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A Study on Agriculture Development with Special Reference of Sirohi District

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Abstract Crop production on the land, animal care, agroforestry, and piece culture all fall under the category of agriculture. A variety of tactics are used in the process of agricultural development to support the agricultural industry. This goal entails raising crop and livestock production through the use of cutting-edge farming methods, environmentally friendly practices, and cutting-edge technologies. Providing food security for an expanding global population, creating economic opportunities for rural communities, and fostering environmental sustainability are some of the main goals of agricultural development.

In order to give farmers more power, this abstract emphasizes the importance of agricultural growth in rural areas of Sirohi district and stresses the necessity for infrastructure development, educational initiatives, and training programs. Important indicators have been used to find out the level of agricultural development of Sirohi district. These indicators include amount of irrigation, crop intensity, production and productivity, use of improved seeds of the crop, use of Tubewell and pump sets, use of tractors, consumption of fertilizers and area under cash crops etc.

Keywords Development, Agroforestry, Sustainability, Crop intensity, Productivity.

1. Introduction

Agricultural development is the process of enhancing and improving several facets of agriculture in order to accomplish particular objectives relating to food production, economic development, and the welfare of rural people. It entails a variety of actions and tactics intended to boost agricultural operations' production, sustainability, and effectiveness. The following are some essential elements and goals of agricultural development:

Increased Crop and Livestock Production: Using contemporary farming methods, enhanced seeds, and better livestock management techniques, agricultural development frequently aims to increase the yield and quality of crops and livestock.

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Rural Development: Agriculture's ability to increase employment possibilities, upgrade infrastructure, and enhance living conditions in rural regions makes it strongly related to rural development.

Food Security: Providing a steady and adequate food supply for the expanding global population is one of the main objectives of agricultural growth. In order to do this, food production must be raised while post-harvest losses are decreased.

Income Generation: Agriculture development may raise the income of farmers and rural communities by enhancing agricultural output and facilitating farmers' access to markets.

Technological Advancement: To increase effectiveness and production, agricultural development frequently combines technological developments like precision agriculture, biotechnology, and information technology.

Education and Training: For farmers to adopt contemporary farming methods and practices, access to education and training programs is crucial.

Infrastructure Development: It is essential for effective agricultural production and distribution to build and improve infrastructure, such as roads, irrigation systems, and storage facilities.

Policy and Institutional Support: Governments and organizations play a crucial part in agricultural development by putting rules into place, offering funding, and creating institutions that assist the sector's expansion.

Market Access: The goal of agricultural development is to assist farmers in gaining access to domestic and international markets so they may sell their goods for fair rates and increase their revenue.

Diversification: Farmers' susceptibility to market swings and natural calamities can be decreased by fostering agricultural diversification by encouraging the cultivation of a variety of crops and the adoption of mixed farming techniques.

Importance of the Research

Agriculture is the back bone of Indian economy and agricultural development is central to all strategies for planned development. Progress in agriculture provided the relief in the form of the country being able to meet its minimum needs for agricultural commodities. Agricultural lands are limited, while population is growing rapidly. Size of land holding is decreasing. Presently central and state's governments are working for agricultural development through five year plans as agricultural development, its management and relationship with various socio-economic aspects is one of the burning issues in present time. In today's problem oriented world, in the utilization of socio-economic geography as in any other discipline, a rational assessment of agricultural development has become a prerequisite work. The present research work is an attempt to discover the existing levels of agricultural development of sirohi district.

Sources of data and Methodology

The present research is based on data and information collected from various secondary sources. Secondary data are collected from various official sources ranging between years 2001 to 2021. An appropriate methodology is an essential part of any research, as it helps in proper analysis of data. To investigate various aspects of agricultural development in the study area, appropriate descriptive, qualitative and cartographic techniques of analysis have been included in this research work. Secondary data has been collected at district level for spatial-temporal patterns, trends and variations of agricultural development.

Level of Agriculture Development in Sirohi District

Important indicators have been used to find out the level of agricultural development of Sirohi district. These indicators include amount of irrigation, crop intensity, use of improved seeds of the crop, use of Tubewell and pump sets, use of tractors, consumption of fertilizers and area under cash crops etc. With the help of these indicators, a comparative study of the period of 2000-01 and 2020-21 at the district level can be done. An attempt has been made to find out the level of agricultural development.

Table 1: Major Indicators of Agriculture Development of sirohi district

S. No.	Indicators	2000-01	2020-21
1	Amount ot Irrigation	28.90	36.53
2	Crop Intensity	103.42	123.79
3	Area under Improved seeds	23.79	39.78
4	Tubewell & Pump sets	37339	45724
5	Tractors	2226	9864
6	Consumption of fertilizers	34838	75958
7	Area under cash crops	28.40	48.82

Sources: 1. District Statistics Profile 2001,2021
2. Office, District Collector (Land Records), Sirohi
3. Office,Deputy Director,Agriculture Department,Sirohi

Note: 1. Amount ot Irrigation, Crop Intensity, Area under Improved seeds, cash crops are in percent value
2. Tubewell & Pump sets, Tractors are in number
3. Consumption of fertilizers is in mertic ton

2. Amount of Irrigation

The availability and expansion of irrigation facilities in a geographical area plays a very important role in determining and influencing the agricultural commercialization of that area. In comparison to 2000-01, qualitative and quantitative changes are visible in the availability and expansion of irrigation facilities in Sirohi district in 2020-21. In 2000-01, irrigation was spread on about 30.43% of the total agricultural area of the district. In 2020-21, irrigation facilities were available on about 53.74% of the agricultural area with a positive attitude of 23.51%. During the re-study period, along with quantitative changes, qualitative changes are also reflected in the irrigation facilities of the district. New and updated means of irrigation like drop irrigation, sprinkler irrigation, sprinkler irrigation, pipeline irrigation have started being used, which indicates the level of agricultural commercialization of the district.

