

Price Policy for **Kharif Crops**

THE MARKETING SEASON 2020-21



Commission for Agricultural Costs and Prices

Department of Agriculture, Cooperation & Farmers Welfare

Ministry of Agriculture & Farmers Welfare

Government of India, New Delhi

March 2020

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सत्यमेव जयते

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Krishi Bhawan, New Delhi-110 001

Preface

It is a great honour and privilege for me to submit the report of **“Price Policy for Kharif Crops: The Marketing Season 2020-21”**. The report contains the recommendations on Minimum Support Prices (MSP) for the mandated 14-kharif crops, namely, **paddy, jowar, bajra, ragi, maize, tur (arhar), moong, urad, groundnut, soybean, sunflower, sesamum, nigerseed** and **cotton**, and a set of non-price policy recommendations. I hope that these recommendations will encourage and incentivise farmers to adopt new technologies and practices to increase farm income and improve competitiveness of Indian agriculture.

Summary of Recommendations is followed by an overview of Indian agriculture in Chapter 1. Chapter 2 of the report discusses demand-supply trends and outlook, terms of trade and price support operations. Chapter 3 analyses trends in crop productivity and discusses major drivers of productivity growth. Trade patterns, domestic and world prices and brief review of trade policy and trade outlook are presented in Chapter 4. Chapter 5 discusses costs, returns, and profitability and cost projections for Kharif Marketing Season 2020-21 including inter-crop parity issue. Minimum Support Prices and non-price policy recommendations are presented in the Chapter 6.

Several people have contributed in preparation of this report. First and foremost, I would like to express my sincere thanks to farmers, farmers’ representatives/associations, officers from Central and State Governments/Departments, representatives of agencies/organizations including private sector involved in procurement, marketing and processing of agricultural commodities, and various other stakeholders for providing valuable insights and suggestions during the meetings and in preparation of the report. I would like to express my special appreciation and thanks to State Governments of Andhra Pradesh, Assam, Gujarat and Jharkhand for holding regional meetings of the Commission with farmers, farmers’ associations/organizations, State Governments and other stakeholders. Special thanks to the Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare, Government of India for providing key data on cost estimates for this report.

The completion of this report was made possible through the generous support and contributions of the officers and staff of the Commission. I especially thank

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(Vijay Paul Sharma)

31st March, 2020

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Acronyms

A ₂	Actual paid out cost
A ₂ +FL	Actual paid out cost plus imputed value of family labour
AAY	Antyodaya Anna Yojana
AIBP	Accelerated Irrigation Benefit Programme
AMI	Agriculture Market Infrastructure
AMIF	Agri-Market Infrastructure Fund
APMC	Agricultural Produce Market Committee
ASEAN	Association of Southeast Asian Nations
BCM	Billion Cubic Meters
BE	Budget Estimate
C ₂	Comprehensive Cost including Rental Value of Own Land (net of land revenue and interest on value of own fixed capital assets (excluding land))
CACP	Commission for Agricultural Costs & Prices
CADWM	Command Area Development and Water Management
CAP	Cover and Plinth
CBEC	Central Board of Excise and Customs
CCE	Crop Cutting Experiments
CDP	Crop Diversification Programme
CFPI	Consumer Food Price Index
CHC	Custom Hiring Centre
CIPI	Composite Input Price Index
CoC	Cost of Cultivation
CoP	Cost of Production
CPI	Consumer Price Index
CPO	Crude Palm Oil

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CS	Comprehensive Scheme
CWC	Central Water Commission
DAY-NRLM	Deendayal Antayodaya Yojana - National Rural Livelihood Mission
DES	Directorate of Economics and Statistics
DGCIS	Directorate General of Commerce Intelligence & Statistics
DIPP	Department of Industrial Policy & Promotion
DTA	Domestic Tariff Area
e-NAM	Electronic National Agriculture Market
e-NWR	Electronic Negotiable Warehouse Receipt
EOU	Export Oriented Units
EU	European Union
FAI	Fertilizers Association of India
FAO	Food and Agriculture Organisation
FAQ	Fair Average Quality
FCI	Food Corporation of India
FLD	Front Line Demonstration
FPOs	Farmer Producer Organizations
FTA	Free trade agreement
G2G	Government-to-Government
GCA	Gross Cropped Area
GrAM	Gramin Agricultural Markets
GSDP	Gross State Domestic Product
GVA	Gross Value Added
GVO	Gross Value of Output
HSD	High Speed Diesel
ICDS	Integrated Child Development Services
IMCECA	India-Malaysia Comprehensive Economic Cooperation Agreement
ISAM	Integrated Scheme for Agricultural Marketing
ISS	interest subvention scheme
KMS	Kharif Marketing Season
LCS	Land Custom Stations
LPA	Long Period Average
MDM	Mid-Day Meal

Acronyms



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Acronyms

MEIS	Merchandise Exports from India Scheme
MEP	Minimum Export Price
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MIF	Micro Irrigation Fund
MKSP	Mahila Kisan Sashaktikaran Pariyojana
MRL	Maximum Residue Limit
MSP	Minimum Support Price
NABARD	National Bank for Agriculture and Rural Development
NAFED	National Agricultural Cooperative Marketing Federation of India
NBS	Nutrient Based Subsidy
NCDC	National Cooperative Development Corporation
NE	North-Eastern
NFSA	National Food Security Act
NPC	National Productivity Council
NSC	National Seed Corporation
NWR	Negotiable Warehouse Receipt
OGL	Open General License
OMSS(D)	Open Market Sale Scheme (Domestic)
OWS	Other Welfare Scheme
PDPS	Price Deficiency Payment Scheme
PDS	Public Distribution System
PEG	Private Entrepreneur Guarantee Scheme
PHH	Priority Households
PMFBY	Pradhan Mantri Fasal Bima Yojana
PM-KISAN	Pradhan Mantri Kisan SAMman Nidhi
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana
PPSS	Private Procurement and Stockist Scheme
PSS	Price Support Scheme
QE	Quinquennial Ending
QPM	Quality Protein Maize
QR	Quantitative Restrictions
R&D	Research and Development
RBD	Refined, Bleached and Deodorized

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RE	Revised Estimate
SEZs	Special Economic Zones
SFAC	Small Farmers' Agri-business Consortium
SHC	Soil Health Card
SMI	Surface-Minor Irrigation
SPS	Sanitary & Phytosanitary Measures
SRR	Seed Replacement Ratio
SST	Smart Sampling Technique
STL	Soil Testing Lab
TE	Triennium Ending
U.S.	United States
USDA	United States Department of Agriculture
UT	Union Territory
WDRA	Warehousing Development & Regulatory
WPI	Wholesale Price Index
WTO	World Trade Organization

Acronyms

Summary of Recommendations

Price Policy Recommendations

S.1 Considering the cost of production, overall demand-supply situation of various crops in domestic and world markets, domestic and international prices, inter-crop price parity, terms of trade between agriculture and non-agriculture sector, likely effect of price policy on rest of the economy, rational utilization of land, water and other production resources and a minimum of 50 percent as the margin over the cost of production, the Commission recommends the following MSPs as given in the Table S.1 below.

Table S.1: MSPs Recommended for Kharif Marketing Season, 2020-21

(₹/qtl)

Crops	Projected Cost A ₂ +FL for KMS 2020-21	MSP for KMS 2019-20	Recommended MSP for KMS 2020-21	MSP as percent of A ₂ +FL
Paddy-Common	1,245	1,815	1868 (2.9)	150
Paddy-Grade A	-	1,835	1888 (2.9)	-
Jowar-Hybrid	1,746	2,550	2620 (2.7)	150
Jowar-Maldandi		2,570	2640 (2.7)	-
Bajra	1,175	2,000	2150 (7.5)	183
Ragi	2,194	3,150	3295 (4.6)	150
Maize	1,213	1,760	1850 (5.1)	153
Tur (Arhar)	3,796	5,800	6000 (3.4)	158
Moong	4,797	7,050	7196 (2.1)	150
Urad	3,660	5,700	6000 (5.3)	164
Groundnut	3,515	5,090	5275 (3.6)	150
Sunflower Seed	3,921	5,650	5885 (4.2)	150
Soybean (Yellow)	2,587	3,710	3880 (4.6)	150
Sesamum	4,570	6,485	6855 (5.7)	150
Nigerseed	4,462	5,940	6695 (12.7)	150
Cotton (Medium Staple)	3,676	5,255	5515 (4.9)	150
Cotton (Long Staple)	-	5,550	5825 (5.0)	-

Note: Figures in parenthesis represent increase in MSP over the previous year



Non-Price Recommendations

Managing Excess Grain Stocks

- S.2. The rice stocks in Central Pool were about 31 million tonnes on March 1, 2020, about 2.8 times larger than Buffer norms for the quarter starting on 1st April and 17.4 percent higher than the last year. India's export volume of non-basmati rice has declined by 37.9 percent during April-December 2019 as compared with the corresponding period in 2018, due to subdued global demand and high domestic prices. The sale of rice in the open market under Open Market Sale Scheme (Domestic) is about one million tonnes, against the target of 5 million tonnes during 2019-20.
- S.3. In view of the above situation, the Commission suggests that excess rice stocks should be liquidated through increased allocation under National Food Security Act (NFSA) and Other Welfare Schemes (OWS) while old stocks may be diverted for other purposes such as ethanol production and feed purpose. In order to release storage space for procurement in the ensuing season and save on storage cost, the allocation of foodgrains can be made to beneficiary households for 3 months of demand.
- S.4. Though, purchases by bulk consumers and State Governments under the OMSS(D) have remained low even after reducing the Reserve Price, the Commission recommends that the Reserve Price should not be reduced further as it would discourage private procurement in future.

Review Open-ended Procurement Policy

- S.5. The policy of open-ended procurement has led to excess grains stocks and adversely affected crop diversification. The Commission reiterates its earlier recommendation that the Central Government should review open-ended procurement policy and take a policy decision to restrict procurement from States like Punjab and Haryana where substantial groundwater depletion has occurred and other States that give bonus.
- S.6. Major policy changes are also required for pricing, procurement and utilization of maize, pulses and oilseeds, which have great potential for crop diversification in the region. The Commission recommends that the Government should ensure remunerative prices to maize and oilseeds farmers through effective implementation of 'Price Deficiency Payment Scheme' and 'Private Procurement and Stockist Scheme'. The Commission suggests that additional incentives on per hectare basis, which could be equal to the difference in returns from rice and these crops, should



be paid to farmers for shifting from rice to alternative crops and such incentive will be WTO compatible under payments under environmental programmes.

Maize for Ethanol Production

- S.7. Maize is a good feedstock for ethanol production due to its starch content. The United States is one of the world's major ethanol producers and more than 90 percent of ethanol production comes from corn, which accounted for 37 percent of total US corn use during the 2018 market year. US ethanol policy has led to higher prices for corn farmers. The Commission recommends that use of maize should be allowed for ethanol production, which will increase demand for maize and ensure remunerative prices to farmers in the country.

Inclusion of Nutri-Cereals under Public Distribution System (PDS)

- S.8. Nutri-cereals being climate-resilient are primarily grown on marginal lands in rainfed areas and have much higher nutritional value but area under these crops has shrunk in post-green revolution period. Government of Odisha has launched a "Special Programme for Promotion of Millets in Tribal Areas" with an allocation of ₹536.92 crore to revive millets in rainfed areas and promote household consumption through inclusion of millets in PDS and other welfare schemes.
- S.9. The Commission recommends that nutri-cereals should be included under the PDS and other welfare schemes in other States, where production is concentrated and malnutrition is commonly prevalent. Special efforts should be made to develop appropriate processing technologies for value-addition and health food-products, which will help in boosting demand from urban population. There is also an urgent need to improve productivity and ensure better prices to millet farmers.

Strengthen Procurement Infrastructure for Oilseeds and Pulses

- S.10. Even though market prices of pulses and oilseeds have improved during KMS 2019-20, but remained below the MSP. Procurement of kharif pulses under Price Support Scheme (PSS) in KMS 2019-20 was much lower (4.8% of production as on 24th February 2020) compared with last year (15.7%) and much below the 25 percent of actual production allowed under the PSS. Total procurement of groundnut and soybean in KMS 2019-20 was less than 7.5 lakh tonnes, (3.3% of total production). As procurement under PSS is done at the request of the State Governments/UTs, State Governments should have more active engagement and participation in procurement operations. The private sector needs to be encouraged and supported to participate in procurement operations and create better market linkages. The



Commission is of the considered view that in case of oilseeds PDPS and PPSS are better options than physical procurement by NAFED.

Special Scheme for North Eastern (NE) States

- S.11. Rice procurement in NE States has been negligible compared to total production and requirement in the region under NFSA and other welfare schemes. Therefore, market prices of paddy remain well below the MSP in the region. The main reasons for low procurement are lack of modern storage, milling infrastructure and procurement centres, high moisture content and lower out-turn ratio due to climatic factors. The requirement of NE States under NFSA and OWS is met by moving stocks mainly from northern States, which results in huge transportation costs at around ₹600-650 crore per year.
- S.12. The Commission recommends that a special Scheme for North Eastern Region should be prepared for development of storage and warehousing infrastructure, modern milling facilities and procurement centres and an amount of ₹200-300 crore should be allocated for the same. The Commission reiterates its earlier recommendation to give some relaxation in quality norms such as moisture content and out-turn-ratio in the initial years to encourage local procurement. These interventions would help in reducing the burden of transportation cost and strengthening procurement operations in the region, thereby helping farmers.

Improve Crop Productivity

- S.13. Nutri-cereals, pulses and oilseeds have high levels of price and production volatility due to climatic factors, as these crops are cultivated under rainfed conditions and on marginal lands. Despite improvements in crop yields, considerable yield gap still exists in most crop and States. Therefore, there is a need to improve productivity, bridge yield gap and reduce fluctuations through improved varieties, technologies and extension. In view of stagnant domestic production of oilseeds and high import dependence, appropriate strategies and interventions should be implemented for increasing oilseeds production and productivity.

Reserve Price for Sale of Pulses and Oilseeds Stocks

- S.14. Disposal of stocks of pulses and oilseeds procured under the PSS by NAFED has been a challenge and NAFED sells commodities in open market below the MSP, which depress market sentiments and discourage direct procurement by private trade.



- S.15. The Commission suggests that Government should frame a policy for disposal of stocks and fix reserve price linked to MSP as is being followed for wheat and rice under Open Market Sales Scheme (Domestic). Pulses should be included under the PDS and other welfare schemes to address the problem of mal-nutrition at least in the Aspirational Districts.

Fertiliser Pricing to Promote Balanced Use and Efficiency

- S.16. To promote balanced use of nutrients and improve fertiliser use efficiency, Soil Health Card Scheme was launched on February 19, 2015. The Scheme has made significant progress in terms of distribution of soil health cards and creation of soil testing infrastructure in the country. However, there is need to educate farmers about application of nutrients based on SHC data and rationalise fertiliser prices. The Commission recommends that urea should be brought under the nutrient-based subsidy (NBS) scheme. Alternatively, quantity of subsidised urea per hectare should be fixed based on information from soil health card, extent of irrigation and cropping pattern.

Remove Distortions in Agricultural Markets

- S.17. Many State Governments impose differential market fee, rural development fee and various incidental charges and also pay additional bonus over MSP announced by the Central Government, which distort agricultural markets and crowd out private trade. Bonuses also affect inter-crop parity and discourage farmers from crop diversification. The Commission recommends that in all those States that impose high fees and incidental charges and pay bonus, procurement of rice and wheat should be restricted. The Central and State Governments should undertake a holistic review of the ECA and APMC Act, major issues in the agricultural marketing system, and their implementation.

Farmer Producer Organizations (FPOs)

- S.18. Collective action by farmers has played an important role in improving access to technology and inputs and better negotiation power in market due to economies of scale and thereby higher farm incomes and rural employment opportunities. In the last decade, Government has made concerted efforts to create and strengthen FPOs. Recently, Government of India approved a Central Sector Scheme for formation and promotion of 10,000 FPOs through cluster based approach in next five years. These organizations would require professional managerial support and adequate access to capital and infrastructure facilities for strengthening market linkages and sustaining their business operations. The Commission suggests formation of



commodity-specific groups under “One-Product One-District” initiative to improve backward and forward linkages and convergence of FPOs promoted by various agencies/organizations. These FPOs should be supported through capacity building and access to financial resources and infrastructure to strengthen market linkages and sustain business operations.

Rice Stubble Management

- S.19. The management of rice stubble after harvest of crop remains a major challenge in rice growing areas. Various efforts under the Central Sector Scheme “Promotion of Agricultural Mechanization for In-Situ Management of Crop Residue in the States of Punjab, Haryana, Uttar Pradesh & NCT of Delhi” have led to reduction in paddy residue burning but many farmers still resort to burning of residue. The Commission suggests that demonstration of technologies/machinery to create awareness and training of farmers should be undertaken on a large scale. Economically viable industrial uses of rice straw need to be explored.

Awareness about MSP and Uniform Specifications

- S.20. There is a lack of awareness among farmers about the MSP and specifications of grains. Farm produce brought to the procurement centre is at times rejected due to subjectivity in determination of quality or the produce does not meet uniform specifications/Fair Average Quality (FAQ) standards. The Commission recommends that Central and State Governments should make wide publicity of MSP, details of procurement centers, procurement period, registration/documents requirements, and information about procurement agencies. In addition, farmers should be trained about uniform specifications and provided required infrastructure to meet FAQ specifications to receive better price.

Direct Income Support and Social Safety Net for Farmers

- S.21. Over the past 15 months, Government of India has launched two major Central Sector Schemes with 100 percent funding from the Central Government, namely, Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) and Pradhan Mantri Kisan Maandhan Yojana (PM-KMY) for the welfare of farmers. PM-KISAN, an assured income support to farmers, has made good progress as more than ₹50,850 crores have been disbursed to 8.5 crore farmer families in 2019-20 but progress of PM-KMY to provide social security to small and marginal farmers has been slow as only 19.9 lakh farmers have joined the Scheme so far. Therefore, efforts should be made to create awareness about the PM-KMY and increase participation of eligible farmers in the Scheme.



Issues Related to Sample Size in Cost Estimation

S.22. In certain crops and States, the sample size under the 'Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops in India' is inadequate and can adversely affect the reliability of cost estimates. The Commission, therefore, suggests that sample size for the crops/States having significant share in all-India production or within the State in a particular crop/crop group should be increased to have reliable estimates.

Overview

- 1.1. After two consecutive years of bumper harvest of over 285 million tonnes, India's foodgrains production is set to achieve a new record in 2019-20. According to the Second Advance Estimates of Production of Foodgrains for 2019-20, foodgrains production is estimated at about 292 million tonnes, an increase of about 6.7 million tonnes over last year, mainly driven by higher production of wheat (2.6 million tonnes), nutri-cereals (1.6 million tonnes) and pulses (0.9 million tonnes). Rice production is forecast to increase marginally, from 116.5 million tonnes in 2018-19 to 117.5 million tonnes in 2019-20. Jowar production is expected to register an impressive increase of about 25.7 percent, from 3.5 million tonnes in 2018-19 to 4.4 million tonnes in 2019-20. Pulses production, mainly driven by tur and gram, is estimated at about 23 million tonnes in 2019-20 compared to 22.1 million tonnes in 2018-19. Tur production is estimated to increase by 11.3 percent, while gram production is estimated to increase by 12.9 percent in 2019-20 over the previous year. However, production of moong and urad is likely to fall in 2019-20 by 7.7 percent and 26.3 percent, respectively. Production of nutri-cereals is expected to rise to 15.3 million tonnes during 2019-20 compared to last year's 13.7 million tonnes. Oilseeds production is estimated to record an impressive growth of 8.6 percent in 2019-20, from 31.5 million tonnes in 2018-19 to 34.2 million tonnes, mainly due to 22.5 percent increase in groundnut production. Cotton production, after registering a negative growth of 14.5 percent in 2018-19, is expected to record a positive growth of 24.4 percent in 2019-20. All-India area, production and yield of mandated kharif crops during last 10 years are given in Annex Tables 1.1-1.3 and shares of major producing States in total production of a crop during Triennium Ending (TE) 2019-20 are given in Annex Table 1.4. Due to increase in agricultural production, Gross Value Added (GVA) from 'agriculture, forestry and fishing' sector is expected to increase by 3.7 percent during 2019-20, an acceleration from 2.4 percent in the previous year, while total GVA is estimated to decline from 6 percent in 2018-19 to 4.9 percent in 2019-20.
- 1.2. Normal rainfall, 110 percent of Long Period Average (LPA), during the south-west monsoon (June-September) and above normal rainfall (129% of LPA) during north-east monsoon (October-December) contributed significantly to higher foodgrains



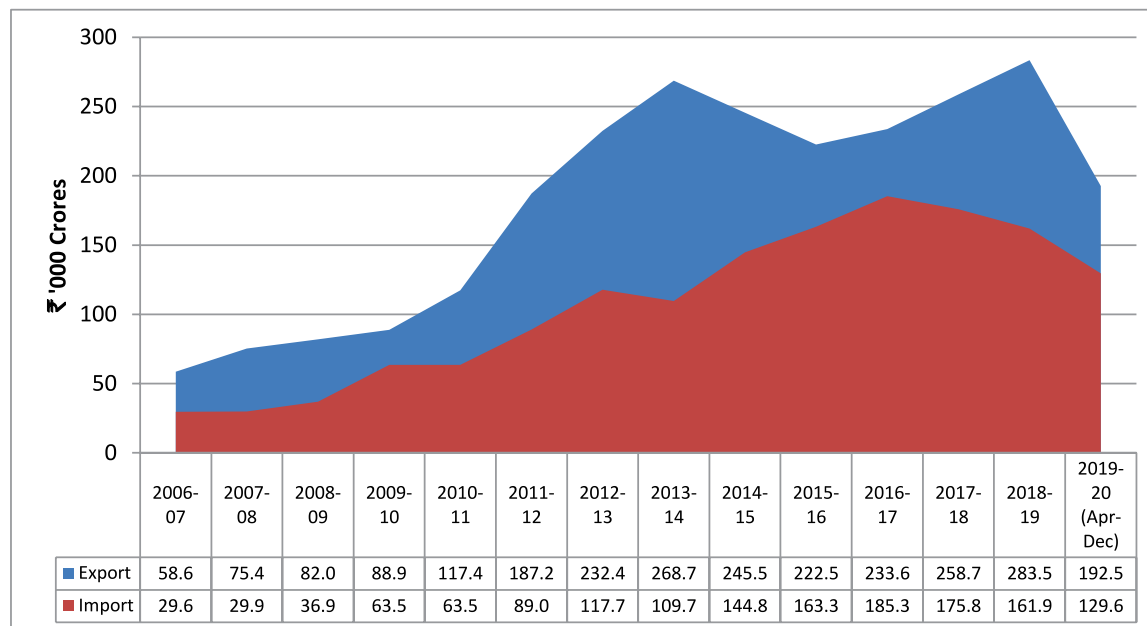
production. According to Central Water Commission (CWC) Reservoir Storage Bulletin of 5th March 2020, live storage available in 123 reservoirs in the country was 97.5 Billion Cubic Meters (BCM), which is 57 percent of total live storage capacity of these reservoirs, 155 percent of live storage of corresponding period of last year and 148 percent of storage of average of last ten years. The overall storage position of reservoirs is much better and is likely to have positive impact on agricultural production in the coming season.

Agriculture Trade Performance

- 1.3. India's agricultural exports in 2018-19 increased by 9.6 percent to ₹283.5 crore from ₹258.7 crore in 2017-18, while imports declined by 7.9 percent during the corresponding period, leading to 46.6 percent increase in trade surplus (Chart 1.1). Basmati rice exports, a major export commodity having share of 11.6 percent in export basket, increased by 22.1 percent in 2018-19. Other commodities that registered high growth in exports included spices, cotton, oil meals, sugar, tea, fruits & vegetables and guar gum meal. Increase in import duties on edible oils, the major import commodity having more than 40 percent share in import basket, led to 8 percent decline in edible oils imports in 2018-19. Other major commodities that recorded significant reduction in imports during 2018-19 were pulses (-57.1%), sugar (-47.4%), cotton (-30.5%) and wood & wood products (-9.6%).
- 1.4. However, agricultural trade faced headwinds in 2019-20 and agricultural exports fell from ₹206.2 thousand crore in April-December 2018 to ₹192.5 thousand crore in April-December 2019, a decline of 6.6 percent. The exports slowdown was due to significant reduction in exports of cotton (-64.1%), oil meals (-37.4%), non-basmati rice (-35.8%), guar gum meal (-26%), cashew (-13%), fresh fruits & vegetables (-12.7%) and buffalo meat (-8.2%). On the other hand, agricultural imports increased by 4.9 percent, from ₹123.5 thousand crore in April-December 2018 to ₹129.6 thousand crore in April-December 2019, driven primarily by increase in imports of cotton (145%), pulses (46%), spices (44.7%) and oil meals (67%). The loss of momentum in agricultural trade is due to increased volatility in world markets, trade tensions and low global commodity prices.



Chart 1.1: Trends in India's Exports and Imports of Agricultural Products, 2006-07 to 2019-20



Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry

Central Pool Stocks

- 1.5. Record procurement of foodgrains during last two years resulting from bumper foodgrains production and open-ended procurement policy has led to mounting grain stocks putting an enormous pressure on storage capacity and would result in higher economic cost leading to escalation in food subsidy bill. The estimated record production of wheat in 2019-20 is likely to pose a serious problem of storage, as storage capacity with Food Corporation of India (FCI) and State Government agencies as on 31.12.2019 was about 75.8 million tonnes, 62.6 million tonnes covered and 13.2 million tonnes Cover and Plinth (CAP).
- 1.6. The total rice and wheat stocks as on 1st February 2020 were 57.8 million tonnes (23.7% higher over previous year), 27.4 million tonnes of rice and 30.4 million tonnes of wheat. The rice stocks were 20.4 percent higher than last year while wheat stocks were 26.9 percent higher compared with the last year. The total rice and wheat stocks were 2.7 times higher than foodgrains stocking norms for Central Pool for the quarter beginning January 1, 2020, while rice stocks were 3.6 times higher and wheat stocks were 2.2 times higher than stocking norms (Chart 1.2). With the expected record production of wheat and higher procurement in Rabi Marketing Season 2019-20, as per FCI estimates, total stock position on 1st July 2020 is likely to be 76.4 million tonnes, 85.8 percent higher than stocking norms. The rice and wheat stocks are expected to reach a record level of about 92 million tonnes by 1st July 2021 (2.2 times more than stocking norms), which would put a huge pressure on exchequer in terms of storage and financing costs and also on storage capacity. Therefore, Commission reiterates its earlier recommendation of

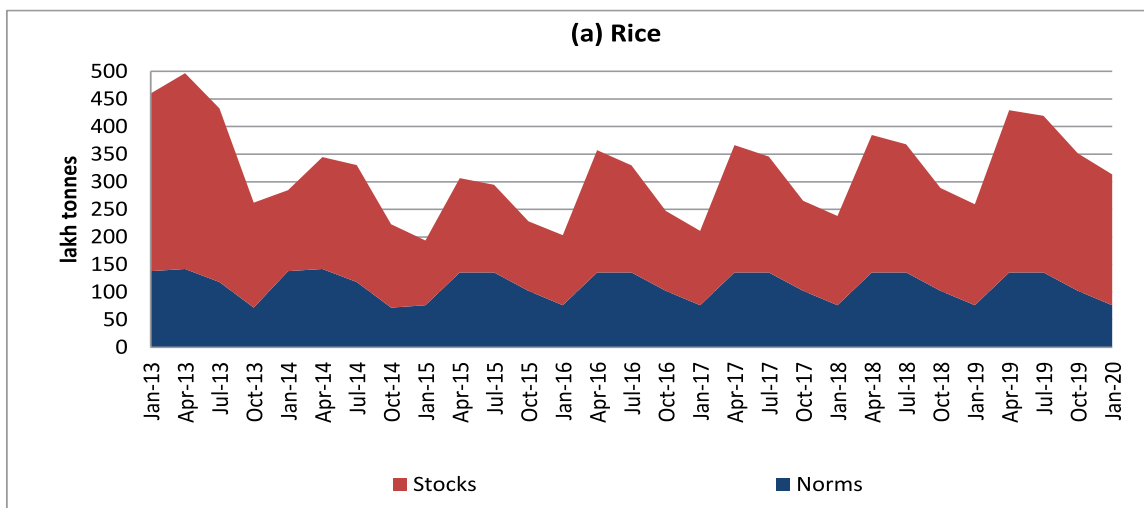


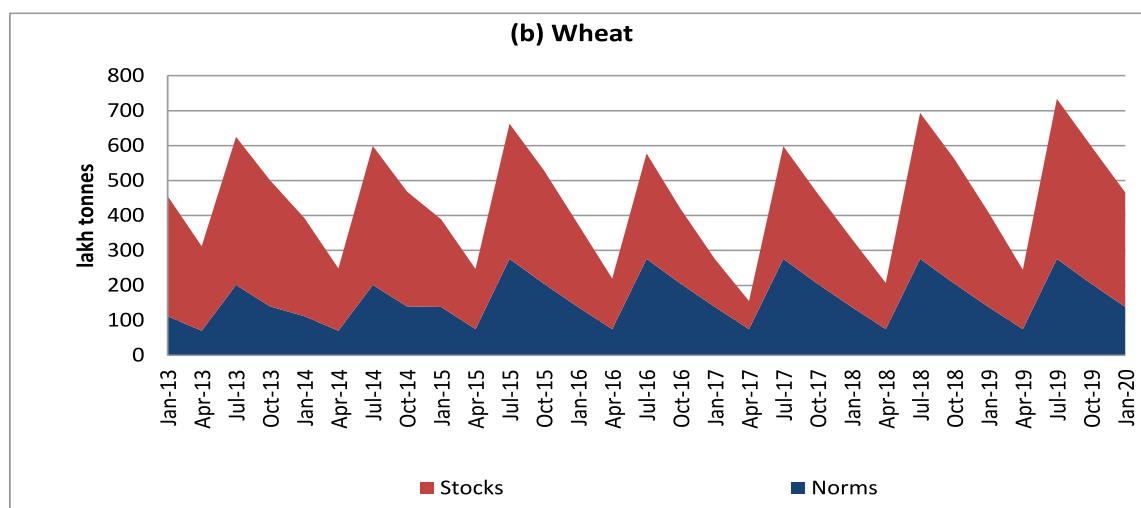
PRICE Policy for KHARIF CROPS

liquidating excess stocks by additional allocation of foodgrains to Antyodaya Anna Yojana (AAY) beneficiaries and Priority Households (PHH) under National Food Security Act (NFSA) and Other Welfare Schemes (OWS).

- 1.7. Surplus stocks of rice and wheat are sold under Open Market Sale Scheme (Domestic) [OMSS(D)] at pre-determined prices through e-auction in open market. The Government of India announced the policy for sale of wheat and rice in the open market through OMSS(D) for 2019-20 in April 2019. The quantity of wheat for sale under OMSS(D) has been fixed at 10 million tonnes and rice at 5 million tonnes during 2019-20, which may be reviewed if offtake is more. The reserve price for sale of Grade 'A' rice during 2019-20 was fixed at ₹2785 per quintal up to September 30, 2019 and ₹2785 or Minimum Support Price (MSP) derived price (1.5 times MSP of Grade 'A' paddy), whichever is higher from October 1, 2019 for 2019-20. However, in view of poor response from bulk consumers/private traders and the need to liquidate stocks, the reserve price of rice was reduced in December 2019 from ₹2785 per quintal to ₹2250 per quintal for the rest of the year 2019-20. The policy was amended on 20th January 2020 and allowed the sale of rice in surplus/deficit procuring States during the procurement of paddy without the approval of Department of Food & Public Distribution. However, this concession will be available only on a specific request of State Governments/Union Territories (UTs) for distribution under their welfare schemes. Similarly, the reserve price for wheat was also reduced on 17th January 2020. Through OMSS(D), only about 10.3 lakh tonnes of rice have been sold in the market till second tender of February 2020. Out of this, 10.1 lakh tonnes have been bought by State Governments and 14,450 tonnes bought by bulk consumers. Similarly, about 2.6 million tonnes of wheat (2.2 million tonnes of Fair Average Quality (FAQ) and 4.6 lakh tonnes Under Relaxed Specification) have been sold under OMSS(D) up to second tender of February 2020. Therefore, special efforts are needed to liquidate excess stocks through OMSS(D), higher allocation under Public Distribution System (PDS) and exports through Government-to-Government (G2G) arrangements.

Chart 1.2: Trends in Stock Position and Stocking Norms of Rice and Wheat in the Central Pool, January 2013 to January 2020





Source: Department of Food and Public Distribution, Ministry of Consumer Affairs and Public Distribution

- 1.8. The Central Government should review open-ended procurement policy and take a policy decision to restrict procurement from small and marginal farmers and putting a ceiling for procurement of two hectares marketed surplus from semi-medium, medium and large farmers from States that impose market fees/cess/levies beyond 3-4 percent of MSP, or give bonus on top of MSP. In addition, special focus should be placed on procurement of millets and inclusion of millets under NFSA and other welfare schemes like Integrated Child Development Services (ICDS), Mid-Day Meal (MDM), etc. Government of Odisha has launched “Special Programme for Promotion of Millets in Tribal Areas” in 72 blocks in 14 Districts to revive millets in rainfed farming systems and household consumption. The procurement of ragi has been started from Kharif Marketing Season (KMS) 2018-19 and a target to procure and distribute one lakh quintal ragi has been fixed. This is necessary to bring about rationality in pricing, contain burgeoning stocks of grains and food subsidy bill and diversification of agriculture.

Maize

- 1.9. Maize is an important food crop and has multiple uses as a key ingredient in animal/poultry feed, industrial products and fuel. Over past two decades, maize production in the country has increased by nearly 2.5 times but growth rate of production has decelerated from 6 percent in 2000s to 3.5 percent in 2010s. Maize production declined by 3.6 percent in 2018-19 but is estimated to increase by 1.3 percent to 28.1 million tonnes in 2019-20 due to higher yield. Maize has a great potential for crop diversification in rice-wheat cropping system areas of north-western plains, where substantial groundwater depletion has occurred. However, maize has low profitability compared to competing crop like rice, due to low and fluctuating prices and yield of maize. For example, market prices of maize were much lower than MSP during 2017-18 and 2018-19 but improved in 2019-20. Therefore, it is necessary to make concerted efforts to ensure remunerative prices to farmers and improve profitability of maize.



- 1.10. Major policy changes are required for pricing, procurement and utilization of maize. The Commission recommends that the Government should allow use of maize for ethanol production, which will increase demand for maize and ensure remunerative prices and higher income to maize growers. For example, corn is the most heavily used feedstock for ethanol production in the United States (U.S.) and more than one-third of corn is used to produce ethanol which has led to higher prices received by farmers.
- 1.11. Procurement of maize under the Price Support Scheme (PSS) is neither feasible nor desirable as there is no assured mechanism for liquidation of stocks procured by public agencies and drives out private trade, therefore, 'Price Deficiency Payment Scheme (PDPS)' and 'Private Procurement and Stockist Scheme (PPSS)' should be proactively promoted in major producing regions. In addition, efforts are needed to improve maize productivity and diversify production towards quality protein maize (QPM), baby corn, sweet corn, fodder maize, oil corn, etc.

Nutri-Cereals

- 1.12. During last two decades, India's nutri-cereals production was the highest in 2003-04 and has ranged from 13.7 million tonnes in 2018-19 to 21.3 million tonnes in 2003-04. Bajra accounts for more than half of total production. Total nutri-cereals production declined by 16.5 percent in 2018-19 and is estimated to increase by 11.7 percent in 2019-20, at 15.3 million tonnes. Nutri-cereals have high nutritional value compared to other crops like wheat, rice, maize but their production has declined for economic reasons of low yields and profitability and changing dietary habits. However, millets are gaining importance and attention due to rising consumer awareness on the nutritional and health benefits of these cereals. With India's declaration of the Year 2018 as "**National Year of Millets**" and Food and Agriculture Organisation's (FAO's) endorsement to the proposal by the Government of India to observe the Year 2023 as "**International Year of Millets**", it is expected that domestic and the world demand for millets will rise and hence, there is need to increase production and productivity of millets to tap the domestic and global demand and address food and nutrition security issues. Moreover, nutri-cereals are climate-resilient and environment friendly, which require very less water compared to other cereals, and hence, it is important to promote millets for diversification of cropping systems. However, to meet increasing demand for nutri-cereals, efforts should focus on research and development, favourable policies and linking farmers with markets and value-chains. Introduction of nutri-cereals in PDS and other welfare schemes will provide a much needed boost to generate demand for nutri-cereals and better prices to farmers.

Pulses

- 1.13. India achieved a record production of pulses at 25.4 million tonnes in 2017-18 and became almost self-sufficient. Pulses production declined (-13.1%) to 22.1 million tonnes in 2018-19, and the estimates for 2019-20 suggest a marginal increase to about 23 million tonnes, but lower than the target of 26.3 million tonnes. In 2018-



19, tur production declined by 22.7 percent over 2017-18, urad by 12.4 percent, gram by 12.7 percent and lentil by 24.3 percent, leading to a significant decline in total production by 13.1 percent. Tur production is expected to increase by 11.3 percent in 2019-20 while urad and moong production is expected to decline by 26.3 percent and 7.7 percent, respectively, resulting in about 2.1 percent decline in kharif pulses production. The fall in urad and moong production is mainly attributed to long spell of unseasonal rains in major producing areas. Imports of pulses have increased during 2019-20, from 18.3 lakh tonnes in April-December 2018 to 24.5 lakh tonnes in April-December 2019, an increase of about 33.8 percent. However, a significant increase in gram production (12.9%) expected in 2019-20 will increase pulses availability in the country.

- 1.14. Even though market prices of kharif pulses have improved during the current marketing season, they were still below the MSP. In order to protect interest of farmers and to meet domestic requirement, the government strengthened procurement of pulses at MSP. During last five years (2014-15 to 2018-19), National Agricultural Cooperative Marketing Federation of India (NAFED) procured 61.3 lakh tonnes of pulses compared with about 1.5 lakh tonnes during 2009-10 to 2013-14 under the PSS. Apart from this, Government has taken several other initiatives such as hike in import duty including Quantitative Restrictions (QRs) on various pulses, free exports, subsidy of ₹15/- per kg of pulses for utilization under different welfare schemes of States, etc.

Oilseeds

- 1.15. Total oilseeds area in the country has remained relatively stagnant at 26 million hectares during the last decade while production fluctuated between 25.3 million tonnes and 34.2 million tonnes with average productivity of less than 12 quintals per hectare. Oilseeds production, which was stagnating at about 31.5 million tonnes during last three years, is estimated to increase by 8.6 percent and reach 34.2 million tonnes in 2019-20. Total kharif oilseeds production is expected to increase by 13.4 percent over last year, while kharif groundnut production is estimated to increase significantly by 29 percent and soybean production by 2.7 percent in 2019-20.
- 1.16. India's dependence on imports of edible oils has remained high, which is risky because crop failure, emerging alternative uses of edible oils such as for biofuels or other problems in the world market may have serious repercussions on the domestic market. Moreover, high dependence on imports has adverse impact on domestic oilseeds farmers and industries. The market prices of groundnut improved during the current marketing season compared to last season but remained below MSP. Similarly, soybean prices also showed upward trend during KMS 2019-20 and after remaining below MSP during the start of marketing season, were higher than MSP during December 2019 and January 2020. In order to ensure better prices to farmers, NAFED procured around 4.6 million tonnes of oilseeds benefiting 21.8 lakh farmers under PSS (as on 24.02.2020) during last three years. However, in the absence of assured outlet for disposal of oilseeds stocks, CACP reiterates its earlier recommendation of promoting PDPS and PPSS for oilseeds.



Cotton

- 1.17. As per Ministry of Textiles, domestic cotton consumption increased by 8.2 percent between TE2014-15 and TE2019-20 while production declined by 8.8 percent during the same period. In 2018-19, cotton production fell by 14.5 percent, to about 28 lakh bales but is expected to increase significantly by 24.4 percent to 34.9 lakh bales in 2019-20. The yield per hectare is expected to improve by 18.2 percent and area by 5.3 percent in 2019-20 over the previous season due to better rains. Cotton yield has stagnated with wide fluctuations over the last decade due to various reasons such as insect and disease problems, unfavorable weather conditions, etc. It is, therefore, necessary to adopt a focussed approach to improve yield and reduce costs. Ensuring timely availability of quality seed, effective management of pests and diseases attacks, providing technical guidance to farmers to adopt better management techniques, and promoting micro-irrigation and mechanisation in cotton cultivation will help in improving global competitiveness of Indian cotton industry.

Food Inflation

- 1.18. The Consumer Food Price Index (CFPI) inflation, after remaining subdued in the last few years, recorded a rising trend and stood at 13.6 percent in January 2020 mainly driven by vegetable crops (50.2%), pulses and products (16.7%), meat and fish (10.5%) and eggs (10.4%). The inflation rate of CFPI for all-India in February 2020 declined to 10.8 percent due to fall in inflation rate of vegetables (31.6%), eggs (7.3%) and fruits (4%). The annual rate of inflation for 'Food Articles' based on monthly Wholesale Price Index (WPI), was 11.5 percent in January 2020 due to higher prices of onion (293.4%), potato (87.8%), vegetables (52.7%) and pulses (12.8%).
- 1.19. The average inflation of cereals, based on wholesale prices that remained subdued during 2017 (2.8%) and 2018 (2.9%) rose and was 8.4 percent in 2019. On the other hand, cereals and products inflation based on Consumer Price Index (CPI) showed a declining trend during last three years and fell from 4.3 percent in 2017 to 1.8 percent in 2019. In case of pulses, both WPI and CPI based rates of inflation were negative during 2017 and 2018 and adversely affected farmers. However, inflation rate of pulses has increased in both WPI (15.4%) and CPI (4.9%) during 2019, indicating a recovery in producer prices. The inflation based on WPI for oilseeds was 8 percent in 2019 while CPI based inflation for oils & fats was 1.3 percent and WPI inflation was (-)1.6 percent for oils and fats (Chart 1.3).
- 1.20. The annual rate of inflation of food was significantly lower than 'All Commodities' based on WPI (2.9%, 3.5%) and CPI (1.3%, 3.3%) in 2017 and WPI (0%, 4.3%) and CPI (1.3% and 4%) in 2018. However, food inflation rose sharply in 2019 and was 5.7 percent based on WPI and 3.8 percent on CPI, higher than 'All Commodities' at 1.9 percent and 3.7 percent based on WPI and CPI, respectively. The recent rise in food inflation is largely attributed to poor rainfall during the start of agricultural year (June-July) leading to delayed/reduced kharif sowing and excess rains during

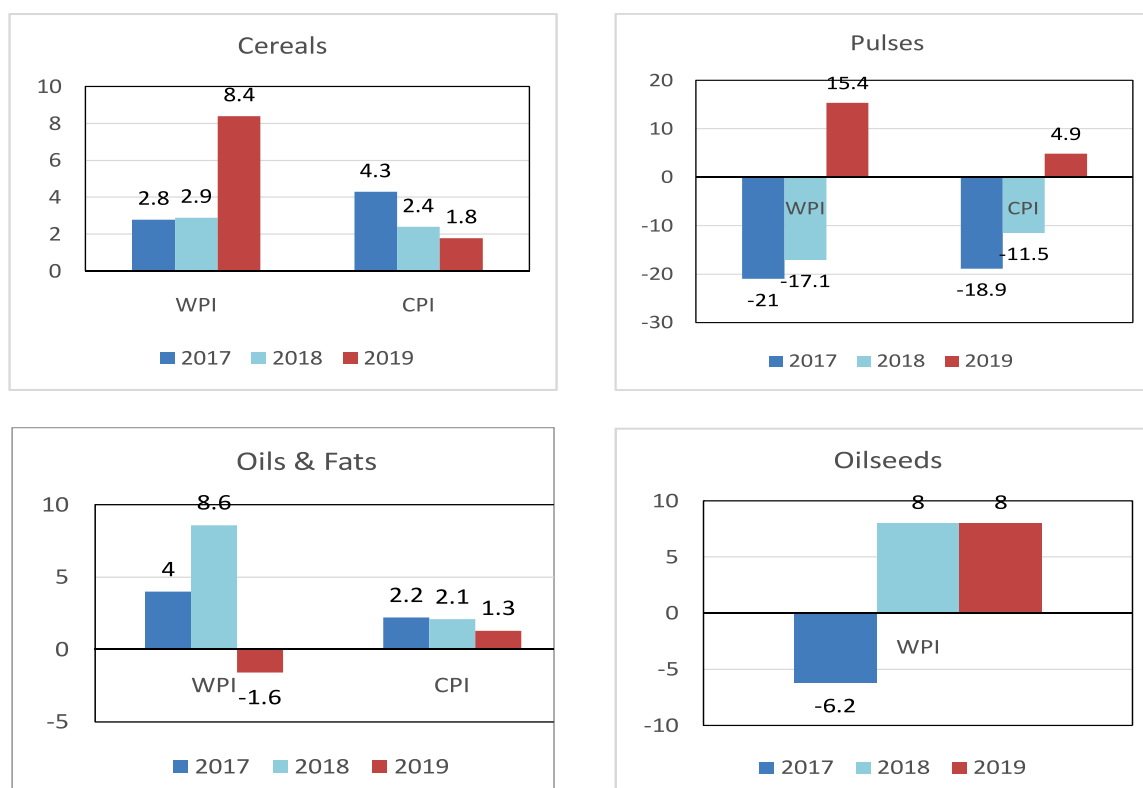


the later months causing damage to crops at harvesting stage. However, there is also a sharp rise in global food prices and domestic food prices have started rising in tandem with world food prices (Chart 1.4).

Ensuring Remunerative Prices to Farmers

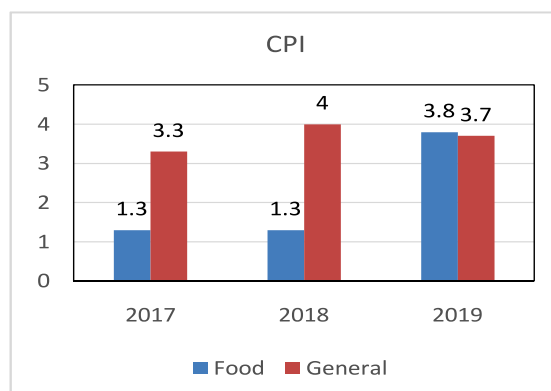
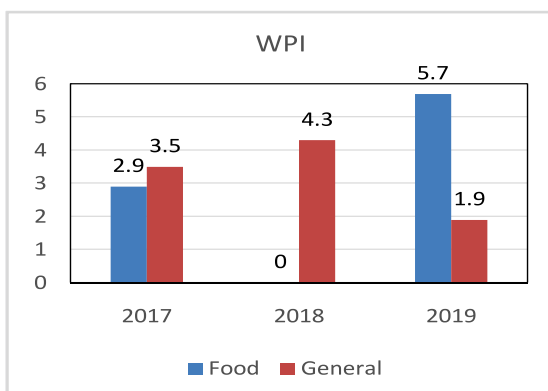
- 1.21. The Government of India has taken several steps to improve agricultural marketing system and ensure remunerative prices to farmers. A new umbrella scheme **“Pradhan Mantri Annadata Aay SanraksHan Abhiyan (PM-AASHA)”** comprising of Price Support Scheme (PSS) for pulses, oilseeds and copra, Price Deficiency Payment Scheme (PDPS) for oilseeds and Pilot of Private Procurement & Stockist Scheme (PPSS) for oilseeds in selected districts in addition to existing schemes for procurement of paddy, wheat, nutri-cereals/coarse grains, cotton and jute was approved in September 2018.
- 1.22. Significant progress has been made under the PSS and NAFED procured an all-time high of 58 lakh tonnes of pulses and oilseeds in 2018-19 and over 29 lakh tonnes of oilseeds and pulses during 2019-20 under PSS and PSF. However, about 70 percent of ₹3000 crore allocated under PSS/MIS in 2018-19 (RE) and only 35 percent of 2019-20 allocation of ₹3000 crore (as on 10th February 2020) have been utilized. Since, procurement operations under PSS depend on market situation and request of the State Governments/UTs, proactive participation of States/UTs is necessary to improve effectiveness of the Scheme.

Chart 1.3: Rate of Inflation (%) based on Wholesale Price Index (WPI) (2011-12=100) and Consumer Price Index (CPI) (2012=100) for Major Food Commodity Groups



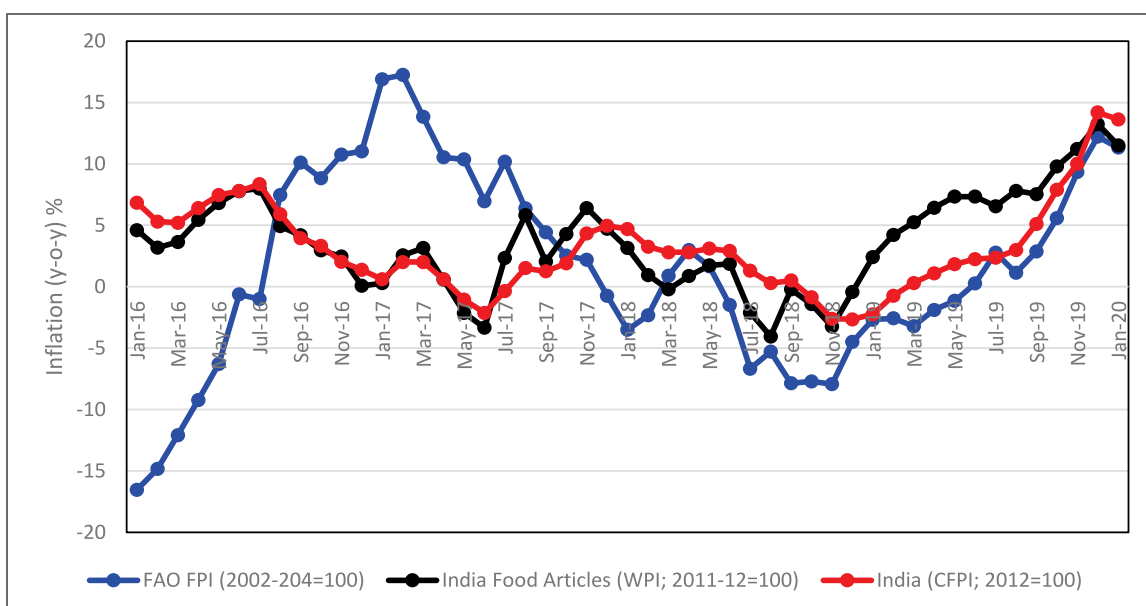


PRICE Policy for Kharif Crops



Source: 1. Central Statistics Office, Ministry of Statistics & Programme Implementation
2. Office of Economic Adviser, Ministry of Commerce & Industry

Chart 1.4: Trends in Domestic and Global Food Inflation, January 2016 to January 2020



Source: 1. Central Statistics Office, Ministry of Statistics & Programme Implementation
2. Office of Economic Adviser, Ministry of Commerce & Industry
3. Food & Agriculture Organisation

Overview

1.23. The Commission strongly believes that PDPS and PPSS have immense potential to ensure remunerative prices of commercial crops to farmers. However, progress under these two sub-schemes has remained far from satisfactory, e.g., budget allocation of ₹1400 crore under PM-AASHA during 2018-19 remained unutilized and allocation for 2019-20 was reduced from ₹1500 crore (BE) to ₹321 crore (RE) while actual expenditure was zero up to January 2020. The budget allocation for PM-AASHA has been reduced to ₹500 crore in 2020-21. Therefore, special efforts are needed to popularize the PDPS and PPSS among State Governments and private sector players.



- 1.24. One of the major constraints faced by farmers, particularly marginal and small farmers is non-availability of procurement centres near the villages and farmers are forced to make distress sale to private traders at low prices. The development and upgradation of 22,000 rural haats into Gramin Agricultural Markets (GrAMs) through ₹2000 crore Agri-Market Infrastructure Fund (AMIF) will help in improving market access.
- 1.25. The new Model “The State/UT Agricultural Produce and Livestock Marketing (Promotion & Facilitation) Act, 2017” will strengthen agricultural markets of the country. However, so far only four States, namely, Arunachal Pradesh, Uttar Pradesh, Chhattisgarh and Punjab have adopted the Model Act with some modifications, and hence, other States should be persuaded to make required amendments in the State Acts to create enabling environment.
- 1.26. The e-NAM (Electronic National Agriculture Market), launched in April 2016, to provide pan-India e-trading facility for agricultural commodities through integration of existing Agricultural Produce Market Committees (APMCs) for transparent and competitive bidding to ensure better price discovery has made significant progress. Presently 585 markets across 16 States and 2 UTs have been integrated on the e-NAM to national auction platform and 415 mandis will soon be integrated. As on 31st January 2020, total number of farmers registered under e-NAM was 1.7 crore and total traders were 1.3 lakh. The volume of trade under e-NAM has reached ₹30495.9 crore in 2019-20 (as on 15th February 2020) from ₹12984.1 crore in 2016-17.

Direct Income Support to Farmers: PM-KISAN

- 1.27. Pradhan Mantri Kisan SAMman Nidhi (PM-KISAN), a Central Sector Scheme with 100 percent funding from Government of India, was launched on 1st December 2018 under which an income support of ₹6000 per year was provided to small and marginal farmers in three equal instalments of ₹2000. The Scheme was later expanded to cover all farmers in May 2019. In 2018-19, a total amount of ₹6005.5 crore was paid towards first instalment to about 3 crore farmers out of about 4.7 crore registered beneficiaries. Under the Scheme, more than ₹50850 crores have been disbursed to 8.5 crore farmer families (up to February 2020). Uttar Pradesh has the highest number of beneficiaries (1.9 crore), followed by Maharashtra (84.6 lakh), Madhya Pradesh (55.2 lakh), Bihar (53.6 lakh) and Rajasthan (52 lakh). West Bengal has not joined the Scheme.
- 1.28. Many States have implemented similar schemes, e.g., “Agriculture Investment Support Scheme- Rythu Bandhu” by Telangana, “Krushak Assistance for Livelihood and Income Augmentation - KALIA” by Odisha, Mukhyamantri Krishi Aashirvad Yojna of Jharkhand, Krishak Bandhu Scheme of West Bengal, etc.



Pradhan Mantri Kisan Maandhan Yojana: PM-KMY

- 1.29. Government of India has launched a contributory pension scheme 'Pradhan Mantri Kisan Maandhan Yojana' from 12th September 2019 for eligible small and marginal farmers with entry age of 18-40 years to provide social security. Under the scheme, a minimum fixed pension of ₹3000 per month will be paid on attaining the age of 60 years. The Scheme is expected to benefit about 3 crore farmer families but progress has been slow as only 19.9 lakh farmers have joined the Scheme so far. Haryana, Bihar, Jharkhand, Uttar Pradesh and Chhattisgarh are top five States, accounting for nearly 70 percent of total beneficiaries. Therefore, special efforts should be made to create awareness and encourage farmers to register for the Scheme.

Crop Diversification

- 1.30. Continuous adoption of rice-wheat cropping system in North-Western plains of Punjab, Haryana and West Uttar Pradesh has resulted in depletion of ground water and deterioration of soil quality, posing a serious threat to its sustainability. Crop diversification with alternative crops like pulses, oilseeds, maize, cotton and agro-forestry is being promoted by both Central and State governments. The Central Government launched Crop Diversification Programme (CDP) in original Green Revolution States in 2013-14 to promote technological innovations to encourage farmers to choose crop alternatives. The allocation under the programme has declined from, ₹40 crore during 2017-18, to ₹19.96 crore for 2018-19 and ₹13.3 crore in 2019-20. Government of Haryana launched "Jal Hi Jeevan Scheme" in 2019 to encourage farmers to shift from paddy to maize and tur with a target of 50,000 hectares, under which farmers would be paid ₹2000 per acre and provided hybrid seeds free of cost. The Uttar Pradesh government's 'One District, One Product' programme to encourage indigenous specialized products and crafts, and Central Government's "One Product, One District" for horticulture crops with focus on better marketing and export would also help in crop diversification. However, not much progress has been made so far on crop diversification in the region because of low economic returns from alternative crops, lack of assured marketing and remunerative prices, non-availability of appropriate proven technology for alternative crops, etc. A major policy shift in pricing and procurement for alternative crops as well as substantial investment in Research and Development (R&D) and market infrastructure are needed.

Benefits of Procurement Operations

- 1.31. The coverage of procurement of paddy has expanded to more States and farmers over the years. At all-India level, the number of paddy farmers who benefitted from procurement operations increased significantly (34.2%) from 72.3 lakh in 2017-18 to 97.1 lakh in 2018-19. There was a substantial increase in number of beneficiary farmers in West Bengal (3.5 lakh to 7.4 lakh), Chhattisgarh (10.1 lakh to 15.7 lakh), Uttar Pradesh (4.9 lakh to 6.8 lakh), Telangana (10.8 lakh to 14.7 lakh), Madhya Pradesh (2.8 lakh to 3.6 lakh), Bihar (1.6 lakh to 2.1 lakh) and Odisha (7.9 lakh to 10.1 lakh). However, less than 12 percent paddy growers benefit from procurement



operations. In some States like Punjab (more than 95%) and Haryana (69.9%), coverage is quite high, while in Uttar Pradesh and West Bengal, top rice producers, only 3.6 percent and 7.3 percent of paddy growers¹ benefitted from procurement operations. Majority of farmers in Uttar Pradesh, West Bengal and other Eastern and North-Eastern States, being marginal and small and having poor access to government procurement, resort to distress sale, therefore, there is a need to bring more farmers in these States under the ambit of procurement operations.

Storage and Warehousing

- 1.32. According to the Warehousing Development & Regulatory Authority (WDRA), total warehousing capacity in the country was 162.7 million tonnes in 2018-19 and more than half of the capacity was in the public sector. The storage capacity in the country has increased over last two decades, however, increased production and procurement due to open-ended procurement policy has led to huge stocks and shortage of scientific storage. To promote Public Private Partnership (PPP) in creation of storage facilities, Government introduced “Private Entrepreneur Guarantee Scheme” (PEG) in 2008 and about 14.2 million tonnes of capacity has been created under the Scheme and about 6.5 lakh tonnes capacity was under construction on 31st March 2019. In addition, to create storage capacity, a capital investment subsidy sub-scheme Agriculture Market Infrastructure (AMI) under Integrated Scheme for Agricultural Marketing (ISAM) is being implemented by the Ministry of Agriculture and Farmers Welfare, Government of India. Efforts should be made to create scientific storage systems at farm level and modernize grain handling and storage infrastructure in the country for efficient and effective handling of grains.
- 1.33. The Negotiable Warehouse Receipts (NWRs) System was launched in 2011 and Electronic Negotiable Warehouse Receipt (e-NWR) System in 2017 to provide loan to farmers against electronic warehouse receipts of agricultural commodities. As on 31st March 2019, 1057 warehouses with an aggregate capacity of about 79.1 lakh tonnes were active since the inception of WDRA. The financing on e-NWR has crossed more than ₹6000 crore and will get a boost after the integration of e-NWR with e-NAM.
- 1.34. Some State Governments are providing incentives to farmers to promote warehouse receipt financing. For example, Government of Karnataka is providing subsidized transportation and free warehousing to farmers along with interest subvention on pledge loan. Andhra Pradesh and Telangana have introduced ‘Rythu Bandhu Pathakam’, under which financing against pledge of stock with no interest up to 180 days is made available to farmers. There is a need to promote and popularize NWR financing among farmers in other States.

¹ Number of Paddy Operational Holdings as per 2015-16 Agriculture Census has been taken as a proxy to Number of Paddy Farmers



Collective Action: Farmer Producer Organizations (FPOs)

- 1.35. Collective action by farmers has played an important role in improving access to technology, inputs and markets, better negotiation power in market due to economies of scale and thereby higher farm incomes and rural employment opportunities. The Government of India approved a Central Sector Scheme “Formation and Promotion of Farmer Produce Organizations (FPOs)” in February 2020 to form and promote 10,000 new FPOs with a total budgetary provision of ₹4496 crore during 2019-20 to 2023-24 and a further commitment of ₹2369 crore for 2024-25 to 2027-28 period for handholding of FPOs for five years. A financial outlay of ₹500 crore has been made in the Union Budget 2020-21 for formation and promotion of 10,000 FPOs and a provision of Credit Guarantee Fund of up to ₹1,000 crore with National Bank for Agriculture and Rural Development (NABARD) and ₹500 crore with National Cooperative Development Corporation (NCDC) has been made to provide institutional credit to FPOs. To promote specialization and better processing, marketing, branding and export, FPOs will be promoted under “One District, One Product” cluster approach.
- 1.36. NABARD has promoted/supported over 3000 FPOs, while Small Farmers’ Agri-business Consortium (SFAC) has registered/is under the process of registering over 900 FPOs. Ministry of Rural Development is promoting and facilitating scaling-up successful small scale projects that enhance womens’ participation and productivity in agriculture and allied activities through Mahila Kisan Sashaktikaran Pariyojana (MKSP) under Deendayal Antayodaya Yojana (DAY-NRLM). About 63.4 lakh mahila kisans have been supported under the programme and an additional 33.6 lakh mahila kisans will be supported during 2019-20. Majority of the FPOs are at a nascent stage of their operations and continue to struggle to establish viable and sustainable business models. There is a need to provide professional managerial support and adequate access to capital and infrastructure facilities for strengthening market linkages and sustaining business operations.

Crop Residue Management

- 1.37. Crop residue management has become a major challenge over the last decade mainly in Indo-Gangetic Plains. Burning paddy residues in the field leads to huge nutrient loss besides deteriorating environment and human health. In the absence of suitable and economically viable alternatives, farmers follow this practice. There is a need to manage crop residue on-farm using farm machineries, educating farmers, making changes in the cropping system and using straw in industry and power generation. Various equipments/machines such as Super Straw Management System attached with existing combine harvester, Happy Seeder, Straw Chopper/Mulcher, Rotary Slasher, Reversible M B Plough, Rotavator etc. have been developed and successfully demonstrated in the farmers’ fields.
- 1.38. In order to promote in-situ management of crop residue, Government of India sanctioned ₹1178.8 crore during 2018-19 and 2019-20 and allocated ₹600 crore in 2020-21 under the Central Sector Scheme ‘Promotion of Agricultural Mechanization



for in-situ Management of Crop Residue'. During 2018-19, 7960 Custom Hiring Centres (CHCs) were established and more than 55764 machines were distributed to individual farmers and CHCs and in 2019-20, more than 44320 machines have been distributed and 16826 CHCs were established.

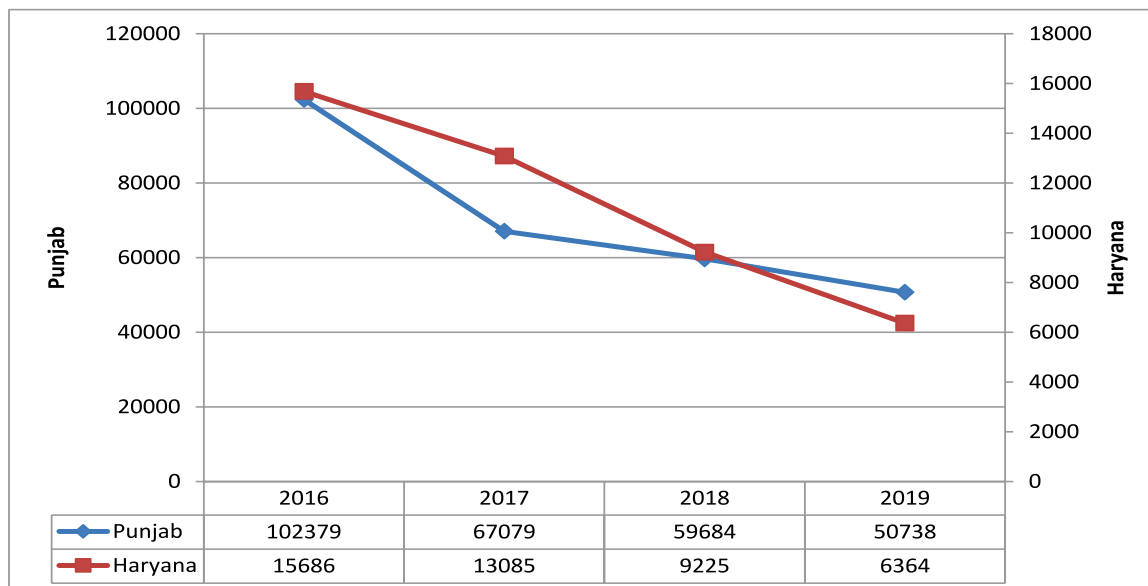
- 1.39. The concerted efforts of Central and State Governments have led to significant reduction in paddy residue burning incidences in Punjab (-15%) and Haryana (-31.8%) in 2019 compared to 2018 (Chart 1.5). Since, these machines are used for only few days and lie idle for most part of the year unlike tractors, the Commission suggests that subsidy should be restricted to groups like Co-operative Societies, FPOs, Self Help Groups, registered Farmers Societies/farmers groups, etc. However, many farmers still resort to burning of residue. It is, therefore, suggested that demonstrations of crop residue management technologies to create awareness and training of farmers should be undertaken on a large scale. In addition, economically feasible industrial uses of rice straw should be explored.

Crop Insurance

- 1.40. Pradhan Mantri Fasal Bima Yojana (PMFBY), implemented from Kharif 2016 season, has made a significant progress as coverage under the Scheme has increased from about 23 percent of gross cropped area in 2015-16 to 30 percent during Kharif 2019. The number of non loanee farmers under PMFBY has risen from 1.4 crore in 2017 to 2.3 crore in 2019 (Annex Table 1.5). The number of farmers insured under the Scheme increased in 18 out of 27 States in 2019 over 2018. Top five States, namely, Maharashtra, Tamil Nadu, Odisha, Andhra Pradesh and Karnataka having low irrigation coverage, accounted for nearly 90 percent of non-loanee farmers in 2019. Lack of awareness among farmers, delay in conducting crop cutting experiments and assessment of crop loss, issues in settlement of claims, delay in payment of State share of premium, lack of interest by insurance companies, etc. were major constraints in implementation of the PMFBY. The Scheme was voluntary for non-loanee farmers and loanee farmers, for whom the Scheme was compulsory, have been demanding to make it voluntary as banks were deducting the share of premium on compulsory basis and farmers had no direct contact with insurance companies and no policy certificate was issued to the farmers.



Chart 1.5: Number of Incidences of Stubble Burning Reported in Punjab and Haryana during 2016 to 2019 (1st October to 30th November)



Source: Government of Punjab and Haryana

- 1.41. Government of India revamped the PMFBY in February 2020 and made the Scheme voluntary for all farmers and capped Central subsidy for premium rates up to 30 percent for un-irrigated and 25 percent for irrigated areas/crops from kharif season 2020. Apart from this, certain other parameters/provisions of the Schemes such as allocation of business to insurance companies for a period of three years, not allowing States to implement the Scheme in subsequent seasons in case of considerable delay by States in release of requisite Premium Subsidy, States/UTs to choose Scale of Finance or district level Value of Notional Average Yield, use of Smart Sampling Technique (SST) and optimization of number of Crop Cutting Experiments (CCEs) etc. have been amended. These modifications have made PMFBY a true insurance scheme like any other insurance and companies will make efforts to create awareness among farmers about the benefits of crop insurance and help in addressing the constraints to make the Scheme more attractive to farmers and insurance companies.

Problem of Wild/Stray Animals

- 1.42. Crop damage by wild animals in areas close to forests and stray animals in many parts of the country has become a major issue and causing significant damage to crops. As a result, farmers have been forced to stop cultivation, which would adversely affect crop production and livelihood of millions of smallholder producers. The magnitude of wildlife damage to crops is quite significant and requires more effective controls than are available at present, and research is urgently needed to develop them. The issue needs to be addressed on priority. The Commission reiterates its earlier recommendation of exploring feasibility of installing electric/ solar fencing or digging trenches near farms on community based approach with



government support as well as possibility of using funds under Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and other Schemes for fencing of farms to protect the farmer fields from wild animals.

Strengthen Procurement Operations in the North-Eastern (NE) States

- 1.43. Total rice procurement from NE States during KMS 2018-19 was only 1.1 lakh tonnes against the total rice production of about 7.3 million tonnes. The underlying reasons behind the negligible procurement are lack of storage, milling infrastructure and procurement centres, high moisture content beyond the FAQ norms and lower out-turn ratio. On the other hand, total allocation of rice under NFSA and other welfare schemes for NE States is about 2.7 million tonnes, thus transporting rice from Northern States to NE States, resulting in huge transportation cost. For example, total cost incurred on transportation of rice from Northern States to NE States is estimated to be about ₹650 crore in 2019-20 (Annex Table 1.6). Moreover, due to the lack of proper procurement operations, farmers in this region do not get benefit of price support operations and market prices remain significantly below the MSP. The region has great potential for increasing rice production if farmers are provided with high yielding variety seeds, better technology, irrigation facilities and more importantly assured remunerative prices for their produce.
- 1.44. The Commission recommends that a special Scheme with active participation of the Central and State Governments should be prepared for development of storage and warehousing infrastructure, modern milling facilities and procurement centres in the region and an amount of ₹200-300 crore should be allocated for the same. It would help in reducing the burden of transportation costs and strengthening procurement operations in the NE region, thereby helping farmers. In addition, Commission reiterates its earlier recommendation to provide some relaxation in quality norms such as moisture content and out-turn-ratio in the initial years to encourage local procurement. Mass media awareness and publicity campaigns should be launched to educate farmers about specifications/FAQ standards and grain-drying facilities be provided to farmers at village level to reduce moisture content of grains before bringing the produce to mandis.

Structure of the Report

- 1.45. The report is organized as follows. Chapter 2 presents the demand-supply trends and outlook and procurement operations of mandated crops. Chapter 3 analyses trends in crop productivity, yield gap analysis and discusses major drivers of productivity. Chapter 4 presents an overview of trade patterns, trends in domestic and world prices, review of trade policy and trade outlook. Chapter 5 analyses the cost of production, returns and costs projections of crops. Finally, Chapter 6 summarizes the main considerations and presents non-price policy measures and MSP recommendations.



Chapter 2

Demand-Supply Outlook, Prices and Price Support Operations

World Trends and Outlook

- 2.1 Global demand and supply trends and outlook for three major kharif crops viz. rice, maize and soybean as estimated by Food and Agricultural Organisation (FAO), United States Department of Agriculture (USDA) and International Grain Council (IGC) are given in Table 2.1. As per FAO's latest estimates, global rice production in 2019 is forecast at 512 million tonnes, down 0.5 percent from 2018 all-time record high of 515 million tonnes. However, USDA and IGC forecast global rice output in 2019-20 steady at about 499.4 million tonnes, just short of last year's peak. According to three agencies, global use of rice is estimated to increase by 5-6 million tonnes in 2019-20 over the last year. Due to high opening stocks, world rice supplies are projected to increase by 4.8 million tonnes as per FAO estimates, 9.3 million tonnes as per IGC and 12.7 million tonnes as per USDA projections. FAO expects world rice trade to increase by 3.6 percent in 2019-20, while USDA projects 1.9 percent increase and IGC about 4 percent increase in global rice trade. However, reduced exports forecast for India and Thailand may adversely affect world rice exports. Global ending stocks in 2019-20 are projected to be higher than 2018-19.
- 2.2 FAO's 2019-20 world maize production estimate is currently pegged at 1137.8 million tonnes, about 1.6 percent more than 2018-19. However, as per USDA and IGC estimates, global maize production is forecast to decline in 2019-20. World maize utilization in 2019-20 is forecast to increase by 0.9 percent due to higher food use in Africa and strong feed demand in the Russian Federation, the US and Vietnam as per FAO estimates and 0.4 percent as per IGC estimates. USDA estimates indicate decline in world maize utilization in 2019-20. FAO's latest forecast for world trade in maize in 2019-20 stands at roughly 166.8 million tonnes, marginally higher than 2018-19. USDA forecasts 8.1 percent decrease in maize trade in 2019-20 but, IGC forecasts a 2.5 percent increase in maize trade in 2019-20. The ending stocks in 2019-20 are forecast to contract from last year



by about 19 million tonnes (5.2%) as per FAO estimates, 7.3 percent as per USDA and 12 percent as per IGC forecast.

- 2.3 World production of soybean increased significantly in 2018-19 compared to 2017-18. However, FAO, USDA and IGC forecast a sharp decline in production in 2019-20 due to lower production in India, Canada and Argentina driven by unfavourable weather conditions. Contraction in production will result in lower supply by 1.8 percent to 2.3 percent in 2019-20 compared to the previous year. However, due to higher demand forecasts for China, all three agencies have projected an increase in utilisation. Declining supply and production along with increased utilization and lower stock forecasts for China and the US will result in significantly lower ending stocks in 2019-20 and can trigger a potential increase in soybean prices. FAO's forecast for ending stocks of soybean in 2019-20 stands at 44.6 million tonnes, 23.6 percent lower than previous year. USDA and IGC forecasts show reduction in soybean stocks by 8.5 percent and 27.5 percent, respectively.

Table 2.1: Global Supply and Demand Outlook for Rice, Maize and Soybean

(million tonnes)

Crops	FAO			USDA			IGC		
	2017-18	2018-19	2019-20*	2017-18	2018-19	2019-20\$	2017-18	2018-19	2019-20#
Rice									
Production	506.8	514.7	512.2	494.8	499.4	499.3	494.0	499.9	499.4
Supply^	675.2	690.4	695.2	644.7	661.9	674.6	636.0	662.6	671.9
Utilization	504.7	509.2	514.4	482.2	486.7	492.3	486.1	490.1	495.0
Trade^^	48.1	44.2	45.8	47.3	43.5	44.3	46.7	42.5	44.2
Stocks	172.5	183.0	182.2	162.6	175.3	182.3	150.0	172.5	176.9
Maize									
Production	1094.0	1120.2	1137.8	1080.1	1123.3	1112.0	1089.6	1129.7	1112.2
Supply^	1394.0	1488.9	1498.6	1432.1	1464.9	1432.8	1453.6	1469.0	1434.9
Utilization	1073.0	1140.4	1150.4	1090.5	1144.1	1135.5	1117.8	1146.3	1151.0
Trade^^	155.4	166.3	166.8	148.2	180.5	165.8	151.9	164.7	168.8
Stocks	307.5	360.6	341.8	341.6	320.8	297.3	335.8	322.7	284.0
Soybean									
Production	341.7	364.2	345.4	342.1	358.7	341.8	340.7	362.0	345.4
Supply^	398.7	413.2	403.8	436.9	457.7	453.6	389.8	406.9	399.6
Utilization	349.7	353.2	360.6	338.1	342.9	350.1	346.1	352.7	360.3
Trade^^	153.6	150.4	152.1	153.1	148.3	151.9	152.7	151.6	152.6
Stocks	41.1	58.4	44.6	99.1	111.9	102.4	43.4	54.2	39.3

Notes: 2018-19 figures are estimates, *Forecast 05.03.2020, \$ Forecast 10.03.2020, #Forecast 27.02.2020

^Supply for USDA estimates is calculated by adding beginning stocks and production

^^Trade figures are based on export estimates for USDA

Source: 1. AIMS-FAO Market Monitor 2. International Grains Council (IGC) 3. United States Department of Agriculture (USDA)

- 2.4 USDA estimates project a lower global oilseeds production in 2019-20 at 580.1 million tonnes, 17.1 million tonnes lower than in 2018-19. Global stocks are also forecast to be lower at 117.4 million tonnes in 2019-20, down by 9.6 percent from 2018-19. World coarse grains production is expected to improve from 1396.1 million tonnes in 2018-19 to 1402.7 million tonnes in 2019-20. However, global stocks of coarse grains are forecast to decline by 5.9 percent, from about 345 million tonnes in 2018-19 to 327.3 million tonnes in 2019-20. The global supply and use outlook for oilseeds and coarse grains is given in Annex Table 2.1.
- 2.5 According to USDA's March forecast, cotton production is expected to be higher in Pakistan, Brazil, and Tanzania while consumption is forecast to be marginally lower due to weak demand in China and Vietnam. Therefore, as a result, ending stocks for 2019-20 are expected to rise from 80.2 million bales in 2018-19 to 83.4 million bales in 2019-20. Global trade is expected to increase by 5.4 percent in 2019-20 compared to 2018-19 (Annex Table 2.2).

Domestic Scenario

- 2.6 Rice production in India is estimated at 117.5 million tonnes in 2019-20, marginally higher (0.9%) compared to 2018-19 (Table 2.2). However, rice stocks in central pool as on 1st February 2020 stood at 27.5 million tonnes, up 20.4 percent compared to 2019, while exports in April-December 2019 were 25.6 percent lower than April-December 2018. With marginally higher production, huge stocks and substantial fall in rice exports, domestic prices are projected to remain depressed in 2020-21.

Table 2.2: Domestic Supply of Rice in India

(million tonnes)			
Particulars	2017-18	2018-19	2019-20
Production	112.8	116.5	117.5*
Stocks in Central Pool #	19.9	22.8	27.5
Exports	12.9	12.1 (8.6**)	6.4***

Notes: * as per 2nd Advance Estimate, # as on 1st February 2018, 2019 and 2020, ** Figure in parentheses is for April-December 2018, *** April-December 2019

Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

2. Department of Food and Public Distribution, Ministry of Consumer Affairs, Food and Public Distribution

3. Directorate General of Commercial Intelligence & Statistics, Ministry of Commerce & Industry

- 2.7 Total production of pulses in the country is estimated at 23 million tonnes in 2019-20, marginally higher than in 2018-19. However, kharif pulses production in 2019-20 is estimated at 7.9 million tonnes, marginally lower than 8.1 million tonnes in 2018-19 but significantly lower than the target of 10.1 million tonnes for 2019-20. Tur production in 2019-20 is estimated to be 11.1 percent higher than 2018-19 but 19.8 percent lower than the target. Production of urad is expected to be significantly lower (-26.5%) than 2018-19 production level and 39.2 percent less than the target for 2019-20, while moong production is also estimated to be lower (-7.7%) in 2019-20 compared with production in 2018-19 due to unfavourable weather conditions in major growing areas. On the other



hand, as on 24th February 2020 total stocks of tur, moong and urad with the Government agencies were about 5 lakh tonnes, significantly lower than the corresponding period in last year. Reduced availability of pulses in the country has led to an increase in imports of pulses in 2019-20 compared to 2018-19. While lower production and reduced stocks have improved market prices of pulses during 2019-20 but rising imports may have adverse impact on domestic prices. Significant increase in rabi pulses production (8.1%) is expected to moderate prices. However, there is less degree of substitution among pulses as Indian consumers prefer specific pulse, therefore, efforts should be made to increase production of different pulses.

- 2.8 As per 2nd Advance Estimates of Ministry of Agriculture and Farmers Welfare and Cotton Advisory Board (CAB) estimates, cotton production in the country is expected to rise significantly in 2019-20. Indian cotton production as per 2nd Advance Estimates is pegged at 348.9 lakh bales in 2019-20, 68.5 lakh bales (24.4%) higher than in 2018-19 but about 2.4 percent lower than the target. However, as per CAB estimates, cotton production is estimated to increase by only 9.1 percent in 2019-20 compared to the last year. As per the CAB's cotton balance sheet, increased cotton production is expected to lead to higher domestic mill consumption and more exports in 2019-20 compared to the last year. Total consumption is expected to increase by more than 5 percent, from 315.5 lakh bales in 2018-19 to 331 lakh bales in 2019-20 and much of this increase is anticipated to come from higher overall spindleage and more preference towards usage of cotton yarn. Despite rise in consumption as well as net exports, closing stocks of cotton in 2019-20 at 48.4 lakh bales are expected to be higher (44.4 lakh bales) than 2018-19. Further, compared to the 3-year average from 2015-16 to 2017-18, total supply, consumption and closing stocks are estimated to be higher in 2019-20 but exports are significantly lower (-23%) than 3-year average. Expected higher closing stocks and adequate market supplies from the 2019-20 output are anticipated to keep domestic cotton prices relatively stable in the next season.

Table 2.3: Demand-Supply Estimates of Cotton in India

(lakh bales of 170 kgs each)

Particulars	3-Year Average (2015-16 to 2017-18)	2018-19(P)	2019-20(P)
Opening stock	48.7	42.9	44.4
Crop (Production)	349.0	330.0	360.0
Imports	23.2	31.0	25.0
Total Supply	420.9	403.9	429.4
Mill Consumption	271.0	274.5	288.0
S.S.I. Consumption	26.5	25.0	25.0
Non Textile Consumption	17.4	16.0	18.0
Total consumption	314.9	315.5	331.0
Exports	65.0	44.0	50.0
Total Demand	379.9	359.5	381.0
Closing Stock	41.0	44.4	48.4

Note: P-provisional

Source: Cotton Advisory Board



Market Prices vis-à-vis MSP

2.9 The analysis of domestic market price trends has been done using market price data compiled from AGMARKNET, which reports daily prices and market arrivals collected from about 3100 APMC markets in different States/UTs. State weighted average daily price of a commodity has been computed by taking average of modal price prevailing in the various centres weighted by daily market arrival in the centre. All-India daily average market price has been computed by taking average of all States weighted by share of the State in total production of a crop/commodity. Finally, monthly average price at all-India level is computed by taking simple average of daily all-India prices. The comparison between the market prices and the MSP is useful for understanding the effectiveness of price support scheme. In the following section, we compare the market prices and MSPs of mandated crops from Kharif Marketing Season (KMS) 2015-16 to KMS 2019-20.

