

AGRICULTURE

Agriculture is the key area for the overall development of economy of the state. After the bifurcation of the state of Bihar and formation of separate Jharkhand state, Bihar is left with only agriculture as the main source of livelihood for its residents as all the industrial units and mines are located in Jharkhand. With fertile cultivable land in the Indo-Gangetic Plain and abundant water, both surface and sub-surface, the state is endowed with rich natural resources for Agriculture which is the dominant economic activity employing around three quarter of the state's work force. Rice, wheat, sugarcane and jute are the main crops grown in the state. Supplementary crops include oilseeds, pulses, barley, gram and maize and a variety of vegetables. The state is also known for its fruit products like litchi, mango and Banana besides being a major producer of vegetables.

Information on Agriculture

Acreage under cultivation :

- The Gross Cropped Area was 72.65 lakh hectares in 2020-21, with a cropping intensity of 144 percent.
- The contribution of agriculture to the State's GSVA stood at almost 20.0 percent (Quick Estimates) for the FY 2021-22.
- The State has allocated an amount of ₹7,726 crores towards agriculture and allied activities during the current financial year.
- In 2015-16, small and marginal landholdings constituted around 97 percent of the total operational landholding of Bihar while nationally, this stood at 86.1 percent.
- **Average size of land holding** in the State is 0.39 ha and for marginal farmers it is 0.25 ha in comparison of all India average of 1.08 ha and 0.38 ha, respectively. The small size of land holdings, along with large scale fragmentation, creates problems for farm mechanization, capital investment and affects the farmers holding/bargaining powers.
- **Land Leasing:** Share-cropping/ tenant farming is one of the dominant features in the State. It has increased from 22.67% (India:10.88%) to 25.1% (India:13%) during 2012-13 to 2018-19.

Irrigation Facility including Water Harvesting and Rainwater management :

- In Bihar, the total water area stands at 3.66 lakh hectares, accounting for 3.9 percent of the total geographical area. On an average, the State receives annual rainfall amounting to 1000 mms, bulk of which comes from the south-west monsoon.
- However, erratic rainfall patterns and recurring droughts leading to scarcity of water for irrigation have affected achieving higher productivity.
- During 2017-18, Bihar received an annual rainfall of 994.4 mms, out of which 84.9 percent was largely due to the south-west monsoon. However, this is not adequate to water the entire farming activities in the State.
- The tube wells are the major source of irrigation in the State, irrigating nearly 63.9 percent of the total irrigated area. Next to tube wells, canal water offers about 30.6 percent of the total Gross Irrigated Area in the State.
- The Gross Irrigated Area was the highest in Rohtas (3.72 lakh hectares), while the lowest in Sheohar (0.26 lakh hectares).

Irrigation Coverage	Area (in Lakh Hectares)
Ultimate Irrigation Potential	117.54
Irrigation potential created	81.91
Gross Area irrigated	54.34
Gross Area irrigated by Canals / Channels	16.60
Gross Area irrigated by Wells, tube wells etc.	34.73
Gross Area irrigated by Tank	1.09
Gross Area irrigated by Other Sources	1.92
Irrigation Potential Utilized (gross Irrigated Area/ irrigation Potential created) (%)	66.34%

Water Harvesting and Rainwater management

The State Government is implementing the '*Jal Jeevan Hariyali*' campaign on a mission mode to restore traditional water sources, construction of new water sources, and development of

water harvesting and storage structures. The initiatives initiated by the Department of Water Resources under the 'Jal-Jeevan-Hariyali' campaign are noted below:

- To point out encroachments and restoration of public water harvesting structures in ahar pynes of one acre or more and in ponds / water bodies in 5 acres or more.
- Construction of check dams and water harvesting structures in small rivers and streams and in the catchment areas of hilly region.
- Places are being marked for construction of water bodies in the plateau areas of the State excluding forest area and, in the foothills, to make Garland Trenches on all sides in the State.
- Under this scheme, of the 1663 approved schemes, 1355 schemes have been completed. This has resulted in a creation of irrigation potential of 1.21 lakh hectares of land, along with water harvesting capacity of 669.93 lakh cubic metres.

As a result of this campaign, it has been observed that groundwater level has marginally increased in all the blocks of the State.

