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For kind attention of:

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the Ministry of Agriculture and Farmers' Welfare,
and all others interested

On Critical Policy Issues in India's Agricultural Economy

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Onion Price Volatility: Issues and Strategies

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Introduction

- Onion is a politically-sensitive commodity and is one of the most closely monitored agricultural commodities produced in India, as prices of onion have direct bearing on the common consumer's basket. The Government of India has recently banned all onion exports (on September 29, 2019) after the local wholesale prices jumped to Rs. 4,500 per quintal and the retail prices ranged between Rs. 80-100 per kg in most of the metro cities, their highest in nearly six years, due to the delay in summer-sown crop arrivals triggered by longer, heavier rains than usual. As per the Government's directions, retail traders across the country will now be able to stock only up to 100 quintals of onion while wholesale traders will be allowed to stock up to 500 quintals. In the past, the Centre had authorised states to impose stock limits but this time it has imposed the limits on its own.
- As onions have no substitutes, demand for it is completely inelastic. It is exported in the form of dehydrated onion, canned onion and onion pickle. Dehydrated onions are seen as a potential valued product in world trade and India is the second largest producer of dehydrated onions in the world. India exported fresh and chilled onions worth \$496.82 million in 2018-19. Exports were worth \$154.50 million in the first four months of 2019-20.
- India is the second largest producer of onion in the world after China with an annual production of about 24 million metric tonnes from an area of around 1.3 million hectares, accounting for 22 percent share in the total world onion production in 2017. The country is also the major consumer of onion with an annual demand of 16.50-18.00 million metric tonnes. Even though India holds premier positions in area and production, the productivity of onion (16 tonnes/hectare) is very low compared to other countries. The inherent lower productivity in sub-tropical countries vis-à-vis European countries, shortage and high prices of quality seeds, high incidence of pests and diseases typical under tropical conditions, moisture stress or excess rains during critical growth stages are the major factors constraining yield.
- In India, onion is mainly grown in three crop seasons, Kharif (harvested in October-November), late Kharif (January-February) and Rabi (April-May). Two-thirds of the total onion is produced in Rabi season followed by late Kharif and Kharif season (Table 1). Major producing states are Maharashtra, Karnataka, Madhya Pradesh, Andhra Pradesh, Bihar, Gujarat, Rajasthan and Haryana, which together account for 85 percent of the total production.

Table 1: Season-wise Onion Production in India.

Season	Agriculture Year: July-June		Production in Million Tonnes		
	Transplanting	Harvesting Period	2013-14	2017-18	2018-19*
Kharif	July - August	October - December	3.2 (15.24)	3.5 (15.09)	3.6 (15.25)
Late Kharif	October - November	January- March	4.2 (20.00)	4.6 (19.93)	4.7 (19.92)
Rabi	December - January	End of March to May	13.6 (64.76)	15.1 (65.09)	15.3 (64.83)
Total			21.0	23.2	23.6

Notes: *- first advance estimates; figures in parenthesis are percentages to total.

Source: Government of India (2019).

