

AN SURVEY ON BIHAR AGRICULTURE TOWARDS GROSS DOMESTIC PRODUCT (GDP) IN INDIA

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Abstract:

The maximum of population of Bihar is live in the villages and they have dependant on agriculture. The Bihar is the country's second most populated state. Bihar is in the 21st century without technology in the agriculture sector in among all the States of India. This state have lowest per capita income in all the all state of India. If you talk about the literacy rate is very low in compare to the major States. In this paper, we have focus on the agriculture sector of Bihar. How, it spread in bihar, such as soil distribution, technology utilization, wheater condition, crops types will be discussed in details. We have more focus on how agriculture sector of Bihar revolunized for employment and as well as agriculture production. Now the agriculture sector have been changed, with help new generation educated people come forward and revolunized this sector. We have also discussed agriculture growth and its consequence on industry sector of Bihar.

Keywords: Bihar, Economy, Agriculture, Crops, Development, Technology

Introduction:

The Bihar state of India is a landlocked state, and it has not any sea connectivity. There are no any port to access to export and import through the sea directly. Bihar occupies a mixed type climate, economy, and culture because it is located halfway between the West Bengal and Uttar Pradesh. It is bordered by Jharkhand in the south and north of this state touching to Nepal [1]. The Ganga river, which flow crossways the centre of the Bihar from west to east, but it divides into two unequal parts. Bihar is one of the most fascinating states in India because of its enormous natural resources, including its lush soil, plentiful water supply, variable climate, and rich cultural and historical legacy. In Bihar, agriculture is the main driver of wealth [2]. Its populace works in agriculture to the tune of 76%. With improved techniques and system management, Bihar's contribution to global food production in terms of grains, fruits, vegetables, spices, and flowers might expand significantly. The four seasons of the weather are the southwest monsoon (June to September), hot weather (March to May), and retreating southwest monsoon (October to November). The principal food crops are paddy, wheat, maize and pulses. Main cash crops are sugarcane, potato, tobacco, oilseeds, onion, chillies and jute [3].

Four main ago-climatic zones have been established in Bihar based on soil characterisation, rainfall, temperature, and terrain. The following are included: Zone-I, North Alluvial Plain, Zone-II, North East Alluvial Plain, and Zone-III A. Zone-III B's South West Alluvial Plain and the South East Alluvial Plain each have distinctive prospects. Despite having decent soil, sufficient rainfall, and good access to groundwater, Bihar has not yet reached the full extent of its agricultural potential. One of the lowest agricultural productivity rates in the nation, which causes rural poverty, poor nutrition, and labour migration. The development processes in the agricultural and related sectors are intended to be kicked off by this road map. Modern agricultural techniques and contract farming methods are being accepted by farmers, which is a positive development for the agriculture sector [4,5].

Nutrient present in the plant. The plant having deficiency of which nutrient. Stirring the features and electrical and electromagnetic features, the optical and radio magnetic features, the mechanical, acoustic, pneumatic and electrochemical. These are the certain principle which are used for studying the different parameters. In electrical and electromagnetic things, the electrical and electromagnetic waves are considered [6]. Call reading for taking reading about the plant. Diagnostic and pneumatic principle is basically based on the sound which is produced by the plant or wheat population or the air pressure which is present in the surrounding area. The optical and radiometric principle basically deals with the. Light which is transmitted by the plants, which is taken up by the plant or which is absorbed by the plant, the radio. Waves which are reflected back from the plants or any vegetation which is present in the soil or any vegetation which is present in the land area [7].

Mythology:

We have carefully collected the research articles and survey data from government agencies related to agriculture of Bihar. The keywords used to search research articles in reputed journal sites such as agriculture in Bihar, effect of agriculture on economy of Bihar, agriculture of Bihar affect GDP of India, Crops of Bihar, climate diversity and agriculture of Bihar. We have found that 54 journals and survey agencies data from different places. After the scrutiny of these data, we have include 22 of them, which are important to our goals. On the basis of these articles and survey data, this article is frame.

