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Report Highlights:

India is heading for a record wheat harvest this marketing year (MY) thanks to highly favorable weather conditions in the major wheat growing areas. FAS New Delhi (Post) forecasts MY 2022/2023 (April-March) wheat production at a record 110 million metric tons (MMT) from 30.9 million hectares, and up from last year's record 109.6 MMT from 31.1 million hectares. With the Russo-Ukrainian war disrupting supply from the Black Sea, Indian wheat is primed for record exports. Post forecasts MY 2022/2023 wheat exports at 10 MMT (record) on continued competitive prices in the region and sufficient domestic supplies. MY 2022/2023 rice production is forecast at 125 MMT, from 46 million hectares planted area, with yields of 4.08 MT/hectare (rough rice). In MY 2021/2022, farmers saw comparatively better returns from these two grains over other crops as the above-normal 2021 monsoon and weather conditions supported record yields.

EXECUTIVE SUMMARY

India is heading for a record wheat harvest this coming marketing year (MY) thanks to highly favorable weather conditions in the major wheat growing areas. If good weather conditions hold through the harvest (April-May), FAS New Delhi (Post) forecasts MY 2022/2023 (April-March) wheat production at a record 110 million metric tons (MMT) from 30.9 million hectares, and up from last year's record 109.6 MMT from 31.1 million hectares. [Note: For the rest of this report, marketing year references, e.g., MY 2021/2022, are shortened to 2021/22, etc.]

With high global prices fueling domestic pricing, coupled with receding fear of new COVID-19 disruptions, government procurement is set to swing into reverse in 2022/23. In February 2022, but just prior to Russia's invasion of Ukraine, the Indian government set the 2022/23 procurement target at 44 million metric tons. With speculation rampant about a surge of demand for Indian export wheat, due to high global prices, sources see the government's minimum support price (MSP) procurement dropping to 30-35 million metric tons.

Riding on record harvests, major government stocks liquidated at subsidized prices in the domestic market, and seeing firm global wheat prices, India is emerging as a wheat exporter in the region. With the Russo-Ukrainian war disrupting supply from the Black Sea, Indian wheat is primed for record exports this coming season. Post forecasts 2022/23 record wheat exports at 10 MMT on continued competitive prices in the region and sufficient domestic supplies. Based on the latest trade data and information, India's 2021/22 wheat exports are estimated at 8.5 MMT, which is, itself, a record. Provisional official figures for MY 2021/22 estimate wheat and wheat product exports from April 2021 to January 2022 at 6.6 MMT (wheat grain equivalent).

India's 2022/23 rice production is forecast at 125 MMT from 46 million hectares planted area, with yields of 4.08 MT/hectare (rough rice). In MY 2021/22, farmers saw comparatively better returns over other crops as the above-normal 2021 monsoon and weather conditions supported record yields. Farmers will sow rice in the 2022/23 *kharif* season anticipating higher MSP and government procurement. High vegetable oil prices may shift some unirrigated rice area to oilseeds. Timely, well-distributed 2022 monsoon rains are critical for forecast area planted and yields - 40 percent of the rice area is rainfed (unirrigated). Post estimates MY 2021/22 rice production at a record 129 MMT (110 MMT in the fall harvest kharif and 19 MMT for the winter-planted *rabi* crop), compared to last year's total production of 124.4 MMT (105.2 MMT kharif and 19.2 MMT rabi) on higher planting and yields due to favorable weather conditions throughout the season.

India's 2021/22 (October 2021-January 2022) total rice exports are officially estimated at 6.8 MMT, up from 5.7 MMT during the same period last year on increased coarse rice exports to Bangladesh, China, and African countries. Assuming no significant change in the current price parity for Indian rice, 2021/22 rice exports are expected to reach 20.5 MMT, and 2022/23 exports are forecast at 18 million metric tons.

Despite 2021 monsoon rains supporting a record corn harvest, 2021/22 total coarse grain production is estimated lower at 49.9 MMT due to lower production of other coarse grains. Timely planting under above-normal 2022 monsoon rains and favorable weather conditions for the winter planted rabi season corn boosted yield prospects with 2021/22 corn production estimated at a record 32.5 MMT. However, production of millet, sorghum, and barley are estimated down from last year on lower plantings (area shifted to rice and pulses).

Recovery in domestic and export demand has fueled corn prices since the beginning of calendar year 2021. Despite the record harvest, 2021/22 prices are on the upward trajectory. Prices have gone up further in the last three months in response to global prices spiking due to the Russian invasion of Ukraine. Despite India's export competitiveness, Post forecasts 2022/23 exports lower at 2.4 MMT and imports at 100,000 MT on forecast tight domestic supplies and strong demand. Imports will be duty-free from less developed countries.