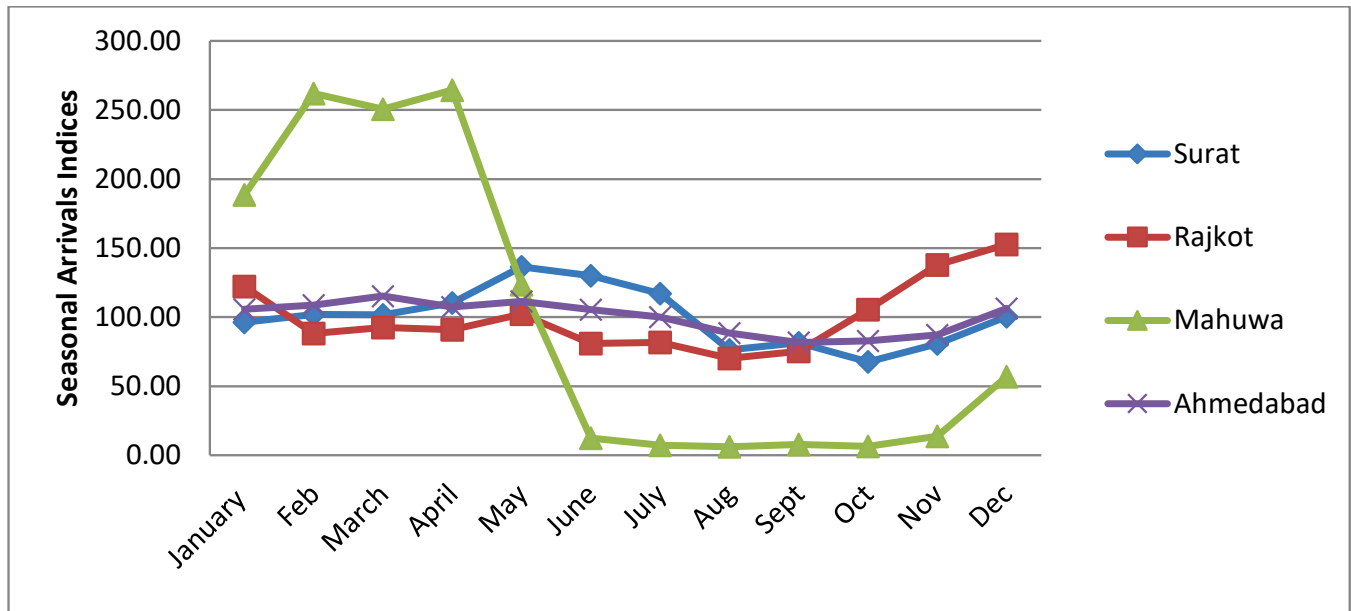
- Due to its highly volatile prices, during May 2014, Central Government brought onion under the Essential Commodities Act, 1955 imposing stock holding limits. Despite of the same, wide variation in average wholesale prices of onion are recorded every year. The high fluctuation in prices of onion can be attributed to hoarding by traders with expectation of price rise, higher retailers' mark up, and lack of proper forecasting system. Further, delay in summer-sown crop arrivals triggered by longer, heavier rains than usual also sparks the prices of onion.

Findings

- The monthly seasonal indices were calculated in order to ascertain the long run seasonal variations in arrivals and prices of onion in Gujarat. The results revealed the existence of seasonality in the selected lead regulated markets (Rajkot, Surat, Ahmedabad

and Mahuwa) of onion in Gujarat. Higher indices of market arrivals of onion were noticed immediately after harvest in the selected markets. The higher market arrival indices were observed (more than 100) in the months of December to April and lower arrival indices were found during July to November (Figure 1).

Figure 1: Seasonal Arrivals Indices of Selected Markets of Onion.