Literature Review:

The economy of Bihar state is majorly dependant on agriculture. The agriculture of Bihar dependence on different diversity of climates. Agriculture is the art, or rather the science, of cultivating soil. Growing and then harvesting. Raising of livestock is also considered to be a part of agriculture [1,3,8]. Agriculture means in the broader sense that it includes the cultivation of plants and the domestication of animals for human. Agriculture was comparatively a new practice for humans in earlier times. They used very primary tools for the cultivation of land. Before cultivation was discovered, humans used travelled miles and miles in search of food. Human biodiversity management led to the practice of domesticating plants and animals. Plants grow naturally because of the contributions made by animals like squirrels [9]. Chipmunks. They have drop seeds after eating and fruit. And eventually grows into new plants. Squirrels and chipmunks store nuts for winter. At the often forget the place their nuts eventually germinate and other cause of the creation of many such forests [10]. The international income

of our country, like India, is highly dependent on the agriculture sector of the country. As it is also one of the major contributors to our GDP i.e. gross domestic product. The livelihood of many families in India solely depends on farming. We all know, it is a very laborious occupation. India is a very prosperous country when it comes to agriculture. The climatic conditions over different parts of India are suitable for the various crop grows and because of such prosperity, around 70% of the total exports made by India. Items that are popularly exported by India are textiles, sugar, spices, tobacco, juice products, rice, etc. The condition of farmers were responsible for such prosperous agriculture in India. Even though agriculture is one of the most important aspects behind the growth of a society [3,4,11].

Precision farming proposes to prescribe. Certain management practices it will definitely include definitely improve the yield per unit of land provided natures. For improving the efficiency of inputs, improve the air. That is, after knowing their status of land, a formal price to improve each and every part of land and uses it for the production purpose. Each and every land is different. Having different chemical properties, physical properties, if we are well aware, well acquainted with all type of land feature, all type of differences present in the land, we can apply the inputs according to debt [12]. So a small amount of length can produce large, that's why the precision agriculture is needed. Here is the thing precision conservation agriculture. One is the traditional agriculture or. The traditional agriculture or it is also called as conventional agriculture. The second one is the conservational agriculture, conservation agriculture and the 3rd one, the latest one is the precision agriculture [13].

The maturity of poverty, lies and farmer families of India. The livelihood of this vast poor population depends on the land and water. But the cruelties of society and natural calamities have pushed farmers to face chronic poverty. Agriculture in India is still under development even though agricultures practice has prevailed in the country for thousands of years [3, 14,15].

Agricultural land distribution in Bihar

The Bihar is a landlock state. The 60% of Bihar state population have dependant on agriculture sector for their survival. In this state, a lot of crops have cultivated. The climate condition for the wide range of crops, grass and trees have been cultivated. The very large diversity in soil, climate, water level [16,17]. On the basis of soil characteristics, rain fall , temperature, the agricultural climates are divided into three main parts: such as Zone1, Zone2, Zone3 (A) and Zone3 (B). These zones are depicted in table I as well as figure 1.



Source: www.krishi.bih.nic.in

Fig. 1. Agriculture Zone1, Zone2, Zone3 (A) and Zone3 (B)

