice, potato and mustard to add up to agricultural production contrasted with different crops. Presently, all out agricultural production in value terms of any topographical area at whatever year is the entirety of the output in value terms of various crops created in that district during that specific year. Output of any individual crop in value terms again relies upon real estate appropriated for developing that crop, yield and price of that crop. On the off chance that prices are thought to be steady, value of output of each crop changes because of variety in area and yield level. Subsequently, all out agricultural production of some random locale shifts because of changes in gross cropped area (GCA) (entirety of area under every one of the crops, developed in the district), yield of each crop and reallocation of all out area for the production of each crop expecting, prices to be consistent. Changes in agricultural output because of reallocation of land resources to various crops, when all out area under development, yield of each crop and prices stay consistent, speak with the impact of crop enhancement or changing cropping pattern on agricultural production. Decay of agricultural production growth in Bhakhara nagal Canal Catchment Area, into the commitments of changes in area, yield and cropping pattern is a further disclosure of dynamic growth process.

Agriculture Productivity in Rajasthan

Rajasthan being geographically the biggest state in the nation has a shifted geography where Soils vary in quality relying upon the organic issue present in them, their physical structure, neighborhood climatic variety, the crop turn cycle that is pursued, accessibility of dampness and so on. The supplement conveying limit of soils fluctuates inside the region as well as village to village and even homestead to cultivate. Soils of the state have low microbial exercises and poor soil organic carbon because of which over 75% soils of the state are not healthy. Insufficiencies of Nitrogen, Phosphorous, Sulfur, Zinc and Iron are very normal. The state possesses 10 percent of the complete geographical area of the nation, however the huge geographical area commands just 1 percent of the absolute water resources in the nation. Agriculture is essentially downpour encouraged yet it is insufficient and aberrant. Focal point of cropping pattern in downpour bolstered areas is to meet the nourishment necessity of the individuals and grub prerequisite of the creatures. The crops are developed under high chance. In ordinary years, farmers face price fall because of excess in the market while drought years have yield hazard because of aggregate or fractional disappointment of crops. Rajasthan is known for its aberrant and questionable nature of precipitation. As in excess of 60 percent of the gross planted area in the state falls under arid or semi-arid zones in the state, agriculture in the state keeps on being generally downpour bolstered. Rajasthan is a deficiency state as for groundwater just as accessible irrigation water. It contains around 11 percent of all out land asset of the nation yet the accessibility of the all out water asset of the nation is not really 1 percent. Most extreme usage/abuse of these water resources has brought about the irrigation of 32 percent of the area in the state. Modern agriculture has nearly seized to be a financial movement

performed in shut economy framework described with the highlights of a natural economy. In modern agriculture, exercises in the homestead are composed much the same as the business and accordingly productive information management is unavoidable. Information incorporates fertilizers, pesticides and different methods for production including land and work. The Application of fertilizers is intently between connected to water accessibility and cropping pattern. Fertilizer consumption (NPK) in Rajasthan is one of the most minimal in India.

Cropping Pattern Change Major Impacts on Agriculture Productivity

Agriculture in India goes back to the remote past, as far back as it has kept on being the main occupation and the pillar of the individuals of the nation. Around three-fourths of the number of Sunil Kumar1 * Dr. Shamsher Singh Dhull2 www.ignited.in 1032 Journal of Advances and Scholarly Researches in Allied Education Vol. 16, Issue No. 4, March-2019, ISSN 2230-7540 inhabitants in the nation lives in the villages, does agricultural, and partnered exercises. Change in cropping pattern is an indistinguishable piece of agricultural growth process. Regardless of agricultural production it impactsly affects provincial economy. The real effects of changes in cropping pattern are on the (I) growth of agricultural production, (ii) work of work and ideal use of human resources. (iii) Stabilization of farm salary over the seasons and (iv) preservation and upgrade of natural resources. The significance of agriculture has been additionally underlined by the way that the number of inhabitants in the nation is expanding at a quick rate, applying an incredible weight on land and antagonistically influencing the man-land proportion. Because of development of land over hundreds of years, and because of expanding weight of populace on it, the odds of unfavorably influencing the land specifically and condition all in all are additionally good. In this way there is where the land must be used with incredible consideration and where agriculture must be advanced taking in to awareness all the ecological and financial elements. Just logically and keenly, agricultural practices can meet the circumstance.