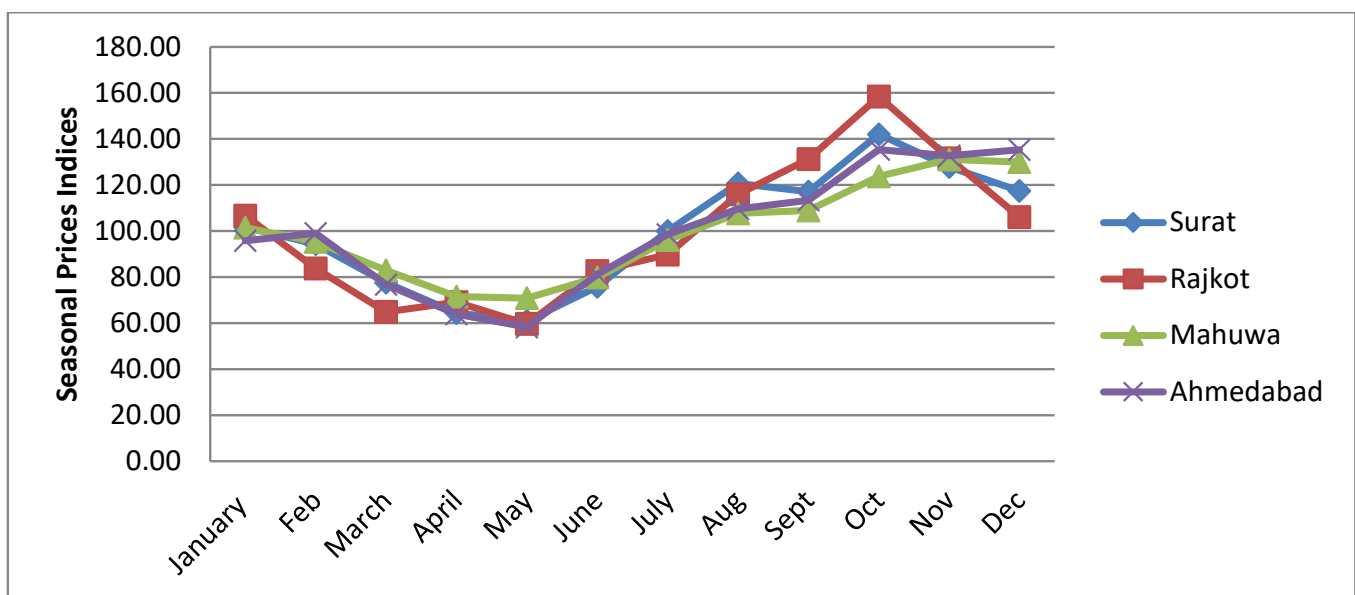


Source: AERC Vallabh Vidyanagar, Anand.

- The pattern of market prices showed slight differences among the selected markets (Figure 2). Price indices were more than 100 in the months of August to January. Lower indices were observed during May. The majority of the produce was sold soon after the harvest probably for want of cash or

lack of storage facilities. The price movement also demonstrates significant seasonal fluctuations in the selected markets. As short term fluctuations, one will notice a general finding that the price is low when the arrivals were large and the price being high when the arrivals were low.

Figure 2: Seasonal Prices Indices of Selected Markets of Onion.



Source: AERC Vallabh Vidyanagar, Anand.

- Presently, heavy monsoon that damaged crops has caused a sudden spike in onion prices. Heavy rains in Southern states, Madhya Pradesh, Uttar Pradesh, Gujarat and Maharashtra has damaged the crops and the new onion crop that comes in September has been delayed by a month. The situation is expected

to remain the same for at least a month. The data shows that there is a deficit of about 40 percent in onion supply this year and unable to cope with the demand, prices have shot up (Table 2). Even if the government decides to import onion, the stock will take up to a month to arrive.

Table 2: Year-wise Onion Arrivals in All India APMC Markets.

Year	Total Arrival (Quintal)	Min Rate/Quintal (in Rs)	Max rate/Quintal (in Rs)	Avg Rate/Quintal (in Rs)
2015	3,830,895	2,623	4,542	3,848
2016	6,512,992	518	907	724
2017	5,740,151	1,124	1,833	1,548
2018	6,048,971	874	1,278	1,099
2019	3,152,852	2,011	2,956	2,613

Source: National Horticultural Research and Development Foundation (NHRDF)

- Based on econometric analysis and current market situation, it was revealed that the prices of onion during November and December, 2019 may remain in the range of wholesale prices of Rs. 1600 to Rs. 2200 per quintal. Prices of onion may spike during next couple of months due to high demand during festival season.
- Further, it was found that some traders, after making purchases from farmers sometimes stored onions instead of immediate sales in the anticipation of higher prices. Commission agents also indicated that they stored onions. However, when an attempt was made to find out the quantity stored by them, they were very reluctant to disclose the quantity stored and only complained of transport bottlenecks because of which they were forced to store.
- Meeting with traders revealed that it is mostly the retailers who charge higher prices than warranted to the consumers. There is no regulation on prices charged by retailers and at times their rates are exorbitant, especially when the produce is in short supply.

Conclusions and Recommendations

- High inflation of food commodities cannot always be attributed to exogenous shocks and mismatch of demand and supply, it can also be caused by market inefficiencies, weak supply chains and monopolies in the market. State Governments must act against hoarders. Central government must reduce transportation bottlenecks by making available railway wagons/racks for transport of onions. Besides, there is a need to create regional storages to cater to the needs of the region as per requirement.
- The available regulated markets are inefficient to

handle the buffer produce of onion. Further, farmers face major difficulties to sell out their produce due to inadequate facilities at market and inappropriate steps at Agricultural Produce Market Committee (APMC) level for efficient marketing of produce. Therefore, appropriate policy decisions and arrangements should be made for remunerative price benefits to onion growing farmers in order to safeguard their interest in production of onion. National Agricultural Cooperative Marketing Federation of India (NAFED) or other notified procurement agencies should procure at least five percent of onion produce from the open market and should store it.