Table-1: Important Features of Agro-Climatic Zones of Bihar

Zones	Districts	Area in (M. Ha)			Soil	Ph	Initiation/ Cessation of rainfall	Total rainfall (mm)	Temperature (Degree Celsius)		Main Cropping Systems
		Total Area	NSA#	Irrigated					Max	Min	
Zone-1	West and East Champaran, Gopalganj, Saran, Siwan, Sitamarhi, Muzaffarpur, Darbhanga, Vaishali, Samastipur, Sheohar, Madhubani, Begusarai	3.26	2.15 (65.95)*	0.86 (40.00)**	Sandy Loam, Loam	6.5 - 8.4	12 th June/30 th Sep to 10 th Oct	1040-1450 (1245)	36.6	7.7	Rice-Wheat, Maize-Wheat, Maize-Arhar, Maize-Potato-Moong, Maize-Sweet Potato-Moong, Maize-Mustard-Moong, Rice-Potato-Maize, Rice-Sugarcane
Zone-2	Purnea, Katihar Madhepura, Saharsa Araria, Kishanganj Supaul, Khagaria,	2.08	1.21 (58.17)	0.24 (19.83)	Sandy Loam, Clay Loam	6.8 - 7.8	7 th June/30 th Sep to 10 th Oct	1200-1700 (1450)	33.8	8.8	Jute-Rice, Jute-Wheat, Jute-Rice-Wheat, Jute-Rice-Wheat, Jute-Potato, Jute-Khalai-Wheat, Jute-Potato, Jute-Khalai-Wheat, Jute-Mustard, Jute-Pea, Rice-Wheat-Moong
Zone-3 (A)	Banka, Munger, Jamui Lakhisarai, Shekhpura Bhagalpur	1.11	0.49 (44.14)	0.21 (42.86)	Sandy Loam, Clay Loam, Clay	6.8 - 8.0	15 th June/30 th Sep to 10 th Oct	990-1240 (1115)	37.1	7.8	Rice-Wheat, Rice-Wheat-Moong, Rice-Gram-Rice, Rice-Potato-Onion, Rice-Rai-Moong, Rice-Bar seem, Rice-Wheat-Moong, Rice-Wheat, Rice-Gram-Rice, Rice-Gram-Moong Rice-Gram-Moong, Rice-Wheat
Zone-3 (B)	Patna, Gaya, Jahanabad, Nawada, Nalanda, Rohatas, Bhojpur, Aurangabad, Buxar, Kaimur, Arwal	2.92	1.68 (57.53)	1.37 (81.15)							
Total	Bihar	9.37	5.53 (59.02)	2.68 (48.46)							

Source: Data based on compiled from ministry of agriculture, Government of Bihar
 Note: * Figures in parenthesis are % to geographical area. ** Figures in parenthesis are % to net area sown. # NSA: Net sown Area

Agriculture effect on economy:

The economy of Bihar state totally depends on agriculture. Because 60% of total population dependant of agriculture for their livelihood. The climates and physical situation are very much supportive to agriculture. Because of a lot of variety of crops are cultivated in Bihar state [18]. Therefore, the agriculture sector play an important role in economy of Bihar state. The growth in agriculture sector and that effect on industries in Bihar. In 2019-20, the Cropped Area was 72.97 lakh hectares and it is ceasing by 144. As of 2020-21, food grain production has been

estimated in highest range at of 17.95 lakh tonnes. The agriculture department of Bihar launch a BIHAN mobile application [18]. This application help to farmer in rural areas. With the help of this application government scheme have directly reached to the farmer through this BIHAN mobile application. In recent time government try to connect the agricultural production make inputs for industries. Because of this reason and through mobile application, industrial development in Bihar has grown very rapidly. In recent time one famous slogan has been published the grain producer farmer can converted in energy producer farmer. The Bihar state has making various policies for established connection between agriculture sector and industries [19]. From these initiative, there are three revolution industries process have been done. These three attractive industries such as production of ethanol, food processing, and renewable energy. Till December, 2021, The ethanol industries in Bihar is stressing very rapidly. It is in first stage clearance for 159 units and approximately investment worth Rs 32,454 crore. The ethanol production in Bihar has been formulated by the State Government Ethanol Production Promotion Policy 2021 [20].