Paddy

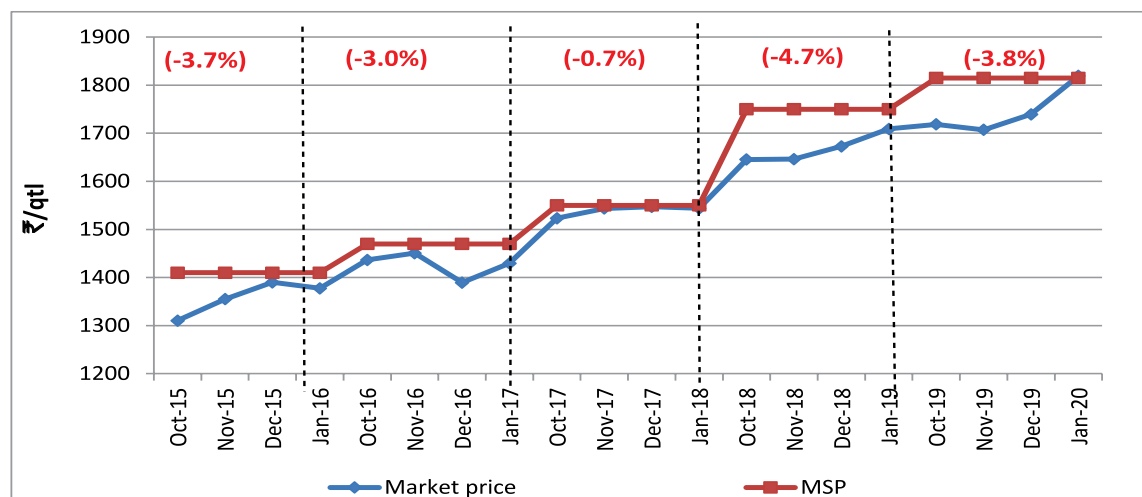
- 2.10 Chart 2.1 presents the monthly average market price and MSP of paddy from KMS 2015-16 to KMS 2019-20. The figure shows that that all-India average market price of paddy remained below the MSP during the last five marketing seasons. The average difference between the two prices was the highest (-4.7%) in KMS 2018-19, when the MSP was hiked by 12.6 percent. The difference has narrowed down to (-)3.8 percent in KMS 2019-20 due to recovery in market prices.
- 2.11 Table 2.4 provides State-wise analysis of the number of days when market prices ruled below/above MSP and the average percentage difference between two prices in KMS 2019-20. In Assam and Chhattisgarh, market prices remained below MSP on all the days for which the data were available, but the difference between MSP and market price was higher (-17.3%) in Assam than in Chhattisgarh (-10.4%). In Assam, the difference between MSP and market prices was high (>15%) on about two-third of total days for which price data were available, while in Chhattisgarh the corresponding number was 21.3 percent. Paddy market prices also remained below MSP on most of the days in Tamil Nadu and Uttar Pradesh. The average difference between MSP and market price was 7.4 percent in Tamil Nadu, 6.9 percent in Uttar Pradesh and 4 percent in Telangana. The average difference between market price and MSP was comparatively lower in West Bengal (-2.3%) while in Andhra Pradesh market prices were 2.4 percent higher than MSP on average. Punjab was the only State where market prices remained above MSP throughout the period, due to high procurement in Punjab.
- 2.12 Chart 2.2 presents the average daily market price and the MSP for major producers, namely, Uttar Pradesh and West Bengal constituting nearly 27 percent of total rice production. As seen in the Chart, market prices in West Bengal were below the MSP until December 2019 but improved in January and generally stayed above MSP. On the other hand, market prices in Uttar Pradesh remained

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below the MSP but marginally improved during the later period of KMS 2019-20. However, the gap between market price and MSP has narrowed in KMS 2019-20 compared to previous marketing season due to higher paddy procurement in the State.

Chart 2.1: Trends in Domestic Market Prices vis-à-vis MSP of Paddy



Notes: 1. Weighted modal prices of Andhra Pradesh, Assam, Chhattisgarh, Haryana, Madhya Pradesh, Punjab, Tamil Nadu, Telangana, Uttar Pradesh and West Bengal, which covers 73.3 percent of paddy production in India

2. Figures in parentheses show percentage difference between market prices and MSP for each marketing season

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

Table 2.4: Market Prices vis-a-vis MSP of Paddy in Major Producing States in KMS 2019-20 (Oct 2019 to Jan 2020)

States	No of days market prices reported	No of days market prices were above MSP	No of days market prices were below MSP				Average difference (%) between market price & MSP
			< 5%	5%-10%	10%-15%	>15%	
Andhra Pradesh	121	68	50	0	1	2	2.4
Assam	42	0	1	5	8	28	-17.3
Chhattisgarh	122	0	36	20	40	26	-10.4
Tamil Nadu	119	3	46	37	26	7	-7.4
Telangana	123	31	48	29	14	1	-4.0
Punjab	64	64	0	0	0	0	1.3
Uttar Pradesh	123	3	45	49	23	3	-6.9
West Bengal	123	30	74	18	1	0	-2.3

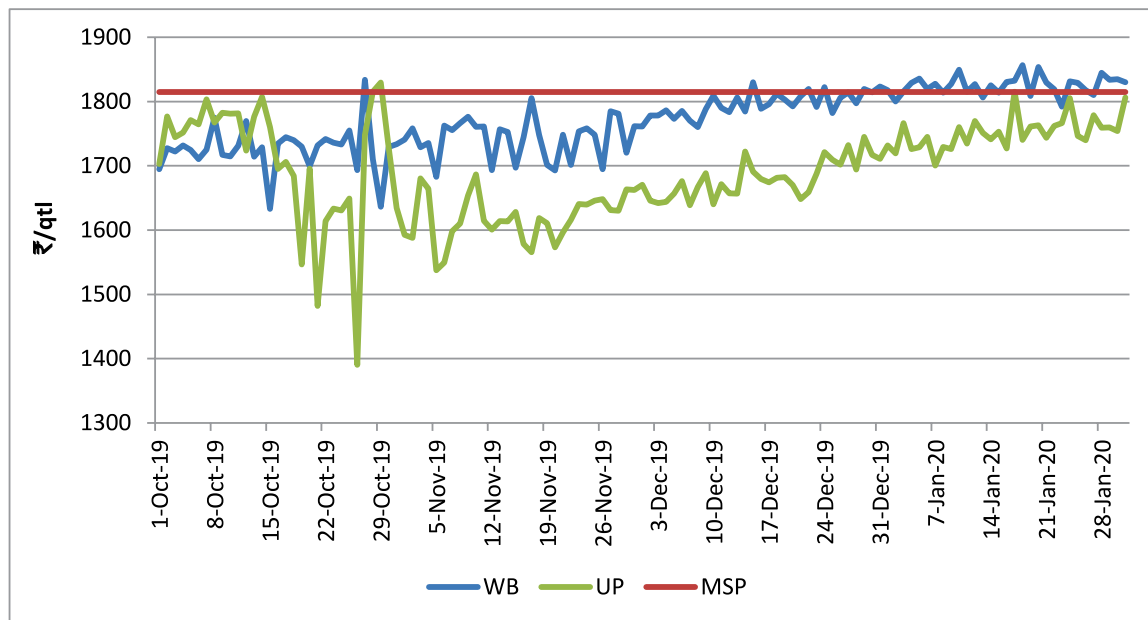
Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare



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Chart 2.2: Comparison of Market Prices and MSP of Paddy in Uttar Pradesh and West Bengal during KMS 2019-20



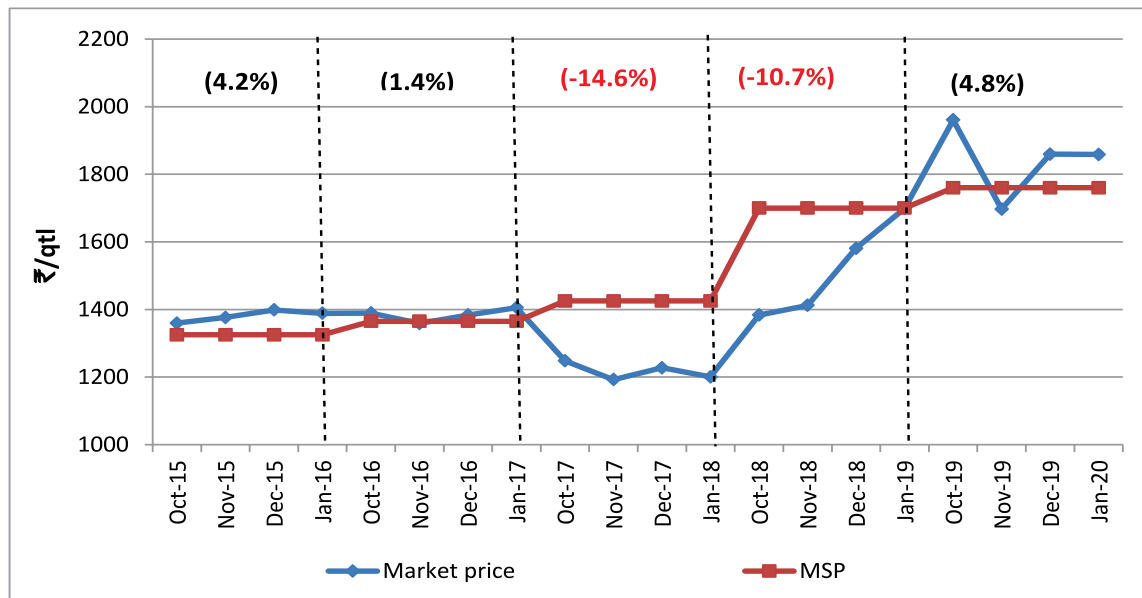
Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare
2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

Maize

- 2.13 Market prices of maize were higher than MSP by 4.2 percent in KMS 2015-16 and 1.4 percent in KMS 2016-17 (Chart 2.3). However, market prices dipped sharply and ruled significantly below the MSP (-14.6%) in KMS 2017-18 and (-)10.7 percent in KMS 2018-19 due to higher domestic production and sharp revision in MSP from ₹1425 per quintal in KMS 2017-18 to ₹1700 per quintal in KMS 2018-19. In KMS 2019-20, market prices were significantly higher than MSP in October 2019, marginally dipped below MSP in November 2019 but market prices recovered and stayed above MSP during December 2019 and January 2020. The average market price was 4.8 percent higher than the MSP during KMS 2019-20 due to lower domestic production and increased demand.
- 2.14 Table 2.5 shows the number of days when market prices stayed above/below MSP for maize in major maize producing States during the last marketing season. The average difference between market price and the MSP of maize ranged from (-)3.4 percent in Andhra Pradesh to 12.9 percent in Gujarat. Andhra Pradesh recorded the highest number of days (62.9%) when market prices stayed below MSP, followed by Maharashtra (49.1%) and Madhya Pradesh (44.6%). On the other hand, market prices remained above MSP on all days in Uttar Pradesh. In Andhra Pradesh, Karnataka, Maharashtra, Telangana, Gujarat, Rajasthan and Tamil Nadu, the average gap between MSP and market prices remained less than 5 percent on most of the days.



Chart 2.3: Trends in Domestic Market Prices vis-à-vis MSP of Maize



Notes: 1. Weighted wholesale modal prices of Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Madhya Pradesh, Rajasthan, Tamil Nadu, Telangana and Uttar Pradesh, which account for 74.2 percent of India's total maize production is used to compute market price

2. Figures in parentheses show percentage difference between market prices and MSP for each marketing season

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

Table 2.5: Market Prices vis-a-vis MSP of Maize in Major Producing States in KMS 2019-20 (Oct, 2019 to Jan, 2020)

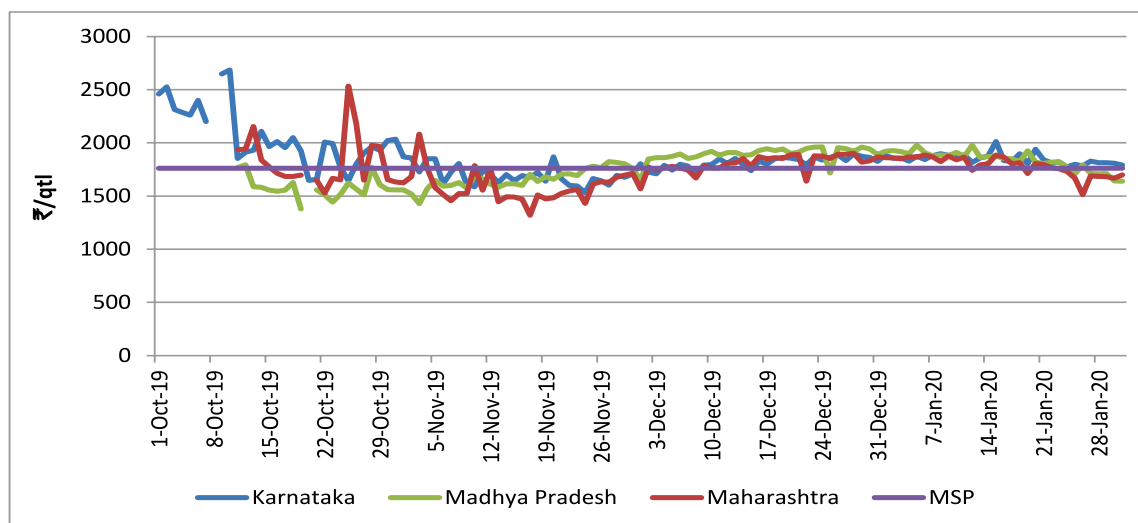
States	No of days market prices reported	No of days market prices were above MSP	No of days market prices were below MSP				Average difference (%) between market price & MSP
			< 5%	5%-10%	10%-15%	>15%	
Andhra Pradesh	97	36	26	15	16	4	-3.4
Karnataka	122	90	16	15	1	0	5.4
Madhya Pradesh	112	62	13	18	16	3	0.0
Maharashtra	112	57	20	14	12	9	-0.9
Rajasthan	112	98	7	3	2	2	9.7
Telangana	114	74	22	10	8	0	2.4
Uttar Pradesh	113	113	0	0	0	0	8.8
Gujarat	109	98	5	2	4	0	12.9
Tamil Nadu	87	56	16	8	3	4	5.1

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

- 2.15 Chart 2.4 shows the trends in market prices of maize vis-à-vis MSP for three major maize growing States, namely, Karnataka, Madhya Pradesh and Maharashtra. As can be seen from the Chart, market prices were higher than MSP during first half of October 2019. However, there was a slight downward movement in market prices in all the States in November and market prices largely remained below MSP but a slight recovery was observed in market prices in December 2019 in all the three States.
- 2.16 Due to limited demand for maize for human consumption and short shelf life, liquidation of maize stocks procured by public agencies poses a significant challenge. Therefore, higher value-addition through participation of private players and diversified use for industrial purposes including ethanol production is necessary to ensure better price to farmers.

Chart 2.4: Comparison of Market Prices and MSP of Maize in Karnataka, Madhya Pradesh and Maharashtra during KMS 2019-20



Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare
2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

Pulses

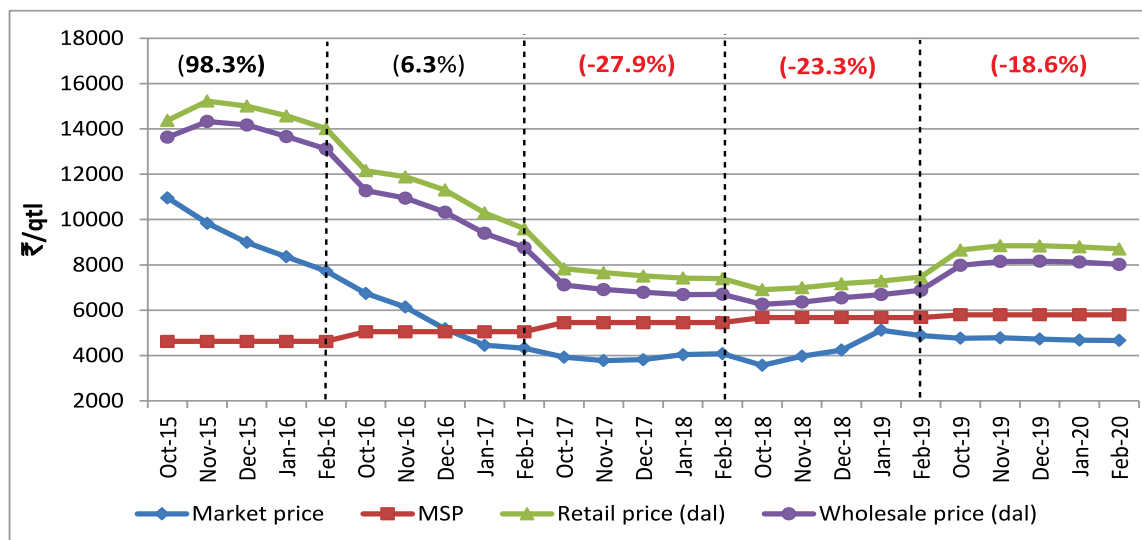
- 2.17 Pulses prices rose to record highs in the 2015-16, with tur market prices up by about 2.5 times from October 2014 to October 2015 due to crop failure in 2014-15 and 2015-16. The average market price of tur in KMS 2015-16 was significantly higher (98.3%) than the MSP (Chart 2.5). However, due to significant increase in pulses production and imports during 2016-17 and 2017-18, market prices declined and even fell below the MSP. Driven by high MSP and declining market prices, difference between market price and the MSP of tur widened and was (-)27.9 percent in 2017-18 and (-)23.3 percent in 2018-19. During KMS 2019-20, tur market prices improved by 22.2 percent over KMS 2017-18 and 8.5 percent over KMS 2018-19 but remained below MSP and the difference between the two prices declined to (-)18.6 percent. Wholesale and retail prices of tur dal showed a consistently declining trend in 2015-

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16 and 2016-17 but remained significantly higher than MSP and market prices. In KMS 2019-20, both wholesale and retail prices have remained stable, averaging ₹8086 per quintal and ₹8768 per quintal, respectively, and the difference between wholesale/retail prices and MSP/market prices has increased.

Chart 2.5: Trends in Market Prices vis-à-vis MSP of Tur



Notes: 1. Weighted wholesale modal prices of Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Telangana and Uttar Pradesh, which covers 86.3 percent of India's total production.
2. MSP is inclusive of bonus.
3. Figures in parentheses show percentage difference between market prices and MSP for each marketing season

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

3. Department of Food and Public Distribution, Ministry of Consumer Affairs, Food and Public Distribution

- 2.18 Market prices of tur have remained below MSP for all the major States for most days in KMS 2019-20 (Table 2.6). The price gap was the highest (-30.7%) in Madhya Pradesh, followed by Gujarat (-16.7%), Uttar Pradesh (-14.3%) and Maharashtra (14%).
- 2.19 Chart 2.6 shows daily movement of market prices in two major tur producing States viz. Karnataka and Maharashtra. It is evident from the Chart that market prices have remained below MSP throughout the KMS 2019-20 and the gap between market prices and MSP has widened since November 2019.
- 2.20 Market prices of moong were 41.7 percent higher than MSP during KMS 2015-16 but fell below the MSP (-12.1%) in KMS 2016-17, the difference between market price and the MSP increased to (-)19 percent in KMS 2017-18 and (-)28.2 percent in 2018-19 (Chart 2.7). This was due to a large jump (25.1%) in MSP and higher production (21.8%) of moong in 2018-19. Lower production of moong led to higher prices and the difference between market price and MSP declined significantly (-9.9%) during KMS 2019-20. Wholesale and retail prices of moong have moved in



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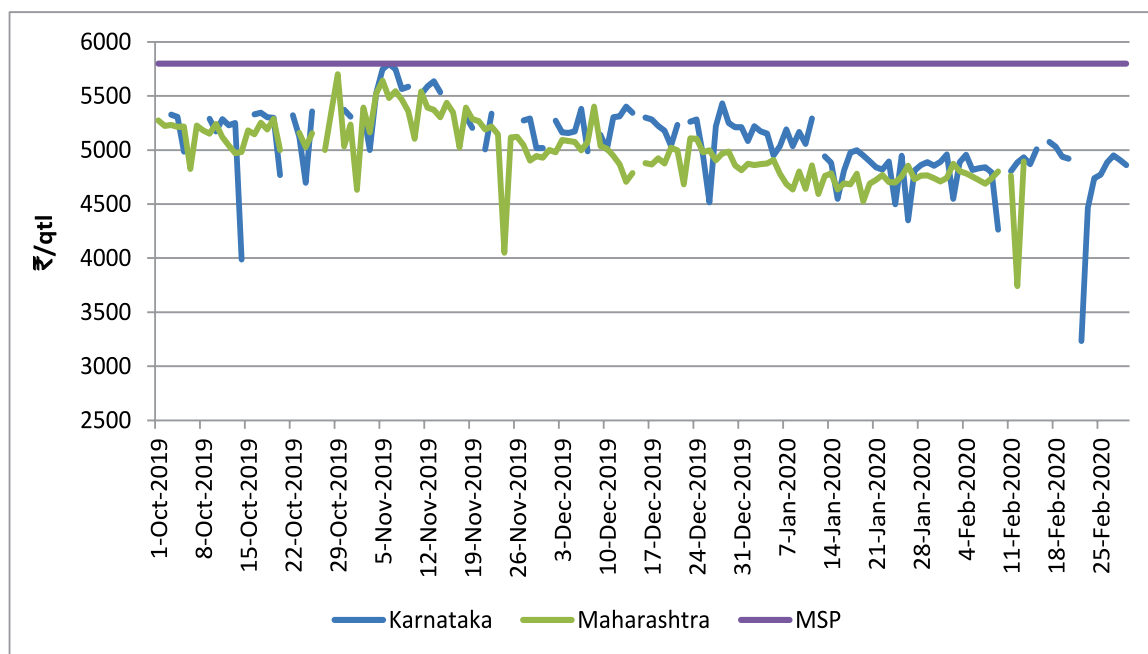
tandem with market prices. Wholesale prices were below the MSP from October 2018 to January 2019 but increased substantially in KMS 2019-20. Wholesale, retail and market prices have recorded an upward trend during the current season and increased by 25.2 percent, 12.8 percent and 13.3 percent, respectively, between October 2019 and February 2020.

Table 2.6: Market Prices vis-a-vis MSP of Tur in Major Producing States in KMS 2019-20 (October 2019 to February 2020)

States	No of days market prices reported	No of days market prices were above MSP	No of days market prices were below MSP				Average difference (%) between market price and MSP
			< 5%	5%-10%	10%-15%	>15%	
Gujarat	145	0	0	4	68	73	-16.7
Karnataka	126	0	10	37	43	36	-12.5
Madhya Pradesh	144	0	0	1	1	142	-30.7
Maharashtra	131	0	5	22	45	59	-14.0
Uttar Pradesh	148	1	8	33	38	68	-14.3

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare
2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

Chart 2.6: Comparison of Market Prices and MSP of Tur in Karnataka and Maharashtra during KMS 2019-20 (Oct 2019 to Feb 2020)



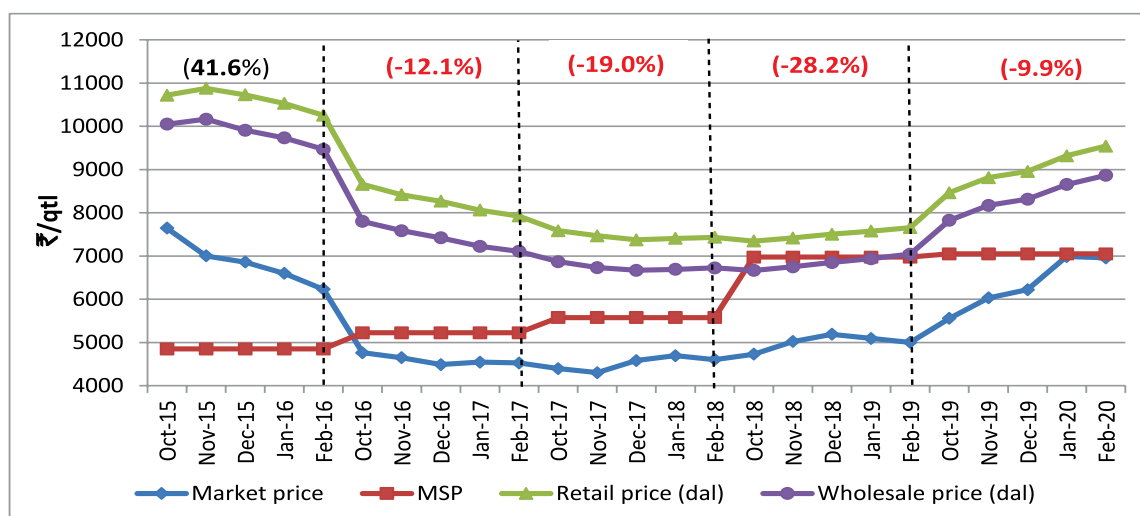
Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare
2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

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2.21 During KMS 2019-20, Rajasthan recorded the maximum number of days (76.8%) when market prices were reported below MSP followed by Madhya Pradesh (75.4%) and Maharashtra (65%) (Table 2.7). Further, on majority of the days the gap was higher than 15 percent. The average difference between market prices and MSP was (-)4.4 percent in Madhya Pradesh, (-)9 percent in Maharashtra and (-)11.8 percent in Rajasthan.

Chart 2.7: Trends in Domestic Prices vis-à-vis MSP of Moong



Notes: 1. Weighted wholesale prices of Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Telangana and Uttar Pradesh, which cover 89.6 percent of total production of moong

2. MSP is inclusive of bonus.

3. Figures in parentheses show percentage difference between market prices and MSP for each marketing season

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

3. Department of Food and Public Distribution, Ministry of Consumer Affairs, Food and Public Distribution

Table 2.7: Market Prices vis-a-vis MSP of Moong in Major Producing States in KMS 2019-20 (Oct 2019 to Feb 2020)

States	No of days market prices reported	No of days market prices were above MSP	No of days market prices were below MSP				Average difference (%) between market price and MSP
			< 5%	5%-10%	10%-15%	>15%	
Madhya Pradesh	134	33	12	17	18	54	-4.4
Maharashtra	136	47	16	25	17	31	-9.0
Rajasthan	151	35	23	13	37	43	-11.8

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

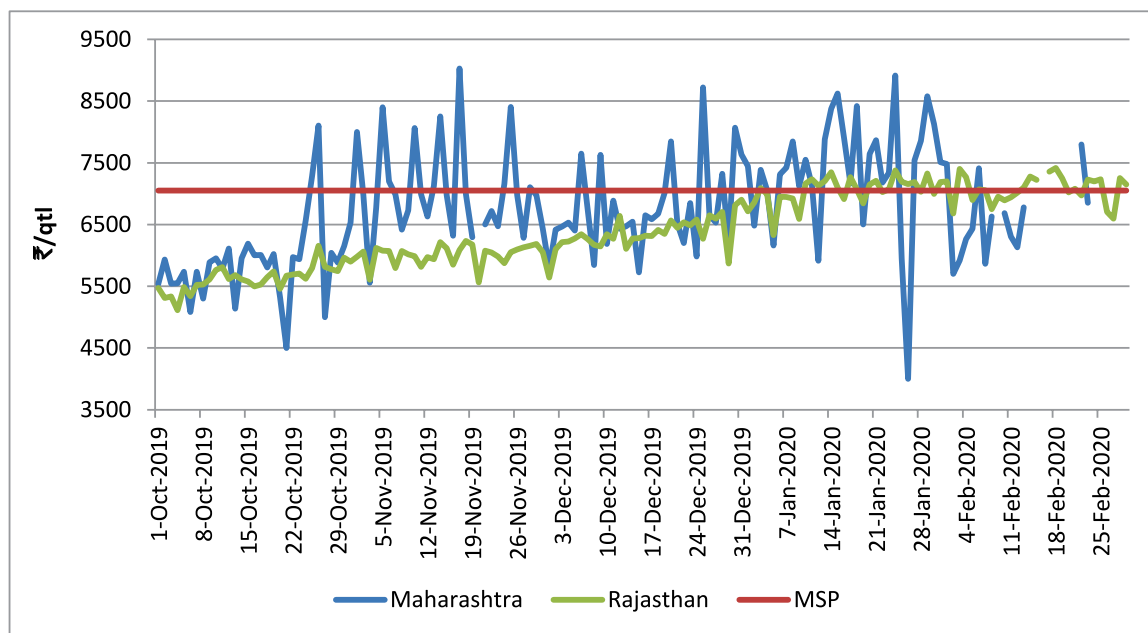
2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare



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- 2.22 Chart 2.8 shows daily price movements for moong in Rajasthan and Maharashtra for KMS 2019-20. Market price of moong was higher in Maharashtra than Rajasthan but fluctuations in market prices in Maharashtra were much larger than Rajasthan.

Chart 2.8: Comparison of Market Prices and MSP of Moong in Rajasthan and Maharashtra during KMS 2019-20



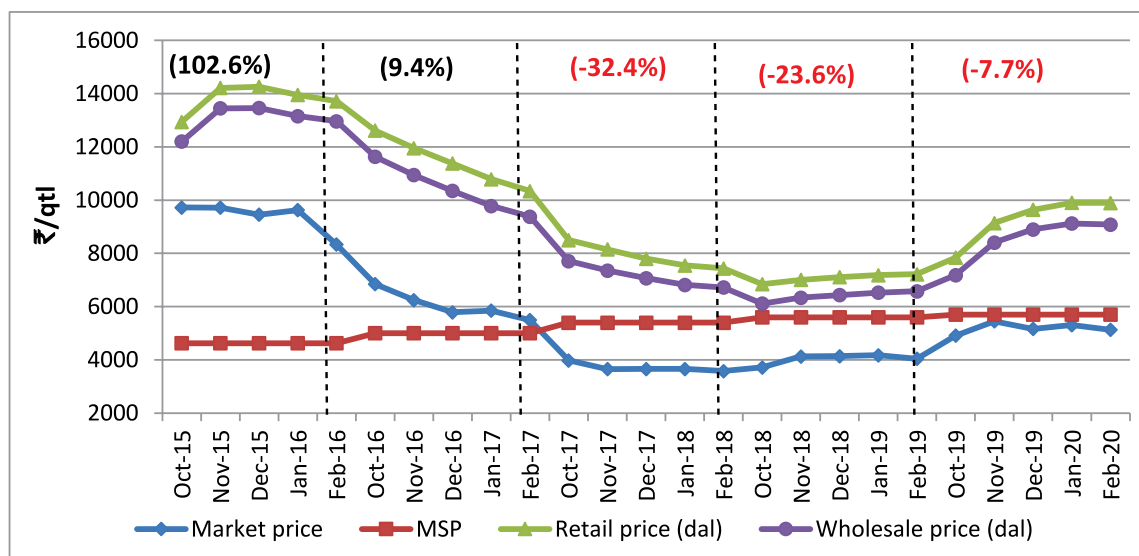
Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare
2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

- 2.23 Market prices of urad increased by 82 percent and were more than double the MSP during KMS 2015-16, however, market prices fell by 35 percent but remained above the MSP in KMS 2016-17 (Chart 2.9). The gap between the MSP and market price reduced from 102.6 percent in KMS 2015-16 to 9.4 percent in KMS 2016-17. Market prices continued the declining trend during 2017-18 and average market price was 32.3 percent lower than MSP. Due to improvement in market prices, the gap narrowed to (-)23.6 percent in KMS 2018-19, which further reduced to (-)7.7 percent in KMS 2019-20 due to a significant increase (28.5%) in market prices. Retail and wholesale prices of urad also followed the trends in market prices and MSP.
- 2.24 During KMS 2019-20 market prices stayed below MSP on almost all days in Madhya Pradesh, with an average gap of (-)25.8 percent (Table 2.8). In Maharashtra market prices were less than MSP on 69.3 percent of the reported days and average difference between the two prices was (-)4.9 percent. The situation was better in Rajasthan and Tamil Nadu. In Rajasthan, market prices were on average lower than MSP by only 2.6 percent whereas, in Tamil Nadu market prices on average were higher than MSP by 16.6 percent.



2.25 Movement in daily market prices of Madhya Pradesh and Uttar Pradesh, accounting for more than half of total urad production in the country, are shown in Chart 2.10. Prices in Uttar Pradesh were higher than Madhya Pradesh and also above the MSP since December 2019.

Chart 2.9: Trends in Domestic Prices vis-à-vis MSP of Urad



Notes: 1. Weighted wholesale prices of Andhra Pradesh, Gujarat, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu and Uttar Pradesh, which cover 87.3 percent of total production of urad.

2. MSP is inclusive of bonus.

3. Figures in parentheses show percentage difference between market prices and MSP for each marketing season

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

3. Department of Food and Public Distribution, Ministry of Consumer Affairs, Food and Public Distribution

Table 2.8: Market Prices vis-a-vis MSP of Urad in Major Producing States in KMS 2019-20 (Oct 2019 to Feb 2020)

States	No of days market prices reported	No of days market prices were above MSP	No of days market prices were below MSP				Average difference (%) between market price and MSP
			< 5%	5%-10%	10%-15%	>15%	
Madhya Pradesh	147	1	1	4	7	134	-25.8
Maharashtra	137	42	32	23	15	25	-4.9
Rajasthan	143	74	26	15	14	14	-2.6
Tamil Nadu	104	92	5	2	3	2	16.6
Uttar Pradesh	153	53	30	33	32	5	-3.3

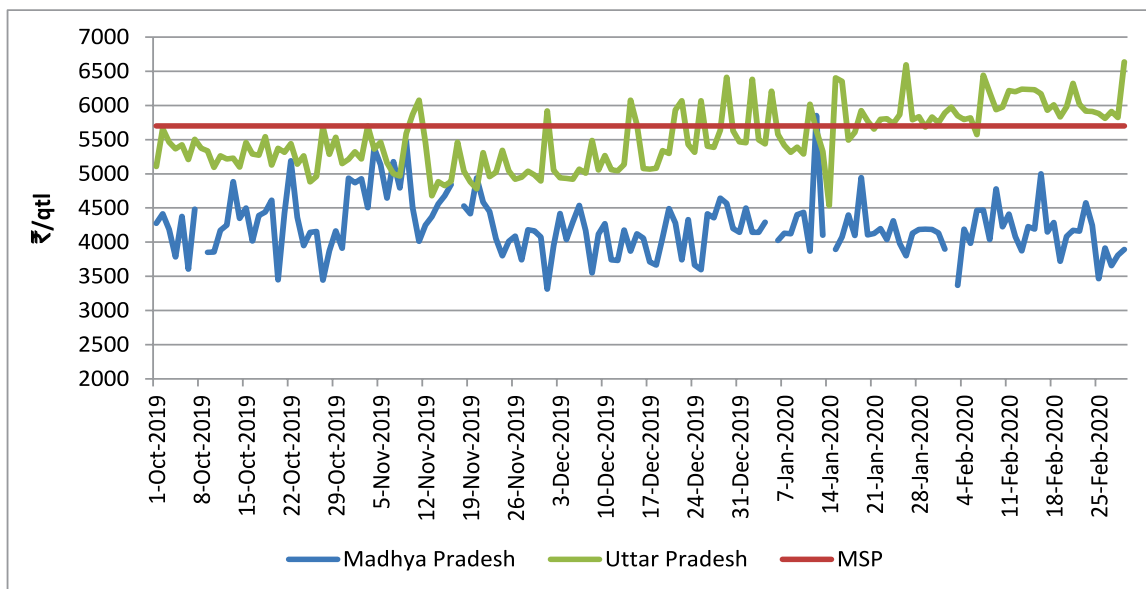
Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare



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Chart 2.10: Comparison of Market Prices and MSP of Urad in Uttar Pradesh and Madhya Pradesh during KMS 2019-20



Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare
2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

- 2.26 The market prices of kharif pulses have improved during KMS 2019-20 but were below the MSP. One of the main reasons for low prices of pulses is quality issues e.g. farmers bring pulses to market without cleaning and grading and quality does not meet FAQ standards. Farmers therefore are forced to sell at discounted price. There is a need to create awareness about FAQ standards and encourage farmers to bring graded produce to market to get better price.

Oilseeds

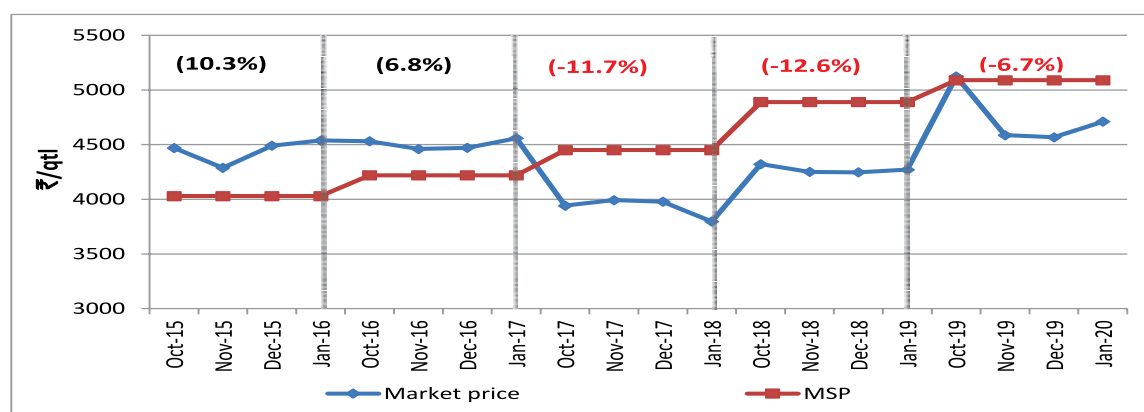
- 2.27 Market prices of groundnut were higher than MSP during procurement period of KMS 2015-16 and KMS 2016-17 (Chart 2.11). However, this was followed by a sharp fall in market prices, from ₹4505 per quintal in KMS 2016-17 to ₹3927 per quintal in KMS 2017-18, leading to a significant difference (11.7%) between market prices and MSP in KMS 2017-18. This decline in market prices was due to substantial increase (24%) in groundnut production in 2017-18 over 2016-17. Market prices recovered in KMS 2018-19 but remained below the MSP (-12.6%) due to nearly 10 percent increase in MSP in 2018-19. In KMS 2019-20, due to low market arrivals in October 2019, market prices increased sharply and touched the MSP. However, an increase in market arrivals in later months led to a downward movement in market prices (Chart 2.12). Overall, average market price was 6.7 percent lower than the MSP in KMS 2019-20.
- 2.28 Table 2.9 shows the average difference between the MSP and market price and number of days when market prices were below MSP in major groundnut producing

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States. As shown in the Table, number of days when market prices were below MSP were quite high in Gujarat (93.7%), Karnataka (88%), Rajasthan (89.1%) and Andhra Pradesh (79.5%). However, in case of Tamil Nadu, most days reported market prices higher than MSP. Average difference was highest in Karnataka (-11.6%), followed by Rajasthan (-10.5%) and Gujarat (-8.4%). Tamil Nadu reported 20.3 percent higher market price vis-a-vis MSP during this period. Since, groundnut is primarily used for table purpose, value-addition at village level should be encouraged to provide remunerative prices to farmers.

Chart 2.11: Trends in Domestic Market Prices vis-à-vis MSP of Groundnut



Notes: 1. Weighted wholesale modal prices of Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Madhya Pradesh, Rajasthan, Tamil Nadu and Telangana, which cover 95.3 percent of India's total production.

2. MSP is inclusive of bonus.

3. Figures in parentheses show percentage difference between market prices and MSP for each marketing season

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

Table 2.9: Market Prices vis-a-vis MSP of Groundnut in Major Producing States in KMS 2019-20 (Oct 2019 to Jan 2020)

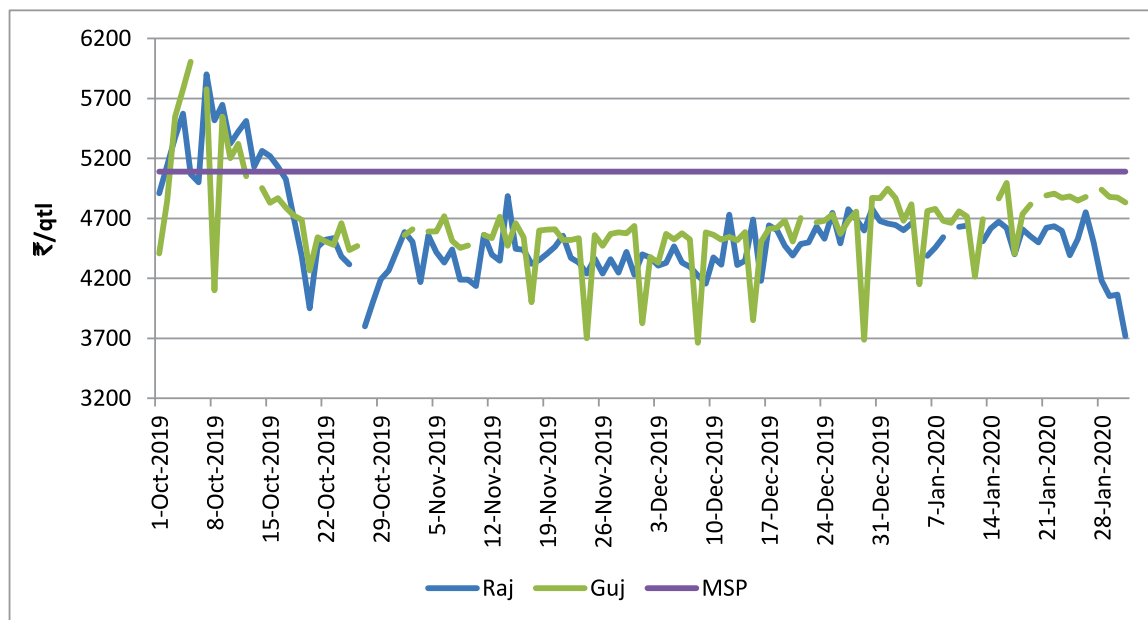
States	No of days market prices reported	No of days market prices were above MSP	No of days market prices were below MSP				Average difference (%) between market price and MSP
			< 5%	5%-10%	10%-15%	>15%	
Andhra Pradesh	83	17	5	8	32	21	-5.9
Gujarat	112	7	20	40	35	10	-8.4
Karnataka	117	14	8	17	23	55	-11.6
Rajasthan	120	13	5	27	49	26	-10.5
Tamil Nadu	99	94	3	1	0	1	20.3

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare



Chart 2.12: Comparison of Market Prices and MSP of Groundnut in Rajasthan and Gujarat during KMS 2019-20

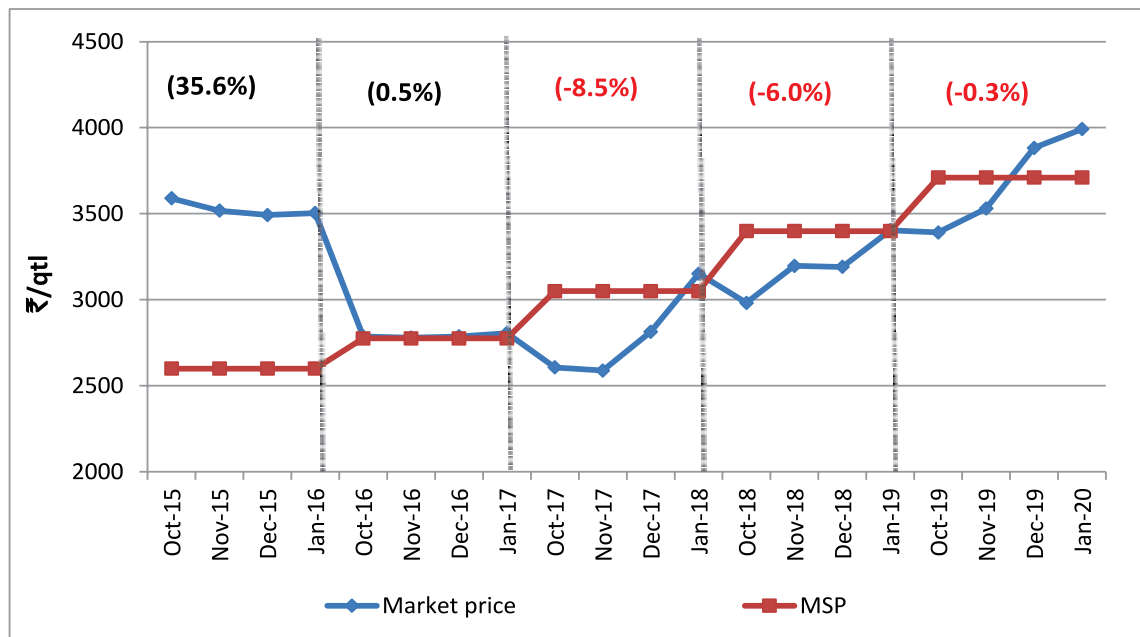


Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare
2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

- 2.29 Market prices of soybean were 35.6 percent higher than MSP in KMS 2015-16 but increase in MSP combined with a sharp decline in market prices led to convergence of market price and MSP in KMS 2016-17 (Chart 2.13). In KMS 2017-18, the difference between market prices and MSP was (-)8.5 percent due to about 10 percent increase in MSP and decline in market price during October-November, which improved during December-January. The MSP of soybean was hiked by 11.4 percent in 2018-19 but market prices improved by 14.5 percent and resulted in narrowing of gap (-6%) between two prices. During KMS 2019-20, market prices continued an upward trend to reach a level, higher than MSP in the months of December 2019 and January 2020 due to excess rains during the season. As a result, average market price was marginally lower (-0.3%) than the MSP in KMS 2019-20.
- 2.30 Among major soybean producing States, Rajasthan reported the lowest instances (22.8%) of market prices less than MSP (Table 2.10). The corresponding percentages for Madhya Pradesh (52%) and Maharashtra (53.7%) are considerably large. The average difference between market price and MSP was (-)0.5 percent for Madhya Pradesh, (-)0.7 percent for Maharashtra and 3.4 percent for Rajasthan. The movement of daily market prices of soybean in Madhya Pradesh and Maharashtra are shown in Chart 2.14. It is seen that market prices for soybean, which were ruling below the MSP in Madhya Pradesh and Maharashtra during October-November 2019, moved above the MSP in December 2019 and January 2020.



Chart 2.13: Trends in Domestic Prices vis-à-vis MSP of Soybean



Notes: 1. Weighted wholesale modal prices of Madhya Pradesh, Maharashtra and Rajasthan, which cover 93.4 percent of India's total production of soybean. MSPs are inclusive of bonus

2. MSP is inclusive of bonus.

3. Figures in parentheses show percentage difference between market prices and MSP for each marketing season

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

Table 2.10: Market Prices vis-a-vis MSP of Soybean in Major Producing States in KMS 2019-20 (Oct 2019 to Jan 2020)

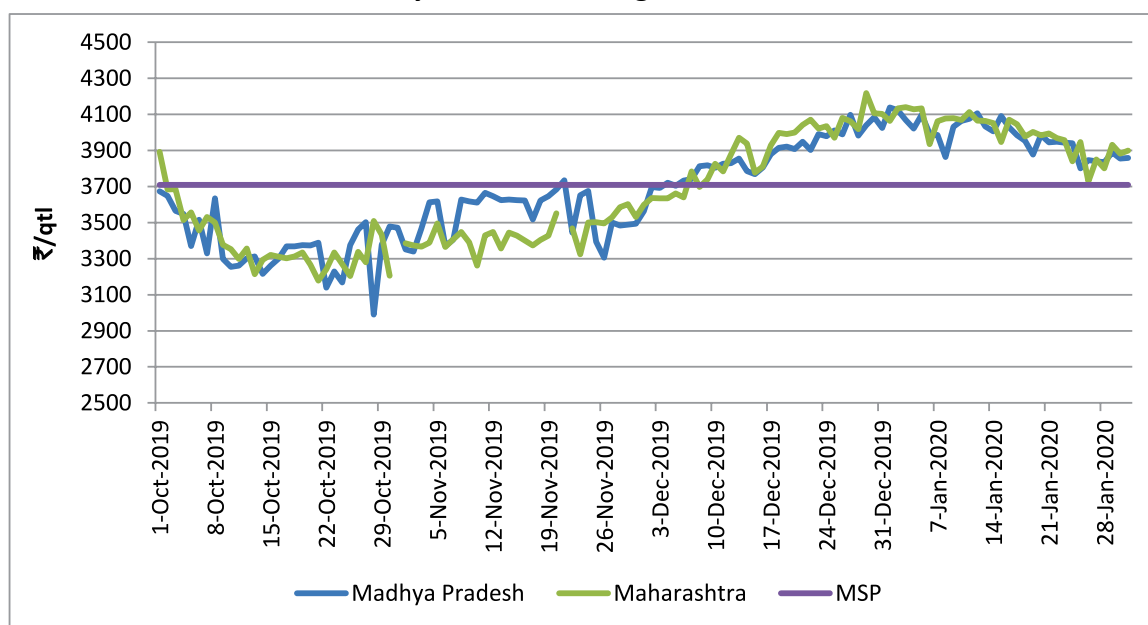
States	No of days market prices reported	No of days market prices were above MSP	No of days market prices were below MSP				Average Difference (%) between MSP and market price
			< 5%	5%-10%	10%-15%	>15%	
Madhya Pradesh	123	59	25	25	12	2	-0.5
Maharashtra	121	56	16	30	19	0	-0.7
Rajasthan	114	88	7	17	1	1	3.4

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare



Chart 2.14: Comparison of Market Prices and MSP of Soybean in Maharashtra and Madhya Pradesh during KMS 2019-20



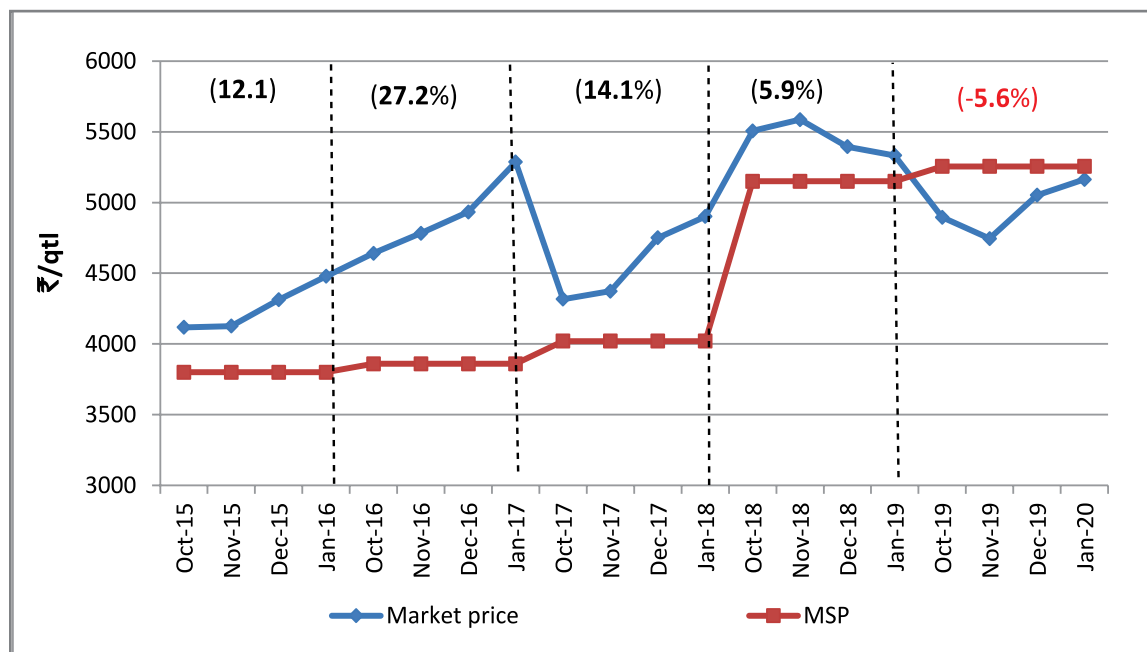
Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare
2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

Cotton

- 2.31 The market prices of cotton were above the MSP from KMS 2015-16 to KMS 2018-19 before dipping below the MSP in KMS 2019-20 (Chart 2.15). Season wise analysis shows that market prices of cotton followed a continuous upward trend in KMS 2015-16 and KMS 2016-17 and difference between market price and MSP increased from 12.1 percent in KMS 2016-17 to 27.2 percent in KMS 2017-18. There was a sharp reduction in cotton market prices in October 2017, from ₹5286 per quintal in January 2017 to ₹4317 per quintal in October 2017, but prices increased during October 2017-January 2018 and October-November 2018. This was followed by a declining trend in market prices from November 2018 until November 2019. The difference between market price and the MSP continued a declining trend during KMS 2017-18 (14.1%), 2018-19 (5.9%) and 2019-20 (-5.6%). Market prices in Gujarat and Maharashtra have remained mostly below the MSP while market prices were higher in Telangana compared with Maharashtra and Gujarat (Chart 2.16).
- 2.32 For the major cotton producing States namely, Maharashtra, Gujarat and Telangana, market prices stayed below MSP on most of the days during KMS 2019-20. The average difference between market prices and MSP was (-)4.9 percent in Maharashtra, (-)8.1 percent in Gujarat and (-)2.8 percent in Telangana (Table 2.11).



Chart 2.15: Trends in Domestic Prices vis-à-vis MSP of Cotton



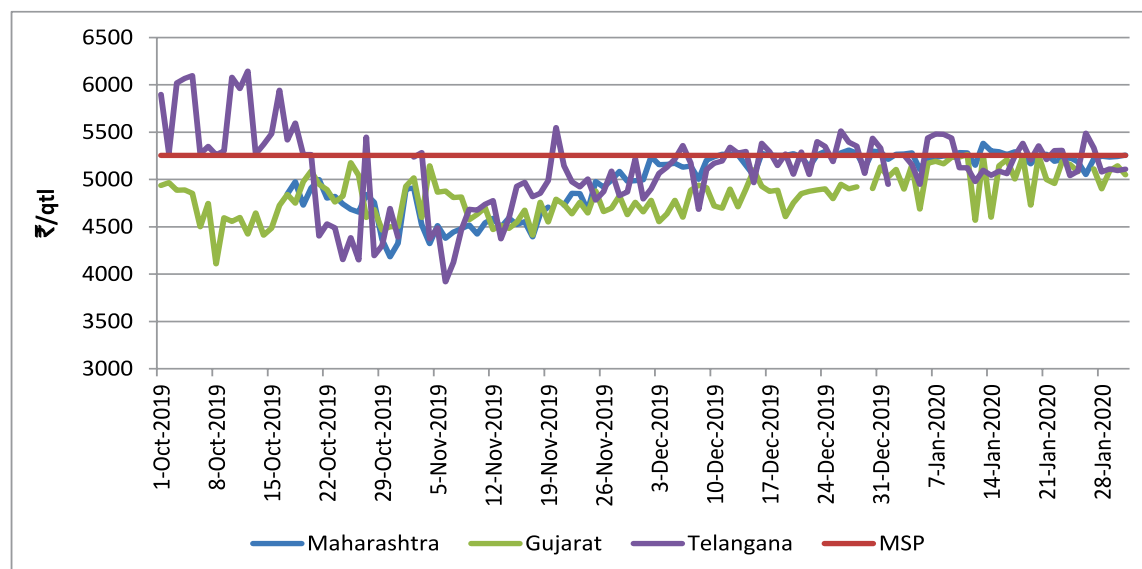
Note: 1. Weighted wholesale prices of Andhra Pradesh, Gujarat, Maharashtra and Telangana, which account for 68.6 percent of India's total production of cotton.

2. Figures in parentheses show percentage difference between market prices and MSP for each marketing season.

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

Chart 2.16: Comparison of Market Prices and MSP of Cotton in Maharashtra, Gujarat and Telangana during KMS 2019-20



Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare



Table 2.11: Market Prices vis-a-vis MSP of Cotton in Major Producing States in KMS 2019-20 (Oct 2019 to Jan 2020)

States	No of days market prices reported	No of days market prices were above MSP	No of days market prices were below MSP				Average difference (%) between market price and MSP
			< 5%	5%-10%	10%-15%	>15%	
Maharashtra	106	28	37	17	16	8	-4.9
Gujarat	121	1	29	49	37	5	-8.1
Telangana	121	49	33	19	9	11	-2.8

Source: 1. AGMARKNET, Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare
2. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

Trends in Terms of Trade

- 2.33 The terms of trade between agriculture and non-agriculture, the ratio between combined indices of prices received to the combined index of prices paid, is one of the factors for consideration while recommending the minimum support prices. The trends in Index of Farmers and Agriculture Sector Terms of Trade (Base TE2011-12=100) are presented in Chart 2.17.
- 2.34 The farmers' terms of trade (FToT) measures average changes to prices that farmers receive for their products, and the prices paid for inputs to production. As shown in the Chart, the long-term trend of farmers' terms of trade index tends to be positive and the index increased from 84.8 during the 2005-06 to approximately 103 in 2010-11. However, the index remained constant around 98 during the current decade and the growth rate was zero compared with 3.4 percent during the period from 2004-05 to 2010-11. Increase in minimum support prices, rise in global agricultural prices and high food inflation were responsible for improvement in FToT during the period 2004-05 to 2010-11. On the other hand, low global commodity prices and steep rise in agricultural wages, diesel and other farm inputs has led to lower FToT index during the 2010s.
- 2.35 Unlike the farmers' terms of trade, the net barter terms of trade for agriculture (AGRTOT), which includes both farmers and agricultural labourers, have shown improvement and higher growth rate (2.3%) over the period 2004-05 to 2018-19. The growth rate of net barter terms of trade for agriculture was higher (4.5%) during the 2000s compared with 2010s (1.3%). The terms of trade for agriculture marginally declined during 2010-11 but again improved and reached the peak (109.6) in 2016-17. The index of agriculture ToT rose from 79.8 in 2005-06 to 102.9 in 2010-11, an increase of 28.9 percent. In addition to high domestic and global agricultural commodity prices, rise in wages for agricultural labourers for non-agricultural activities has led to more improvement in TOT for agriculture sector compared to FToT. However, after 2012-13 index of terms of trade for agriculture

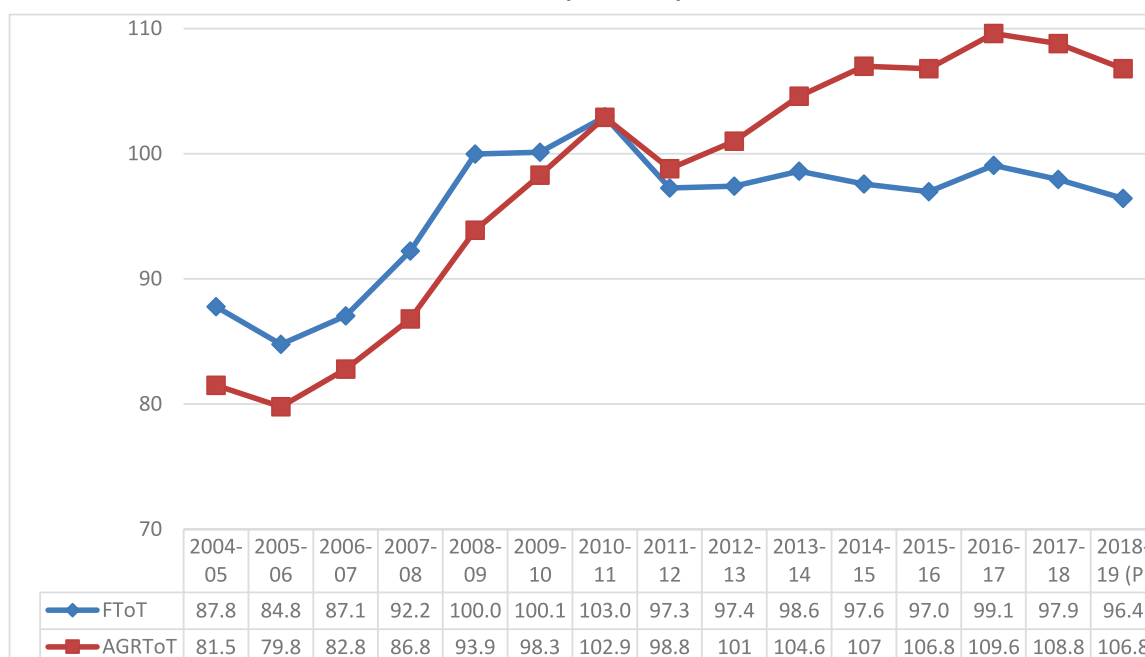
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has improved faster than farmers term of trade and the gap between the two has widened. However, index of terms of trade for agriculture sector as well as farmers showed a declining trend during 2017-18 and 2018-19 primarily driven by low agricultural prices.

- 2.36 In order to improve the FTOT and AGRTOT, steps must be taken to ensure better prices to farmers for their produce and reduce input costs. This can be ensured by making investment in new technology, trade reforms to reduce obstacles to agricultural trade, better infrastructure, policy reforms to create efficient and competitive markets, improving bargaining power of farmers by organizing them into groups like Farmer Producer Organizations, etc.

Chart 2.17: Trends in Index of Farmers' Terms of Trade (FTOT) and Agricultural Terms of Trade (AGRTOT)



Note: P - Provisional

Source: Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

Procurement Policy and Operations

- 2.37 The main objectives of public policy of procurement are to ensure MSP to farmers and availability of grains to the consumers at affordable prices. It also ensures effective market intervention to keep food prices in check and overall food security of the country.
- 2.38 Food Corporation of India (FCI), the nodal central agency of Government of India, along with other State Agencies undertakes procurement of wheat and paddy through a large number of purchase centers at various mandis and key points. For instance, 57,353 procurement centers were operating for paddy procurement in KMS 2019-20. State Governments procure the coarse cereals in consultation with



FCI to the extent that the concerned State Government may utilise the same for distribution under National Food Security Act (NFSA) as well as Other Welfare Schemes (OWS).

- 2.39 Procurement of foodgrains is done through Centralized Procurement System and Decentralized Procurement System. Under centralized procurement system, the procurement of foodgrains in Central Pool is undertaken either by FCI directly or State Government agencies procure the foodgrains and handover the stocks to FCI for storage and subsequent issue against Government of India allocations in the same State or movement of surplus stocks to other States. FCI reimburses the cost of the foodgrains procured by State agencies as soon as the agencies deliver stocks to FCI.
- 2.40 The Government introduced the scheme of Decentralized Procurement (DCP) of foodgrains in 1997-98 to enhance efficiency of procurement and PDS, encourage local procurement of foodgrains more suited to the local taste and to extend benefits of MSP to local farmers as well as save on transit costs. Under the DCP system, the State government or its agencies procure, store and distribute rice/wheat/coarse cereals against allocation for NFSA and OWS in the State and hand over the excess stocks to FCI in Central Pool. Government of India reimburses the expenditure incurred by the State government on procurement, storage and distribution of DCP stocks on the laid down principles. At present, 14 States (8 for rice and 6 for rice/wheat) are under DCP system¹ (Annex Table 2.3).
- 2.41 National Agricultural Cooperative Marketing Federation of India Ltd (NAFED) and Small Farmers Agribusiness Consortium (SFAC) undertake procurement of oilseeds and pulses while Cotton Corporation of India (CCI) is a Nodal Agency for procurement of kapas (cotton) and undertakes Minimum Support Price (MSP) operations when prices of Fair Average Quality (FAQ) grade kapas fall below the MSP without any quantitative limits.

Procurement Trends

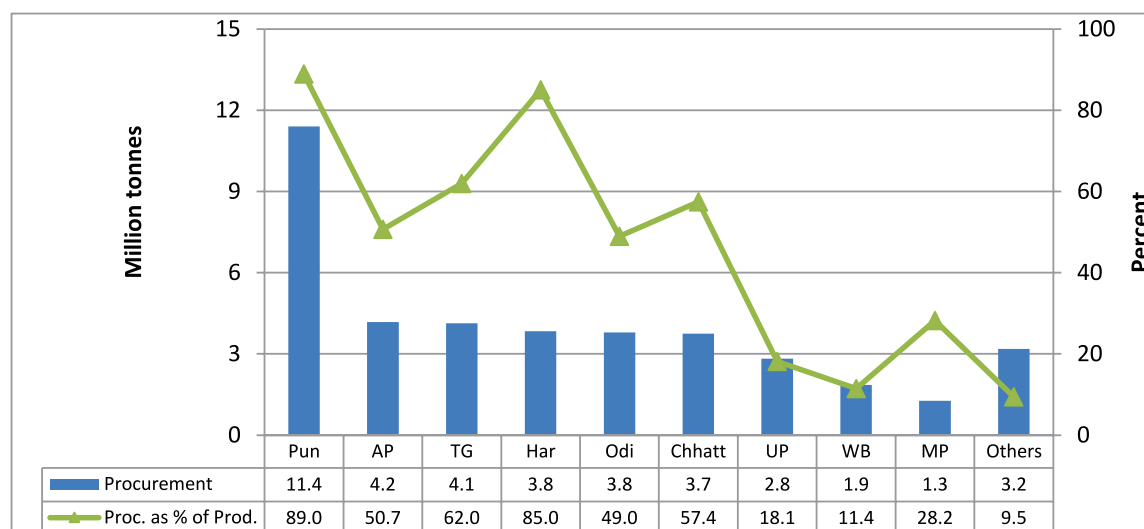
- 2.42 Procurement of rice increased significantly to 44.4 million tonnes in 2018-19 from 38.2 million tonnes in 2017-18, an increase of 16.3 percent. This increase was due to substantial increase in rice procurement in Telangana (1.6 million tonnes), Odisha (1.2 million tonnes), Andhra Pradesh (0.8 million tonnes) and Chhattisgarh (0.7 million tonnes). Rice procurement during KMS 2019-20 is likely to be higher than KMS 2018-19 as total rice procured as on February 24, 2020 was about 37.6 million tonnes compared with about 35 million tonnes as on February 24, 2019.
- 2.43 Overall, during TE2018-19, procurement of rice stood at 40.2 million tonnes, which is 35.6 percent of total production. Rice procurement in major States during TE2018-19 is shown in Chart 2.18. Among the States, total quantity of rice procured was the highest in Punjab (11.4 million tonnes), followed by Andhra Pradesh (4.2 million tonnes), Telangana (4.1 million tonnes) and Haryana (3.8 million tonnes). In Punjab, about 89 percent of total production was procured while in Haryana around 85

¹ For Jharkhand only 6 districts are under DCP system



percent of production was procured during the TE2018-19. Other States, where more than half of total rice production was procured included Telangana (62%), Chhattisgarh (57.4%) and Andhra Pradesh (50.7%). In case of West Bengal and Uttar Pradesh, top two producers, less than 20 percent of total production was procured. Efforts should be made to increase rice procurement in these States to meet at least State requirements under the NFSA and OWS.

Chart 2.18: Procurement of Rice in Major Producing States, TE2018-19



Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare
2. Food Corporation of India

2.44 Chart 2.19 shows the share of major States in marketed surplus and procurement of rice in TE2018-19. While West Bengal (13.8%) and Uttar Pradesh (13.3%) are the largest rice producing States and account for 11.2 percent and 11.7 percent of total marketed surplus of rice, but their share in procurement was much lower at 4.6 percent and 7 percent, respectively. Punjab has the highest share of marketed surplus (13.1%) as well as procurement (28.4%), much higher than production share (11%). In Andhra Pradesh and Odisha, which are among the top five rice producing States, share in procurement was higher than the marketed surplus share, indicating effective procurement system in these States. Other States, with a procurement share higher than the share in marketed surplus, were Telangana (10.3%), Haryana (9.5%), Chhattisgarh (9.3%) and Madhya Pradesh (3.2%). It may be noted that Bihar and Assam have a considerable share in marketed surplus and production but procurement is almost negligible in these States.

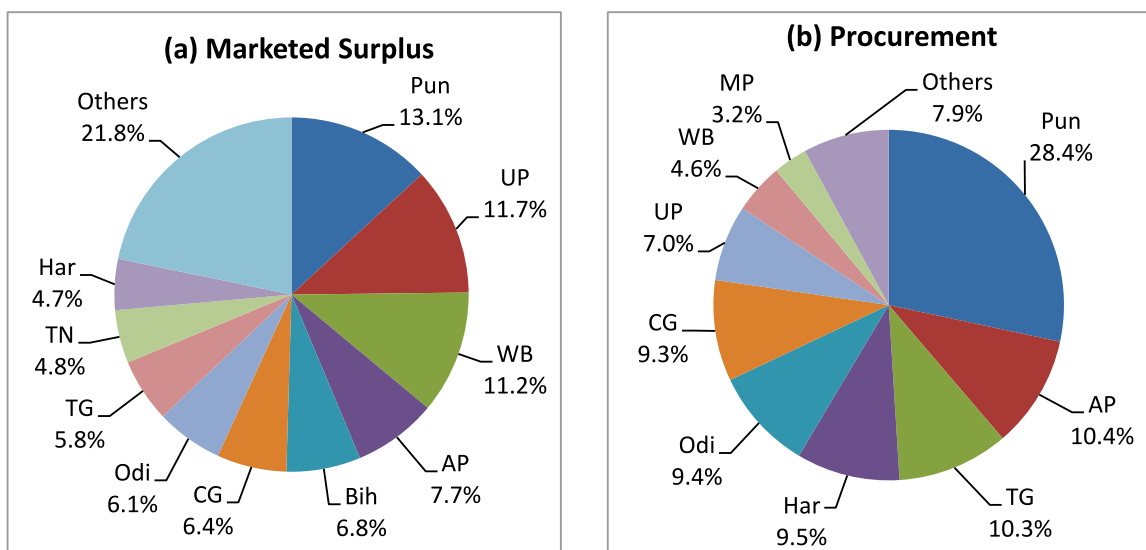
2.45 Chart 2.20 shows the share of DCP and non-DCP States in procurement of rice in the last five procurement seasons. The share of DCP States in total procurement has shown a fluctuating and declining trend during the last five years. The share was the lowest (50.5%) in 2017-18 and the highest (57.7%) in 2018-19 due to significant increase in procurement in Andhra Pradesh, Telangana, Chhattisgarh, Odisha and Maharashtra. The share of non-DCP States has been around 46 percent and ranged between 42.3 percent and 49.5 percent. Among non-DCP States, Punjab has been



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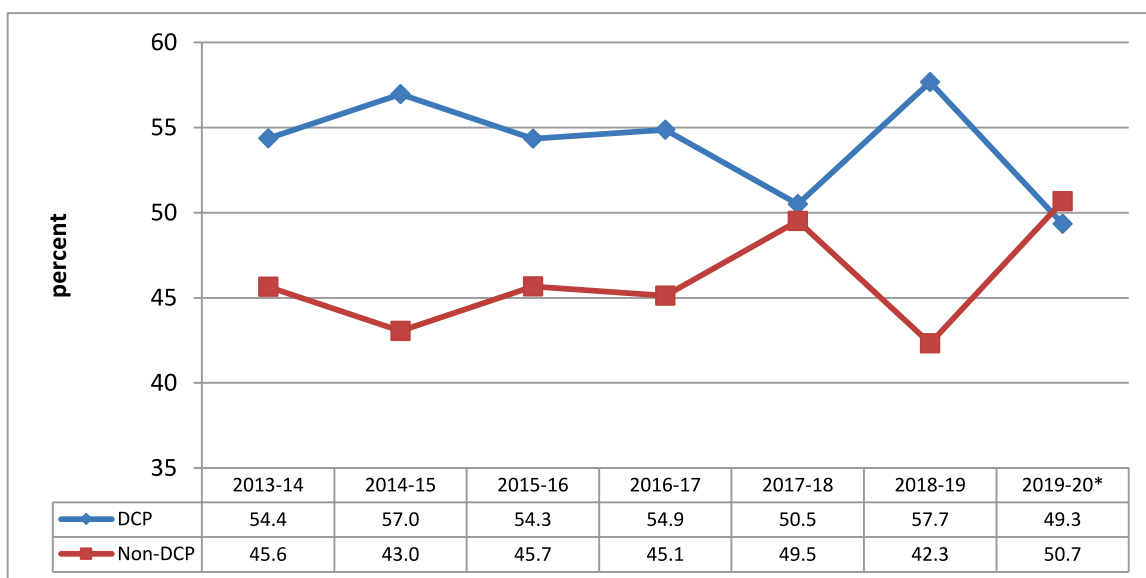
the single largest contributor towards rice procurement with its share in non-DCP procurement around 60 percent. Other major contributors are Haryana and Uttar Pradesh. In KMS 2019-20, as on 17.02.2020, the share of DCP States was 49.3 percent and non-DCP States was 50.7 percent.

Chart 2.19: Share of Major States in Marketed Surplus and Procurement of Rice, TE2018-19



Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare
2. Food Corporation of India

Chart 2.20: Share of DCP and Non-DCP States in Procurement of Rice



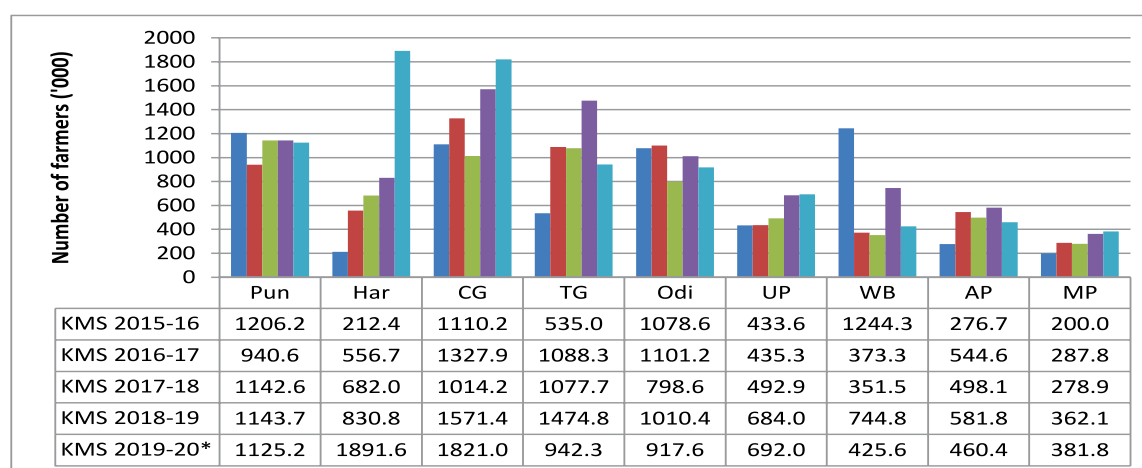
Note: * Figures reported as on 17.02.2020
Source: Food Corporation of India



Coverage of Farmers

- 2.46 The number of farmers benefitted from rice procurement operations increased significantly to 97 lakh in 2018-19 from 72 lakh in 2017-18, an increase of 34.2 percent. The highest increase was observed in Chhattisgarh (5.6 lakh), followed by Telangana (4 lakh), West Bengal (3.9 lakh), Odisha (2.1 lakh), Uttar Pradesh (2 lakh), Maharashtra (1.5 lakh) and Haryana (1.5 lakh).
- 2.47 During KMS 2019-20, about 96 lakh farmers have benefitted under procurement operation as on March 17, 2020. Haryana, Chhattisgarh, Maharashtra and Uttarakhand have registered a significant increase in beneficiary farmers during 2019-20 compared to last year (Chart 2.21).

Chart 2.21: Trends in Number of Paddy Farmers Benefitting from the Procurement Operations during Last Five KMSs



Note: * KMS 2019-20 is under progress (as on 17.03.2020)

Source: Food Corporation of India

- 2.48 During TE2018-19, at all-India level only 11.8 percent of total rice farmers in the country have benefited from rice procurement operations. However, there are large variations in coverage of farmers across States. For example, more than 95 percent paddy farmers² in Punjab and about 70 percent farmers in Haryana are covered under procurement operations while in other major rice producing States like Uttar Pradesh (3.6%), West Bengal (7.3%) Odisha (20.6%) and Bihar (1.7%), very small number of rice farmers benefit from procurement operations. Since, majority of farmers in Uttar Pradesh, West Bengal, Odisha, Bihar and other eastern and North Eastern States are small and marginal, they have poor access to procurement due to variety of reasons and resort to distress sale. Therefore, concerted efforts should be made to extend the benefits of procurement to small and marginal farmers in general and eastern and NE States in particular.

² Number of Operational Holdings as per 2015-16 Agriculture Census has been taken as a proxy to Number of Farmers



2.49 As per information provided by the State governments on procurement of paddy by farm-size, the size distribution of farmers and the share in procurement during KMS 2018-19 and KMS 2019-20 is presented in Table 2.12. There is a significant increase in the share of small and marginal farmers in total number of farmers benefitted as well as total quantity of rice procured in 2019-20 compared to 2018-19 in Andhra Pradesh, Chhattisgarh and Telangana. The highest increase in share of farmers and quantity procured was recorded in Telangana. In case of Uttar Pradesh, there was a marginal increase in share of small and marginal farmers in both total number of beneficiary farmers and procurement. By creating awareness about MSP and FAQ norms and opening procurement centres in the village by developing and upgrading rural haats into Gramin Agricultural Markets (GrAMs), more and more farmers including small and marginal farmers can be brought under the ambit of procurement operations.

Table 2.12: Procurement of Paddy by Farm-Size in Andhra Pradesh, Chhattisgarh, Telangana and Uttar Pradesh in 2018-19 and 2019-20

(Percent)

Particulars	Year	Marginal Farmer (<1 ha)	Small Farmer (1-2 ha)	Semi-Medium Farmer (2-4 ha)	Medium & Large Farmer (>4 ha)
Andhra Pradesh*					
Quantity Procured	2018-19	13.1	26.8	44.8	15.4
	2019-20	18.0	28.8	41.7	11.4
No. of Farmers Benefitted	2018-19	37.9	30.0	27.1	5.0
	2019-20	45.8	29.0	21.7	3.6
Chhattisgarh**					
Quantity Procured	2018-19	17.9	30.9	29.1	22.1
	2019-20	22.6	35.3	26.2	15.9
No. of Farmers Benefitted	2018-19	45.2	32.6	16.6	5.5
	2019-20	47.5	32.1	15.0	5.4
Telangana^					
Quantity Procured	2018-19	10.5	19.8	26.2	43.5
	2019-20	31.2	28.5	24.7	15.7
No. of Farmers Benefitted	2018-19	26.6	28.0	24.8	20.6
	2019-20	57.3	24.5	13.5	4.7
Uttar Pradesh#					
Quantity Procured	2018-19	4.4	22.2	38.2	35.3
	2019-20	4.7	22.5	36.5	36.2

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Particulars	Year	Marginal Farmer (<1 ha)	Small Farmer (1-2 ha)	Semi-Medium Farmer (2-4 ha)	Medium & Large Farmer (>4 ha)
No. of Farmers Benefitted	2018-19	12.4	28.5	35.4	23.6
	2019-20	12.6	29.4	35.5	22.5

*As on 22.01.2020, ** As on 08.01.2020, ^As on 12.02.2020, # As on 13.02.2020

Source: Reply from State Governments

2.50 The massive accumulation of rice and wheat stocks is the result of increase in procurement due to open-ended procurement policy without corresponding adequate liquidation of stock. In view of this, there is a need to review the open-ended procurement policy and limit the procurement of rice particularly in the non-traditional rice growing States like Punjab and Haryana where the groundwater table is depleting fast. For instance, if a ceiling of two hectares rice marketed surplus quantity is imposed, procurement from Punjab and Haryana will reduce to about 10.3 million tonnes from the current procurement of about 15.3 million tonnes.

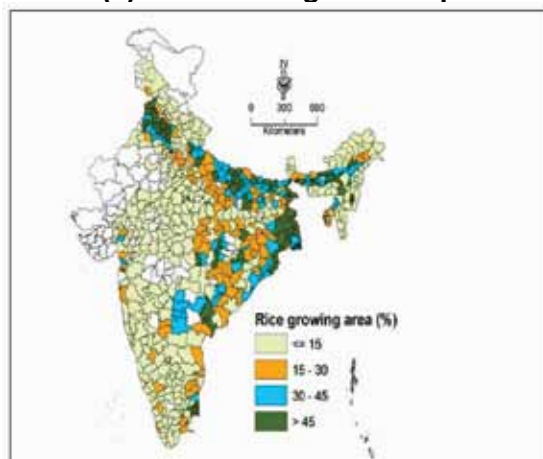
Land Suitability for Rice Cultivation

2.51 Although rice is grown over vast areas of the country, the physical and agro-climatic requirements for growing rice are limited to certain areas. For example, rice is cultivated in Punjab, Haryana, Uttar Pradesh, West Bengal, Andhra Pradesh, Bihar, Odisha, Chhattisgarh, Telangana, Tamil Nadu and Assam but some of the areas are not suitable for the cultivation of paddy due to non-conducive agro-climatic conditions. Hence, there is a need to shift rice cultivation from some of the States/regions, which are not suitable for rice to more suitable regions. Chart 2.22 (a) shows district-wise share of area under cultivation of paddy and Chart 2.22 (b) shows district wise suitability for cultivation of paddy in the country.

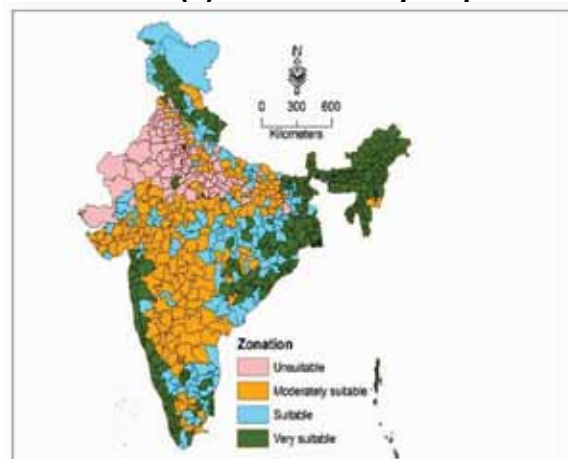
2.52 As, can be seen from the Chart, the western coast of India, parts of Kerala, Tamil Nadu, Chhattisgarh and Jharkhand and North-Eastern States are more suitable for paddy cultivation. However, in most of these regions area under paddy is relatively low compared with North-Western Plains. Hence appropriate policy measures should be initiated to promote paddy cultivation in suitable areas and reduce area under rice in Haryana, Punjab and western Uttar Pradesh.