- There is also a need to increase productivity by making available quality seeds (suitable to soil and weather condition) to the farmers at reasonable rate by the concerned State Agricultural Universities/ State Seed Corporations.
- The total storage loss in onion in different storage structures is estimated to be about 15 percent. Effective crop planning and creation of post-harvest management infrastructure for onion will go a long way to solve the issues related to onion supply chain. Efforts should be made to improve the present post-harvest processing and storage systems and educate the farmers and traders in handling/processing the produce hygienically and efficiently.
- It was observed in the study that most of the onion crop is sold in APMC and farmers preferred this channel because they were familiar with the system which was practiced over the years and also received timely payments. Marketing infrastructure in Mahua market was very good, whereas at other places, infrastructure upgradation was required. Further, agricultural marketing extension systems need to be strengthened.

- Dry products of onion need to be promoted in the market. An adequate number of processing/dehydration units need to be installed to increase the onion demand in market. Awareness about use of dried/dehydrated onion among the consumer should be increased through consumer awareness programmes.
- Advance information on weather should be made available to farmers by the nearby Meteorology department of Agricultural Universities. Crop insurance facility should also be provided to the farmers.
- Farmers suggested that in case price of onion falls to unduly levels, the government must step in and purchase the produce to avoid distress sales. Market Intervention Scheme (MIS) should be implemented in time as and when prices drastically fall below the minimum level.
- The difference in freight charges at different ports should be removed. Proper storage facilities at port on minimal rate should be provided. Loan arrangement at subsidy rate on the basis of quantum of export should be provided to the exporters.
- If export orders are timely dispatched, it is possible that volume of exports may increase which will benefit the farmers. It was found that a large number of exporters meet their export requirements from APMCs in Bhavnagar and Junagarh. However, their produce is often not cleared at port for three to four days. They, therefore, refrain from entering the local markets till their export commitments are dispatched. Since supply is choked up, exporters do not enter the market till their consignments are dispatched leading to a fall in price.
- Farmers normally store onions in *meda/chawls* (temporary storage structures) to benefit from lean season rise in prices. However, this method of storage leads to deterioration in quality, spoilage and shrinkage and losses of about 30-40 percent. Hence, there is an urgent need for technology such as well-designed cold storage which will enable the crop to remain in the same condition without spoilage or shrinkage. This will further help to even out supplies throughout the year and lead to better production planning of the crop and more stability in prices.
- Onion cooperatives and Farmer Producers Organizations (FPOs) must be encouraged to form and work in the study area because presence of cooperatives would help the farmers to receive better prices and help prevent collusion amongst traders so they do not bid beyond a certain price and also discipline prices.
- Besides, FPOs should be promoted to create required storage structures with support of subsidy. Government should assign the work, provide revolving fund or help for pledge loan and compensate interests.
- Sprouting of onion during storage in high humidity and low light conditions is a major constraint leading to huge losses to the farmers/traders. Irradiation, a cold preservation method is highly effective in controlling sprouting of onion. The Central Government had approved irradiation of onion, potato and spices in 1994 for internal marketing and consumption. Department of Atomic Energy (DAE) has also set up two 500 kg/hr capacity demonstration plants at Lasalgaon and Navi Mumbai in Maharashtra. Commercial units have also been set up in Karnataka and Rajasthan. More such facilities need to be created to arrest large spoilage of onion in the country.