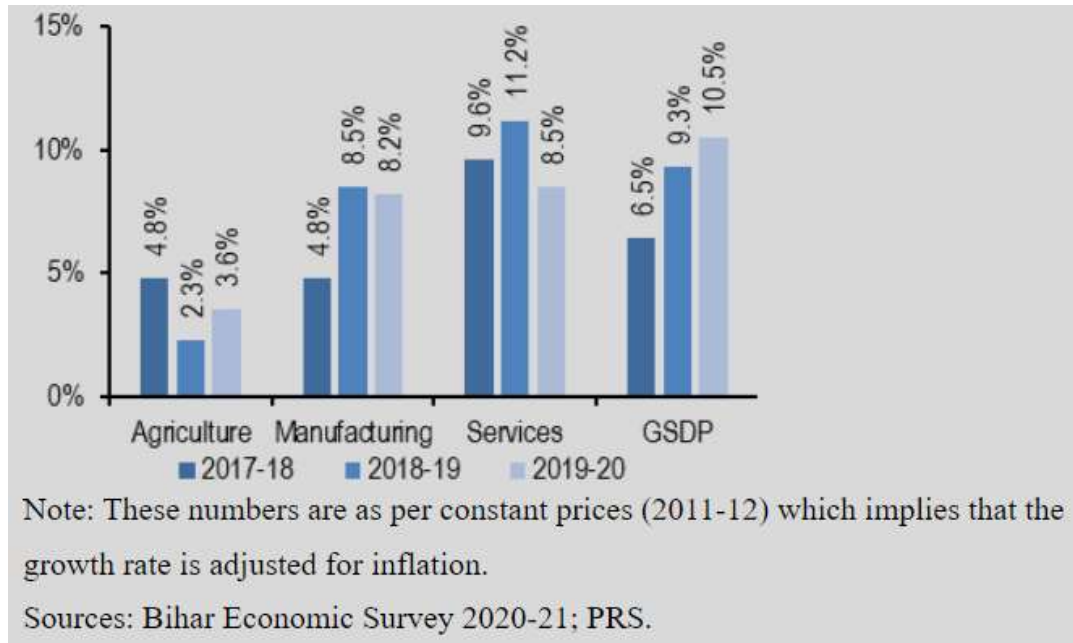
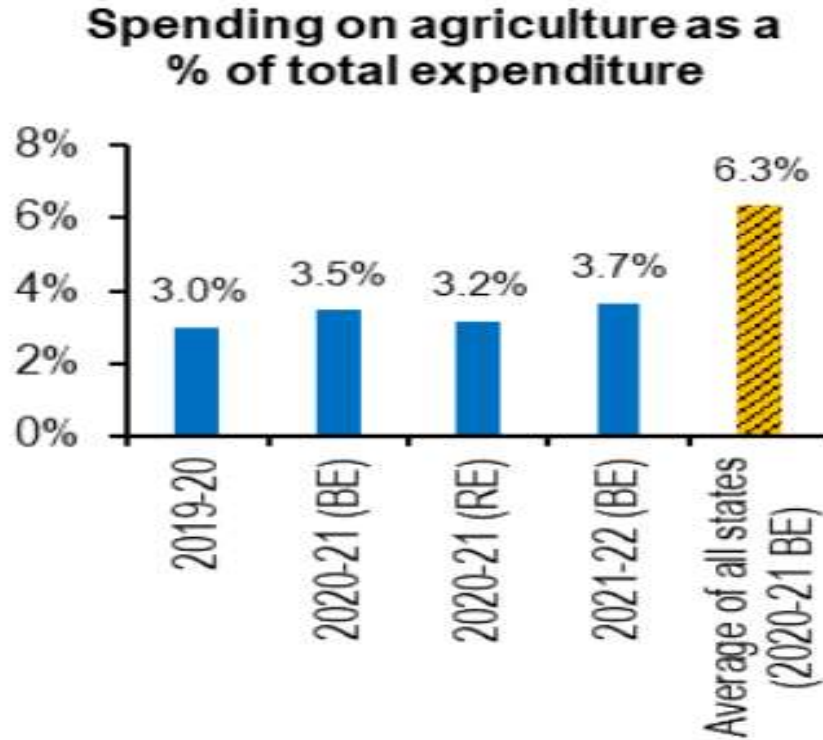