3. Crop Intensity

Crop intensity is defined as the ratio of net sown area to total sown area. Thus it indicates the additional percentage share of sown area more than once in the net sown area. Crop intensification refers to growing multiple crops in the same field during one agricultural year.

Looking at the above table, it is known that the ratio of cropping intensity in Sirohi district was 103.42% in 2000-01 and 123.33% in 2020-21. Thus, increased of 19.91% has been recorded during the study period. There are many factors that determine cropping intensity, which have been discussed earlier. From the cropping/cropping intensity point of view, compared to other districts of the state, the cropping intensity of Sirohi district is considered to be average or moderate.

4. Area under Improved seeds

Seeds of high yielding varieties have played an important role in the progress of agriculture, they are considered miraculous seeds. High Yielding Variety (HYV) seeds give better quality yield than conventional seeds. These seeds are mostly flood and drought resistant, they also have less problems with pests and diseases. The use of these seeds results in a substantial increase in net agricultural income.

In 2000-01, about 27.79% of the agricultural area of the district was covered under improved seeds, while in 2020-21 this figure increased to 39.78% with a positive growth of 11.99%. Although the percentage of improved seed area in Sirohi district is less as compared to other districts of the state, yet a significant increase has been recorded in Pindwara and Abu Road tehsils of the district.

5. Tubewell & Pump sets

Pumpsets include both electric and diesel engine types. These are used for tube well irrigation. This type of irrigation is very important in areas where Nehri irrigation is not possible, because pumpset is an indicator of

mechanization in agriculture and mechanization has a very positive impact on agricultural development. That is why it is believed that increased use of pump sets has an impact on agricultural development.
While the total number of tube wells and pumpsets used in Sirohi district in 2000-01 was 37,339, in 2020-21 this figure increased to about 45,724. Similarly, the ratio of tube wells and pumpsets per hectare of net sown area was 0.27 in 2000-01, whereas in 2020-21 it increased to 0.28. Since there is a positive relationship between the use of tube wells and pump sets and the expansion of irrigation facilities. Therefore, both these components play an important role in examining the level of agricultural commercialization of an area.

6. Tractors

Tractor is considered a very important component of mechanization in agriculture sector. At present tractors are used extensively in agriculture. Tractors have replaced various human and animal tasks in the agricultural sector. Tractors have an important role in agricultural development, hence the analysis of its relationship with agricultural development becomes very important.
The number of tractors used in agriculture in Sirohi district was 2226 in 2000-01, whereas in 2020-21 this figure reached 9864 with a significant and unexpected increase of 7638. On the other hand, the number of tractors used per hectare of net sown area was 0.01 in 2000-01, whereas in 2020-21 this ratio became 0.06 per hectare.

7. Consumption of Fertilizers

Soil fertility largely depends on its nutritional status, the amount and rate of supply of nutrients for plant growth. Supply of adequate and appropriate nutrients is an essential factor in plant growth. The ability of the soil to supply nutrients to plants without external input to the soil progressively decreases with each crop. Fertilizer is essential to replace the nutrients removed from the soil. Fertilizers can provide optimum nutrient balance as per the demands of specific crop, soil and climatic conditions. Can reduce environmental impacts while increasing crop yield and quality.
While 34838 metric tons of chemical fertilizer was consumed in the agricultural sector of the district in 2000-01, this consumption increased to 75958 metric tons in 2020-21. Thus, during the study period, the consumption of chemical fertilizers in the agricultural sector of the district has more than doubled in the last two decades, which shows the level and innovation of agricultural commercialization and development.

8. Area under Cash Crops

Cash crops/farming is different from subsistence farming. As opposed to the purpose of growing cash crops, subsistence farming is done for subsistence i.e. food for the farmer and his family, besides subsistence crops are also grown for fodder for the farmers' animals including working animals. The percentage area under cash crops in the total cropped area is calculated and shown in Table.
While the proportion of cash crop area in the district was 28.40% in 2000-01, it increased by 20.42 percent to 48.82% in 2020-21. Again, this increase is seen unevenly in all the tehsils of the district. Overall, the above increase in the percentage of cash crop area in the district reveals the level of agricultural development.

9. Conclusion

Finally, it should be noted that the growth of agriculture is a complicated process that takes into account economic, social, environmental, and technological factors. It has made great strides toward feeding the world's population and promoting economic growth, but it still faces persistent difficulties and needs to adjust to new conditions like climate change and shifting market dynamics. A successful and secure future for all depends on inclusive and sustainable agricultural growth.

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