Review of Literature

Khan MA, et.al (2009) made a near investigation of tribal and non-tribal farmers of Chhattisgarh towards expansion for maintainable agriculture. Out of the 16 districts of Chhattisgarh State, a sum of 240 tribal and the equivalent non-tribal farm families were considered for the examination. It was discovered that the general broadening of non-tribal farmers was discovered higher than the clans. Sinha and Kulshrestha (2012) broke down board information of two crops, which are wheat and pearl millet and presumed that gross cropped area and stimulated wells had huge job in pearl millet production. Precipitation, fertilizer consumption, cropping force, gross irrigated area and invigorated wells assumed measurably critical job in production of wheat. Sanjay Kumar and Grover DK (2017) considered the agricultural improvement in Punjab from 1960-61 to 2002-03 utilizing optional information. The investigation uncovered the strength of rice in the cropping pattern, which involved around 33 percent of Gross Cropped Area in the state in 2003-04 contrasted with just 5 percent during 1960- 61. Sunita, et al (2017) the investigation depended on auxiliary information gathered from different issues of Statistical Abstracts of Bhakhara nagal Canal Catchment Area and other distributed and unpublished sources. The outcomes uncovered that with the progression of time, there has been a significant change in the cropping pattern in the state. In generally speaking examination period (1993-2013) the area, production and productivity of nourishment grains has demonstrated expanding pattern with a compound yearly growth pace of 0.56, 2.56 and 1.93 percent per annum while for heartbeats every one of these values were in negative. Normal area has expanded uniquely if there should arise an occurrence of rice, wheat and grain while the area under different crops like jowar, bajra, maize, cotton, sugarcane, and so on declined during the examination time frame. The cropping pattern has slanted towards rice-wheat development. The decrease in the growth of area for pearl millet and sugarcane is because of move of area towards paddy while decline in area of gram is because of move of area towards wheat. Mc Cord et al., (2015) the choice to diversify crops is an especially testing one for farmers in semi-arid frameworks. Semi-arid frameworks can display more noteworthy inconstancy in yearly precipitation in areas that are negligible for agricultural production. Mythili G (2016) in the examination supply reaction of Indian farmers: pre and post changes upheld the view that farmers react to price somewhat by concentrated utilization of different data sources given a similar area, however they don't essentially contrast among pre and post change periods for dominant part of the crops. Manjeet Kaur and Sekhon MK (2015) made an investigation on info growth, all out factor productivity and its segments in Punjab agriculture. The investigation presumed that absolute factor productivity demonstrated troubling performance in the Punjab agriculture since the eighties. Rajeev Sharma (2017) made a nitty gritty investigation on agricultural improvement and crop expansion in Jammu and Kashmir. Herfindahl list was used in the investigation and it presumed that agricultural improvement and broadening in Jammu And Kashmir

State is continuously grabbing energy for high value crops. Tarujyoti Buragohain (2017) examined the agricultural advancement and wellsprings of growth of output of significant crops in India. Pattern growth rates and disintegration approach were used in the examination for the period 1950-51 to 2013-14. The general growth of output of sustenance grains were low because of low growth of area under development was the fundamental finish of the investigation. Praduman Kumar, et.al (2018) considered the productivity growth in agriculture in South Asia by examining the all-out factor productivity growth. The investigation used Divisia-Tornqvist Index for all out factor productivity estimation and announced that an ever increasing number of instances of deceleration in all out figure productivity the cropping framework were seen in India and Srilanka.