Farm Mechanisation :

- Farm mechanisation brings in the benefits of operational efficiency and cost effectiveness.
- The Agricultural Roadmap – III (2017-22) recognises that farm mechanization subsidies are a vital component in helping farmers to handle various agricultural chores like ploughing, crop cutting and threshing.
- Agricultural Mechanisation Melas are being held across the State to provide farmers with financial assistance in purchasing high-quality agricultural implements and equipment.
- The number of farm implements bought through subsidy scheme for three years 2018-19 to 2020-21 is tabulated below:

Farm Implements	2018-19	2019-20	2020-21
Combine Harvesters	230	127	0
Zero Tillage	741	287	0
Pump sets	11362	19972	4850
Power Tiller	668	302	0

Manually Operated Tools / Implements	5970	2129	0
Threshers	5304	4397	235
Total	24275	17214	5085

Allied Activities :

Animal Husbandry and Fisheries

- Livestock and Fisheries are the fastest growing sub-sectors within the primary sector, growing at a rate of 10 percent and 7 percent, respectively. Furthermore, their share in agricultural GSVA has been averaging around 30 percent and 8 percent, respectively. Farmers are receiving input subsidies for the procurement of fish feed in order to boost fish output in the State.
- The fish production in the State steadily increased from 5.87 lakh tonnes in 2017-18 to 7.62 lakh tonnes in 2021-22, registering a growth rate of 6.7 percent.

Promotional Schemes of the Department of Animal Husbandry and Fisheries

- Chief Minister Integrated Chaur Development Scheme:** The main objective of this scheme is to develop all available 'chaur' areas in the State into fisheries-based integrated aquaculture system through construction of ponds for fish production along with integration of agriculture, horticulture, and agro-forestry.
- River Ranching Programme:** The scheme aims to:
 - i. Collection of fish breeder from identified rivers and artificial breeding of collected breeders through modern technology
 - ii. Development of artificially bred spawn into fry and fry into fingerling
 - iii. Stocking of fish fingerlings into identified rivers
 - iv. Restoration of pure germplasm in the identified rivers of the State
- Fish Crop Insurance Scheme:** The scheme will provide insurance protection to the farmers and involve financial institutions for funding in

Dairy :

- Bihar's total milk production increased to 121.19 lakh tonnes in 2021-22, from 92.41 lakh tonnes in 2017-18, indicating a compounded annual growth rate of 7.3 percent.
- The major source of milk production in the State are cows (64.0 percent of the total milk production), followed by buffaloes (33.7 percent) and goat (2.3%).
- Bihar State Milk Co-operative Federation supplies milk under the brand name of "Sudha". Sudha milk and some products are now available in Jharkhand, Delhi/NCR region, Uttarakhand, parts of UP and West Bengal. The farmers' training centre at Patna, Barauni and Begusarai provides training to the milk producers and society functionaries in various aspects of dairying, clean milk production, society operations, artificial insemination, etc.

Poultry :

- The total egg production stood at 306.66 crores in 2021-22, which increased from 121.85 crores in 2017-18, registering a growth rate of 26.9 percent in the last five years.
- Subsidies are being offered by the government to the private sector for the development of this sub-sector, to enhance the availability of poultry eggs and meat. Support is also being provided for growth of local chickens and low input poultry species.

Plantation :

- *Rajbari Tea* is one of the most reputed Tea brand in Kishanganj, district in Bihar and its surrounding areas. The plantation is done on approx. 50000 acres of land where about 1.5 metric tonnes of tea leaves are produced which is further processed into 33000 metric tonnes of tea.
- **Magahi Paan** is a special variety of Paan which is grown in Aurangabad, Gaya and Nalanda districts of Bihar. This has been given GI Tag.

Products made of golden fibre obtained from **Sikki Grass**, grown in Madhubani, Darbhanga, Sitamarhi and Samastipur, is used in weaving to make toys, dolls, and baskets (dolchi). Boxes made of Sikki known as *Pauti* are given to daughters by parents on their wedding. This has received GI Tag.

Horticulture :

Horticulture is popular among small and marginal farmers as this labor-intensive and highly remunerative sector provides substantial employment and income opportunities in rural

areas. The State Government is building storage facilities for perishable products and promoting adoption of modern technology to encourage production in horticulture.

Fruits:

- The Agriculture Road Map III (2017-22) gives emphasis to organic cultivation of fruits and development of high-density new orchards of mango, litchi and guava to encourage large scale adoption of technology and use of suitable agricultural equipment.
- In 2021-22, the total food production stood at 49.87 lakh tonnes with the total acreage under fruits being 3.64 lakh hectares. The production of major fruits in Bihar in 2021-22 was - mango (15.50 lakh tonnes), banana (19.68 lakh tonnes), guava (4.34 lakh tonnes), litchi (3.08 lakh tonnes), pineapple (1.14 lakh tonnes), papaya (0.96 lakh tonnes), watermelon (0.44 lakh tonnes), muskmelon (0.22 lakh tonnes) and gooseberry (0.16 lakh tonnes).
- In Bihar, banana is grown in around 2,000 hectares in districts like Vaishali, Katihar, Kishanganj, Bhagalpur (Naugachia) and Purnia. The Hajipur 'chiniya' variety (small size with special flavour) is very famous in the country and also exported. The 'kothia' variety of bananas, which derives its name from the Kothia village in Samastipur district is very famous in the State and now this variety is being cultivated in all the banana-producing States. Kothia banana is like the 'bluggo' group of bananas which can be used for both as a vegetable when raw and as fruit when ripe. By taking out fibre from kothia tree's virtual stem, various variety of ropes, mats and bags are being made.
- ***Bhagalpur Zardalu Aam*** and ***Shahi Litchi*** of Muzaffarpur is very famous for its taste and has got GI Tags.