COMMODITIES:

WHEAT

Table 1. India: Commodity, Wheat, Production, Supply, and Distribution (PSD)

Wheat	2020/2021		2021/2022		2022/2023	
Market Year Begins	Apr 2020		Apr 2021		Apr 2022	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	31357	31357	31125	31125	0	30950
Beginning Stocks (1000 MT)	24700	24700	27800	27800	0	21000
Production (1000 MT)	107860	107860	109590	109590	0	110000
MY Imports (1000 MT)	18	26	25	25	0	25
TY Imports (1000 MT)	18	30	25	25	0	25
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	132578	132586	137415	137415	0	131025
MY Exports (1000 MT)	2561	2561	8500	8500	0	10000
TY Exports (1000 MT)	3597	3597	10000	10000	0	9000
Feed and Residual (1000 MT)	6500	6500	7000	7000	0	7000
FSI Consumption (1000 MT)	95717	95725	96500	100915	0	100000
Total Consumption (1000 MT)	102217	102225	103500	107915	0	107000
Ending Stocks (1000 MT)	27800	27800	25415	21000	0	14025
Total Distribution (1000 MT)	132578	132586	137415	137415	0	131025
Yield (MT/HA)	3.4397	3.4397	3.521	3.521	0	3.5541

Notes: MY = Marketing Year, begins with the month listed at the top of each column.
TY = Trade Year, begins in July for all countries; TY 2022/2023 = July 2022-June 2023.

PRODUCTION

MY 2022/2023 Outlook

For a sixth consecutive year, India is heading for a record wheat harvest thanks to highly favorable weather conditions in the major wheat growing areas. If good weather conditions hold through the harvest (April-May), FAS New Delhi (Post) forecasts 2022/23 (April-March) wheat production at a record 110 million metric tons (MMT) from 30.9 million hectares, up from last year's record 109.6 MMT from 31.1 million hectares.[1] Post sees favorable weather growing conditions, from the time of planting through the vegetative/reproductive stages, helping to improve seed setting in the major wheat production states. This will drive yields higher compared to those in 2021/22.

Area: The adequate and timely end of the 2021 monsoon rains contributed to ideal wheat planting conditions in October-November in the major wheat production states. The increase in the government's minimum support price (MSP) for wheat, and the expectation of steady MSP procurement operations due to the Indian states' elections (early 2022), have encouraged farmers to plant wheat in the rabi season. However, strong oilseed prices are enticing a marginal shift of wheat acreage to rapeseed and mustard in the lower irrigation-intensive

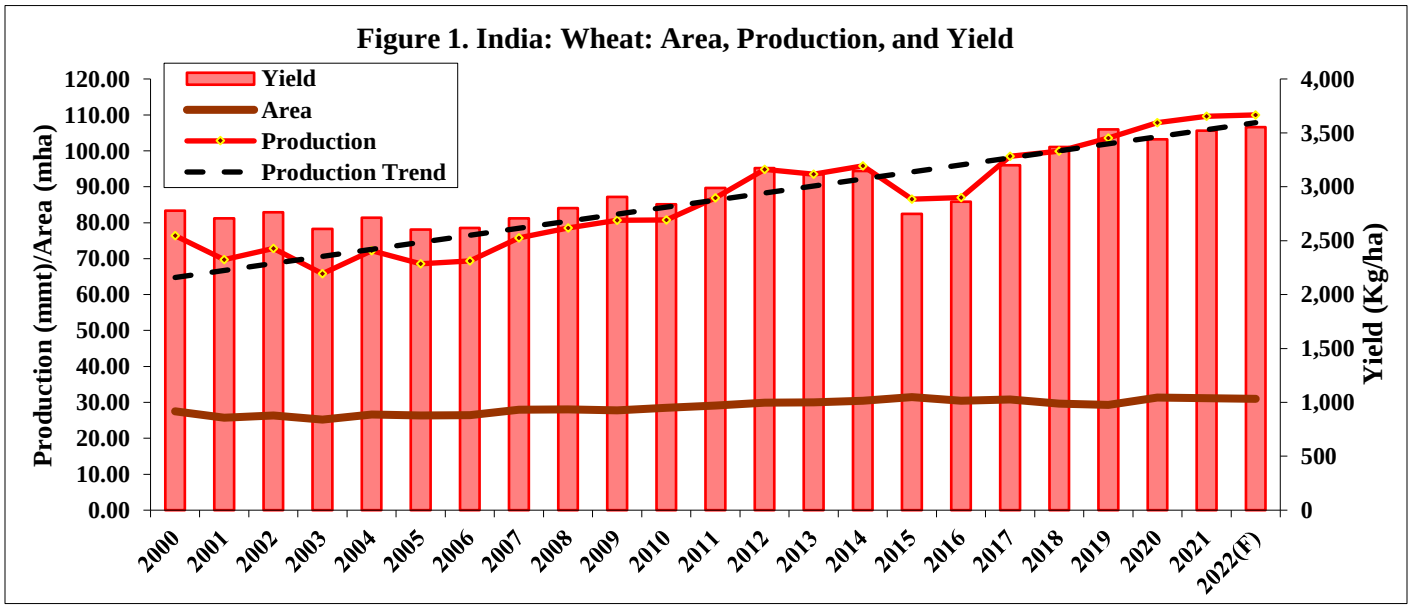
[1] The official Second Advance Estimate for Production of Food grains for 2021/2022 (Indian Crop Year July-June) pegs MY 2022/2023 wheat production at a record 111.3 MMT based on the crop condition through the second week of February and expected extended winter (lower temperatures) through April.

