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Aiding the Future of India's Farmers and Agriculture

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For kind attention of:

The Hon'ble Prime Minister's Office,
the Ministry of Agriculture and Farmers' Welfare,
and all others interested

On Critical Policy Issues in India's Agricultural Economy

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Contents

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Recommendations

- Even though Tamil Nadu performs well in 'More Crop per Drop' scheme in the country, only 10 percent of the State's sugarcane acreage is under drip-irrigation (Department of Agriculture, Government of Tamil Nadu). For a state that is already water-starved, this number is pretty low. Hence, initiatives on proper irrigation management would enable the scope and increase the production of sugarcane in the state.
- The sugarcane dues based on FRP value should be paid by the government to the farmers directly. The amount paid can be converted into a soft loan and recovered from the mill when the turnaround happens.
- SISMA has suggested the government to allow a one-time measure to co-gen plants that are installed inside the sugar mills. As the mills are operating on just a third of their capacity, power production is also lower. Allowing the mills to use coal for some years and backing up with power purchase agreements will ensure the mills are operating their assets which will also help to restart the cash flow.
- High-yielding and short-duration varieties of sugarcane should be introduced, which will enhance sugarcane cultivation in the state.
- The farmers should be given the freedom to supply sugarcane to any mill of their choice, at a price negotiated between the sugar mills and the farmers.
- The government should take efforts to ensure that at least the outstanding SAP dues from the co-operative mills are paid to the farmers.
- Apart from revising the minimum selling price, the government should also come out with a revenue-sharing formula for sugarcane price.
- Tamil Nadu mills should be exempted from the mandatory exports and the norms for subsidy schemes should be relaxed to benefit the mills in the state.
- In order to minimize the labour costs, the farmers need to be trained on mechanized farming operations and such facilities should be made available to them.

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Bridging the Yield Gap in Wheat in Bundelkhand Region of Madhya Pradesh

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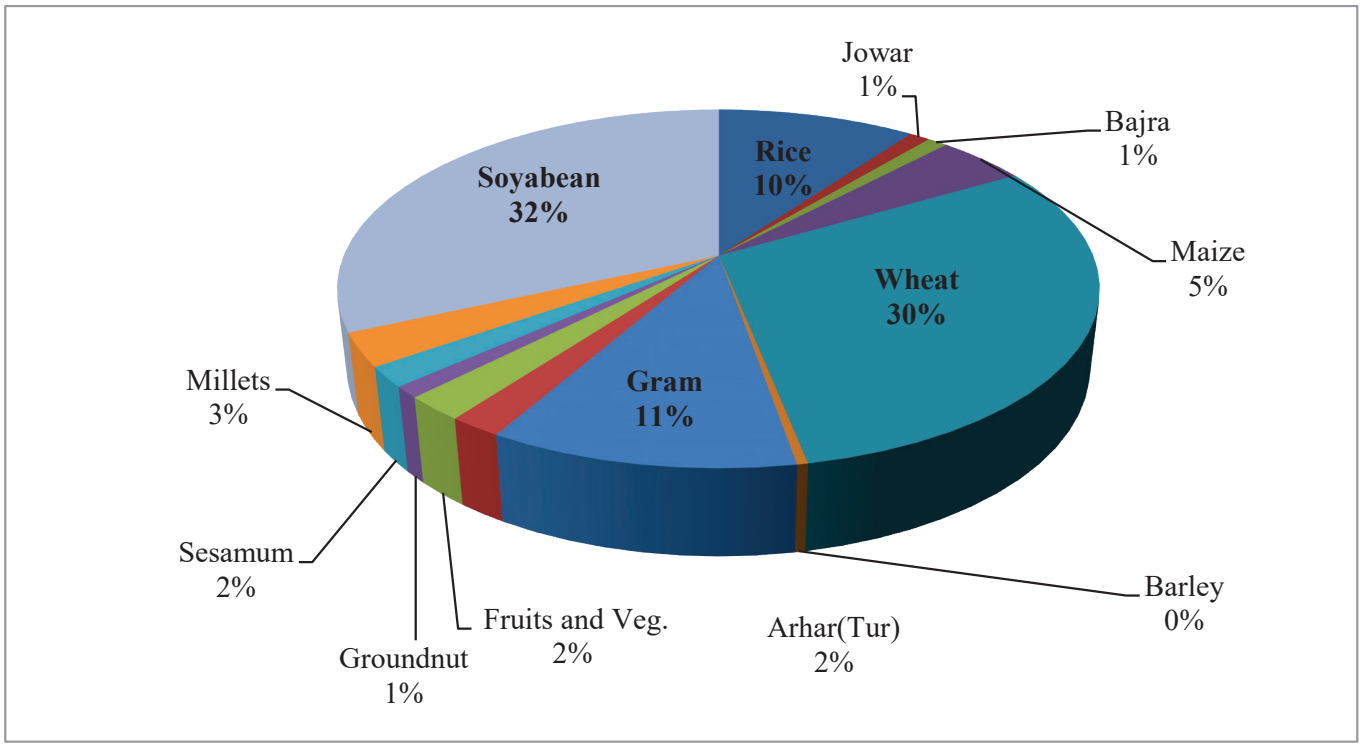
Introduction