Chart 2.22: India's Rice Cultivation and Suitability Maps

(a) Rice Growing Area Map



(b) Rice Suitability Map



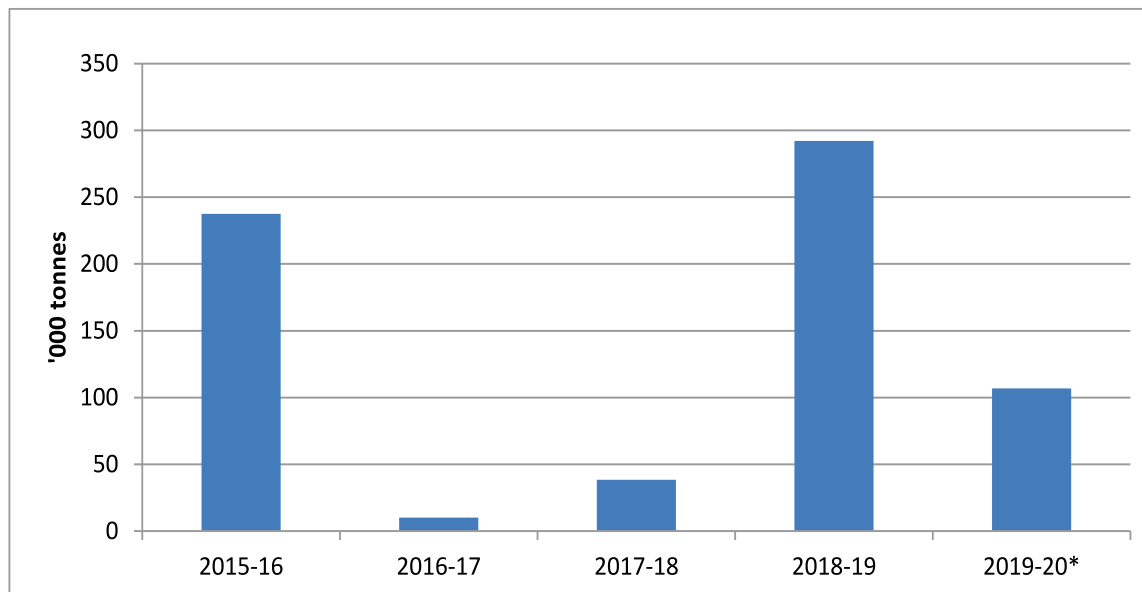
Source: H Pathak, R Tripathi, NN Jambhulkar, JP Bisen and BB Panda (2020). *Eco-regional Rice Farming for Enhancing Productivity, Profitability and Sustainability*. NRRI Research Bulletin No. 22, ICAR-National Rice Research Institute, Cuttack 753006, Odisha, India. pp28.

Nutri-Cereals

- 2.53 Procurement of nutri-cereals was 237.5 thousand tonnes in 2015-16 which was followed by two consecutive seasons of low procurement (Chart 2.23). However in KMS 2018-19, a large increase in procurement of nutri-cereals was registered, from 38.4 thousand tonnes in KMS 2017-18 to about 292.2 thousand tonnes in KMS 2018-19. This increase was mainly due to higher procurement of bajra, jowar and ragi in KMS 2018-19. Procurement of jowar rose from less than three thousand tonnes in KMS 2017-18 to 12.2 thousand tonnes in KMS 2018-19. During the same period, procurement of bajra rose from 35.5 thousand tonnes to 185.5 thousand tonnes.
- 2.54 In case of maize, procurement was only 22.9 thousand tonnes in KMS 2015-16 (Chart 2.24). However, KMS 2016-17 recorded the largest procurement of maize (62.2 thousand tonnes) but, procurement of maize witnessed a steep decline since KMS 2017-18 and reduced to negligible levels in KMS 2019-20. This reduction is mainly due to a fall in procurement in Maharashtra in KMS 2018-19, which accounted for major share of maize procurement.
- 2.55 State-wise procurement figures for nutri-cereals and maize during KMS 2018-19 and KMS 2019-20 are provided in Table 2.13. Along with making procurement operations more effective in case of nutri-cereals, through inclusion of nutri-cereals in Public Distribution System and OWS, efforts should also be made to encourage value addition in nutri-cereals through industry initiatives to provide remunerative prices to farmers.



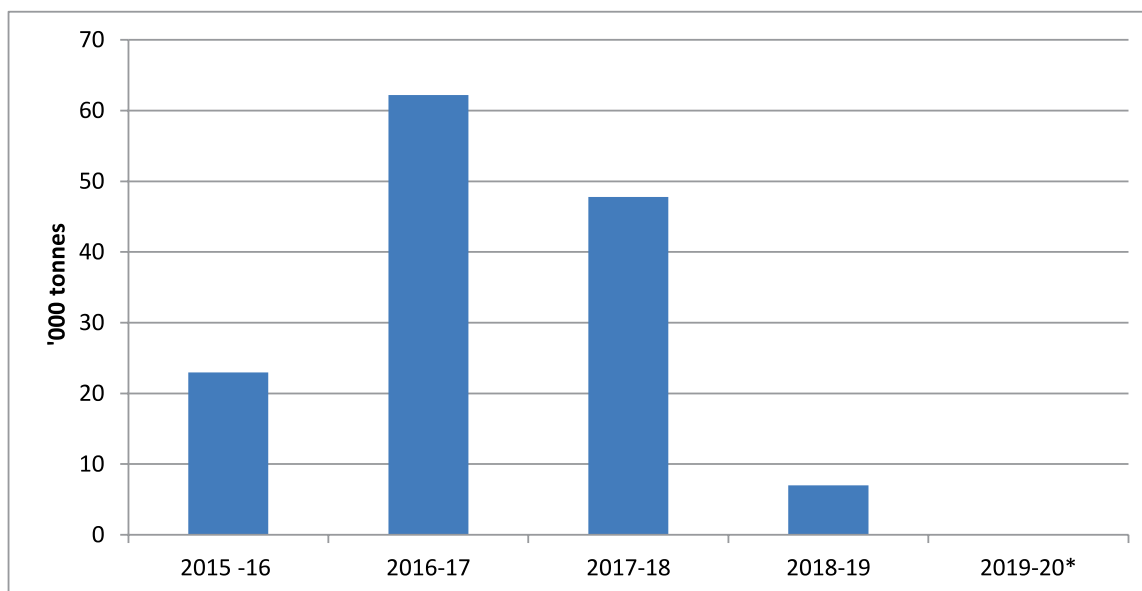
Chart 2.23: Procurement of Nutri-Cereals: KMS 2015-16 to KMS 2019-20



Note: *Figures reported as on 17.02.2020

Source: Food Corporation of India

Chart 2.24: Procurement of Maize: KMS 2015-16 to KMS 2019-20



Note: *Figures reported as on 17.02.2020

Source: Food Corporation of India



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Table 2.13: Procurement of Nutri-Cereals and Maize in Major Producing States during KMS 2018-19 and KMS 2019-20

(tonnes)

Period	Commodity	Gujarat	Haryana	Karnataka	Madhya Pradesh	Maharashtra	Total
KMS 2018-19	Jowar	-	-	1129	135	10963	12227
	Bajra	696	180744	-	4099	-	185539
	Maize	-	-	-	-	6987	6987
	Ragi	-	-	94930	-	-	94390
	Total	696	180744	95519	4234	17950	299143
KMS 2019-20*	Jowar	-	-	-	5469	1384	6853
	Bajra	-	100000	-	76	-	100076
	Maize	-	-	-	-	19	19
	Ragi	-	-	-	-	-	-
	Total	-	100000	-	5545	1403	106948

Note: * Figures reported as on 17.02.2020

Source: Food Corporation of India

Pulses

- 2.56 During KMS 2018-19, about 5.1 lakh tonnes of tur and 3.1 lakh tonnes of moong were procured, which were significantly lower than procurement in KMS 2017-18 (Table 2.14). However, there was a significant increase in procurement of urad in 2018-19, from 2.9 lakh tonnes in 2017-18 to 5.6 lakh tonnes in KMS 2018-19. During KMS 2019-20, due to better market prices and lower production of moong and urad procurement of both pulses has significantly declined.
- 2.57 Among major tur growing States, highest quantity (2.3 lakh tonnes) was procured in Maharashtra (27% of total production), followed by Karnataka (1.3 lakh tonnes, 14%), Gujarat (0.8 lakh tonnes, 25.6%) and Telangana (0.7 lakh tonnes, 36.7%) in KMS 2018-19 (Table 2.14). There was marginal increase in procurement in Gujarat in KMS 2018-19. Karnataka witnessed a significant decline in tur procurement in KMS 2018-19 to 1.3 lakh tonnes from 3.6 lakh tonnes in KMS 2017-18. About 15.3 percent of total tur production was procured in KMS 2018-19 compared to 18.6 percent in KMS 2017-18.
- 2.58 In case of moong, the highest procurement was reported in Rajasthan (2.4 lakh tonnes), followed by Karnataka (0.3 lakh tonnes) and Maharashtra (0.2 lakh tonnes) in KMS 2018-19. Fall in procurement of moong was substantial in Karnataka, from 2.2 lakh tonnes in KMS 2017-18 to 0.3 lakh tonnes in KMS 2018-19. About 12.5 percent of total moong production was procured during KMS 2018-19, lower than KMS 2017-18.



- 2.59 In KMS 2018-19, procurement of urad recorded large increase in Madhya Pradesh, from 20 thousand tonnes in KMS 2017-18 to 3.5 lakh tonnes in KMS 2018-19, while procurement in Maharashtra declined from about 60 thousand tonnes in KMS 2017-18 to about 10 thousand tonnes in 2018-19. Procurement of urad in Andhra Pradesh and Rajasthan was 0.8 lakh tonnes each in KMS 2018-19. It is evident from the Table that there was a significant increase in procurement of urad from 8.3 percent of total production in KMS 2017-18 to 18.5 percent in KMS 2018-19, mainly due to higher procurement from Madhya Pradesh and Andhra Pradesh.
- 2.60 To help regulate the price volatility of pulses in the country, Govt. of India decided to create a buffer stock of pulses of around 2 million tonnes during 2019-20 under the Price Stabilisation Fund (PSF) scheme. The new Central subsidy scheme was launched in October 2018 by the Government in which subsidy of ₹15 per kg was given on release of pulses for utilization under different welfare schemes of States. As on February 24, 2020, NAFED had disposed-off 11.4 lakh tonnes of tur, 6.5 lakh tonnes of moong and 6.3 lakh tonnes of urad with balance stock of 0.8 lakh tonnes, 2.2 lakh tonnes and 1.9 lakh tonnes, respectively.
- 2.61 Unlike, rice and wheat, there is no assured mechanism for liquidation of pulses. Therefore, NAFED faces problems in disposal of procured pulses under the PSS in open market as disposal entails heavy losses to NAFED and also depresses the market sentiments.
- 2.62 The Commission reiterates its recommendation that pulses procured under PSS should not be sold below the economic cost of the commodity as it will discourage private players to procure directly from farmers and will wait for subsidised quantities from the government. In addition, pulses procured by NAFED should not be offloaded in open market during the procurement period as it depresses market prices.
- 2.63 Some operational issues need attention to streamline procurement process. For instance, reimbursement of losses incurred by NAFED on account of pulses and oilseeds are often delayed, which puts pressure on working capital of the organisation to continue procurement operations during next season. The pulses procured from farmers often do not meet the FAQ norms, which create problem in disposal in open market. Therefore, FAQ norms should be strictly adhered in procurement of pulses. Moreover, NAFED has large stocks of pulses due to absence of assured outlet and procurement for ensuing Rabi season is likely to become an issue. Hence, there is a need to introduce a scheme for disposal of pulses.



Table 2.14: State-wise Procurement of Pulses (KMS 2017-18 to KMS 2019-20)

(lakh tonnes)

Crop	State	2017-18	2018-19	2019-20*
Tur	Maharashtra	2.5 (22.3%)	2.3 (27.0%)	0.3 (3.5%)
	Karnataka	3.6 (47.1%)	1.3 (14.0%)	0.9 (9.5%)
	Gujarat	0.6 (17.1%)	0.8 (25.6%)	0.2 (5.7%)
	Telangana	0.8 (28.6%)	0.7 (36.7%)	0.5 (23.0%)
	Total	8.0 (18.6%)	5.1 (15.3%)	2.0 (5.3%)
Moong	Rajasthan	2.6 (35.2%)	2.4 (19.3%)	1.2 (9.5%)
	Karnataka	0.2 (16.1%)	0.3 (20.3%)	0.1 (6.4%)
	Telangana	0 (5.1%)	0.1 (27.8%)	0.1 (12.1%)
	Maharashtra	0.1 (3.3%)	0.2 (8.9%)	0 (3.1%)
	Total	4.1 (20.1%)	3.1 (12.5%)	1.7 (7.3%)
Urad	Madhya Pradesh	0.2 (1.2%)	3.5 (29%)	0 (0%)
	Andra Pradesh	0.1 (3.7%)	0.8 (25.6%)	0.1 (5.2%)
	Rajasthan	1.3 (25%)	0.8 (20.6%)	0 (0%)
	Uttar Pradesh	0.2 (7.2%)	0.3 (9.1%)	0 (0%)
	Gujarat	0.2 (23%)	0.1 (12.8%)	0 (0.2%)
	Maharashtra	0.6 (46.9%)	0.1 (7.4%)	0 (0%)
	Total	2.9 (8.3%)	5.7 (18.5%)	0.2 (0.7%)

*As on 24.02.2020

Figures in parentheses show procurement as a percentage of total production

Source: National Agricultural Cooperative Marketing Federation of India

Oilseeds

2.64 There was a decline in procurement of groundnut and soybean in 2018-19 in comparison to 2017-18 (Table 2.15). Procurement of groundnut was about 7.2 lakh tonnes in 2018-19 compared to 10.5 lakh tonnes in 2017-18. Similarly, procurement of soybean fell from 72.3 thousand tonnes in 2017-18 to 19.5 thousand tonnes in 2018-19. As on February 24, 2020, NAFED had procured about 7.2 lakh tonnes of groundnut and 10.7 thousand tonnes of soybean in KMS 2019-20. Maximum procurement of groundnut in KMS 2018-19 was reported from Gujarat (447.6 thousand tonnes) but was significantly lower than KMS 2017-18 (828.9 thousand tonnes). On the other hand, Rajasthan, Madhya Pradesh and Uttar Pradesh witnessed a rise in procurement of groundnut in KMS 2018-19 in comparison to KMS 2017-18. Procurement of soybean declined in KMS 2018-19 for all the States. The highest quantity of soybean (15.2 thousand tonnes) was procured from Telangana, followed by Rajasthan and Maharashtra in KMS 2018-19.



- 2.65 As on February 17, 2020, NAFED had liquidated 16.1 lakh tonnes of groundnut and 0.9 lakh tonnes of soybean with balance stock of 8.5 lakh tonnes and 11 thousand tonnes, respectively.
- 2.66 Oilseeds are primarily used for oil, food, feed and industrial applications and require processing. Procurement of oilseeds by public agencies is neither desirable nor feasible as oilseeds procured under PSS are sold in open market at a discounted price, thereby creating disincentive for private players to procure directly from farmers. Therefore, efforts should be made to effectively implement Price Deficiency Payment Scheme (PDPS) and Private Procurement & Stockist Scheme (PPPS) for oilseeds instead of procurement under PSS.

Table 2.15: State-wise Procurement of Groundnut and Soybean (KMS 2017-18 to KMS 2019-20)

('000 tonnes)

Crop	State	2017-18	2018-19	2019-20*
Groundnut	Gujarat	828.9 (21.1%)	447.6 (20.3%)	500.4 (15.1%)
	Rajasthan	144.3 (11.5%)	232.5 (16.8%)	193.1 (12.3%)
	Madhya Pradesh	0 (0%)	28.5 (6.9%)	0 (0%)
	Uttar Pradesh	0 (0%)	8.8 (8.7%)	2.5 (2.8%)
	Total	1047 (11.3%)	719.8 (10.7%)	718.2 (8.7%)
Soybean	Telangana	34.6 (14%)	15.2 (6.5%)	10.7 (3.3%)
	Rajasthan	11.6 (1.1%)	3.0 (0.3%)	0 (0%)
	Maharashtra	26.1 (0.7%)	1.3 (0%)	0 (0%)
	Total	72.3 (0.7%)	19.5 (0.1%)	10.7 (0.1%)

*As on 24.02.2020

Figures in parentheses show procurement as a percentage of total production in the State

Source: National Agricultural Cooperative Marketing Federation of India

Bonus on MSP: Market Distortions

- 2.67 Some State Governments have again started giving bonus over and above the MSP particularly for paddy in the recent years, which creates distortions in the market and almost crowds out private sector. During KMS 2018-19 and KMS 2019-20, States like Kerala, Tamil Nadu, Chhattisgarh and Jharkhand had declared bonus for paddy (Table 2.16). For instance, Kerala declared a bonus of ₹880 per quintal for paddy (common) in KMS 2019-20, which is about 48.4 percent of MSP. Similarly, Chhattisgarh paid a bonus of ₹685 per quintal on paddy for 2019-20 while Jharkhand increased bonus on paddy from ₹150 per quintal to ₹185 per quintal in 2019-20.
- 2.68 Chhattisgarh is a surplus State, where rice procurement is much higher than State requirement of rice under NFSA and other welfare schemes. Therefore, the State will find it difficult to liquidate excess stocks at such a high price. Bonus on MSP affects inter-crop parity and discourages farmers from diversification of production basket. The Commission reiterates its earlier recommendation that bonuses/ incentives should be strongly discouraged, particularly in surplus States.



Table 2.16: Bonus Declared by Selected States for Paddy

(₹/qtl)

States	KMS 2018-19	KMS 2019-20
Chhattisgarh	Common=750	685
	Grade A=730	
Kerala	Common=780	Common =880
	Grade A=760	Grade A=860
Tamil Nadu	Common =50	Common = 50
	Grade A =70	Grade A = 70
Jharkhand	150	185

Source: 1. Food Corporation of India
2. State Replies

Market Fees and Other Incidental Charges

2.69 Many States charge various fees/taxes/charges, which result in high procurement incidentals leading to high economic cost of grains. Further, it has not led to any discernible improvement in mandi infrastructure. Table 2.17 shows the State-wise fees and incidental charges charged during rice procurement in 2019-20. As can be seen from the Table, total fee and incidentals charged on rice procurement ranged from 0.1 percent in Kerala to 8.5 percent in Punjab. These distortions restrict inter-State trade and makes markets inefficient. In view of the above, Commission suggests that the States charging high fee should be disincentivised through reduced procurement of grains from such States.

Awareness about MSP and FAQ Norms

2.70 The successful implementation of a Scheme can be achieved only if the targeted population is aware of various aspects of the Scheme. Several studies have shown that there is lack of awareness among farmers about the MSP, procurement systems and FAQ standards. Therefore, there is a need to create awareness about prevailing MSP, FAQ standards, system of procurement, payment mechanism etc. It would help in ensuring better prices to farmers and adoption of modern technologies in farming. Hence, there is need to give wide publicity about MSP, FAQ norms and procurement agencies by the Central and State governments in regional/vernacular, electronic and print media and also through pamphlets and announcements in the villages well before the start of procurement season so as to reach out to large number of farmers. In addition, farmers need to be trained about FAQ norms and post-harvest handling methods and provided infrastructure to minimize post-harvest losses and improve quality to get better prices.



Table 2.17: State-wise Fees/Taxes/Charges levied on Rice Procurement (2019-20)

State	Market Fee/ Mandi Charges (%)	Rural Development Fee (%)	Commission/Other Charges (%)	Total
Andhra Pradesh	1.0	-	-	1%+FC*
Assam	1.0	-	-	1.0%
Chhattisgarh	2.0	-	0.2	2.2%+FC*
Haryana	2.0	2.0	2.5	6.5%
Karnataka	-	-	3.5	3.5%
Kerala	-	-	-	0.07%
Maharashtra	1.05	-	-	1.05%+FC*
Madhya Pradesh	2.0	-	0.2	2.2%+FC*
Odisha	2.0	-	-	2%+FC*
Punjab	3.0	3.0	2.5	8.5%
Telangana	1.0	-	-	1%+FC*
Uttar Pradesh	2.0	-	0.5	2.5%+FC*
West Bengal	0.5	-	-	0.5%+FC*

*Note: FC: Fixed Charges. This includes a commission to society of ₹31.25/ql on Common Paddy and ₹32/ qtl on Grade A paddy

Source: Food Corporation of India

Recapitulation

- 2.71 As per estimates of FAO, USDA and IGC world production of rice in 2019-20 is projected to remain stagnant at 2018-19 level or decline marginally. For maize, while FAO estimates a marginal rise in production in 2019-20, USDA and IGC estimates forecast a decline. FAO, USDA and IGC forecast a sharp decline in world production of soyabean. In India, with marginally higher production, surplus stocks and steep fall in exports, domestic prices of rice are projected to remain subdued in 2020-21. Although total production of pulses in the country is estimated to be marginally higher than 2018-19, production of kharif pulses is estimated to be marginally lower than 2018-19 levels and significantly lower than the target for 2020-21. However, cotton production in the country is estimated to rise significantly in 2019-20.
- 2.72 All India average market prices of paddy remained below MSP during the last five marketing seasons though the difference between market prices and MSP had narrowed in KMS 2019-20 compared to KMS 2018-19 due to recovery in market prices. The average market price of maize was 4.8 percent higher than MSP during KMS 2019-20 as a result of lower domestic production and higher demand. Although market prices of tur, moong and urad remained below MSP in KMS 2019-20, average market prices improved over previous two years. Similarly, though market prices of oilseeds remained below MSP on an average, the gap between MSP and average market price was significantly lower in KMS 2019-20. The market prices of cotton



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were above MSP from KMS 2015-16 to KMS 2018-19 but fell below MSP in KMS 2019-20.

- 2.73 Procurement of rice increased significantly in 2018-19 compared to 2017-18. However the quantity of rice procured as a share of production or marketable surplus showed wide variability across the States. Efforts may be made to increase rice procurement in leading rice producing States like West Bengal and Uttar Pradesh to meet at least the State requirement under NFSA and OWS. Since, majority of farmers in Uttar Pradesh, West Bengal, Odisha, Bihar and other eastern and North Eastern States are small and marginal, extending the benefits of procurement to small and marginal farmers in general and eastern and NE States in particular will help prevent distress sale. Simultaneously, there is an urgent need to review the policy of open ended procurement in non-traditional rice growing States like Punjab and Haryana which has led to huge accumulation of foodgrain stocks besides leading to environmental stress in those areas. Thus concerted efforts need to be made to shift cultivation of rice from States/regions which are not suitable for cultivation of rice to more suitable regions.

Crop Productivity and Input Management

- 3.1 Enhancing agricultural productivity in India assumes importance as scope for expanding area under cultivation is limited due to competing demands for land resources from industry and other sectors. Further, improved productivity has the potential to make Indian agriculture globally competitive and make farming more remunerative by reducing the cost of production. This chapter presents an analysis of the trends in productivity for kharif crops at the national as well as State level and compares the productivity level in India with the world. The Chapter also discusses various factors impacting agricultural productivity at the national level along with strategies to address them.

Productivity Growth Trends

- 3.2 The quinquennial average growth rates in the area, production and productivity of major kharif crops for Quinquennial Ending (QE) 2009-10, 2014-15 and 2019-20 are analyzed and presented in Table 3.1.

Cereals

- 3.3 Productivity of total cereals witnessed the highest growth (3.6%) in QE2019-20 during the last 15 years. However, there was a marginal decline in production growth rate from 3.1 percent in QE2014-15 to 2.8 percent in QE2019-20 due to a fall in area under total cereals (-0.8%) in QE2019-20. For kharif cereals, growth in production has slowed down from 4.4 percent in QE2014-15 to 2 percent in QE2019-20 due to a decline in area by 0.8 percent and a decline in productivity growth rate from 4.3 percent in QE2014-15 to 2.8 percent in QE2019-20. All kharif cereals except paddy and jowar witnessed a deceleration in productivity growth due to various reasons. In case of paddy, there was a marginal improvement in productivity growth from 2.4 percent in QE2014-15 to 2.5 percent in QE2019-20 but, due to a decline in area by 0.3 percent, there was a deceleration in production growth from 3.5 percent in QE2014-15 to 2.2 percent in QE2019-20. Area under bajra witnessed a consistent decline in all the periods. Further, there was a sharp deceleration in productivity



growth in bajra during QE2019-20, which resulted in a fall in production of bajra (-0.02%) in QE2019-20. Increase in production of maize was the lowest (3.4%) in QE2019-20 during the last 15 years primarily driven by deceleration in productivity growth from 5.9 percent in QE2014-15 to 3.6 percent in QE2019-20. Area under maize also witnessed a negative growth (-0.3%) during QE2019-20. Although growth rate of productivity of jowar increased from one percent in QE2014-15 to 3.4 percent in QE2019-20, production declined by 2.2 percent due to a sharp decline in area (-5.7%). In case of ragi, there was a large fall in area (-3%) in QE2019-20 and deceleration in productivity growth from 3.5 percent in QE2014-15 to 1.7 percent in QE2019-20. As a result, rate of growth in production for ragi declined from 3.1 percent in QE2014-15 to 1.1 percent in QE2019-20.

Pulses

- 3.4 Production of pulses witnessed a significant increase in QE2019-20. During QE2019-20, growth rate in production of total pulses was the highest (7.6%) and was mainly a result of large increase in area (3.7%) under pulses while productivity growth rate for total pulses increased from 3.2 percent in QE2014-15 to 3.3 percent in QE2019-20. A similar trend was observed in kharif pulses, as most of the increase in production (10.3%) in QE2019-20 came through expansion in area (6.4%) while productivity growth was 2.8 percent in QE2019-20 compared with 9.1 percent in QE2014-15. In case of individual pulses, growth rate in moong production was the highest (30.5%) in QE2014-15. It was largely driven by a significant increase in moong area and productivity in 2010-11. Thereafter, rate of growth of production for moong fell to 9.8 percent in QE2019-20 due to a large decline in productivity growth from 25.1 percent in QE2014-15 to 2.1 percent in QE2019-20. Growth in production of urad (5.9%) also declined in QE2019-20 due to a fall in productivity (-2.2%). However, production of tur increased significantly by 11.6 percent in QE2019-20 due to a 3.6 percent increase in area and 5.8 percent increase in productivity.
- 3.5 Pulses are slowly and steadily becoming important in other countries in the world and hence there will be likely increase in world demand for pulses. It is thus imperative to increase the productivity level of the crop which is way below the pre-Green Revolution period. Since, pulses are grown mostly under rainfed conditions and on marginal land, there is a wide variability in productivity of pulses. It is, therefore, necessary to address the issue on priority through timely distribution of quality seeds, technologies and extension services. It is also essential to attract the participation of the private sector in value-added processing facilities to increase income of pulses growers.

Oilseeds

- 3.6 Although there was a decline in area under oilseeds (-0.8%) in QE2019-20, production growth rate accelerated from 3.2 percent in QE2014-15 to 4.1 percent in QE2019-20, due to a rise in productivity growth from 2.9 percent to 5 percent during the corresponding period. In case of kharif oilseeds, production increased



by 5 percent in QE2019-20, down from 5.6 percent in QE2014-15. This was due to slower productivity growth, from 5 percent in QE2014-15 to 4.2 percent in QE2019-20. Among kharif oilseeds, productivity growth was the highest (6.8%) in soybean in QE2019-20 and resulted in significant increase in production (8.7%) in QE2019-20. For all other kharif oilseeds, productivity growth remained lower in QE2019-20 in comparison to QE2014-15. Further, for sesamum there was decline in productivity growth (-1.1%) in QE2019-20 and in area (-2.6%) in QE2019-20, this led to significant fall in growth rate of sesamum production from 9.4 percent in QE2014-15 to (-)4.2 percent in QE2019-20. Sunflower witnessed a decline in production (-8.5%) and area (-12.5%) in QE2019-20. Sunflower acreage and production recorded a continuous decline during the last 15 years and should be a cause of concern. Productivity growth of groundnut fell significantly (4.5%) in QE2019-20 compared to QE2014-15 (15.3%). Consequently, production growth decelerated from 17.4 percent in QE2014-15 to 4.2 percent in QE2019-20. There was an increase in production of nigerseed in QE2019-20 due to an increase in area under nigerseed cultivation (2.9%) and 1.5 percent growth rate in productivity in QE2019-20.

Table 3.1: Quinquennial Trends in Growth Rate (%) of Major Kharif Crops

Crops	Area			Production			Productivity		
	QE 2009-10	QE 2014-15	QE 2019-20	QE 2009-10	QE 2014-15	QE 2019-20	QE 2009-10	QE 2014-15	QE 2019-20
Total Cereals	0.2	0.6	-0.8	2.0	3.1	2.8	1.8	2.5	3.6
<i>Kharif Cereals</i>	-0.7	0.0	-0.8	0.5	4.4	2.0	1.1	4.3	2.8
Paddy	0.1	1.1	-0.3	1.6	3.5	2.2	1.4	2.4	2.5
Jowar	-3.0	-4.3	-5.7	-1.3	-3.7	-2.2	2.2	1.0	3.4
Bajra	-0.6	-3.4	-1.5	-2.6	9.7	0.0	-1.8	12.7	1.3
Ragi	-3.1	-0.8	-3.0	-1.1	3.1	1.1	0.1	3.5	1.7
Maize	2.2	2.2	-0.3	4.2	8.2	3.4	1.9	5.9	3.6
Total Pulses	0.5	0.6	3.7	2.3	3.9	7.6	1.8	3.2	3.3
<i>Kharif Pulses</i>	-1.0	-0.6	6.4	-0.4	9.8	10.3	0.2	9.1	2.8
Tur	-0.2	2.8	3.6	3.3	3.2	11.6	2.8	1.0	5.8
Moong	-0.7	1.0	7.9	-4.3	30.5	9.8	-4.2	25.1	2.1
Urad	-0.9	2.0	7.3	-0.6	11.2	5.9	0.2	8.5	-2.2
Total Food Grains	0.2	0.5	0.1	2.0	3.1	3.0	1.8	2.5	2.9
Total Oilseeds	-1.1	-0.1	-0.8	1.4	3.2	4.1	2.4	2.9	5.0
<i>Kharif Oilseeds</i>	0.9	0.4	1.1	4.8	5.6	5.0	3.3	5.0	4.2
Groundnut	-3.3	-2.1	0.2	4.3	17.4	4.2	4.5	15.4	4.5
Soybean	5.2	2.5	2.4	8.4	2.4	8.7	3.2	0.3	6.8



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Crops	Area			Production			Productivity		
	QE 2009-10	QE 2014-15	QE 2019-20	QE 2009-10	QE 2014-15	QE 2019-20	QE 2009-10	QE 2014-15	QE 2019-20
Sesamum	1.2	-1.9	-2.6	-1.9	9.4	-4.2	-3.0	10.5	-1.1
Sunflower	-6.9	-15.2	-12.4	-4.3	-12.0	-8.5	2.6	5.6	4.5
Nigerseed	-2.3	-8.8	2.9	-1.8	-4.7	6.6	0.6	4.7	1.5
Cotton	2.9	4.9	1.1	8.6	8.6	1.1	5.5	3.3	0.7

Notes: Growth rate is calculated as simple average of the growth rates of the constituent years

Source: Computed using data from Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare

Cotton

- 3.7 Productivity of cotton registered a growth of 5.5 percent in QE2009-10 and 3.3 percent in QE2014-15 due to introduction of Bt cotton in 2002. There was also significant growth in cotton production and acreage during these periods. However, in QE2019-20 productivity growth declined to 0.7 percent and growth in area under cotton also decelerated to 1.1 percent. Due to deceleration in growth rate in area and productivity, cotton production growth declined to 1.1 percent in QE2019-20.
- 3.8 The above trends clearly show that productivity growth has decelerated in most of the crops except jowar, tur and soybean in the recent quinquennial. Therefore, efforts are needed to improve crop productivity growth.

Productivity Trends in Major Producing States

- 3.9 There are wide inter-State variations in productivity levels inter-alia due to variations in agro-climatic conditions, use of technology, farm inputs and management practices. Five-year Olympic average productivity per hectare for major crops in major producing States has been analyzed to examine productivity trends and compare inter-State variations in productivity for the periods: 2010-14 and 2015-19 [Charts 3.1 (a) to (i)]. Olympic average is calculated by dropping the highest and lowest productivity from the most recent 5 years and average is worked out based on remaining 3 years.

Rice

- 3.10 Highest yield for rice was recorded in Punjab during both the periods and productivity increased from 38.7 quintals per hectare in 2010-14 to 40.8 quintals per hectare in 2015-19, an increase of 5.4 percent (Chart 3.1 (a)). At all-India level, productivity increased by 7.1 percent, from 24 quintals per hectare in 2010-14 to 25.7 quintals per hectare in 2015-19. Among the major States, Tamil Nadu (14.6%), Andhra Pradesh¹ (12.9%), Bihar (16.4%) and Odisha (12.4%) registered higher increase in productivity compared to all-India level. Among high-productivity States, productivity growth rate was the lowest in Haryana (0.8%). Eastern States

¹ Andhra Pradesh includes both Andhra Pradesh and Telangana

PRICE Policy for KHARIF CROPS

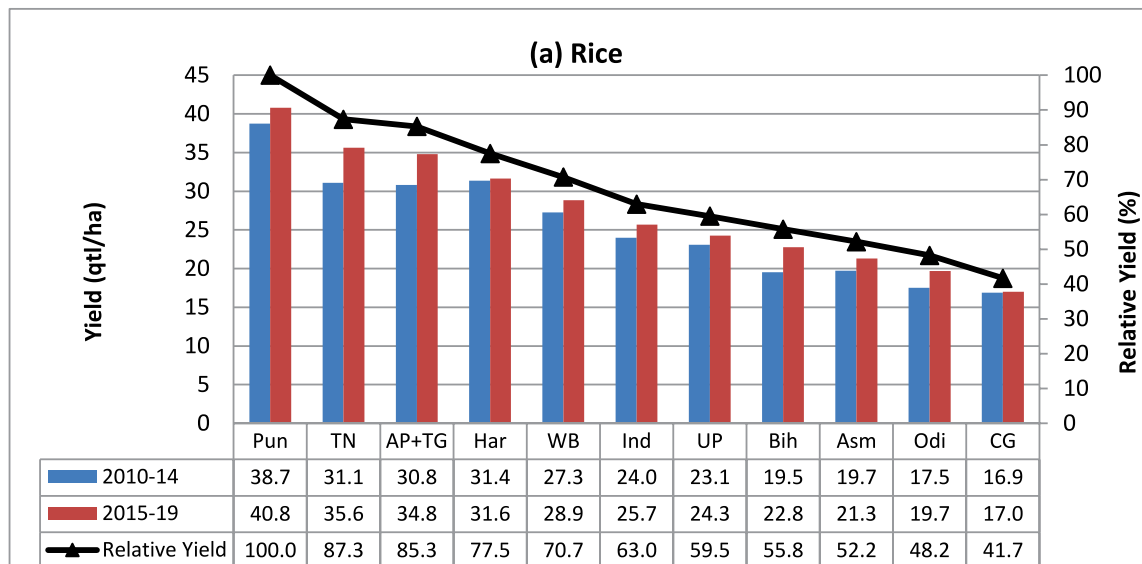


have relatively lower yields but recorded a significant improvement during the recent period. Rice yield in Chhattisgarh is lowest among major producing States and has not improved during the last 10 years. Productivity improvement in West Bengal and Uttar Pradesh, top two producers, was lower than all-India average. Average yields in Odisha and Chhattisgarh are less than half compared with Punjab. Therefore, efforts are needed to improve productivity in these States.

Maize

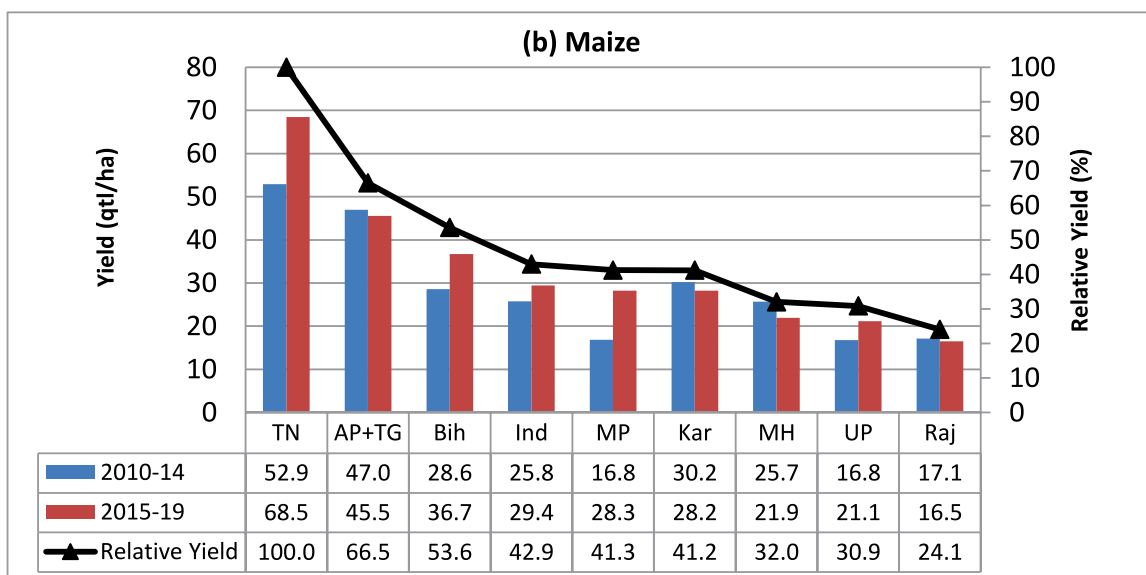
3.11 Maize productivity at all-India level stood at 29.4 quintals per hectare in 2015-19, an increase of 14 percent over the 2010-14 period. This improvement was driven by large increases in productivity in Tamil Nadu (29.5%), Bihar (28.3%), Madhya Pradesh (67.9%) and Uttar Pradesh (25.8%). Yield in Madhya Pradesh (28.3 qtl/ha) is fast converging towards the all-India average. Although maize yields in Andhra Pradesh have traditionally remained higher than the all-India average but fall in productivity in 2015-19 (45.5 qtl/ha) vis-à-vis 2010-14 (47 qtl/ha) is a worrying trend. Karnataka, which is one of the largest producers of maize, also recorded a fall in productivity from 30.2 quintals per hectare in 2010-14 to 28.2 quintals per hectare in 2015-19. Production of maize can be increased by increased mechanization in maize cultivation, weed management, promoting sub-surface irrigation and providing quality seeds to farmers.

Chart 3.1: Average Productivity of Kharif Crops in Major Producing States





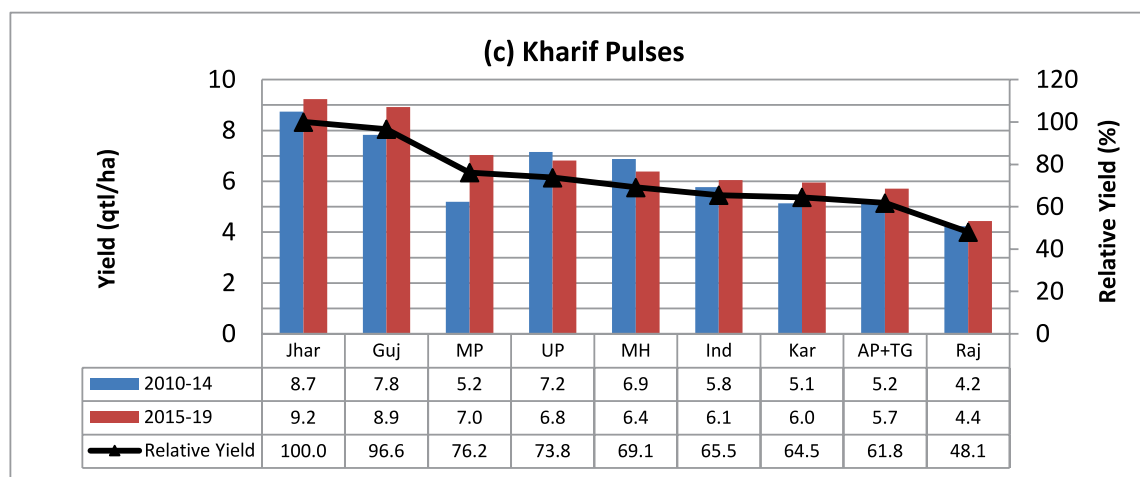
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Source: Directorate of Economic and Statistics, Ministry of Agriculture and Farmers Welfare

Pulses

3.12 Productivity of kharif pulses at all-India level recorded an increase of 4.8 percent to reach a level of 6.1 quintals per hectare in 2015-19 from 5.8 quintals per hectare in 2010-14. At the State level, largest increase in productivity (35.4%) was seen in Madhya Pradesh, from 5.2 quintals per hectare in 2010-14 to 7 quintals per hectare in 2015-19. As a result, productivity of Madhya Pradesh surpassed the all-India average in 2015-19. Highest productivity in kharif pulses was registered in Jharkhand in both the periods which has a share of 4.6 percent in total production of kharif pulses. Gujarat was a close second with productivity being 96.6 percent of Jharkhand in 2015-19. The growth in productivity in kharif pluses was much higher in Gujarat (14.1%) than the all-India average. Maharashtra, which accounts for nearly 12 percent of total production in kharif pulses witnessed a decline of 4.8 percent in productivity from 6.9 quintals per hectare to 6.4 quintals per hectare. There was a major decline in productivity of kharif pulses in Uttar Pradesh as well (-4.7%). Attention needs to be paid towards productivity in Rajasthan, which produces nearly 21.8 percent of all kharif pulses. Productivity in Rajasthan was only 48.1 percent of Jharkhand's productivity in 2015-19 and much lower than all-India average. Further, growth in productivity in Rajasthan (4.8%) has also been quite low.



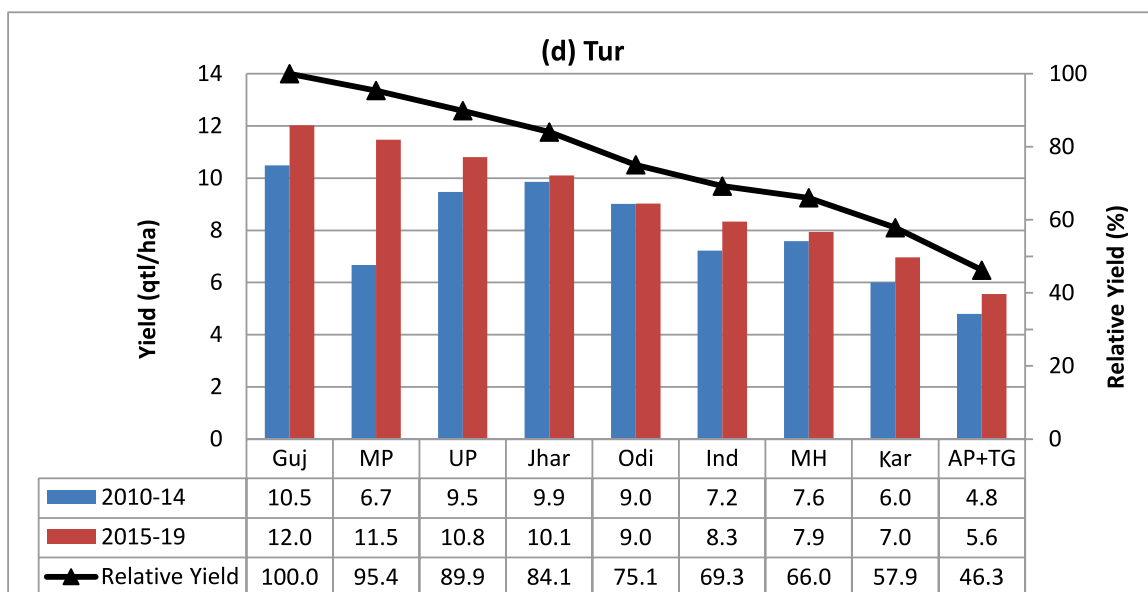
Source: Directorate of Economic and Statistics, Ministry of Agriculture and Farmers Welfare

- 3.13 Gujarat had the highest productivity for tur in both the periods. Further, productivity registered an increase of 14.6 percent in Gujarat in 2015-19 over 2010-14. Madhya Pradesh, where tur productivity was lower than the all-India average in 2010-14, registered a 71.9 percent increase in productivity to achieve the second highest yield in 2015-19 (11.5 qtl/ha). Karnataka, which is the largest producer of tur, also recorded significant productivity gains (16%) in 2015-19 compared to 2010-14. Increase in productivity was relatively low (4.7%) in Maharashtra. Although, productivity in Jharkhand and Odisha remained above the all-India average but both the States witnessed stagnation in yield.
- 3.14 Productivity of moong was the highest (7.9 qtl/ha) in Jharkhand in 2015-19. Jharkhand also registered a significant increase in productivity (22.6%) compared to 2010-14 level (6.4 qtl/ha). Other States which registered significant increase in productivity during this period were Madhya Pradesh (33.7%), Karnataka (17.4%), Odisha (12.2%) and Bihar (10.7%). However, at all-India level, increase in productivity (2.7%) was very marginal, from 4.9 quintals per hectare in 2010-14 to 5 quintals per hectare in 2015-19. This was due to a decline in productivity of moong in Uttar Pradesh (-13.9%), Tamil Nadu (-14.1%) and Maharashtra (-22.6%).

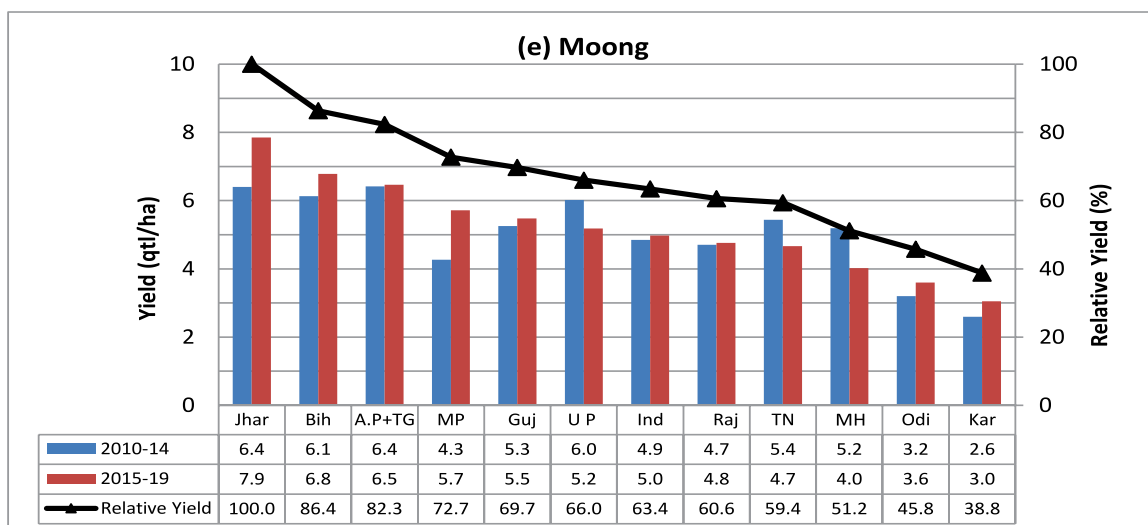


PRICE Policy for KHARIF CROPS

Crop Productivity and Input Management

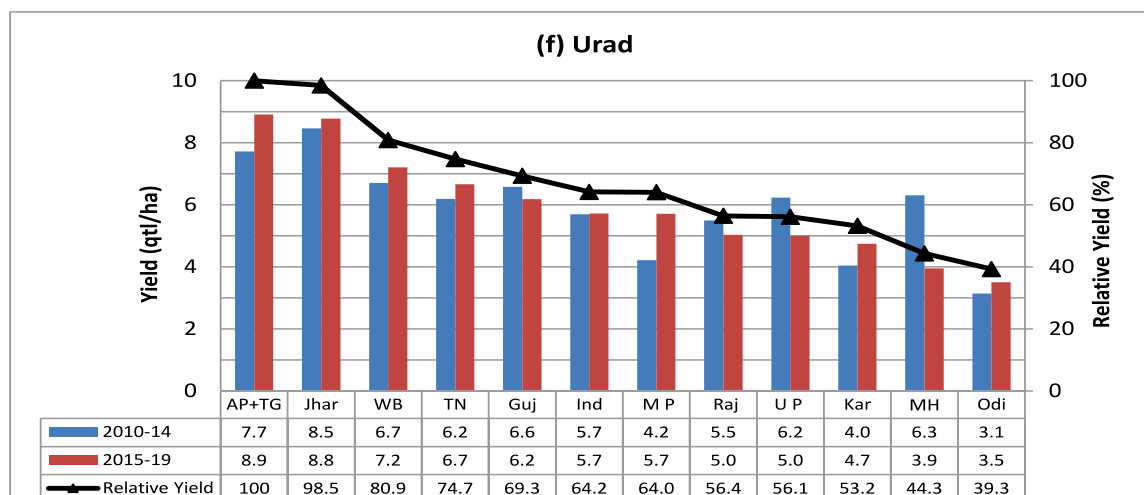


Source: Directorate of Economic and Statistics, Ministry of Agriculture and Farmers Welfare



Source: Directorate of Economic and Statistics, Ministry of Agriculture and Farmers Welfare

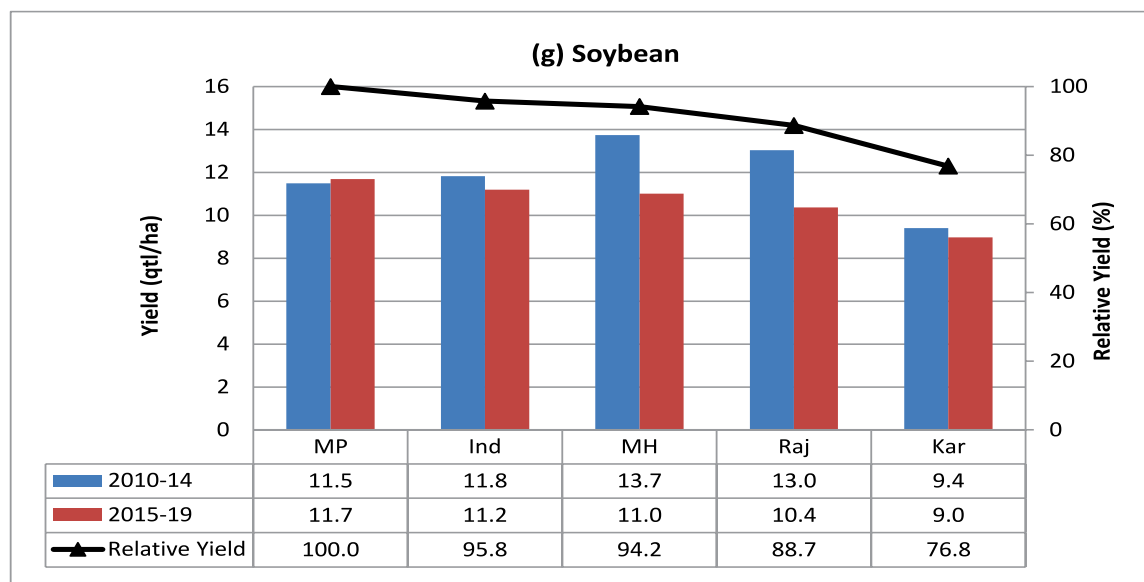
- 3.15 In case of urad, Jharkhand was the most productive State in 2010-14 with a yield of 8.5 quintals per hectare. However, in 2015-19, Andhra Pradesh turned out to be the most productive State for urad with a yield of 8.9 quintals per hectare. Madhya Pradesh registered the largest increase in productivity (35.4%) during the two periods, followed by Karnataka (17.3%) and Odisha (11.6%). Maharashtra, Uttar Pradesh, Rajasthan and Gujarat were the major States, which witnessed a decline in productivity during the reference period. Largest decline in productivity (-37 percent) was seen in Maharashtra, where productivity declined from 6.3 quintals per hectare in 2010-14 to 3.9 quintals per hectare in 2015-19.



Source: Directorate of Economic and Statistics, Ministry of Agriculture and Farmers Welfare

Oilseeds

3.16 All-India productivity for soybean fell from 11.8 quintals per hectare in 2010-14 to 11.2 quintals per hectare in 2015-19. This fall was triggered by decline in productivity in Maharashtra, which accounts for 33 percent of total soybean production. Productivity in Maharashtra declined from 13.7 quintals per hectare in 2010-14 to 11 quintals per hectare in 2015-19, a reduction of 19.9 percent. Madhya Pradesh, which is the largest soybean producer, recorded a marginal increase in productivity from 11.5 quintals per hectare in 2010-14 to 11.7 quintals per hectare in 2015-19. However, it was not enough to prevent a decline in productivity at the all-India level. Soybean productivity declined in Rajasthan and Karnataka by 20.5 percent and 4.6 percent, respectively.

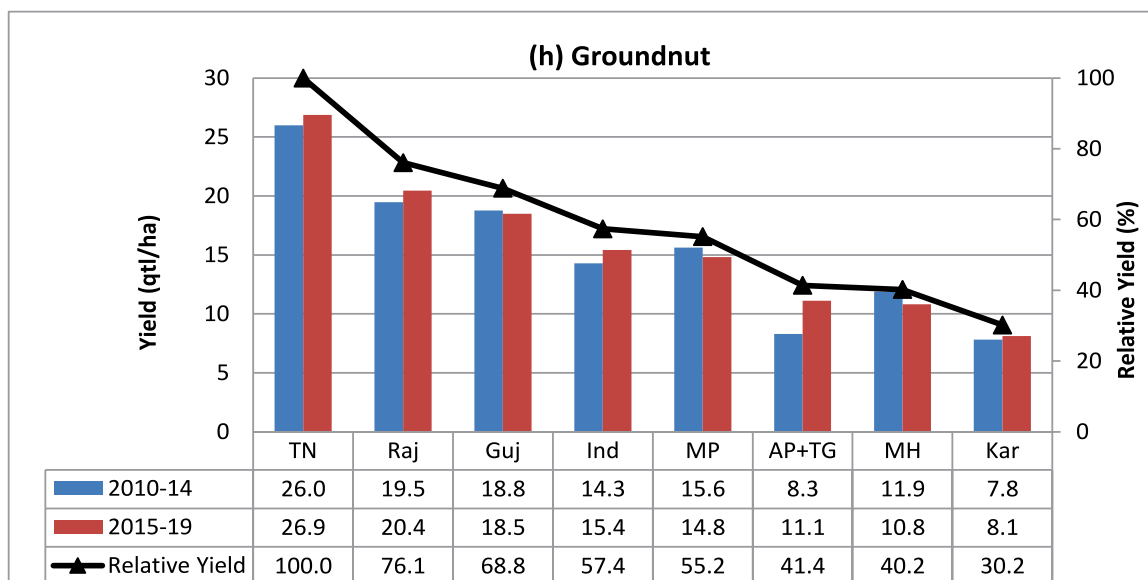


Source: Directorate of Economic and Statistics, Ministry of Agriculture and Farmers Welfare



PRICE Policy for KHARIF CROPS

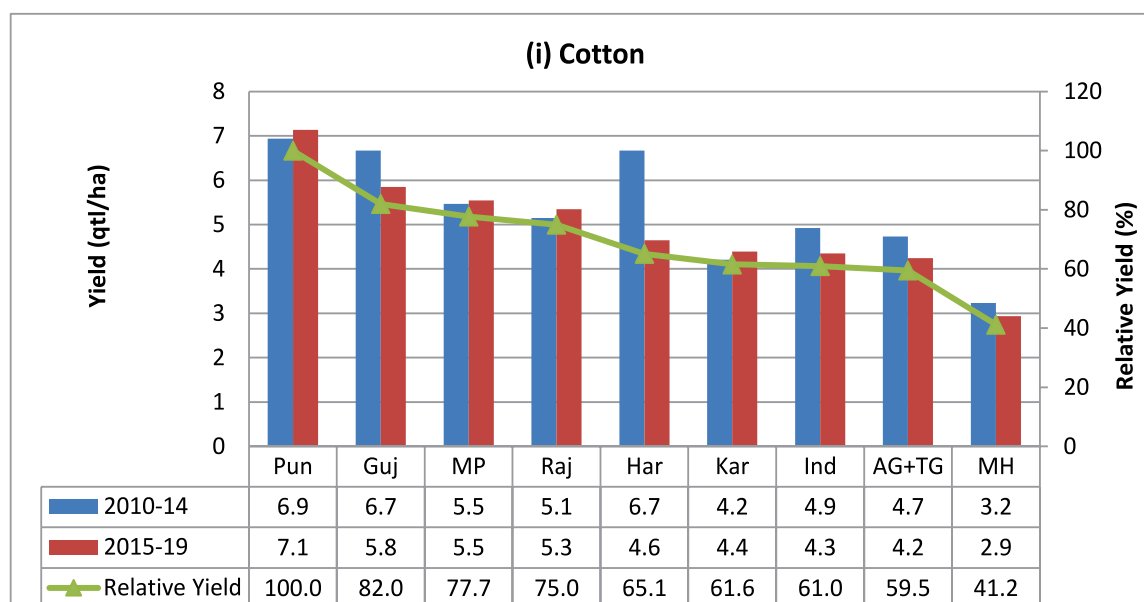
- 3.17 Groundnut productivity increased by 7.9 percent between 2010-14 and 2015-19 at all-India level. This increase in yield was primarily driven by 34.1 percent improvement in productivity in Andhra Pradesh, from 8.3 quintals per hectare in 2010-14 to 11.1 quintals per hectare in 2015-19. Tamil Nadu had the highest productivity for groundnut in both the periods. Further, Karnataka recorded the lowest productivity in both the periods.



Source: Directorate of Economic and Statistics, Ministry of Agriculture and Farmers Welfare

Cotton

- 3.18 Cotton productivity witnessed a decline at the all-India level in the last decade from 4.9 quintals per hectare in 2010-14 to 4.3 quintals per hectare in 2015-19. This is mainly due to a large decline in productivity in the three major cotton producing States, viz., Gujarat (-12.3%), Andhra Pradesh (-10.4%) and Maharashtra (-9.1%). Further, a sharp decline in productivity (-30.3%) was also observed in Haryana, from 6.7 quintals per hectare to 4.6 quintals per hectare. Only four States, namely, Punjab, Madhya Pradesh, Rajasthan and Karnataka, which account for only 20 percent of total cotton production, showed improvement in productivity in 2015-19.



Source: Directorate of Economic and Statistics, Ministry of Agriculture and Farmers Welfare

Productivity Gap between Irrigated and Unirrigated Areas

3.19 Irrigation is a key driver of productivity. As per the latest available data from Directorate of Economics and Statistics, about 49 percent of gross cropped area is under irrigation and ranges from less than 20 percent in pulses to 60 percent in rice. The low level of irrigation leaves farmers dependent on the vagaries of the monsoon thereby hampering productivity. As can be seen from Table 3.2, yield for irrigated paddy is much higher than that of unirrigated crop in all the States but in varying degrees. The productivity gap ranges from 9.7 percent in Tamil Nadu to 49.1 percent in Bihar. This comparison highlights the importance of expanding irrigation coverage and improving water use efficiency in boosting productivity.

Table 3.2: Productivity for Paddy: Irrigated and Unirrigated Areas (2018-19)

(kg/ha)

State	Irrigated	Unirrigated
Bihar	3387	1723
Chhattisgarh	2450	1310
Karnataka	4406	3755
Tamil Nadu	3943	3562

Source: Replies from State Governments



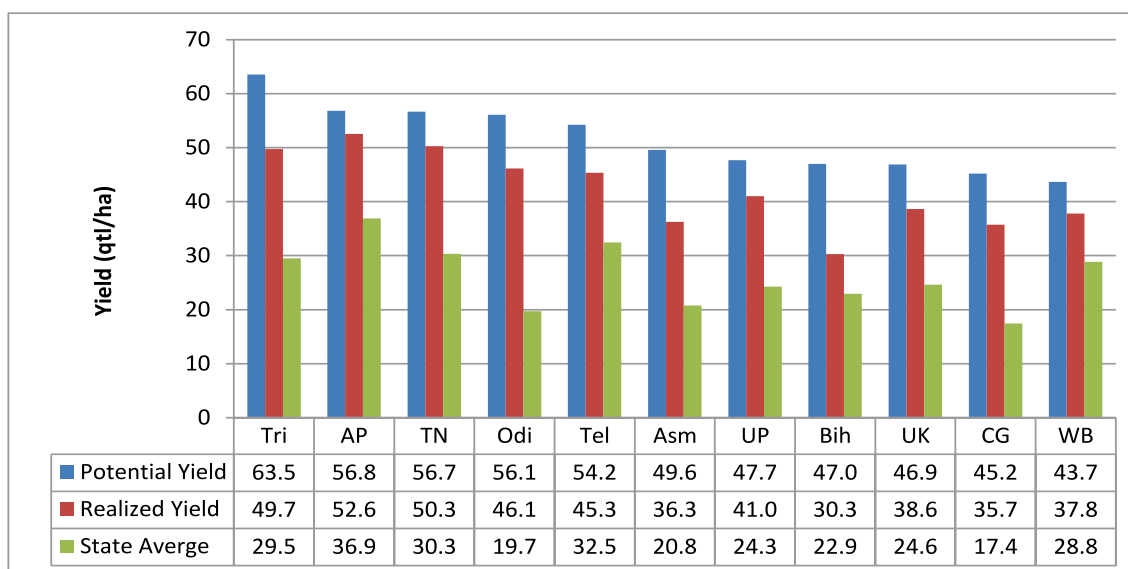
Yield Gap Analysis

3.20 Yield gap analysis measures the differences between potential, realized and State average yield and helps in identifying the constraints and management options to reduce yield gaps. Charts 3.2 to 3.6 compare three types of yield levels for major kharif crops for TE2018-19 namely; (i) yield achieved under Front Line Demonstration (FLD), where best scientific and management practices are followed, (ii) realized farm yield of improved technology under farmers' practices, and (iii) State average yield. Two types of yield gaps have been estimated, viz. (i) Yield Gap (A): defined as the difference between realized yield and State average yield (ii) Yield Gap (B): defined as the difference between FLD yield, i.e., potential yield and State average yield. Yield gap (A) may be due to non-availability of technology, inputs and management practices, while yield gap (B) is possibly due to combination of both biological and socio-economic constraints. Based on the above, an estimated increase in production by bridging yield gaps by 25 percent, 50 percent, 75 percent and 100 percent has been calculated and presented in Table 3.3 and Table 3.4.

Rice

3.21 For rice, State average yield was significantly lower than potential and realized yield for all States. Odisha had the highest yield gap (A) and (B) at 57.3 percent and 64.9 percent, respectively followed by Chhattisgarh with yield gap (A) at 51.3 percent and yield gap (B) at 61.4 percent. In Uttar Pradesh and West Bengal, the two leading rice producing States, yield gap (A) was 40.8 percent and 23.6 percent, respectively. Yield gap (B) for these States was 49.1 percent and 34 percent, respectively. Assam, which is the largest producer of rice in North Eastern Region, had a yield gap (A) of 42.6 percent and yield gap (B) of 58 percent.

Chart 3.2: Comparison of Potential, Realized and State Average Yields of Rice in Selected States



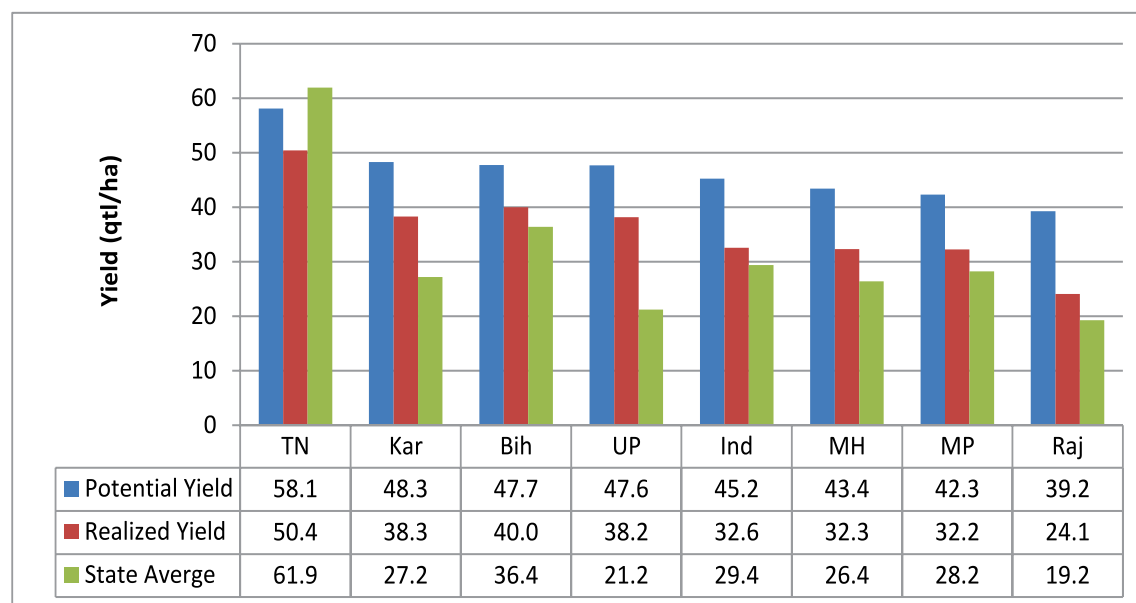
Source: Indian Institute of Rice Research, Hyderabad



Maize

3.22 Though maize yield has improved during the last two decades, large yield gaps still exist in many States. Uttar Pradesh had the highest yield gap (A) and (B) at 44.5 percent and 55.6 percent, respectively. Karnataka, one of the largest producers of maize, also had high yield gaps at 28.9 percent and 43.6 percent, respectively. The average yield gap at all-India level was 9.8 percent in case of yield gap (A) and 35 percent in case of yield gap (B). Except Tamil Nadu, potential yields were much higher than realized and State yield and large yield gaps still exist. Tamil Nadu was the only State where State average yield was significantly higher than potential and realized yields. This is because the kharif 2018-19 FLDs were conducted under rainfed conditions and there was problem of fall armyworm, which adversely affected potential and realized yield. The FLDs were conducted to know the performance of technologies under vulnerable rainfed conditions. Further, majority of the area under maize cultivation in Tamil Nadu is under hybrids, which has led to very high State average yield (61.9 qtl/ha) while most of the area chosen for FLDs in Tamil Nadu was not traditionally suited for maize cultivation which has led to lower potential and realized yield.

Chart 3.3: Comparison of Potential, Realized and State Average Yields of Maize in Selected States



Source: Indian Institute of Maize Research, Ludhiana

Pulses

3.23 Average potential yield of tur varied between 12.4 quintals per hectare in Karnataka to 17.2 quintals per hectare in Uttar Pradesh and the realized yield ranged from 9 quintals per hectare in Odisha to 13.1 quintals per hectare in Telangana. Average tur yield at State level varied from 3.4 quintals per hectare in Andhra Pradesh to

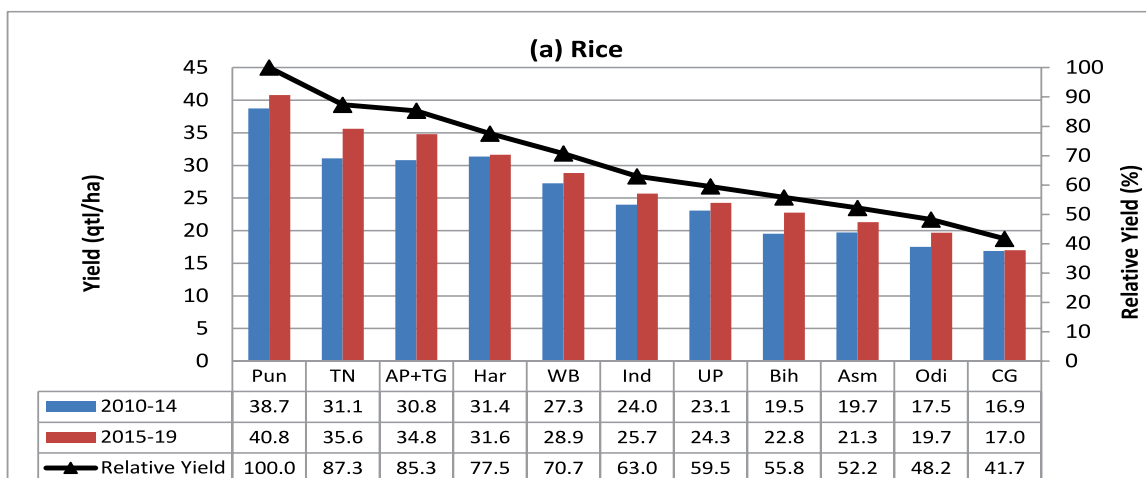


PRICE Policy for KHARIF CROPS

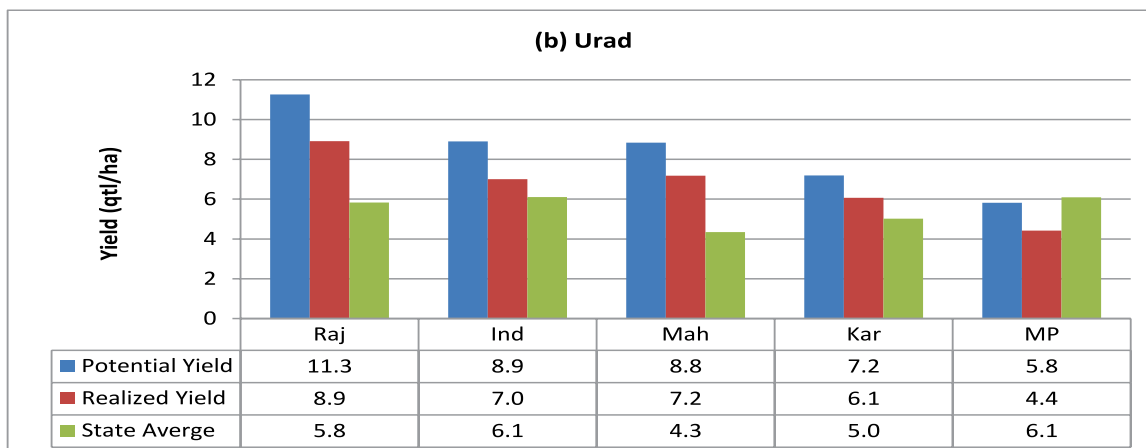
12 quintals per hectare in Gujarat (Chart 3.4 (a)). Karnataka, which is the largest producer of tur, had a yield gap (A) of 24.4 percent. Among the major States, yield gap (A) was the lowest in Madhya Pradesh (2.4%) and Jharkhand (2.7%). At all-India level, yield gap (A) for tur was 22.5 percent. Yield gap (B) remained high for all the States and was the highest in Andhra Pradesh (77.6%) followed by Telangana (57%), Maharashtra (44%) and Karnataka (41%). Yield gap (B) at all-India level was 40.9 percent.

3.24 In case of urad, State average yield was higher than realized and potential yield in Madhya Pradesh, the largest producer of urad in the country. This was due to unexpected rains during harvest in areas of front line demonstration for urad which resulted in lower potential and realized yield. For other States, yield gap (A) remained high and ranged from 17.3 percent in Karnataka to 39.5 percent in Maharashtra. Yield gap (B) varied from 30.2 percent in Karnataka to 50.8 percent in Maharashtra. At all-India level, yield gap (A) and (B) were 12.7 percent and 31.4 percent, respectively.

Chart 3.4: Comparison of Potential, Realized and State Average Yields of Pulses in Selected States



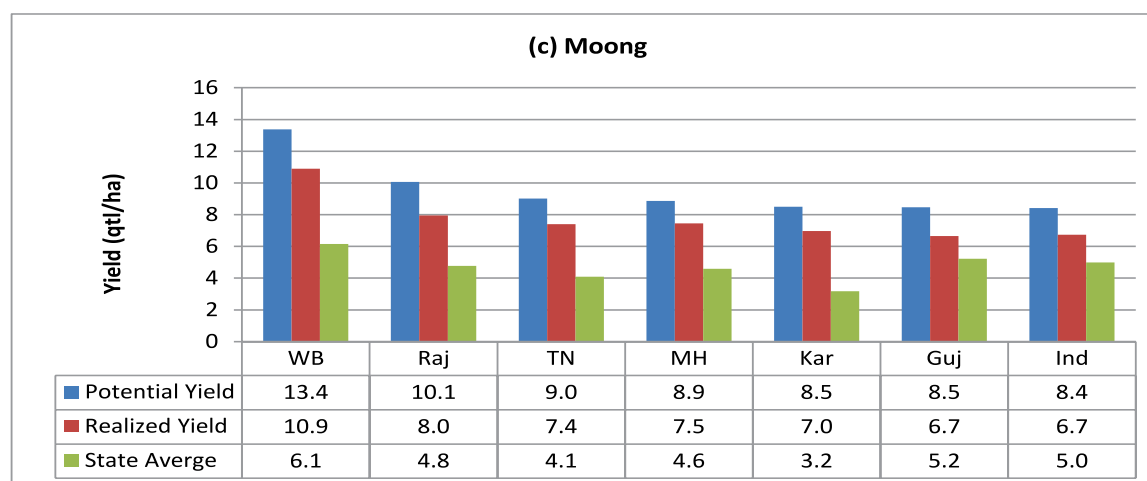
Source: Indian Institute of Pulses Research, Kanpur



Source: Indian Institute of Pulses Research, Kanpur



- 3.25 For moong, State average yield levels were significantly lower than potential and realized yields in all the States. As a result, yield gap (A) and (B) at all-India level were 26.1 percent and 40.7 percent, respectively. Largest potential yield (13.4 qtl/ha) and realized yield (10.9 qtl/ha) were observed in West Bengal. Karnataka had the highest yield gap (A) and (B) at 54.4 percent and 62.6 percent, respectively. In Rajasthan, the largest producer of moong, yield gap (A) and (B) were 40 percent and 52.7 percent, respectively.



Source: Indian Institute of Pulses Research, Kanpur

- 3.26 The results suggest that potential exists to increase pulses production in the country, particularly in the areas with high yield gaps. Various strategies are needed to exploit existing yield potential. Given the large yield gaps in kharif pulses, estimated increase in production that can be achieved by adopting yield gap bridging strategies has been computed and presented in Table 3.3. It is evident from the Table that kharif pulses production can be increased by about 2.4 million tonnes to 5.8 million tonnes by adopting various strategies. Some of these strategies could be adoption of suitable high-yielding varieties, improving input use efficiency by good farming practices such as timely application of inputs, improved planting methods, improved extension services and post harvest management and enabling government policies.

Table 3.3: Estimated Additional Production of Kharif Pulses by Bridging Productivity Gap

Crop	Likely Impact of Reduction in Crop Yield Gaps on Total Production ('000 tonnes)							
	Productivity Gap (A)				Productivity Gap (B)			
	25%	50%	75%	100%	25%	50%	75%	100%
Tur	303	606	908	1211	719	1438	2157	2876
Urad	114	228	342	456	357	714	1071	1429
Moong	195	390	585	780	381	761	1142	1522
Total	612	1224	1835	2447	1457	2913	4370	5827

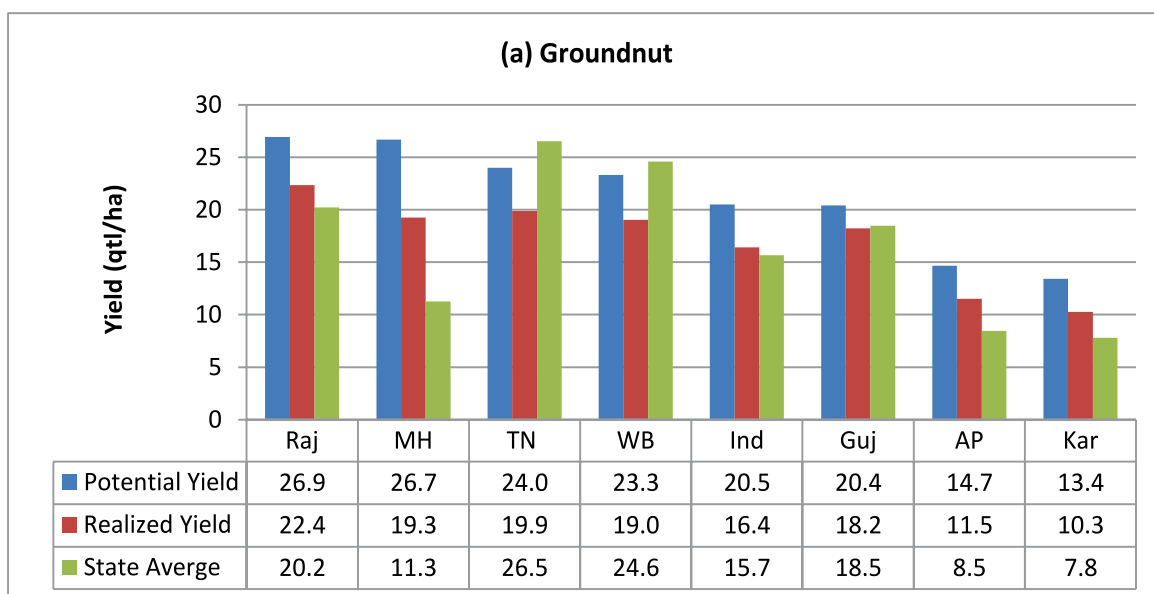
Source: Estimated using available data by CACP



Oilseeds

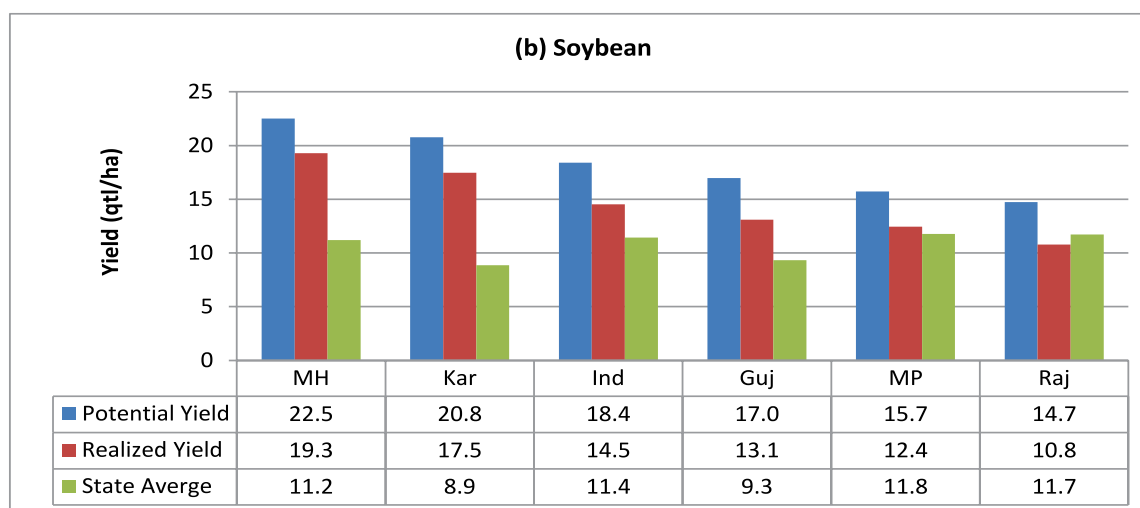
3.27 In case of groundnut, among the major producing States, yield gap (A) was the highest in Maharashtra (41.5%), followed by Andhra Pradesh (26.5%) and Karnataka (23.9%). However, State average yield in Gujarat, Tamil Nadu and West Bengal was higher than the realized yield. Similarly, realized yield was higher than potential yield in case of Tamil Nadu and West Bengal. However, significant gap between potential and realized yield was observed in all States and the yield gap varied from 10.8 percent in Gujarat to 27.8 percent in Maharashtra. Similarly, State average yields were much lower than realized yield in Maharashtra (41.5%), Andhra Pradesh (26.5%), Karnataka (23.9%) and Rajasthan (9.5%).

Chart 3.5: Comparison of Potential, Realized and State Average Yields of Oilseeds in Selected States



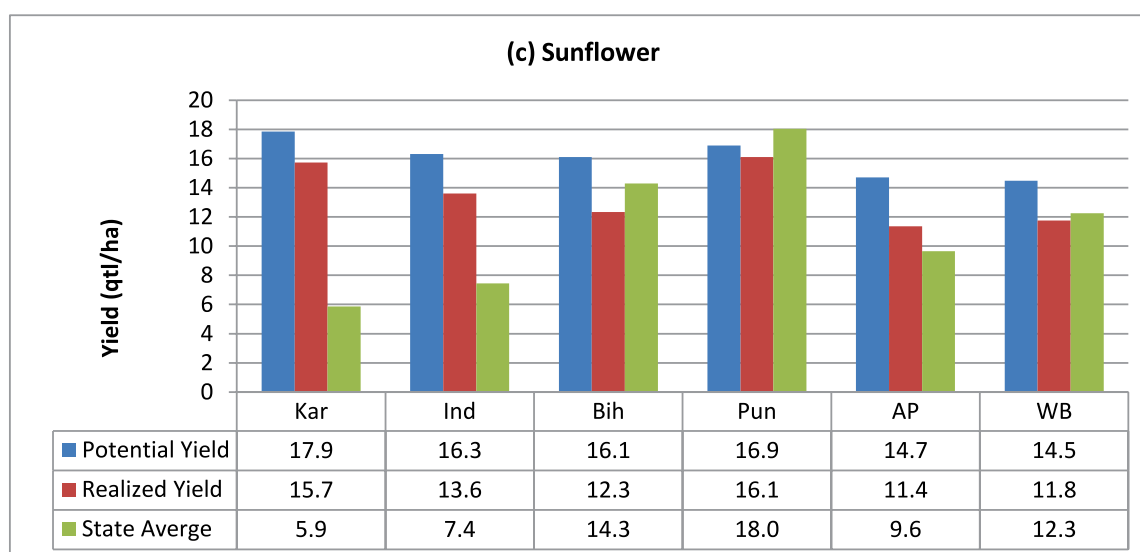
Source: Directorate of Groundnut Research, Junagarh

3.28 Average soybean yield at State level ranged from 8.9 quintals per hectare in Karnataka to 11.8 quintals per hectare in Madhya Pradesh, while potential yield varied between 14.7 quintals per hectare in Rajasthan to 22.5 quintals per hectare in Maharashtra and realized yield from 10.8 quintals per hectare in Rajasthan to 19.3 quintals per hectare in Maharashtra. Highest yield gap (A) and (B) were observed in Karnataka, 49.3 percent and 57.4 percent, respectively while yield gaps were the lowest in Rajasthan, (-)8.6 percent and 20.5 percent, respectively. Yield gaps were also quite high in Maharashtra and Madhya Pradesh. At the all-India level yield gap (A) was 21.2 percent and yield gap (B) was 37.8 percent.