wheat areas. Based on the preliminary official planting data, 2022/23 wheat area is estimated at 30.95 million hectares, down compared to last year's 31.1 million hectares.

Yield: Plantings occurred under adequate moisture conditions, accompanied by the early onset of lower winter temperatures in the third week of November. This, along with scattered rains in December-February, supported the wheat crop at critical growth stages (i.e., vegetative growth, tillering, flowering, panicle initiation). Post's sources report that the standing crop is at the advanced maturity stage with good seed setting compared to the last few years. There are no reports of pests or disease outbreaks in the major wheat production areas. Added to this, the expansion of area under new, improved varieties raises the prospect of higher yields. Post forecasts 2022/23 yields higher at 3.55 metric tons (MT)/hectare (record) compared to last year's near record 3.52 MT/hectare, subject to weather conditions holding steady through the harvest.[2]

Yield prospects might be affected as daytime temperatures have been rising steadily since mid-March, heralding the onset of summer. A rise in daytime temperatures above 40° Celsius in late March-April, occurring during grain filling stage, and or hailstorms during the April-May harvest season potentially could affect yield prospects, lowering forecast production by 3-5 MMT. Steady, mild daytime temperature below 35° Celsius through April, however, could potentially raise production by 2-3 MMT over forecast level.

Production Trend and Future Challenges



Source: Ministry of Agriculture and Farmers Welfare (MOAFW) and FAS New Delhi forecast for 2022 (MY 2022/2023).

Jumps in wheat production over the course of the last six years stand out with production climbing from 87 MMT in 2016 to 110 MMT by 2022. Higher production figures are attributable to the combination of the steady increase of the Indian government's MSP, replacement of older varieties with new, improved higher yielding ones, generally favorable weather conditions, and normal monsoon rains during the period. Indian wheat is white bread quality, soft- to medium-hard, and medium protein wheat, comparable to U.S. hard white wheat.

India produces durum wheat in the states of Madhya Pradesh, Rajasthan, and Maharashtra for local food processors. With the import of high-quality imported wheat (APW) for blending and processing halted in 2019,

[2] Previous record MY 2019/2020 yield of 3.53 MT/hectare due to abnormally extended winter through April 2020 boosting yields.

India's durum wheat producers are reaping a 20-25 percent price premium over common wheat over the last two years. Sources report higher planting of durum wheat this season compared to last year on steady domestic demand, with 2022/23 durum production forecast at 1.9 MMT compared to 1.75 MMT last year.

Why Wheat Remains the Preferred Winter Crop: Wheat is the preferred winter planted crop in the irrigated areas of the wheat growing states. Its continued preference is driven in no small part by the Indian government's relentless expansion of MSP procurement (that bolsters market prices), along with the irrigated crop's steady yields (i.e., when compared to corn, oilseeds, and pulses). Wheat acreage in the past decade has fluctuated narrowly between 29.3 to 31.4 million hectares, largely dependent on planting conditions.