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Declining Trend in Tamil Nadu's Sugar Industry

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Introduction

- India is the second largest sugarcane producer in the world and the nine most important sugarcane producing states in the country are Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh, Gujarat, Bihar, Haryana and Punjab. For four consecutive years Tamil Nadu has been facing severe shortages of water because of monsoon failure, due to which the State has lost its position from 4th largest sugar producer in the country in 2012 to 8th position in 2018-19.
- According to the Indian Sugar Mills Association, sugarcane cropping area in Tamil Nadu has decreased to about 2.30 lakh hectares in 2019-20 from 2.60 lakh hectares in 2018-19 (12 percent fall from the previous year). This is mainly due to deficient rainfall

in major sugarcane growing districts during North-East monsoons of 2018. Sugar production is also expected to decline to around 7.50 lakh tonnes in 2019-20 as against 8.60 lakh tonnes expected to be produced in 2018-19. The yield has also recorded

some decline during the last four years (Table 1). Thus, the sugarcane has witnessed decline in terms of area, production and yield until 2017-18 and is expected go down further in 2018-19.

Table 1: Area, Production and Yield of Sugarcane in Tamil Nadu.

Year	Area (lakh hectares)	Production (million tonnes)	Yield (in ton/hectare)
2011-12	3.46	38.57	111.37
2012-13	3.47	33.91	97.68
2013-14	3.13	32.45	103.57
2014-15	2.63	28.09	106.79
2015-16	2.52	25.49	101.06
2016-17	2.18	18.98	86.99
2017-18	1.84	16.56	90.11

Source: www.data.gov.in

- There are various reasons for this trend and some of them are shrinkage in the area of cultivation, droughts and erratic monsoons, unsatisfactory sugarcane price fixed by the government, a fall in yields and rising labour costs among others.
- Many districts in the state are facing water shortages. Such conditions have affected this sector in two ways. First, the drought situation lowers the output per acre hence lowering the yield. Second, due to the poor quality of sugarcane, the juice content during crushing is relatively lesser which in turn affects the margin of sugar mills.
- The state government has fixed Fair and Remunerative Price (FRP) of Rs. 2750 per ton of sugarcane with a recovery of 9.5 percent (that is, the farmer will make Rs. 2750 per ton if 95 kgs of sugar is produced from every 1000 kgs of sugarcane). The average recovery rate in the state is 8.9 percent which means that the farmer gets Rs. 2612.50 for every ton of sugarcane.

Figure 1: A Sugarcane Farmer with the Harvest.