- Improving crop yields is essential to meet the increasing demand for food driven by the increasing population and income growth in the 21st century. Increasing agricultural productivity or yield is critical to economic growth and development. This can be achieved by using improved agricultural technologies and proper management of techniques. Adoption of agricultural technologies differs from farmer to farmer which depends on both mental acceptance and the use of new agricultural technologies. Adoption can be achieved by using high yielding management practices. Minimizing yield gaps in major crops by using optimal management practices may lead to improvements in production, while offering both environmental benefits and economic value.
- The yield gaps are caused when the farmers are unable to apply critical inputs according to the recommended levels. The yield gap between on–farm demonstrations and actual farm yield has failed to show appreciable reduction over the past two decades. Assessing the yield gaps in major field crops can help us understand yield variability, yield potential, and the input use efficiency of major crops and may indicate appropriate pathways for improving agricultural efficiencies and farm income.
- Farmers in Madhya Pradesh used to cultivate wheat at commercial level by the information and technological backstopping of Agricultural Universities, Department of Agriculture and Krishi Vigyan Kendras. However, there were still yield gaps (YG) I (between potential & highest), (YG) II (between highest & average farm yield) & (YG) III (between potential & average farm yield) of 1.1 percent, 26.0 percent & 26.8 percent.
- The present study was carried out mainly to analyze the yield gap of wheat crop grown by the cultivators in different size of farms, determine factors affecting productivity of wheat crop, identify various socio-economic, technological constraints of wheat crop, and to suggest policy implications to narrow down the yield gap.

- A field survey was conducted, multistage random sampling was used and in the 1st stage, two districts namely Panna and Datia were selected on the basis of high yield gap and low yield gap, respectively. In the 2nd stage, one block from each district was selected based on maximum area covered under the crop during Rabi season (Figure 1).
- In the 3rd stage, a cluster of three to five villages was selected from each block and finally at 4th stage, a list of small (less than two hectares), medium (two to five hectares) and large (greater than five hectares) wheat growers was prepared and from that list 10 small, 10 medium and 10 large farmers were selected randomly. Thus in all, 60 farmers (30 from each district) were selected for the study and primary data pertaining to the year 2018-19 was collected from the respondents.

Figure 1: Percentage Share of Different Crops in Net Area Sown in the Bundelkhand Region of Madhya Pradesh.



Source: *AERC Jabalpur.*

Findings

- Wheat was found to be the major Rabi crop grown in Bundelkhand region. The yield gap analysis of wheat for the State was carried out and results are presented in table 1.

Table 1: Yield Gap of Wheat (quintals/acre).

Particulars	Small Farms	Medium Farms	Large Farms	Overall
Potential Yield	23	23	23	23
Average Yield	16.5	15.7	16.2	16.1
Highest Yield	19.1	21.7	20.2	20.3
Yield gap-I	3.9 (16.9)	1.4 (5.9)	2.8 (12.3)	2.7 (11.7)
Yield gap-II	2.6 (13.7)	5.9 (27.3)	4 (19.9)	4.2 (20.3)
Yield gap-III	6.5 (28.3)	7.3 (31.6)	6.8 (29.7)	6.9 (29.9)