Why Yields Vary Between States: Wheat yields in India vary between production states due to irrigation water availability. The Himalayan glaciers that are melting now at an exceptional rate because of climate change feed into India's perennial river system. Glacial meltwater replenishes India's northern states' (Punjab, Haryana, and western Uttar Pradesh) surface (canal) and ground (tube wells) systems. Greater water availability today enables northern India farmers to irrigate fields 5-7 times during the crop season, obtaining yields averaging 5 MT/hectare, comparable to those of high yield global wheat producers. Wheat production in India's central and western states (central and east Uttar Pradesh, Madhya Pradesh, Rajasthan, and Gujarat) depends on residual water from the seasonal monsoon rains (June-September), which facilitate only 2-4 irrigations during the crop season. Wheat yields in these states are markedly lower at 1.8 to 3.6 MT/hectare.

With expanded irrigation use and the adoption of new, improved higher yielding wheat varieties, the central and western states are seeing improved yields, while the northern states' yields remain stagnant. The influence that the ever-increasing MSP exerts in motivating farmers to shift from traditional, lower yielding/higher quality cultivars to higher yielding/lower quality ones to maximize fixed MSP-based net returns per hectare is clear.

The Wheat Crop's Vulnerability to Climate Change: Despite large, consecutive wheat bumper harvests in past crop seasons, there is growing concern about the long-term sustainability of this high level of production. Agricultural researchers at India's leading research centers fret over the wheat crop's vulnerability to the effects of climate change. For example, this includes the earlier-than-normal onset of summer (terminal heat) and the increase of unseasonal, heavy rains in March-April occurring during the crop's grain filling/maturing stage. As a result, the Indian Council of Agricultural Research (ICAR) and various state agricultural universities (SAU) are targeting research to develop response mechanisms through agronomic management (i.e., early planting) and technological advances (e.g., short duration varieties) to mitigate potential climate change risks.

Growing Soil Salinity, Shrinking Water Table: In northern India, over-exploitation of groundwater by flood irrigation, and over-fertilization has increased soil salinity and significant drops in the water table in wheat growing areas. Researchers indicate that the current wheat production practices will force farmers to move from wheat production to less water intensive crops such as corn, pulses, and vegetables within the next 8-10 years.

Wheat Yellow Rust: Some northwestern wheat growing areas have reported sporadic incidences of yellow rust in the last few years, but there has been no known incidence of Ug99, which is a wheat rust of global concern.

CONSUMPTION

Food-seed-industrial (FSI) wheat consumption in 2022/23 is forecast at 100 MMT, lower than last year's estimate of 100.9 MMT, which includes 20.5 MMT of free wheat under various COVID-19 relief programs and

was to have ended March 2022.[3] This supplemental wheat and rice consisting of an additional 5 kilograms (kgs)/month/eligible recipient (of one or the other grain) has now been extended through September 2022. Assuming no COVID-19 outbreaks, and government wheat stocks forecast staying at manageable levels, India is unlikely to offload large volumes of wheat.[4] Wheat for feed and residual use is forecast at 7 MMT, unchanged from last year on expected higher domestic prices resulting from high global prices affecting feed demand. The FSI consumption 2021/22 estimate is revised up to 100.9 MMT on higher offtake of government wheat and lower 2021/22 ending stocks.

FSI Consumption: India's FSI wheat consumption in 2020/21 grew by five percent beyond the previous year's amount thanks to the Indian government extending the free food grains (rice and wheat) program to 800 million people as a relief measure to the COVID-19 battered economy.[5] With the government estimated to supply over 20.5 MMT of wheat under the COVID relief program in 2021/22, compared to 10.8 MMT in 2020/21, free wheat has expanded consumption in the non-traditional wheat consuming eastern and southern regions, helping to draw down bloated government wheat stock levels.

With the government's 2021/22 wheat ending stocks now drawn down and high global wheat prices anticipated to bolster domestic pricing and reduce state procurement to a lower level compared to that of last year, the government will feel less pressured to further liquidate wheat stocks. Assuming no new, major COVID-19 waves ensue, the government is unlikely in 2022/23 to continue special relief free grains program. The government has on hand significantly high rice stocks to pump into food security programs for the poor if food inflation continues. As a result, Post forecasts FSI wheat consumption in 2022/23 lower at 100 MMT because of expected strong prices and lower supplies of government subsidized wheat.