Source: Indian Institute of Oilseeds Research, Hyderabad

3.29 For sunflower, yield gaps were very high at all-India level with yield gap (A) at 45.3 percent and yield gap (B) at 54.4 percent. At the State level, yield gaps (A) and (B) were significantly high in Karnataka and Maharashtra, accounting for nearly 55 percent of total production. However, due to better State average productivity, yield gap between potential yield and State average yield was low in Bihar, while in Punjab, State average yield was higher than potential and realized yield. Three States namely, Punjab, Bihar and West Bengal had higher State average yield than realized yield mainly due to trials taking place in low fertility area.



Source: Indian Institute of Oilseeds Research, Hyderabad

3.30 Results show that potential yields of oilseeds are much higher than the actual yields and provide an indication of the possibilities to increase oilseeds productivity and production in the country. By bridging yield gap (B) by 75 percent, total production of groundnut, soybean and sunflower in the country could be increased by about 7.7 million tonnes (Table 3.4).



Table 3.4: Estimated Additional Production of Kharif Oilseeds by Bridging Yield Gaps

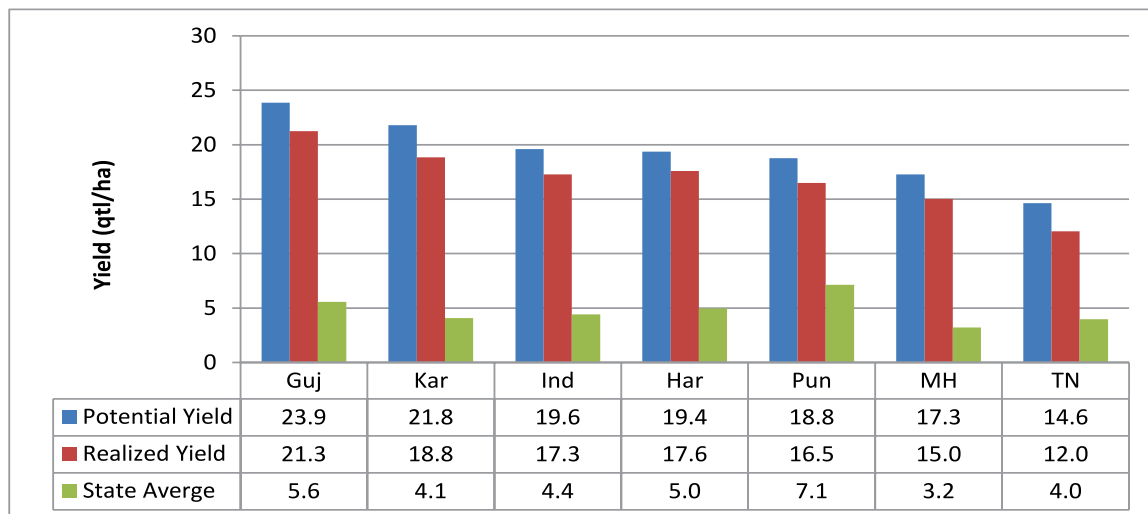
Crop	Likely Impact of Reduction in Yield Gaps on Total Production ('000 tonnes)							
	Productivity Gap (A)				Productivity Gap (B)			
	25%	50%	75%	100%	25%	50%	75%	100%
Soybean	836	1672	2508	3344	1895	3791	5686	7582
Groundnut	91	181	272	363	600	1200	1801	2401
Sunflower	48	95	143	190	68	137	205	274
Total	975	1948	2923	3897	2563	5128	7692	10257

Source: Estimated using available data by CACP

Cotton

3.31 For cotton, a large gap between State average yield and potential as well as realized yield through farmers' best practices was found. Cotton potential yield varied from 14.6 quintals per hectare in Tamil Nadu to 23.9 quintals per hectare in Gujarat, while State average yield varied from 3.2 quintals per hectare in Maharashtra to 7.1 quintals per hectare in Punjab. Yield gaps (A) and (B) were more than 50 percent for all the States. Yield gap (A) was highest in Maharashtra (78.7%) and the lowest in Punjab (56.8%). Yield gap (B) was also highest (81.5%) in Maharashtra and lowest (62%) in Punjab. At the all-India level, yield gap (A) was 74.5 percent and yield gap (B) was 77.5 percent.

Chart 3.6: Comparison of Potential, Realized and State Average Yields of Cotton in Selected States



Source: Central Institute for Cotton Research, Nagpur

3.32 Some of the strategies that can be effective in bridging the yield gap in cotton are; upscaling best management practices specific to the management of biophysical conditions such as infestation of pink bollworm, whitefly and cotton leaf curl virus, adoption of high yielding varieties and hybrids, use of high density planting systems, etc.



Drivers of Yield Growth

- 3.33 Productivity of crop is affected by various technological, economic and institutional factors such as fertilizers, irrigation, seed, management practices, extension services, etc. Assuring timely and proper availability of the above-mentioned factors can significantly enhance crop yields.

Quality Seed

- 3.34 Seed is the basic and most critical input for agriculture and response of all other inputs depends on quality of seeds to a large extent. It is estimated that the direct contribution of quality seed alone to the total production is about 15-20 percent depending upon the crop and it can be further raised up to 45 percent with efficient management of other inputs². However, as per National Seed Corporation (NSC), at present, the Seed Replacement Ratio (SRR) is only around 25-30 percent against the target of 80-85 percent. It is, therefore, necessary to sensitise farmers about the importance of quality seeds and mass awareness campaign need to be launched to achieve the same.
- 3.35 SRR can be enhanced by ensuring timely availability of quality seed to the farmers. The requirement of certified/quality seeds is assessed by State Governments on the basis of the area sown under different crop varieties, area covered by hybrid and self-pollinated varieties as well as the seed replacement rate achieved whereas the availability of seed is ascertained on the basis of the production of seed in Government farms, State Seeds Corporations and other agencies. Table 3.5 shows the requirement and availability of certified/quality seed for rice, maize, tur, soybean and cotton for the last five years. It can be noticed from the Table that in recent years there has been sufficient availability of certified/quality seed. Rice, maize, tur and cotton seed availability has remained higher than requirement of certified/quality seed for all the years, while for soybean, requirement was higher than availability in 2015-16 and 2018-19 but in 2019-20, availability improved to outstrip the requirement.

Irrigation

- 3.36 It is observed that both levels and growth in productivity in rainfed areas is much lower and variable compared to those in irrigated regions. Lack of irrigation makes agricultural operations more risky as it is totally exposed to the uncertainties of monsoon and discourages investment by farmers. Thus poor productivity of crops in rainfed regions emphasizes importance of irrigation. Chart 3.7 shows the State-wise productivity of foodgrains along with percentage of irrigation coverage for foodgrain crops. Benefits of expanding irrigation can be assessed from the fact that there is a high degree of positive correlation (0.9) between foodgrain productivity and irrigation coverage. For example, Punjab, which has the highest irrigation coverage (99%), also had the highest productivity (46.6 qtl/ha). Further, both irrigation coverage (18%) and foodgrains productivity (10.7 qtl/ha) were the lowest

² www.seednet.gov.in



PRICE Policy for Kharif Crops

in Maharashtra. Thus expansion in irrigation coverage and improvement in water use efficiency, have immense potential to improve productivity in Indian agriculture.

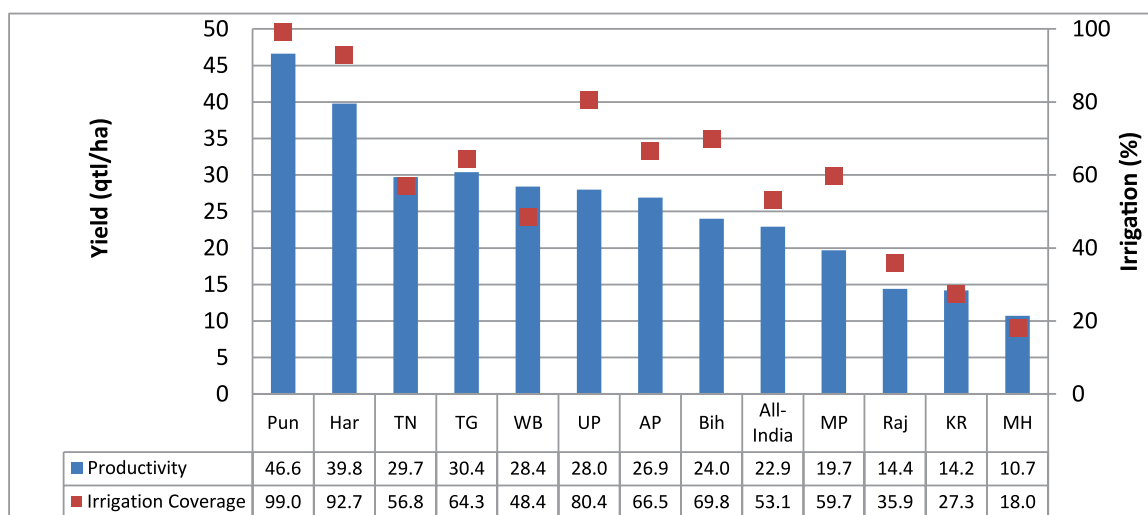
Table 3.5: Requirement and Availability of Certified/Quality Seed (2015-16 to 2019-20)

Crop	2015-16		2016-17		2017-18		2018-19		2019-20	
	Req.	Av.	Req.	Av.	Req.	Av.	Req.	Av.	Req.	Av.
Rice	82.9	95.1	87.7	100.5	89.5	104.1	82.6	95.8	82.4	92.3
Maize	10.7	12.7	12.5	13.5	14.5	15.7	13.2	14.2	12.7	15.1
Tur	2.5	2.7	2.7	3.0	3.3	3.8	2.8	3.2	2.7	3.2
Soybean	31.0	23.5	29.0	29.6	35.7	40.3	29.1	28.2	30.5	33.9
Cotton	2.0	2.1	2.2	2.4	3.2	3.5	2.2	2.5	2.2	2.4

Note: Req: Requirement, Av: Availability

Source: Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

Chart 3.7: Foodgrains Productivity (2018-19) and Irrigation Coverage (2014-15) in Major States



Source: Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare

- 3.37 It is well known that Indian agriculture is very vulnerable to the vagaries of weather as more than half of the agriculture is still rainfed. Moreover, the disproportionate use of freshwater in water scarce regions has led to rapid depletion of groundwater level. Therefore, there is a need to look towards water productivity as well instead of focussing only on crop productivity. As per the study on Water Productivity mapping of major Indian crops by National Bank for Agriculture and Rural Development (NABARD) and Indian Council for Research on International Economic Relations (ICRIER), rice, wheat and sugarcane, which cover about 40 percent of gross cropped area, consume more than 80 percent of irrigation water available in the country. Therefore, there is a need to re-align cropping pattern with water availability considering crop productivity per unit of water.



- 3.38 In order to achieve the twin objectives of expanding irrigation coverage and improving water use efficiency, Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was launched in 2015-16. PMKSY comprises of four components, (i) Accelerated Irrigation Benefit Programme (AIBP), (ii) Per Drop More Crop, (iii) Har Khet Ko Pani and (iv) Integrated Watershed Development Programme.
- 3.39 Under AIBP, 99 on-going major/medium irrigation projects having ultimate potential of 76 lakh hectares were prioritized for completion by December, 2019. Out of these 99 projects, 40 projects have been reported to be completed so far. About 21 projects have issues related to land acquisition, rehabilitation and resettlement, funding from States, change in scope and statutory clearances, which need to be addressed.
- 3.40 PMKSY also lays special emphasis on micro-irrigation to maximize water use efficiency at field level and ensuring “Per Drop More Crop”. At the all-India level, 43.1 lakh hectares area has been covered under micro-irrigation since inception of the programme. Chart 3.8 presents the State-wise share of area covered under micro-irrigation under PMKSY- Per Drop More Crop Programme for TE2018-19. As seen from the Chart, Karnataka accounted for 20 percent of the total area covered under micro-irrigation, followed by Andhra Pradesh (17.3%) and Gujarat (14.8%). Overall, the top five States accounted for more than three-fourth of total area covered under micro-irrigation. Therefore, there is a need to expand the area under micro-irrigation in the remaining States.
- 3.41 Many State Governments give additional subsidy on micro-irrigation but have limited budgetary resources and are not able to pay the State share. Government of India fund released to States under the programme have shown a declining trend during last 3 years (Annex Table 3.1) due to non-payment of State shares. Therefore, to facilitate States in mobilizing funds for expanding coverage of micro-irrigation, a dedicated Micro Irrigation Fund (MIF) with an initial corpus of ₹5000 crore has been created with NABARD.

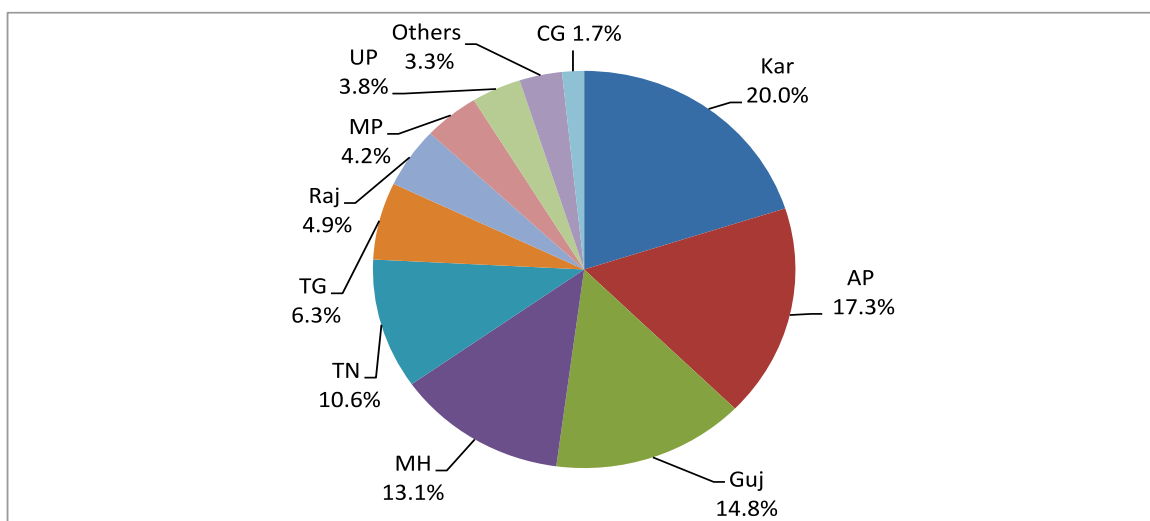
Fertilizers

- 3.42 The trends in consumption of NPK fertilizers during the last five years are given in Chart 3.9. As seen from the Chart, there was a significant increase in the consumption, of phosphatic (4.4%) and potashic fertilizers (5.4%) compared with nitrogenous fertilizers (1.1%) during the last five years. As a result, NPK ratio improved from 8.0:2.7:1.0 in 2013-14 to 6.1:2.5:1.0 in 2017-18 but marginally deteriorated (6.6:2.6:1.0) in 2018-19 due to 4 percent increase in N consumption and less than one percent increase in P and (-)3.6 percent decline in K consumption.



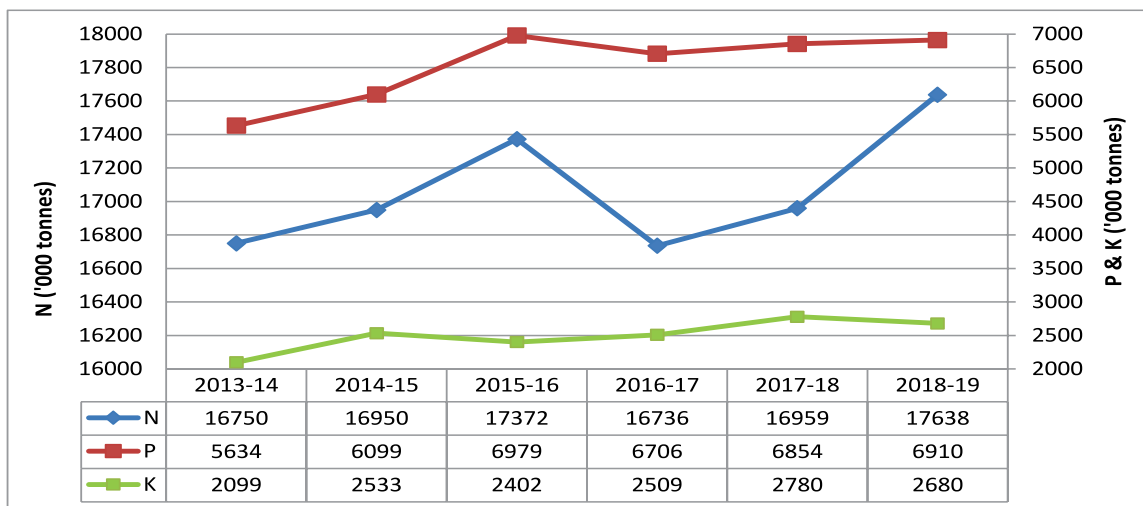
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Chart 3.8: Share of Major States in Area covered under Micro-Irrigation under PMKSY- Per Drop More Crop (TE2018-19)



Source: Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

Chart 3.9: Trends in Consumption of Fertilizers



Source: Fertilizer Association of India

3.43 In order to achieve balanced use of NPK, two-fold strategy needs to be devised. Firstly, there is a need to ensure price parity between various types of fertilizers. At present, urea is heavily subsidized vis-à-vis other fertilizers, e.g. price of urea is about ₹5360 per tonne while price of DAP is about ₹25000 per tonne and MOP ₹19000 per tonne. Therefore, Nutrient Based Subsidy (NBS) should be implemented in urea or quantity of subsidized urea per hectare should be fixed based on cropping pattern and irrigation coverage. Secondly, awareness about proper use of fertilizer nutrients should be created among farmers.



Soil Health Management

- 3.44 The Soil Health Card (SHC) Scheme was launched by the Central Government on 19th February 2015 to promote scientific evidence-based integrated nutrient management. The SHC programme assesses soil fertility in terms of availability of primary, secondary and micro nutrients as well as physical parameters. In the first phase (2015-2017), 10.7 crore cards were distributed and about 11.5 crore cards in second phase (2017-2019) against the target of 11.7 crore cards have been distributed. The State-wise target and actual distribution of SHCs is shown in Annex Table 3.2. The soil testing capacity has increased through setting up of 429 new soil testing labs (STLs), strengthening of 800 existing labs, 102 mobile STLs, 8752 mini-STLs and 1562 village-level STLs.
- 3.45 According to a study by National Productivity Council (NPC), application of fertilizers based on SHC has resulted in significant reduction in the cost of production and increase in production. Balanced and judicious use of fertilizers based on SHC recommendation will help in reduction of fertilizer consumption and cost of cultivation and improved soil health and farm income. Therefore, coordinated efforts should be made to create awareness about balanced use of fertilizers among farmers, manufacture customized fertilizers and distribute to farmers.

Farm Mechanization

- 3.46 To address the problem of shrinking labour availability and high wages due to various reasons, there is a need to promote greater mechanization in agriculture. Further, while promoting mechanization it is important to keep in view the small and fragmented nature of land holdings in Indian agriculture. Therefore, there is a need to develop customized farm machinery and promote Custom Hiring Centres (CHCs) to make available farm machinery to small and marginal farmers on rental basis. The Government provides subsidy ranging from 40 percent to 80 percent to farmers and farmer groups for purchasing machinery and recently launched multi-lingual mobile app “CHC-Farm Machinery” for getting machinery on rent. There is a need to ensure quality of machinery and equipment supplied to farmers and create awareness among farmers through demonstrations and capacity building. Adoption of appropriate farm mechanization of farming operations will help in reducing costs, improving profitability and managing crop residues.

Agricultural Credit

- 3.47 The flow of credit to agricultural sector has more than tripled during the last decade from ₹3.9 lakh crores in 2009-10 to ₹12.5 lakh crores in 2018-19 and is targeted at ₹15 lakh crore in 2020-21. Despite impressive growth in disbursement of agricultural credit, there are several issues and challenges that need to be addressed. Still a significant share of farmers is dependent on non-institutional sources and large number of tenant farmers/share croppers do not have access to institutional credit. There are also regional disparities in agricultural credit disbursement. Chart 3.10 shows the ratio of State-wise total agricultural credit to agricultural Gross

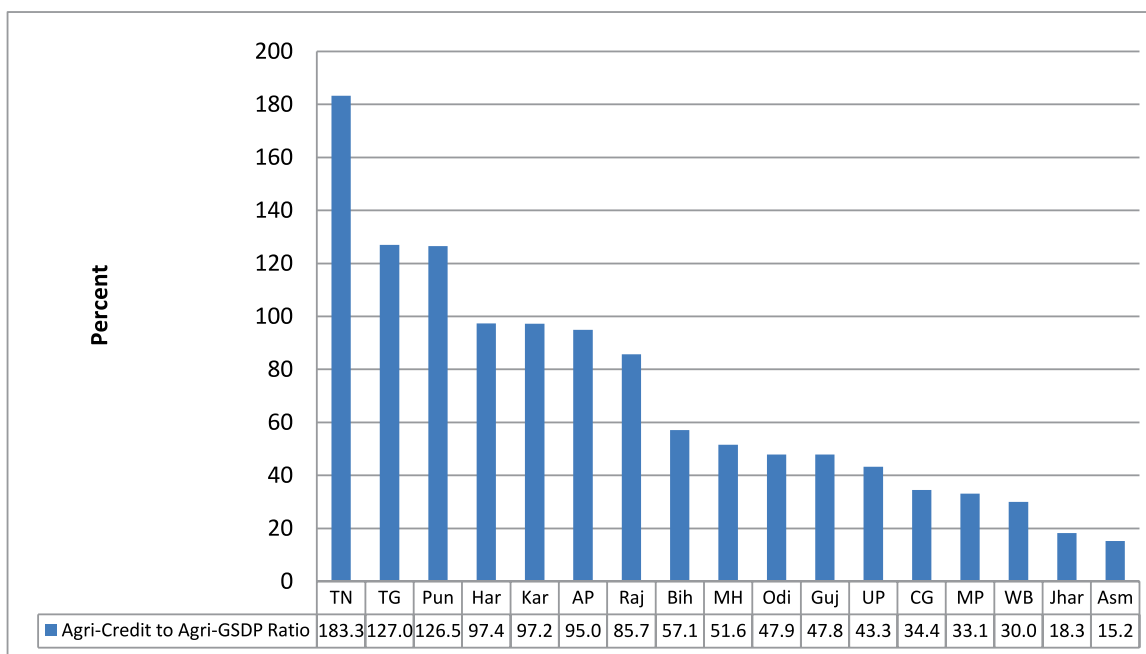


PRICE Policy for Kharif Crops

State Domestic Product (GSDP) for TE2017-18. Some States, namely, Tamil Nadu, Telangana and Punjab are getting agricultural credit more than agricultural GSDP indicating the possibility of diversion of credit to non-agricultural purposes. On the other hand, the ratio is quite low for Assam, Jharkhand, West Bengal, Madhya Pradesh and Chhattisgarh.

- 3.48 The Interest Subvention Scheme (ISS) for short-term crop loan which was introduced in 2006-07, has led to a decline in investment credit which is important for long term sustainable growth of agricultural sector.

Chart 3.10: State-wise Agricultural Credit to Agricultural GSDP Ratio (TE2017-18)



Source: 1. NABARD

2. Central Statistics Office, Ministry of Statistics and Programme Implementation

Country Comparisons of Crop Productivity

- 3.49 Global crop yields and Indian productivity level for selected crops for the year 2018 are reported in Table 3.6. As can be observed from the Table, all-India productivity for all crops was much lower than the world average. In case of rice, all-India productivity (2638 kg/ha) was only 56 percent of the world average (4679 kg/ha). Punjab, which has the highest productivity of 4132 kg per hectare in rice, is also below the world average. Further, India's rice yield is roughly one-third of the China (7027 kg/ha), which has the highest yield among major rice producing countries. Similarly, all-India productivity of maize (3070 kg/ha) was about half of the world average (5924 kg/ha).

- 3.50 In pulses too, all-India average productivity (757 kg/ha) was lower than the world average (964 kg/ha). Further, Canada, which is a major producer, the productivity



was double that of Madhya Pradesh, which has the highest yield (916 kg/ha) in India. Similarly, there was a large gap in productivity of tur. The average productivity of tur in Gujarat (1209 kg/ha) was higher than world average, but significantly lower than Malawi (1743 kg/ha). Soybean yield in the country (1192 kg/ha) was also less than the world average (2794 kg/ha) and about one-third of the productivity recorded in USA (3468 kg/ha). In case of groundnut, all-India average productivity was 1422 kg per hectare in comparison to the world average of 1611 kg per hectare. The highest productivity of groundnut in India was in Tamil Nadu (2718 kg/ha) which was much lower than the productivity observed in United States of America (USA) (4473 kg/ha). Hence more efforts are needed to improve crop yields genetically as well as through improved management practices.

Table 3.6: Productivity Comparisons for Major Crops (2018)

(kg/ha)

Crop	World Average	World Highest	All-India Average	State Highest
Rice	4679	7027 (China)	2638	4132 (Pun)
Maize	5924	11864 (USA)	3070	7258 (TN)
Total Pulses	964	1950 (Canada)	757	916 (MP)
Tur	852	1743 (Malawi)	729	1209 (Guj)
Soybean	2791	3468 (USA)	1192	1254 (Raj)
Groundnut	1611	4473 (USA)	1422	2718 (TN)

Sources: 1. FAOSTAT for World Average and World Highest

2. Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare for All-India Average and State Highest

Linking MSP with Oil Content in Sunflower

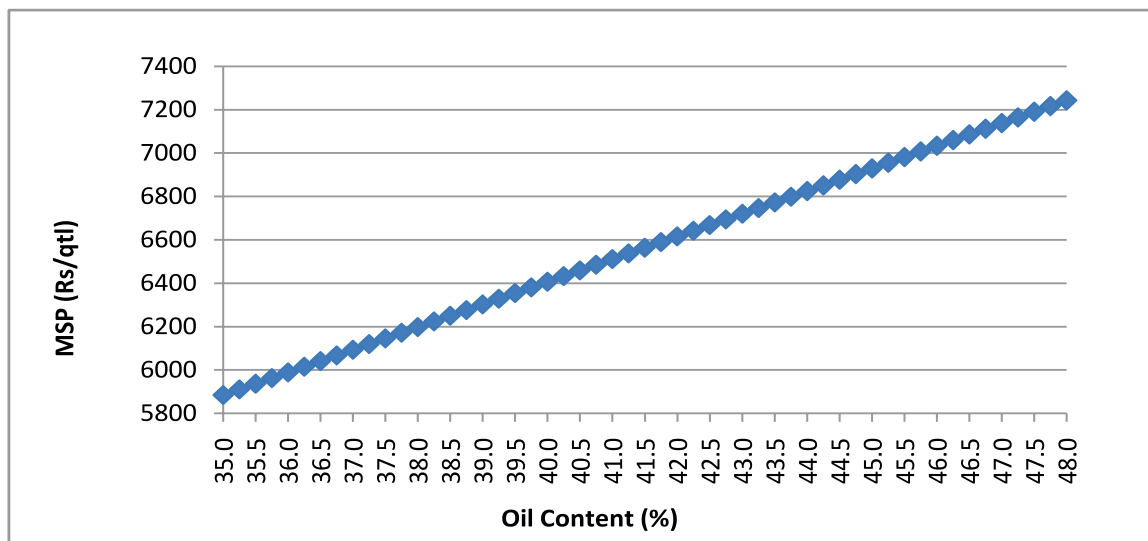
- 3.51 Area under sunflower has declined from 3.81 lakh hectare in 2016-17 to 2.9 lakh hectare in 2019-20. Since there are variations in oil content of different varieties of sunflower therefore, in order to increase area under sunflower, farmers should be incentivized through linking MSP of sunflower seed with oil content. The Commission is of the opinion that farmers be incentivized for higher 'oil content' in terms of increased MSP. As recommended in the earlier reports, the Commission reiterates that the MSP of sunflower be linked to the basic 'oil content' of 35 percent in sunflower seed and further, farmers be incentivized for every 0.25 percentage point increase in its 'oil content'.
- 3.52 To determine the incentive for higher 'oil content', one quintal of sunflower seed would give 35 kg of oil and 65 kg of oil cake. Adjusting the value of cake, the cost of sunflower seed (oil without cake) would be ₹4130 (₹5885-1755) which will contain 35 kg of oil. Cost per unit of oil content slowly decreases with an increase in 'oil content' (Annex Table 3.2). Taking average oil content between 35 percent and 48 percent, the average cost for every 0.25 percent point works out to be ₹26.10 per



PRICE Policy for KHARIF CROPS

quintal. Hence, the Commission recommends that MSP of sunflower seed should be increased by ₹26.10 per quintal for every 0.25 percent increase in 'oil content' over and above the base oil content of 35 percent in sunflower seed.

Chart 3.11: MSP based on Oil Content of Sunflower



Recapitulation

- 3.53 Productivity of kharif cereals, kharif pulses, kharif oilseeds and cotton has shown a declining trend in QE2018-19. Among individual kharif crops, there has been a decline in productivity for all crops except paddy, jowar, tur and soybean. The crop productivity is also marked by large inter-State variations due to factors like variations in agro-climatic conditions, irrigation coverage, availability of inputs and services, etc. These are also the factors which have led to large gaps between potential yields and the State average yields.
- 3.54 In recent years, efforts have been made to enhance agricultural productivity through various programmes. In particular, through various components of PMKSY, concerted efforts are being made in expanding irrigation coverage and improving water use efficiency. Distribution of SHCs is a timely initiative which can guide farmers towards using the right proportion of fertilizers thereby improving the NPK ratio and improving soil health. Implementing Nutrient Based Subsidy in urea or fixing quantity of subsidized urea per hectare based on cropping pattern and irrigation coverage will go a long way in creating appropriate incentive for balanced use of fertilizers. Though flow of credit to agricultural sector has more than tripled during the last decade, a large number of farmers still depend on non-institutional sources for meeting their credit requirement. By expanding the area under irrigation, improving water use efficiency, availability of quality seeds, promoting balanced use of fertilizers and ensuring equity in access to institutional credit it is possible to bridge the wide gap in India's productivity vis-à-vis world productivity levels.

Trade Patterns, Competitiveness and Outlook for Indian Agriculture

- 4.1 The “Agriculture Export Policy, 2018”, has a strong focus on export oriented production, export promotion, diversification of export basket and destinations, promotion of high-value and value-added agricultural exports and better farmer realization with a “Farmers’ Centric Approach” for improving income through value-addition and reducing losses across the value chain. The policy aims to double agricultural exports from about US\$30 billion to US\$60 billion by 2022 and reach US\$100 billion in the next few years thereafter. Tapping emerging trade opportunities in world markets for Indian agricultural products is of critical importance for achieving the goal of doubling India’s agricultural exports and farmers’ income by 2022. The chapter discusses the performance, changing patterns of agricultural trade during the last decade, analyses trends in domestic and international prices, and provides an overview of trade policy and trade outlook.

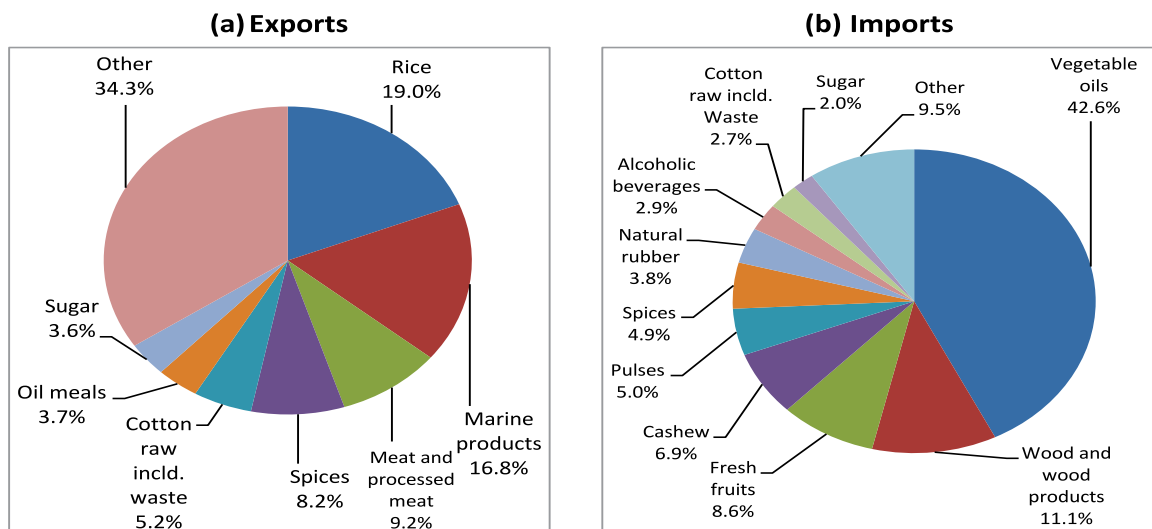
Trade Performance

- 4.2 As per World Trade Statistical Review 2019, world merchandise exports increased on average by 1.8 percent per year during 2008-2018 but exports of agricultural products saw a higher increase and grew by 3.1 percent per year. The share of agricultural products increased from 8 percent in 2008 to 10 percent in 2018. Top ten exporters of agricultural products led by the European Union, the United States and Brazil accounted for about 72 percent of world exports in 2018. The highest increases in exports of agricultural products among the top ten exporters were recorded by China (9%), the EU (6%), Brazil (6%) and Mexico (6%) while Australia experienced the biggest decline (-10%), followed by Indonesia (-7%) and India (-0.5%).
- 4.3 India’s share in total world exports was 1.7 percent in 2018, while the share in world agri-exports was 2.2 percent, valued at US\$39.3 billion. The share of India in total world imports was 2.6 percent in 2018, whereas the share in agri-imports was 1.7 percent, valued at US\$28.2 billion. There was a marginal decline in India’s share in world agri-exports and imports in 2018 as compared with 2017 (Annex Tables

4.1 & 4.2). As regards agri-exports, India is at 8th position whereas, in agri-imports, it stands at 10th position. India has improved its share in world agricultural exports from 1.7 percent in 2010 to 2.2 percent in 2018, and share in world agricultural imports has increased from 1.3 percent to 1.7 percent during 2010-2018.

- 4.4 As per DGCIS data, India's agri-exports increased by about 9.6 percent in 2018-19, from ₹258.7 thousand crore in 2017-18 to ₹283.5 thousand crore in 2018-19. The share of agri-exports in total exports decreased from 13.2 percent in 2017-18 to 12.3 percent in 2018-19 because total merchandise exports reached a new peak of ₹2307.7 thousand crore during April-March 2018-19, registering a positive growth of 18 percent over previous year. India's agri-export basket is diversified and led by rice (19%), marine products (16.8%), meat and processed meat (9.2%), spices (8.2%), raw cotton (5.2%), oil meals (3.7%) and sugar (3.6%), which together constituted about 65.7 percent of total agri-exports in 2018-19 (Chart 4.1(a)). India is the leading exporter of rice, marine products, meat and spices, but its share in total world agri-exports is little over 2 percent. Exports of marine products, spices, cotton, oilmeals, sugar, oilseeds, wood and wood products, tea and tobacco registered an increase during 2018-19, while exports of coffee, castor oil, meat & processed meat, jute & allied products, cashew and wheat recorded a decline. During the last decade (2009-10 to 2018-19), the exports of major agricultural commodities (spices, meat & processed meat, marine products and rice) showed an upward trend wherein there was a steep rise between 2009-10 to 2013-14 but the growth rate decelerated in 2014-15. Exports of these products declined in 2015-16 and thereafter increased till 2018-19. Similarly, the imports of major agricultural commodities (cashew, fresh fruits, wood & wood products and vegetable oils) showed a gradual upward trend during the same period. In 2009-10 to 2010-11 the imports increased at lower rate and thereafter at faster rate for next two years. There was a dip in imports in 2013-14 and sharp increase in 2014-15 and increased at a lower rate between 2015-16 to 2017-18 and thereafter imports declined (Annex Chart 4.1 & 4.2).

Chart: 4.1 Composition of India's Agricultural Exports and Imports in 2018-19



Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry



- 4.5 India's agricultural imports were down 8 percent in value terms in 2018-19, from ₹175.8 thousand crore in 2017-18 to ₹161.9 thousand crore in 2018-19. The share of agricultural imports in total imports declined from 5.9 percent in 2017-18 to 4.5 percent in 2018-19. India's agri-import basket is also diversified and led by vegetable oils (42.6%), wood and wood products (11.1%), fresh fruits (8.6%), cashew (6.9%), pulses (5%), spices (4.9%) and natural rubber (3.8%), which together constituted about 82.9 percent of total agri-imports in 2018-19 (Chart 4.1(b)). There was a rise in imports of cashew, spices, natural rubber, alcoholic beverages, fresh fruits, wood & wood products and cocoa products in 2018-19, while imports of vegetable oils, pulses, sugar, coffee, raw cotton, dairy products, raw jute, fresh vegetables and wheat showed a decline. It is evident from the data that there was continuous rise in agri-imports during 2013-14 to 2016-17 but recorded a decline in 2017-18 and 2018-19 whereas, agri-exports declined during 2014-15 and 2015-16 but increased from 2016-17 to 2018-19 (Annex Table 4.3). Due to this interplay of exports and imports, India's net agri-trade surplus decreased substantially from the level of ₹159 thousand crore in 2013-14 to ₹121.6 thousand crore in 2018-19. However, trade surplus witnessed an increasing trend during the last three years.
- 4.6 A notable decline in exports of agricultural products occurred during first three quarters of 2019-20. During April-December 2019, India's agri-exports were ₹192.5 thousand crore, a decline of about 6.7 percent over April-December 2018, mainly due to lower exports of raw cotton (-64.1%), oil meals (-37.4%), guar gum meal (-26%) and non-basmati rice (-35.8%). Total rice exports declined from about 8.6 million tonnes in April-December 2018 to 6.4 million tonnes in April-December 2019, while non-basmati rice exports saw a steep decline from about 5.7 million tonnes to 3.6 million tonnes during the corresponding period. Other major commodities that witnessed a decline in exports were cashew (-13.1%) and meat & processed meat (-8.6%) and fresh vegetables (-17.3%). Agricultural imports increased from ₹123.5 thousand crore to ₹129.6 thousand crore during April-December 2019 and April-December 2018 due to higher imports of vegetable oils (39.4%), wood and wood products (9.9%) and fresh fruits (7.7%). However, during this period there were lower imports of sugar (-32.7%), cashew (-30.3%), natural rubber (-19.2%), wood & wood products (-3.9%) and vegetable oils (-1.9%).

Trade Patterns and Trade Policy of Major Kharif Crops

Rice Trade

- 4.7 As per USDA, global production of rice was 495 million tonnes in TE2018-19 and about 9.4 percent of world production was traded. China is the largest producer with a share of 30 percent, followed by India (22.8%), Indonesia (7.4%), Vietnam (5.6%) and Thailand (4%). India was the largest exporter of rice with a share of 24.6 percent, followed by Thailand (21.7%), Vietnam (14.3%) and Pakistan (8.7%) in TE2018-19. China, the largest producer, is also the largest importer of rice, with a share of about 9.3 percent. Philippines, Nigeria and EU are other major importers of rice, accounting for 13.7 percent of global rice imports. International rice trade



is characterised by a small number of exporting countries and concentration of exports has increased over time. In contrast to rice exports, imports of rice are widely dispersed across countries and top-five importers account for about only 26 percent of the world imports.

- 4.8 Rice is a prominent crop in India contributing about 40.8 per cent of total of foodgrains production and around 19 percent of total value of agricultural exports in 2018-19. India had imposed ban on exports of non-basmati rice in October 2008, which was lifted in September 2011 and India has emerged as one of the largest exporters of rice since 2012-13. In value terms India's rice exports (basmati+non-basmati) from 2009-10 to 2019-20 (April-December) are shown in Chart 4.2. Total exports of rice in quantity were about 7.2 million tonnes in 2011-12, which increased to 12 million tonnes in 2014-15 but declined to 10.8 million tonnes in 2016-17 mainly due to fall in non-basmati rice exports. However, exports increased to 12.9 million tonnes in 2017-18 due to increase in demand for non-basmati rice from Bangladesh and Sri Lanka but again dropped to 12 million tonnes in 2018-19. India exports non-basmati rice mainly to African and Asian countries and basmati rice to the Middle East, United States and Britain. India's rice exports increased by 19.7 percent in 2017-18 as Bangladesh imported large quantities of non-basmati rice due to lower domestic production affected by floods. Bangladesh and Sri Lanka bought aggressively from India amid depleting inventories in Thailand. India has freight advantage over Thailand in exports to these countries. During 2018-19, rice exports from India declined by 7 percent as imports by Bangladesh declined significantly.
- 4.9 Basmati rice exports recorded a strong growth during 2015-16, from 3.7 million tonnes in 2014-15 to about 4 million tonnes in 2015-16 and remained nearly at same level in next two years but increased to 4.4 million tonnes in 2018-19. However, export of basmati rice has faced problems in last few years in different markets like USA, EU and Iran due to detection of residues of pesticides exceeding prescribed Maximum Residue Limit (MRLs). The EU has brought the MRL of Tricyclazole to limit of determination (LOD) i.e. 0.01 mg/kg while USA does not permit the presence of residues of pesticides like Isoprothiolane and Buprofezin beyond 0.01 mg/kg. Basmati rice exports to Iran, which account for more than 30 percent of total exports, have dropped significantly, from 1483.7 tonnes in April-December 2018 to 780.1 tonnes in April-December 2019 and are not expected to pick up due to fear of delayed payments on account of US-imposed sanctions on Iran. An emerging factor that may dampen imports is Iran's efforts to attain self-reliance in production of rice that include long grain aromatic sadri category of rice. However, scarcity of water is emerging as a hindrance in increasing rice production by Iran.
- 4.10 Total rice exports declined significantly (-25.6%) during April-December 2019 at 6.4 million tonnes compared with 8.6 million tonnes in April-December 2018. Non-basmati rice exports recorded steep decline (-38%), from 5.7 million tonnes during April-December 2018 to 3.6 million tonnes in April-December 2019. Between April-December 2018 and April-December 2019, imports of basmati rice from India decreased sharply in major export destinations such as Iran (47.4%), Saudi Arabia

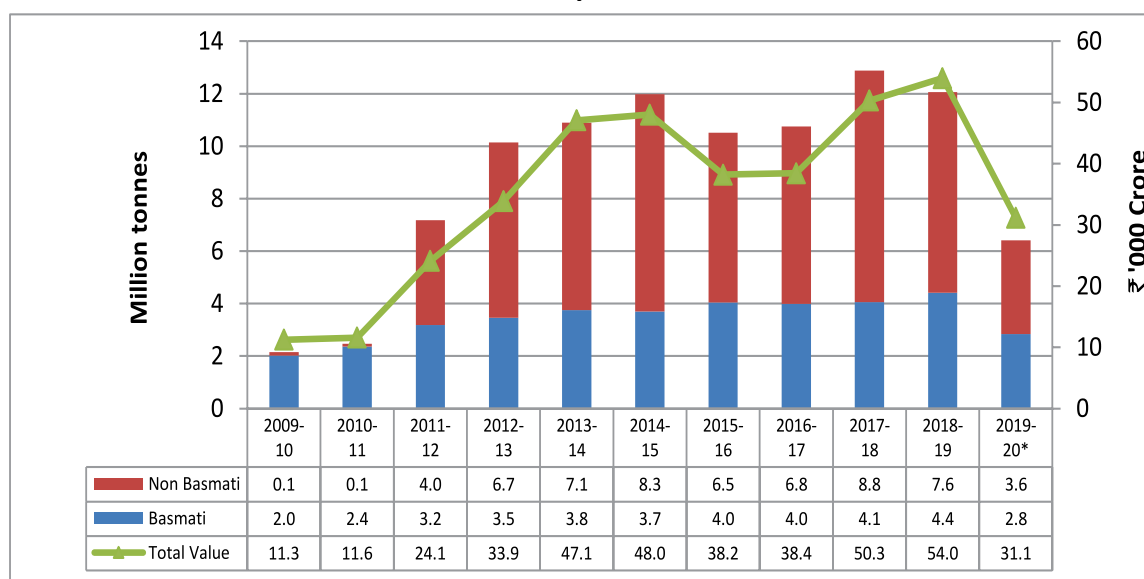


(32.9%) and UAE (54.9%). Similarly imports of non-basmati rice decreased sharply in major export destinations of India such as Benin (31.8%), Guinea (48%), Cote D'Ivoire (42.3%) and Indonesia (100%). Major export destinations of Indian rice (basmati and non-basmati) in 2018-19 and their status in 2016-17 and 2017-18 is given in Annex Table 4.4.

Rice Trade Policy

4.11 Non-basmati rice exports have shown a fluctuating trend because of changes in trade policies. In 2006-07, exports were banned with the exception of a few countries. Subsequently ban on exports was replaced with Minimum Export Price (MEP) of US\$425 per tonne on 31st October 2007 and the ban was lifted in July 2011. Thereafter, exports started increasing and peaked in 2017-18 at 8.8 million tonnes. Non-basmati rice was made eligible for 5 percent Merchandise Exports from India Scheme (MEIS) benefit from 26.11.2018 to 25.03.2019. However, since MEIS benefit was withdrawn from 25.3.2019, exports have slumped again during the current financial year and increase in MSP has led to rise in Indian price, making non-basmati rice exports uncompetitive. There is significant decline in imports of Indian non-basmati rice by Bangladesh and other countries like Nepal and Senegal. Government-to-Government (G2G) arrangements with various countries for export of non-basmati rice may improve exports of non-basmati rice from India. Effective information dissemination of latest international regulatory and Sanitary & Phytosanitary Measures (SPS) requirements and capacity building programmes for farmers on use of correct dose of recommended pesticides and pre-harvest interval should be conducted to boost exports of rice.

Chart 4.2: India's Rice Exports, 2009-10 to 2019-20



Note: * For 2019-20 (April- December)

Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry

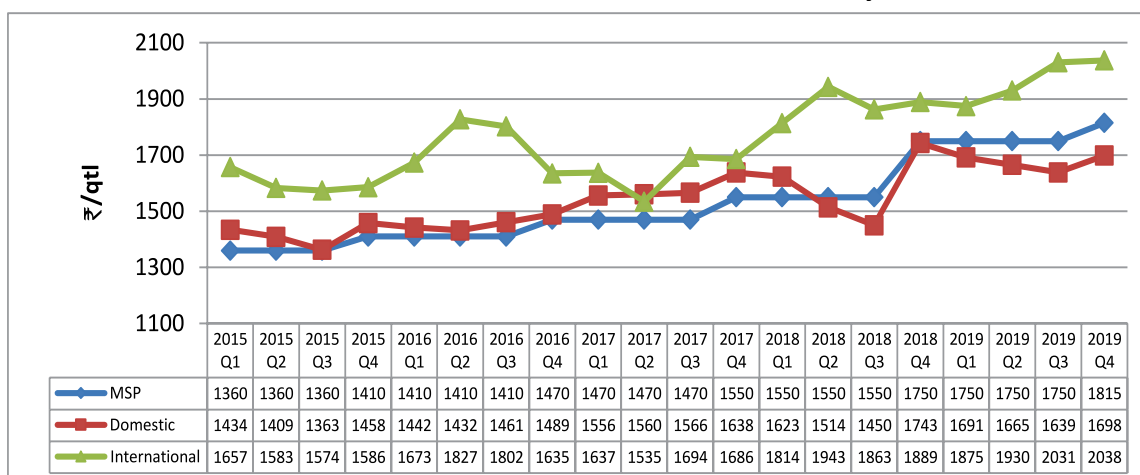


Price Policy for Kharif Crops

Price Trends

4.12 Chart 4.3 reveals that domestic wholesale prices of paddy have been lower than international prices during 2015 to 2019, except the second quarter of 2017. This indicates that Indian rice has remained export competitive barring second quarter of 2017. In addition, the domestic wholesale price of paddy has been generally higher than Minimum Support Price (MSP) until 2018(Q₁) and fell below the MSP thereafter as MSP of paddy was increased by about 13 percent in 2018-19. MSP has been continuously lower than international prices during this period, the gap between world price and MSP has narrowed in the recent years. The MSP has increased at a faster rate compared with world prices during the last two years, making Indian rice exports less competitive.

Chart 4.3: MSP, Domestic and International Prices of Paddy, 2015 to 2019



Notes: 1. Rice (Thailand), 25 percent broken, WR, milled indicative survey price, government standard, f.o.b. Bangkok
2. International Prices of rice converted into paddy at the ratio of 0.67
3. Weighted wholesale price of Andhra Pradesh(AP), Assam, Chhattisgarh, Gujarat, Haryana, Kerala, Karnataka, Madhya Pradesh(MP), Maharashtra, Punjab, Tamil Nadu(TN), Uttar Pradesh(UP) and West Bengal(WB), which covered around 77 percent of production in 2019-20

Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare
2. World Bank

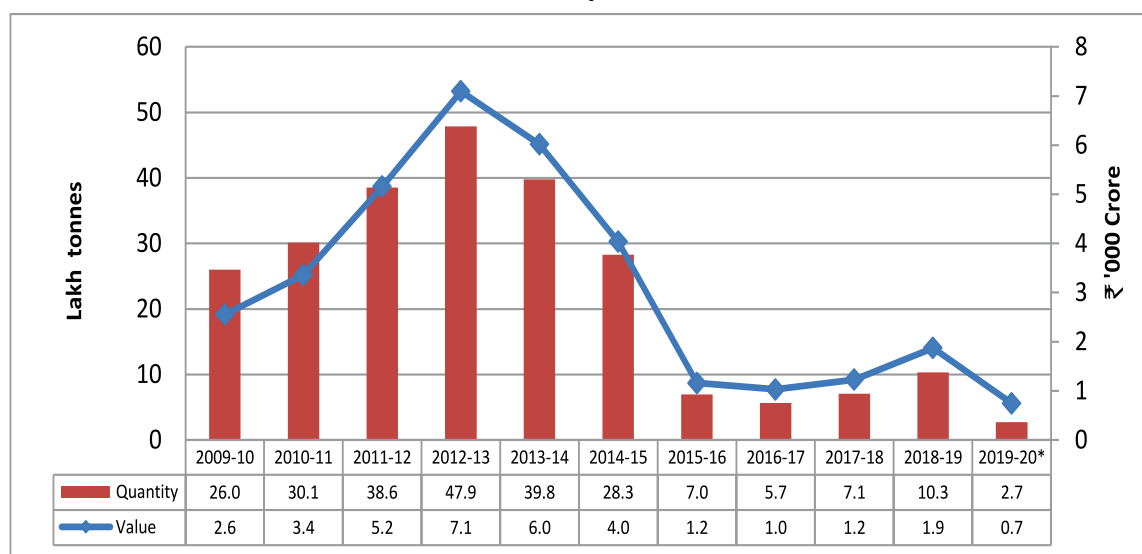
Maize Trade

4.13 As per USDA, global production of maize was 1110 million tonnes in TE2018-19, out of which about 14 percent was traded. USA is the largest producer of maize (corn) with a share of 33.6 percent, followed by China (23.4%), Brazil (8.5%), EU (5.7%), and Argentina (3.7%). India is the 7th largest producer of maize with an estimated share of 2.5 percent. USA is also the largest exporter accounting for 36.1 percent of world exports, followed by Brazil (18%), Argentina (17.1%), Ukraine (14.9%) and Russia (3%). EU (12.6%), Mexico (10.2%), Japan (10%), South Korea (6.4%), Vietnam (6.2%) and Egypt (5.9%) are major importers of maize, accounting for more than half of global imports.



- 4.14 Exports of maize from India increased from 26 lakh tonnes in 2009-10 to about 47.9 lakh tonnes in 2012-13 and declined in next two years to reach 5.7 lakh tonnes in 2016-17 mainly due to low world prices and fall in domestic production. Maize exports improved marginally to 7.1 lakh tonnes in 2017-18 and 10.3 lakh tonnes in 2018-19, due to lower domestic prices in last three quarters of 2018-19. However, maize exports declined significantly to 2.7 lakh tonnes during April-December 2019 due to significant rise in domestic prices from ₹1161 in 2018(Q₄) to ₹1793 in 2019(Q₁) and ₹2074 in 2019 (Q₃) driven by a fall in production, while international price was below ₹1200, making Indian maize exports uncompetitive (Chart 4.4). It has been observed that maize imports in India has been negligible between 2009-10 to 2014-15 but increased to 181.8 thousand tonnes in 2015-16 and thereafter showed a declining trend till 2018-19 and in April-December 2019 it has increased to 247.4 thousand tonnes.

Chart 4.4: India's Maize Exports, 2009-10 to 2019-20



Note: * For 2019-20 (April- December)

Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry

Price Trends

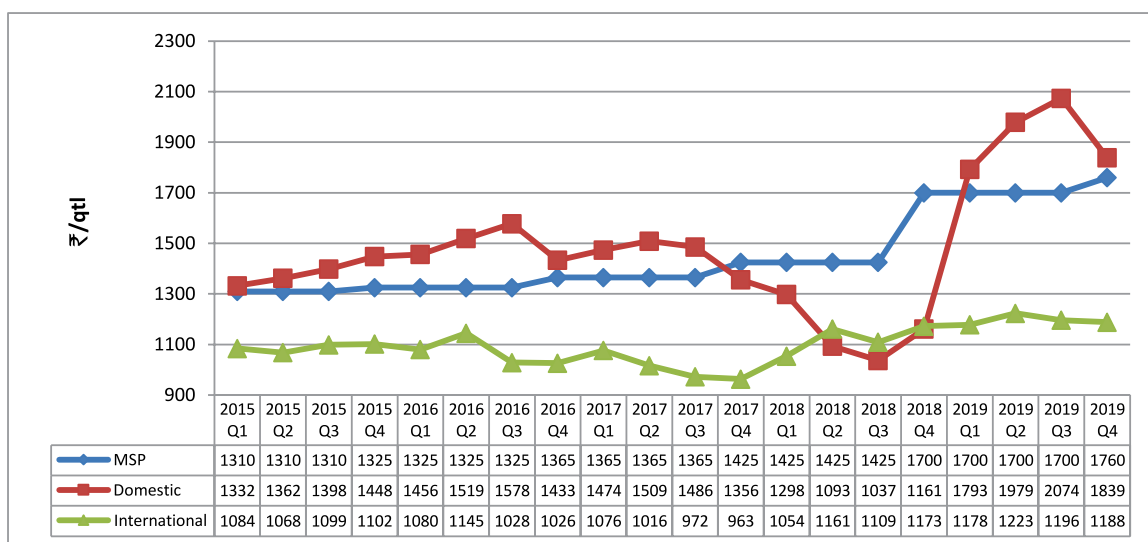
- 4.15 It can be seen from chart 4.5 that from 2015(Q₁) onwards domestic wholesale prices of maize were higher than the international prices and gap between two prices increased till 2017(Q₃). The domestic prices declined steeply thereafter and in 2018(Q₂ & Q₃), domestic prices were lower than world prices but in 2018(Q₄) both prices almost converged. Domestic prices of maize were higher than MSP from 2015(Q₁) onwards but they went below MSP in 2017(Q₄) till 2018(Q₄). In 2018(Q₄) there was a significant increase (19.2%) in MSP, that led to increase in domestic market prices and domestic prices remained significantly higher than MSP and far above world prices during 2019 but declined by more than 10 percent in 2019(Q₄).



PRICE Policy for Kharif Crops

- 4.16 Indian maize prices have generally remained significantly higher than world prices, making Indian exports uncompetitive in world markets. Therefore, there is a need to find alternative uses of maize in the country for industrial uses like feed, starch and ethanol as well as for direct consumption, mainly value-added products. National Policy on Biofuels 2018 expanded the scope of raw material for ethanol production by allowing use of sugarcane juice, sugar-containing materials like sugar beet, sweet sorghum, starch-containing materials like corn, cassava, damaged food grains like wheat, broken rice, rotten potatoes etc, unfit for human consumption for ethanol production. Maize cultivation is more water efficient than rice and sugarcane (water-intensive crops) and therefore, allowing maize as raw material for ethanol production would help in crop diversification and ensure remunerative prices to farmers.

Chart 4.5: MSP, Domestic and International Prices of Maize, 2015 to 2019



Notes: 1. Maize (US), No. 2, yellow, f.o.b. US Gulf ports

2. Weighted wholesale price of AP, Bihar, Gujarat, Karnataka, MP, MH, Pun, Raj, TN and UP, which cover 78 percent of production in 2019-20

Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare
2. World Bank

Jowar (Sorghum) Trade

- 4.17 According to USDA data, global production of jowar was 60.5 million tonnes in TE2018-19 and less than 10 percent of world production was traded. The top sorghum producer in the world is USA with a share of 16.9 percent, followed by Nigeria (11.7%), India (7.2%), Ethiopia (8.3%) and Mexico (7.7%). The US, which ranked first in world production of sorghum, is also the largest exporter, with a share of 76.5 percent, followed by Australia (6.2%) and Argentina (5.6%). Top three importers account for more than 75 percent of world imports with China as top importer with 59 percent share, followed by Japan (9.2%) and EU (7.7%).

PRICE Policy for KHARIF CROPS



4.18 During the period 2009-10 to 2019-20, India's exports of jowar have fluctuated between 51.4 thousand tonnes in 2017-18 and 286.8 thousand tonnes in 2012-13 (Chart 4.5). As domestic prices have increased faster than global prices, exports of jowar have shown a declining and fluctuating trend in last few years.

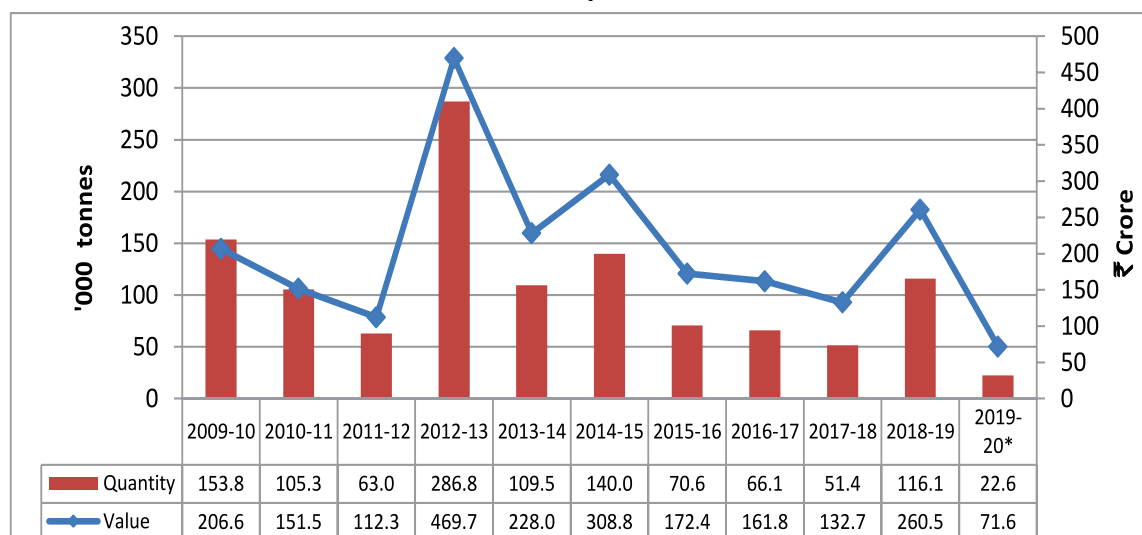
Jowar (Sorghum) Trade Policy

4.19 In April 2000, Government of India imposed import duty of 50 percent on jowar, which was raised to 80 percent in July 2017. Quantitative restrictions on export of jowar were removed in March 2002 and exports continue to be free.

Price Trends

4.20 Domestic wholesale prices of jowar have remained higher than international prices and the gap between two prices has widened during 2015 to 2019 (Chart 4.6). Freight advantage allows India to export small quantities to neighbouring countries like Pakistan, Saudi Arabia, UAE and Kenya. Domestic market prices of jowar have been higher than the MSP except 2019(Q1&Q4). However, domestic prices as well as MSP have been much higher than international prices. The MSP of jowar increased significantly (42.9%) in kharif marketing season 2018-19, which has pushed up domestic prices.

Chart 4.6: India's Jowar Exports, 2009-10 to 2019-20



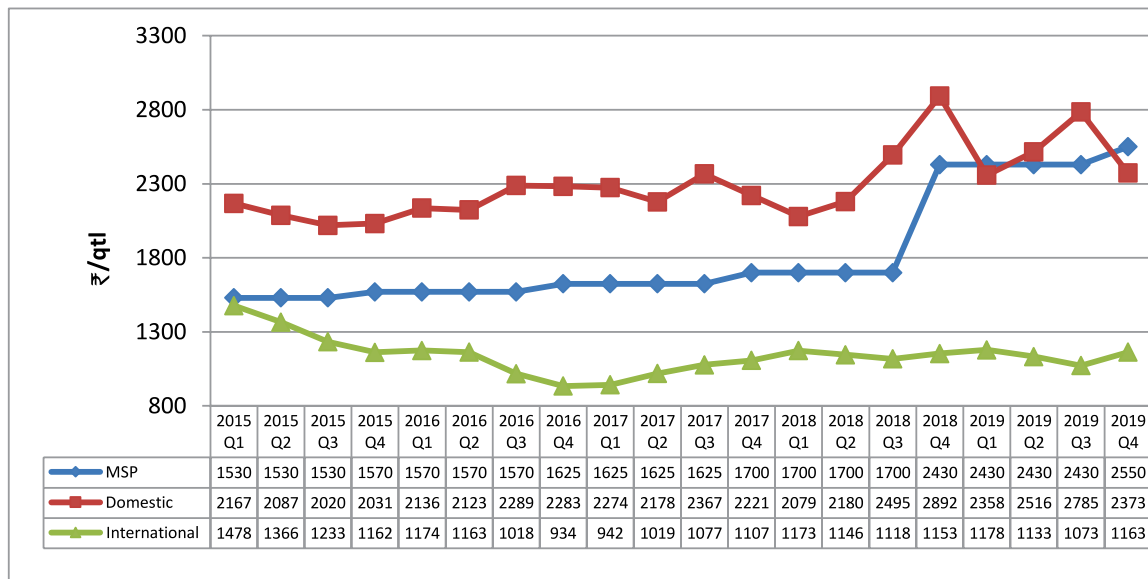
Note: * For 2019-20 (April- December)

Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry



PRICE Policy for KHARIF CROPS

Chart 4.7: MSP, Domestic and International Prices of Jowar, 2015 to 2019



Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare
2. World Bank

Trade in Pulses

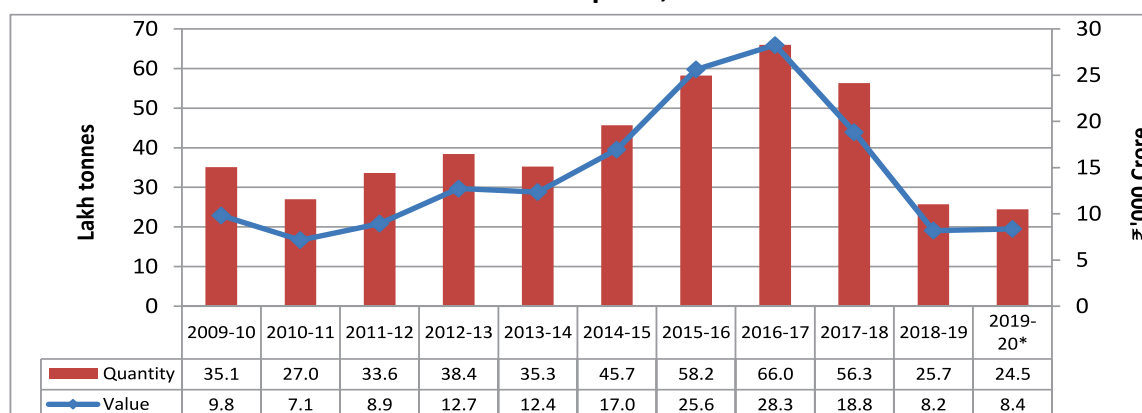
- 4.21 Pulses are a major source of protein for a majority of Indians, particularly the vegetarian population. India is the largest producer, consumer and importer of pulses in the world. Pulses such as lentils, beans, peas, pigeon pea and chickpea form important part of general food basket in India. Promoting cultivation and consumption of pulses can help India overcome problem of malnutrition, improve soil fertility and provide income support to farmers. Here we need to underline that instead of promoting water-intensive crops like rice and sugarcane, it is important to promote production of pulses and oilseeds by encouraging farmers to grow these crops by providing better quality seeds, technology and appropriate price support to address gap between domestic production and consumption and maintain stability in the domestic market.
- 4.22 As per FAO, global production of pulses was 89.9 million tonnes in TE2018 and India was the largest producer, with a share of 24.8 percent, followed by Canada (8.1%), Myanmar (6.9%), China (5.4%), Russian Federation (3.9%), Australia (3.4%), Nigeria (3.1%) and Ethiopia (3.2%).
- 4.23 As per DGCIS, India's imports of pulses increased from 27 lakh tonnes valued at ₹7100 crore in 2010-11 to ₹66 lakh tonnes valued at ₹28,300 crore in 2016-17, but declined to 56.3 lakh tonnes in 2017-18 and reached 25.7 lakh tonnes, valued at ₹8,200 crore in 2018-19 driven by significant increase in domestic production due to increase in productivity and area and price support measures (Chart 4.7). Peas constituted a major share (33.1%) in the total import of pulses, followed by pigeon pea (20.6%), urad (19.1%), lentil (9.7%) and chickpea (7.2%) in 2018-19. Government has taken several initiatives to encourage domestic production and



reduce dependence on imports. Imports of pulses were restricted through import duties/quantitative restrictions while export restrictions were removed to ensure remunerative prices to farmers. As a result of these measures, imports of pulses declined significantly during 2018-19, from 56.3 lakh tonnes in 2017-18 to 25.7 lakh tonnes in 2018-19. However, imports have increased during 2019-20 and total imports were 24.4 lakh tonnes during April-December 2019 compared with 18.3 lakh tonnes in April-December 2018. Due to unseasonal rains during October-November 2019, domestic production is estimated to be lower (23 million tonnes) than the target (26.3 million tonnes) for 2019-20. Lower domestic production in 2018-19 and 2019-20 is expected to lead to higher imports in 2019-20. Details of composition of imports of different pulses from major countries during 2018-19 and April-December 2019 are given in Annex Table 4.5.

- 4.24 Pulses have not been a major export commodity from India due to high domestic demand. However, exports of pulses from India increased from one lakh tonnes during April-December 2017 to 2.3 lakh tonnes April-December 2018 but declined to 1.6 lakh tonnes April-December 2019.

Chart 4.8: India's Pulses Imports, 2009-10 to 2019-20



Note: * For 2019-20 (April- December)

Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry

Trade Policy on Pulses

- 4.25 India's trade policy in pulses was relatively liberal. In 1979, import of pulses was placed under Open General License (OGL) and import duties declined steadily during the 1980s and 1990s. The import duty on pulses was 10 percent during 1989 to 1994, which was reduced to 5 percent in 1995, and zero in 2000. In 2001, a duty of 5 percent was imposed on pulses, and was increased to 10 percent in 2002-03. From 2007 to 2012, imports of pulses were made duty free, and in 2013, import duty was reduced to zero. Import duty of 10 percent was imposed on tur (arhar) in June 2017 due to steep decline in domestic prices as a result of higher domestic production and higher imports, with a view to ensure remunerative prices to farmers. In 2017, three pulses viz. tur urad and moong were brought under quantitative restrictions for imports. On 5th August 2017, 2 lakh tonnes annual quota was imposed on tur



and on 21st August 2017, 3 lakh tonnes annual quota each was imposed on urad and moong. On 21st December 2017, Government imposed 30 percent import duty on chickpeas and lentils, which was further increased to 60 percent on chickpeas in March 2018 due to depressed prices in domestic market. Government vide notification dated 25.04.2018 revised import policy of yellow peas from 'free' to 'restricted' and imposed quantitative restriction on imports with 1 lakh tonnes for the period 01.04.2018 to 30.09.2018. Import of peas (including yellow peas, green peas, dun peas and kasper peas) was restricted till 31.03.2019 vide Department of Commerce's notification dated 28.12.2018. Import of peas shall be subject to an annual quota of 1.5 lakh tonnes till 31.02.2020 as per Department of Commerce's notification dated 16.04.2019. Import duty on gram was raised from zero to 30 percent on 21.12.2017, which was further raised to 40 percent on February 6, 2018 and 60 percent on March 1, 2018. The MEIS benefit of 7 percent for bengal gram available up to 20.06.2018 was extended for exports up to 20.09.2018 vide DGFT public notice No.22/2015-2020 dated 13.07.2018. Import of all varieties of pulses is free without any quantitative restrictions except peas, tur, moong and urad. To protect the pulses growers from cheap imports, Quantitative Restrictions (QRs) have been imposed on import of tur to the tune of 4 lakh tonnes per year and on moong to the tune of 1.5 lakh tonnes per year. As per Department of Commerce's notification, dated 18.12.2019, import of urad shall be subject to an annual quota of 4 lakh tonnes till 31.03.2020. Import of urad under the quota restriction will be allowed only to the millers/refiners and the restriction, however, will not apply to the government's import commitments under any bilateral or regional agreements.

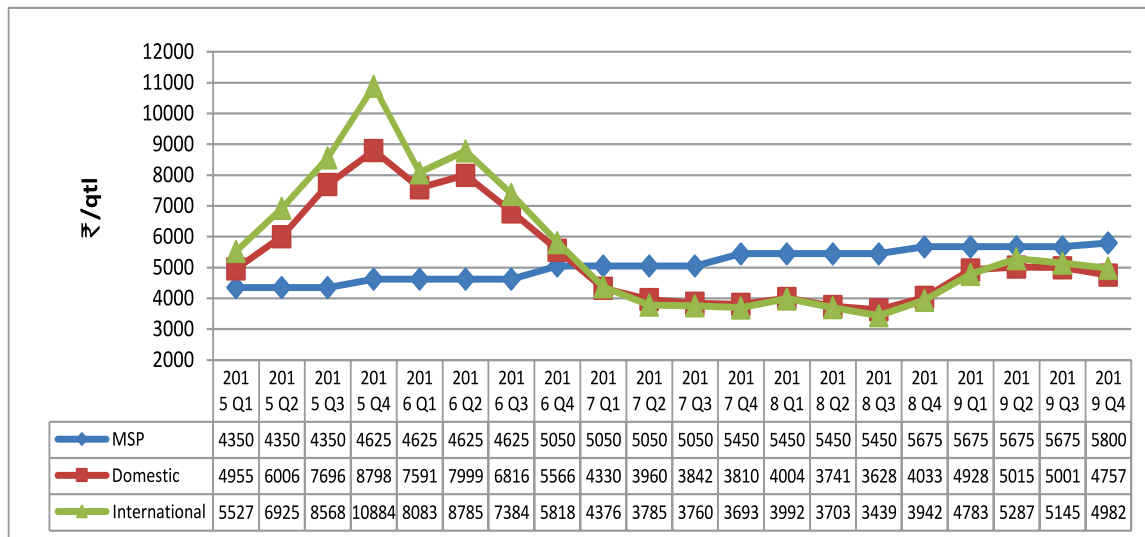
- 4.26 Government lifted ban on export of tur, urad and moong in September 2017 but permission from Agricultural and Processed Food Products Export Development Authority (APEDA) was needed. However, in November 2017, government removed prohibition on export of all types of pulses subject to export shall be through Customs Electronic Data Interchange (EDI) Ports only. However, exports through Land Custom Stations (LCS) Indo-Bangladesh and Indo-Nepal border shall also be allowed subject to registration of quantity with DGFT. The export of pulses to the Republic of Maldives was permitted for the years 2014-15 to 2018-19 with pre-specified quantities.

Price Trends

- 4.27 The domestic wholesale prices and the MSPs of kharif pulses have been compared with international prices (C&F) during the period 2015 to 2019 and are presented in Charts 4.8 to 4.10. It may be observed from the Charts that the domestic wholesale prices of arhar, urad and moong have generally followed the trend of the international prices. These trends clearly show impact of Indian imports on world markets. The MSP of arhar, urad and moong are currently higher than the domestic wholesale prices and higher than the international prices except for urad in 2019(Q₄). Domestic prices of arhar and moong have improved in the recent months but are still much below the MSP and the difference between MSP and domestic market price has reduced.

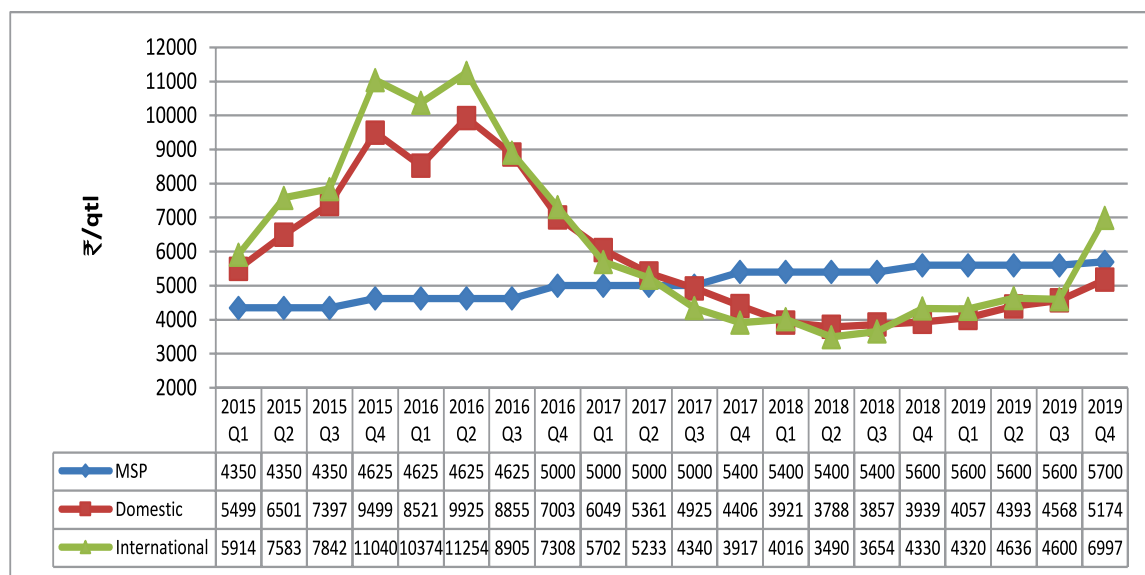


Chart 4.9: MSP, Domestic and International Prices of Arhar, 2015 to 2019



Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare
2. World Bank

Chart 4.10: MSP, Domestic and International Prices of Urad, 2015 to 2019

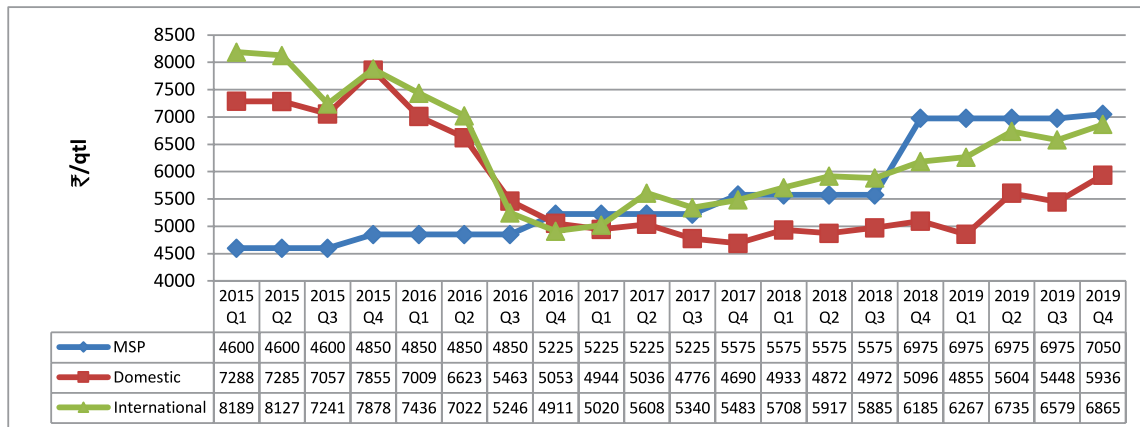


Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare
2. World Bank



PRICE Policy for KHARIF CROPS

Chart 4.11: MSP, Domestic and International Prices of Moong, 2015 to 2019



Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare
2. World Bank

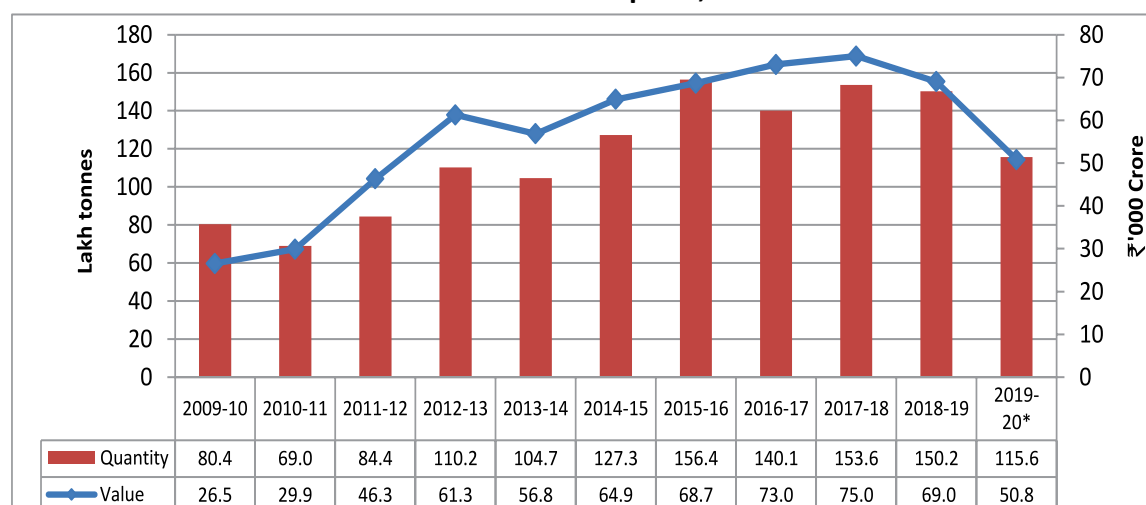
Trade Patterns in Oilseeds and Edible Oils

- 4.28 As per USDA, global production of major oilseeds was 584.2 million tonnes in TE2018-19, out of which 29.2 percent was traded. Soybean has the largest share in total oilseeds production, with a share of 59.9 percent, followed by rapeseed (12.4%), sunflower seed (8.4%), peanuts (7.9%) and cottonseed (7.3%). The United States was the largest oilseeds producer with a share of 22.2 percent, and Brazil was the second-largest producer (20.8%). Other major producers are China (10%), Argentina (9.3%) and India (6.2%). USA and Brazil account for 74 percent of global exports, with a share of 41.5 percent and 32.5 percent, respectively. China (56.1%) and European Union (11.8%) account for 67.9 percent of global imports.
- 4.29 Global edible oils production was 196.8 million tonnes in TE2018-19, out of which 40.6 percent was traded. Palm oil has the largest share (35.5%) in total edible oils production, followed by soybean oil (27.9%), rapeseed oil (14.1%) and sunflower oil (9.5%). Indonesia is the world's largest edible oil producer, with a share of 22.6 percent, followed by China (13.7%), Malaysia (11.2%), EU (9.5%) and USA (6.1%). Indonesia and Malaysia together account for 58.6 percent of global exports with a share of 36.4 percent and 22.2 percent, respectively. India was the largest importer of edible oils with a share of 19.5 percent followed by EU (14.2%) and China (12.1%) in TE2018-19. Demand for edible oils is rising in India, while domestic production is almost stagnant due to which dependence on imports has increased over the years. Effective measures to increase domestic production are necessary to reduce import dependency. However, for the short to medium term, appropriate tariff levels on edible oils could be considered as a useful instrument for protecting domestic oilseeds producers, processors and refiners but these have limitations and cannot be increased beyond a level.
- 4.30 As per DGCIS data, India's imports of edible oils have increased from 80.4 lakh tonnes valued at ₹26,543 crore in 2009-10 to 153.6 lakh tonnes valued at ₹75,000 crore in 2017-18 and was marginally lower at 150.2 lakh tonnes valued at ₹69,023



crore in 2018-19 (Chart 4.11). The value of edible oils imports declined by 8 percent in 2018-19 over the previous year but the volume of imports declined by only 2.2 percent due to depressed world prices. Imports of edible oils increased significantly in last five years due to stagnant domestic production, rising demand and low international prices of edible oils, particularly palm oil. Import of edible oils in India was about 66 lakh tonnes in TE2009-10, which has increased to 148 lakh tonnes in TE2018-19. Thus, there is an overall increase of 124.3 percent in imports of edible oils in last decade due to almost stagnant oilseed production and rising demand in the country. India's dependence on imports has increased to about 70 percent of its requirements and in order to discourage imports and improve domestic oilseeds production and ensure remunerative prices to farmers, import duties were increased in November 2017, which were further increased in March 2018 and in June 2018 but reduced in January 2019 (Annex Table 4.6). However, import duty on crude palm oil and refined bleached deodorised (RBD) palmolein was reduced to 40 percent and 45 percent, respectively for imports from Malaysia and 40 percent and 50 percent for imports from Indonesia from 1st January 2019 onwards that resulted in effective duty differential between crude and refined palm oil to 5 percent for imports from Malaysia and 10 percent for shipments from Indonesia and thus imports of edible oils increased from 110.6 April-December 2018 to 115.6 lakh tonnes in April-December 2019. Palm oil imports increased from Malaysia by 102.6 percent in April-December 2019 compared to April-December 2018, whereas palm oil imports declined by 21.8 percent from Indonesia for the same period as a result of the above policy changes. Total imports of edible oils have marginally increased from 110.7 lakh tonnes in April-December 2018 to 115.6 lakh tonnes in April-December 2019, as a result of duty differential in respect of Imports from Malaysia.