Research Objectives

The major Objectives of the Research Study are as follows:

Sunil Kumar[1] * Dr. Shamsher Singh Dhull2 www.ignited.in 1033 Change in Cropping Pattern and Agriculture Productivity in Bhakhara nagal Canal Catchment Area: A Geographical Study of Hanumangarh District of Rajasthan

- To understand the Change in Cropping Pattern in Rajasthan
- To understand the Agriculture Productivity in Rajasthan
- To understand the Cropping Pattern Change Major Impacts on Agriculture Productivity
- To analyze Change in Cropping Pattern and Agriculture Productivity in Bhakhara nagal Canal Catchment Area.

Research Methodology

For the Research study we analyzed the cropping pattern and Agricultural Development of Bhakhara nagal Canal Catchment Area on the basis of Geographical Findings. The analysis was made from the Year 2014-2016.

Data Analysis

- Change in Cropping Pattern and Agricultural Productivity in Bhakhara nagal Canal Catchment Area

In the wake of dissecting bury region minor departure from different angles, for example, statistic highlights, land holding pattern, gross cropped area, gross irrigated area, precipitation pattern and so forth in the past part, this segment focuses on entomb variety in cropping pattern and changes Bhakhara nagal Canal Catchment Area it over the period. The Results are planned in table as pursues:

Results and Discussions

It is clear from the Table 2 that with the progression of time, there has been a significant change in the cropping pattern of the state. Area has expanded distinctly in the event of rice, wheat and grain while the area under different crops like jowar, bajra, maize, cotton, sugarcane, and so forth declined during the examination time frame. The lessening in area of different crops like bajra, maize, gram, sugarcane, sunflower, and so on was because of dangers related with them, which might be production hazard or price chance. Compound growth paces of area, production and productivity for various crops in the state are exhibited in Table 2, 3 and 4, separately. Table 3 demonstrates an astounding increment in nourishment grains production noticeable in Bhakhara nagal Canal Catchment Area since 2014-16. The compound growth pace of wheat was practically same in both the timeframes. Despite the fact that, the absolute production of sustenance grains is expanding ceaselessly, if there should be an occurrence of pulses it is declining. A few crops indicated expanded production in the investigation time frame independent of change in area like cotton, rapeseed mustard, jowar, bajra, and so forth. If there should be an occurrence of cotton this change has happened because of presentation of Bt cotton while in jowar the reason is its property of outrageous drought resilience. If there should be an occurrence of bajra half and halves assumed a noteworthy job in expanding production. It is obvious from Table 4 that the compound growth pace of yield of various crops in Bhakhara nagal Canal Catchment Area. The productivity of each crop has expanded during the timespan 2014-16. It is fundamental to make reference to that yield of jowar, gram and at last all out pulses have demonstrated a blended pattern of increment and diminishing. The general growth pace of each crop is a positive value aside from complete pulses.

Conclusion

The Indian economy has experienced basic changes after some time with the foreseen decrease in the portion of agriculture in the Gross Domestic Product (GDP). Productivity has expanded and state agricultural growth rates are more agreeable than national midpoints. Cropping pattern has improved in the state, which is useful for an agricultural based state. Yet at the same time there is extension for better advancement. Tremendous amount of water could be spared by enhancement of cropping pattern from these crops to less water devouring crops. There is no uncertainty that productivity of various crops expanded because of escalated agriculture method.