Source: www.bit.ly/2K8NCeO

Findings

- The poor quality of sugarcane has hit the capacity utilization. In the last two seasons, the capacity utilization averaged just over 30 percent which increased the sugar production cost by Rs. 4 per kg. Fall in recovery pushed production costs by another Rs. 8 per kg. Thus, production cost of 1 kg of sugar in Tamil Nadu is Rs. 46 per kg as against an all-India average of Rs. 34 per kg. The government has fixed minimum selling price of Rs. 31.50 per kg of sugar; so the shortfall that mills face is around Rs. 15 per kg.
- As lower sugarcane availability also reduces molasses output and co-generation of power, they could recoup only Rs. 7 per kg from by-products leaving a gaping hole of Rs. 8 per kg. Finally, the manufacturer sells it for Rs. 31 as the oversupply of sugarcane from Uttar Pradesh and Maharashtra has reduced the sugar prices further. Crashing sugar rates has given the sugar industry a great fall, pushing into uncertainty lives of 30,000 mill workers, 1.5 lakh direct employees and affecting livelihoods of about five lakh sugarcane farmers. Many sugarcane cultivating farmers have started cultivating short-term crops like pulses, millet and banana.
- A direct subsidy is given by the central government only if the mills meet all the directives of the government including export quota announced for each mill. The mills in Tamil Nadu, numbering about 34, face a peculiar situation of low capacity utilization (35 percent) due to a reduction in sugarcane production. The mills cannot export sugar as the production (7.2 lakh tonnes) is not adequate even to meet the needs of the State (18 lakh tonnes) and the state mills do not export hence they are not eligible for such support schemes.
- Nine sugar mills – eight privately owned and one in the cooperative sector are not going to crush sugarcane this season due to non-availability of sugarcane and to reduce cost of operations. The remaining mills will operate their plants at about one-third of their capacity. At least 13 of the sugar mills in the state run the risk of being shut down as part of bad loan recovery process. This is the current status of sugar industry in Tamil Nadu.
- The problems torturing the sugarcane industry have been compounded leading to a fall in production, which has affected sugarcane crushing activity and which in turn, has impacted output, with mills unable to pay the farmers the State Advised Price (SAP). The SAP was based on the FRP fixed by the Central Government and was generally over and above FRP.
- Under the Sugarcane (Control) Order, 1966, payment for sugarcane procured by 'a producer of sugar or his agent' must be made within 14 days of procurement. Beyond that, interest is applicable at the rate of 15 percent per annum. Further, any given mill should not fall within a 15 km radius of another mill. Each sugar mill is given a 'Cane Command Area', within which it should procure from farmers at the price mandated by the government. Farmers in the area should also sell their produce only to the corresponding mill.
- According to the latest data released by the Ministry of Consumer Affairs, the co-operative and public sector sugar mills have SAP arrears of Rs. 348 crores and the same information for private mills is not clear as they don't provide any update to the State Government.
- The South Indian Sugar Mill Association (SISMA) is struggling to generate enough cash to even meet the fixed costs with the sugarcane-growing areas having witnessed deficit rainfall for the last four years. When production declines, it leads to a fall in the quantity of sugar and ethanol and co-generation of power (which uses waste after sugarcane is crushed as feedstock to generate power) for the mills.
- E.I.D. Parry, a largest sugar producer in the state has switched off three units (two in Tamil Nadu and one in Puducherry) due to the shortage of sugarcane. Drought in the state has brought down production of sugar in its plants and hence the production has to be stopped. The Company has posted a net loss of Rs. 53.12 crores in the quarter ended June 30, 2019, as against a net profit of Rs. 54.43 crores registered in the same quarter last year. Its total income declined by 13 percent to Rs. 406.99 crore compared to Rs. 467.95 crores during the same quarter last year. It has also been estimated that next year more than half the mills will fold up.
- Thiru Arooran Sugars Ltd. and Sakthi Sugars Ltd. are the other major producers that are facing the same problem and are staring at bankruptcy after failing to pay their loans. The sugar manufacturers' boards have also approved the sale of assets to meet the dues of creditors. Further, the financial distress could force the company to spell part of its co-generation unit.
- If this situation continues, Tamil Nadu will soon be erased from the country's sugar industry map.

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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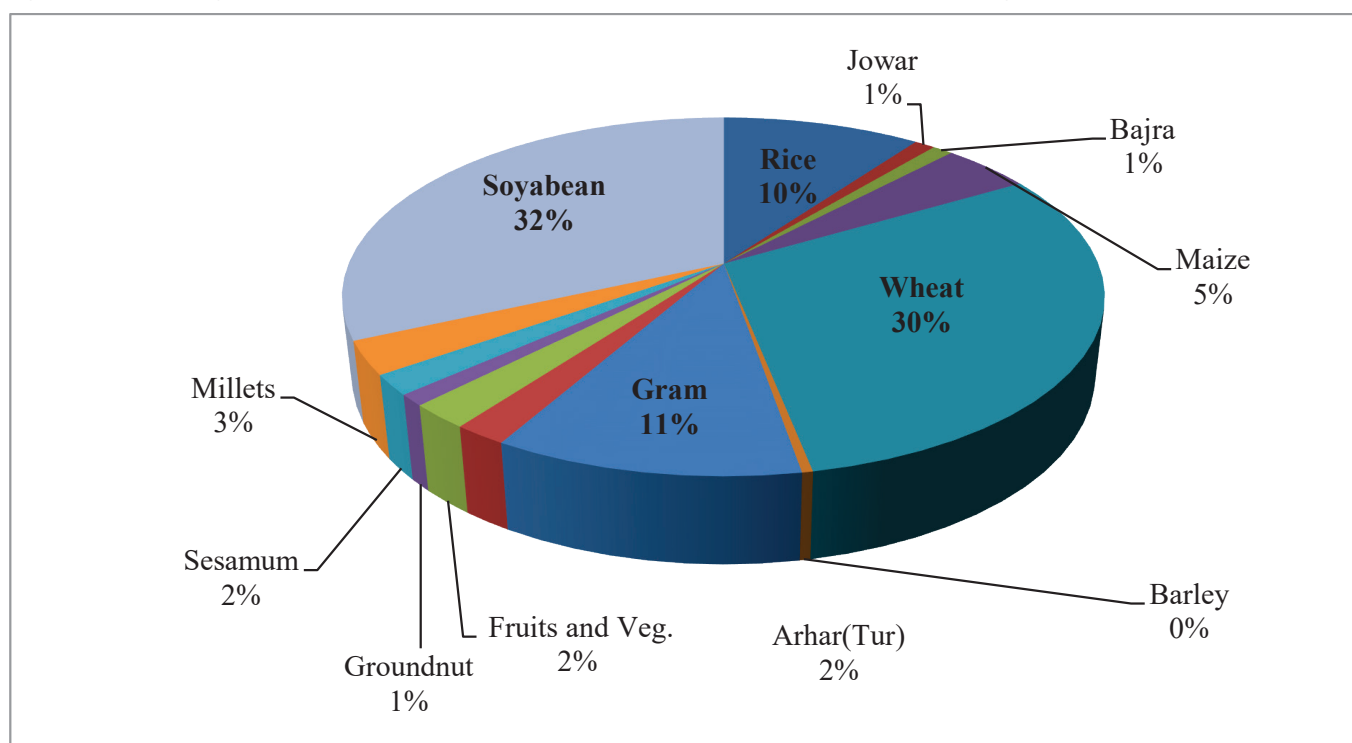
Introduction