Chart 4.12: India's Edible Oils Imports, 2009-10 to 2019-20



Note: * For 2019-20 (April-December)

Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry



Trade in Soybean Complex

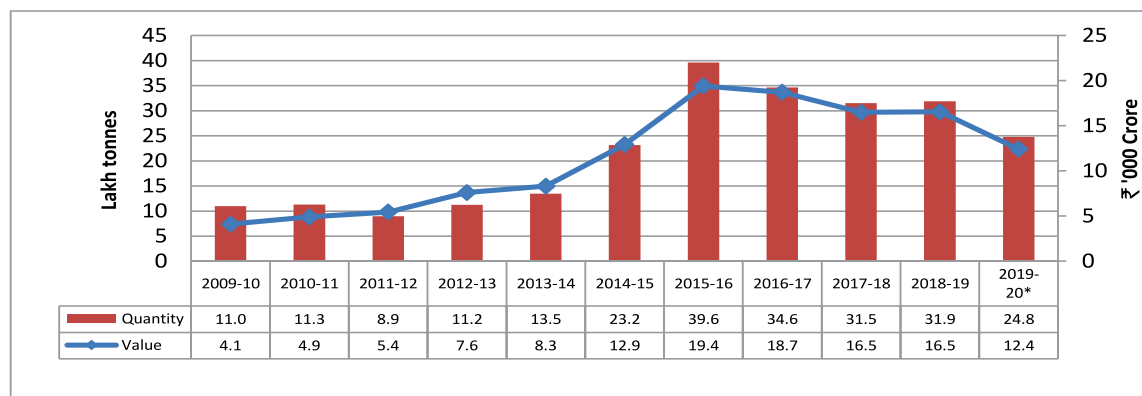
- 4.31 As per USDA, global production of soybean was estimated at 349.9 million tonnes during TE2018-19, out of which 42.4 percent was traded. World production of soybean increased from 342 million tonnes in 2017-18 to 358.6 million tonnes in 2018-19, an increase of 4.9 percent. USA is the largest producer of soybean, with a share of 34.1 percent, followed by Brazil (33.7%), Argentina (14.1%) and China (4.3%). India's share in global production of soybean has increased from 2.5 percent in TE2017-18 to 2.9 percent in TE2018-19. The major exporters of soybeans were Brazil with 47.7 percent share of world exports and the United States (36.7%), contributing 84.4 percent of total world exports. Top two importers, namely, China (61%) and EU (9.7%) import over 70 percent of total world imports of soybean. World production of soybean has increased in last few years, leading to significant drop in global soybean and soybean oil prices.
- 4.32 Global production of soybean oil was 54.9 million tonnes in TE2018-19, out of which 19.9 percent was traded. China is the largest producer, with a share of 28.6 percent, followed by USA (19.3%), Brazil (14.8%) and Argentina (14.3%) and the top four producers account for 77 percent of world production of soybean oil. India's share in global production of soybean oil has marginally increased from 2.5 percent in TE2017-18 to 2.9 percent in TE2018-19. Argentina, Brazil and USA account for nearly two-third of total world exports, with a share of 45.1 percent, 11.7 percent and 9.6 percent, respectively. India is the largest importer (30.7%), followed by Bangladesh (8.7%), Algeria (6.8%) and China (6.3%). Imports of soybean oil in the country have recorded the highest increase among all edible oils during last five years.
- 4.33 World soybean meal production was 230.7 million tonnes in TE2018-19, out of which 28.4 percent was traded. China was the largest producer of soybean meal, with a share of 30.1 percent followed by USA (18.7%), Brazil (14.2%) and Argentina (13.4%). Argentina (43.9%), Brazil (23.3%) and USA (18.1%) export over 85 percent of world exports. EU is the largest importer of soybean meal, with a share of 30.4 percent, followed by Vietnam (8.3%) and Indonesia (7.2%). Indian exports of soybean meal have picked up in last two years because of low soybean prices in India and Iranian market has opened up for Indian soybean meal. Soybean meal exports increased from 1.3 million tonnes in 2016-17 to 1.9 million tonnes in 2017-18 and rose to 2.4 million tonnes in 2018-19. However, soybean meal exports declined during April-December 2019, from 15.9 lakh tonnes in April-December 2018 to 6.9 lakh tonnes during April-December 2019, due to higher domestic prices of soybeans, which makes Indian soybean meal uncompetitive in international market.
- 4.34 Soybean is an industrial crop and its price is linked to the prices of finished products i.e. soybean meal and oil. India imports soybean oil to meet domestic demand and soybean oil imports have increased from 11 lakh tonnes in 2009-10 to 31.9 lakh tonnes in 2018-19 (Chart 4.12) and accounted for 21.2 percent of total edible oil imports. Imports of soybean oil significantly increased during 2014-15 and 2015-16 due to decline in domestic production and depressed international prices of

PRICE Policy for Kharif Crops



soybean oil during this period. Import of soybean oil declined in 2016-17 (34.6 lakh tonnes), which further declined to 31.9 lakh tonnes in 2018-19. Imports of soybean oil were 24.8 lakh tonnes in April-December 2019. Soybean oil imported into the country is GM-soybean oil as most of exporting countries grow GM soybean.

Chart 4.13: India's Soybean Oil Imports, 2009-10 to 2019-20



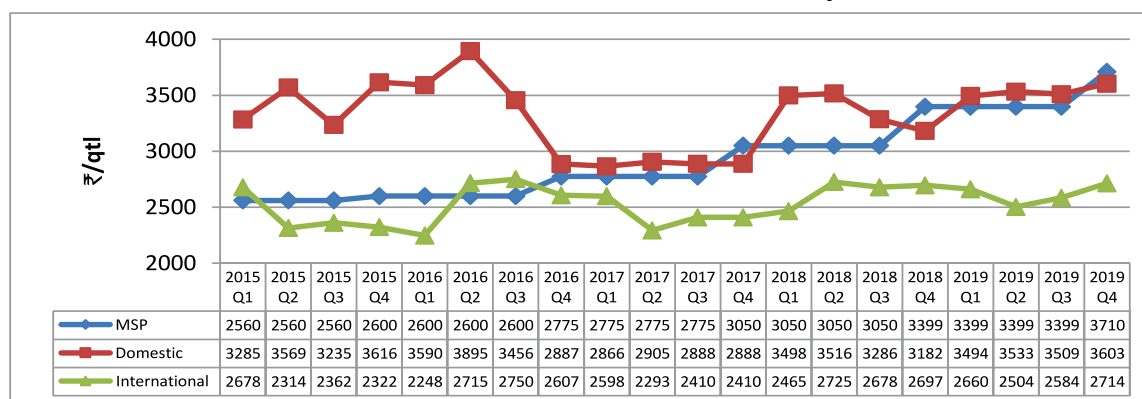
Note: * For 2019-20 (April- December)

Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry

Price Trends

4.35 Domestic wholesale prices of soybean have been significantly higher than the international prices from 2015 to 2019 (Chart 4.14). The domestic prices were also above the MSP during 2015-2019 except for 2017(Q₄), 2018(Q₄) and 2019(Q₄), peak market arrival period. Domestic wholesale prices of soybean witnessed a declining trend during 2016(Q₃ & Q₄) and 2018(Q₃ & Q₄), slightly above MSP since 2016(Q₄) except during peak market arrivals (October-December) in 2017(Q₄) and 2018(Q₄). Due to increase in world production of soybean, there is significant decline in international prices of soybean since 2016(Q₃), but have increased since 2017(Q₃), however, world prices have remained below India's domestic prices since 2015(Q₁).

Chart 4.14: MSP, Domestic and International Prices of Soybean, 2015 to 2019



Notes: 1. Argentina Up River, FOB Crude: IGC

2. Weighted wholesale price of MP, Maharashtra, and Rajasthan, which cover 93 percent of production in 2019-20

Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

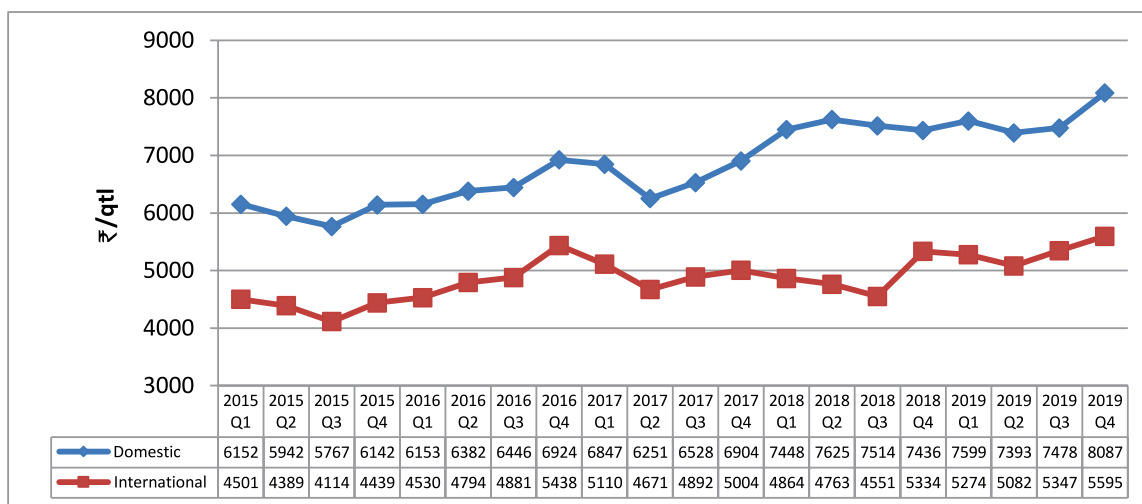
2. United States Department of Agriculture



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- 4.36 Domestic wholesale price of soybean oil has been higher than world price during 2015 to 2019 and the gap has widened since 2017(Q₂) (Chart 4.14) due to rise in domestic prices, thereby increasing imports. Since 2017(Q₂), domestic and international prices of soybean oil were moving upward till 2017(Q₄) but the increase in domestic prices was far sharper than the international prices. Since 2018(Q₁), domestic prices kept on increasing till 2018(Q₂) whereas the international prices declined till 2018(Q₃). In 2018(Q₄) there was steep rise in the international prices whereas domestic prices declined marginally. Since 2019(Q₂) both the prices followed upward trend.

Chart 4.15: Domestic and International Prices of Soybean Oil, 2015 to 2019



Note: Argentina Up River, FOB Crude: IGC

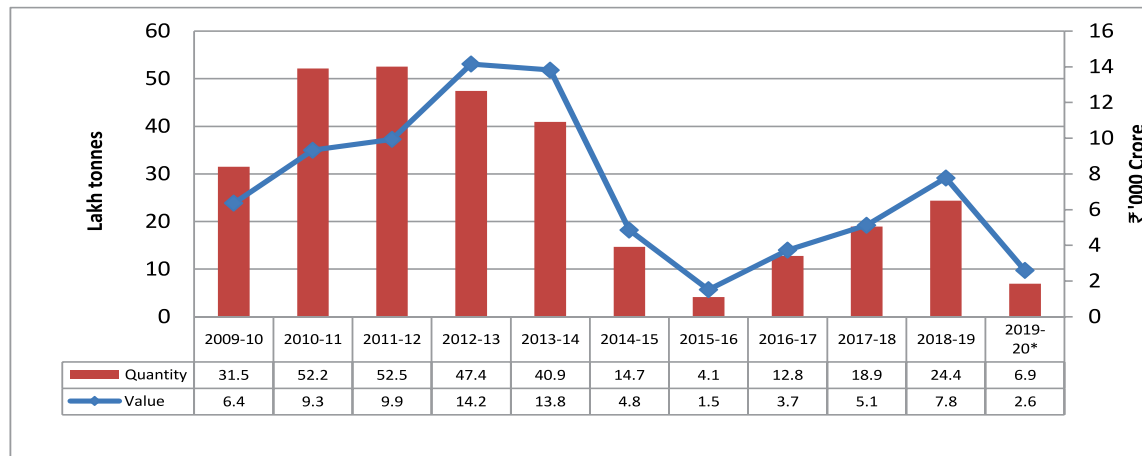
Source: 1. The Solvent Extractors Association of India

2. United States Department of Agriculture

- 4.37 India's exports of soybean meal increased from 31.5 lakh tonnes in 2009-10 to 52.5 lakh tonnes in 2011-12 but declined to 4.1 lakh tonnes in 2015-16 (Chart 4.15). However, exports increased to 18.9 lakh tonnes in 2017-18 and 24.4 lakh tonnes in 2018-19. Exports of soybean meal picked up in 2016-17 because of low soybean prices in India. However, soybean meal exports during the second half of the current decade were significantly lower than exports in the first half of the 2010s. Export incentive of 10 percent in the form of MEIS helped in increasing soybean meal exports during 2018. Iran, Bangladesh, France, USA, Nepal and Japan were major destinations for India's exports during 2018-19.



Chart 4.16: India's Soybean Meal Exports, 2009-10 to 2019-20

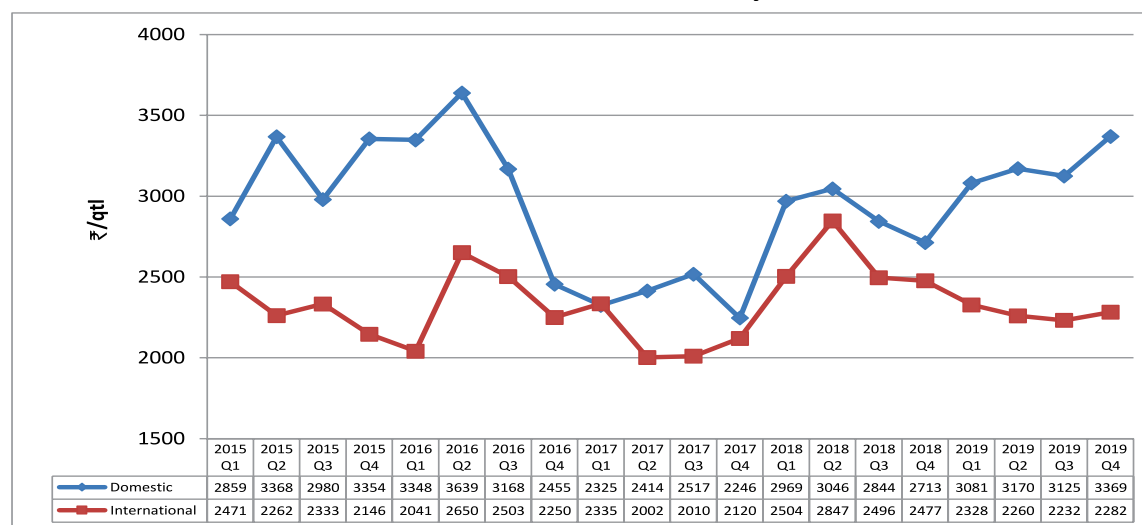


Note: * For 2019-20 (April- December)

Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry

4.38 Domestic wholesale prices of soybean meal have been volatile and higher than international prices from 2015 to 2017 except 2017(Q₁), indicating that Indian exports are not competitive in the global market. The domestic prices showed an upward trend from 2018 (Q₄), while world price witnessed a declining trend (Chart 4.16). However, India should take advantage of non-GMO soybean and target niche markets. Iran, Vietnam, South Korea and Japan have been traditional export destinations but there is a need to explore new markets like Africa, Middle East and developing countries in Asia. Currently, Indian soybean meal is costlier compared to the other suppliers due to high domestic price of soybean. With a view to promote exports of soybean meal, Government has given export incentive in the form of MEIS of 5 percent of FOB value, which will be withdrawn after 31st March, 2020.

Chart 4.17: Domestic and International Prices of Soybean Meal, 2015 to 2019



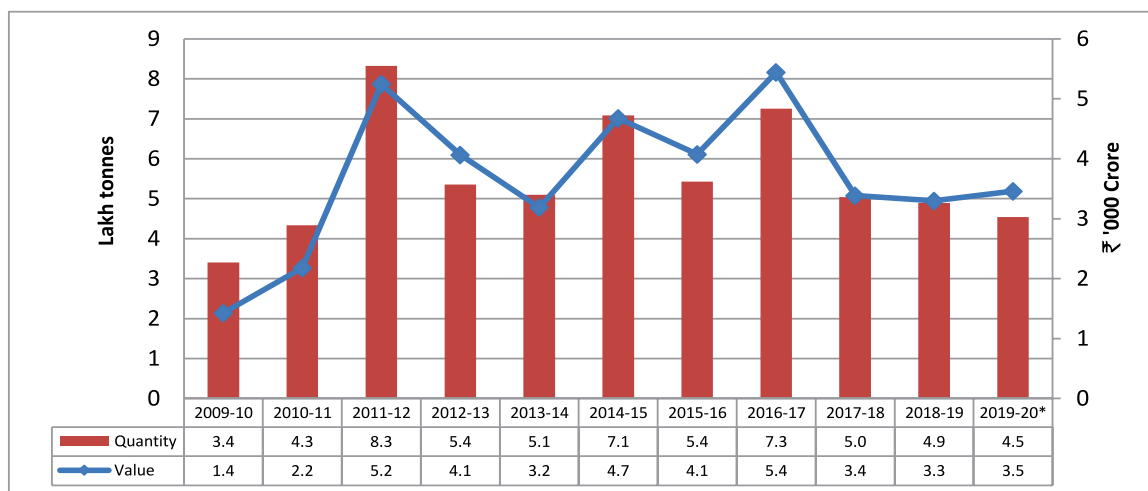
Source: 1. The Solvent Extractors Association of India

2. United States Department of Agriculture

Trade in Groundnut

- 4.39 As per USDA, global production of groundnut was 46.2 million tonnes in TE2018-19, out of which only 7.2 percent was traded. China, India, Nigeria and USA produce nearly two-third of total world production, with a share of 36.4 percent, 13.2 percent, 8.8 percent and 6.0 percent, respectively. Groundnut is consumed as snacks, processed as food ingredients and crushed for oil but has been increasingly used for direct consumption as table nut as it is the cheapest among all nuts. India's exports of groundnut increased from 3.4 lakh tonnes in 2009-10 to 8.3 lakh tonnes in 2011-12 (Chart 4.17). However, exports declined subsequently to 5.4 lakh tonnes in 2015-16, increased to 7.3 lakh tonnes in 2016-17 but declined to 4.9 lakh tonnes in 2018-19. Groundnut exports have ranged between 4.9 lakh tonnes and 7.3 lakh tonnes during the last five years. Exports of groundnut to all countries except Russia are permitted subject to compulsory registration of contracts with APEDA, along with controlled Aflatoxins level certificate given by laboratories recognized by APEDA.
- 4.40 Global production of groundnut oil was 5.8 million tonnes in TE2018-19. Only 4.6 percent of world production is traded, which shows that most of groundnut oil is produced for self-consumption. China (48.5%) and India (20.4%) produce nearly 69 percent of the total world production. China, EU and USA are the main importers of groundnut oil constituting more than 90 percent of global imports, whereas India and China export in small quantities of groundnut oil.

Chart 4.18: India's Groundnut Exports, 2009-10 to 2019-20



Note: * For 2019-20 (April- December)

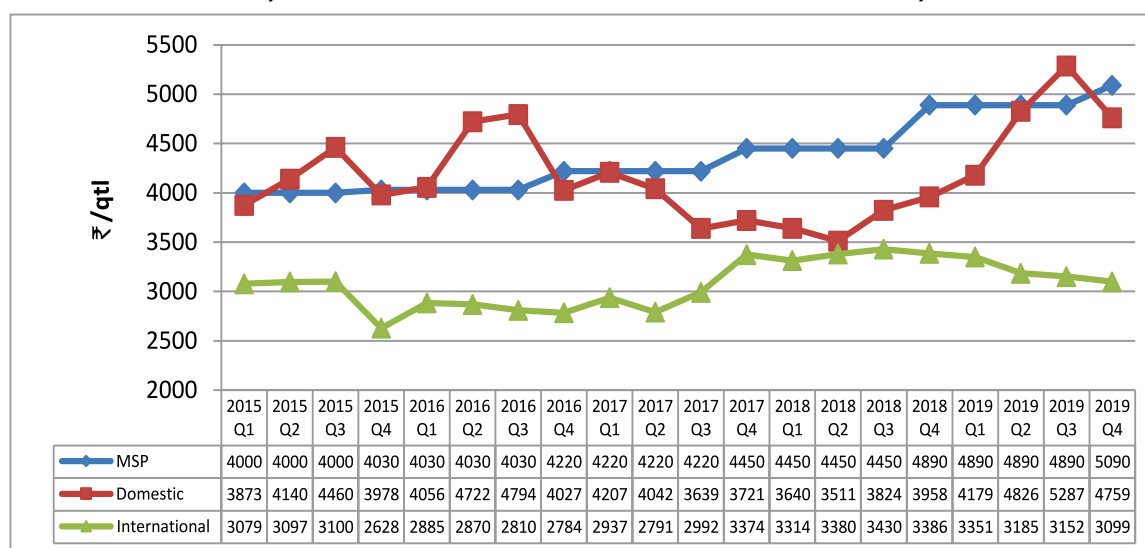
Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry



Price Trends

- 4.41 During 2015 to 2019, domestic prices of groundnut were higher than international prices (Chart 4.18). However, due to freight advantage, India's exports of groundnut are mainly to South-East Asian nations, Gulf countries and South Asian countries like Nepal, Pakistan and Sri Lanka. The MSP of groundnut was higher than domestic prices except 2015(Q₂ & Q₃), 2016(Q₁-Q₃) and 2019(Q₃) and has been higher than international prices from 2015 to 2019. Domestic prices of groundnut showed an upward trend during 2018(Q₃) and 2019(Q₃) but fell significantly during 2019(Q₄) and were less than MSP. Market prices of groundnut have remained below the MSP from 2016(Q₄) to 2019(Q₄) except in 2019(Q₃)
- 4.42 Domestic prices of groundnut oil have also been higher than international prices since 2015 until 2017(Q₁) and remained below international prices till 2018(Q₄). Domestic groundnut oil prices slightly recovered during 2019(Q₂ & Q₃) but fell during 2019(Q₄) (Chart 4.19).

Chart 4.19: MSP, Domestic and International Prices of Groundnut, 2015 to 2019



Notes: 1. US Farm Price, in Shell

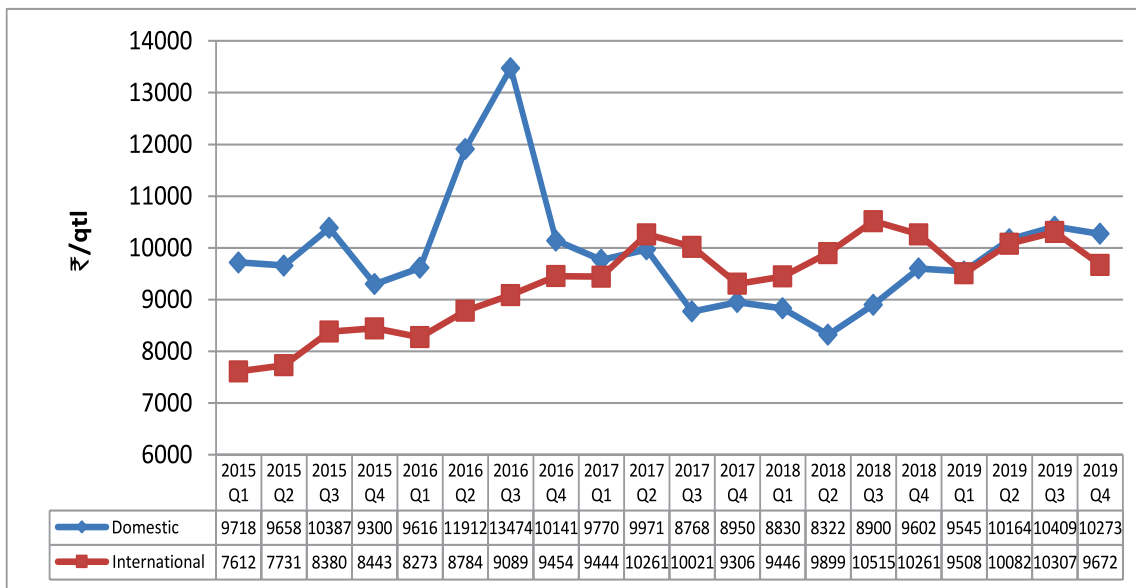
2. Weighted wholesale price of AP, Gujarat, Karnataka, Rajasthan and TN, which cover 89 percent of production in 2019-20

Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare

2. United States Department of Agriculture



Chart 4.20: Domestic and International Prices of Groundnut Oil, 2015 to 2019



Note: South East Mills FOB; Tank Cars Crude; United States Department of Agriculture

Source: 1. The Solvent Extractors Association of India

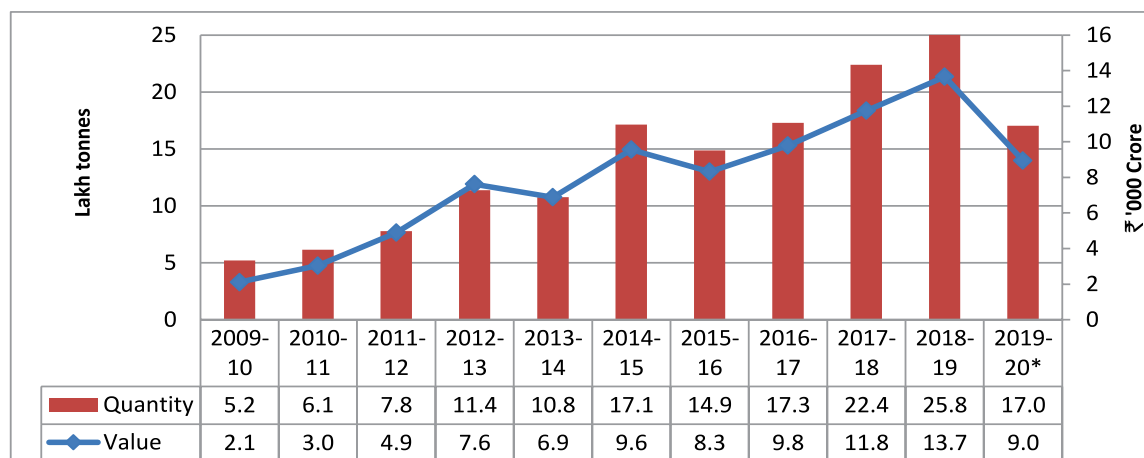
2. United States Department of Agriculture

Sunflower Trade

- 4.43 As per USDA, world production of sunflower seed was 48.8 million tonnes in TE2018-19, out of which about 5 percent was traded. Ukraine (30%) and Russia (23.2%) produce more than half of total world production. Other major producers are EU (19.3%) and Argentina (7.5%). The EU is the largest exporter with a share of about 20 percent, followed by Russia (10%) and Ukraine (4.2%). Turkey (33.9%) and EU (25.4%) accounted for around 60 percent of world sunflower seed imports.
- 4.44 Global production of sunflower oil was 18.7 million tonnes in TE2018-19, out of which 52.1 percent was traded. Ukraine, Russia and EU produce about three-fourth of the world production, with a share of 33.2 percent, 23.6 percent and 19.3 percent, respectively. Top exporters of sunflower oil are Ukraine (54.8%) and Russia (22.7%), accounting for more than 75 percent of world exports. EU is the largest importer with a share of 19.6 percent, followed by Turkey (6.8%).
- 4.45 India exports small quantities of sunflower seed, whereas imports are nil. However, sunflower oil imports have increased substantially, from a small quantity of about 5.2 lakh tonnes in 2009-10 to 17.1 lakh tonnes in 2014-15 and reaching a peak of 25.8 lakh tonnes in 2018-19 (Chart 4.20). Imports of sunflower oil have increased at compound annual growth rate of about 17.3 percent during the last 10 years.



Chart 4.21: India's Sunflower Oil Imports, 2009-10 to 2019-20



Note: * For 2019-20 (April- December)

Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry

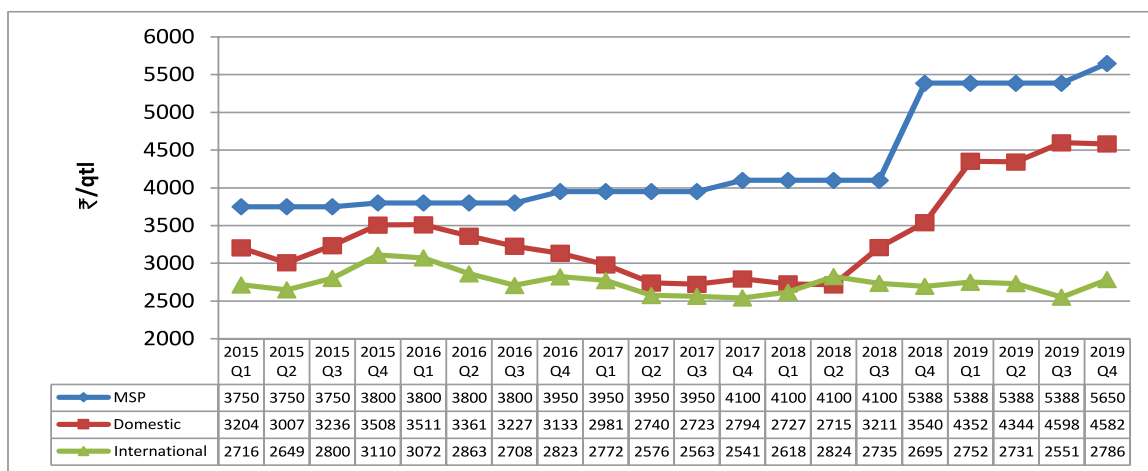
Price Trends

- 4.46 Domestic wholesale prices of sunflower seed have been higher than the international prices from 2015 to 2019 except in 2018(Q₂) (Chart 4.21). However, wholesale prices of sunflower seed were significantly lower than the MSP but difference between market prices and MSP has reduced. The domestic wholesale prices showed a declining trend since 2016(Q₁) till 2018(Q₂) and recorded an upward trend after that. In 2018(Q₄) there was a significant jump (31.4%) in MSP of sunflower seed, which resulted in increase in domestic wholesale prices but remained below the MSP.
- 4.47 Domestic wholesale prices of sunflower oil have also been consistently higher than world prices during 2015 to 2019 (Chart 4.22). Production of sunflower seed/oil increased in the major producing countries, viz., Ukraine, Russia and EU due to favourable weather conditions leading to a decline in international prices. On the other hand, sunflower seed production and productivity in India have registered a continuous and significant decline during the last two decades.



PRICE Policy for Kharif Crops

Chart 4.22: MSP, Domestic and International Prices of Sunflower Seed, 2015 to 2019



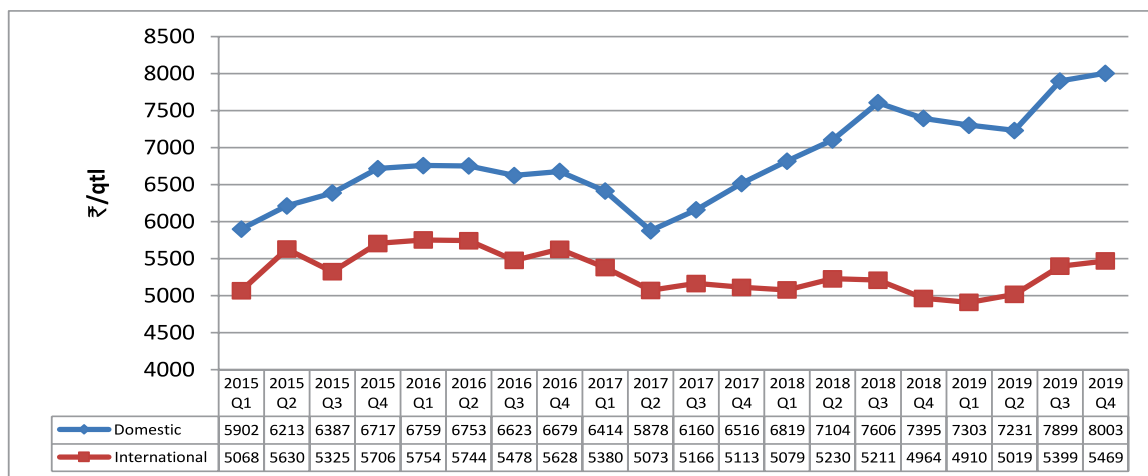
Notes: 1. Rotterdam/ Amsterdam CIF; EU; Oil World

2. Weighted wholesale price of AP, Karnataka, Maharashtra and TN, which cover 60 percent of production in 2019-20

Source: 1. The Solvent Extractors Association of India

2. United States Department of Agriculture prices

Chart 4.23: Domestic and International Prices of Sunflower Oil, 2015 to 2019



Note: EU FOB NW Euro; Oil World

Source: 1. The Solvent Extractors Association of India

2. United States Department of Agriculture

Trade Policy of Oilseeds/Edible Oils

4.48 India is the largest importer of edible oils, which constituted 42.6 percent (in value) of total agri-imports in 2018-19, and a record 15.4 million tonnes of edible oil were imported in 2017-18. Imports of edible oils were under negative list and controlled through canalization until mid-1990s. In 1994-95, India liberalized edible oil imports in a phased manner and import of palmolein was placed under OGL subject to 65 percent import duty. Subsequently, imports of other edible oils were also placed under OGL and import duty was as high as 80 percent on crude oil and 90 percent



on refined edible oils during early-2000s. The import duties on edible oils were reduced to zero percent for crude oils and 7.5 percent for refined oils with effect from 1st April 2008. The import duty on crude edible oils was increased to 2.5 per cent in 2013, which was further increased to 7.5 percent in December 2014 and 12.5 percent in September 2015. Import duty on refined edible oils was increased from 7.5 percent to 10 percent in January 2014, which was further increased to 15 percent in December 2014 and 20 percent in September 2015. However, in the case of palm oil, import duty that was imposed at 65 percent in 1994, was reduced on crude palm oil to 7.5 percent and on refined palm oil to 15 percent vide notification dated 30.09.2016. Government increased import duty on crude soybean oil from 12.5 percent to 17.5 percent in August 2017. Similarly, on crude palm oil import duty was raised from 7.5 percent to 15 percent and on refined palm oil from 15 percent to 25 percent.

- 4.49 In order to improve self-sufficiency in edible oils and ensure remunerative prices to oilseeds farmers in the country, major changes in the import duty structure of edible oils were introduced in November 2017. Import duty on crude soybean oil was increased from 17.5 percent to 30 percent and it was further increased to 35 percent in June 2018, while refined soybean oil was raised from 20 percent to 35 percent in March 2018 and 45 percent in June 2018. Similarly, import duty on crude sunflower oil was increased from 12.5 percent to 25 percent in March 2018 and 35 percent in June 2018 while that on refined sunflower oil was increased to 35 percent in March 2018 and 45 percent in June 2018. Import duty on crude cottonseed oil was raised from 30 percent to 35 percent in June 2018 and on refined cottonseed oil from 35 percent to 45 percent in June 2018. Import duty on crude palm oil (CPO) of edible grade was raised from 15 percent to 30 percent, in November 2017 and 44 percent in March 2018 but reduced to 40 percent in January 2019. Similarly, import duty on RBD palmolein was increased from 25 percent to 40 percent in November 2017 and 54 percent in March 2018 but reduced to 45 percent for imports from Malaysia and 50 percent for shipments from Indonesia in January 2019. However, a safeguard duty of 5 percent was imposed on imports of RBD palmolein from Malaysia under India-Malaysia Comprehensive Economic Cooperation Agreement (IMCECA) from 4th September 2019 but imports under ASEAN agreement did not attract 5 percent safeguard duty. In January 2020, Government under the ASEAN agreement and IMCECA reduced import duty on RBD palmolein from 50 percent to 45 percent and on CPO from 40 to 37.5 percent. After the reduction in import duty, the tax difference between CPO and RBD palmolein has reduced from 10 to 7.5 percent and it is likely to have unfavourable impact on domestic refining industry as imports of RBD palmolein would increase and capacity utilisation of industry would be adversely affected. The government should increase the duty differential between CPO and refined palm oil to 10-15 percent, which will encourage import of crude oil and result in better capacity utilisation of domestic refining industry. Otherwise, duty cut would be counterproductive and contrary to the government's stated objective of increasing domestic oilseeds production.



- 4.50 The government amended the import policy of RBD palm oil (Exim Code 1511 90 of Chapter 15 of ITC) on 8th January 2020 and put the RBD palm oil under the restricted category.
- 4.51 Export of edible oils was initially prohibited for a period of one year in March 2008, which was extended from time to time. However, there were certain exemptions, namely (a) castor oil, (b) coconut oil from all EDI ports and through all LCS on Indo-Nepal, Indo-Bangladesh, Indo-Bhutan and Indo-Pakistan borders, (c) deemed export of edible oils (as input raw material) from Domestic Tariff Area (DTA) to 100 percent Export Oriented Units (EOUs) for production of non-edible goods to be exported, (d) edible oils from DTA to Special Economic Zones (SEZs) to be consumed by SEZ Units for manufacture of processed food products, subject to applicable value addition norms, (e) edible oils produced out of minor forest produce, (f) organic edible oils subject to export contracts being registered and certified as 'Organic' by APEDA, (g) rice bran oil in bulk (irrespective of any pack size) and (h) groundnut oil, sesame oil, soybean oil and maize (corn) oil in bulk. In April 2018, government removed prohibition on export of all varieties of edible oils except mustard oil vide DGFT notification No. 01/2015-2020 dated 06.04.2018. Export of mustard oil in branded consumer packs up to 5 kg is permitted with a Minimum Export Price (MEP) of US\$900 per tonne.

Table 4.1: India's Trade Policy - Kharif Crops and Palm Oil

Crop/ Commodity	Trade Policy				
	Import Policy			Export Policy	
	OGL/ Restricted	Import duty (%)	Bound Duty (%)	OGL/ Restricted	Export duty (%)
A-Cereals					
Rice	OGL	(rice in husk, Husked brown rice; Broken rice) 80	80	OGL	Zero
		(Semi-milled or Wholly milled rice) -70	70		
Maize	OGL	60	70	OGL	Zero
Jowar	OGL	80	80	OGL	Zero
B-Pulses					
Tur	OGL	30	100	OGL	Zero
Urad	OGL	30	100	OGL	Zero
Moong	OGL	30	100	OGL	Zero
C-Oilseeds/Edible Oils					
Soybeans	OGL	45	100	OGL	Zero
Groundnut	OGL	30	100	OGL	Zero
Sunflower seed	OGL	30	100	OGL	Zero

PRICE Policy for KHARIF CROPS



Soybean oil (crude)	OGL (Tariff value: US\$733 per metric tonne)**	35	45	Export ban removed on 06.04.2018 *	
Groundnut oil (crude)	OGL	35	300	Export ban removed on 06.04.2018 *	
Sunflower oil (crude)	OGL	35	300	Export ban removed on 06.04.2018 *	
Soybean Oil (refined)	OGL	45	45	Export ban removed on 06.04.2018 *	
Groundnut oil (refined)	OGL	45	300	Export ban removed on 06.04.2018 *	
Sunflower oil (refined)	OGL	45	300	Export ban removed on 06.04.2018 *	
Palm oil(crude)	OGL*** (Tariff value –US\$670 per metric tonne)**	37.5	300	Export ban removed on 06.04.2018 *	
RBD Palmolein	Restricted (Tariff value –US\$701 per metric tonne)**	45	300	Export ban removed on 06.04.2018 *	
RBD Palm Oil	Restricted (Tariff value –US\$695 per metric tonne)**	54	300	Export ban removed on 06.04.2018 *	
Soybean meal	OGL	Zero	100	OGL	Zero
D- Commercial Crops					
Cotton	OGL	Zero	100	OGL	Zero

Notes: * Export of Mustard oils in branded consumer packs up to 5 kg is permitted with MEP of US\$ 900 per MT, ** As on 28/02/2019, ***The import of all edible oils (except coconut oil, palm kernel oil, RBD palm oil, RBD palm stearin) was placed on OGL, from March, 1995. However, RBD palm oil, RBD Palmolein and other have been put under restricted list as per revised policy notification No.39/2015-2020, dt. 08-01-2020.

Source: CBEC/CBIC

4.52 Oilseed exports are under 'free category' except breeder/foundation/wild variety seeds that are not allowed for export from India while imports of oilseeds are under OGL with an import duty of 30 percent since January 2003. Import duty on soybean was increased to 45 percent, subject to quarantine conditions, in November 2017.

Cotton Trade

4.53 As per USDA, the global production of cotton was estimated at 25.3 million tonnes in TE2018-19, out of which around 34.6 percent was traded. India (23.4%) and China (22.3%) produced nearly half of world cotton production. Other major producers include USA (16.2%), Brazil (8.4%) and Pakistan (6.7%). USA was the largest exporter with a share of 38.1 percent, followed by India (11%), Brazil (10.8%) and Australia



(9.3%). Bangladesh is the largest importer with a share of 18.5 percent, followed by Vietnam (16.8%), China (14%) and Indonesia (8.5%).

- 4.54 India was the third largest exporter of cotton in the world in 2018-19 as per USDA. During the period from 2009-10 to 2018-19, India's cotton exports ranged between 4.4 lakh tonnes in 2008-09 to 19.9 lakh tonnes in 2012-13 (Chart 4.23). Exports of cotton recorded an increasing trend during 2008-2012 period but declined in 2013-14 and 2014-15. Exports improved during 2015-16 and but again fell during 2016-17 and 2017-18. Exports marginally picked up during 2018-19 and India exported 10.5 lakh tonnes in 2018-19. Major export destinations of Indian cotton are Bangladesh, China, Vietnam, Indonesia and Pakistan. The main reason for decline in exports of cotton in 2014-15 was a steep decline in import demand from China due to slowdown in Chinese economy and China's decision to liquidate large raw cotton stocks accumulated due to policy support for domestic production. China's free trade agreement (FTA) with Pakistan from April 2019 led to fall in Indian exports to China (91.9%) in between 2018 to 2019 (April-December). China is India's second largest cotton destination. Other markets which recorded steep decline in imports from India are Bangladesh (37.6%), Pakistan (96.7%) and Vietnam (96.7%).

Price Trends

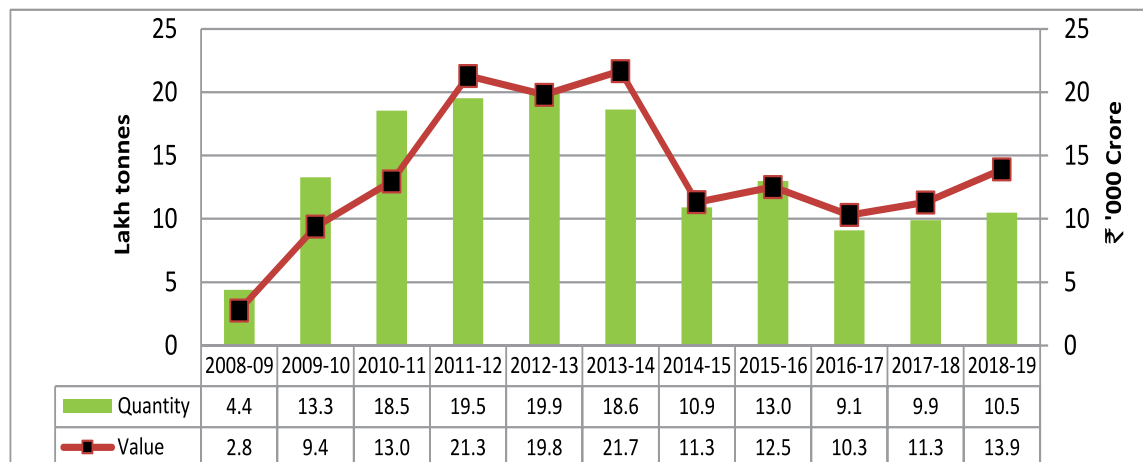
- 4.55 Domestic wholesale and international prices of raw cotton have been continuously higher than MSP from 2015 onwards till 2019(Q₃) (Chart 4.24). From 2015(Q₁) onwards till 2017(Q₄), international prices and domestic prices followed a similar trend and kept on crossing each other. From 2018(Q₁) onwards international prices increased at faster rate than domestic prices and were 47.9 percent higher than domestic prices in 2019(Q₄). However, domestic prices showed a declining trend during the last two quarters of 2019 and even fell below the MSP in 2019(Q₄). The MSP of cotton has been lower than domestic and international prices for the last five years except 2019(Q₄).

Trade Policy of Cotton

- 4.56 Quantitative restrictions (QRs) on export of cotton were removed in July 2001 and were placed under OGL. To curb rising prices in the domestic market and avoid disruption in supply chain of cotton in the country, government imposed export duty of ₹2,500 per tonne on raw cotton in April 2010 till the end of cotton season 2009-10. Cotton exports were placed on restricted category in May 2010 but exports were allowed at zero export duty in August 2010 with the restriction that the contracts for exports are registered with DGFT prior to shipment. Cotton exports are currently free and the registration requirement for export has been dispensed with vide notification dated 08.12.2014.
- 4.57 Import of cotton was placed under OGL in April 1994 and import duty of 5 percent was levied on imports in March 1999, which was increased to 10 percent in January 2002 in order to restrict import of cheaper cotton. However, import duty was reduced to zero in July 2008 and continues to be at the same level.

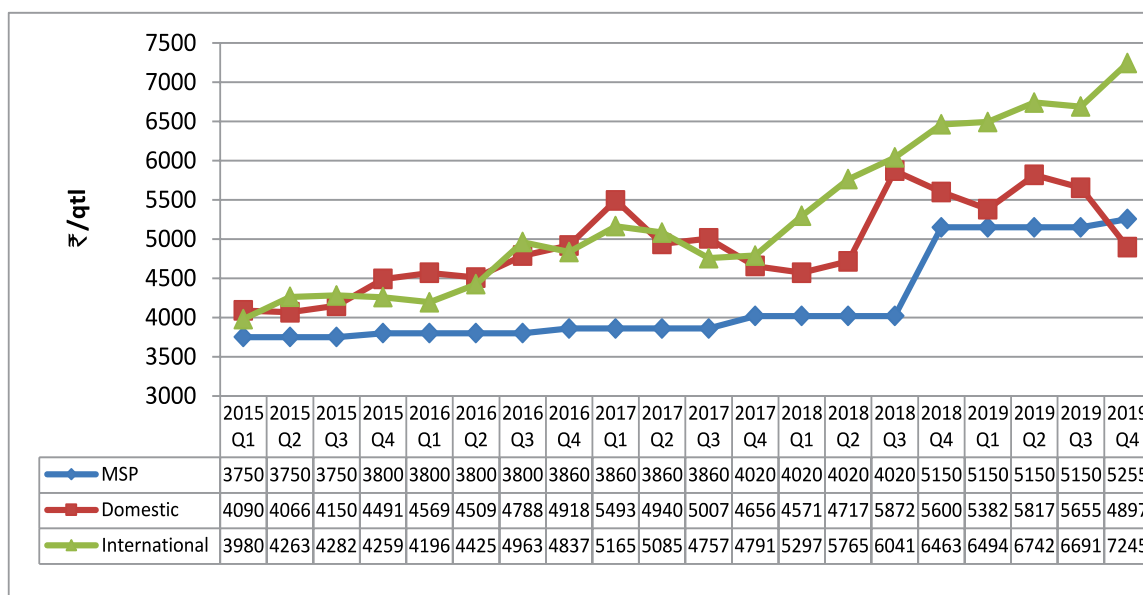


Chart 4.24: India's Cotton Exports, 2009-10 to 2019-20



Source: Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce & Industry

Chart 4.25: MSP, Domestic and International Prices of Raw Cotton, 2015 to 2019



Notes: 1. Cotton (Cotton Outlook "Cotlook A index"), middling 1-3/32 inch, traded in Far East, C/F beginning 2006; previously Northern Europe, c.i.f.
2. Weighted wholesale price of AP, Gujarat, Haryana and Karnataka, which cover 50 percent of production in 2019-20

Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare
2. World Bank

Trade Outlook

4.58 According to OECD-FAO Agricultural Outlook 2019-28, for most of the commodities the real prices are projected to remain at or below the current levels over the coming decade as yield growth has outpaced the demand growth. Much of the additional food demand over the coming decade will originate in regions with



high population growth, in particular Sub-Saharan Africa, India and the Middle East and North Africa as growing global population will continue to use increasing amounts of agricultural products as food, feed and for industrial purposes. Per capita consumption of vegetable oils is expected to rise, driven by urbanisation and the shift to more processed and convenience foods. International trade will remain essential for food security in food-importing countries.

- 4.59 FAO's latest forecast for world trade in rice in 2020 indicate recovery by 3.6 percent from 2019 level and could reach 46 million tonnes with predicted higher exports by India and China. World maize trade is forecast to remain almost unchanged at 167 million tonnes from the previous season.
- 4.60 Government of India has recently announced Agriculture Export Policy 2018, which aims at doubling agricultural exports, diversify export basket and destinations and boost high-value and value-added agricultural exports including perishables. The policy emphasises on promotion of novel, indigenous, organic, ethnic, traditional and non-traditional agricultural products export, addressing barriers and deal with SPS issues.
- 4.61 India's agri-exports during April-December 2019 do not project a positive outlook as exports were ₹192.5 thousand crore, a decline of about 6.7 percent over April-December 2018, mainly due to lower exports of raw cotton (64.1%), oil meals (37.4%), non-basmati rice (35.8%) and guar gum meal (26%). Indian agri-products are becoming less competitive in international markets as domestic prices are high and due to SPS requirements in international markets. Agricultural imports increased from ₹123.5 thousand crore in April-December 2018 to ₹129.6 thousand crore during in April-December 2019.
- 4.62 In the case of edible oils, India's dependence on imports has increased. With rising income, growing population and changing demographics, demand for edible oils is increasing and by 2025 India will require 27.8 million tonnes of edible oils as per Solvent Extractors Association of India estimates. Thus, oilseed production needs to be increased from current level of 30 to 54 million tonnes by 2024-25. Therefore, efforts should be made to increase domestic production and a dynamic tariff structure linked to international prices should be put in place so that imported oils are not cheaper than domestic oils based on the MSP for oilseeds.

Recapitulation

- 4.63 India's trade balance in agriculture and allied products has been positive while overall trade balance is negative. However, net trade surplus in agriculture has declined significantly during recent years, therefore, efforts are needed to reverse this trend. Major agri-export commodities are rice, marine products, meat, spices, cotton and sugar, whereas the major imports consist of edible oils, wood & wood products, fresh fruits, cashew, spices and sugar. Considering India's excessive import dependence on oils and ballooning import bill, India should take concrete steps to scale up oilseeds production and productivity. Possibilities for expanding production

PRICE Policy for **KHARIF CROPS**



and domestic consumption of nutri-cereals/millets and their exports need to be fully tapped to enhance farmers' income and address problems of malnutrition. Taking into account change in production supply and demand scenario of different countries in the world for various agriculture products in India export destinations as referred to in the relevant paras above such as in para 4.10, 4.37, 4.38, 4.39, 4.45, 4.54, etc. could be diversified to increase incomes of traders and farmers.

Trade Patterns, Competitiveness, and Outlook for Indian Agriculture



Chapter 5

Chapter 5

Costs, Returns and Inter-Crop Parity

- 5.1 As a part of the Commission's mandate, the Commission takes into account several factors, such as, the cost of production, domestic and global demand and supply situation, trends in national and international prices, inter-crop price parity, terms of trade between agriculture and non-agriculture sectors, the likely impact of price policy on the rest of the economy along with rational utilization of land, water and other production resources, and a minimum of 50 percent as the margin over cost of production, while recommending MSPs of mandated crops.
- 5.2 The Commission uses crop-wise and State-wise cost estimates provided by the Directorate of Economics & Statistics (DES), Ministry of Agriculture and Farmers Welfare, Government of India compiled under 'Comprehensive Scheme (CS) for Studying the Cost of Cultivation of Principal Crops in India'. Since CS data is available up to crop season 2017-18, it needs to be projected for crop season 2020-21. Based on CS data, crop-wise and State-wise projections of cost of cultivation (CoC) are made for the ensuing season.
- 5.3 The projected CoC estimates for Kharif Marketing Season 2020-21 are based on actual cost estimates available for the latest three years viz. 2015-16, 2016-17 and 2017-18 for each State. However, CoC estimates are not projected for a crop in the State, where either share of the State in all-India production or share of a particular crop in the State total production of the crop group is negligible or number of sample holdings under CS for the crop is inadequate.
- 5.4 The estimates of CoC projections capture movement in overall input cost separately over each of the past three years viz. 2015-16, 2016-17 and 2017-18 for the crop season 2020-21. An assessment of likely changes in input costs for the crop year 2020-21 with reference to each of the above mentioned three consecutive years ending with 2017-18 is made by constructing the Composite Input Price Indices (CIPIs) (base 2011-12=100) for each State. The CIPIs are based on latest prices of major inputs like human labour, bullock labour, machine labour, fertilisers and manures, seeds, pesticides and irrigation as per data available from Labour Bureau, Ministry of Labour and Employment, State Governments and Office of the Economic



Adviser, Ministry of Commerce & Industry. Based on CIPIs thus constructed, the Commission projects State-wise CoC A_2 , A_2+FL and C_2 for each mandated crop.

- 5.5 The State-wise cost of production (CoP) A_2 , A_2+FL and C_2 estimates for the mandated crops are then derived from the projected CoC using projected crop yields. Subsequently, all-India estimates of CoP A_2 , A_2+FL and C_2 are derived based on State-wise CoP of crops and their production shares in total production. These projected all-India estimates of CoP are considered by the Commission while formulating price policy recommendations.
- 5.6 The Commission has undertaken cost projection exercise based on the latest three year actual cost estimates for each State under certain implicit assumptions. One, it is assumed that fixed cost components would not, in all likelihood, undergo any significant change in the intervening period between 2017-18 for which actual cost estimates are available and the year 2020-21 for which cost projections are made. Two, since yield varies from year to year due to various factors, three-year average has been taken to smoothen out fluctuations in yield and hence in CoP. However, in cases where there are wide fluctuations in the yield, Olympic average yield (Olympic average is calculated by dropping the highest and the lowest yield from latest five year yields and calculating the average of the remaining 3-year yield) has been used. Due to inadequate sample size and large variations in nigerseed data, the yield has been projected based on yield data published in 'Agricultural Statistics at a Glance' by Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India.

Costs and Returns of Kharif Crops

- 5.7 The all-India average costs and gross returns during the TE2017-18 in respect of mandated kharif crops have been analysed and are given in Table 5.1 and Chart 5.1. It is pertinent to mention that gross value of output (GVO) is estimated at prevailing market prices of main product and by-products during harvest season in village/cluster of villages where the crops are grown and harvested. Among all crops, per hectare all-India average CoC A_2+FL and GVO are the highest for cotton at ₹57115 and ₹77969, respectively, whereas, these are lowest for nigerseed at ₹15964 and ₹14289, respectively.
- 5.8 Among cereals, per hectare all-India average gross returns over CoC A_2+FL are the highest for paddy at ₹18481, followed by maize (₹13640), bajra (₹5302), jowar (₹5005), and lowest for ragi at ₹4601. Nutri-cereals have lower average gross returns largely due to significantly low productivity. Among pulses, all-India average gross returns per hectare over CoC A_2+FL are the highest for tur at ₹29846, followed by urad (₹15324), and lowest for moong (₹6745). Moong and urad have significantly lower cost of cultivation and higher price than tur, but have much lower gross returns mainly due to lower yield. Among oilseeds, per hectare average gross return is highest for groundnut (₹24526), followed by sesamum (₹8639), sunflower (₹6437) and lowest for soybean at ₹4011; whereas, nigerseed has a net loss of ₹1675 per hectare mainly due to very low yield. Sunflower and sesamum have lower average



PRICE Policy for Kharif Crops

CoC and higher prices than groundnut, but have significantly lower gross returns, mainly due to lower yields; whereas, soybean has lower gross return due to both low price and yield. Cotton gives better per hectare gross returns over CoC A_2 +FL at ₹20854, as compared to all mandated kharif crops except tur and groundnut.

- 5.9 All-India average gross returns as a percentage of CoC A_2 +FL ranged from 11.2 percent in ragi to 41 percent in paddy in case of cereals; and 34.8 percent in moong to 77.8 percent in tur in case of pulses, whereas, it was negative (-10.5%) in nigerseed and varied from 13.8 percent in soybean to 47.5 percent in groundnut in other oilseeds. It is evident that besides increasing prices, farmers' income can be enhanced by reducing cost of cultivation and improving yield, particularly in nutri-cereals, moong, soybean, sunflower, sesamum and nigerseed. The details of State-wise average gross returns over actual CoC A_2 and A_2 +FL of mandated crops during TE2017-18 are given in Annex Table 5.1.

Table 5.1: Average Gross Returns of Kharif Crops, TE2017-18

Crop	CoC A_2	CoC A_2 +FL	GVO	Gross Returns over CoC A_2		Gross Returns over CoC A_2 +FL	
	₹/ha			₹/ha (Col.4- Col.2)	Percent (Col.5/ Col.2)*100	₹/ha (Col.4- Col.3)	Percent (Col.7/ Col.3)*100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. Cereals							
Paddy	33,463	45,049	63,530	30,067	89.9	18,481	41.0
Maize	28,482	38,272	51,912	23,431	82.3	13,640	35.6
Jowar	19,623	26,758	31,762	12,139	61.9	5,005	18.7
Bajra	13,993	24,884	30,186	16,193	115.7	5,302	21.3
Ragi	30,781	41,188	45,790	15,008	48.8	4,601	11.2
B. Pulses							
Arhar (Tur)	29,148	38,352	68,198	39,050	134.0	29,846	77.8
Moong	12,738	19,375	26,120	13,382	105.1	6,745	34.8
Urad	16,145	21,033	36,357	20,212	125.2	15,324	72.9
C. Oilseeds							
Groundnut	42,122	51,586	76,112	33,990	80.7	24,526	47.5
Soybean	24,051	28,999	33,010	8,958	37.2	4,011	13.8
Sunflower	16,999	20,717	27,154	10,156	59.7	6,437	31.1
Sesamum	13,094	20,340	28,979	15,885	121.3	8,639	42.5
Nigerseed	7,118	15,964	14,289	7,171	100.8	-1,675	-10.5
D. Commercial Crop							
Cotton	45,831	57,115	77,969	32,138	70.1	20,854	36.5

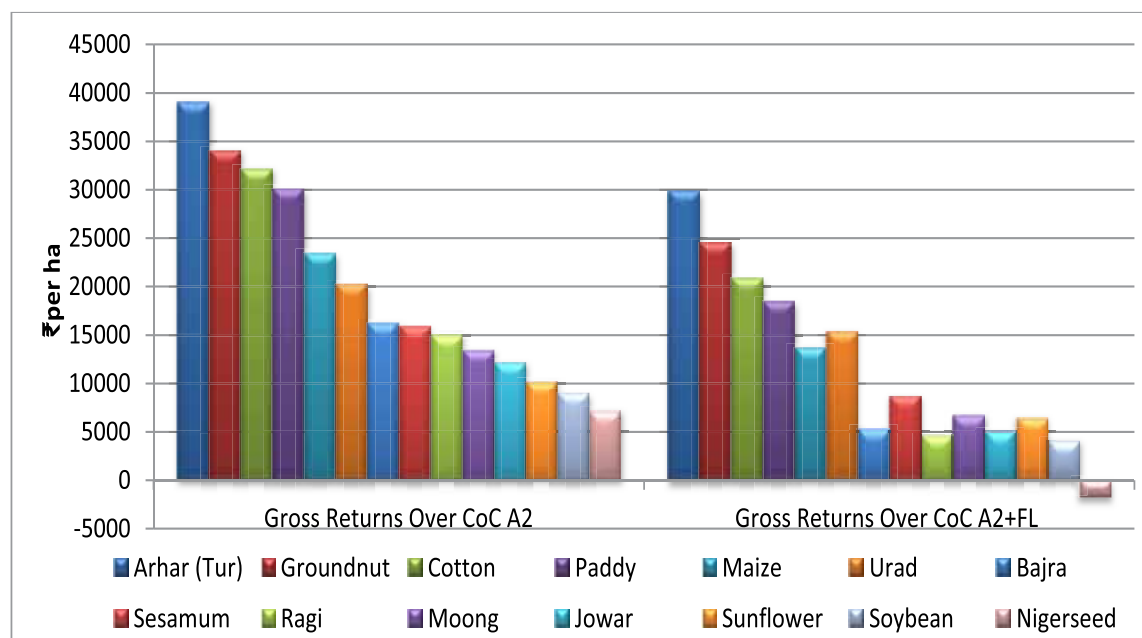
Source: CACP using CS data



Movement in Agricultural Wages and Farm Input Prices

5.10 Growth in average daily wage rates of agricultural labour during kharif season in major States and at all-India level at current prices and constant prices (2019=100) during 2017 to 2019 are given in Table 5.2. At all-India level, agricultural average daily wage rate (at current prices) increased by 6 percent in 2017, 6.4 percent in 2018 and 4.6 percent in 2019; while at constant prices, wages increased by 4.7 percent in 2017 and 5.1 percent in 2018, but declined by 2.7 percent in 2019. Chart 5.2 presents State-wise average daily wages of agricultural labour during kharif season in 2019 and growth in wages during 2019 over 2018. The growth in average daily wages of agricultural labour during kharif season in 2019 registered the highest increase at 10.2 percent in Andhra Pradesh and lowest (0.6%) in Madhya Pradesh, whereas, it declined by 0.5 percent in Rajasthan. The average daily wage rate was the highest (₹740) in Kerala and the lowest (₹219) in Madhya Pradesh with all-India average at ₹311. The details of all-India and State-wise monthly average daily wage rates for agricultural labour at current prices from 2011 to 2019 are given in Annex Table 5.2.

Chart 5.1: Average Gross Returns of Kharif Crops, TE2017-18



Source: CACP using CS Data



PRICE Policy for Kharif Crops

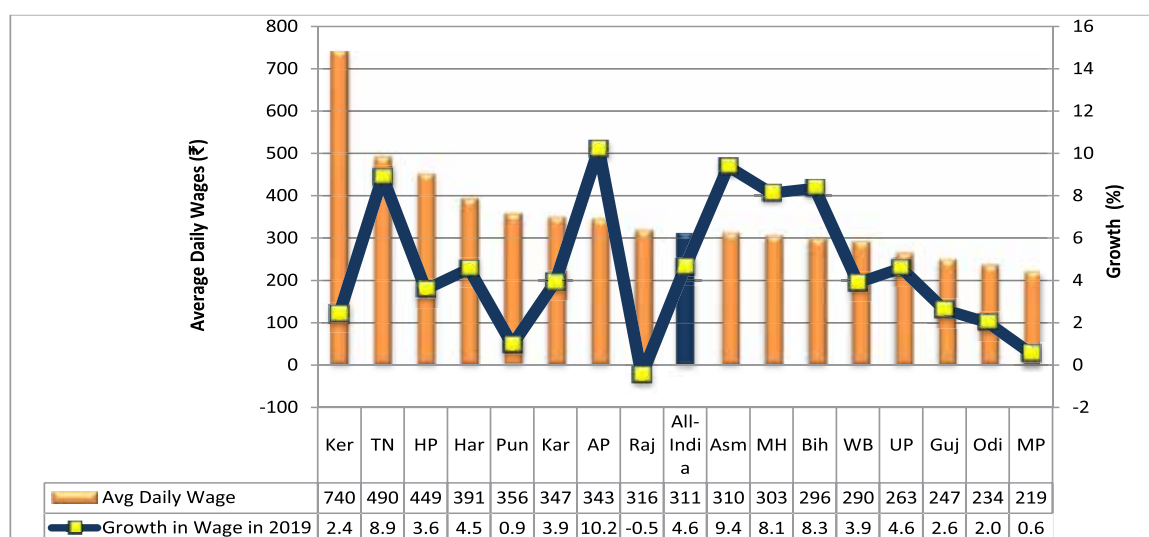
Table 5.2: Statewise Changes in Average Daily Wage Rates of Agricultural Labour during Kharif Season

State	Growth (%) at Current Prices			Growth (%) at Constant Prices (2019=100)		
	2017	2018	2019	2017	2018	2019
Andhra Pradesh	7.0	11.5	10.2	5.1	8.6	1.5
Assam	5.1	6.9	9.4	0.9	4.3	3.8
Bihar	3.1	6.5	8.3	3.4	5.8	-0.2
Gujarat	6.5	3.9	2.6	7.9	3.3	-5.1
Haryana	-0.5	2.2	4.5	-2.1	0.4	-0.8
Himachal Pradesh	9.9	4.3	3.6	6.6	3.4	0.5
Karnataka	4.4	9.8	3.9	-2.0	13.7	-0.8
Kerala	3.3	5.2	2.4	-3.3	2.9	-1.2
Madhya Pradesh	11.4	1.9	0.6	12.4	0.4	-3.9
Maharashtra	9.9	3.1	8.1	9.0	3.5	-4.2
Odisha	10.4	0.6	2.0	9.1	-3.7	-4.5
Punjab	10.2	4.5	0.9	7.3	2.1	-3.7
Rajasthan	1.5	12.4	-0.5	1.4	12.0	-9.6
Tamil Nadu	2.0	8.5	8.9	-6.1	5.7	1.6
Uttar Pradesh	8.1	4.0	4.6	14.1	-0.7	-1.9
West Bengal	4.7	3.6	3.9	0.5	0.7	1.6
All-India	6.0	6.4	4.6	4.7	5.1	-2.7

Note: Average of May-November

Source: Labour Bureau, Ministry of Labour & Employment, Government of India

Chart 5.2: State-wise Average Daily Wage Rates and Growth in wages during Kharif Season 2019 over 2018



Note: Average of May-November

Source: Labour Bureau, Ministry of Labour & Employment



- 5.11 The changes in Wholesale Price Index (WPI) with base 2011-12 of major farm inputs during kharif season 2019 over 2018 are given in Chart 5.3. The price index for HSD declined from 99.4 in 2018 to 94.4 in 2019, registering a negative growth of 5 percent in 2019. While price index of electricity declined marginally by 0.7 percent in 2019. The WPI of other major farm inputs increased in 2019 and ranged from 2.4 percent increase in fertilisers & nitrogen compounds to 12.7 percent in cattle feed. The indices of agricultural tractors, lube oils, fodder, and pesticides & other agrochemical products moved up by 2.5 percent, 7.1 percent, 11.2 percent, and 3.1 percent, respectively in 2019 over 2018. The weighted index of above mentioned selected farm input prices in 2019 registered a marginal increase of 0.4 percent. The monthly wholesale price indices of various farm inputs from 2012 to 2019 are given in Annex Table 5.3.

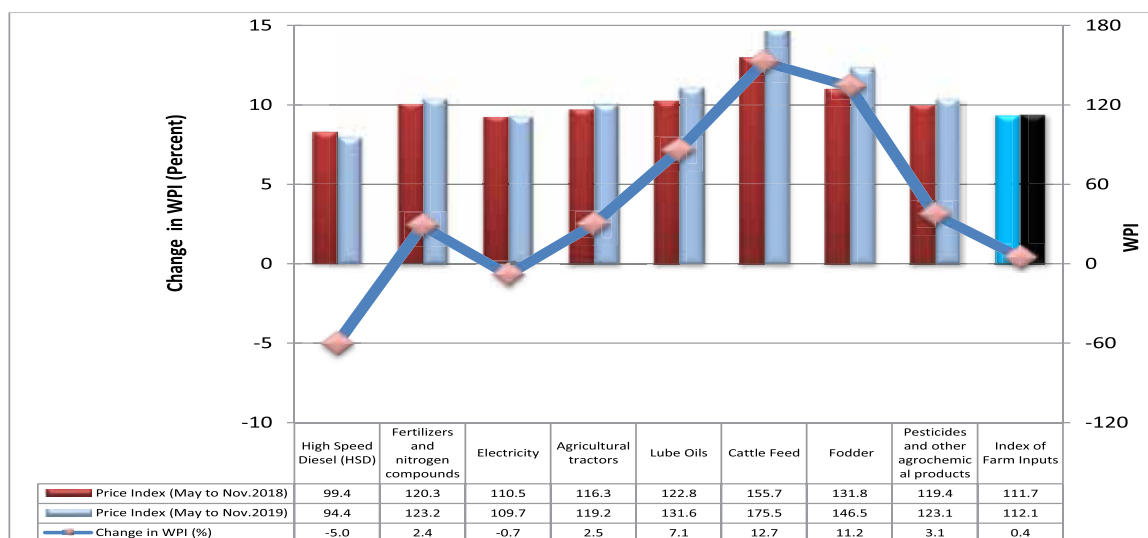
Cost Projections for Kharif Marketing Season 2020-21

- 5.12 The Commission has computed farm input-wise all-India weighted 'input weights' for KMS 2017-18 and composite input price Indices (CIPIs) for KMS 2017-18 to KMS 2020-21 for mandated kharif crops with base 2011-12=100, and are given in Table 5.3. For this, based on actual 'weights' and 'input price indices' for KMS 2017-18, and using latest input prices; 'input price indices' and 'CIPIs' for KMS 2018-19 to KMS 2020-21 for a State, have been constructed. Subsequently, based on these State-wise 'actual weights' and 'input price indices', crop-wise all-India weighted average 'input weights' and 'CIPIs', respectively, for all inputs, with weights being relative shares of States in all-India area under the crop during TE2018-19, have been computed. Further, these crop-wise all-India weighted average 'input weights' and 'CIPIs' have been used to compute input-wise all-India weighted average 'input weights' and 'CIPIs', respectively, for all kharif crops, with weights being relative shares of crops in total production of mandated kharif crops at all-India level during TE2018-19. Finally, these input-wise all-India weighted average 'input weights' and 'CIPIs' have been used to compute all-India weighted average 'composite input price index (CIPI) for all inputs of all mandated kharif crops. It may be observed from the Table that all-India CIPI for kharif crops showed an increase of 4.8 percent in KMS 2018-19, 4.9 percent in KMS 2019-20 and 5.1 percent in KMS 2020-21, while CIPI for kharif crops for KMS 2020-21 registered the lowest increase (1.6%) in irrigation and highest increase (6.5%) in machine labour over 2019-20. As human labour availability has become a constraint and the wage rates have been rising, and human labour accounted for more than half of total cost of production of mandated kharif crops during 2017-18, it is imperative to encourage farmers to adopt farm mechanization to improve their profitability.
- 5.13 Based on State-wise actual cost estimates and projected CIPIs, State-wise estimates of CoC A_2 , A_2+FL and C_2 for each of mandated crop are projected. Using these estimates of CoC and projected yields, State-wise CoP A_2 , A_2+FL and C_2 for each crop are projected. Subsequently, crop-wise all-India weighted average projected CoP A_2 , A_2+FL and C_2 , with weights being the respective share of the State in all-India production during TE2018-19, have been worked out for kharif crops for marketing season 2020-21 and are given in Table 5.4.



PRICE Policy for KHARIF CROPS

Chart 5.3: Movements in Prices of Farm Inputs during Kharif Season in 2018 and 2019



Source: Office of the Economic Adviser, Ministry of Commerce and Industry

Table 5.3: Trends in All-India Farm Input Price Indices (Base 2011-12 = 100)

Inputs	Weighted Average Input Weights (2017-18)	Kharif Crops Composite Input Price Index				Percentage Change in Composite Input Price Index 2020-21 over 2019-20
		2017-18	2018-19	2019-20	2020-21	
Human Labour (HL)	0.51	176.79	185.68	195.09	205.42	5.3
Bullock Labour (BL)	0.06	211.77	221.23	231.30	242.00	4.6
Machine Labour (ML)	0.16	126.77	134.88	143.61	153.00	6.5
Seeds	0.07	158.15	166.61	175.75	185.66	5.6
Fertilizers	0.09	142.41	145.94	149.63	153.51	2.6
Manures	0.02	163.79	171.90	180.59	190.27	5.4
Insecticides	0.03	129.36	133.70	138.23	142.97	3.4
Irrigation Charges	0.05	109.31	111.02	112.77	114.56	1.6
All-India Composite Input Price Index (CIPI)		161.35	169.14	177.42	186.43	5.1
Percentage Change (year on year)		-	4.8	4.9	5.1	-

Source: CACP Calculations

5.14 The all-India projected A_2 , A_2+FL and C_2 CoP per quintal in cereals are highest for ragi at ₹1663, ₹2194 and ₹2763, respectively, and lowest for bajra at ₹663, ₹1175 and ₹1555, respectively. In case of paddy, the A_2 cost was ₹930, A_2+FL was ₹1245 and C_2 was ₹1667, while for maize A_2 , A_2+FL and C_2 costs were ₹892, ₹1213 and ₹1606 and for jowar ₹1287, ₹1746 and ₹2393 respectively. Nutri cereals except ragi have relatively lower CoP than paddy and maize. Per quintal all-India projected

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A_2 , A_2+FL and C_2 CoP in pulses are the highest for moong at ₹2972, ₹4797 and ₹6289, respectively, while A_2 and A_2+FL are lowest for urad at ₹2787 and ₹3660, respectively and C_2 is lowest in case of tur (₹5464). In kharif oilseeds, per quintal all-India projected A_2 , A_2+FL and C_2 CoP are highest for sunflower at ₹3211, sesamum at ₹4570, and nigerseed at ₹6525, respectively. The A_2 CoP is lowest for nigerseed, and A_2+FL and C_2 are lowest for soybean at ₹2587 and ₹3513, respectively. The A_2 , A_2+FL and C_2 CoP per quintal for groundnut are estimated at ₹2868, ₹3515 and ₹4512, respectively. The all-India per quintal A_2 , A_2+FL and C_2 costs for cotton are projected at ₹2920, ₹3676 and ₹4935, respectively.

- 5.15 State-wise and all-India projected costs of mandated kharif crops for KMS 2020-21 and production shares during TE2018-19 are given in Annex Table 5.4. State-wise break-up of actual CoC estimates in respect of paddy, jowar, bajra, maize, ragi, tur, moong, urad, groundnut, soybean, sunflower, sesamum, nigerseed and cotton for latest three years, are given in Annex Tables 5.5a to 5.5n, respectively.

Table 5.4: Projected Cost of Production of Kharif Crops, KMS 2020-21

Crops	Cost of Production (₹/qtl)		
	A_2	A_2+FL	C_2
Paddy	930	1,245	1,667
Jowar	1,287	1,746	2,393
Bajra	663	1,175	1,555
Maize	892	1,213	1,606
Ragi	1,663	2,194	2,763
Arhar (Tur)	2,824	3,796	5,464
Moong	2,972	4,797	6,289
Urad	2,787	3,660	5,570
Groundnut	2,868	3,515	4,512
Soybean	2,138	2,587	3,513
Sunflower	3,211	3,921	5,079
Sesamum	2,941	4,570	6,215
Nigerseed	1,988	4,462	6,525
Cotton	2,920	3,676	4,935

Source: CACP Calculations

- 5.16 Charts 5.4 (a) to (m) show crop-wise supply curves of projected A_2+FL cost of production by States in ascending order with corresponding shares in all-India production. Supply curves for different crops are graphical presentation of CoP, which represents the quantum of a crop produced at different CoP in various States. The supply curve presented in Chart 5.4 (a) shows that A_2+FL CoP for paddy is lowest at ₹729 per quintal in Punjab, followed by Uttarakhand (₹1032/qtl), Chhattisgarh (₹1095/qtl), and the highest (₹2275/qtl) in Maharashtra. Among top-five producers of paddy in the country, which account for about 58 percent of



national production, Punjab has the lowest CoP, while West Bengal has the highest CoP (₹1537/qlt). In case of jowar, A_2 +FL CoP at ₹1354 per quintal is the lowest in Rajasthan, while Karnataka has the highest CoP at ₹2120 per quintal. All-India weighted CoP of jowar is marginally lower than CoP of Maharashtra (₹1794/qlt), the largest producer comprising about 38 percent of national production (Chart 5.4 (b)). Supply curve of bajra presented in Chart 5.4 (c) shows that Uttar Pradesh has the lowest A_2 +FL CoP (₹844/qlt), while Maharashtra has highest CoP (₹2245/qlt). All-India weighted CoP of bajra is marginally lower than Rajasthan (₹1199/qlt), the largest producer with about 48 percent share in total production. Chart 5.4 (d) reveals that in case of maize, Andhra Pradesh has lowest A_2 +FL CoP (₹873/qlt) and Gujarat has highest CoP (₹1999/qlt). Among top-five producers of maize in the country, which produce about 70 percent of total production, Andhra Pradesh has the lowest CoP, while Maharashtra has the highest CoP (₹1499/qlt). In case of ragi, A_2 +FL CoP in Uttarakhand (₹1463/qlt) is lower than Karnataka (₹2300/qlt), which is the largest producer of ragi in the country (Chart 5.4 (e)).

- 5.17 Chart 5.5 (f) shows that for tur, A_2 +FL CoP (₹3120/qlt) is lowest in Madhya Pradesh and highest (₹5114/qlt) in Andhra Pradesh. Among top-three producers of tur in the country, which account for about 70 percent of total production, Madhya Pradesh has the lowest CoP, while Maharashtra has the highest CoP (₹4078/qlt). The A_2 +FL CoP of moong (₹4361/qlt) and urad (₹2156/qlt), was the lowest in Andhra Pradesh, whereas, Maharashtra has the highest cost at ₹6016 per quintal and ₹6281 per quintal, respectively (Chart 5.4 (g) & (h)). In case of moong, Rajasthan, the largest producer with about 58 percent share in national production, has lower CoP (₹4618/qlt) than all-India weighted CoP, while in case of urad, Madhya Pradesh, the largest producer comprising about 49 percent of India's production, has lower CoP (₹3276/qlt) compared with all-India weighted CoP.
- 5.18 In case of groundnut, all-India weighted A_2 +FL CoP is projected at ₹3515 per quintal and ranged from ₹1755 per quintal in Rajasthan to ₹5902 per quintal in Maharashtra. All-India weighted CoP of groundnut is marginally lower than CoP of Gujarat, the largest producer of groundnut in the country (Chart 5.4 (i)). The supply curve of soybean shows that CoP A_2 +FL at ₹2257 per quintal is lowest in Madhya Pradesh and the highest (₹3825/qlt) in Andhra Pradesh with all-India weighted CoP at ₹2587 per quintal (Chart 5.4 (j)). In case of sunflower, all-India A_2 +FL CoP was estimated at ₹3921 and varied from ₹3919 per quintal in Andhra Pradesh to ₹3922 per quintal in Karnataka, the largest producer (Chart 5.4 (k)). In case of sesamum, West Bengal has the lowest A_2 +FL CoP (₹3619/qlt), while Andhra Pradesh has the highest CoP (₹6424/qlt) with all-India weighted CoP at ₹4570 per quintal which is higher than CoP of West Bengal (₹3619/qlt) and of Madhya Pradesh (₹4033/qlt), the two top producers accounting for more than 60 percent of national production (Chart 5.4 (l)). Chart 5.4 (m) shows that Rajasthan has lowest A_2 +FL CoP (₹3022/qlt) for cotton, while Tamil Nadu has highest CoP (₹4741/qlt) with all-India average at ₹3676 per quintal. Among top-three producers of cotton accounting for more than 70 percent of total production, Gujarat has the lowest CoP (₹3182/qlt), while Maharashtra has the highest CoP (₹4201/qlt).