Note: *Figures in parenthesis show yield gap in percentage.*

Source: *AERC Jabalpur.*

- A considerable yield gap (III) of 29.9 percent between potential (23 quintals/acre) and average farm yield (16.1 quintals/acre) was found on an average wheat grower's farm. Out of this total yield gap (yield gap-III), a gap of 11.7 (yield gap-I), and 20.3 percent (yield gap-II) was found between potential (23 quintals/acre) & highest farm yield (20.3 quintals/acre), and between highest & average farm yield (16.1 quintals/acre), respectively.
- The yield gap-I denotes that Recommended Packages and Practices (RPP) for wheat production have not been transferred fully to an average wheat grower's farm due to soil and climatic difference in experimental field and farmer's field, while yield gap - II was found due to various socio-economic constraints present in the study area. The yield gaps (II & III) were found to be less in small sized farms as compared to other farms, while yield gap - I was found to be less in medium sized farms.
- The yield of wheat crop was determined by the variables such as source of seed, soil test, seed rate, seed treatment, varietal improvement, urea, DAP, irrigated land and size of holding and a multiple regression was performed with the above mentioned variables.
- The results obtained showed that the response to soil test & seed rate were found to be positive and highly significant, source of seed, application of urea and DAP and irrigated land were found to be positive and significant except the size of holding which was found to be negative and significant. Seed treatment was found to be negative but non-significant. This indicates that application of fertilizers (Urea & DAP) by the respondents based on soil test values with proper seed rate under irrigated land contributes in enhancing the productivity, while with the increase in size of holding of respondents the productivity was found to decline.

Figure 2: Different Wheat Varieties Being Examined by an Agricultural Scientist.

Source: *www.bit.ly/2NBqPuD*

- The major constraints faced by the respondents were - high cost of inputs (73.33 percent), lack of knowledge about method of seed treatment (70.00 percent), lack of knowledge about proper doses of fertilizers (70.00 percent), and unavailability of desired variety of seeds (68.33 percent) followed by unavailability of capital (51.67 percent), unavailability of electricity on time (45.00 percent), lack of labour during the peak operational period (43.33 percent), lack of suitable machinery (35.00 percent), low germination of seeds (23.33 percent), and lack of proper knowledge of packages of practices (21.67 percent) (Table 2). This shows that the most critical constraints reported by the respondents should be minimised.

Table 2: Constraints in Adoption of Recommended Packages of Wheat by Small, Medium and Large Wheat Growers (in percentage).

Particulars	Small	Medium	Large	Overall
Low germination of seed	30.00	20.00	20.00	23.33
Un-availability of desired Variety of seed	75.00	85.00	45.00	68.33
Lack of suitable machinery	40.00	50.00	15.00	35.00
Lack of knowledge about method of seed treatment	85.00	80.00	45.00	70.00
High cost of inputs	85.00	75.00	60.00	73.33
Lack of knowledge about proper dose of fertilizer	80.00	75.00	55.00	70.00
Un-availability of capital	65.00	45.00	45.00	51.67
Un-availability of electricity on time	65.00	45.00	25.00	45.00
Lack of labour during the peak operational period	45.00	55.00	30.00	43.33
Lack of proper knowledge of packages of practices	20.00	30.00	15.00	21.67

Source: *AERC Jabalpur.*

Recommendations

- The yield gap should be narrowed down by the demonstrations of full package of practices for wheat crop on the farmers' fields.
- Special emphasis must be given on seed treatment, recommended doses of fertilizers, and the use of quality seed material of improved varieties.
- Practices such as crop rotation, varietal diversification as well as varietal replacement rate are required to be improved for maintaining the yield at higher level on a continuous basis for burgeoning population.

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Factors in Farm Labour Scarcity in Bihar

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Introduction

- In India, the percentage of people employed in agriculture has declined from 69.7 percent in 1951 to 54.6 percent in 2011. Going by National Sample Survey Office's (NSSO) periodic surveys, it is revealed that 30.6 million agricultural labourers left this sector during the period of 2004-05 to 2011-12. Further, Labour Force Participation Rate (LFPR) went down from 39.5 percent in 2004-05 to 36.9 percent in 2017-18, and the unemployment rate stood at 6.2 percent during 2017-18, i.e., at 45 years' high rate. The unemployment rate was 2.2 percent in 2011-12.
- Even though it is true that as economy progresses and matures, there is a movement of agricultural workforce to other sectors. The challenge is to generate more employment for those engaged in low productivity jobs, such as, agriculture. The percentage of people employed in agriculture has reduced by 18.7 during 1999-2000 to 2019-20. This reduction is the outcome of a cumulative effect of similar declines across all major states. The major contributors are Uttar Pradesh (-20 percent), Karnataka (-27 percent), West Bengal (-24 percent), Bihar (-17 percent) and Rajasthan (-20 percent). As per census reports released during 1981 to 2011, 12 percent reduction in agricultural workforce was witnessed in Bihar.
- In view of the above, a study relating to farm labour scarcity in Bihar was undertaken from four sample districts, drawn one each from the existing agro-climatic sub-zones in the state, covering a total of 400 units of samples (proposed) comprising cultivators and landless agricultural labourers surveyed during reference period 2018-19. The findings and suggestions are based on survey of one district that comprised a sample of 100.

Figure 1: Agricultural Labourers Working in Paddy Fields.

Source: *www.bit.ly/2CxbAfH*