- 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

Findings

- Major factors responsible for the disappearance of farm labourers in search of new livelihood options were the increase in wages in non-farm sectors (65 percent) compared to farm sector (15 percent), seasonality in agriculture, presumption of having low esteemed work, distress migration, threat of lives and livelihood due to recurring floods and frequent droughts, highly subsidized distribution of food grains through Public Distribution System (PDS) in the recent past, and subsidy of farm machineries to some extent.
- According to Multi-dimensional Poverty Index (MPI), around 52.5 percent of population is under poverty in the state. Percentage of acute poverty in the state is 27.5 percent. MPI in the state is 0.246, while it is 0.121 at an all-India level. Across the districts, it ranges from 0.124 to 0.346.
- In response to a question regarding how the respondents foresaw farm labour scarcity over next five to 10 years, about 78 percent cultivators said that they saw it worsening and the remaining 22 percent said that they saw it to be the same. On the other hand, 38 percent farm labourers saw the situation to be worsening while 62 percent said that it would remain the same.
- It was found that the agricultural labourers do not wish to work on daily wage basis (for 8 hours), they rather prefer to work on contract basis, as frequently found in the scheme under Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).
- The prevailing wage rate for agricultural labourers varied largely around Rs. 200 - Rs. 300 per day for male labourers and Rs. 130 - Rs. 200 per day for female labourers, which is below the minimum wage rates as prescribed by the state.

- Frequent droughts and floods often result in low or no demand for farm labourers, adversely impacting the profitability of farming sector, particularly for crops, such as paddy, wheat, maize and sugarcane, as these crops are labour-intensive in nature.
- Farm labourers largely expressed willingness for their deployment on tender basis (lump-sum monthly/yearly basis), as is being practised in Punjab, Haryana and Telangana through contracts meant for activities, such as farming, farm businesses and animal husbandry.

Recommendations

- Mass awareness campaigns for farm labourers should be undertaken by the government, apprising them of their wage rates and welfare issues relating to housing, health, education, pension and insurance.
- There should be a guarantee of minimum wages to farm labourers and there should be proper monitoring and inspection of the fields during the peak agricultural seasons.
- Employing labourers under MGNREGS from pre-sowing to harvesting in agriculture would reduce the costs of production and raise farmers' income. 97 percent people engaged in agriculture are small and marginal farmers with average landholding of 0.64 hectares and incur high cost of cultivation. The use of MGNREGS labourers in agriculture will reduce costs on one hand and provide jobs to agricultural labourers on the other.
- A suitable 'Farm Labour Policy' may be proposed in consultation with all the stakeholders including the Farmers' Association.

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