References

1. Sinha, Narain and S.K. Kulshrestha (2012), —Food Availability and Food Security in Rajasthan: an Application of Random Effect Model‖, Arthshodh, volume IV (2), 72-82, July-December.
2. Khan M.A., Neeta Khare and Taunk S.K. (2009), —A comparative study of tribal and non-tribal farmers of Chhattisgarh towards diversification for sustainable agriculture‖, Journal of Soils and Crops, Vol. 19, No. 1, pp. 36-44.
3. Sanjaykumar and Grover D.K. (2017), —Agricultural development in Punjab - constraints and policy options‖, Agricultural Situation in India, Vol. 64, No. 12, pp. 673- 681.
4. Mythili G. (2016), —Supply response of Indian farmers: pre and post - reforms‖, Working Paper 2006-09, Indira Gandhi Institute of Development Research, Mumbai, pp. 1-36.
5. Manjeet Kaur and Sekhon M.K. (2015), —Input growth, total factor productivity and its components in Punjab agriculture: District wise analysis‖, Indian Journal of Agricultural Economics, Vol. 60, No. 3, pp. 473-482.
6. Rajeev Sharma (2017), —Agricultural development and crop diversification in Jammu and Kashmir: A district level study patterns, processes and determinants‖, Review of Development and Change, Vol. 12, No. 2, Madras Institute of Development Studies, Chennai, pp: 217- 250.
7. Tarujyoti Buragohain (2017), —Agricultural development and sources of growth of output: An analysis of major crops in India‖, Agricultural Situation in India, Vol. 64, No. 6, pp: 231-242
8. Pradumankumar, Surabhi Mittal and Mahabub Hossain (2018), —Agricultural growth accounting and total factor productivity in South Asia: A review and policy implications‖, Agricultural Economics Research Review, Vol. 21, No. 2, pp. 145- 172.
9. McCord P.F., Cox Michael, Harsh M.S. and Evans Tom (2015).Crop Diversification as a Small holer Livelihood Strategy within Semi-arid Agricultural Systems near Mount Kenya, Land Use Policy (42): pp. 738-750. Sunil Kumar1 * Dr. Shamsher Singh Dhull2 www.ignited.in 1035 Change in Cropping Pattern and Agriculture Productivity in Bhakhara nagalCanal Catchment Area: A Geographical Study of Hanumangarh District of Rajasthan

Table 1: Compound growth rates of area of major crops

Crops	2010-11	2019-20
Jawar	-5.744	--4.564
Rice	2.456	2.123
Maize	-6.554	--5.321
Bajara	-3.56	-1.254
Barley	5.56	0.254
Wheat	0.256	1.253
Gram	-5.456	-7.254
Total cereals	0.564	1.254
Total food grains	0.895	1.253
Total pulses	-6.562	-6.658
Sugarcane	-4.578	-3.245
Cotton	0.045	-0.582
Total oilseeds	-3.250	-0.382
Rapseed mustard	-2.654	-0.954

Table 2: Bhakhara nagal Canal Catchment Area Land Use

Crops	2010-11	2019-20
Area sown more than once	3054	2975
Net area sown	3562	3562
Forest	40	35
Total cropped area	6500	6465
Barren and uncultivable land	105	124
Land put to nonagricultural uses	472	548
Current fallow	104	102
Total area	4352	4352

Table 3: Production of Production of Major Crops Compound Growth Rate

Crops	2010-11	2019-20
Jawar	1.996	1.87
Rice	2.807	3.45
Maize	-5.088	-3.80
Bajara	1.546	3.24
Barley	8.945	2.048
Wheat	3.345	2.54
Gram	-2.154	-8.32
Total cereals	3.3561	2.87
Total food grains	3.125	2.54
Total pulses	1.354	-5.25
Sugarcane	-2.265	-0.96
Cotton	2.256	4.00
Total oilseeds	1.154	1.52
Rapseed mustard	1.756	1.82

Table 4: Major Crops Yield Compound Growth Rates

Crops	2010-11	2019-20
Jawar	8.63	5.89
Rice	0.63	1.34
Maize	1.57	1.95
Bajara	5.29	4.03
Barley	3.76	1.87
Wheat	2.35	1.25
Gram	4.46	0.14
Total cereals	1.78	1.45
Total food grains	2.56	1.95
Total pulses	1.35	-.0.45
Sugarcane	2.45	1.74
Cotton	1.98	6.95
Total oilseeds	4.52	1.75
Rapseed mustard	4.62	2.05

.

❖◆❖