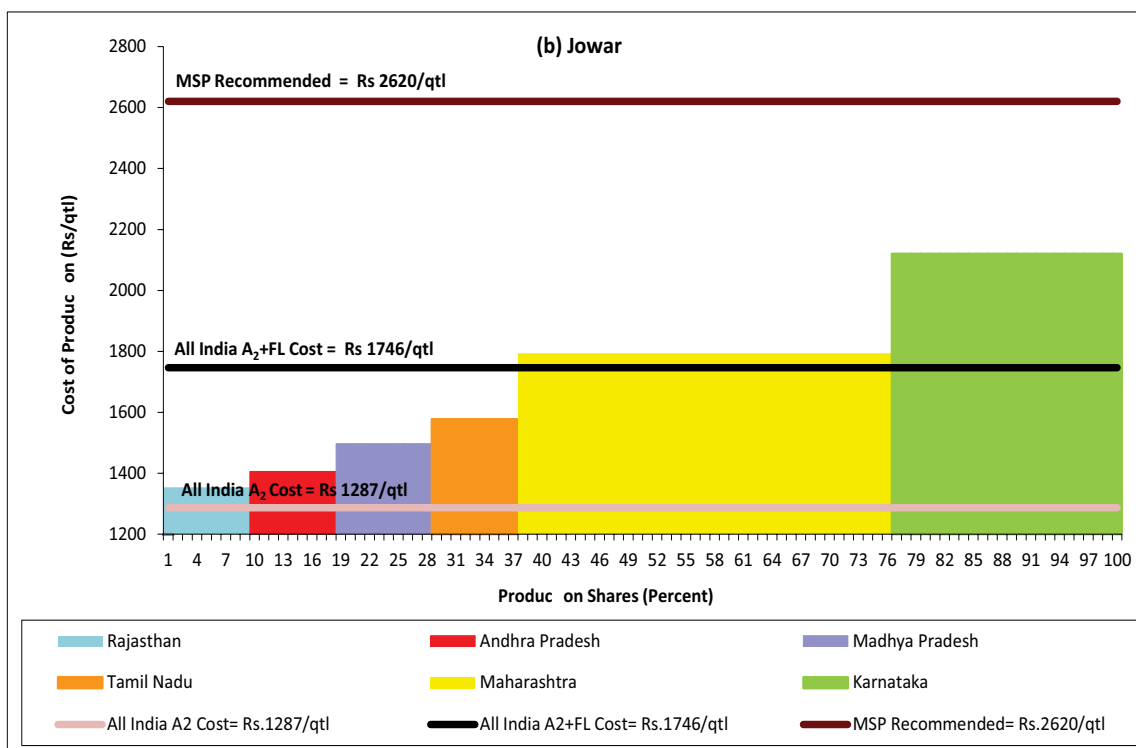
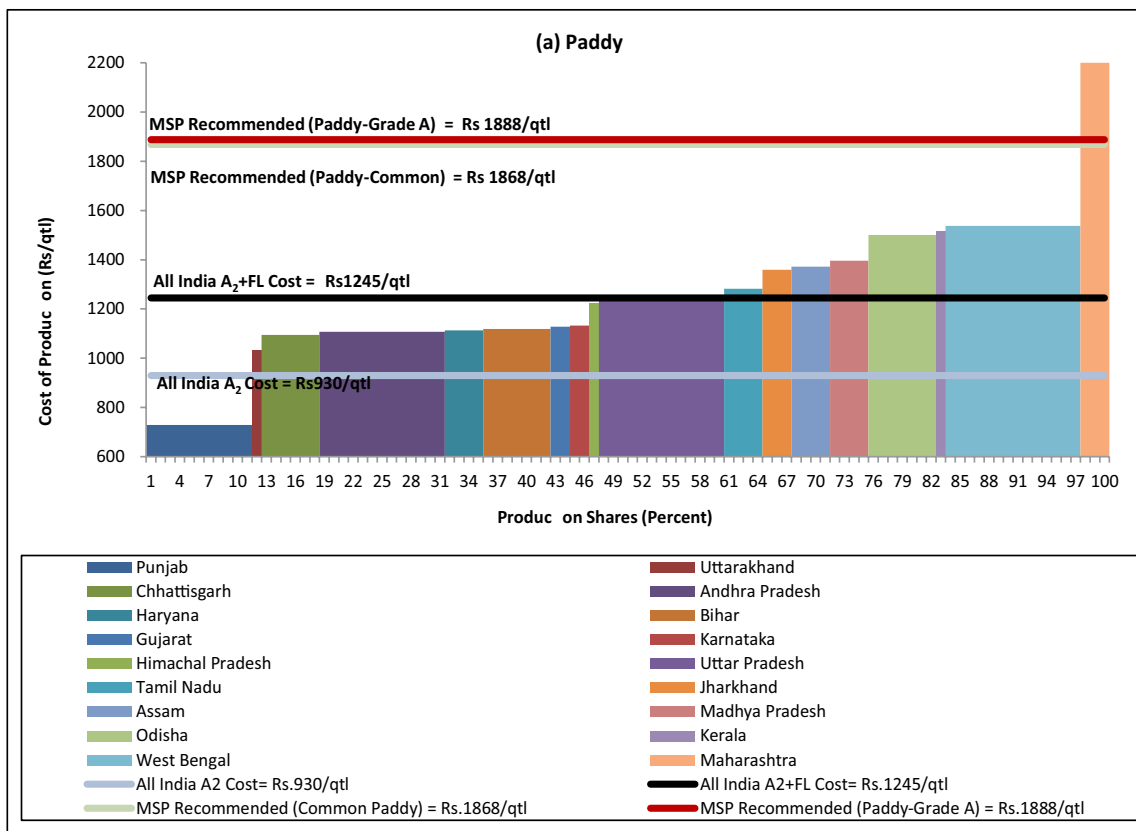


- 5.19 The projected A_2 +FL cost of production is lower than all-India weighted CoP A_2 +FL in 10 out of 18 States for paddy, 4 out of 6 States for jowar, 3 out of 5 States for bajra, 5 out of 11 States for maize, 3 out of 7 States for tur, 3 out of 6 States for moong, 2 out of 7 States for urad, groundnut and sesamum, 1 out of 5 States for soybean, and 5 out of 10 States for cotton. Therefore, holistic and coordinated efforts are needed to reduce costs and improve productivity in high-cost States to remain competitive and profitable.
- 5.20 The projected A_2 +FL CoP for paddy increased by 3.1 percent in 2020-21 over 2019-20, while it increased by 2.8 percent for jowar, 8.5 percent for bajra, 3.6 percent for maize, 4.5 percent for ragi, 4.4 percent for tur, 2.1 percent for moong, 5.3 percent for urad, 3.6 percent for groundnut, 4.6 percent for soybean, 4.1 percent for sunflower, 5.7 percent for sesamum, 12.7 percent for nigerseed, and 5 percent for cotton (details in Annex Table 5.6).
- 5.21 The share of production covered at the recommended MSP is 100 percent in case of jowar, ragi, tur, moong, soybean, sunflower, cotton and sesamum, 97 percent in paddy and maize, 96 percent in groundnut, 94 percent in urad and 93 percent in bajra. The MSP margins over all-India projected A_2 +FL cost of production is highest for bajra at 183 percent, followed by urad (164%), tur (158%), maize (153%) and 150 percent for other kharif crops. The highest MSP margins over projected CoP A_2 +FL was in Punjab for paddy (256%), Rajasthan (194%) for jowar, Uttar Pradesh (255%) for bajra, Andhra Pradesh (212%) for maize, Uttarakhand (225%) for ragi, Madhya Pradesh (192%) for tur, Andhra Pradesh (165%) for moong, Andhra Pradesh (278%) for urad, Rajasthan (301%) for groundnut, Madhya Pradesh (172%) for soybean, Andhra Pradesh and Karnataka (150%) for sunflower, West Bengal (189%) for sesamum, and Rajasthan (182%) for cotton.

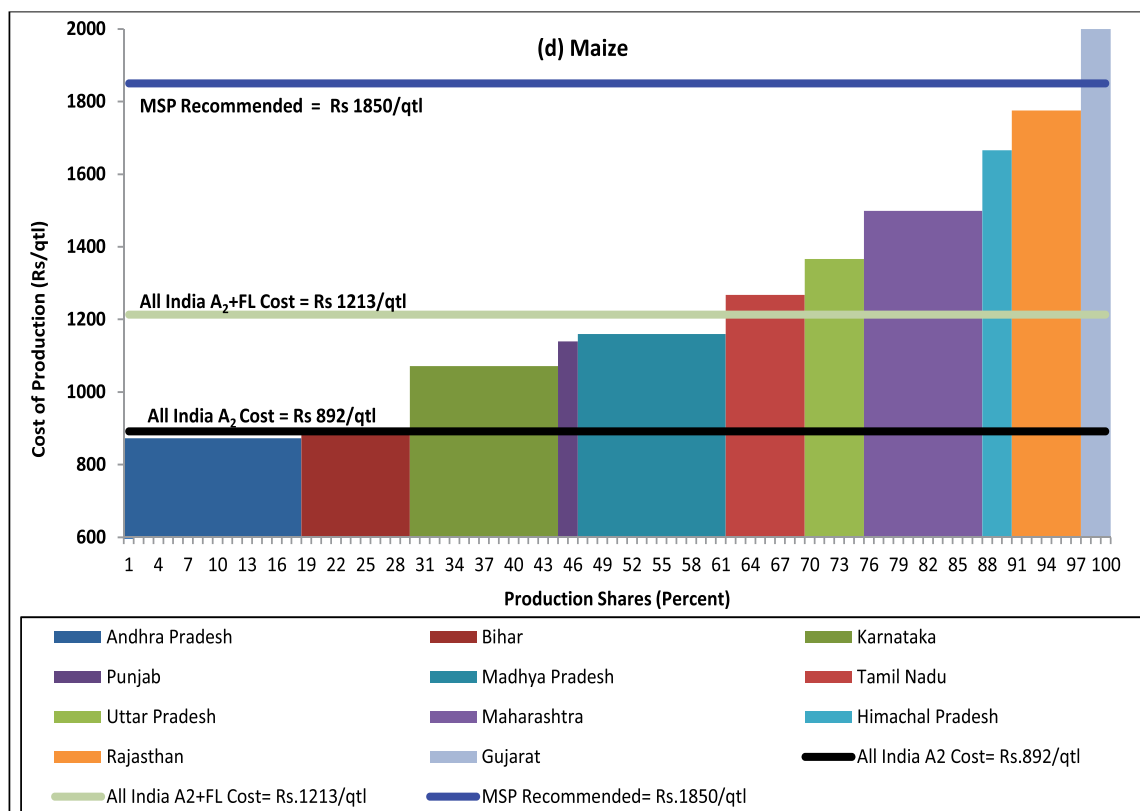
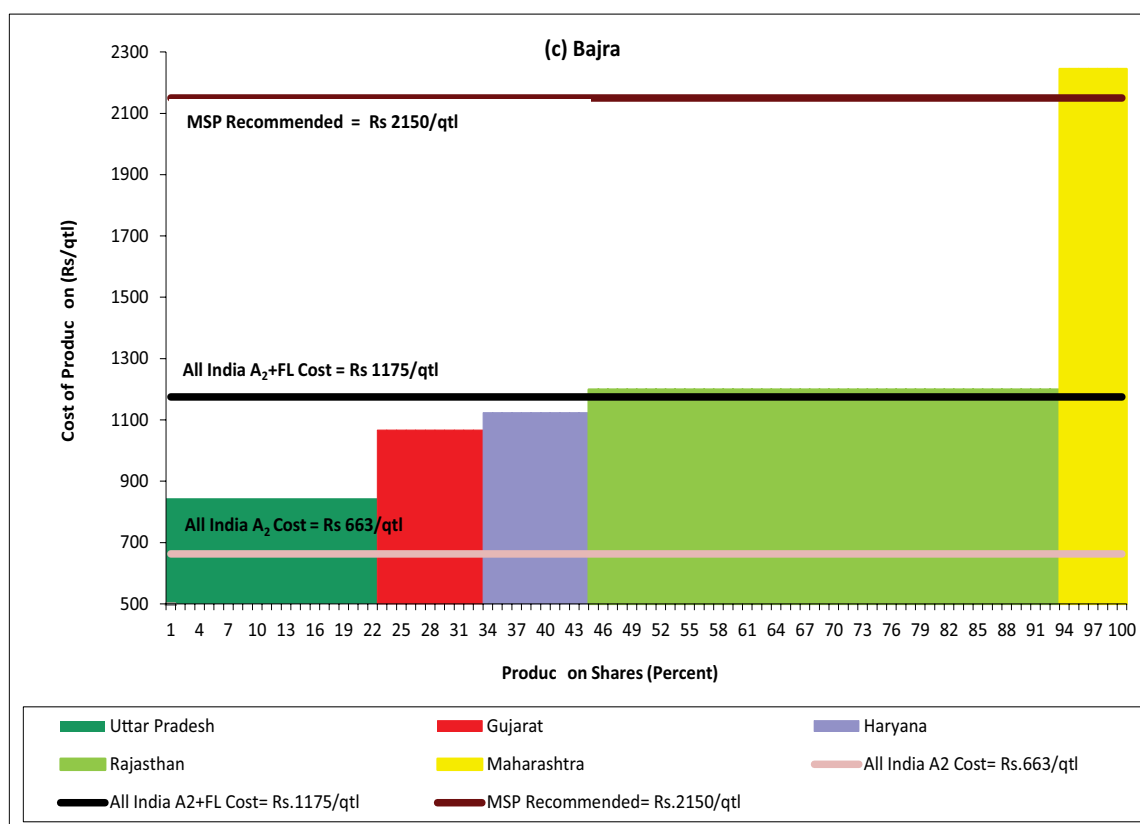


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Chart 5.4: Supply Curve and Projected CoP for Mandated Crops, KMS 2020-21



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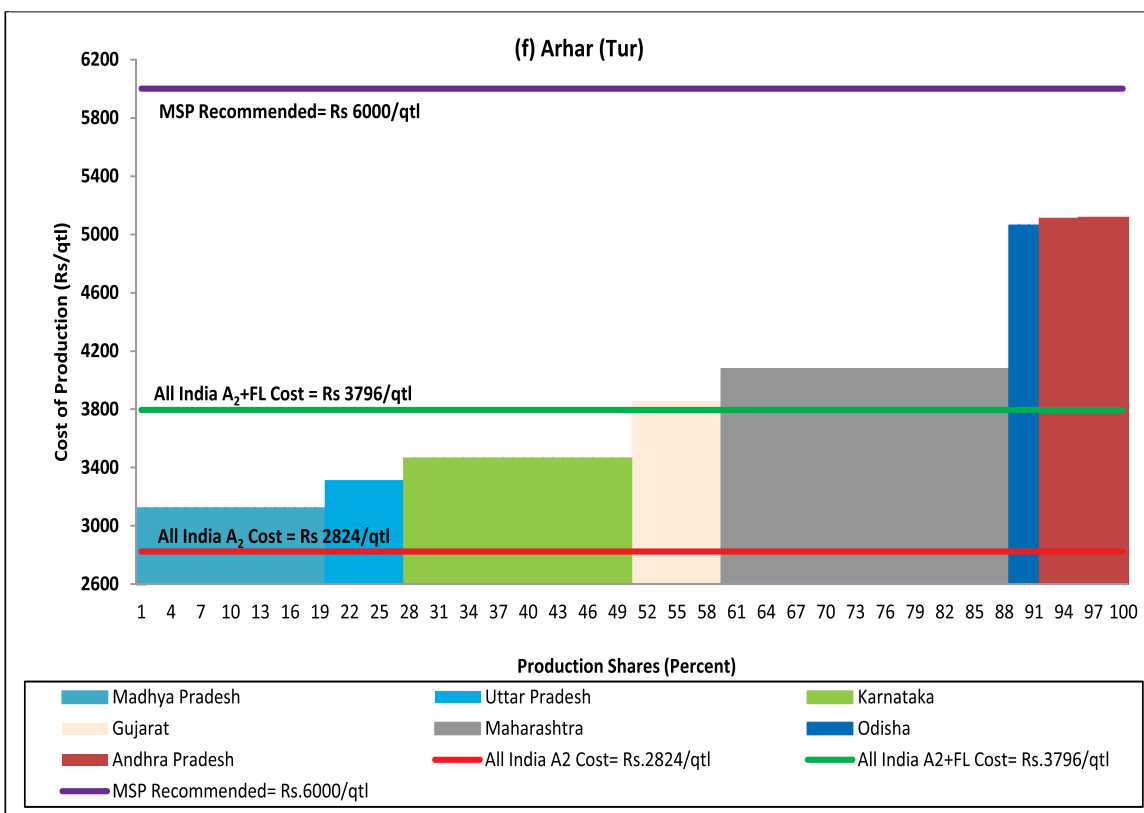
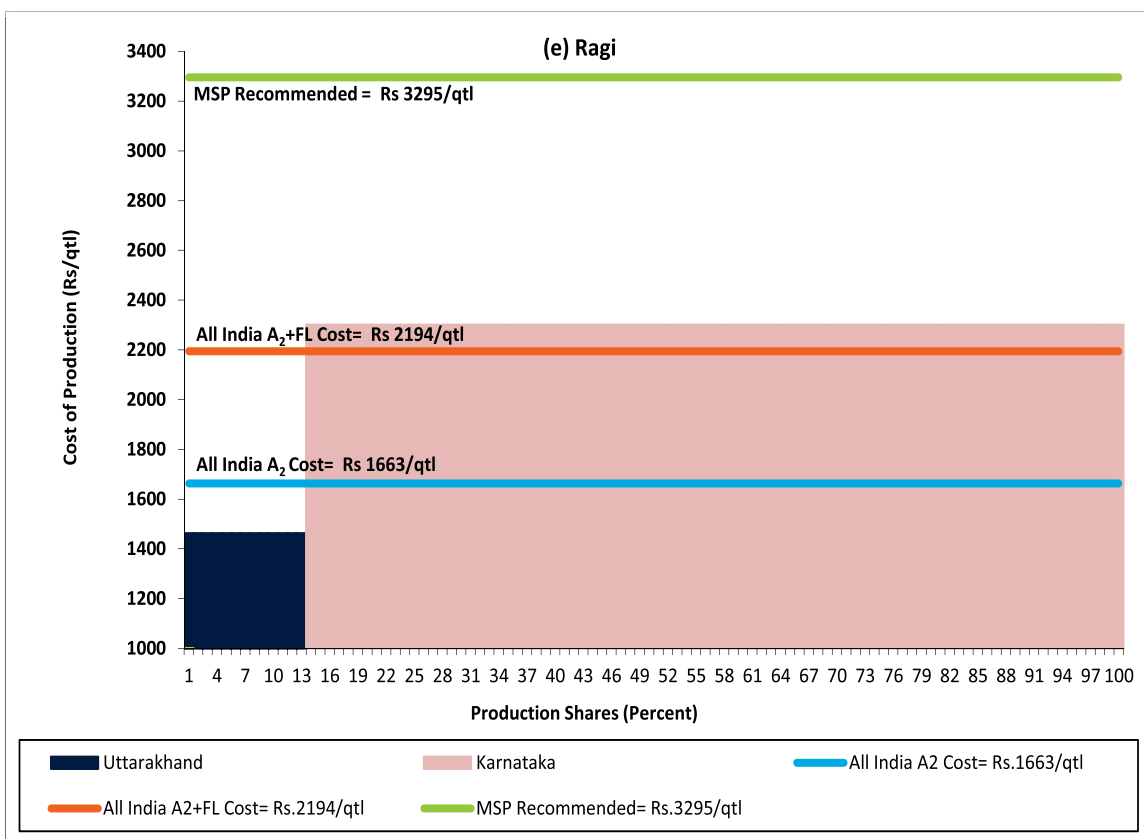


Costs, Returns and Inter-Crop Parity

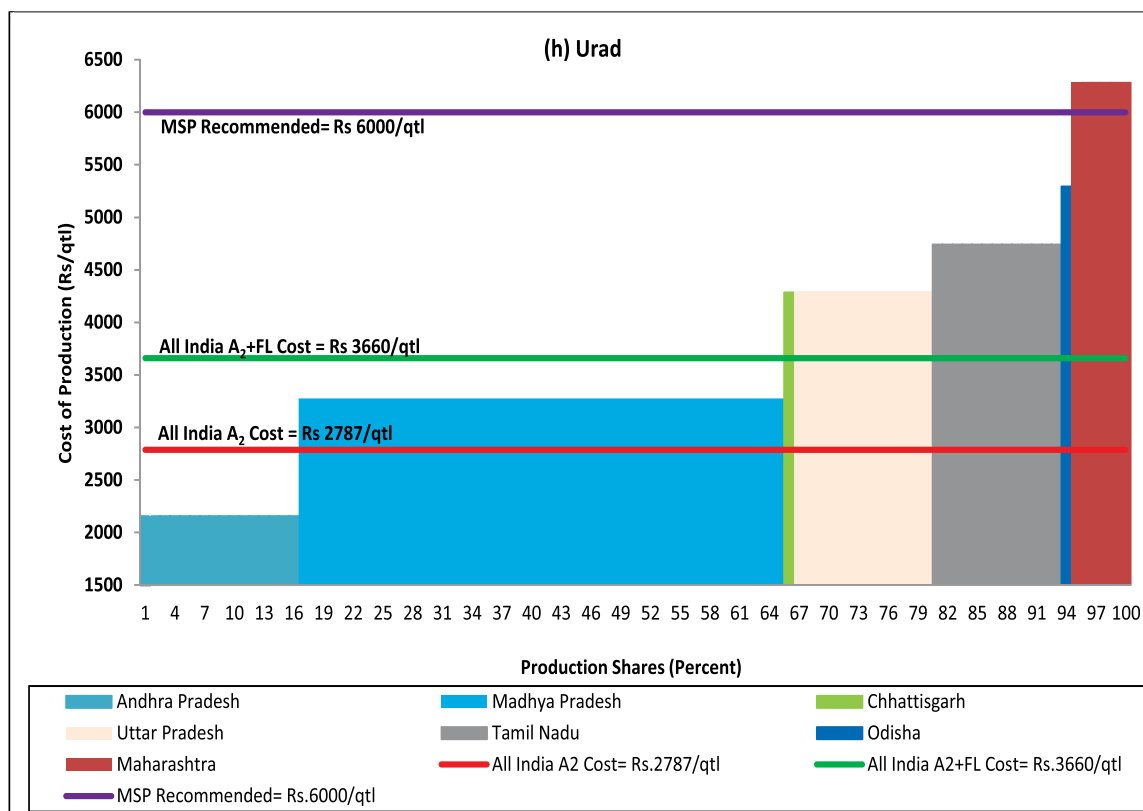
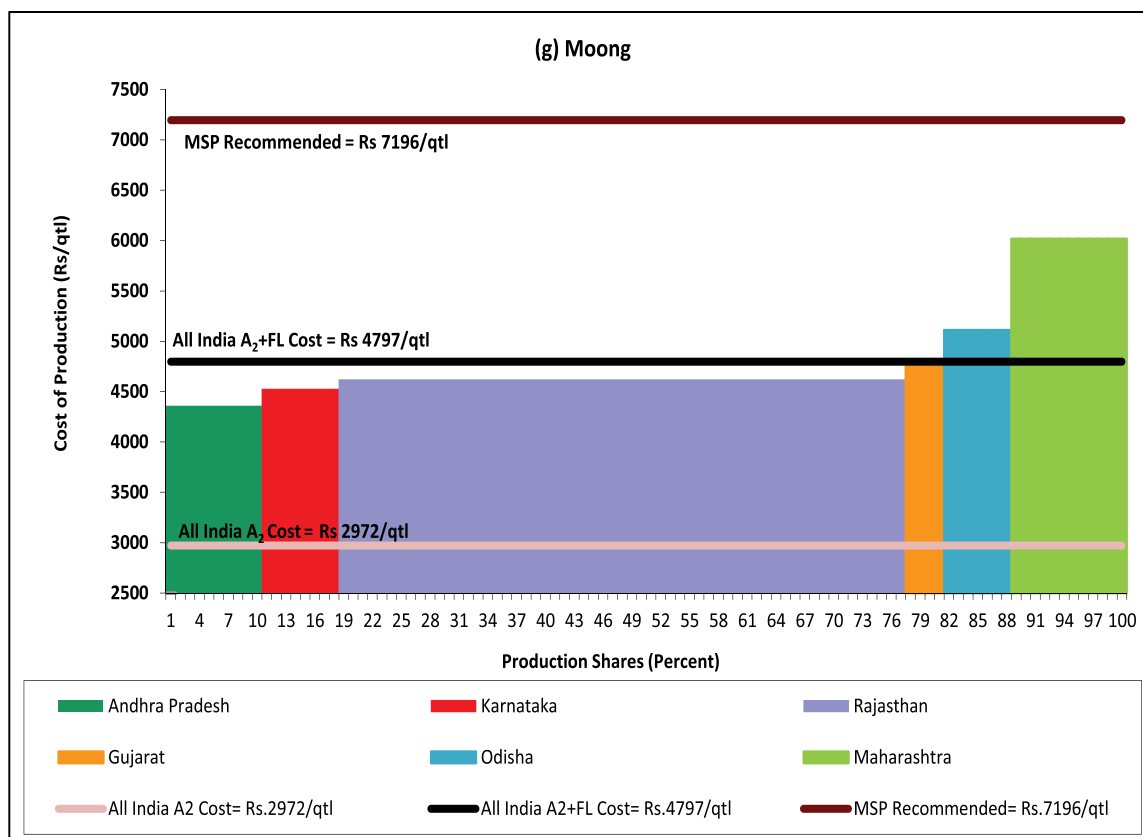


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Costs, Returns and Inter-Crop Parity



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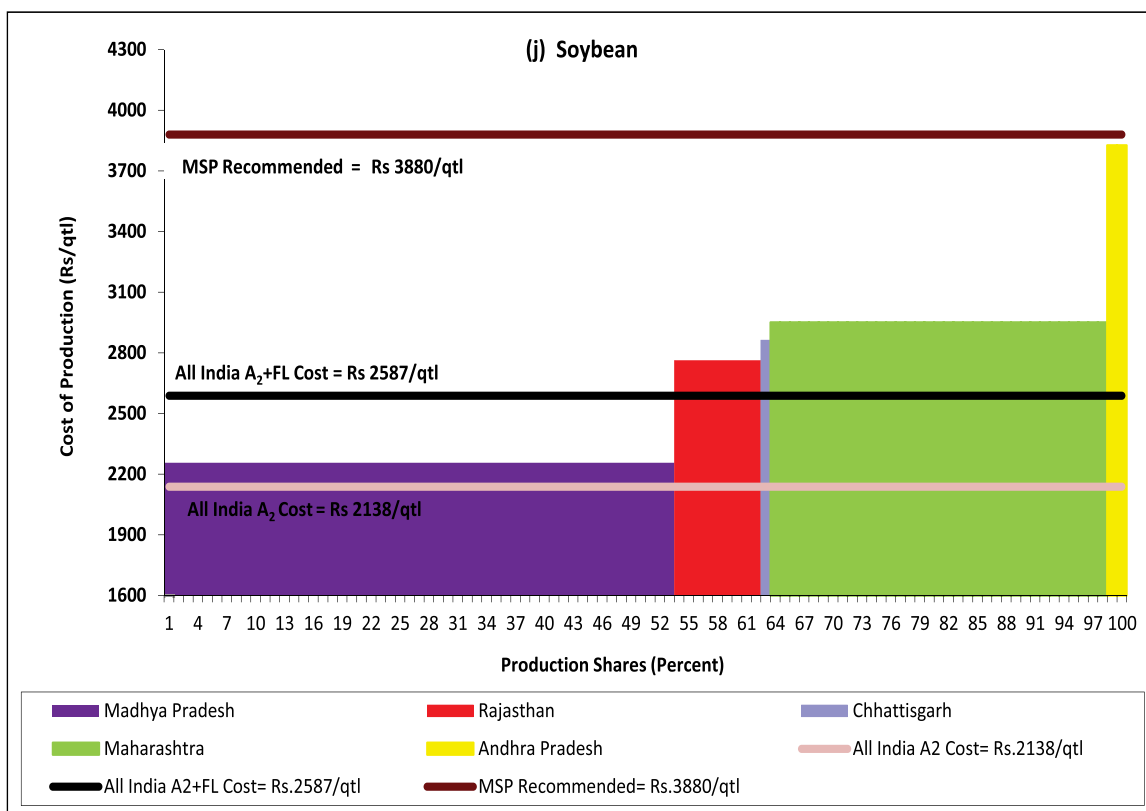
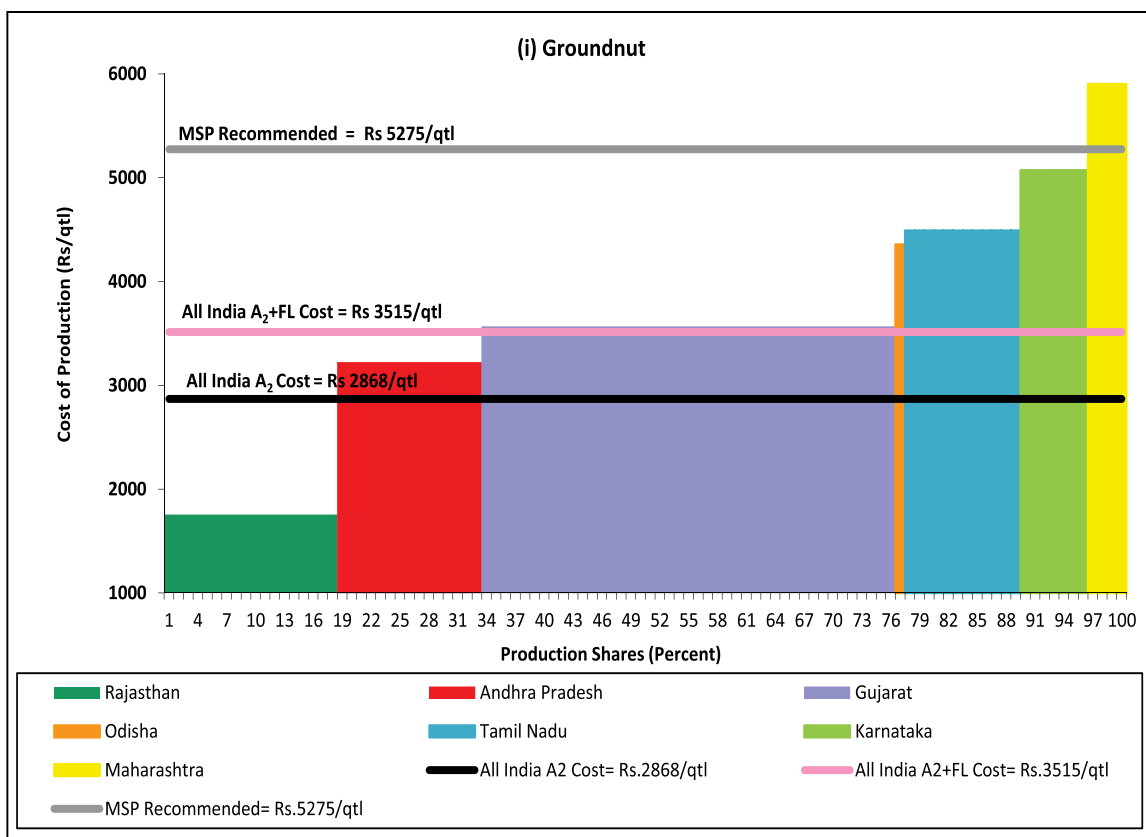


Costs, Returns and Inter-Crop Parity

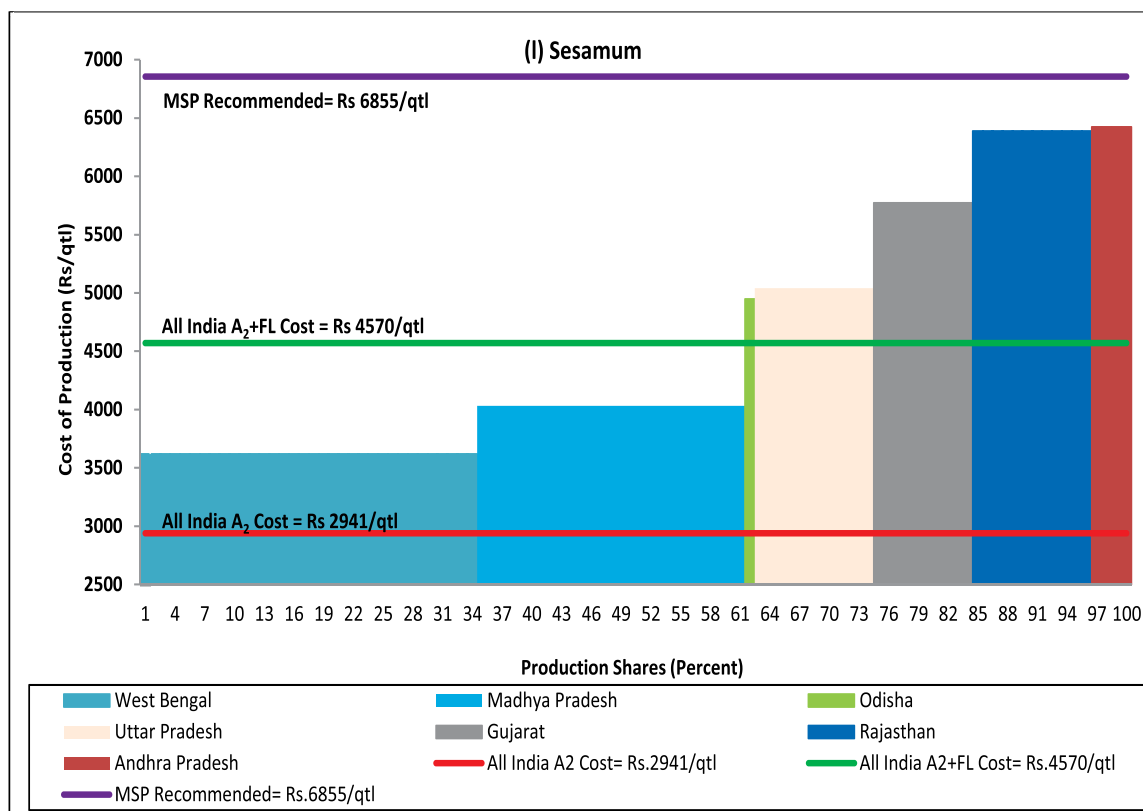
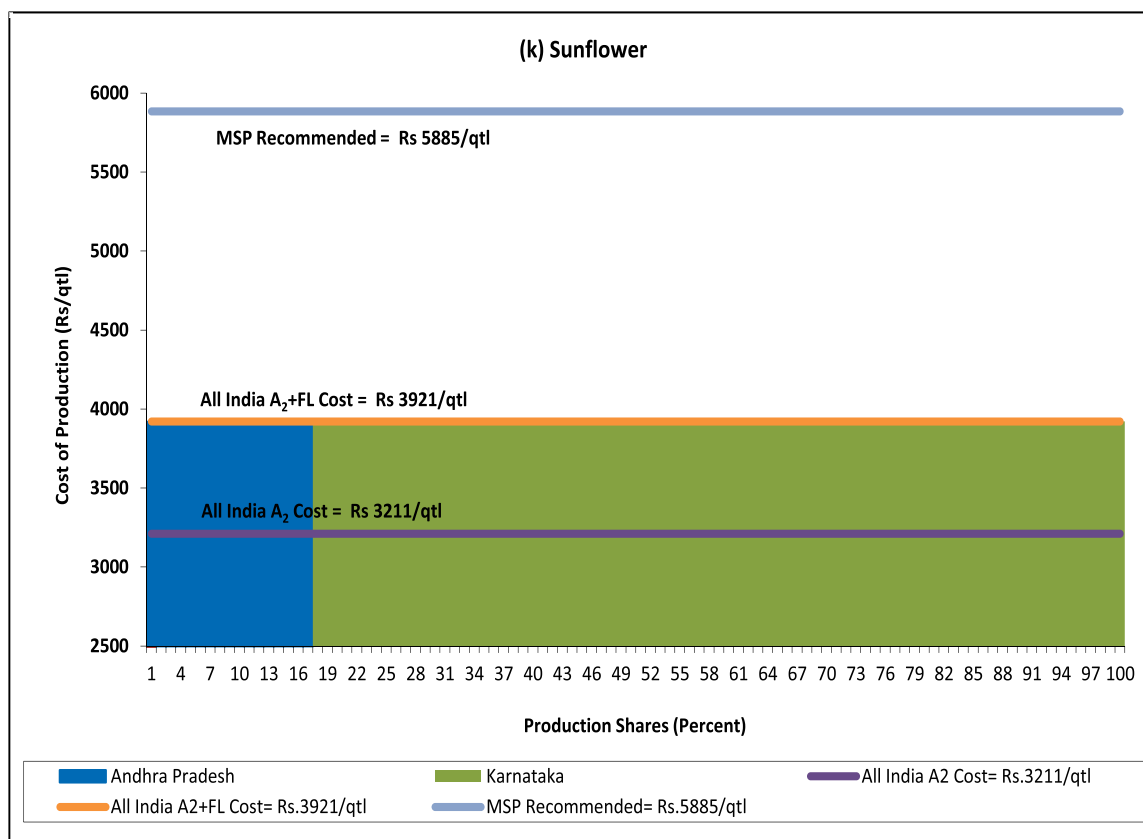


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Costs, Returns and Inter-Crop Parity



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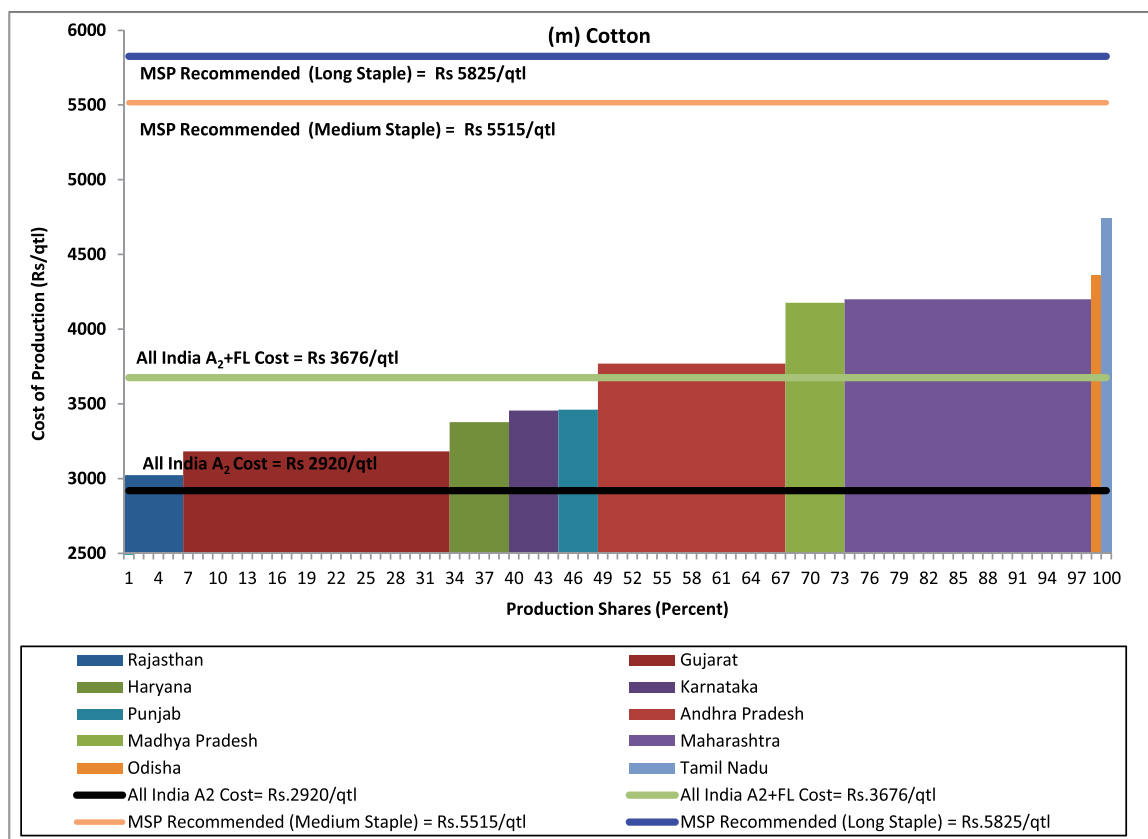


Costs, Returns and Inter-Crop Parity



PRICE Policy for KHARIF CROPS

Costs, Returns and Inter-Crop Parity



Inter-Crop Parity in Returns of Kharif Crops

5.22 Inter-crop parity being an important factor for determination of MSPs, the Commission analysed per hectare relative average gross returns of different crops that are substitutes for each other. Table 5.5 and Chart 5.5 show relative per hectare average gross returns over A_2+FL in percentage terms for each mandated crop with reference to paddy during TE2017-18. Arhar (tur), groundnut and cotton have higher relative returns over A_2+FL CoC compared with paddy and were 62 percent higher in case of tur, 33 percent in case of groundnut and 13 percent in cotton. All other mandated kharif crops have lower returns relative to that of paddy. Among cereals, in comparison to paddy, relative returns for maize are 26 percent lower, while in case of nutri-cereals relative returns are far below, mainly due to low productivity. Among pulses, average gross returns per hectare from tur are about 95 percent higher than urad and 4.4 times more than moong mainly due to low yield. Among oilseeds, returns from groundnut are 1.8 times higher than sesamum, 2.8 times more than sunflower and 5.1 times higher than soybean, while for nigerseed, farmers incur net loss. Due to reasonably higher returns and assured market in paddy on one hand, and high production and market/price risks in nutri-cereals, pulses and oilseeds on the other hand, farmers prefer to grow paddy over nutri-cereals, pulses and oilseeds. Therefore, there is need to promote pulses, oilseeds and nutri-cereals by changing their relative incentive structure through higher MSP, assured markets, improving productivity and reducing cost of cultivation.



Comparison of CACP Cost Estimates and State Estimates

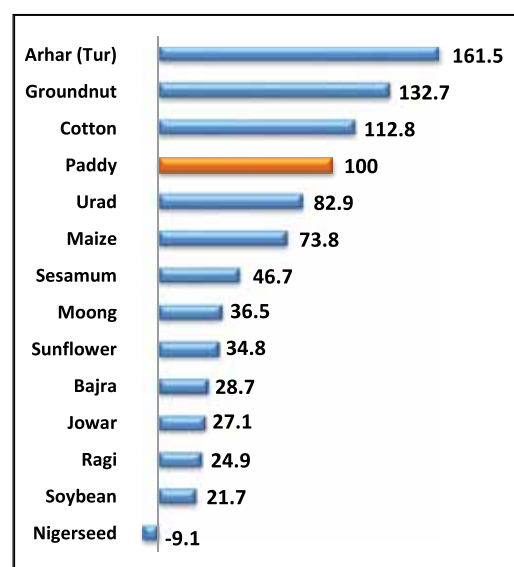
- 5.23 The projected cost of production/cultivation and yields provided by States and CACP projections for mandated kharif crops for marketing season 2020-21 are given in Annex Table 5.7. As is apparent from Annex Table 5.7, there are variations in cost estimates provided by the States/UTs and CACP cost estimates. The main reasons for variations in these two sets of estimates are different methodologies and cost concepts used by the States/UTs and CACP.
- 5.24 The projected CoP for paddy by Bihar, Chhattisgarh, Gujarat, Haryana, Karnataka, Kerala, Punjab and West Bengal are higher than CACP projections while Uttar Pradesh estimate is lower than CACP estimate. In case of jowar, Andhra Pradesh and Karnataka estimates are higher than CACP estimates and Tamil Nadu estimates are less than CACP cost. Bajra cost estimates are higher than CACP estimates in case of Gujarat and Uttar Pradesh while Haryana and Punjab estimates are marginally lower than CACP estimates. Andhra Pradesh, Bihar, Gujarat, Karnataka and Tamil Nadu estimates are more than CACP estimates for maize while Rajasthan and Uttar Pradesh cost estimate are lower. For ragi, Karnataka estimate is higher than CACP estimate.

Table 5.5: Crop-wise Relative Average Gross Returns (%), TE2017-18

Crop	Relative Average Gross Returns over CoC A ₂ +FL with respect to Paddy
A. Cereals	
Paddy	100
Maize	73.8
Jowar	27.1
Bajra	28.7
Ragi	24.9
B. Pulses	
Arhar (Tur)	161.5
Moong	36.5
Urad	82.9
C. Oilseeds	
Groundnut	132.7
Soybean	21.7
Sunflower	34.8
Sesamum	46.7
Nigerseed	-9.1
D. Commercial Crop	
Cotton	112.8

Source: CACP using CS data

Chart 5.5: Crop-wise Relative Average Gross Returns (%), TE2017-18





- 5.25 In case of pulses, cost of production estimates of Karnataka in tur and moong and AP for urad are higher than CACP cost of production projections while Andhra Pradesh, Gujarat and Uttar Pradesh for tur, Andhra Pradesh, Gujarat and Rajasthan for moong, and Tamil Nadu and Uttar Pradesh for urad are lower.
- 5.26 For oilseeds, Andhra Pradesh and Karnataka cost of production of groundnut and sunflower is more than CACP estimates while Gujarat and Tamil Nadu estimates are less than CACP costs for groundnut. In case of soybean, and sesamum, State estimates are lower than CACP cost estimates. For cotton, Andhra Pradesh, Gujarat, Karnataka and Punjab costs are higher than CACP costs while Haryana, Rajasthan and Tamil Nadu estimates are less than CACP estimates.
- 5.27 In case of Andhra Pradesh, the main reason for higher cost projections, is inclusion of additional 10 percent management cost. For Bihar, cost projections for paddy and maize are higher than CACP estimates because 5 percent interest on land, 10 percent risk cost, costs of storage and transportation, and repair of dead stock, have been included by the State. In case of paddy, labour costs estimates are 56 percent higher and 'fertiliser & manure, insecticides and interest on working capital' costs are 106.4 percent higher than CACP estimates, while for maize these estimates are 40 percent and 44.2 percent higher than CACP projections. Some other States have also provided cost estimates for other crops but comparison could not be *done*, as cost projections for those crops and States have not been undertaken by CACP due to non-availability of cost data under the Comprehensive Scheme. On the other hand, some States have not provided cost projections for KMS 2020-21 for some crops.

Issues Related to Sample Size under CS

- 5.28 Presently, the cost data for kharif crops collected by DES are available with a time lag of three years and due to such a long time lag, the data loses its relevance in cost projection exercise. The Commission recommends that the time lag in furnishing of cost estimates to CACP should be reduced.
- 5.29 The Commission has analysed the actual cost estimates under Comprehensive Scheme for making projections for the KMS 2020-21, and observed that there are certain crops in some States whose shares in the all-India crop area/production as well as in the area and production of crop group in the state are very low. There are also instances, where sample size for certain crops in the State and all-India is inadequate, and may not be a representative sample for cost projection. The Commission suggests that sample size of maize in Chhattisgarh and Jharkhand, tur in Chhattisgarh and Tamil Nadu, moong in Bihar and Madhya Pradesh, groundnut in MP, and sesamum in Karnataka, may be increased. The sample size of sunflower and nigerseed at all-India level are too small and can undermine the reliability and representativeness of cost of production projections, therefore, sample size must be increased for these crops.



- 5.30 The Commission has also analyzed of State-wise area and production of the mandated kharif crops and observed that there are certain crops in States, which occupy reasonable share in the all-India area and production or area and production of a crop group in the state, but CS data for these States are not available. Inclusion of these States under Comprehensive Scheme would improve representation and reliability of cost projections at all-India level. Therefore, the Commission recommends inclusion of such States under CS. The Commission also suggests that Comprehensive Scheme may be implemented in Jammu & Kashmir for paddy and maize, and Tripura for paddy. Presently, CS data of Telangana are combined with Andhra Pradesh, and considering the reasonably adequate share of the state in all-India area /production, CS data pertaining to Telangana should be separated from Andhra Pradesh.

Recapitulation

- 5.31 During the TE 2017-18 average gross returns over CoC A_2+FL varied from 11.2 percent in ragi to 41 percent in paddy for cereals, 34.8 percent in moong to 77.8 percent in tur for pulses, 13.8 percent in soybean to 47.5 percent in groundnut for oilseeds, while it was negative for nigerseed. In case of cotton, gross returns over CoC A_2+FL were 36.5 percent. For enhancing farmers' income, besides increasing prices, efforts are needed to reduce cost of cultivation/production and improve yield through rational utilization of farm inputs and services, particularly in nutri-cereals, moong, soybean, sunflower, sesamum and nigerseed. All-India agricultural average daily wage rate at current prices increased by 4.6 percent in 2019 over 2018 while weighted index of selected farm input prices increased by 0.4 percent. The Commission has constructed CIPIs using the farm input-wise prices and observed that all-India CIPI for kharif crops registered a growth of 5.1 percent in KMS 2020-21. As the all-India weighted share of human labour (51%) in kharif crops during 2017-18 was significantly higher than machine labour (16%) and labour availability has become a constraint, the farmers may be encouraged to adopt farm mechanization to improve margins in farming.
- 5.32 Based on State-wise CoC during TE2017-18, CIPIs and projected yields, all-India projected CoP A_2+FL per quintal is ₹1245 for paddy, ₹1746 for jowar, ₹1175 for bajra, ₹1213 for maize, ₹2194 for ragi, ₹3796 for tur, ₹4797 for moong, ₹3660 for urad, ₹3515 for groundnut, ₹2587 for soybean, ₹3921 for sunflower, ₹4570 for sesamum, ₹4462 for nigerseed and ₹3676 for cotton for KMS 2020-21. The growth in all-India projected CoP A_2+FL varied from 2.1 percent for moong to 12.7 percent for nigerseed in KMS 2020-21 over KMS 2019-20. Relative average gross returns for tur, groundnut and cotton are higher than paddy, whereas, gross returns are higher for paddy than other mandated kharif crops. The farmers may be encouraged to grow nutri-cereals, moong, soybean, sunflower, sesamum and nigerseed by increasing relative average gross returns through higher MSP, assured markets, remunerative prices, and reducing cost of cultivation/production.



PRICE Policy for **KHARIF CROPS**

- 5.33 Per quintal MSP recommended at ₹1868 for paddy, ₹2620 for jowar, ₹2150 for bajra, ₹1850 for maize, ₹3295 for ragi, ₹6000 for tur, ₹7196 for moong, ₹6000 for urad, ₹5275 for groundnut, ₹3880 for soybean, ₹5885 for sunflower, ₹6855 for sesamum, ₹6695 for nigerseed, and ₹5515 for cotton; would cover projected A_2+FL CoP for all States for ragi, tur, moong, soybean, sunflower, sesamum, nigerseed, jowar and cotton; and 17 out of 18 States for paddy, 4 out of 5 States for bajra, 10 out of 11 States for maize, 6 out of 7 States for urad and groundnut.

Considerations and Recommendations for Price Policy

- 6.1 The Commission considers important factors like cost of production, overall demand-supply scenario, trends in domestic and global prices, inter-crop price parity, terms of trade between agriculture and non-agriculture sectors, likely impact of the price policy on the rest of the economy, rational utilization of land, water and other production resources and a minimum of 50 percent as the margin over the cost of production. The Commission uses the cost estimates furnished by the DES, Ministry of Agriculture and Farmers Welfare under “Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops in India”. The Commission organizes regional meetings to seek suggestions from State Governments, Central Ministries/ Departments, farmers/Farmers Associations, research institutions, industry representatives and other stakeholders before finalizing its recommendations.

Domestic Demand-Supply Scenario

- 6.2 The year 2018-19 has been a good year in terms of record production of almost all major crop groups and total foodgrains production is estimated to touch a new record of 292 million tonnes in 2019-20 driven by higher production of wheat, nutri-cereals and pulses. In 2019-20, most kharif crops are estimated to show higher production compared to 2018-19.
- 6.3 Domestic rice production is estimated to increase marginally in 2019-20 but huge stocks and substantial fall in rice exports are likely to keep domestic prices subdued in 2020-21. Nutri-cereals production is forecast to increase by 11.5 percent in 2019-20 due to higher production of jowar, bajra and ragi while maize production is estimated to increase marginally (1.3%). Pulses production is estimated to be marginally higher in 2019-20 but production of kharif pulses is forecast to be marginally lower due to decline in production of urad and moong because of unfavourable weather conditions in major growing areas. Production of oilseeds is estimated to show an impressive growth of 8.5 percent and cotton production is expected to increase by 24.4 percent in 2019-20.



- 6.4 All-India average market price of paddy remained below MSP during the last five marketing seasons though the difference between market price and MSP narrowed in KMS 2019-20 compared to KMS 2018-19 due to recovery in market prices. The market prices of maize improved during KMS 2019-20 and were 4.8 percent higher than MSP as a result of lower domestic production and higher demand. Though market prices of kharif pulses, namely, tur, moong and urad remained below MSP in KMS 2019-20, average market prices improved compared to previous two years. Similarly, market prices of kharif oilseeds remained below MSP on an average, the gap between MSP and average market price was significantly lower in KMS 2019-20 compared to earlier years.

Global Scenario

- 6.5 Global rice production in 2019 is forecast to be marginally lower than 2018 all-time record output, while global use of rice is estimated to increase by 5 to 6 million tonnes in 2019-20 over the previous year. Due to high opening stocks, global rice supplies are projected to increase. World rice trade is expected to register an increase during 2019-20 though reduced export forecasts for India and Thailand may adversely affect world rice exports. World maize production is estimated to increase as per FAO's forecast but IGC and USDA forecast decline in maize production in 2019-20. However all agencies forecast an increase in maize utilization due to higher food and feed demand. FAO and IGC forecast an increase in maize trade in 2019-20 though USDA forecast 8.1 percent decrease in maize trade. World coarse grains production and supply as well as utilization are forecast to increase marginally during 2019-20. The ending stocks and stock-to-use ratio are forecast to decline marginally in 2019-20 over the last year. Global oilseeds production is forecast to be lower in 2019-20 primarily driven by lower soybean forecasts for Brazil and Argentina, leading to lower global ending stocks. Protein meal production and ending stocks are also forecast to be lower in 2019-20. World production of soybean is forecast to decline sharply in 2019-20 due to unfavourable weather conditions, while utilization is projected to increase due to higher demand from China.

Agricultural Trade

- 6.6 India's share in world agri-exports and imports marginally declined in 2018 compared with 2017 but India has improved its share in world agricultural exports from 1.4 percent in 2010 to 2.2 percent in 2018 and global agricultural imports from 1.3 percent to 1.7 percent during 2010-2018. India's agri-exports increased by about 9.6 percent in 2018-19 but share of agri-exports in total exports decreased from 13.2 percent in 2017-18 to 12.3 percent in 2018-19 because total merchandise exports registered impressive growth of 18 percent. Agricultural imports were down 8 percent in value terms in 2018-19 and share of agri-imports in total imports declined from 5.9 percent in 2017-18 to 4.5 percent in 2018-19.
- 6.7 Agricultural trade growth slowed markedly during 2019-20 as India's agri-exports were 6.7 percent lower during April-December 2019 over April-December 2018



mainly due to lower exports of raw cotton, oil meals, guar gum meal and non-basmati rice. Non-basmati rice exports saw a steep decline from about 5.7 million tonnes to 3.6 million tonnes during the corresponding period, which is a major cause of concern and special efforts are needed to boost non-basmati exports.

Procurement Operations and Efficacy

- 6.8 Procurement of rice increased by about 6.2 million tonnes in 2018-19 over the previous year due to substantial increase in procurement in Telangana, Odisha, Andhra Pradesh and Chhattisgarh. Rice procurement during KMS 2019-20 is likely to be higher than KMS 2018-19. The share of rice procured as percent of total production varied widely across States ranging from a high of 89 percent in Punjab to less than 20 percent in West Bengal and Uttar Pradesh. The current stock of rice and wheat, as on 1st February 2020, was 23.7 percent higher than last year's stock and is 2.7 times higher than the stocking norm as on 1st January 2020. The rice stocks were 20.4 percent higher than last year and 2.6 times more than the stocking norms. In case of pulses, NAFED procured about 61.3 lakh tonnes of pulses during last five years (2014-15 to 2018-19) compared with about 1.5 lakh tonnes during 2009-10 to 2013-14 under the PSS. However, stocks of pulses with the government in the current year are lower than the last year.

Drivers of Productivity

- 6.9 Since productivity improvement is the solution to increasing cost of production and improve competitiveness, significant investment in technology, irrigation, agriculture R&D and infrastructure is needed. Addressing the yield gap is critical to reduce costs and increase profitability, as productivity levels of various crops in India are quite lower than potential yields and benchmark countries.

Terms of Trade

- 6.10 The Farmers' Terms of Trade (FToT) index, measured as average changes to prices that farmers receive for their products and the prices paid for inputs to production, has remained constant during the current decade and was lower than last decade due to low global commodity prices and steep rise in agricultural wages, diesel and other farm inputs during the 2010s. The net barter Terms of Trade for Agriculture (AGRToT), which includes both farmers and agricultural labourers, have shown improvement and higher growth rate than FToT. The index of AGRToT has improved faster than FToT after 2012-13 and the gap between the two has widened. However, index of terms of trade for agriculture sector as well as farmers showed a declining trend during 2017-18 and 2018-19 primarily driven by low agriculture prices.

Cost of Production and Profitability

- 6.11 At all-India level gross rate of returns, i.e., relative profit over A_2 +FL cost of cultivation are highest for tur (77.8%), followed by urad (72.9%) and groundnut (47.5%). At the other extreme with negative gross returns (-10.5%) is nigerseed. Analyzing inter-crop



parity reveals that arhar (tur), groundnut and cotton have higher profitability than paddy over A_2+FL cost while maize, nutri-cereals, moong, urad, soybean, sunflower, sesamum and nigerseed are losing out in relation to paddy. All-India composite input price index (CPII) for kharif crops showed an increase of 5.1 percent in KMS 2020-21 over the last year. The projected A_2+FL CoP of kharif crops for the 2020-21 marketing season are estimated to be: ₹1245 per quintal for paddy, ₹1746 per quintal for jowar, ₹1175 per quintal for bajra, ₹1213 per quintal for maize, ₹2194 per quintal for ragi, ₹3796 per quintal for tur, ₹4797 per quintal for moong, ₹3660 per quintal for urad, ₹3515 per quintal for groundnut, ₹2587 per quintal for soybean, ₹3921 per quintal for sunflower, ₹4570 per quintal for sesamum, ₹4462 per quintal for nigerseed and ₹3676 per quintal for cotton.

- 6.12 Keeping in view all the factors outlined above, the Commission recommends the following non-price policy measures and MSPs of different kharif crops.

Non-Price Policy Recommendations

Review Open Ended Procurement Policy

- 6.13 Open-ended procurement policy for rice and wheat coupled with the higher production has led to huge stocks putting pressure on storage capacity and increasing storage cost. The record production of wheat in 2019-20 is likely to put further pressure on country's foodgrains storage. Therefore, it is essential to liquidate excess stocks by making additional allocation of foodgrains to Antyodaya Anna Yojana (AAY) beneficiaries, Priority Households (PHH) under National Food Security Act (NFSA) and Other Welfare Schemes (OWS).
- 6.14 The Commission reiterates the need for reviewing open-ended procurement policy and explore alternatives like restricting procurement from only from small and marginal farmers or putting a ceiling for procurement from semi-medium, medium and large farmers, especially in States, where groundwater table is depleting fast and impose high market fee and other charges and pay bonus. Efforts should be made to expand rice procurement operations in other rice producing States like West Bengal, Uttar Pradesh, Assam, Bihar, etc. to meet at least the State requirements under NFSA and OWS.

Promote Private Sector Participation

- 6.15 To encourage private sector participation in agricultural marketing, the Agricultural Produce Marketing Committee (APMC) Act and the Essential Commodities Act (ECA) need to be amended/modified as these are perceived to be major impediments. The Commission recommends that renewal of licensing under ECA should be removed/simplified and States/UTs should be persuaded to adopt the Model Agricultural Produce & Livestock Marketing (Promotion & Facilitation) Act, 2017. Development of proper assaying and grading of produce will help in strengthening electronic-National Agriculture Market (e-NAM) to provide farmers a better and efficient platform for price discovery.



Special Scheme for North-Eastern Region

- 6.16 Rice procurement in North-Eastern States is negligible against total production of about 7.3 million tonnes due to lack of storage, milling infrastructure and procurement centres, high moisture content, lower out-turn ratio, etc. Due to the lack of procurement operations, farmers in the region do not benefit from price support operations and market prices remain significantly below MSP. The NE region requires about 2.7 million tonnes of rice from the Central Pool under NFSA and other welfare schemes, which is primarily transported from Northern States resulting in transportation cost to the tune of about ₹600-650 crore.
- 6.17 The Commission recommends that a special Scheme should be designed for the NE region through a public-private partnership for development of storage and warehousing infrastructure, modern milling facilities and procurement centres in the region and an amount of ₹200-300 crore should be allocated for the same.

Reserve Price for Open Market Sale of Pulses and Oilseeds

- 6.18 Disposal of stocks of pulses and oilseeds procured under the PSS by NAFED has been a challenge. The announcement of disposal of the stocks of commodities depress market sentiments and stocks are generally sold below MSP, thereby, discouraging direct procurement by private sector.
- 6.19 The Commission recommends that government should not sell these stocks in open market below the MSP, particularly during procurement season, and frame a policy for disposal of stocks at a Reserve Price linked to MSP as is being followed for wheat and rice under Open Market Sales Scheme (Domestic).

Crop Diversification

- 6.20 There is a need for reorienting policy direction by adopting measures that reduce market distortions and promote demand-driven crop diversification. Maize, pulses and oilseeds have great potential for crop diversification in rice-wheat cropping system areas, where substantial groundwater depletion has occurred but these crops have low profitability compared to competing crop like rice, due to low and fluctuating prices. The Commission is of the view that the appropriate strategy should be to shift focus from cereals to these crops by providing better price incentives and supportive marketing and procurement mechanism. Concerted efforts have been made over the last few years to realign the MSPs in favour of oilseeds, pulses and coarse cereals to encourage farmers shift larger area under these crops and adopt best technologies and farm practices.
- 6.21 The Commission recommends that the Government should ensure assured MSP to maize and oilseeds farmers through effective implementation of 'Price Deficiency Payment Scheme' and 'Private Procurement and Stockist Scheme'. The Commission suggests that maize, oilseeds, and pulses be given additional incentives on per hectare basis, which could be equal to the difference of returns from rice and these crops and such incentive will be WTO compatible under payments under environmental programmes.



- 6.22 Maize is a good feedstock for ethanol production due to its starch content, therefore, the Commission recommends that use of maize should be allowed for ethanol production, which will increase demand for maize and ensure remunerative prices to farmers.

Promote Nutri-Cereals

- 6.23 Nutri-cereals are climate-resilient and have potential health and nutritional benefits but area under these crops has declined in post-green revolution period. Inclusion of nutri-cereals in PDS can lead to positive nutritional and health outcomes. Government of Odisha has launched a “Special Programme for Promotion of Millets in Tribal Areas” to revive millets in rainfed areas, promote procurement and household consumption through inclusion of millets in PDS and other welfare schemes.
- 6.24 The Commission recommends that nutri-cereals growing States should develop effective mechanism of procurement and distribute these cereals under NFSA and other welfare schemes to ensure remunerative prices to farmers and better nutrition to consumers. Special efforts should be made to develop appropriate technologies for value-addition and health food-products, which will help in boosting demand from urban population. There is also an urgent need to improve productivity of nutri-cereals to improve profitability and ensure better prices to farmers.

Focus on Improving Crop Productivity

- 6.25 A prudent response to meet the rising demand for food and ever-increasing cost of production lies in productivity enhancement. As yield gaps in most crops in India compared to the potential yield levels and those of benchmark countries remain significant, an attempt needs to be made to bridge these gaps and policy should focus on measures to improve long-term productivity and sustainability.
- 6.26 Major factors that drive productivity, such as quality seed, irrigation, access to quality inputs, improved access to extension and credit, investment in productivity-enhancing technologies and scientific management practices need to be strengthened. Enhancing crop productivity also requires a stable and supportive policy and regulatory environment to remove market distortions, provide an enabling environment for private sector participation and encourage entrepreneurship and innovations.

Soil Health Management

- 6.27 Efficient nutrient management is essential for improving crop productivity and sustaining soil health and fertility. However, imbalanced application of fertilizer nutrients and lack of secondary and micronutrient application have become major issues in India. In order to achieve balanced use of NPK and improve fertilizer use efficiency, two-fold strategy needs to be devised. First, there is a need to ensure price parity between various types of fertilizers. Therefore, the Commission recommends that urea should be brought under the nutrient-based subsidy (NBS) scheme or



quantity of subsidised urea per hectare should be fixed based on information from soil health card, extent of irrigation and cropping pattern. Second, coordinated efforts should be made to create awareness about balanced use of fertilizers among farmers, manufacture customized fertilizers and making them available to farmers.

Farm Mechanization

- 6.28 In order to address the issue of labour scarcity and rising wages mainly during peak agricultural season, there is a need to promote farm mechanization. Given that nearly 86 percent of farmers in India are small and marginal, there is a need to develop customized farm machinery and promote Custom Hiring Centres (CHCs) to make available farm machinery to small and marginal farmers on rental basis. There is a need for policy support for development and promotion of appropriate farm mechanization technologies and create awareness among farmers through demonstrations and capacity building. Adoption of appropriate mechanization of farming operations will help in reducing costs and improving profitability.

Improve Reach of Agricultural Credit

- 6.29 The flow of credit to agricultural sector has more than tripled during the last decade but there are several issues and challenges that need to be addressed. Significant share of farmers is still dependent on non-institutional sources and large number of tenant farmers/share croppers do not have access to institutional credit. There are also regional disparities in agricultural credit disbursement as in some States like Tamil Nadu, Telangana and Punjab disbursement of agricultural credit as percentage of agricultural GSDP is more than 100 percent indicating the possibility of diversion of credit to non-agricultural purposes while the ratio is quite low for Assam, Jharkhand, West Bengal, Madhya Pradesh and Chhattisgarh. Therefore, appropriate policy initiatives must be undertaken to reduce regional imbalance by improving the credit off-take in Central, Eastern and North-eastern States.

Storage and Warehousing

- 6.30 There has been a good progress in storage and warehousing infrastructure in the country but the sector is fragmented and mainly controlled by unorganized players. Negotiable Warehousing Receipts (NWRs) system, which was launched in 2011 to provide loan to farmers against the warehouse receipts to prevent distress sale by farmers, has not witnessed substantial growth due to various reasons. Additional storage and warehousing facilities should be created and existing storage systems be upgraded. Creation of additional storage facilities at farm gate will help farmers to store their produce and sell at later period when market prices improve. Special efforts should be made to create awareness, popularize and incentivize negotiable warehouse receipt financing scheme among farmers as some States such as Andhra Pradesh, Telangana, Karnataka, etc. provide incentives for promoting pledge finance scheme.



Farmer Producer Organizations (FPOs)

- 6.31 Organizing farmers into Producer Organisations (POs) has the potential to address the challenges faced by the small and marginal farmers through improved bargaining power and help in reducing cost of production and marketing cost, improved access to modern technologies, infrastructure and value-chains, easier access to credit and other services. In the last decade, concerted efforts have been made by the Government to create and strengthen FPOs.
- 6.32 About 3000 FPOs have already been promoted/supported by NABARD, while 900 FPOs have been registered/are under the process of registration by Small Farmers' Agri-business Consortium (SFAC). About 63.4 lakh mahila kisans have been supported through Mahila Kisan Sashaktikaran Pariyojana (MKSP) under Deendayal Antayodaya Yojana (DAY-NRLM) of Ministry of Rural Development and an additional 33.6 lakh mahila kisans will be supported during 2019-20. Most of these FPOs are at a nascent stage of their operations, hence, there is a need to provide professional managerial support and adequate access to capital and infrastructure facilities for strengthening market linkages and sustaining business operations.

Direct Income Support and Social Safety Net for Farmers

- 6.33 In order to provide direct income support and social security to farmers, Government of India has launched two major Schemes, Pradhan Mantri Kisan SAMman Nidhi (PM-KISAN) and Pradhan Mantri Kisan Maandhan Yojana (PM-KMY), Central Sector Schemes with 100 percent funding from the Central Government. PM-KISAN provides direct income support and has made good progress but performance of PM-KMY, social security scheme, has been slow, as only 19.9 lakh farmers have joined the Scheme so far. Therefore, special efforts should be made to raise awareness among beneficiary farmers about the Scheme and increase participation of eligible farmers in the Scheme.

Managing Production Risks

- 6.34 Pradhan Mantri Fasal Bima Yojna (PMFBY) has made good progress since the launch in kharif 2016 season, but faces major challenges like lack of awareness among farmers, assessment of loss, delay in settlement of claims, late payment of State share of premium, etc. To address some of these challenges, Government revamped the Scheme to make it voluntary for all farmers and introduced several other modifications like use of Smart Sampling Technique (SST) and optimization of number of Crop Cutting Experiments (CCEs), etc. Efforts should be made to create awareness about benefits of the Scheme among farmers and use technology for crop loss assessment for timely settlement of claims.

Distortions in Agricultural Markets

- 6.35 Many State Governments impose market fee, rural development fee and various incidental charges as well as pay additional bonus over MSP announced by the



Central Government, which distort agricultural markets and crowd out private trade. Bonuses also affect inter-crop parity and discourage farmers from crop diversification. In addition, Agricultural Produce Market Committee (APMC) Act and Essential Commodities Act (ECA) are major constraints in the agricultural marketing system. The Central and State Governments should undertake a holistic review of the ECA and APMC Act and their implementation. The Commission recommends that procurement of grains should be restricted in those States that impose high fees/incidental charges and pay bonus.

Problem of Wild and Stray Animals

- 6.36 Crop damages by wildlife invasions and stray animals have increased in many areas. Therefore, there is a need to address the problem on priority and explore feasibility of installing community electric/solar fencing or digging trenches near farms on community-based approach. Apart from this, utilization of funds under Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and other Schemes may be allowed to use for protection of crops from wild and stray animals.

MSP Awareness and Publicity

- 6.37 The Central and State Governments should make wide publicity of MSP and various components of PM-ASHAA, details of procurement centers, procurement period, registration/documents requirements, and information about procurement agencies. In addition, farmers should be trained about Fair Average Quality (FAQ) specifications of grains and provided required infrastructure to meet these specifications to receive better price.

Issues Related to Sample Size in Cost Estimation

- 5.38 In certain crops and States, the sample size under the 'Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops in India' is inadequate, which can adversely affect the reliability of cost estimates. For example, total sample size of nigerseed, sunflower and ragi is very small. The Commission, therefore, reiterates its earlier recommendation of increasing sample size at all-India level for nigerseed, sunflower and ragi and for other crops in the States having significant share in all-India production or within the State in a particular crop group to have more reliable cost estimates.

Price Policy Recommendations

- 6.39 Considering all these factors, the Commission recommends the following MSPs of different kharif crops: Paddy (Common) ₹1868 per quintal; Paddy (Grade A) ₹1888 per quintal; Jowar (Hybrid) ₹2620 per quintal; Jowar (Maldandi) ₹2640 per quintal; Bajra ₹2150 per quintal; Ragi ₹3295 per quintal; Maize ₹1850 per quintal; Tur ₹6000 per quintal; Moong ₹7196 per quintal; Urad ₹6000 per quintal; Groundnut ₹5275 per quintal; Sunflower Seed ₹5885 per quintal; Soybean (Yellow) ₹3880 per quintal;



PRICE Policy for Kharif Crops

Sesamum ₹6855 per quintal; Nigerseed ₹6695 per quintal; Cotton ₹5515 per quintal for medium staple and ₹5825 per quintal for long staple (Table 6.1)

Table 6.1: MSPs Recommended for Kharif Marketing Season, 2020-21

(₹/qtl)

Crop	Projected A ₂ +FL Cost for KMS 2020-21	MSP for KMS 2019-20	Recommended MSP for KMS 2020-21	MSP as percent of A ₂ +FL
Paddy-Common	1,245	1,815	1868 (2.9)	150
Paddy-Grade A	-	1,835	1888 (2.9)	-
Jowar-Hybrid	1,746	2,550	2620 (2.7)	150
Jowar-Maldandi		2,570	2640 (2.7)	-
Bajra	1,175	2,000	2150 (7.5)	183
Ragi	2,194	3,150	3295 (4.6)	150
Maize	1,213	1,760	1850 (5.1)	153
Tur (Arhar)	3,796	5,800	6000 (3.4)	158
Moong	4,797	7,050	7196 (2.1)	150
Urad	3,660	5,700	6000 (5.3)	164
Groundnut	3,515	5,090	5275 (3.6)	150
Sunflower Seed	3,921	5,650	5885 (4.2)	150
Soybean (Yellow)	2,587	3,710	3880 (4.6)	150
Sesamum	4,570	6,485	6855 (5.7)	150
Nigerseed	4,462	5,940	6695 (12.7)	150
Cotton (Medium Staple)	3,676	5,255	5515 (4.9)	150
Cotton (Long Staple)	-	5,550	5825 (5.0)	-

Note: Figures in parenthesis represent increase in MSP over the previous year

The Commission is of the considered view that these non-price and price policy recommendations would incentivize farmers to adopt new technologies and promote crop production pattern towards meeting the changing consumer demands and emerging market opportunities.

(Vijay Paul Sharma)

Chairman

(Anupam Mitra)
Member Secretary



Annexures

Annexures



Price Policy for KHARIF CROPS

Annex Table 1.1: All India Estimates of Area under Principal Crops

(million hectares)

Crops		2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
Rice	Kharif	40.81	37.62	38.05	40.14	38.91	39.45	39.83	39.66	39.85	39.35	39.96	38.99
	Rabi	4.73	4.30	4.81	3.87	3.84	4.69	4.28	3.84	4.15	4.42	4.19	4.47
	Total	45.54	41.92	42.86	44.01	42.75	44.14	44.11	43.50	43.99	43.77	44.16	43.46
Wheat	Rabi	27.75	28.46	29.07	29.86	30.00	30.47	31.47	30.42	30.79	29.65	29.32	31.05
Jowar	Kharif	2.89	3.24	3.07	2.62	2.43	2.28	2.27	2.14	2.06	2.06	1.75	1.69
	Rabi	4.64	4.55	4.31	3.63	3.79	3.52	3.89	3.94	3.57	2.96	2.34	2.79
	Total	7.53	7.79	7.38	6.25	6.21	5.79	6.16	6.08	5.62	5.02	4.09	4.48
Bajra	Kharif	8.75	8.90	9.61	8.78	7.30	7.81	7.32	7.13	7.46	7.48	7.11	6.77
Maize	Kharif	6.89	7.06	7.28	7.38	7.21	7.31	7.56	7.18	7.84	7.43	7.33	7.45
	Rabi	1.28	1.20	1.27	1.40	1.46	1.76	1.62	1.63	1.79	1.95	1.70	1.55
	Total	8.17	8.26	8.55	8.78	8.67	9.07	9.19	8.81	9.63	9.38	9.03	9.00
Ragi	Kharif	1.38	1.27	1.29	1.18	1.13	1.19	1.21	1.14	1.02	1.19	0.89	0.97
Barley	Rabi	0.71	0.62	0.71	0.64	0.70	0.67	0.71	0.59	0.66	0.66	0.58	0.70
Nutri/ Coarse Cereals	Kharif	20.83	21.31	22.05	20.75	18.82	19.27	18.95	18.23	18.99	18.71	17.53	17.35
	Rabi	6.62	6.37	6.29	5.67	5.94	5.95	6.22	6.15	6.01	5.57	4.61	5.04
	Total	27.45	27.68	28.34	26.42	24.76	25.22	25.17	24.39	25.01	24.29	22.15	22.39
Cereals	Kharif	61.64	58.92	60.10	60.89	57.73	58.72	58.78	57.89	58.84	58.06	57.50	56.34
	Rabi	39.10	39.13	40.17	39.40	39.78	41.11	41.97	40.42	40.95	39.65	38.12	40.56
	Total	100.74	98.05	100.27	100.29	97.52	99.83	100.75	98.31	99.79	97.71	95.62	96.90
Tur (Arhar)	Kharif	3.38	3.47	4.37	4.01	3.89	3.90	3.85	3.96	5.34	4.44	4.55	4.30
Gram	Rabi	7.89	8.17	9.19	8.30	8.52	9.93	8.25	8.40	9.63	10.56	9.55	10.30
Urad	Kharif	2.02	2.23	2.51	2.36	2.44	2.35	2.49	2.72	3.48	4.35	4.73	3.64
	Rabi	0.65	0.73	0.74	0.86	0.69	0.72	0.76	0.90	1.00	0.93	0.88	0.70
	Total	2.67	2.96	3.25	3.22	3.13	3.06	3.25	3.62	4.48	5.28	5.60	4.34
Moong	Kharif	2.24	2.46	2.85	2.61	1.97	2.34	2.03	2.76	3.37	3.26	3.83	3.43
	Rabi	0.60	0.63	0.76	0.78	0.74	1.04	0.99	1.07	0.96	0.98	0.92	0.83
	Total	2.84	3.07	3.51	3.39	2.72	3.38	3.02	3.83	4.33	4.24	4.75	4.26
Lentil (Masur)	Rabi	1.38	1.48	1.60	1.56	1.42	1.34	-	-	-	1.55	1.36	1.37
Pulses	Kharif	9.81	10.58	12.32	11.19	9.95	10.33	9.99	11.31	14.36	13.93	14.83	13.14
	Rabi	12.29	12.70	14.08	13.27	13.30	14.88	13.56	13.60	15.08	15.88	14.33	14.72
	Total	22.09	23.28	26.40	24.46	23.26	25.21	23.55	24.91	29.45	29.81	29.16	27.87
Foodgrains	Kharif	71.45	69.51	72.42	72.08	67.69	69.05	68.77	69.21	73.20	72.00	72.33	69.48
	Rabi	51.39	51.83	54.25	52.67	53.09	55.99	55.53	54.01	56.03	55.53	52.45	55.29
	Total	122.83	121.33	126.67	124.75	120.78	125.04	124.30	123.22	129.23	127.52	124.78	124.77
Groundnut	Kharif	5.29	4.62	4.98	4.32	3.93	4.65	4.01	3.84	4.58	4.14	4.13	4.06
	Rabi	0.88	0.86	0.88	0.95	0.79	0.86	0.76	0.76	0.76	0.75	0.60	0.69
	Total	6.16	5.48	5.86	5.26	4.72	5.51	4.77	4.60	5.34	4.89	4.73	4.74
Sesamum	Kharif	1.81	1.94	2.08	1.90	1.71	1.68	1.75	1.95	1.67	1.58	1.42	1.49
Nigerseed	Kharif	0.39	0.38	0.37	0.36	0.31	0.30	0.23	0.25	0.26	0.22	0.16	0.23
Soybean	Kharif	9.51	9.73	9.60	10.11	10.84	11.72	10.91	11.60	11.18	10.33	11.13	12.14
Sunflower	Kharif	0.66	0.57	0.32	0.26	0.30	0.25	0.22	0.16	0.17	0.14	0.12	0.11
	Rabi	1.15	0.91	0.61	0.47	0.53	0.42	0.37	0.33	0.21	0.15	0.14	0.18
	Total	1.81	1.48	0.93	0.73	0.83	0.67	0.59	0.49	0.38	0.28	0.26	0.29
Rapeseed/ Mustard	Rabi	6.30	5.59	6.90	5.89	6.36	6.65	5.80	5.75	6.07	5.98	6.12	6.07
Safflower	Rabi	0.29	0.29	0.24	0.25	0.18	0.18	0.17	0.13	0.17	0.08	0.05	0.05
Nine Oilseeds	Kharif	18.53	17.97	18.23	18.42	18.32	19.65	18.21	18.86	18.67	17.23	17.71	19.08
	Rabi	9.03	7.99	9.00	7.89	8.16	8.40	7.39	7.22	7.51	7.28	7.09	7.23
	Total	27.56	25.96	27.22	26.31	26.48	28.05	25.60	26.09	26.18	24.51	24.79	26.31
Sugarcane		4.42	4.17	4.88	5.04	5.00	4.99	5.07	4.93	4.44	4.74	5.06	4.55
Cotton		9.41	10.13	11.24	12.18	11.98	11.96	12.82	12.29	10.83	12.59	12.61	13.28
Jute		0.79	0.81	0.77	0.81	0.78	0.76	0.75	0.73	0.71	0.69	0.67	0.67
Mesta		0.12	0.09	0.10	0.10	0.09	0.08	0.06	0.05	0.06	0.06	0.04	0.05
Jute & Mesta		0.90	0.91	0.87	0.90	0.86	0.84	0.81	0.78	0.76	0.74	0.70	0.71

Note: *Second Advance Estimates (2019-20)

Source: Directorate of Economics & Statistics, Ministry of Agriculture & Farmers Welfare

Price Policy for Kharif Crops



Annex Table 1.2: All India Estimates of Production of Principal Crops

(million tonnes)

Crops		2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
Rice	Kharif	84.91	75.92	80.65	92.78	92.37	91.50	91.39	91.41	96.30	97.14	102.04	101.95
	Rabi	14.27	13.18	15.33	12.52	12.87	15.15	14.09	13.00	13.40	15.62	14.44	15.53
	Total	99.18	89.09	95.98	105.30	105.24	106.65	105.48	104.41	109.70	112.76	116.48	117.47
Wheat	Rabi	80.68	80.80	86.87	94.88	93.51	95.85	86.53	92.29	98.51	99.87	103.60	106.21
Jowar	Kharif	3.05	2.76	3.44	3.29	2.84	2.39	2.30	1.82	1.96	2.27	1.74	1.72
	Rabi	4.19	3.94	3.56	2.69	2.44	3.15	3.15	2.42	2.60	2.53	1.74	2.66
	Total	7.25	6.70	7.00	5.98	5.28	5.54	5.45	4.24	4.57	4.80	3.48	4.38
Bajra	Kharif	8.89	6.51	10.37	10.28	8.74	9.25	9.18	8.07	9.73	9.21	8.66	8.90
Maize	Kharif	14.12	12.29	16.64	16.49	16.20	17.14	17.01	16.05	18.92	20.12	19.41	19.86
	Rabi	5.61	4.43	5.09	5.27	6.05	7.11	7.16	6.51	6.98	8.63	8.30	8.22
	Total	19.73	16.72	21.73	21.76	22.26	24.26	24.17	22.57	25.90	28.75	27.72	28.08
Ragi	Kharif	2.04	1.89	2.19	1.93	1.57	1.98	2.06	1.82	1.39	1.99	1.24	1.68
Barley	Rabi	1.69	1.35	1.66	1.62	1.75	1.83	1.61	1.44	1.75	1.78	1.63	1.88
Nutri/Coarse Cereals	Kharif	28.54	23.83	33.08	32.44	29.80	31.20	30.94	28.15	32.44	34.03	31.38	32.49
	Rabi	11.49	9.72	10.32	9.58	10.25	12.09	11.92	10.37	11.33	12.94	11.67	12.75
	Total	40.04	33.55	43.40	42.01	40.04	43.29	42.86	38.52	43.77	46.97	43.06	45.24
Cereals	Kharif	113.49	99.78	113.77	125.22	122.16	122.70	122.34	119.56	128.74	131.16	133.42	134.44
	Rabi	106.40	103.65	112.48	116.98	116.63	123.09	112.53	115.66	123.24	128.44	129.71	134.49
	Total	219.89	203.44	226.24	242.20	238.78	245.79	234.87	235.22	251.98	259.60	263.13	268.93
Tur (Arhar)	Kharif	2.27	2.46	2.86	2.65	3.02	3.17	2.81	2.56	4.87	4.29	3.32	3.69
Gram	Rabi	7.06	7.48	8.22	7.70	8.83	9.53	7.33	7.06	9.38	11.38	9.94	11.22
Urad	Kharif	0.84	0.81	1.40	1.23	1.43	1.15	1.28	1.25	2.18	2.75	2.36	1.72
	Rabi	0.33	0.43	0.36	0.53	0.47	0.55	0.68	0.70	0.66	0.74	0.70	0.53
	Total	1.17	1.24	1.76	1.77	1.90	1.70	1.96	1.95	2.83	3.49	3.06	2.25
Moong	Kharif	0.78	0.44	1.53	1.24	0.79	0.96	0.87	1.00	1.64	1.43	1.78	1.77
	Rabi	0.26	0.25	0.27	0.40	0.40	0.65	0.64	0.59	0.52	0.59	0.67	0.50
	Total	1.03	0.69	1.80	1.63	1.19	1.61	1.50	1.59	2.17	2.02	2.46	2.27
Lentil (Masur)	Rabi	0.95	1.03	0.94	1.06	1.13	1.02	-	-	-	1.62	1.23	1.39
Pulses	Kharif	4.69	4.20	7.12	6.06	5.92	5.99	5.73	5.53	9.58	9.31	8.09	7.92
	Rabi	9.88	10.46	11.12	11.03	12.43	13.25	11.42	10.82	13.55	16.11	13.98	15.11
	Total	14.57	14.66	18.24	17.09	18.34	19.25	17.15	16.35	23.13	25.42	22.08	23.02
Foodgrains	Kharif	118.14	103.95	120.85	131.27	128.07	128.69	128.06	125.09	138.33	140.47	141.52	142.36
	Rabi	116.33	114.15	123.64	128.01	129.06	136.35	123.96	126.47	136.78	144.55	143.69	149.60
	Total	234.47	218.11	244.49	259.29	257.13	265.04	252.02	251.57	275.11	285.01	285.21	291.95
Groundnut	Kharif	5.62	3.85	6.64	5.13	3.19	8.06	5.93	5.37	6.05	7.60	5.39	6.95
	Rabi	1.55	1.58	1.62	1.84	1.51	1.66	1.47	1.37	1.41	1.66	1.34	1.29
	Total	7.17	5.43	8.26	6.96	4.69	9.71	7.40	6.73	7.46	9.25	6.73	8.24
Sesamum	Kharif	0.64	0.59	0.89	0.81	0.69	0.71	0.83	0.85	0.75	0.76	0.69	0.66
Nigerseed	Kharif	0.12	0.10	0.11	0.10	0.10	0.10	0.08	0.07	0.09	0.07	0.05	0.08
Soybean	Kharif	9.91	9.96	12.74	12.21	14.67	11.86	10.37	8.57	13.16	10.93	13.27	13.63
Sunflower	Kharif	0.36	0.21	0.19	0.15	0.19	0.15	0.11	0.07	0.10	0.08	0.09	0.08
	Rabi	0.80	0.64	0.46	0.37	0.36	0.35	0.32	0.23	0.15	0.14	0.13	0.18
	Total	1.16	0.85	0.65	0.52	0.54	0.50	0.43	0.30	0.25	0.22	0.22	0.26
Rapeseed/ Mustard	Rabi	7.20	6.61	8.18	6.60	8.03	7.88	6.28	6.80	7.92	8.43	9.26	9.11
Safflower	Rabi	0.19	0.18	0.15	0.15	0.11	0.11	0.09	0.05	0.09	0.06	0.02	0.03
Nine Oil-seeds	Kharif	17.81	15.73	21.92	20.69	20.79	22.62	19.22	16.70	21.53	21.01	20.68	23.44
	Rabi	9.91	9.15	10.56	9.11	10.15	10.13	8.29	8.55	9.75	10.45	10.85	10.75
	Total	27.72	24.88	32.48	29.80	30.94	32.75	27.51	25.25	31.28	31.46	31.52	34.19
Sugarcane		285.03	292.30	342.38	361.04	341.20	352.14	362.33	348.45	306.07	379.90	405.42	353.84
Cotton\$		29.00	30.50	33.90	36.70	37.00	39.80	38.60	33.20		0.00	0.00	0.00
Cotton\$\$		22.28	24.02	33.00	35.20	34.22	35.90	34.81	30.01	32.58	32.81	28.04	34.89
Jute#		9.63	11.23	10.01	10.74	10.34	11.08	10.62	9.94	10.43	9.59	9.50	9.36
Mesta#		0.73	0.59	0.61	0.66	0.59	0.61	0.51	0.58	0.53	0.44	0.32	0.45
Jute & Mesta#		10.37	11.82	10.62	11.40	10.93	11.69	11.13	10.52	10.96	10.03	9.82	9.81

Note : * Second Advance Estimates (2019-20)

\$CAB estimates of million bales of 170 kgs each

\$\$DES estimates of Million bales of 170 kgs each

#Million bales of 180 kgs each

Source: 1. Directorate of Economics & Statistics, Ministry of Agriculture & Farmers Welfare
2. Cotton Advisory Board.