Sl. No.	Fruit Crops	Major production districts
1	Banana	Madhubani, Vaishali, Muzaffarpur, Samastipur, Madhepura, Darbhanga, Bhagalpur, Begusarai, Khagaria, Saharsha, Supoul, Purnea, West Chamaparan and Siwan.
2	Mango	Darbhanga, East Champaran, Muzaffarpur, Samastipur, Vaishali, West Champaran, Bhagarlpur, Patna, Madhubani, Rohtas, Sitamarhi, Saran, Katihar and Begusaai.
3	Litchi	Muzaffarpur, East Champaran and Vaishali.
4	Guava	Nalanda, Muzaffarpur, Rohtas, Patna and West Champaran

Vegetables :

- Bihar's gangetic alluvial soil is ideal for cultivation of various vegetables such as potato, onion, tomato, cauliflower, cabbage, and brinjal. The overall acreage under vegetables marginally increased from 9.0 lakh hectares in 2020-21 to 9.11 lakh hectares in 2021-22. As of 2021--22, the total vegetable production in the State stood at 178.45 lakh tonnes, which increased from 167.69 lakh tonnes in 2019-20, registering a growth rate of 3.20 percent.
- The total vegetable production comprised - potato (90.35 lakh tonnes), brinjal (12.04 lakh tonnes), onion (13.28 lakh tonnes), cauliflower (10.31 lakh tonnes), tomato (11.62 lakh tonnes), lady's finger (7.94 lakh tonnes), cabbage (7.22 lakh tonnes), bottle gourd (6.55 lakh tonnes) and a few others.
- Since the introduction of the National Horticulture Mission in 2005, the State has seen an increase in vegetable output. The *Jaivik corridor* was implemented in 13 districts across the State along the banks of River Ganges to cultivate vegetables sustainably. Further, investments in technology is being supported for better post-harvest management of vegetables in the State.

SWOT Analysis of Bihar Agriculture

Strengths	Weaknesses	Opportunities	Threats
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<p>1. The soils are light, alluvium - derived soils mostly khaddar (recent alluvium) and hanger (Old alluvium). In many places the soils are deep, loamy and high in organic matter content and hence very suitable for intensive cultivation.</p>	<p>1. The population pressure in this region is exceedingly high.</p>	<p>1. By providing quality seed and planting material to farmers overall productivity can easily be increased 2-3 times.</p>	<p>1. Due to land tenancy laws, the operational holdings will be further getting smaller which may reduce the scope for intensive agriculture.</p>
<p>2. The state has high irrigation potential since water table is high.</p>	<p>2. Although there are Directorates of Agriculture, Horticulture, Fisheries and Animal Husbandry, but their extension services in terms of creating awareness about new technologies, conducting field demonstrations, conducting training programmes and providing latest information to farmers are very poor.</p>	<p>2. The region receives good rainfall and the water table is high. By adopting proper water management practices the entire agricultural land can be converted into irrigated land, whereby maximum benefit can be derived from the quality seed of improved varieties</p>	<p>2. The region has good rainfall but also receives floods during monsoon. Unless proper attention is given to proper soil conservation, drainage and water management programmes, the water logging and soil erosion problems may take serious turn in future and it would be difficult to maintain soil fertility.</p>

<p>3. Rice-Wheat cropping system is most predominant.</p>	<p>3. Although about 70% of the villages are electrified, but electricity is not available for more than 10 hours a day. The farmers cannot depend on electric supply for irrigation and other agricultural operations and are dependent on diesel engines.</p>	<p>3. The area has good potential of growing good quality fruits and vegetables. The region has also high population density. By adopting scientific methods of production, making best use of agricultural labour force and by using proper Post-Harvest Technology at farm/village level, the production of horticultural crops can be increased many folds.</p>	<p>3. In absence of proper storage facilities, heavy losses is being incurred, may continue in future also.</p>
<p>4. The region has good climate. Predominantly there are three seasons—hot summer (April–June), hot and humid rainy season (July–October) and cool dry winter (November–March). The growing period ranges from 180–210 days in a year. Two crops are common but with irrigation, third crop can also be taken during summer.</p>		<p>4. The region has good opportunity of seed processing activities in the production catchments for increased income and employment and to wipe out hunger and poverty.</p>	

<p>5. The region has a number of ICAR Research Institutes and their Regional Stations, Agricultural Universities, Centres of All India Coordinated Research Projects and Krishi Vigyan Kendras to support the current and ensuing programmes</p>		<p>5. Availability of high quality planting material will encourage the production of high value crops substantially.</p>	
<p>6. State has good potential for quality seed production of field crops, fruits and vegetables.</p>			
<p>7. Working force is available at cheaper rate.</p>			