Fig. 2. Growth rate of Bihar's GSDP and sectors in Bihar

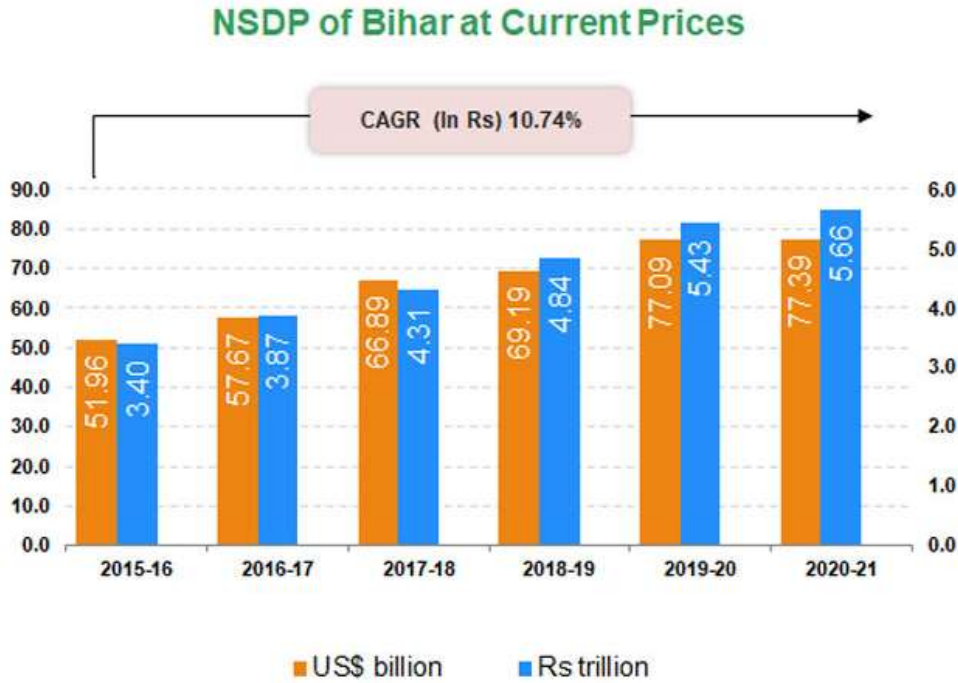
The contribution of agriculture sector is important. The agriculture contributes 20%, manufacturing is 20%, service have heavy contribution as 60%. The per capita income in Bihar in 2019-20 was Rs 34,413, 8.8% more than the comparable figure in 2018-19. The unemployment of rate between all age groups in Bihar was 10.2%. [21]



Sources: Bihar Budget in Brief 2021-22; various state budgets; PRS.

Fig. 3. Expenditure on agriculture of Bihar state.

The agriculture expenditure in 2022-23 is projected to be Rs. 7.45 trillion of Bihar state. The Bihar has seen great development in per capita net state domestic manufactured goods. The national state domestic prices, the state grew at a 2020-21 [3].



Source: Ministry of Statistics & Programme Implementation

Fig. 4. National state domestic prices of Bihar state.

In terms of agriculture, Bihar is one of the nation's strongest states. In Bihar, the population is employed in agricultural production to a degree of about 60%, which is significantly greater than the national average. In India, it is the eighth-largest grower of fruits and the fourth-largest producer of vegetables. Some of the industries in the state that are expanding quickly include manufacturing, healthcare, dairy, sugar, and food processing. In addition to providing incentives for projects involving information technology and renewable energy, the state has planned measures for the growth of other industries, including tourism and education [3,11].

Challenges:

There are several challenges in agriculture sector of Bihar [22]. These are as follows:

- i. **Seeds**
- ii. **Irrigation**
- iii. **Land**
- iv. **Fertilizers and pesticides**
- v. **Mechanization**
- vi. **Insurance**
- vii. **Post harvesting loss.**
- viii. **Proper Transportation**
- ix. **Storage of grains, etc.**

These challenges are very important to address in futures. If these challenges will be address properly, the productivity of our farmers will increase. The research community and engineers have to address these challenges for betterment of farmer.

Conclusions:

Future this is the power of agriculture. Our country is an agricultural land. 60% of people belong to agricultural background. The maximum of population of Bihar is live in the villages and they have dependant on agriculture. The Bihar is the country's second most populated state. Bihar is in the 21st century without technology in the agriculture sector in among all the States of India. The agriculture sector also affects its allied sector such as dairy firm, sheep, goat, poultry, fisheries, horticulture and sericulture. These allied sectors give huge numbers of employments in rural areas. The rural areas changes but still speed is very slow. Because rural areas developments are totally depends on agriculture and its allied sectors. There are so many challenges in agriculture sector or its allied. There is lack of technology in this sector. We have increase the productivity of agriculture and its allied sector, to work on above mentioned challenges.

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