Annexures



Price Policy for Kharif Crops

Annex Table 1.3: All India Estimates of Yield of Principal Crops

(kg/ha)

Crops		2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
Rice	Kharif	2081	2018	2120	2311	2374	2319	2295	2305	2417	2469	2553	2615
	Rabi	3019	3064	3185	3238	3353	3232	3291	3382	3230	3531	3444	3472
	Total	2178	2125	2239	2393	2462	2416	2391	2400	2494	2576	2638	2703
Wheat	Rabi	2907	2839	2989	3177	3117	3145	2750	3034	3200	3368	3533	3421
Jowar	Kharif	1055	853	1119	1257	1171	1050	1014	849	954	1104	989	1019
	Rabi	904	865	827	741	644	896	808	615	730	853	744	952
	Total	962	860	949	957	850	957	884	697	812	956	849	977
Bajra	Kharif	1015	731	1079	1171	1198	1184	1255	1132	1305	1231	1219	1314
Maize	Kharif	2048	1740	2285	2234	2246	2346	2249	2236	2413	2706	2648	2666
	Rabi	4387	3694	4003	3765	4152	4050	4414	4006	3896	4436	4893	5287
	Total	2414	2024	2540	2478	2566	2676	2632	2563	2689	3065	3070	3118
Ragi	Kharif	1477	1489	1705	1641	1396	1661	1706	1601	1363	1662	1390	1726
Barley	Rabi	2394	2172	2357	2516	2521	2718	2280	2439	2663	2695	2837	2696
Nutri/Coarse Cereals	Kharif	1371	1119	1500	1563	1583	1619	1633	1544	1708	1818	1790	1873
	Rabi	1735	1525	1641	1689	1725	2034	1915	1686	1885	2323	2532	2528
	Total	1459	1212	1531	1590	1617	1717	1703	1579	1750	1934	1944	2021
Cereals	Kharif	1841	1693	1893	2056	2116	2089	2081	2065	2188	2143	2172	2244
	Rabi	2721	2649	2800	2969	2931	2995	2681	2862	3010	3074	3170	3140
	Total	2183	2075	2256	2415	2449	2462	2331	2393	2525	2609	2671	2692
Tur (Arhar)	Kharif	671	711	655	662	776	813	729	646	913	967	729	857
Gram	Rabi	895	915	895	928	1036	960	889	840	974	1078	1041	1090
Urad	Kharif	419	363	557	523	586	490	516	459	626	632	500	473
	Rabi	506	587	489	621	679	768	891	773	656	798	796	759
	Total	440	418	542	549	606	555	604	537	632	662	546	519
Moong	Kharif	348	180	538	475	398	410	428	363	488	440	466	516
	Rabi	423	397	354	508	539	620	640	554	546	600	727	597
	Total	364	226	514	483	436	475	498	416	500	477	516	532
Lentil (Masur)	Rabi	693	697	591	678	797	758	-			1047	901	1017
Pulses	Kharif	478	397	578	541	594	580	573	489	667	668	546	602
	Rabi	804	823	790	831	934	891	842	796	898	1015	976	1026
	Total	659	630	691	699	789	763	728	656	786	853	757	826
Foodgrains	Kharif	1654	1496	1669	1821	1892	1864	1862	1808	1890	1951	1957	2049
	Rabi	2264	2203	2279	2430	2431	2435	2232	2342	2441	2603	2740	2706
	Total	1909	1798	1930	2078	2129	2120	2028	2042	2129	2235	2286	2340
Groundnut	Kharif	1063	835	1335	1188	811	1735	1478	1399	1321	1834	1304	1713
	Rabi	1764	1830	1846	1938	1908	1926	1948	1801	1861	2222	2238	1880
	Total	1163	991	1411	1323	994	1764	1552	1465	1398	1893	1422	1738
Sesamum	Kharif	354	303	429	426	402	426	474	436	448	478	485	444
Nigerseed	Kharif	297	266	290	269	325	328	328	295	332	321	290	342
Soybean	Kharif	1041	1024	1327	1208	1353	1012	951	738	1177	1058	1192	1122
Sunflower	Kharif	540	378	608	566	622	621	512	420	567	627	766	714
	Rabi	696	700	748	783	674	826	866	698	737	924	874	987
	Total	639	576	701	706	655	750	736	608	660	782	826	884
Rapeseed/ Mustard	Rabi	1143	1183	1185	1121	1262	1185	1083	1183	1304	1410	1511	1502
Safflower	Rabi	642	621	617	580	591	638	515	416	567	673	537	570
Nine Oil-seeds	Kharif	961	875	1203	1123	1135	1151	1054	884	1153	1219	1168	1229
	Rabi	1097	1146	1174	1155	1244	1207	1126	1186	1300	1436	1531	1486
	Total	1006	958	1193	1133	1168	1168	1075	968	1195	1284	1271	1299
Sugarcane		64553	70020	70091	71667	68254	70520	71512	70720	69001	80198	80105	77753
Cotton \$		524	512	513	496	525	566	504	415	512			
Cotton\$\$		403	403	499	491	486	510	462			443	378	447
Jute		2207	2492	2329	2389	2396	2639	2549	2457	2660	2517	2569	2529
Mesta		1141	1122	1115	1248	1237	1338	1525	1945	1664	1420	1471	1795
Jute & Mesta		2071	2349	2192	2268	2281	2512	2473	2421	2585	2435	2508	2482

Note : * Second Advance Estimates (2019-20)

[§]CAB estimates

^{§§}DES estimates

Source : Directorate of Economics & Statistics, Ministry of Agriculture & Farmers Welfare



Annex Table 1.4: Share of Major States in All-India Production of Mandated Kharif Crops, TE2019-20

Rice		Jowar		Bajra		Maize		Ragi		Tur		Urad	
States	Share (%)	States	Share (%)	States	Share (%)	States	Share (%)	States	Share (%)	States	Share (%)	States	Share (%)
WB	13.5	MH	32.4	Raj	43.9	MP	14.0	Kar	62.9	MH	26.0	MP	38.9
UP	12.9	Kar	22.5	UP	20.6	Kar	13.9	TN	17.2	Kar	23.2	Raj	11.7
Pun	11.0	TN	11.6	Har	9.4	TN	9.0	Uttar	7.7	MP	11.8	AP	10.5
AP	7.1	Raj	9.8	Guj	7.9	Bih	8.6	MH	5.7	Guj	8.2	UP	10.1
Odi	6.4	MP	7.1	MP	7.3	TG	8.5	AP	2.5	UP	8.1	TN	9.1
Bih	6.0	AP	6.6	MH	5.6	MH	8.0	Odi	1.5	Jhar	6.1	MH	4.6
TG	5.8	UP	4.9	Kar	2.8	AP	6.7	Oths*	2.5	TG	5.9	Jhar	4.0
TN	5.5	Guj	2.4	TN	1.5	Raj	5.8			Odi	3.5	Guj	2.5
CG	5.3	TG	1.8	Oths *	1.0	UP	5.6			AP	3.2	WB	1.8
ASM	4.6	Oths*	0.9			WB	5.4			TN	1.3	Kar	1.6
Har	3.9					Guj	2.7			Oths*	2.8	ASM	1.4
MP	3.7					HP	2.6					CG	1.0
Jhar	2.9					Jhar	1.9					Oths*	2.8
Kar	2.9					Pun	1.7						
MH	2.8					CG	1.1						
Guj	1.7					Oths*	4.5						
Oths *	4.0												

(Contd.)



Annex Table 1.4: Share of Major States in All-India Production of Mandated Kharif Crops, TE2019-20

Moong		Groundnut		Sesamum		Nigerseed		Soybean		Sunflower		Cotton	
States	Share (%)	States	Share (%)	States	Share (%)	States	Share (%)	States	Share (%)	States	Share (%)	States	Share (%)
Raj	48.2	Guj	39.0	WB	31.0	Odi	34.1	MP	51.7	Kar	46.8	Guj	26.3
MP	10.2	Raj	17.4	MP	22.6	MP	29.5	MH	34.4	Odi	11.2	MH	21.8
MH	7.4	TN	11.5	Raj	11.6	CG	15.9	Raj	7.3	Har	6.6	TG	14.5
Kar	5.5	AP	9.4	UP	10.5	ASM	5.3	Kar	2.2	Bih	5.9	Raj	6.9
Bih	5.2	Kar	6.5	Guj	8.8	Jhar	3.5	TG	2.1	Pun	5.6	MP	6.1
AP	3.7	MP	4.3	TN	3.4	WB	3.5	Guj	1.1	WB	5.1	AP	6.0
Odi	3.6	TG	4.0	Kar	2.7	AP	3.0	Oths*	1.1	MH	4.8	Har	6.0
TN	3.2	MH	3.3	AP	1.7	MH	2.5			AP	4.4	Kar	5.0
Guj	3.2	WB	2.1	TG	1.4	Guj	1.5			TG	2.8	Pun	4.5
TG	2.4	UP	1.1	ASM	1.2	Kar	1.1			Guj	2.4	Odi	1.4
UP	2.1	Oths*	1.5	CG	1.0	Oths*	0.1			TN	2.0	TN	1.1
WB	1.8			Oths*	4.3					Oths*	2.6	Oths*	0.3
Jhar	1.0												
Oths*	2.5												

Note: * States having less than 1 percent share in total production have been included in 'Others'

Source : Directorate of Economics & Statistics, Ministry of Agriculture & Farmers Welfare



Annex Table 1.5: State-wise Number of Farmers covered under PMFBY, 2017-2019

States	Non-loanee Farmers			Loanee Farmers		
	2017	2018	2019	2017	2018	2019
A & N Islands	0	103	1	364	617	41
Andhra Pradesh	165681	722439	1337018	1647204	1724000	2653489
Assam	1767	50016	346554	53256	23122	29661
Bihar	24435	0	0	2278663	0	0
Chhattisgarh	230794	231975	384054	1243539	1337273	3636682
Goa	0	1	9	537	339	893
Gujarat	3072	7558	19264	1758761	2163469	2303716
Haryana	4576	9684	29503	1337140	1470217	1667380
Himachal Pradesh	2637	2135	2386	379089	265202	283256
Jammu & Kashmir	3049	2790	0	155923	150794	0
Jharkhand	1045489	1080609	915562	150028	213871	187671
Karnataka	1072263	1155743	1240551	1013447	797816	687493
Kerala	9243	9695	11600	46651	47279	46786
Madhya Pradesh	291158	302291	76738	6725004	7056087	7462709
Maharashtra	8019326	12964959	12827843	2189482	1827373	1738192
Manipur	297	0	2602	8812	0	684
Meghalaya	0	0	0	3468	0	841
Odisha	159743	287612	1891958	1733230	1814961	3061512
Puducherry	0	308	12894	0	0	16
Rajasthan	762	6938	102485	9099938	7102405	8252940
Sikkim	1172	31	1	285	204	20
Tamil Nadu	1031002	2016929	2992859	450844	529801	886551
Telangana	53461	107952	159471	1036457	691194	853283
Tripura	5301	2017	32962	6373	65	3435
Uttar Pradesh	76775	155000	182197	5344225	5985672	4328651
Uttarakhand	46394	30815	48818	175978	162069	162444
West Bengal	2021040	2262840	0	2038537	2876664	0
Total	14269437	21410440	22617330	38877235	36240494	38248346

Source: Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare



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Annex Table 1.6: Total Cost of Transportation of Rice from Northern States to North-Eastern States

State	Allotment of Foodgrains under all Schemes ('000 tonnes)						Rate (w.e.f. 1.12.2019) (₹/Qtl)	Total Cost for 2019-20 (₹ Crore)
	2017-18		2018-19		2019-20			
	Wheat	Rice	Wheat	Rice	Wheat	Rice		
Assam	129.38	1831.55	129.38	1849.59	69.49	1812.12	226.1	409.7
Arunachal Pradesh	0.00	92.62	0.00	93.14	1.02	92.48	243.4	22.5
Tripura	37.47	266.14	37.47	264.07	37.47	259.70	256.0	66.5
Manipur	10.27	183.34	2.69	182.57	0.00	179.23	241.4	43.3
Nagaland	4.42	159.84	0.19	165.81	0.00	161.09	260.0	41.9
Mizoram	1.70	128.78	1.40	144.23	1.40	71.62	256.0	18.3
Meghalaya	28.63	160.39	24.17	165.01	21.95	170.36	226.1	38.5
TOTAL	211.87	2822.67	195.30	2864.41	131.33	2746.59		640.8

Source: Food Corporation of India and CACP Calculations



Annex Table 2.1: World Supply and Use of Rice, Coarse Grains and Oilseeds

(million tonnes)

Crop	Year	Output	Total Supply	Trade	Total Use	Ending Stocks
Coarse Grains	2017-18	1361.6	1747.4	185.3	1376.1	371.2
	2018-19 (Est.)	1396.1	1767.3	211.3	1419.3	348.0
	2019-20 (Proj.)	1402.8	1750.7	200.1	1423.4	327.3
Oilseeds	2017-18	581.6	690.7	176.2	483.6	116.8
	2018-19 (Est.)	597.2	714.0	170.6	488.9	129.8
	2019-20 (Proj.)	580.1	709.9	175.0	497.9	117.4

Source: United States Department of Agriculture

Annex Table 2.2: Cotton World Supply, Use and Trade

(million 480-pound bales)

Year	"Beginning Stocks"	Production	Imports	Total Supply	Domestic Use	Exports	Total Consumption	"Ending Stocks"
2017-18	80.3	123.8	41.2	245.2	122.8	41.5	122.9	80.8
2018-19 (Est.)	80.8	118.6	42.5	241.9	120.3	41.4	120.4	80.2
2019-20 (Proj.)	80.2	121.6	43.6	245.3	118.2	43.6	118.3	83.4

Source: United States Department of Agriculture



Annex Table 2.3: List of DCP States for Rice and Wheat

States /UTs	DCP System for
A&N Islands	Rice
Andhra Pradesh	Rice
Bihar	Rice/Wheat
Chhattisgarh	Rice/Wheat
Karnataka	Rice
Kerala	Rice
Madhya Pradesh	Rice/Wheat
Odisha	Rice
Tamil Nadu	Rice
Telangana	Rice
Uttarakhand	Rice/Wheat
West Bengal	Rice/Wheat
Jharkhand (6 Districts)	Rice
Maharashtra	Rice
Gujarat	Rice/Wheat



Annex Table 3.1: Central Assistance released under PMKSY-PDMC (2015-16 to 2019-20 #)

(₹ In Crore)

States	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Andhra Pradesh	206.5	308.7	517.1	520.0	452.0	1552.3
Bihar	28.6	21.6	12.5	27.9	-	90.6
Chhattisgarh	20.3	44.8	55.0	43.4	32.2	163.5
Goa	0.3	0.8	0.0	1.2	0.5	2.8
Gujarat	213.1	274.0	300.0	272.5	280.0	1339.6
Haryana	35.0	27.0	14.0	27.4	16.8	120.2
Himachal Pradesh	7.6	8.5	19.3	26.0	18.0	79.4
Jharkhand	15.0	30.7	25.0	10.0	23.0	103.6
Jammu & Kashmir*	4.9	5.4	3.0	7.8	5.5	26.6
Karnataka	213.1	229.0	385.0	372.0	410.0	1609.2
Kerala	8.5	0.0	25.0	4.0	-	37.5
Madhya Pradesh	161.7	121.1	150.0	132.6	102.0	667.4
Maharashtra	107.3	305.7	362.5	360.0	325.0	1460.5
Odisha	28.7	39.7	48.0	58.0	30.0	204.4
Punjab	43.0	1.2	0.0	9.0	-	53.2
Rajasthan	142.8	129.0	107.5	168.5	75.0	622.8
Tamil Nadu	129.8	143.5	369.6	355.0	204.0	1201.8
Telangana	111.3	189.0	257.0	122.0	-	679.3
Uttarakhand	9.6	15.0	27.2	43.0	32.0	126.8
Uttar Pradesh	37.5	41.4	55.0	87.9	100.0	321.8
West Bengal	4.8	19.9	31.0	40.0	20.0	115.7
Arunachal Pradesh	2.6	2.0	8.3	12.5	18.0	43.4
Assam	5.0	11.0	3.0	30.0	42.0	91.0
Manipur	2.8	3.6	7.5	40.0	40.0	93.9
Meghalaya	1.4	0.0	3.3	12.0	-	16.7
Mizoram	3.3	8.1	12.3	27.8	45.0	96.5
Nagaland	2.3	4.5	11.8	35.0	53.0	106.6
Sikkim	4.9	5.4	4.0	55.2	31.8	101.3
Tripura	1.6	0.0	3.8	15.0	18.0	38.3
UTs	2.2	0.0	0.5	0.0	0.0	2.7
Grand Total	1555.4	1990.6	2818.1	2915.7	2373.7	11169.3

*- Jammu & Kashmir is UT now

as on 18.03.2020



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Annex 3.2: Physical Progress of Soil Health Cards (SHC) Scheme

State	Cycle I (2015-17)			Cycle II (2017-19)		
	Cumulative Target for Distribution of SHCs (in lakh)	Number of SHCs Distributed (in lakh)	Percent Progress of SHCs Distributed	Cumulative Target for Distribution of SHCs (in lakh)	Number of SHCs Distributed (in lakh)	Percent Progress of SHCs Distributed
Uttar Pradesh	169.9	169.9	100	233.3	203.5	87.3
Maharashtra	129.8	129.8	100	131.0	131.0	100.0
Madhya Pradesh	88.7	88.7	100	88.7	89.1	100.4
Karnataka	78.3	78.3	100	78.3	78.3	100.0
Andhra Pradesh	74.6	74.6	100	69.7	69.7	100.0
Tamil Nadu	70.0	70.0	100	69.7	69.7	100.0
Rajasthan	68.9	68.9	100	104.3	117.0	112.2
Bihar	64.7	64.7	100	72.4	60.2	83.2
Telangana	57.2	57.2	100	49.8	41.6	83.6
Gujarat	51.1	51.1	100	79.0	86.9	110.1
West Bengal	50.4	50.4	100	51.0	30.9	60.6
Haryana	42.3	42.3	100	45.4	39.6	87.3
Chhattisgarh	38.9	38.9	100	47.5	47.5	100.0
Odisha	23.7	23.7	100	33.4	12.9	38.6
Punjab	12.5	12.5	100	10.5	11.6	110.3
Assam	13.0	13.0	100	13.0	3.0	23.2
Jharkhand	6.4	6.4	100	6.4	2.9	45.2
Total	1073.9	1073.9	100	1247.9	1151.1	92.2

Source: Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare



Annex Table 4.1: Leading Exporters and Importers in World Merchandise Trade, 2018

(US\$ billion and percentage)

Rank	Exporters	Value	Share	Annual Percentage Change	Rank	Importers	Value	Share	Annual Percentage Change
1	China	2487.1	12.8	10	1	USA	2614.3	13.2	9
2	USA	1664.1	8.5	8	2	China	2135.9	10.8	16
3	Germany	1560.8	8.0	8	3	Germany	1285.6	6.5	11
4	Japan	738.4	3.8	6	4	Japan	748.7	3.8	11
5	Netherlands	722.7	16.1	11	5	United Kingdom	673.5	3.4	5
6	Korea, Republic of	604.9	3.1	5	6	France	672.6	3.4	9
7	France	581.8	3.0	9	7	Netherlands	646.0	3.3	12
8	Hong Kong, China	569.2	2.9	3	8	Hong Kong, China	627.5	3.2	6
	Domestic exports	12.9	0.1	-30		Retained imports (1)	154.6	0.8	12
	Re-exports	556.3	2.9	5					
9	Italy	546.6	2.8	8	9	Korea, Republic of	535.2	2.7	12
10	United Kingdom	485.7	2.5	10	10	India	510.7	2.6	14
11	Belgium	466.7	2.4	8	11	Italy	500.8	2.5	11
12	Mexico	450.6	2.3	10	12	Mexico	476.6	2.4	10
13	Canada	449.8	2.3	7	13	Canada (1)	469.0	2.4	6
14	Russian Federation	444.0	2.3	26	14	Belgium	450.1	2.3	10
15	Singapore	412.6	2.1	11	15	Spain	388.0	2.0	10
	Domestic exports	209.2	1.1	11					
	Re-exports	203.4	1.0	10					
16	United Arab Emirates (1)	345.5	1.8	10	16	Singapore	370.6	1.9	13
						Retained imports (1)	167.2	0.8	17
17	Spain	345.2	1.8	8	17	Chinese Taipei	286.3	1.4	10
18	Chinese Taipei	335.9	1.7	6	18	Switzerland	279.3	1.4	4
19	India	325.6	1.7	9	19	Poland	266.5	1.3	14
20	Switzerland	310.8	1.6	4	20	United Arab Emirates (1)	253.0	1.3	-6
21	Saudi Arabia, Kingdom of (1)	299.1	1.5	35	21	Thailand	249.7	1.3	13
22	Poland	260.6	1.3	11	22	Russian Federation (2)	249.1	1.3	5
23	Australia	256.9	1.3	11	23	Viet Nam (1)	244.2	1.2	15

(Contd.)

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Annex Table 4.1: Leading Exporters and Importers in World Merchandise Trade, 2018

(US\$ billion and percentage)

Rank	Exporters	Value	Share	Annual Percentage Change	Rank	Importers	Value	Share	Annual Percentage Change
24	Thailand	252.1	1.3	7	24	Australia (1)	235.7	1.2	3
25	Malaysia	247.4	1.3	14	25	Turkey	223.0	1.1	-5
26	Viet Nam (1)	245.6	1.3	15	26	Malaysia	217.5	1.1	12
27	Brazil	239.7	1.2	10	27	Austria	193.3	1.0	10
28	Czech Republic	202.2	1.0	11	28	Brazil (1)	188.7	0.9	20
29	Austria	184.7	0.9	10	29	Indonesia	188.7	0.9	20
30	Indonesia	180.2	0.9	7	30	Czech Republic	183.8	0.9	13
31	Turkey	168.0	0.9	7	31	Sweden	170.1	0.9	10
32	Sweden	166.0	0.9	8	32	Saudi Arabia, Kingdom of (1)	135.0	0.7	0
33	Ireland	164.6	0.8	20	33	Hungary	121.3	0.6	13
34	Hungary	125.9	0.6	11	34	Philippines	114.7	0.6	13
35	Norway	123.0	0.6	18	35	South Africa (1)	113.9	0.6	12
36	Denmark	109.0	0.6	6	36	Ireland	105.8	0.5	19
37	Iran (1)	107.9	0.6	16	37	Denmark	102.2	0.5	10
38	Slovak Republic	94.2	0.5	12	38	Romania	97.8	0.5	14
39	South Africa	94.0	0.5	6	39	Slovak Republic	94.0	0.5	13
40	Iraq (1)	89.4	0.5	41	40	Portugal	88.6	0.4	13
41	Qatar (1)	86.5	0.4	28	41	Israel (1)	87.8	0.4	22
42	Romania	79.7	0.4	13	42	Norway	87.6	0.4	6
43	Finland	76.1	0.4	12	43	Finland	78.5	0.4	11
44	Chile	75.5	0.4	9	44	Chile	74.2	0.4	14
45	Kuwait, the State of (1)	71.6	0.4	30	45	Egypt	72.0	0.4	17
46	Portugal	68.5	0.4	10	46	Argentina	65.4	0.3	-2
47	Philippines	67.5	0.3	-2	47	Greece	65.1	0.3	15
48	Argentina	61.6	0.3	5	48	Bangladesh (1)	61.5	0.3	16
49	Kazakhstan	61.0	0.3	26	49	Pakistan	60.5	0.3	5
50	Nigeria	60.7	0.3	36	50	Ukraine	57.0	0.3	15
	Total of above (3)	18166.8	93.3	-		Total of above (3)	18217.3	91.7	-
	World (3)	19475.4	100.0	10		World (3)	19866.5	100.0	10

Notes: (1) Secretariat estimates

(2) Imports are valued at f.o.b.

(3) Includes significant re-exports or imports for re-export

Source: World Trade Organisation



Annex Table 4.2: Top-10 Exporters and Importers of Agricultural Products, 2018

(US\$ billion and percentage)

	Value	Share in world exports/imports				Annual percentage change in value			
	2018	2000	2005	2010	2018	2010-18	2016	2017	2018
Exporters									
European Union (28)	681.4	42.0	44.4	39.5	37.4	3.1	2.4	8.1	5.6
Extra-EU (28) Exports	181.1	10.1	9.8	9.4	10.0	4.4	1.7	8.2	5.3
United States of America	172.3	13.0	9.8	10.5	9.5	2.4	0.7	3.3	1.5
Brazil	93.4	2.8	4.1	5.1	5.1	3.9	-3.8	14.1	6.3
China	82.8	3.0	3.4	3.8	4.5	6.1	3.0	2.3	9.0
Canada	69.3	6.3	4.9	3.8	3.8	3.6	-0.7	5.6	4.0
Indonesia	46.0	1.4	1.7	2.7	2.5	3.1	-1.6	25.9	-6.6
Thailand	43.6	2.2	2.1	2.6	2.4	2.7	1.2	17.7	0.4
India	39.3	1.1	1.2	1.7	2.2	6.9	-4.3	17.7	-0.5
Australia	38.0	3.0	2.5	2.0	2.1	4.4	-6.0	24.4	-9.6
Mexico	35.2	1.7	1.5	1.4	1.9	8.2	7.8	12.4	6.0
Above 10	1301.4	76.5	75.6	73.1	71.5	-	-	-	-

Importers									
European Union (28)	688.4	42.8	45.4	40.3	37.2	2.6	2.0	7.7	5.8
Extra-EU (28) Imports	186.4	13.3	12.6	11.0	10.1	2.4	0.0	6.6	5.2
China	195.2	3.3	5.0	7.8	10.5	7.6	-3.0	16.8	7.9
United States of America	171.2	11.6	10.7	8.4	9.3	4.9	1.6	6.5	0.9
Japan	82.6	10.5	7.3	5.6	4.5	0.8	0.7	6.9	4.4
Canada	40.3	2.6	2.4	2.3	2.2	2.9	-1.3	3.6	3.1
Korea, Republic of	38.6	2.2	1.9	1.9	2.1	4.8	-1.7	7.9	10.1
Russian Federation	30.8	1.3	1.9	2.6	1.7	-2.1	-5.7	16.0	2.3
Mexico	30.6	1.9	1.8	1.7	1.7	3.4	0.1	5.6	4.8
Hong Kong, China	30.1	-	-	-	-	4.8	3.4	2.0	4.0
Retained imports	18.6	1.1	0.8	1.0	1.0	4.2	2.5	-1.1	3.1
India	28.2	0.7	0.8	1.3	1.7	6.0	4.7	14.5	-15.0
Above 10	1324.5	77.9	78.0	72.8	71.8	-	-	-	-

Notes: (a) Secretariat estimate

(b) Imports are valued f.o.b.

Source: World Trade Organisation



Annex Table 4.3 : India's Total Exports and Imports vis-a-vis Agricultural Exports and Imports 2009-10 to 2018-19

(₹ '000 Crore)

Year	Total Exports	Agri-Export	Total Imports	Agri-Import
2009-10	845.5	88.9	1363.7	63.5
2010-11	1137.0	117.4	1683.5	63.5
2011-12	1466.0	187.2	2345.5	89.0
2012-13	1634.3	232.4	2669.2	117.7
2013-14	1905.0	268.7	2715.4	109.7
2014-15	1896.3	245.5	2737.1	144.8
2015-16	1716.4	222.5	2490.3	163.3
2016-17	1849.4	233.6	2577.7	185.3
2017-18	1956.5	258.7	3001.0	175.8
2018-19	2307.7	283.5	3594.7	161.9

Source: Directorate General of Commercial Intelligence & Statistics



Annex Table 4.4 : Major Export Destinations of Indian Rice in 2018-19 along with quantity exported 2016-17 to 2018-19

(Quantity in tonnes)

Country	Non Basmati			Country	Basmati		
	2016-17	2017-18	2018-19		2016-17	2017-18	2018-19
Nepal	583734	624853	768965	Iran	716582	877422	1483698
Senegal	676060	833059	720474	Saudi Arabia	809343	792480	867741
Benin	702182	778779	699005	Iraq	453741	429966	385733
Bangladesh	82688	2037980	529944	UAE	614657	429326	282378
Guinea	541574	461978	467691	Yemen Republic	130653	167688	201927
Côte d'Ivoire	375025	398490	438090	Kuwait	162676	166874	154748
Somalia	354677	328257	326919	U S A	108991	126791	135608
Indonesia	52214	39034	326006	U K	150537	180508	111925
Liberia	252382	264154	301112	Oman	83153	78083	87831
UAE	260219	273770	291576	Qatar	81963	81099	73568

Source: Directorate General of Commercial Intelligence & Statistics



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Annex Table 4.5: India's Top Import Origins of Pulses

(Tonnes)

Country	Peas		Country	Chana (Chickpea)			Moong		
	2018-19	2019-20 (Apr-Dec) Export		2018-19	2019-20 (Apr-Dec) Export	Share in 2018-19	2018-19	2019-20 (Apr-Dec) Export	Share in 2018-19
Canada	313401	365545	Sudan	67215	29382	36.1	23469	214	27.9
Ukraine	179273	85451	Myanmar	36150	18009	19.4	15648	16470	18.6
Russia	148666	67184	Tanzania	30764	88289	16.5	9485	17922	11.3
Other	210068	96600	Other	51819	164663	27.9	35439	33542	42.2
Total	851408	614780	Total	185947	300343	100	84042	68148	100

(Tonnes)

Country	Urad		Country	Lentil			Tur/Arhar		
	2018-19	2019-20 (Apr-Dec) Export		2018-19	2019-20 (Apr-Dec) Export	Share in 2018-19	2018-19	2019-20 (Apr-Dec)	Share in 2018-19
Myanmar	476488	196273	Canada	204234	575152	82.0	209269	109936	39.4
UAE	7247	3903	Australia	14960	75390	6.0	173570	142246	32.7
Singapore	4773	2093	Netherlands	10867	Nil	4.4	77228	50865	14.6
Other	1686	732	Other	18908	85156	7.6	70603	58794	13.3
Total	490194	203000	Total	248969	735698	100	530671	361841	100

Source: Directorate General of Commercial Intelligence & Statistics



Annex Table 4.6: Import Duty on Edible Oils

(in percent)

Product/Country	11.09.2017	17.11.2017	01.02.2018	01.03.2018	14.06.2018	01.01.2019	08.01.2020
Malaysia							
<i>Crude Palm Oil</i>	15.0	30.0	30.0	44.0	44.0	40.0	37.5
<i>RBD Palmolein</i>	25.0	40.0	40.0	54.0	54.0	45.0	45.0
Indonesia							
<i>Crude Palm Oil</i>	15.0	30.0	30.0	44.0	44.0	40.0	37.5
<i>RBD Palmolein</i>	25.0	40.0	40.0	54.0	54.0	50.0	45.0
Crude Soybean Oil	12.5	12.5	30.0	30.0	35.0	35.0	35.0
Crude Sunflower Oil	12.5	25.0	25.0	25.0	35.0	35.0	35.0
Refined Soybean Oil	20.0	35.0	35.0	35.0	45.0	45.0	45.0
Refined Sunflower Oil	20.0	35.0	35.0	35.0	45.0	45.0	45.0
Crude Groundnut Oil	12.5	12.5	30.0	30.0	35.0	35.0	35.0
Refined Groundnut Oil	20.0	20.0	35.0	35.0	45.0	45.0	45.0

Source: Central Board of Indirect Taxes & Customs



Annex Table 4.7: India's Agricultural Exports of Major Commodities

(₹ '000 Crore)

Commodity	Apr-Dec 2018	Apr-Dec 2019 (P)	Percent increase/ decrease over previous year	Share in Total Agri Exports
Marine Products	37845.9	38459.3	1.6	20.0
Rice	37109.1	31142.3	-16.1	16.2
Spices	16773.5	19772.6	17.9	10.3
Meat & Processed Meat	20024.6	18300.2	-8.6	9.5
Sugar	5978.2	8671.6	45.1	4.5
Oilseeds	5987.8	6639.8	10.9	3.4
Wood and Wood Products	5293.4	5372.5	1.5	2.8
Tobacco	5103.7	5037.3	-1.3	2.6
Castor Oil	4517.4	4961.9	9.8	2.6
Tea	4312.7	4622.2	7.2	2.4
Oil Meals	7242.5	4531.2	-37.4	2.4
Others	56018.2	44971.4	-19.7	23.4
Total	206207.0	192482.3	-6.7	100.0

Source: Directorate General of Commercial Intelligence & Statistics

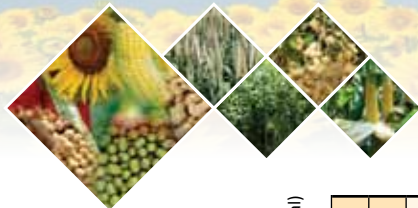


Annex Table 4.8: India's Agricultural Imports of Major Commodities

(₹ '000 Crore)

Commodity	Apr-Dec 2018	Apr-Dec 2019 (P)	Percent increase/ decrease over previous year	Share in Total Agri Imports
Vegetable Oils	52070.4	51077.3	-1.9	39.4
Wood and Wood Products	13336.2	12814.7	-3.9	9.9
Fresh Fruits	10530.5	10033.1	-4.7	7.7
Cotton (Raw)	3500.1	8576.5	145.0	6.6
Pulses	5629.1	8217.4	46.0	6.3
Spices	5558.9	8042.4	44.7	6.2
Cashew	10368.5	7222.2	-30.3	5.6
Natural Rubber	4948.7	3998.0	-19.2	3.1
Alcoholic Beverages	3298.0	3549.4	7.6	2.7
Others	14286.8	16091.5	12.6	12.4
Total	123527.2	129622.5	4.9	100.0

Source: Directorate General of Commercial Intelligence & Statistics



Annexures

Annex Table 4.9: Quarterly Domestic and International Prices of Kharif Crops

(₹/Quintal)

Quarter	Paddy*		Maize		Jowar		Arhar		Urad		Moong		Cotton**	
	D	I	D	I	D	I	D	I	D	I	D	I	D	I
2015 Q1	1434	1657	1332	1084	2167	1478	4955	5527	5499	5914	7288	8189	4090	3980
2015 Q2	1409	1583	1362	1068	2087	1366	6006	6925	6501	7583	7285	8127	4066	4263
2015 Q3	1363	1574	1398	1099	2020	1233	7696	8568	7397	7842	7057	7241	4150	4282
2015 Q4	1458	1586	1448	1102	2031	1162	8798	10884	9499	11040	7855	7878	4491	4259
2016 Q1	1442	1673	1456	1080	2136	1174	7591	8083	8521	10374	7009	7436	4569	4196
2016 Q2	1432	1827	1519	1145	2123	1163	7999	8785	9925	11254	6623	7022	4509	4425
2016 Q3	1461	1802	1578	1028	2289	1018	6816	7384	8855	8905	5463	5246	4788	4963
2016 Q4	1489	1635	1433	1026	2283	934	5566	5818	7003	7308	5053	4911	4918	4837
2017 Q1	1556	1637	1474	1076	2274	942	4330	4376	6049	5702	4944	5020	5493	5165
2017 Q2	1560	1535	1509	1016	2178	1019	3960	3785	5361	5233	5036	5608	4940	5085
2017 Q3	1566	1694	1486	972	2367	1077	3842	3760	4925	4340	4776	5340	5007	4757
2017 Q4	1638	1686	1356	963	2221	1107	3810	3693	4406	3917	4690	5483	4656	4791
2018 Q1	1623	1814	1298	1054	2079	1173	4004	3992	3921	4016	4933	5708	4571	5297
2018 Q2	1514	1943	1093	1161	2180	1146	3741	3703	3788	3490	4872	5917	4717	5765
2018 Q3	1450	1863	1037	1109	2495	1118	3628	3439	3857	3654	4972	5885	5872	6041
2018 Q4	1743	1889	1161	1173	2892	1153	4033	3942	3939	4330	5096	6185	5600	6463
2019 Q1	1691	1875	1793	1178	2358	1178	4928	4783	4057	4320	4855	6267	5382	6494
2019 Q2	1665	1930	1979	1223	2516	1133	5015	5287	4393	4636	5604	6735	5817	6742
2019 Q3	1639	2031	2074	1196	2785	1073	5001	5145	4568	4600	5448	6579	5655	6691
2019 Q4	1698	2038	1839	1188	2373	1163	4757	4982	5174	6997	5936	6865	4897	7245

(Contd...)



Annex Table 4.9: Quarterly Domestic and International Prices of Kharif Crops

(₹/Quintal)

Quarter	Soybean		Soybean Oil		Soybean Meal		Groundnut		Groundnut Oil		Sunflower Seed		Sunflower Oil	
	D	I	D	I	D	I	D	I	D	I	D	I	D	I
2015 Q1	3285	2678	6152	4501	2859	2471	3873	3079	9718	7612	3204	2716	5902	5068
2015 Q2	3569	2314	5942	4389	3368	2262	4140	3097	9658	7731	3007	2649	6213	5630
2015 Q3	3235	2362	5767	4114	2980	2333	4460	3100	10387	8380	3236	2800	6387	5325
2015 Q4	3616	2322	6142	4439	3354	2146	3978	2628	9300	8443	3508	3110	6717	5706
2016 Q1	3590	2248	6153	4530	3348	2041	4056	2885	9616	8273	3511	3072	6759	5754
2016 Q2	3895	2715	6382	4794	3639	2650	4722	2870	11912	8784	3361	2863	6753	5744
2016 Q3	3456	2750	6446	4881	3168	2503	4794	2810	13474	9089	3227	2708	6623	5478
2016 Q4	2887	2607	6924	5438	2455	2250	4027	2784	10141	9454	3133	2823	6679	5628
2017 Q1	2866	2598	6847	5110	2325	2335	4207	2937	9770	9444	2981	2772	6414	5380
2017 Q2	2905	2293	6251	4671	2414	2002	4042	2791	9971	10261	2740	2576	5878	5073
2017 Q3	2888	2410	6528	4892	2517	2010	3639	2992	8768	10021	2723	2563	6160	5166
2017 Q4	2888	2410	6904	5004	2246	2120	3721	3374	8950	9306	2794	2541	6516	5113
2018 Q1	3498	2465	7448	4864	2969	2504	3640	3314	8830	9446	2727	2618	6819	5079
2018 Q2	3516	2725	7625	4763	3046	2847	3511	3380	8322	9899	2715	2824	7104	5230
2018 Q3	3286	2678	7514	4551	2844	2496	3824	3430	8900	10515	3211	2735	7606	5211
2018 Q4	3182	2697	7436	5334	2713	2477	3958	3386	9602	10261	3540	2695	7395	4964
2019 Q1	3494	2660	7599	5274	3081	2328	4179	3351	9545	9508	4352	2752	7303	4910
2019 Q2	3533	2504	7393	5082	3170	2260	4826	3185	10164	10082	4344	2731	7231	5019
2019 Q3	3509	2584	7478	5347	3125	2232	5287	3152	10409	10307	4598	2551	7899	5399
2019 Q4	3603	2714	8087	5595	3369	2282	4759	3099	10273	9672	4582	2786	8003	5469

Note : * International Prices of Rice converted into paddy at the ratio of 0.67.

** International Prices of Cotton (lint) converted into Kapas at the ratio of 0.41.

Source: 1. Agmarknet for domestic wholesale prices for Paddy, Maize, Jowar, Arhar, Urad, Moong, Cotton, Soybean, Groundnut and Sunflower Seed.

2. The Solvent Extractors Association of India for domestic prices for Soybean Oil, Soybean Meal, Groundnut Oil and Sunflower Oil.

3. World Bank for International Prices of Paddy*, Maize, Jowar, Cotton**, Soybean, Soybean Oil, Soybean Meal, Groundnut, Groundnut Oil, Sunflower seed and Sunflower Oil

4. Agriwatch for International Prices of Pulses viz. Arhar, Urad & Moong.



PRICE Policy for Kharif Crops

Annex Table 5.1: State-wise Average Gross Returns over Actual Cost of Cultivation of Kharif Crops during TE2017-18

Crop/State	CoC A ₂	CoC A ₂ +FL	GVO	Gross Returns over CoC A ₂		Gross Returns over CoC A ₂ +FL	
	₹/ha			₹/ha (Col.4 -Col.2)	Percent (Col.5/Col.2) *100	₹/ha (Col.4- Col.3)	Percent (Col.7/Col.3) *100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paddy							
Andhra Pradesh	45221	54542	91802	46581	103	37260	68
Assam	24498	40188	40814	16316	67	626	2
Bihar	23847	31107	43672	19825	83	12565	40
Chhattisgarh	27283	35793	51490	24207	89	15697	44
Gujarat	38125	43371	74511	36385	95	31140	72
Haryana	35373	46723	105911	70537	199	59188	127
Himachal Pradesh	11890	30694	47387	35497	299	16693	54
Jharkhand	21523	30631	43535	22012	102	12903	42
Kerala	57328	64469	94406	37078	65	29937	46
Karnataka	44960	54151	94993	50033	111	40842	75
Madhya Pradesh	23950	32913	43727	19777	83	10814	33
Maharashtra	53871	64215	56986	3115	6	-7229	-11
Odisha	28367	45818	48912	20545	72	3095	7
Punjab	35335	41950	112491	77156	218	70541	168
Tamil Nadu	48543	56765	79663	31121	64	22898	40
Uttarakhand	22765	34611	61436	38671	170	26825	78
Uttar Pradesh	29442	40861	49806	20364	69	8945	22
West Bengal	39556	58844	64130	24574	62	5286	9
All-India	33463	45049	63530	30067	90	18481	41

(Contd.)



Annex Table 5.1: State-wise Average Gross Returns over Actual Cost of Cultivation of Kharif Crops during TE2017-18

Crop/State	CoC A ₂	CoC A ₂ +FL	GVO	Gross Returns over CoC A ₂		Gross Returns over CoC A ₂ +FL	
	₹/ha			₹/ha (Col.4- Col.2)	Percent (Col.5/ Col.2)*100	₹/ha (Col.4- Col.3)	Percent (Col.7/ Col.3)*100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Maize							
Andhra Pradesh	37696	44642	80755	43059	114	36114	81
Bihar	23914	31735	51694	27781	116	19960	63
Gujarat	25057	34509	34333	9276	37	-176	-1
Himachal Pradesh	12406	28125	31788	19382	156	3663	13
Karnataka	28207	33501	48521	20314	72	15020	45
Madhya Pradesh	22476	29937	35552	13076	58	5615	19
Maharashtra	44964	54033	72994	28029	62	18961	35
Punjab	34543	43680	52448	17904	52	8768	20
Rajasthan	15800	35986	36134	20334	129	148	0.4
Tamil Nadu	49284	64210	83128	33844	69	18918	29
Uttar Pradesh	19707	30768	37715	18008	91	6947	23
All-India	28482	38272	51912	23431	82	13640	36
Jowar							
Andhra Pradesh	23173	30751	38303	15130	65	7552	25
Karnataka	13598	17335	23950	10352	76	6615	38
Madhya Pradesh	14908	23797	32738	17830	120	8941	38
Maharashtra	23515	30451	34539	11024	47	4088	13
Rajasthan	10864	23147	26746	15883	146	3599	16
Tamil Nadu	19784	28610	34832	15048	76	6222	22
All-India	19623	26758	31762	12139	62	5005	19

(Contd.)



Annex Table 5.1: State-wise Average Gross Returns over Actual Cost of Cultivation of Kharif Crops during TE2017-18

Crop/State	CoC A ₂	CoC A ₂ +FL	GVO	Gross Returns over CoC A ₂		Gross Returns over CoC A ₂ +FL	
	₹/ha			₹/ha (Col.4- Col.2)	Percent (Col.5/ Col.2)*100	₹/ha (Col.4- Col.3)	Percent (Col.7/ Col.3)*100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bajra							
Gujarat	28603	37378	57979	29376	103	20601	55
Haryana	16673	26389	31004	14331	86	4614	17
Maharashtra	28056	36318	37479	9423	34	1160	3
Rajasthan	8756	21063	23987	15231	174	2924	14
Uttar Pradesh	16538	25045	37235	20697	125	12190	49
All-India	13993	24884	30186	16193	116	5302	21
Ragi							
Karnataka	34380	43160	47797	13418	39	4638	11
Uttarakhand	8012	28765	33152	25140	314	4387	15
All-India	30781	41188	45790	15008	49	4601	11
Arhar (Tur)							
Andhra Pradesh	25139	31024	43649	18510	74	12625	41
Gujarat	24571	34527	60938	36367	148	26411	76
Karnataka	21066	25843	48178	27112	129	22335	86
Madhya Pradesh	18090	25473	46941	28851	159	21467	84
Maharashtra	47796	62060	109469	61672	129	47409	76
Odisha	6758	15606	23285	16528	245	7679	49
Uttar Pradesh	15655	24689	58416	42762	273	33728	137
All-India	29148	38352	68198	39050	134	29846	78

(Contd.)



Annex Table 5.1: State-wise Average Gross Returns over Actual Cost of Cultivation of Kharif Crops during TE2017-18

Crop/State	CoC A ₂	CoC A ₂ +FL	GVO	Gross Returns over CoC A ₂		Gross Returns over CoC A ₂ +FL	
	₹/ha			₹/ha (Col.4- Col.2)	Percent (Col.5/ Col.2)*100	₹/ha (Col.4- Col.3)	Percent (Col.7/ Col.3)*100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Moong							
Andhra Pradesh	15902	19193	20469	4568	29	1276	7
Gujarat	18026	24859	39459	21434	119	14601	59
Karnataka	14197	16640	25322	11125	78	8682	52
Maharashtra	24597	30533	29329	4731	19	-1204	-4
Odisha	6507	14486	17614	11107	171	3128	22
Rajasthan	8935	17336	27204	18269	204	9868	57
All-India	12738	19375	26120	13382	105	6745	35
Urad							
Andhra Pradesh	18266	20081	51818	33551	184	31737	158
Chhattisgarh	15999	25353	21493	5495	34	-3859	-15
Madhya Pradesh	15447	20142	37065	21619	140	16923	84
Maharashtra	22790	29927	36430	13640	60	6503	22
Odisha	6453	14551	23501	17048	264	8950	62
Tamil Nadu	22824	28097	46650	23826	104	18553	66
Uttar Pradesh	9753	14645	22976	13224	136	8331	57
All-India	16145	21033	36357	20212	125	15324	73

(Contd.)



PRICE Policy for Kharif Crops

Annex Table 5.1: State-wise Average Gross Returns over Actual Cost of Cultivation of Kharif Crops during TE2017-18

Crop/State	CoC A ₂	CoC A ₂ +FL	GVO	Gross Returns over CoC A ₂		Gross Returns over CoC A ₂ +FL	
	₹/ha			₹/ha (Col.4- Col.2)	Percent (Col.5/ Col.2)*100	₹/ha (Col.4- Col.3)	Percent (Col.7/ Col.3)*100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Groundnut							
Andhra Pradesh	39296	46721	59597	20301	52	12876	28
Gujarat	48412	58359	95596	47183	97	37237	64
Karnataka	33780	39968	44204	10424	31	4236	11
Maharashtra	51482	67945	58414	6932	13	-9531	-14
Odisha	23561	41967	45881	22320	95	3914	9
Rajasthan	32009	41821	103434	71426	223	61613	147
Tamil Nadu	47302	58458	75237	27936	59	16780	29
All-India	42122	51586	76112	33990	81	24526	48
Soybean							
Andhra Pradesh	31792	36670	41182	9389	30	4511	12
Chhattisgarh	14618	18673	22695	8077	55	4022	22
Madhya Pradesh	20627	25505	29255	8629	42	3751	15
Maharashtra	31429	35902	39779	8350	27	3877	11
Rajasthan	15642	22745	29002	13360	85	6257	28
All-India	24051	28999	33010	8958	37	4011	14
Sunflower							
Andhra Pradesh	22900	30129	28381	5481	24	-1748	-6
Karnataka	16298	19613	26890	10592	65	7277	37
All-India	16999	20717	27154	10156	60	6437	31

(Contd.)



Annex Table 5.1: State-wise Average Gross Returns over Actual Cost of Cultivation of Kharif Crops, TE2016-17

Crop/State	CoC A ₂	CoC A ₂ +FL	GVO	Gross Returns over CoC A ₂		Gross Returns over CoC A ₂ +FL	
	₹/ha			₹/ha (Col.4- Col.2)	Percent (Col.5/ Col.2)*100	₹/ha (Col.4- Col.3)	Percent (Col.7/ Col.3)*100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sesamum							
Andhra Pradesh	17807	20261	23640	5833	33	3378	17
Gujarat	24023	31838	57796	33773	141	25958	82
Madhya Pradesh	14471	20626	31018	16547	114	10392	50
Odisha	9078	15407	23916	14838	163	8509	55
Rajasthan	5878	14890	17274	11396	194	2384	16
Uttar Pradesh	6742	11243	20451	13709	203	9208	82
West Bengal	23331	35102	36967	13636	58	1865	5
All-India	13094	20340	28979	15885	121	8639	42
Nigerseed							
Odisha	7118	15964	14289	7171	101	-1675	-10
All-India	7118	15964	14289	7171	101	-1675	-10
Cotton							
Andhra Pradesh	50206	57997	73576	23370	47	15579	27
Gujarat	46086	57236	91467	45381	98	34232	60
Haryana	28733	44804	62099	33366	116	17295	39
Karnataka	37712	44165	73197	35485	94	29032	66
Madhya Pradesh	44030	60890	65195	21166	48	4305	7
Maharashtra	49431	60281	74944	25514	52	14663	24
Odisha	29715	49738	63487	33772	114	13749	28
Punjab	44589	52684	82290	37701	85	29606	56
Rajasthan	28029	51068	92150	64121	229	41082	80
Tamil Nadu	58025	81673	90750	32725	56	9077	11
All-India	45831	57115	77969	32138	70	20854	37

Source: CACP using CS data



Annexures

Annex Table 5.2: State-wise Monthly Average Daily Wage Rates for Agricultural Labour (Man)

Year/Month	AP	Asm	Bih	Guj	Har	HP	Kar	Ker	MP	MH	Odi	Pun	Raj	TN	UP	WB	All-India
2011																	
January	171	117	101	92	197	195	116	335	86	124	126	172	140	175	115	122	129
February	171	118	100	94	202	207	118	335	87	127	133	165	141	181	118	126	131
March	174	123	101	93	202	207	119	341	89	131	128	169	149	184	116	126	133
April	174	122	101	94	203	217	120	341	89	131	133	170	163	186	116	126	136
May	171	122	102	95	203	211	125	341	90	135	135	211	179	178	117	129	139
June	174	123	103	96	203	218	127	350	90	140	133	189	172	199	119	130	140
July	174	127	108	112	205	219	128	360	94	156	133	215	208	200	123	133	151
August	171	128	110	112	206	232	133	372	98	155	134	211	191	208	122	139	150
September	176	115	113	113	206	232	136	376	98	152	137	189	154	206	123	141	145
October	177	127	113	113	205	230	137	392	99	153	135	219	162	209	126	142	148
November	191	131	119	113	214	232	138	454	99	155	138	223	203	213	130	143	157
December	176	127	113	113	206	232	136	376	98	152	137	189	154	206	123	141	145
2012																	
January	177	127	113	113	205	237	137	392	99	153	135	219	162	209	126	142	148
February	203	131	124	115	212	241	145	420	100	153	140	235	172	231	136	151	157
March	195	132	126	116	213	241	147	413	106	156	140	233	198	226	135	152	161
April	207	132	127	117	210	241	146	417	110	156	145	256	194	231	136	159	164
May	198	134	129	118	210	241	148	417	108	154	148	243	202	232	138	161	164
June	185	134	134	118	215	246	156	420	113	165	137	223	204	238	138	160	165
July	191	138	138	125	219	270	163	453	116	171	140	246	223	244	146	169	174
August	193	138	143	126	229	246	168	453	119	170	152	241	213	253	149	167	175
September	205	140	144	126	229	246	170	455	121	173	143	240	214	252	153	165	177
October	199	145	147	126	238	246	173	461	119	174	135	278	216	251	156	165	179
November	210	148	148	126	233	251	178	461	120	173	137	274	217	246	158	171	180
December	224	145	151	127	228	260	177	461	120	182	138	273	221	247	160	173	184

(Contd.)



Annex Table 5.2: State-wise Monthly Average Daily Wage Rates for Agricultural Labour (Man)

Year/Month	AP	Asm	Bih	Guj	Har	HP	Kar	Ker	MP	MH	Odi	Pun	Raj	TN	UP	WB	All-India
2013																	
January	224	146	162	130	246	273	184	465	126	186	136	257	219	253	163	178	187
February	228	157	164	130	245	259	188	465	126	192	134	260	204	259	165	180	187
March	221	154	166	133	245	259	189	461	130	194	136	260	208	265	166	181	189
April	230	153	167	130	247	264	192	478	135	195	137	284	217	265	168	182	193
May	223	150	167	131	245	266	192	489	138	197	141	273	244	266	169	185	197
June	222	162	168	132	244	262	196	483	134	189	143	290	235	271	173	185	196
July	221	178	175	136	258	263	203	485	132	201	150	291	220	272	174	198	198
August	210	183	177	137	317	284	210	487	133	200	157	279	215	275	181	200	199
September	213	178	176	138	312	290	212	490	138	196	150		219	284	181	200	192
October	212	175	175	139	312	298	213	487	144	199	156	283	229	294	180	199	203
November	247	184	205	142	328	337	235	585	140	221	196		248	330	192	224	214
December	242	181	191	165	325	356	228	580	151	216	179	278	247	352	186	229	222
2014																	
January	229	182	194	172	320	336	237	580	155	215	178	276	262	355	191	229	225
February	226	188	200	172	329	336	240	629	158	214	180	275	251	362	191	230	226
March	222	189	202	175	333	341	243	594	161	219	164	279	270	356	195	223	229
April	222	199	204	179	335	352	240	594	163	223	160	306	291	361	201	226	235
May	225	203	206	179	346	335	242	594	165	223	173	307	283	364	202	225	235
June	217	204	207	179	347	341	241	594	164	230	191	304	280	362	199	227	235
July	230	208	218	185	345	345	241	599	173	225	201	302	320	372	200	226	244
August	226	220	220	190	348	343	241	599	173	226	208	304	305	371	202	230	243
September	239	225	220	190	350	343	242	586	180	222	204	310	296	417	198	234	246
October	241	226	222	198	354	339	242	586	171	222	202	310	297	412	201	237	246
November	247	238	220	198	357	330	244	597	170	223	200	312	305	421	199	236	248
December	236	234	220	192	344	349	252	604	176	222	194	307	307	417	199	237	247

(Contd.)

Annexures



Annexures

Annex Table 5.2: State-wise Monthly Average Daily Wage Rates for Agricultural Labour (Man)

Year/Month	AP	Asm	Bih	Guj	Har	HP	Kar	Ker	MP	MH	Odi	Pun	Raj	TN	UP	WB	All-India
2015																	
January	246	235	219	194	338	363	254	643	178	225	201	286	298	430	200	241	249
February	250	234	221	194	335	363	252	643	179	225	202	290	287	440	202	241	249
March	245	226	228	194	341	363	253	642	179	226	202	281	284	429	205	242	248
April	245	225	230	195	340	363	253	652	182	231	201	277	291	403	209	242	249
May	235	231	231	196	345	362	260	652	183	232	200	292	279	405	208	242	249
June	239	239	237	196	346	351	260	664	188	228	203	311	282	399	207	240	250
July	229	236	242	203	350	361	269	664	186	234	206	311	295	393	211	240	253
August	241	238	246	203	355	366	277	653	188	233	202	304	300	404	214	239	257
September	241	239	246	203	354	372	278	656	190	228	196	303	304	394	214	241	256
October	240	236	244	203	354	367	279	656	189	233	200	298	298	392	215	237	256
November	276	243	243	203	351	374	285	657	182	228	204	301	303	382	216	237	259
December	278	241	245	203	361	379	286	657	180	229	200	301	302	383	219	248	260
2016																	
January	276	235	248	206	354	371	285	664	183	231	199	288	276	381	218	251	256
February	254	233	248	206	359	371	281	666	182	229	195	300	270	383	217	252	253
March	250	234	246	213	359	371	280	670	186	231	206	292	277	406	217	254	256
April	272	240	246	214	362	395	278	670	188	232	198	310	260	406	223	254	257
May	256	241	248	214	368	369	283	665	186	247	199	312	266	400	223	256	258
June	254	255	249	214	368	370	288	665	190	249	210	321	265	396	222	259	260
July	257	255	251	219	368	373	295	665	189	238	207	313	289	408	225	259	264
August	262	253	252	219	368	379	293	665	188	246	213	296	283	411	225	258	264
September	263	254	247	219	368	379	293	665	192	248	209	288	284	412	221	254	263
October	263	254	247	219	368	391	290	665	199	249	203	306	284	409	221	257	265
November	271	254	247	219	368	387	297	665	199	255	207	307	281	406	227	260	267
December	284	259	247	219	368	387	298	665	201	255	217	305	279	406	225	263	269

(Contd.)



Annex Table 5.2: State-wise Monthly Average Daily Wage Rates for Agricultural Labour (Man)

Year/Month	AP	Asm	Bih	Guj	Har	HP	Kar	Ker	MP	MH	Odi	Pun	Raj	TN	UP	WB	All-India
2017																	
January	286	259	249	225	362	417	303	675	204	255	222	321	272	412	226	265	271
February	286	261	251	227	363	387	302	675	207	259	220	318	281	413	229	264	273
March	290	256	250	227	363	417	300	675	208	262	223	318	293	413	231	264	276
April	291	257	251	229	361	408	300	682	210	269	227	326	283	413	270	232	280
May	288	256	251	229	363	406	301	687	214	275	229	335	266	413	232	265	275
June	269	256	251	229	363	404	300	687	215	280	227	335	281	410	233	264	276
July	281	252	255	230	373	425	301	687	217	277	235	327	288	415	241	268	280
August	276	258	258	230	365	423	305	687	216	271	231	327	290	412	247	268	280
September	280	272	260	234	365	429	306	687	215	265	227	345	287	416	248	270	281
October	277	282	259	234	367	399	306	687	211	265	226	348	279	416	246	275	279
November	282	281	261	234	367	423	310	687	208	269	222	342	289	417	244	277	281
December	291	275	262	234	367	419	315	687	209	268	225	349	291	417	243	279	282
2018																	
January	312	277	264	236	367	439	321	691	212	268	226	349	267	424	243	275	283
February	308	278	269	236	367	439	322	691	214	267	225	341	283	444	243	277	286
March	320	278	270	238	368	445	320	698	216	273	223	332	279	445	240	278	287
April	321	280	271	238	367	445	322	698	217	272	223	341	294	445	239	277	290
May	327	279	269	238	368	410	324	698	220	277	229	339	315	445	240	276	294
June	294	282	270	239	368	439	329	719	216	276	227	351	311	440	242	278	291
July	305	289	271	241	376	436	333	719	219	280	229	355	325	440	249	280	297
August	308	289	274	241	383	451	336	726	217	282	231	355	326	449	258	278	299
September	309	291	275	241	380	454	336	726	220	284	230	353	312	452	257	278	298
October	316	277	276	241	373	418	339	735	218	282	231	355	315	460	257	281	299
November	318	280	276	242	371	425	341	735	215	281	230	358	322	460	254	283	300
December	321	277	276	242	376	421	343	735	213	280	232	350	308	469	256	284	298

(Contd.)

Annexures



Annexures

Annex Table 5.2: State-wise Monthly Average Daily Wage Rates for Agricultural Labour (Man)

Year/Month	AP	Asm	Bih	Guj	Har	HP	Kar	Ker	MP	MH	Odi	Pun	Raj	TN	UP	WB	AI- India
2019																	
January	333	279	280	244	380	421	342	737	214	281	231	348	296	469	257	287	299
February	336	277	283	244	388	421	342	737	214	282	232	355	295	476	259	287	300
March	338	277	283	244	387	439	341	737	217	283	229	350	302	479	259	288	302
April	339	274	282	244	387	439	341	737	217	282	229	351	300	479	259	288	301
May	345	274	286	244	390	438	342	737	217	291	226	348	313	482	260	289	305
June	332	312	285	245	386	428	341	741	216	297	230	349	316	479	261	292	306
July	331	313	296	247	387	453	346	741	217	305	234	355	324	487	260	289	310
August	340	314	299	247	396	469	348	741	222	306	239	368	308	495	261	289	311
September	346	319	298	249	392	469	350	741	222	305	236	353	307	496	264	290	312
October	348	319	303	249	394	440	351	741	221	308	237	356	321	492	266	291	314
November	357	322	304	247	394	446	352	741	218	308	237	358	326	496	266	291	316

Note: Daily Wage rate - Average of five operations i.e. Ploughing, Sowing, Weeding, Transplanting and Harvesting
Source: Labour Bureau, Ministry of Labour & Employment



Annex Table 5.3: Monthly Wholesale Price Index (Base 2011-12=100) of Major Farm Inputs

Year/Month	High Speed Diesel (HSD)	Fertilizers and nitrogen compounds	Electricity	Agri-cultural tractors	Lube Oils	Cattle Feed	Fodder	Pesticides and other agrochemical products
2012								
April	111.9	108.1	97.4	103.9	106.0	106.7	107.9	105.9
May	111.5	109.7	100.8	103.9	106.0	109.8	105.3	106.4
June	109.6	111.8	102.5	104.1	110.3	112.6	101.7	106.1
July	108.5	113.5	101.8	103.8	110.3	118.3	107.0	106.5
August	111.0	113.6	98.5	104.2	110.3	123.3	111.3	107.9
September	114.3	114.5	97.4	104.0	110.3	128.7	118.6	109.1
October	108.4	114.6	101.4	104.7	110.3	131.1	122.8	108.3
November	108.0	115.4	101.6	104.6	110.3	131.9	125.0	108.9
December	108.1	114.9	101.3	104.7	110.3	130.9	124.9	108.1
2013								
January	112.0	114.6	104.5	104.7	110.3	129.7	121.9	107.5
February	117.6	114.9	100.6	104.9	110.3	130.5	127.4	107.3
March	118.4	116.1	98.2	105.1	110.3	133.8	128.9	107.5
April	114.6	115.3	101.1	105.9	112.1	138.2	126.3	109.1
May	112.1	115.4	101.0	103.6	112.1	139.5	124.7	105.4
June	117.1	116.2	101.5	104.1	112.1	140.0	131.9	107.0
July	123.4	116.7	102.3	104.1	112.1	140.2	136.2	109.7
August	126.3	116.5	103.1	103.9	115.3	140.4	137.1	111.1
September	132.8	116.7	104.6	104.3	115.3	142.0	138.2	112.3
October	130.1	116.4	103.3	104.7	115.3	142.8	138.6	113.0
November	130.3	116.8	103.1	104.6	115.3	143.4	140.2	113.1
December	132.5	116.6	105.6	104.1	115.3	142.3	141.6	113.8
2014								
January	131.8	116.7	105.8	104.3	115.3	140.6	144.3	113.2
February	131.6	117.0	105.9	104.4	115.3	140.8	149.5	110.9
March	133.1	117.7	106.4	104.8	115.3	141.8	156.0	115.1
April	130.0	116.9	106.0	106.3	117.0	144.0	147.5	118.6
May	131.2	117.8	102.7	106.7	117.0	147.5	139.3	118.6
June	129.0	118.6	101.9	106.4	117.0	146.6	142.3	120.7
July	131.6	118.6	102.7	107.0	117.0	146.0	142.0	120.3
August	130.9	118.6	106.1	106.8	117.0	144.2	145.5	118.3
September	129.6	118.8	104.9	106.9	120.0	141.5	154.1	124.0
October	125.8	119.1	104.3	107.1	120.0	138.9	155.0	121.9
November	112.7	119.4	106.5	107.1	120.0	137.1	156.1	121.9
December	103.5	119.6	108.4	107.6	120.0	137.2	156.9	118.6

(Contd.)



Price Policy for KHARIF CROPS

Annex Table 5.3: Monthly Wholesale Price Index (Base 2011-12=100) of Major Farm Inputs

Year/Month	High Speed Diesel (HSD)	Fertilizers and nitrogen compounds	Electricity	Agri-cultural tractors	Lube Oils	Cattle Feed	Fodder	Pesticides and other agrochemical products
2015								
January	87.9	119.0	109.1	108.0	120.0	138.4	155.8	122.9
February	79.1	119.5	107.8	108.1	120.0	139.0	150.8	122.5
March	86.6	120.3	107.5	108.1	120.1	138.7	143.1	119.6
April	83.3	120.5	108.0	111.0	120.8	140.8	139.5	121.6
May	91.7	120.9	106.1	110.9	120.8	143.5	138.4	122.9
June	92.7	120.7	105.9	111.0	120.8	144.8	142.8	122.7
July	86.5	120.9	106.5	111.3	120.8	145.0	150.5	124.9
August	73.1	121.7	105.4	110.9	120.8	147.2	165.9	122.7
September	71.3	122.3	106.3	110.7	120.8	148.8	166.6	123.6
October	73.8	122.1	103.1	111.8	120.8	150.6	168.7	124.1
November	74.2	121.4	104.5	111.9	120.8	150.4	172.9	123.1
December	72.3	121.4	104.9	111.9	120.8	150.3	176.2	121.6
2016								
January	57.1	121.6	105.9	111.7	120.8	151.3	173.3	122.6
February	50.3	121.6	103.5	111.7	120.8	153.8	170.3	121.8
March	54.9	121.3	102.9	111.9	120.8	154.4	171.6	119.5
April	59.1	121.3	101.1	113.7	120.8	155.4	167.1	116.7
May	66.5	121.1	102.2	113.0	120.8	155.9	161.4	118.8
June	75.0	121.0	102.8	113.0	120.8	158.9	170.2	117.7
July	74.7	120.3	102.7	113.1	120.8	161.3	170.1	117.1
August	67.0	119.1	103.2	113.6	114.8	161.8	162.7	116.0
September	70.7	118.3	103.8	113.9	114.8	160.9	162.9	116.5
October	72.6	118.3	103.9	113.8	114.8	159.0	165.4	115.3
November	76.5	117.8	105.9	113.8	114.8	158.6	163.5	115.3
December	77.3	116.7	106.2	113.5	114.8	157.9	163.5	115.5
2017								
January	83.4	117.0	107.9	113.8	114.8	157.3	163.0	117.9
February	85.0	116.7	107.4	114.2	114.8	157.6	165.9	117.0
March	84.9	116.8	102.7	113.3	114.8	155.2	159.8	117.2
April	81.5	117.1	103.3	114.0	114.8	155.7	159.5	116.8
May	81.3	117.2	102.8	114.0	114.0	156.4	157.4	117.2
June	80.0	116.4	102.0	114.3	113.3	155.4	157.2	116.9
July	78.8	116.0	102.0	113.5	112.9	154.5	162.4	115.3
August	80.9	116.5	100.6	114.1	112.9	154.6	163.1	114.9
September	82.5	116.5	106.1	114.5	112.9	154.9	160.2	113.7
October	84.5	116.8	106.1	114.3	112.9	154.0	154.7	112.9
November	85.8	116.7	102.7	114.0	112.9	152.9	143.9	114.0
December	87.1	116.8	102.4	113.8	112.9	151.2	132.7	114.8

(Contd.)



Annex Table 5.3: Monthly Wholesale Price Index (Base 2011-12=100) of Major Farm Inputs

Year/Month	High Speed Diesel (HSD)	Fertilizers and nitrogen compounds	Electricity	Agricultural tractors	Lube Oils	Cattle Feed	Fodder	Pesticides and other agrochemical products
2018								
January	89.5	117.4	105.0	114.4	114.0	150.6	132.3	115.3
February	91.3	118.6	105.4	114.3	117.3	154.3	134.3	114.8
March	90.1	118.9	105.4	115.3	117.3	154.4	136.3	117.0
April	92.5	118.3	104.9	115.4	117.3	154.7	137.0	118.2
May	95.4	118.8	110.7	114.8	117.3	154.8	135.2	118.2
June	97.5	118.7	109.6	115.6	117.3	154.9	134.6	117.9
July	96.8	119.3	109.6	116.0	117.3	154.5	128.8	119.1
August	97.0	120.0	109.4	116.5	117.3	156.1	131.0	119.1
September	100.8	120.5	112.4	117.1	130.2	155.1	131.7	120.4
October	104.9	121.6	112.4	116.9	130.2	155.2	130.8	119.9
November	103.1	123.4	109.3	117.5	130.2	159.4	130.5	121.0
December	93.9	123.6	110.7	117.6	130.2	159.6	131.0	119.7
2019								
January	91.2	122.7	110.7	117.7	130.2	160.9	132.7	122.5
February	94.8	123.0	108.2	117.2	130.2	162.3	136.3	123.5
March	96.7	123.0	107.3	118.3	130.2	161.7	138.1	122.8
April	95.5	122.9	107.3	118.2	130.5	165.7	139.0	123.0
May	96.6	123.1	110.7	118.1	131.5	169.0	140.7	124.0
June	94.9	123.4	108.3	118.1	131.6	171.9	147.5	121.9
July	93.2	123.5	108.3	118.9	131.6	175.5	149.2	124.2
August	93.5	123.0	110.7	119.5	131.6	176.8	148.4	122.9
September	93.6	123.1	110.0	120.3	131.6	178.2	146.1	122.8
October	94.9	122.9	110.0	120.3	131.6	178.5	146.3	123.0
November	93.9	123.4	110.0	119.3	131.6	178.5	147.5	122.7
December	93.9	123.6	110.7	117.6	130.2	159.6	131.0	119.7

Source : Office of the Economic Adviser, Ministry of Commerce and Industry



Annex Table 5.4: Projected Cost of Production (A_2 , A_2+FL & C_2) of Kharif Crops for KMS 2020-21 and Production Shares during TE2018-19

States	Cost of Production (₹/qtl)			Shares in Production (%)
	A ₂	A ₂ +FL	C ₂	
Paddy				
Andhra Pradesh	922	1108	1591	12.8
Assam	838	1371	1719	4.6
Bihar	861	1119	1493	6.8
Chhattisgarh	833	1095	1467	5.9
Gujarat	991	1128	1391	1.7
Haryana	842	1113	1777	4.1
Himachal Pradesh	478	1225	1655	0.1
Jharkhand	962	1359	1774	3.3
Karnataka	946	1132	1586	2.7
Kerala	1368	1518	1757	0.5
Madhya Pradesh	1016	1397	1791	3.9
Maharashtra	1919	2275	2760	2.9
Odisha	929	1500	1831	6.8
Punjab	615	729	1223	11.5
Tamil Nadu	1097	1282	1703	4.7
Uttar Pradesh	924	1240	1691	13.0
Uttarakhand	685	1032	1429	0.6
West Bengal	1035	1537	1879	14.1
All India Wtd. Avg.	930	1245	1667	100.0
Jowar				
Andhra Pradesh	1078	1406	2042	8.9
Karnataka	1674	2120	2879	24.0
Madhya Pradesh	943	1497	1852	10.4
Maharashtra	1386	1794	2403	38.5
Rajasthan	637	1354	1810	9.3
Tamil Nadu	1101	1578	2637	8.9
All India Wtd. Avg.	1287	1746	2393	100.0

(Contd.)



Annex Table 5.4: Projected Cost of Production (A_2 , A_2+FL & C_2) of Kharif Crops for KMS 2020-21 and Production Shares during TE2018-19

States	Cost of Production (₹/qtl)			Shares in Production (%)
	A ₂	A ₂ +FL	C ₂	
Bajra				
Gujarat	819	1067	1360	11.3
Haryana	709	1124	1662	10.6
Maharashtra	1733	2245	2747	7.4
Rajasthan	502	1199	1550	48.6
Uttar Pradesh	558	844	1214	22.0
All India Wtd. Avg.	663	1175	1555	100.0
Maize				
Andhra Pradesh	740	873	1333	17.7
Bihar	676	896	1243	11.2
Gujarat	1453	1999	2334	3.1
Himachal Pradesh	735	1666	2132	3.1
Karnataka	901	1071	1451	15.1
Madhya Pradesh	872	1160	1503	14.6
Maharashtra	1247	1499	1811	11.7
Punjab	906	1139	1519	1.7
Rajasthan	779	1776	2174	7.1
Tamil Nadu	972	1268	1770	8.4
Uttar Pradesh	880	1366	1799	6.4
All India Wtd. Avg.	892	1213	1606	100.0
Ragi				
Karnataka	1843	2300	2889	87.4
Uttarakhand	416	1463	1886	12.6
All India Wtd. Avg.	1663	2194	2763	100.0
Arhar (Tur)				
Andhra Pradesh	4146	5114	7544	8.8
Gujarat	2750	3857	4971	9.0
Karnataka	2814	3463	5051	22.9
Madhya Pradesh	2213	3120	4693	19.0
Maharashtra	3142	4078	5596	28.6
Odisha	2194	5062	7072	3.4
Uttar Pradesh	2097	3314	5592	8.4
All India Wtd. Avg.	2824	3796	5464	100.0

(Contd.)



Price Policy for Kharif Crops

Annex Table 5.4: Projected Cost of Production (A_2 , A_2+FL & C_2) of Kharif Crops for KMS 2020-21 and Production Shares during TE2018-19

States	Cost of Production (₹/qtl)			Shares in Production (%)
	A ₂	A ₂ +FL	C ₂	
Moong				
Andhra Pradesh	3618	4361	6529	9.6
Gujarat	3498	4814	6019	4.4
Karnataka	3884	4525	6114	8.4
Maharashtra	4851	6016	7774	12.2
Odisha	2297	5111	6852	6.5
Rajasthan	2381	4618	5924	58.9
All India Wtd. Avg.	2972	4797	6289	100.0
Urad				
Andhra Pradesh	1949	2156	4353	15.6
Chhattisgarh	2735	4284	5839	1.3
Madhya Pradesh	2514	3276	4824	49.0
Maharashtra	4793	6281	7807	6.4
Odisha	2347	5293	7372	1.4
Tamil Nadu	3852	4740	6855	12.5
Uttar Pradesh	2860	4296	7177	13.8
All India Wtd. Avg.	2787	3660	5570	100.0
Groundnut				
Andhra Pradesh	2703	3221	4489	14.8
Gujarat	2958	3566	4351	43.7
Karnataka	4283	5073	6339	6.8
Maharashtra	4466	5902	7139	4.6
Odisha	2452	4357	5785	0.6
Rajasthan	1346	1755	2629	17.8
Tamil Nadu	3632	4491	5849	11.7
All India Wtd. Avg.	2868	3515	4512	100.0
Soybean				
Andhra Pradesh	3329	3825	4888	2.2
Chhattisgarh	2251	2863	3831	0.5
Madhya Pradesh	1824	2257	3180	52.6
Maharashtra	2589	2950	3906	35.5
Rajasthan	1900	2760	3551	9.2
All India Wtd. Avg.	2138	2587	3513	100.0
Sunflower				
Andhra Pradesh	2974	3919	5095	17.2
Karnataka	3260	3922	5076	82.8
All India Wtd. Avg.	3211	3921	5079	100.0

(Contd.)



Annex Table 5.4: Projected Cost of Production (A_2 , A_2+FL & C_2) of Kharif Crops for KMS 2020-21 and Production Shares during TE2018-19

States	Cost of Production (₹/qtl)			Shares in Production (%)
	A ₂	A ₂ +FL	C ₂	
Sesamum				
Andhra Pradesh	5642	6424	8744	3.9
Gujarat	4376	5771	7345	10.0
Madhya Pradesh	2826	4033	5666	27.5
Odisha	2883	4948	6411	0.6
Rajasthan	2539	6388	8727	12.2
Uttar Pradesh	3025	5041	7618	11.7
West Bengal	2423	3619	4655	34.1
All India Wtd. Avg.	2941	4570	6215	100.0
Nigerseed				
Odisha	1988	4462	6525	100.0
All India Wtd. Avg.	1988	4462	6525	100.0
Cotton				
Andhra Pradesh	3274	3769	5270	19.1
Gujarat	2565	3182	4170	26.5
Haryana	2165	3378	5259	6.1
Karnataka	2949	3454	4819	4.6
Madhya Pradesh	3019	4177	5409	6.4
Maharashtra	3449	4201	5381	25.4
Odisha	2606	4360	5514	1.4
Punjab	2938	3462	4949	3.8
Rajasthan	1658	3022	4204	5.7
Tamil Nadu	3360	4741	6138	1.1
All India Wtd. Avg.	2920	3676	4935	100.0

Note: Production shares are related to production of projected States only

Source: CACP Calculations



Annexures

Annex Table 5.5a: Paddy - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Andhra Pradesh			Assam			Bihar			Chhattisgarh			Gujarat			Haryana		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	52678	48932	105862	36196	41819	38984	29205	29443	32988	34057	33748	36498	41084	41501	42012	47092	45842	44997
Human Labour																		
Casual	16001	14737	13125	4793	5590	6164	9285	9518	10862	6698	6549	6651	14554	14808	8523	11705	11383	10172
Attached	599	535	267	167	140	77	41	61	2	16	11	17	108	241	140	401	302	589
Family	10047	8118	9797	15777	18302	12990	6726	6908	8145	8332	8371	8829	4972	4654	6111	11939	12312	9798
Total	26648	23391	23189	20738	24032	19230	16052	16487	19010	15046	14930	15497	19634	19703	14774	24044	23997	20559
Bullock Labour																		
Hired	191	295	245	121	133	153	0	0	0	304	504	128	27	2	73	0	0	0
Owined	308	470	653	8247	9900	10820	81	112	3	2999	2468	2865	229	237	393	12	21	0
Total	499	765	898	8368	10033	10973	81	112	3	3303	2972	2993	256	239	466	12	21	0
Machine Labour																		
Hired	9399	9759	9731	2789	3121	3828	3777	3926	4242	5948	6655	7556	4495	5057	4426	4573	4729	5409
Owined	106	195	459	655	732	741	24	89	53	187	173	358	841	1238	1066	988	1203	1801
Total	9505	9954	10190	3444	3853	4569	3801	4015	4295	6136	6827	7914	5336	6295	5492	5561	5932	7211
Seed	2005	1995	2191	1097	1118	1198	1803	1946	1897	1809	1701	1760	4651	4920	4541	1208	1369	1947
Fertilisers and Manure																		
Fertilisers	7290	7114	7472	741	840	739	2821	2981	3045	3453	3288	3194	5188	4635	4888	4579	4663	4791
Manure	928	545	751	685	745	633	304	245	188	1408	1495	1407	599	986	2125	3	42	19
Total	8218	7658	8223	1426	1586	1372	3125	3226	3233	4861	4784	4601	5787	5621	7013	4582	4705	4811
Other Inputs																		
Insecticides	3102	2722	3645	36	43	11	38	21	38	1008	1042	1074	773	1051	744	2564	2291	3042
Irrigation charges	1313	1145	1158	468	441	119	3625	2954	3760	724	413	1588	3543	2542	2270	8051	6414	5716
Crop Insurance	-	-	0	-	-	0	-	-	0	-	-	217	-	-	0	-	-	0
Payment to Contractor	-	-	5276	-	-	709	-	-	0	-	-	0	-	-	5623	-	-	608
Interest on working capital	1292	1237	1410	619	713	788	681	683	753	780	769	838	1094	1117	1088	1065	1016	1067
Miscellaneous	96	65	151	0	0	15	0	0	0	391	310	16	8	14	0	5	97	37
Fixed Cost	29133	31372	34914	13601	14372	13035	13480	14048	14719	15259	15477	14768	15137	15665	15153	35335	36577	38878
Rental value of owned land	26349	27952	27599	8765	9318	10535	10485	11278	12382	11131	11079	11786	10626	10989	11573	29079	30851	32177
Rent paid for leased-in land	121	412	4095	348	465	290	0	0	0	0	0	0	1849	2298	701	0	158	0
Land revenue, cesses & taxes	2	1	0	50	50	125	65	64	90	3	3	3	8	10	7	0	0	0
Depreciation on imple-ments & Farm buildings	306	328	419	837	880	520	521	420	525	1100	1246	722	187	128	328	618	398	1062
Interest on fixed capital	2355	2679	2800	3602	3660	1566	2410	2286	1723	3024	3149	2257	2466	2240	2544	5637	5169	5639
Total Cost	81811	80304	91245	49797	56191	52019	42686	43491	47707	49315	49225	51267	56221	57166	57165	82427	82419	83876
Yield	59	60	57	33	33	33	27	31	31	32	34	35	43	44	40	52	51	57
A₂+FL/Qtl	887	797	894	981	916	924	849	851	842	893	891	795	1067.11	1098.71	945.30	825.89	938.51	813.86
C₂/Qtl	1271	1157	1270	1375	1292	1273	1097	1107	1116	1544	1582	1448	1483.01	1536.19	1349.11	1202.02	1339.42	1266.88

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PRICE Policy for KHARIF CROPS



Annex Table 5.5a: Paddy - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Himachal Pradesh			Jharkhand			Karnataka			Kerala			Madhya Pradesh			Maharashtra		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	27550	29453	33051	24843	24565	39433	52127	46065	62813	58767	57001	75970	30621	32069	33398	57681	62247	69690
Human Labour																		
Casual	1160	547	2411	6924	6546	9853	15013	10518	17917	29209	27158	37614	3509	3897	5631	20526	21089	22781
Attached	0	0	0	1	1	0	0	0	1	0	0	9	78	77	160	134	299	6
Family	18275	21295	16842	7227	7877	12223	7319	9829	10425	4827	4892	11703	9611	9412	7864	11012	10720	9301
Total	19435	21842	19252	14151	14424	22076	22332	20346	28343	34036	32050	49326	13198	13387	13656	31673	32109	32088
Bullock Labour																		
Hired	351	492	257	31	6	26	807	541	100	71	17	9	179	204	479	3382	3402	1136
Owned	1991	1849	718	1696	1065	5981	1040	4172	6399	0	0	0	3961	2698	2142	3802	2874	5929
Total	2343	2341	975	1728	1071	6008	1847	4714	6498	71	17	9	4140	2902	2621	7184	6277	7065
Machine Labour																		
Hired	1811	1854	4187	2996	3383	2678	7808	4557	9342	10534	11129	12393	4566	5802	6165	4242	6641	9941
Owned	53	69	1637	43	124	68	862	586	223	78	53	35	184	344	261	609	168	365
Total	1865	1923	5824	3039	3507	2745	8670	5142	9565	10612	11181	12428	4750	6146	6426	4851	6809	10306
Seed	2066	1950	2027	2095	2004	3681	2968	3010	3092	3342	3214	2613	2052	1921	2384	2777	3023	2514
Fertilisers and Manure																		
Fertilisers	390	311	992	2729	2634	3031	8201	6430	10238	5464	4731	3420	2715	3017	3087	2305	3753	5842
Manure	583	334	2121	483	401	505	3540	2010	64	2237	2253	3729	1154	2006	1858	3945	5046	2783
Total	973	644	3113	3212	3035	3536	11741	8441	10301	7701	6984	7149	3869	5023	4945	6250	8799	8625
Other Inputs																		
Insecticides	404	450	967	0	0	0	2098	2279	2571	1279	1854	1085	745	1110	1365	392	594	3077
Irrigation charges	183	55	398	85	18	561	1112	1026	658	89	118	17	1062	739	1066	2231	1639	359
Crop Insurance	-	-	0	-	-	0	-	-	0	-	-	22	-	-	159	-	-	0
Payment to Contractor	-	-	0	-	-	0	-	-	0	-	-	1082	-	-	0	-	-	1
Interest on working capital	281	247	491	534	506	825	1358	1098	1588	1635	1579	1947	637	687	774	1414	1561	1830
Miscellaneous	0	0	5	0	0	2	0	9	197	2	3	292	167	155	2	909	1436	3825
Fixed Cost	11838	12892	15808	12175	12468	23317	23571	27933	17950	20179	20273	21108	12318	12683	12897	15219	15856	18196
Rental value of owned land	9097	10134	12543	9390	9914	19143	20482	23945	15715	19145	19314	19772	8472	9573	9217	9185	10398	8916
Rent paid for leased-in land	231	207	144	210	144	0	0	0	0	0	0	0	0	0	0	0	0	0
Land revenue, cesses & taxes	7	8	8	56	53	97	17	16	15	218	201	184	3	4	3	25	24	32
Depreciation on imple-ments & Farm buildings	520	530	371	839	706	949	250	608	542	342	329	394	1064	945	632	745	721	1483
Interest on fixed capital	1982	2013	2742	1680	1652	3127	2822	3364	1678	474	428	757	2779	2162	3045	5264	4712	7767
Total Cost	39388	42345	48860	37018	37033	62750	75697	73998	80763	78946	77274	97078	42939	44752	46295	72900	78103	87886
Yield	20	21	28	22	25	39	52	53	35	43	41	31	22	33	27	24	30	26
A ₂ +FL/Qtl	1067	1099	948	945	826	845	939	814	1704	1258	1275	1918	1267	887	1124	2039	1782	2243
C ₂ /Qtl	1483	1536	1377	1349	1202	1315	1339	1267	2129	1670	1705	2399	1710	1204	1574	2469	2199	2733

(Contd..)

Annexures



Price Policy for KHARIF CROPS

Annexures

Annex Table 5.5a: Paddy - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Odisha		Punjab		Tamil Nadu		Uttar Pradesh		Uttarakhand		West Bengal	
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	43863	46559	44647	34808	35944	37467	54945	54011	59005	40096	39023	43329
Human Labour												
Casual	11573	12504	10853	7256	7598	8180	14740	14679	14991	8464	7853	11856
Attached	39	42	11	1754	2038	1856	116	207	29	13	12	58
Family	17636	18381	16334	6519	6712	6614	7919	7512	9235	11416	11421	9428
Total	29247	30928	27198	15529	16348	16649	22776	22398	24255	19893	19285	21343
Bullock Labour												
Hired	538	420	316	0	1	0	105	83	169	100	50	20
Owined	2618	2888	3156	41	37	19	58	20	7	894	592	35
Total	3156	3308	3472	42	38	20	163	103	177	994	642	55
Machine Labour												
Hired	4412	5178	5624	3777	3957	3996	9636	9056	10532	4081	4172	4715
Owined	66	93	359	2243	2403	3153	982	776	718	233	297	755
Total	4478	5271	5983	6020	6360	7149	10617	9832	11250	4314	4469	5470
Seed	1196	1219	1291	1838	1716	1626	6969	6884	7759	3919	4071	4372
Fertilisers and Manure												
Fertilisers	2953	2803	3222	3223	3295	3111	6024	5810	6143	4636	4499	4138
Manure	1450	1596	1780	425	422	322	2428	2034	1678	109	71	63
Total	4403	4399	5001	3648	3717	3433	8452	7844	7821	4745	4570	4202
Other Inputs												
Insecticides	299	365	573	4459	4426	4146	1559	1487	1375	300	350	236
Irrigation charges	164	162	192	2400	2419	3459	2978	4011	4011	5061	4798	6615
Crop Insurance	-	-	21	-	-	-	-	-	36	-	-	0
Payment to Contractor	-	-	0	-	-	-	-	-	345	-	-	6
Interest on working capital	795	854	858	857	886	935	1425	1409	1520	869	836	1027
Miscellaneous	125	52	58	15	34	50	7	44	839	0	1	4
Fixed Cost	13580	14947	15456	39814	40135	43911	19727	21482	24475	19321	19406	18053
Rental value of owned land	10823	12063	13520	29901	30582	36213	14565	16402	17570	12408	13385	13332
Rent paid for leased-in land	156	164	169	5993	5975	4452	152	169	67	682	499	6
Land revenue, cesses & taxes	21	22	20	0	0	0	7	8	9	3	2	4
Depreciation on imple-ments & Farm buildings	670	700	463	337	329	545	347	602	592	996	878	744
Interest on fixed capital	1910	1999	1285	3584	3250	2700	4656	4302	6237	5231	4642	3967
Total Cost	57444	61506	60104	74622	76080	81378	74672	75493	83861	59416	58429	61382
Yield	35	39	40	70	69	75	49	47	46	36	37	37
A₂+FL/Qtl	1129	1101	1051	585	606	565	1068	1106	1199	1081	1018	1122
C₂/Qtl	1450	1427	1394	1062	1092	1083	1435	1524	1671	1541	1476	1563

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare



Annex Table 5.5b: Jowar - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Andhra Pradesh			Karnataka			Madhya Pradesh			Maharashtra			Rajasthan			Tamil Nadu		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	19909	28265	40634	15277	14041	22035	19686	21624	28266	23499	30031	35762	18784	23088	26260	21213	24938	38095
Human Labour																		
Casual	3631	5892	10667	5145	4333	5720	4219	1978	4699	5994	8680	9670	3215	3986	4024	8370	9637	9626
Attached	0	268	0	12	22	205	0	0	0	345	640	247	0	0	9	39	119	41
Family	3188	8478	11070	3071	3327	4814	7094	10546	9028	6389	6617	7803	9185	13346	14319	6123	6515	13841
Total	6819	14638	21737	8228	7682	10739	11313	12523	13727	12727	15936	17720	12400	17332	18352	14531	16271	23508
Bullock Labour																		
Hired	470	917	424	1166	759	1942	17	17	0	1672	676	522	108	72	37	0	0	0
Owned	836	4773	2630	1640	1778	1521	0	2779	0	1878	3482	3332	67	36	323	0	0	0
Total	1307	5690	3054	2805	2537	3463	17	2796	0	3550	4158	3853	175	108	360	0	0	0
Machine Labour																		
Hired	6507	1622	5168	1891	1873	4066	3276	2301	6765	3227	5160	5385	3081	2846	4148	2799	2747	5318
Owned	79	17	165	121	135	536	175	93	24	442	278	878	530	351	433	24	137	181
Total	6585	1638	5333	2012	2008	4602	3451	2393	6789	3670	5438	6264	3612	3198	4581	2823	2885	5499
Seed	766	1412	857	452	422	518	1361	1282	1457	518	550	477	1343	1065	969	990	1147	3189
Fertilisers and Manure																		
Fertilisers	2145	3338	5609	1282	914	1938	1629	1776	2444	1767	2325	3461	746	1036	1305	1082	1021	2283
Manure	574	0	477	46	0	0	507	290	2900	78	39	68	70	0	0	0	820	2375
Total	2719	3338	6086	1328	914	1938	2136	2066	5344	1845	2364	3529	816	1036	1305	1082	1840	4658
Other Inputs																		
Insecticides	1150	103	2338	0	3	28	0	161	0	2	27	12	0	0	0	24	42	45
Irrigation charges	56	846	269	82	148	145	929	0	250	642	825	2828	148	53	303	1305	2196	418
Crop Insurance	-	-	0	-	-	0	-	-	95	-	-	5	-	-	0	-	-	0
Payment to Contractor	-	-	0	-	-	0	-	-	0	-	-	196	-	-	0	-	-	0
Interest on working capital	507	600	896	370	325	522	382	336	583	519	710	847	291	295	362	457	558	735
Miscellaneous	-	-	64	0	1	81	98	67	21	28	24	31	0	0	29	0	0	44
Fixed Cost	15377	11506	17429	6709	7080	8676	13849	11413	9265	9386	10786	14481	6760	9275	6447	12691	18019	12993
Rental value of owned land	12237	7333	14512	4711	5181	7509	9383	7224	6913	4091	6499	6683	3649	4957	4770	8637	13656	8228
Rent paid for leased-in land	0	0	1481	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Land revenue, cesses & taxes	0	1	0	13	7	11	3	2	3	23	28	38	9	10	9	18	24	8
Depreciation on implements & Farm buildings	762	844	356	237	195	191	280	1197	329	654	612	707	439	534	308	402	339	792
Interest on fixed capital	2377	3329	1080	1748	1698	966	4182	2990	2020	4618	3647	7053	2662	3774	1360	3635	4000	3964
Total Cost	35286	39772	58063	21986	21121	30712	33535	33037	37531	32885	40818	50242	25544	32363	32707	33903	42957	51088
Yield	20	11	26	6	6	11	21	19	19	8	12	11	5	9	6	9	7	8
A₁+FL/Qtl	907	1982	1475	1850	1880	1572	577	856	928	1761	1539	1816	1502	1292	1720	1235	2291	2801
C₁/Qtl	1557	2865	1988	2628	2795	2175	969	1267	1218	2384	2038	2453	2001	1783	2136	1925	3885	3696

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare

Annexures



Annexures

Annex Table 5.5c: Bajra - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Gujarat			Haryana			Maharashtra			Rajasthan			Uttar Pradesh			(₹/ha)
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	
Operational Cost	36751	36711	35110	27036	24731	24974	32625	39676	34788	17250	20886	23750	20982	21499	22046	
Human Labour																
Casual	8313	8967	8998	3894	7011	4797	4874	11819	11152	2398	3147	2863	5741	4427	5618	
Attached	77	20	18	57	75	13	121	401	112	29	16	44	3	6	0	
Family	9063	8198	8461	12594	7520	9037	12538	7068	5181	10069	12403	14449	7939	10380	7201	
Total	17453	17185	17478	16544	14606	13847	17532	19287	16445	12497	15566	17355	13682	14814	12819	
Bullock Labour																
Hired	368	277	538	68	6	0	1063	1154	615	1	1	0	0	0	0	
Owned	348	496	478	26	76	5	2384	1832	1625	36	81	113	108	213	22	
Total	1945	1941	2108	95	81	5	3447	2986	2240	36	82	113	108	213	22	
Machine Labour																
Hired	3915	4657	4393	5133	5341	5437	5705	8699	8591	2338	2939	3548	3926	3166	4701	
Owned	1036	999	878	765	963	1256	538	310	1886	433	274	337	186	572	729	
Total	4951	5656	5271	5899	6304	6693	6243	9010	10477	2771	3214	3884	4112	3738	5430	
Seed	1945	1941	2108	912	932	817	999	1023	1059	754	832	954	1108	1180	1069	
Fertilisers and Manure																
Fertilisers	3317	3047	2795	1646	1955	2104	1493	1674	1878	385	456	763	791	851	960	
Manure	1802	978	712	0	0	0	239	3220	0	237	299	57	0	25	0	
Total	5119	4024	3506	1646	1955	2104	1732	4895	1878	622	755	821	791	876	960	
Other Inputs																
Insecticides	18	42	124	17	122	131	0	0	0	64	79	0	0	6	100	
Irrigation charges	5710	6226	4324	1486	209	746	2057	1485	1236	288	102	332	786	336	978	
Crop Insurance	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	
Payment to Contractor	-	-	475	-	-	149	-	-	525	-	-	0	-	-	218	
Interest on working capital	839	864	808	438	522	483	609	988	897	218	257	282	395	337	450	
Miscellaneous	0	0	0	0	0	0	6	3	30	0	0	8	0	0	0	
Fixed Cost	11731	11570	12473	11885	16155	15702	9177	12635	13699	7174	8080	5419	14493	18729	12418	
Rental value of owned land	9323	8761	8519	8082	11223	9106	4186	7623	6934	3093	4801	4068	9856	9159	8758	
Rent paid for leased-in land	564	485	707	0	0	0	0	0	0	50	42	0	2042	6552	894	
Land revenue, cesses & taxes	2	3	4	0	0	0	23	19	17	6	6	4	5	6	5	
Depreciation on implements & Farm Buildings	109	84	273	521	714	1192	731	500	576	525	434	234	335	316	453	
Interest on fixed capital	1733	2238	2970	3282	4218	5404	4238	4493	6172	3499	2797	1113	2255	2695	2309	
Total Cost	48482	48281	47583	38921	40886	40676	41802	52311	48486	24424	28967	29169	35476	40228	34464	
Yield	25	23	26	16	22	19	13	23	21	8	12	10	25	29	22	
A ₁ +F ₁ /Q ₁	979	1026	902	1249	886	1012	2154	1465	1410	1232	966	1164	745	787	834	
C ₁ /Q ₁	1270	1323	1191	1764	1423	1584	2703	1907	1921	1655	1290	1442	11130	1117	1230	

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare

Price Policy for KHARIF CROPS



Annex Table 5.5d: Maize - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Andhra Pradesh			Bihar			Gujarat			Himachal Pradesh			Karnataka			Madhya Pradesh		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	42634	41188	47492	29563	32262	31425	36172	29758	35614	26759	28093	27771	35085	28221	36204	27044	28940	32238
Human Labour																		
Casual	10482	11219	10952	4822	4922	9942	7980	5681	9444	424	632	456	10129	7556	7149	4051	4898	6992
Attached	741	238	124	43	59	0	0	0	0	161	75	0	0	0	4	260	327	45
Family	7181	6222	7433	8556	9545	5362	11809	9367	7182	15767	16844	14546	5205	4308	6370	8025	8257	6101
Total	18404	17679	18509	13420	14526	15304	19789	15048	16626	16352	17552	15001	15335	11864	13524	12336	13481	13138
Bullock Labour																		
Hired	1103	709	1208	0	0	0	1273	879	1821	452	473	187	2340	2121	2018	422	475	146
Owned	2783	1766	903	0	0	0	3015	2216	504	1319	951	912	1128	1725	4472	2433	2134	4122
Total	3885	2476	2111	0	0	0	4288	3095	2325	1771	1424	1099	3468	3846	6490	2855	2609	4268
Machine Labour																		
Hired	5784	5585	7314	3848	3740	4844	3085	3303	5544	2294	2654	3567	5665	3803	5763	3991	4539	5002
Owned	180	126	165	9	16	42	306	452	699	158	171	190	488	243	1003	221	441	237
Total	5964	5712	7478	3858	3755	4886	3390	3755	6243	2453	2825	3757	6153	4046	6766	4212	4980	5238
Seed	4387	5068	5360	2195	2970	1851	1875	1760	2341	1296	1251	1839	3072	2866	2882	2758	2765	3433
Fertilisers and Manure																		
Fertilisers	7175	7040	6708	3996	4341	3639	2366	1908	4111	811	863	1125	5423	3875	3993	1890	2119	2103
Manure	353	585	55	858	521	292	1216	976	1806	3525	3707	4221	83	11	141	2035	1893	1670
Total	7528	7625	6763	4854	4862	3931	3582	2884	5917	4335	4571	5346	5507	3886	4134	3925	4012	3773
Other Inputs																		
Insecticides	789	829	1690	0	0	5	108	178	320	218	130	316	48	219	74	146	368	1491
Irrigation charges	575	681	692	4600	5461	4656	2401	2420	979	0	0	0	597	769	1006	194	0	0
Crop Insurance	-	-	0	-	-	0	-	-	0	-	-	2	-	-	0	-	-	98
Payment to Contractor	-	-	3533	-	-	0	-	-	0	-	-	0	-	-	291	-	-	0
Interest on working capital	1074	1060	1214	637	688	790	738	618	862	333	341	401	905	725	904	576	627	792
Miscellaneous	28	58	142	0	0	3	0	0	0	0	0	9	0	0	131	43	98	8
Fixed Cost	26971	26097	29792	13382	15147	17039	6804	10242	7017	9983	12013	11385	13954	14336	11647	9198	9321	11508
Rental value of owned land	23645	23693	24914	10867	12864	14691	4530	6239	5274	5952	7389	7921	11440	11287	9182	7368	7621	8745
Rent paid for leased-in land	0	92	1257	0	0	0	6	1215	59	19	11	39	0	0	0	0	0	0
Land revenue, cesses & taxes	1	1	0	51	81	114	6	7	6	6	7	6	10	13	7	3	2	3
Depreciation on imple-ments & Farm buildings	390	287	584	639	557	513	268	248	171	536	563	565	174	486	304	463	468	648
Interest on fixed capital	2935	2025	3037	1825	1645	1721	1995	2533	1508	3469	4045	2855	2330	2551	2153	1364	1229	2113
Total Cost	69605	67285	77284	42945	47409	48463	42976	40000	42631	36742	40107	39156	49039	42557	47850	36242	38261	43746
Yield	51	53	64	33	36	40	13	19	16	14	16	19	32	32	30	18	23	31
A+FL/Qtl	790	753	753	821	792	679	2046	1241	1532	1464	1239	1051	1007	841	1097	1334	1064	861
C/Qtl	1275	1218	1174	1165	1134	1031	2393	1587	1821	1957	1728	1447	1400	1252	1439	1738	1389	1142

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Annex Table 5.5d: Maize - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Maharashtra			Punjab			Rajasthan			Tamil Nadu			Uttar Pradesh		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	56378	51408	52578	36739	33144	45099	35923	34106	34923	64263	65438	60675	27848	29498	32880
Human Labour															
Casual	10025	9371	8078	7137	8367	6215	1502	2742	2894	15413	18301	16447	3563	5802	6731
Attached	1034	412	122	454	212	588	4	1	2	75	156	6	0	0	15
Family	11174	8503	7529	8327	5809	13273	21641	19510	19408	16870	14655	13251	11979	11189	10016
Total	22233	18286	15729	15918	14389	20077	23147	22253	22304	32358	33112	29705	15542	16991	16762
Bullock Labour															
Hired	505	1257	857	272	267	311	856	845	346	0	11	3	227	58	77
Owned	8595	3824	6351	65	41	237	1561	1747	1793	85	30	0	875	1181	143
Total	9100	5081	7208	337	309	548	2417	2593	2138	85	41	3	1103	1239	220
Machine Labour															
Hired	4970	9236	9649	4859	4490	5468	4214	4611	4858	8637	7873	8053	3928	3887	5130
Owned	1198	962	1954	1770	1690	2477	117	90	479	126	198	252	74	233	1186
Total	6168	10197	11603	6629	6180	7946	4330	4701	5336	8763	8071	8305	4002	4120	6316
Seed	4480	5002	3906	4015	3673	5534	1892	1716	1859	4637	4409	4996	2400	2627	3624
Fertilisers and Manure															
Fertilisers	7626	6562	8619	4503	4598	4301	2395	2398	2070	6555	5775	5818	1908	2191	2162
Manure	612	753	33	2219	951	3320	249	0	88	5613	7610	5503	374	6	436
Total	8238	7314	8652	6722	5548	7620	2644	2398	2158	12168	13385	11320	2282	2198	2598
Other Inputs															
Insecticides	295	126	48	1449	1808	2093	0	0	81	734	567	799	74	31	96
Irrigation charges	4495	4102	1451	807	408	262	1059	2	561	4045	4217	4010	1963	1737	2563
Crop Insurance	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0
Payment to Contractor	-	-	2528	-	-	0	-	-	0	-	-	11	-	-	0
Interest on Working Capital	1370	1300	1365	861	828	964	433	442	470	1436	1539	1437	481	555	693
Miscellaneous	0	0	88	0	0	55	0	14	14	37	97	88	1	1	9
Fixed Cost	15969	21465	22173	17140	19920	25621	11467	9624	10682	25161	27273	35375	11754	13097	14545
Rental value of owned land	9820	13087	13597	11000	9594	14319	5888	5250	6648	16332	18499	12943	9143	10798	10581
Rent paid for leased-in land	0	0	0	2547	6736	4853	39	848	0	688	0	0	129	0	231
Land revenue, cesses & taxes	28	23	23	0	0	0	10	11	11	8	8	10	4	5	3
Depreciation on implements & Farm buildings	440	552	668	470	591	861	571	856	660	505	529	505	572	480	653
Interest on fixed capital	5681	7803	7885	3123	2998	5588	4959	2660	3363	7627	8237	21917	1906	1814	3077
Total Cost	72347	72873	74751	53879	53064	70719	47389	43731	45605	89424	92710	96050	39602	42595	47426
Yield	43	55	68	35	36	40	17	18	22	60	45	60	23	24	26
A ₂ + FL/Qtl	1182	839	687	1025	1053	1141	1666	1603	1230	1046	1412	969	1054	1064	1092
C ₂ /Qtl	1503	1174	961	1390	1381	1585	2097	1932	1573	1431	1982	1525	1455	1509	1545

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare



Annex Table 5.5e: Ragi - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Karnataka			Uttarakhand		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	46390	33526	48060	21619	25371	37658
Human Labour						
Casual	17094	10777	17028	200	540	1086
Attached	0	0	0	0	0	0
Family	10414	7104	8822	16544	19740	25974
Total	27508	17880	25851	16745	20280	27060
Bullock Labour						
Hired	4741	3386	1363	0	0	9239
Owned	1386	415	4567	3357	4419	209
Total	6127	3801	5930	3357	4419	9448
Machine Labour						
Hired	3835	5589	7581	0	0	0
Owned	20	12	570	0	0	0
Total	3855	5600	8151	0	0	0
Seed	430	434	802	369	441	774
Fertilisers and Manure						
Fertilisers	3693	2518	3174	0	0	22
Manure	2548	2121	2220	994	61	0
Total	6241	4639	5394	994	61	22
Other Inputs						
Insecticides	0	82	0	0	0	0
Irrigation charges	1139	288	620	0	0	0
Crop Insurance	-	-	0	-	-	0
Payment to Contractor	-	-	0	-	-	0
Interest on working capital	1090	801	1189	154	171	354
Miscellaneous	0	0	125	0	0	0
Fixed Cost	13452	13193	12138	5519	6090	9992
Rental value of owned land	9918	11514	10857	5066	5118	6665
Rent paid for leased-in land	0	0	0	0	0	0
Land revenue, cesses & taxes	27	24	17	1	1	0
Depreciation on implements & Farm buildings	517	759	158	48	140	1457
Interest on fixed capital	2990	896	1106	404	832	1871
Total Cost	59842	46719	60199	27138	31461	47650
Yield	17	19	17	19	19	11
A₁+FL/Qtl	2344	1620	2166	1018	1202	3356
C₁/Qtl	2919	2186	2710	1275	1482	4088

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare

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Annex Table 5.5f: Arhar (Tur) - Break- up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Andhra Pradesh			Gujarat			Karnataka			Madhya Pradesh			Maharashtra			Odisha			Uttar Pradesh		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	25786	35994	29060	31925	28366	36893	26490	19686	30488	24013	25019	23619	55949	61520	65030	13772	15797	15058	23566	23642	122457
Human Labour																					
Casual	6328	8590	7059	6602	7263	9772	6329	4653	4789	3405	2823	5318	9412	12394	14091	1310	2080	890	4922	7062	4493
Attached	620	1485	4	0	0	149	8	53	7	229	286	25	659	1228	371	0	449	61	45	0	9
Family	4993	7397	5266	10500	7200	12167	6511	2699	5121	8074	7682	6394	16313	11277	15200	7963	8154	10429	9207	8490	9405
Total	11941	17472	12329	17103	14462	22088	12848	7405	9916	11708	10790	11737	26384	24899	29662	9273	10684	11379	14173	15552	13908
Bullock Labour																					
Hired	1283	1373	1617	352	858	199	1271	930	2831	24	80	245	1627	1524	2832	50	59	1	0	0	0
Owned	2571	4024	279	2373	490	4143	2154	1676	2635	4192	3764	1551	4713	4050	4495	2026	2643	1888	2225	32	42
Total	3854	5398	1896	2724	1348	4342	3425	2606	5467	4216	3844	1796	6340	5574	7327	2075	2702	1889	2225	32	42
Machine Labour																					
Hired	3703	4667	4279	3796	2514	3364	3041	4149	5444	1358	2760	3772	7033	8938	9516	860	722	605	2768	2777	3761
Owned	71	81	1676	941	1180	570	8	38	584	276	406	387	363	1725	659	0	7	21	710	942	277
Total	3775	4748	5955	4736	3694	3934	3048	4188	6028	1634	3165	4159	7396	10663	10176	860	730	626	3477	3719	4038
Seed	1335	1577	1049	825	1868	646	1238	1395	893	2850	3270	2091	2263	2726	2199	1388	1450	966	2214	2402	2054
Fertilisers and Manure																					
Fertilisers	2051	3006	2410	2052	1755	1246	2475	1462	2790	1082	1058	1552	3940	5292	4929	0	0	12	15	480	210
Manure	332	288	30	538	493	829	1684	138	103	753	1085	372	728	1269	632	0	0	31	0	0	22
Total	2383	3295	2440	2590	2248	2075	4159	1601	2893	1835	2143	1924	4667	6561	5561	0	0	43	15	480	231
Other Inputs																					
Insecticides	1630	2431	2040	1865	2713	1619	883	1899	3910	1068	1078	1049	5167	6113	7418	0	0	0	0	5	293
Irrigation charges	158	164	7	1317	1371	1440	283	79	73	217	161	252	2385	3365	659	0	0	0	1026	992	1305
Crop Insurance	-	-	0	-	-	0	-	-	0	-	-	84	-	-	63	-	-	0	-	-	0
Payment to Contractor	-	-	2324	-	-	0	-	-	314	-	-	0	-	-	175	-	-	0	-	-	190
Interest on working capital	630	867	721	649	641	749	605	515	769	483	525	522	1201	1523	1510	176	232	140	435	459	395
Miscellaneous	80	44	298	116	21	0	0	0	226	2	43	6	147	96	281	0	0	14	0	0	0
Fixed Cost	19235	16059	11540	16040	14032	14927	12041	14266	13838	18444	16201	11586	30294	33714	22702	9053	9399	7645	28817	25397	20845
Rental value of owned land	15977	12961	9986	10667	8025	7080	10134	12380	11531	14167	11826	7835	21912	18749	14084	5834	6132	5498	21274	19439	15485
Rent paid for leased-in land	0	626	471	1991	2406	1134	0	0	0	0	0	0	0	0	0	0	0	0	605	119	0
Land revenue, cesses & taxes	0	0	0	54	50	10	17	11	9	7	11	4	43	47	63	16	19	18	22	20	17
Depreciation on implements & Farm buildings	450	529	155	264	157	329	334	278	213	1086	1392	1269	979	1156	1394	760	731	648	1248	1036	1335
Interest on fixed capital	2807	1942	928	3064	3394	6373	1556	1597	2084	3184	2972	2478	7360	13763	7160	2444	2516	1480	5668	4783	4008
Total Cost	45021	52053	40600	47965	42399	51820	38531	33952	44326	42457	41220	35205	86243	95234	87732	22825	25196	22703	52383	49040	43302
Yield	5	8	6	11	12	11	5	10	10	8	10	7	14	22	19	3	4	5	8	10	8
A ₁ +H ₁ /Q ₁	5234	4442	4787	3171	2500	3269	5018	1889	2834	3046	2412	3050	3956	2744	3445	4297	4253	3073	2625	2184	2348
C ₁ /Q ₁	8939	6242	6539	4437	3476	4419	7187	3210	4082	5144	3739	4316	5984	4166	4547	6723	6471	4441	5392	4325	4261

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare



Annex Table 5.5g: Moong - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Andhra Pradesh			Gujarat			Karnataka			Maharashtra			Odisha			Rajasthan		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	20138	17613	19368	21792	27479	23505	13977	14538	21049	26897	31046	31848	13500	13821	14797	16452	17069	17564
Human Labour																		
Casual	5374	4404	4626	5807	7080	4873	4631	4678	4309	5996	7769	8725	671	780	1342	2364	1716	3020
Attached	28	166	339	21	0	77	36	7	60	192	565	81	9	33	0	0	0	0
Family	2215	2800	4860	5659	7214	7626	2254	1785	3289	7256	5083	5468	7799	7961	8177	8497	9146	7559
Total	7617	7370	9825	11487	14294	12575	6921	6470	7658	13444	13418	14274	8480	8774	9519	10861	10861	10579
Bullock Labour																		
Hired	1674	1180	118	608	520	29	202	524	2286	721	714	1728	180	178	7	0	0	0
Owned	287	241	242	260	387	164	1727	829	1141	2874	3437	1983	1358	1645	1696	135	117	1
Total	1960	1421	361	869	907	193	1929	1353	3427	3595	4151	3711	1538	1824	1703	135	117	1
Machine Labour																		
Hired	4154	3772	2679	3699	4692	1745	1863	2935	4710	4108	5250	4977	1513	1403	1536	2309	2512	3007
Owned	0	339	112	775	888	2572	538	463	680	233	319	1460	9	25	66	626	310	564
Total	4154	4110	2792	4475	5580	4317	2401	3397	5390	4341	5569	6437	1522	1428	1602	2934	2822	3571
Seed	2382	1729	1830	2015	1896	2117	1241	1214	952	2146	1992	1748	1705	1606	1516	1573	1615	1644
Fertilisers and Manure																		
Fertilisers	2163	1083	706	763	1235	1594	1041	1194	1995	1941	3697	2231	4	11	163	215	393	1025
Manure	0	181	497	205	1247	758	0	176	0	206	755	1027	0	0	0	321	610	0
Total	2163	1264	1203	968	2482	2352	1041	1369	1995	2146	4452	3259	4	11	163	537	1003	1025
Other Inputs																		
Insecticides	1318	1270	2690	699	954	741	75	342	504	423	651	964	1	0	67	155	225	178
Irrigation charges	0	0	3	791	751	730	14	5	128	207	9	116	78	1	15	16	184	241
Crop Insurance	-	-	0	-	-	0	-	-	0	-	-	6	-	-	0	-	-	0
Payment to Contractor	-	-	222	-	-	0	-	-	386	-	-	460	-	-	0	-	-	0
Interest on working capital	543	449	440	489	614	481	355	386	538	595	787	799	173	178	201	241	240	303
Miscellaneous	0	0	4	0	0	0	0	0	72	0	19	73	0	0	12	0	0	22
Fixed Cost	7948	6269	6663	8661	9966	5932	7160	7083	8106	8660	9882	10074	6319	5707	5502	8159	7083	4779
Rental value of owned land	7632	5298	5493	7457	8042	3588	5172	5073	7179	4093	5871	4703	4702	4040	4405	5430	4613	3540
Rent paid for leased-in land	0	0	0	291	726	272	0	0	0	0	0	0	45	29	1	0	27	0
Land revenue, cesses & taxes	0	0	0	7	4	2	4	5	10	26	22	26	9	9	10	6	6	4
Depreciation on implements & Farm buildings	99	248	113	129	102	269	120	113	104	601	537	594	437	409	392	323	315	242
Interest on fixed capital	217	724	1056	778	1092	1802	1864	1892	813	3939	3452	4750	1126	1220	695	2400	2122	993
Total Cost	28086	23882	26031	30453	37444	29437	21137	21621	29155	35557	40928	41922	19818	19528	20299	24611	24152	22343
Yield	3	3	4	6	9	3	3	5	7	3	7	6	3	3	4	4	5	4
A₁+FL/Qtl	6389	6626	5334	3482	2754	6399	4415	2845	3204	8768	4250	5028	5077	4805	3988	3840	2998	3803
C₂/Qtl	8883	8896	7116	4774	3608	7842	6610	4177	4416	11333	5504	6495	7189	6555	5325	5617	4125	4775

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare

Annexures



Annexures

Annex Table 5.5h: Urad - Break- up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Andhra Pradesh			Chhattisgarh			Madhya Pradesh			Maharashtra			Odisha			Tamil Nadu			Uttar Pradesh		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	17551	18832	23204	19998	27384	27510	20845	19705	18480	26728	30658	31134	13578	15261	13566	24982	27489	30594	13809	14370	14853
Human Labour																					
Casual	7686	7768	7799	68	1550	2493	3143	3796	2639	3600	8075	6715	543	1297	1895	8792	9266	9393	2125	2031	2925
Attached	373	418	213	0	0	0	58	110	18	112	345	14	47	16	1	99	109	5	0	0	0
Family	1496	1655	2292	8772	9449	9841	5759	3741	4585	10256	4940	6217	8203	8496	7593	4272	5711	5837	4992	4598	5088
Total	9555	9841	10304	8840	10998	12334	8960	7647	7242	13968	13361	12945	8794	9809	9490	13163	15085	15235	7117	6630	8012
Bullock Labour																					
Hired	91	196	19	0	68	29	8	5	3	358	847	1785	172	166	50	1	1	0	9	17	15
Owined	187	145	382	7403	4512	10159	1052	640	78	3700	1551	1837	1712	1755	687	0	0	20	91	168	305
Total	278	341	401	7403	4580	10188	1061	645	81	4057	2399	3622	1883	1921	737	1	1	20	99	185	320
Machine Labour																					
Hired	1379	1399	2089	0	4243	981	4046	4726	5274	3531	5843	6445	472	622	967	2916	2681	4856	2897	3947	3578
Owined	38	53	147	0	153	59	103	280	280	345	1381	760	16	131	121	296	531	767	436	431	774
Total	1417	1452	2236	0	4396	1041	4149	5006	5555	3876	7224	7205	488	753	1089	3212	3213	5623	3333	4378	4352
Seed	4639	4056	2327	3415	2022	1749	2683	3054	1674	1885	3095	1653	2250	2479	1468	3364	3519	2493	1899	1983	1129
Fertilisers and Manure																					
Fertilisers	376	519	346	0	1293	1309	1520	1658	1630	1681	2277	2897	0	0	358	1360	1456	2070	0	67	17
Manure	25	43	109	0	18	0	1127	395	505	0	593	118	0	6	0	1203	1220	716	0	0	0
Total	402	562	455	0	1311	1309	2647	2052	2135	1681	2870	3015	0	6	358	2563	2675	2786	0	67	17
Other Inputs																					
Insecticides	748	2058	2257	0	921	354	880	804	1254	625	744	1303	0	0	204	1127	1025	1303	515	484	597
Irrigation charges	0	0	196	0	2611	0	0	0	1	74	164	568	0	85	30	887	1293	2321	570	346	60
Crop Insurance	-	-	0	-	-	0	-	-	107	-	-	2	-	-	0	-	-	0	-	-	0
Payment to Contractor	-	-	4294	-	-	0	-	-	0	-	-	0	-	-	0	-	-	14	-	-	0
Interest on working capital	486	521	634	340	543	535	457	484	421	499	779	755	163	209	181	628	660	750	267	296	296
Miscellaneous	25	1	100	0	0	0	8	14	11	64	23	65	0	0	8	36	16	49	10	1	69
Fixed Cost	28863	9170	11644	4868	9344	4918	12878	9165	7398	7919	11557	6984	9065	7987	5449	11831	10419	21846	10912	10247	5818
Rental value of owned land	28325	7733	10357	3644	7305	3244	11457	8095	4800	5250	7900	5069	7018	6230	4341	9570	8313	11786	8049	7523	4435
Rent paid for leased-in land	153	69	70	0	0	0	0	0	0	0	0	0	24	21	15	38	10	58	0	26	0
Land revenue, cesses & taxes	0	0	0	3	3	2	3	2	4	22	26	27	10	12	11	5	5	9	4	3	6
Depreciation on implements & Farm buildings	93	118	152	365	369	424	474	371	542	453	431	304	454	332	372	264	613	341	330	193	193
Interest on fixed capital	292	1250	1065	856	1667	1248	944	697	2052	2195	3200	1584	1559	1392	710	1954	1865	9381	2518	2364	1184
Total Cost	46414	28002	34848	24866	36728	32428	33723	28870	25878	34647	42215	38118	22643	23248	19015	36813	37908	52440	24721	24617	20671
Yield	9	4	8	2	8	3	5	7	6	4	7	7	3	4	4	6	5	8	2	4	3
A₂+FI/Qtl	1878	4375	3089	9148	3554	9288	3965	2940	2913	7582	4254	4660	4739	4227	3555	4301	5026	3752	6440	3358	4239
C/Qtl	4898	6435	4586	11177	4706	10724	6260	4212	3965	9644	5773	5642	7631	6294	4838	6250	6861	6303	11258	5600	5821

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare



Annex Table 5.5i: Groundnut - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Andhra Pradesh			Gujarat			Karnataka			Maharashtra			Odisha			Rajasthan			Tamil Nadu		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	41909	42593	51331	56707	59673	55209	40614	35826	42056	70721	70799	60639	39125	39636	45724	38442	42951	43170	57625	60120	56088
Human Labour																					
Casual	9710	10757	11342	10531	10307	10268	11393	9455	10929	13006	13492	12268	6952	7489	7528	1893	1606	2048	18422	18734	17381
Attached	0	0	187	22	64	24	0	0	0	289	30	238	486	152	0	1939	1686	6	11	57	10
Family	6602	6787	8883	10542	10108	9189	7345	5664	5555	14375	18626	16387	15685	17089	22443	7959	10570	10908	11007	12136	10325
Total	16312	17545	20412	21095	20479	19482	18739	15119	16485	27671	32147	28893	23123	24731	29972	11791	13862	12963	29441	30928	27716
Bullock Labour																					
Hired	640	437	551	649	723	701	2904	3878	2523	549	590	330	696	766	393	40	25	12	604	427	112
Owned	779	2100	355	2851	3399	3380	2021	1716	2694	2356	3286	4339	1989	1532	4006	149	47	12	203	168	56
Total	1420	2537	907	3501	4123	4082	4926	5594	5217	2904	3876	4670	2685	2298	4399	189	72	24	808	594	168
Machine Labour																					
Hired	3955	3321	5210	4969	5223	5228	2590	2808	2876	9208	8138	9213	1575	1738	1011	5823	5792	4747	4085	3934	6196
Owned	135	262	202	1723	1598	1499	137	240	759	2285	803	893	74	171	183	770	695	2506	80	681	96
Total	4090	3583	5412	6692	6820	6727	2727	3048	3635	11492	8941	10105	1649	1910	1194	6593	6487	7252	4165	4616	6292
Seed	10774	10876	12559	10735	13921	11143	7967	7605	9832	7585	8935	8904	8497	7962	7337	9433	11512	11643	8690	9569	10377
Fertilisers and Manure																					
Fertilisers	4540	3516	3043	2760	2816	3062	3227	2787	4686	2222	2051	4416	2162	1878	1751	1724	2426	3408	3945	3983	4684
Manure	1709	1478	2914	4063	3504	3670	1271	159	332	15122	8067	129	176	0	326	683	631	1251	5297	5212	2140
Total	6248	4994	5957	6822	6320	6731	4499	2946	5018	17344	10117	4545	2338	1878	2077	2407	3057	4658	9243	9195	6824
Other Inputs																					
Insecticides	1019	920	1197	3575	4029	3405	240	223	131	458	407	36	0	0	1	2610	2796	1179	664	520	838
Irrigation charges	813	1047	682	2808	2084	1728	509	378	354	1559	4795	2008	123	174	4	4496	4184	4466	3202	3244	1989
Crop Insurance	-	-	0	-	-	0	-	-	0	-	-	-	-	-	0	-	-	0	-	-	0
Payment to Contractor	-	-	2779	-	-	516	-	-	83	-	-	0	-	-	0	-	-	0	-	-	332
Interest on working capital	1070	1085	1286	1399	1502	1395	1008	914	1106	1707	1581	1341	710	683	705	924	981	978	1413	1454	1387
Miscellaneous	164	5	141	80	395	0	0	0	196	0	0	137	0	0	35	0	0	7	0	0	166
Fixed Cost	20263	17248	19603	18559	19756	19526	10901	14463	13527	14172	14198	14870	14440	14187	12749	24394	25437	17520	19936	23361	35364
Rental value of owned land	17127	13426	16631	13840	15812	14791	8144	11930	9605	9975	9099	10139	11730	11735	10947	19216	19069	13443	15134	17275	19865
Rent paid for leased-in land	796	1712	919	1461	933	389	0	0	0	0	0	0	0	0	0	0	0	0	55	13	14
Land revenue, cesses & taxes	0	0	0	8	7	5	17	14	27	22	27	18	17	15	17	9	11	6	8	15	10
Depreciation on implements & Farm buildings	231	339	332	198	152	336	423	633	295	387	603	617	493	449	426	293	222	358	463	308	653
Interest on fixed capital	2109	1771	1721	3053	2852	4005	2318	1886	3600	3788	4469	4096	2200	1988	1360	4876	6135	3713	4275	5750	14821
Total Cost	62171	59841	70934	75267	79429	74734	51515	50289	55582	84893	84998	75509	53565	53822	58473	62836	68388	60690	77561	83481	91452
Yield	14	10	13	19	21	18	8	9	9	11	8	13	9	9	10	25	24	19	18	19	16
A₁+FL/Qtl	2794	3792	3615	2550	2457	2568	4675	3494	4123	6071	7931	4429	4379	4348	4721	1432	1578	2058	2995	3006	3157
C₁/Qtl	4058	5019	4876	3289	3212	3429	5852	4695	5388	7244	9356	5454	5918	5829	5983	2316	2495	2871	4004	4122	5054

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare

Annexures



Annexures

Annex Table 5.5j: Soybean - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Andhra Pradesh			Chhattisgarh			Madhya Pradesh			Maharashtra			Rajasthan		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	32559	41446	34710	20388	17869	17258	24119	25774	24728	31677	38039	35941	23329	23274	20294
Human Labour															
Casual	3520	7764	9811	3256	2416	1975	2818	3239	3747	6308	9224	7680	3093	3249	1398
Attached	1063	2268	9	0	0	91	80	93	78	402	571	479	250	438	26
Family	6516	5499	2620	5988	4202	2684	4908	5228	4498	5150	4333	3934	7253	8116	5941
Total	11099	15530	12440	9244	6618	4750	7806	8560	8322	11861	14128	12094	10597	11803	7365
Bullock Labour															
Hired	113	67	81	71	454	34	66	16	42	1045	1388	1400	189	140	0
Owned	2849	4959	1890	1002	0	7	621	529	377	2668	2297	3820	687	851	416
Total	2962	5026	1971	1073	454	41	687	545	419	3713	3685	5220	876	991	416
Machine Labour															
Hired	3906	5779	7530	3830	5387	5072	4528	5312	5473	4536	5900	6005	3253	3128	4512
Owned	398	499	0	0	0	307	338	508	437	682	754	493	939	796	1316
Total	4305	6278	7530	3830	5387	5379	4866	5820	5909	5218	6654	6498	4192	3924	5828
Seed	3854	3776	4279	4320	3453	3215	4426	4615	3646	4636	5206	4156	5099	5057	4104
Fertilisers and Manure															
Fertilisers	6565	6004	4853	573	1150	1551	1923	1928	1891	2713	3051	3007	578	378	696
Manure	375	295	4	0	0	312	1491	1634	1593	1260	2002	311	0	0	0
Total	6940	6299	4857	573	1150	1863	3414	3562	3483	3973	5054	3318	578	378	696
Other Inputs															
Insecticides	2565	3447	2466	912	393	1029	1773	1748	2025	825	1801	1749	1238	586	1443
Irrigation charges	47	0	0	0	0	259	85	0	16	528	390	184	262	76	0
Crop Insurance	-	-	0	-	-	281	-	-	287	-	-	149	-	-	0
Payment to Contractor	-	-	64	-	-	0	-	-	0	-	-	1500	-	-	0
Interest on working capital	789	1089	972	436	414	442	582	623	613	804	1021	970	487	459	435
Miscellaneous	0	0	130	0	0	0	481	301	7	119	100	104	0	0	9
Fixed Cost	9722	19087	15711	5818	8534	6824	6818	10817	10025	11564	18271	10214	7469	6834	7772
Rental value of owned land	6935	15086	15043	4444	7930	3864	4439	8723	6467	5521	8447	5926	4363	4444	5625
Rent paid for leased-in land	0	0	0	0	0	0	0	0	0	0	0	0	82	96	0
Land revenue, cesses & taxes	1	0	0	2	3	2	3	3	4	27	32	27	8	9	7
Depreciation on implements & Farm buildings	498	618	179	408	233	565	553	541	788	623	650	689	363	368	408
Interest on fixed capital	2288	3383	490	965	367	2393	1823	1550	2765	5393	9142	3571	2653	1917	1733
Total Cost	42282	60533	50421	26206	26402	24082	30938	36591	34753	43242	56310	46154	30798	30107	28067
Yield	7	19	17	5	10	6	5	14	10	9	18	13	6	8	11
A₁+FL/Qd	4637	2186	2103	3894	1711	2721	4658	1815	2429	3520	2117	2777	3541	2672	1722
C₁/Qd	5928	3145	3039	4905	2495	3828	5845	2519	3299	4710	3079	3495	4531	3364	2312

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare



Annex Table 5.5k: Sunflower - Break-up of Cost of Cultivation, 2015-16 to 2017-18

(₹/ha)

Cost Items	Karnataka		
	2015-16	2016-17	2017-18
Operational Cost	19846	18009	20537
Human Labour			
Casual	5871	5418	5461
Attached	0	0	0
Family	3186	3180	3580
Total	9057	8598	9041
Bullock Labour			
Hired	822	828	1168
Owned	1775	899	2192
Total	2597	1727	3360
Machine Labour			
Hired	1447	2763	1990
Owned	1312	0	1089
Total	2759	2763	3079
Seed	2156	2261	2089
Fertilisers and Manure			
Fertilisers	1816	1570	2016
Manure	655	0	105
Total	2471	1570	2121
Other Inputs			
Insecticides	230	140	170
Irrigation charges	72	501	104
Crop Insurance	-	-	0
Payment to Contractor	-	-	0
Interest on working capital	505	449	514
Miscellaneous	0	0	60
Fixed Cost	6663	10574	7998
Rental value of owned land	3700	9547	5998
Rent paid for leased-in land	0	0	0
Land revenue, cesses & taxes	13	6	6
Depreciation on implements & Farm buildings	120	129	174
Interest on fixed capital	2830	892	1821
Total Cost	26508	28583	28536
Yield	4	12	8
A₂ + FL/Qtl	4922	1538	2568
C₂/Qtl	6534	2423	3531

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare



Annexures

Annex Table 5.5I: Sesamum - Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Andhra Pradesh			Gujarat			Madhya Pradesh			Odisha			Rajasthan			Uttar Pradesh			West Bengal		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	19146	23211	16900	25441	25729	37742	18653	17761	24420	18146	17052	9496	11974	15423	16274	9057	10275	11644	26275	34682	42321
Human Labour																					
Casual	5125	8206	8554	5867	6707	9556	5070	5058	4874	4302	5283	1140	1363	1456	3547	2494	3344	1671	8851	9373	12301
Attached	10	0	0	0	0	9	12	0	0	0	0	17	32	0	0	0	0	37	5	0	0
Family	4211	3150	1759	7838	7405	8203	5074	4788	8603	7919	5328	5739	7438	10620	8977	3447	3823	6232	7943	13187	14184
Total	9346	11356	10313	13705	14112	17767	10156	9846	13477	12221	10611	6896	8833	12076	12525	5941	7168	7940	16798	22560	26485
Bullock Labour																					
Hired	782	353	0	122	211	351	23	28	0	0	0	267	0	0	0	0	0	0	350	870	152
Owned	1219	170	0	494	410	304	61	274	2510	1860	1506	0	26	56	0	1	0	0	298	187	894
Total	2001	523	0	616	621	655	84	302	2510	1860	1506	267	26	56	0	1	0	0	648	1057	1046
Machine Labour																					
Hired	3271	3932	2543	1420	1594	3280	4086	3136	3307	1522	3200	1547	1417	2219	2561	1876	1090	2502	3671	3159	4123
Owned	96	107	0	1579	1412	1271	123	389	17	0	0	142	567	253	197	362	1532	565	23	25	22
Total	3367	4039	2543	2999	3006	4551	4208	3526	3323	1522	3200	1688	1984	2472	2758	2238	2621	3067	3694	3184	4146
Seed	1020	1165	1128	1087	881	1085	1375	979	1491	780	761	530	675	457	341	357	277	391	458	622	591
Fertilisers and Manure																					
Fertilisers	1386	3420	890	2612	2477	3460	1772	1616	1324	221	31	0	174	205	419	43	0	39	2923	3368	1906
Manure	429	588	0	1107	461	4486	417	822	1522	0	0	0	8	0	0	0	0	0	359	1212	0
Total	1815	4008	890	3719	2938	7945	2189	2437	2846	221	31	0	182	205	419	43	0	39	3282	4580	1906
Other Inputs																					
Insecticides	1012	1150	1440	1078	1303	997	73	139	224	0	0	0	121	12	0	37	14	43	191	378	652
Irrigation charges	134	292	75	1704	2313	3772	0	0	0	1234	588	0	15	0	0	269	0	0	649	1650	2669
Crop Insurance	-	-	-	-	-	0	-	-	67	-	-	0	-	-	0	-	-	0	-	-	0
Payment to Contractor	-	-	-	-	-	75	-	-	0	-	-	0	-	-	0	-	-	0	-	-	3968
Interest on working capital	453	608	459	533	555	895	412	393	479	310	355	114	137	146	221	170	196	164	556	651	853
Miscellaneous	0	70	51	0	1	0	156	139	2	0	0	0	0	0	11	1	0	1	0	0	5
Fixed Cost	10493	8052	7549	12343	13178	14459	8459	6665	10454	9101	9175	3841	4866	6745	6600	9210	9250	8141	10320	10257	12430
Rental value of owned land	9885	7386	6797	9178	6296	10017	7216	5535	7357	7186	7119	2934	2650	3147	2836	5147	7355	6944	8578	8252	10761
Rent paid for leased-in land	0	0	0	1286	4750	41	0	0	0	137	389	0	0	27	0	1972	0	0	0	0	217
Land revenue, cesses & taxes	0	0	0	3	3	4	7	2	6	9	11	9	8	11	5	4	6	4	43	43	7
Depreciation on implements & Farm buildings	136	153	259	94	78	342	243	153	630	333	325	314	303	371	273	341	176	250	539	494	686
Interest on fixed capital	472	513	493	1782	2051	4054	993	974	2461	1437	1332	584	1904	3188	3486	1747	1713	943	1160	1468	759
Total Cost	29639	31263	24449	37785	38907	52201	27112	24426	34874	27248	26227	13337	16840	22168	22875	18267	19525	19785	36594	44939	54751
Yield	4	3	3	6	7	8	4	4	6	5	6	3	2	3	2	3	3	3	9	9	11
A₁+F₁/Q₁	4679	6837	5482	4375	4354	4728	4207	3943	4183	3614	3096	3469	5946	5502	6834	4052	3001	4031	2831	3794	3872
C₁/Q₁	7178	9156	7801	6160	5557	6480	6023	5377	5821	5283	4570	4719	8066	7704	9446	6484	5599	6698	3866	4858	4909

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare



Annex Table 5.5m: Nigerseed - Break-up of Cost of Cultivation, 2015-16 to 2017-18

(₹/ha)

Cost Items	Odisha		
	2015-16	2016-17	2017-18
Operational Cost	13721	15224	17276
Human Labour			
Casual	0	0	2118
Attached	0	0	0
Family	8052	9210	9276
Total	8052	9210	11394
Bullock Labour			
Hired	0	0	133
Owned	4897	5228	3341
Total	4897	5228	3475
Machine Labour			
Hired	0	0	1201
Owned	0	0	83
Total	0	0	1284
Seed	600	603	676
Fertilisers and Manure			
Fertilisers	0	0	0
Manure	0	0	205
Total	0	0	205
Other Inputs			
Insecticides	0	0	0
Irrigation charges	0	0	0
Crop Insurance	-	-	0
Payment to Contractor	-	-	0
Interest on working capital	172	182	242
Miscellaneous	0	0	0
Fixed Cost	5860	5803	5387
Rental value of owned land	3544	3262	3911
Rent paid for leased-in land	0	0	0
Land revenue, cesses & taxes	10	10	19
Depreciation on implements & Farm buildings	423	794	415
Interest on fixed capital	1884	1737	1042
Total Cost	19581	21027	22663
<i>Yield</i>	2	2	3
A₂ + FL/Qtl	5998	6758	6370
C₂/Qtl	8288	8863	8141

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare



Price Policy for KHARIF CROPS

Annexures

Annex Table 5.5n: Cotton -- Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Andhra Pradesh			Gujarat			Haryana			Karnataka			Madhya Pradesh			Maharashtra		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	52280	53244	64485	53473	53168	60696	42393	45862	43853	44418	43931	43140	61398	60707	56557	56864	58031	63275
Human Labour																		
Casual	18158	18520	17312	15489	15379	17038	5257	11178	9755	16003	15545	11248	9121	11664	17585	14493	17053	16928
Attached	516	1615	148	142	25	59	539	509	112	0	0	6	794	526	304	688	1079	382
Family	7326	7825	8222	11060	11307	11082	17019	15361	15834	6758	5613	6987	19844	19500	11239	10784	9630	12137
Total	26000	27960	25682	26691	26710	28179	22815	27048	25701	22761	21158	18241	29759	31690	29127	25965	27762	29446
Bullock Labour																		
Hired	1939	1639	3064	573	600	756	29	34	0	1222	1456	1544	314	0	854	1432	1711	2327
Owned	4840	3815	2947	1154	1113	2452	879	288	199	2111	1827	3077	7371	7537	5438	5397	4849	4862
Total	6779	5454	6011	1727	1714	3208	908	321	199	3333	3283	4621	7686	7537	6292	6828	6560	7189
Machine Labour																		
Hired	3919	4385	3913	4135	4158	4779	1633	2182	2364	3475	3891	3069	1887	3359	3512	3658	4091	4917
Owned	158	251	634	1626	1813	1372	2387	2502	3011	469	710	2747	168	76	282	719	516	786
Total	4077	4635	4547	5761	5971	6151	4020	4684	5375	3943	4600	5816	2056	3436	3794	4377	4606	5703
Seed	4193	3671	4809	3366	2766	3107	4221	4116	3868	3879	3233	3990	2424	2186	2212	3982	3690	3138
Fertilisers and Manure																		
Fertilisers	6252	6485	7562	5137	4821	5199	3247	3304	2764	5096	4701	4354	3818	3206	3706	6301	6033	8292
Manure	609	440	357	2682	3246	4290	0	0	0	1553	1392	814	4682	3793	2492	2302	2468	877
Total	6860	6925	7919	7819	8067	9489	3247	3304	2764	6649	6094	5168	8500	6999	6198	8604	8501	9169
Other Inputs																		
Insecticides	2807	2872	5249	3428	3612	3159	2763	2241	2233	2538	2616	3160	5944	4622	5342	2456	2399	3886
Irrigation charges	187	349	104	3368	3048	3743	3638	3223	2860	174	1786	791	1519	1576	1459	2802	2521	2742
Crop Insurance	-	-	0	-	-	0	-	-	0	-	-	0	-	-	734	-	-	285
Payment to Contractor	-	-	8277	-	-	2153	-	-	3	-	-	0	-	-	0	-	-	8
Interest on working capital	1362	1376	1705	1285	1269	1503	769	924	849	1141	1161	1096	1259	1249	1373	1396	1467	1550
Miscellaneous	14	1	181	27	12	3	13	0	0	0	0	257	2251	1412	23	453	525	159
Fixed Cost	21382	29873	27047	17775	19985	24654	20642	28247	26389	17302	25805	17006	20415	22040	22103	18998	23033	19657
Rental value of owned land	18024	26670	21109	12073	14375	16496	11698	22673	19102	14108	21608	14536	14082	14114	17075	11341	15352	10787
Rent paid for leased-in land	38	22	2679	1343	1045	821	0	0	0	0	0	0	0	0	0	0	0	0
Land revenue, cesses & taxes	0	0	0	16	17	11	0	0	0	8	8	8	3	2	4	30	34	34
Depreciation on implements & Farm buildings	470	422	350	250	215	652	785	397	1123	252	448	282	1397	1688	917	756	761	1057
Interest on fixed capital	2850	2759	2909	4094	4333	6674	8160	5176	6165	2935	3742	2180	4934	6236	4107	6871	6886	7779
Total Cost	73662	83117	91532	71248	73154	85350	63034	74110	70242	61720	69736	60146	81813	82747	78660	75862	81064	82932
Yield	15	18	16	18	18	21	8	15	14	12	17	13	14	15	18	16	18	15
A₁+F₁/Q₁	3633	2935	4094	2969	2929	2914	4816	2861	3040	3549	2632	3218	4286	3984	2980	3498	3160	4307
C₁/Q₁	5067	4545	5550	3840	3934	3996	7054	4587	4747	4895	4134	4452	5585	5283	4077	4603	4355	5547

(Contd..)



Annex Table 5.5n: Cotton -- Break-up of Cost of Cultivation, 2015-16 to 2017-18

Cost Items	Odisha			Punjab			Rajasthan			Tamil Nadu		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Operational Cost	46875	47772	51800	42691	49680	49450	48589	50412	52072	77234	70827	94083
Human Labour												
Casual	8046	7803	17150	7594	14867	17126	5059	5631	8792	31074	24696	30933
Attached	0	216	96	1692	2354	1620	1452	395	146	7	15	0
Family	21556	22987	15529	8550	9115	6619	23505	23468	22145	19828	20133	30984
Total	29601	31006	32775	17836	26336	25365	30016	29494	31083	50909	44844	61917
Bullock Labour												
Hired	143	140	456	0	0	0	103	450	88	111	0	24
Owned	3302	2760	902	219	204	136	473	858	318	933	977	0
Total	3445	2900	1359	219	204	136	576	1308	406	1044	977	24
Machine Labour												
Hired	2172	2977	3377	1273	1072	1104	1866	1848	2394	4078	4529	6424
Owned	0	0	178	4358	4684	6007	982	922	1614	51	258	125
Total	2172	2977	3555	5631	5756	7112	2848	2770	4008	4129	4787	6549
Seed	3097	2596	2620	5754	5135	5175	5713	4964	4652	4040	3469	3572
Fertilisers and Manure												
Fertilisers	5323	4686	7509	3659	3615	3538	2684	2525	3655	8409	7525	6952
Manure	1480	1941	1445	104	7	0	2143	5469	745	3073	3501	7215
Total	6803	6626	8954	3764	3622	3538	4827	7994	4400	11482	11026	14167
Other Inputs												
Insecticides	991	916	930	7696	6745	5663	1288	1200	2515	3118	2481	2809
Irrigation charges	0	0	0	611	525	1152	2549	1850	4070	622	1638	2733
Crop Insurance	-	-	0	-	-	0	-	-	0	-	-	0
Payment to Contractor	-	-	436	-	-	0	-	-	0	-	-	184
Interest on working capital	767	751	1099	1035	1229	1298	760	816	907	1740	1536	1912
Miscellaneous	0	0	72	146	127	12	13	16	31	150	69	217
Fixed Cost	15152	21315	17890	15599	38685	36818	19396	21562	21842	20521	27849	29927
Rental value of owned land	12825	18217	15534	9600	30129	26502	14171	17108	14573	14892	18257	18002
Rent paid for leased-in land	0	0	578	3120	5205	6760	397	0	84	0	22	0
Land revenue, cesses & taxes	17	18	12	0	0	0	7	12	7	7	7	11
Depreciation on implements & Farm buildings	731	669	743	238	327	580	390	399	834	778	988	1063
Interest on fixed capital	1578	2411	1023	2642	3023	2976	4431	4043	6344	4844	8575	10851
Total Cost	62027	69087	69689	58290	88365	86268	67986	71974	73913	97754	98676	124010
Yield	12	16	16	7	21	20	16	15	17	25	15	18
A₁+FL/Qtl	3805	3007	3310	5901	2492	2687	2929	3169	2845	3148	4886	5184
C₁/Qtl	4957	4287	4343	7470	3988	4082	4071	4570	3989	3946	6708	6752

Source: Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare

Annexures



**Annex Table 5.6: All-India Projected Cost of Production of Kharif Crops
for KMS 2019-20 and 2020-21**

Crops	Cost of Production (₹/qtl)				Percentage Change in Projected Cost (2019-20 over 2018-19)	
	2019-20		2020-21			
	A ₂ +FL	C ₂	A ₂ +FL	C ₂	A ₂ +FL	C ₂
Paddy	1,208	1,619	1,245	1,667	3.1	3.0
Jowar	1,698	2,324	1,746	2,393	2.8	3.0
Bajra	1,083	1,463	1,175	1,555	8.5	6.3
Maize	1,171	1,570	1,213	1,606	3.6	2.3
Ragi	2,100	2,672	2,194	2,763	4.5	3.4
Arhar (Tur)	3,636	5,417	3,796	5,464	4.4	0.9
Moong	4,699	6,359	4,797	6,289	2.1	-1.1
Urad	3,477	5,460	3,660	5,570	5.3	2.0
Groundnut	3,394	4,352	3,515	4,512	3.6	3.7
Soybean	2,473	3,422	2,587	3,513	4.6	2.7
Sunflower	3,767	4,957	3,921	5,079	4.1	2.5
Sesamum	4,322	6,125	4,570	6,215	5.7	1.5
Nigerseed	3,960	5,913	4,462	6,525	12.7	10.4
Cotton	3,501	4,678	3,676	4,935	5.0	5.5

Source: CACP Calculations



Annex Table 5.7: Comparison of State Estimates and CACP Projected Cost of Production (C_2) of Kharif Crops for KMS 2020-21 during Marketing Season 2020-21

Crop/State	State Projections		CACP Projections on the basis of CS data	
	Yield (qtl/ha)	Cost of Production (₹/qtl)	Yield (qtl/ha)	Cost of Production (₹/qtl)
Paddy				
Andhra Pradesh	60.0	1902	58.7	1591
Assam	Cost estimates are not provided		33.0	1719
Bihar	38.0	1688	29.8	1493
Chhattishgarh	33.9	1815	33.7	1467
Gujarat	43.2	1534	41.9	1391
Haryana	48.8	2162	51.3	1777
Himachl Pradesh	Cost estimates are not provided		23.2	1655
Jammu & Kashmir	30.0	2536	State is not under CS	
Jharkhand	Cost estimates are not provided		24.9	1774
Karnataka	80.0	1939	51.5	1586
Kerala	37.6	2758	42.7	1757
Madhya Pradesh	Cost estimates are not provided		27.1	1791
Maharashtra	Cost estimates are not provided		26.9	2760
Odisha	Cost estimates are not provided		36.8	1831
Punjab	61.7	1868	68.7	1223
Tamil Nadu	47.0	1735	48.6	1703
Telangana	51.0	2529	Projected alongwith AP	
Uttar Pradesh	33.3	1526	37.2	1691
Uttarakand	Cost estimates are not provided		43.4	1429
West Bengal	43.9	2147	44.5	1879
Jowar				
Andhra Pradesh	16.0	2192	20.6	2042
Gujarat	12.8	3039	CS data are not available	
Karnataka	12.0	3517	7.6	2879
Madhya Pradesh	Cost estimates are not provided		16.8	1852
Maharashtra	Cost estimates are not provided		12.1	2403
Rajasthan	Cost estimates are not provided		7.7	1810
Tamil Nadu	14.0	2110	11.2	2637
Telangana	9.0	3713	Projected alongwith AP	
Uttar Pradesh	12.5	1500	CS data are not available	

(Contd..)



Annex Table 5.7: Comparison of State Estimates and CACP Projected Cost of Production (C₂) of Kharif Crops for KMS 2020-21 during Marketing Season 2020-21

Crop/State	State Projections		CACP Projections on the basis of CS data	
	Yield (qtl/ha)	Cost of Production (₹/qtl)	Yield (qtl/ha)	Cost of Production (₹/qtl)
Bajra				
Andhra Pradesh	17.0	2031	CS data are not available	
Gujarat	20.7	1807	25.9	1360
Haryana	18.9	1573	19.3	1662
Karnataka	16.0	2843	CS data are not available	
Maharashtra	Cost estimates are not provided		18.0	2747
Rajasthan	11.9	1473	9.8	1550
Telangana	9.0	3477	CS data are not available	
Uttar Pradesh	15.0	1372	25.0	1214
Maize				
Andhra Pradesh	49.0	1788	56.1	1333
Bihar	32.0	1684	36.4	1243
Chhattishgarh	23.5	1650	Not Projected	
Gujarat	20.2	2437	16.2	2334
Haryana	28.0	1893	CS data are not available	
Himachl Pradesh	Cost estimates are not provided		16.4	2132
Jammu & Kashmir	25.0	2931	State is not under CS	
Karnataka	51.0	1767	31.5	1451
Madhya Pradesh	Cost estimates are not provided		24.0	1503
Maharashtra	Cost estimates are not provided		43.6	1811
Punjab	Cost estimates are not provided		38.1	1519
Rajasthan	13.4	1935	19.0	2174
Tamil Nadu	38.0	2272	54.7	1770
Telangana	36.0	2172	Projected alongwith AP	
Uttar Pradesh	19.1	1348	24.5	1799
Ragi				
Andhra Pradesh	12.0	2606	CS data are not available	
Karnataka	21.0	3785	17.8	2889
Tamil Nadu	14.0	2952	Not Projected	
Telangana	12.0	2714	CS data are not available	
Uttarakand	Cost estimates are not provided		18.8	1886

(Contd..)



Annex Table 5.7: Comparison of State Estimates and CACP Projected Cost of Production (C_2) of Kharif Crops for KMS 2020-21 during Marketing Season 2020-21

Crop/State	State Projections		CACP Projections on the basis of CS data	
	Yield (qtl/ha)	Cost of Production (₹/qtl)	Yield (qtl/ha)	Cost of Production (₹/qtl)
Tur				
Andhra Pradesh	6.0	6326	6.5	7544
Gujarat	13.9	3585	11.0	4971
Karnataka	10.0	6987	8.6	5051
Madhya Pradesh	Cost estimates are not provided		8.5	4693
Maharashtra	Cost estimates are not provided		18.3	5596
Odisha	Cost estimates are not provided		4.0	7072
Tamil Nadu	8.0	5550	Not Projected	
Telangana	5.5	8084	Projected alongwith AP	
Uttar Pradesh	9.1	3548	8.2	5592
Moong				
Andhra Pradesh	6.0	6214	4.7	6529
Gujarat	7.0	4920	6.3	6019
Jammu & Kashmir	25.0	2287	State is not under CS	
Karnataka	5.0	9636	4.9	6114
Maharashtra	Cost estimates are not provided		5.6	7774
Odisha	Cost estimates are not provided		3.1	6852
Rajasthan	5.5	5642	4.4	5924
Tamil Nadu	6.0	6364	Not Projected	
Telangana	6.0	6547	Projected alongwith AP	
Uttar Pradesh	5.4	3863	Not Projected	
Urad				
Andhra Pradesh	7.0	5387	8.9	4353
Chhattishgarh	Cost estimates are not provided		6.2	5839
Gujarat	6.9	4633	Not Projected	
Karnataka	9.0	6210	CS data are not available	
Madhya Pradesh	Cost estimates are not provided		6.0	4824
Maharashtra	Cost estimates are not provided		5.8	7807
Odisha	Cost estimates are not provided		3.4	7372
Rajasthan	2.5	2707	Not Projected	
Tamil Nadu	8.0	5880	6.5	6855
Telangana	7.0	5895	Projected alongwith AP	
Uttar Pradesh	5.8	3772	3.7	7177

(Contd..)



PRICE Policy for KHARIF CROPS

Annex Table 5.7: Comparison of State Estimates and CACP Projected Cost of Production (C₂) of Kharif Crops for KMS 2020-21 during Marketing Season 2020-21

Crop/State	State Projections		CACP Projections on the basis of CS data	
	Yield (qtl/ha)	Cost of Production (₹/qtl)	Yield (qtl/ha)	Cost of Production (₹/qtl)
Groundnut				
Andhra Pradesh	10.0	5646	12.8	4489
Chhattishgarh	15.5	5090	CS data are not available	
Gujarat	20.0	3704	18.1	4351
Karnataka	12.0	6783	8.9	6339
Maharashtra	Cost estimates are not provided		11.5	7139
Odisha	Cost estimates are not provided		10.0	5785
Rajasthan	Cost estimates are not provided		22.6	2629
Tamil Nadu	16.0	5417	17.9	5849
Telangana	12.0	5282	Projected alongwith AP	
Uttar Pradesh	10.3	3265	Not Projected	
Soybean				
Andhra Pradesh	19.0	3076	11.3	4888
Chhattishgarh	7.7	3805	7.0	3831
Karnataka	18.0	4240	Not Projected	
Madhya Pradesh	Cost estimates are not provided		10.8	3180
Maharashtra	Cost estimates are not provided		13.2	3906
Rajasthan	4.6	2786	8.5	3551
Telangana	12.0	4694	Projected alongwith AP	
Uttar Pradesh	9.2	2572	CS data are not available	
Sesamum				
Andhra Pradesh	4.5	6481	3.3	8744
Gujarat	6.5	5729	7.0	7345
Madhya Pradesh	Cost estimates are not provided		4.9	5666
Odisha	Cost estimates are not provided		4.1	6411
Rajasthan	3.3	7111	2.4	8727
Telangana	2.0	12412	Projected alongwith AP	
Uttar Pradesh	4.0	4035	3.0	7618
West Bengal	Cost estimates are not provided		9.6	4655
Sunflower				
Andhra Pradesh	7.5	5675	8.6	5095
Karnataka	9.0	7078	7.1	5076
Telangana	7.5	6566	Projected alongwith AP	
Nigerseed				
Odisha	Cost estimates are not provided		3.6	6525

(Contd..)



Annex Table 5.7: Comparison of State Estimates and CACP Projected Cost of Production (C_2) of Kharif Crops for KMS 2020-21 during Marketing Season 2020-21

Crop/State	State Projections		CACP Projections on the basis of CS data	
	Yield (qtl/ha)	Cost of Production (₹/qtl)	Yield (qtl/ha)	Cost of Production (₹/qtl)
Cotton				
Andhra Pradesh	20.0	5320	17.3	5270
Gujarat	7.8	4776	19.2	4170
Haryana	15.1	5161	13.4	5259
Karnataka	24.0	5742	14.1	4819
Madhya Pradesh	Cost estimates are not provided		13.9	5409
Maharashtra	Cost estimates are not provided		16.5	5381
Odisha	Cost estimates are not provided		13.3	5514
Punjab	21.7	4993	16.1	4949
Rajasthan	6.0	3996	16.6	4204
Tamil Nadu	20.0	5525	19.2	6138
Telangana	13.0	9469	Projected alongwith AP	

NA: Not available.

Note: Main Product Ratios under CS were used for calculating CoPs from CoCs for some States.

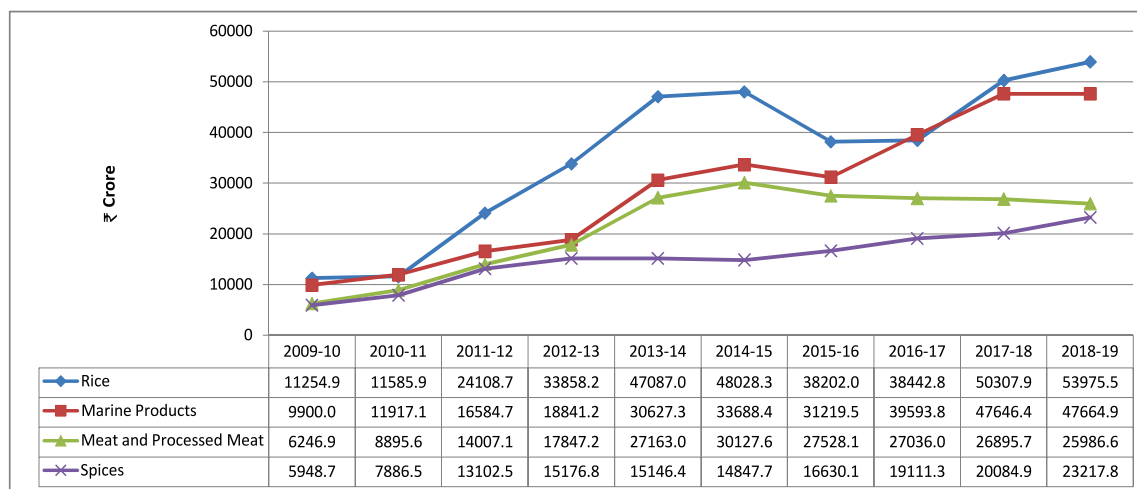
Source: State Governments and CACP calculations.



CHARTS

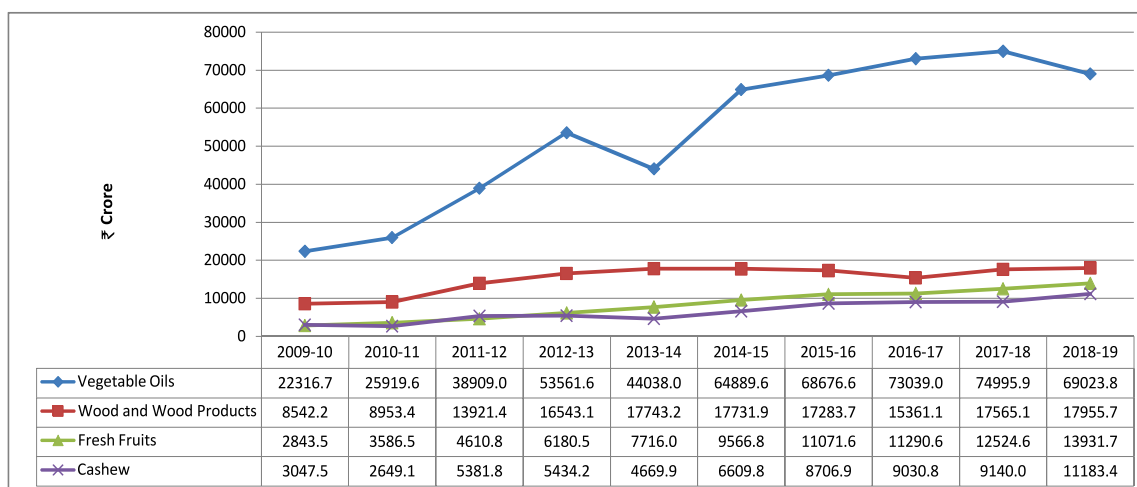


Annex chart 4.1: Trends in Export of Major Agriculture Commodities in India, 2009-10 to 2018-19



Source: Directorate General of Commercial Intelligence & Statistics

Annex Chart 4.2: Trends in Imports of Major Agriculture Commodities in India, 2009-10 to 2018-19



Source: Directorate General of Commercial Intelligence & Statistics



PRICE Policy for **KHARIF CROPS**

Annexures

Commission for Agricultural Costs and Prices

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सत्यमेव जयते

Commission for Agricultural Costs and Prices

Department of Agriculture, Cooperation & Farmers Welfare

Ministry of Agriculture & Farmers Welfare

Government of India, New Delhi

March 2020