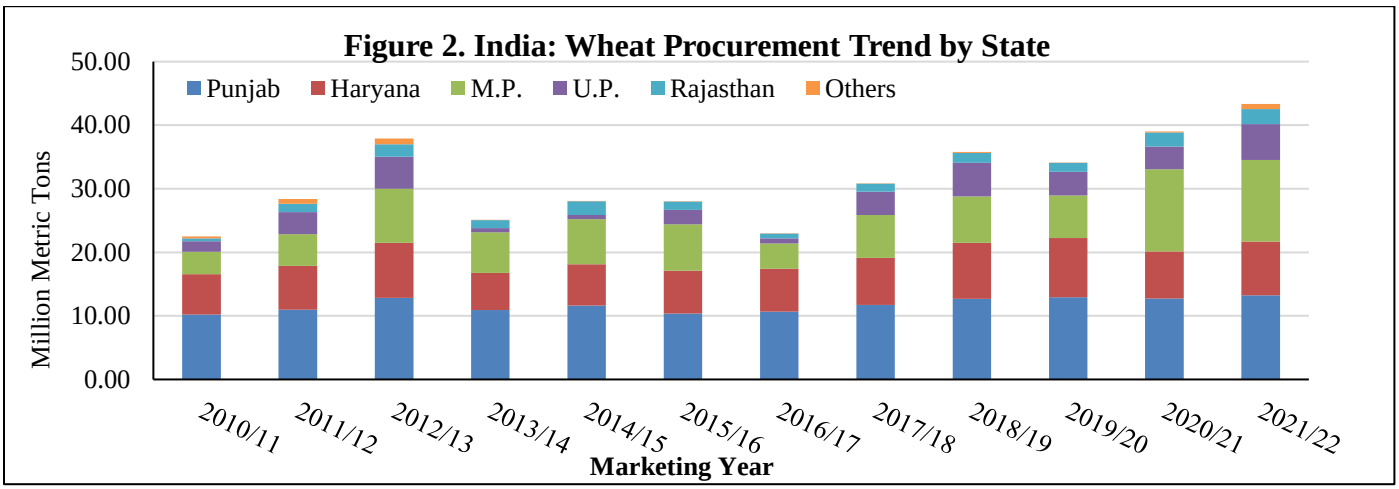
Wheat Consumption: Wheat is the main staple cereal in central and northwest India, the country's traditional wheat growing regions. Wheat consumption, however, competes with rice in southern and eastern India. Households, local restaurants, and eateries account for 80 percent of the wheat consumed domestically as *atta* (whole wheat flour) and *maida* (white flour). About 12-15 percent of wheat goes into the production of processed products like raised breads, biscuits (cookies), and other bakery items. There is also a small market for high quality wheat (4-5 MMT) for western-style pasta, and baking/confectionary foods. The organized milling sector is comprised of 1,300 medium-to-large flour mills with milling capacity of about 25-28 MMT, per year. Market sources report that most mills operate at 55-60 percent of their capacity, processing 15-16 MMT of wheat annually. Most wheat is milled by the unorganized sector in small neighborhood flour mills.

Feed Use: Spoiled wheat unfit for human consumption, whether government-held or open market stocks, and wheat bran from the flour milling industry are used as animal feed, for dairy cattle and domestic water buffalo. Farmers use inferior quality wheat and wheat bran for feeding lactating dairy cows and water buffalo at the household level (i.e., unorganized sector). Due to the likely lower spoilage of manageable government-held wheat stocks and forecast higher wheat prices, Post expects stagnant demand for wheat for animal feed, and forecasts wheat feed and residual consumption in MY 2022/23 at 7 MMT, unchanged from last year's volume.

Government Procurement and Sales: Consecutive record harvests, high government MSP procurement, and market disruptions due to the COVID-19 lockdowns imposed in several states in 2021/22 led to government wheat procurement jumping to 43.3 MMT (record), a second consecutive year of double-digit increases.[6]

[3] The program includes PM Garib Kalyan Ann Yojana (PMGKAY), Scheme for Non-NFSA Card Holders and Supply to Charitable Organizations/NGO. These helped drive domestic wheat consumption upwards over past two years.
[4] On March 26, 2022, the Indian government announced the extension of free food grains (mainly rice) through September 2022.
[5] See, GAIN-INDIA (IN2022-0002) India-Grain and Feed Update - January 2022.
[6] See Appendix Table 1 for more on India's wheat production, government procurement, MSP, and offtake for recent years.

With unusually high global prices fueling domestic pricing, coupled with receding fear of new COVID-19 disruptions, the procurement trend is set to swing into reverse in 2022/23. In late February 2022, just prior to Russia's invasion of Ukraine, the Indian government set at 44 MMT the 2022/23 procurement target. With speculation running rampant about a surge of demand for Indian export wheat due to high global wheat prices, market sources expect government MSP procurement to drop to 30-35 MMT now. Post anticipates that unlike the case of the last two years, private trade will be more active in the market during the harvest/marketing season (April-July) and that farmers/local traders will retain higher than normal stocks for late season sales.



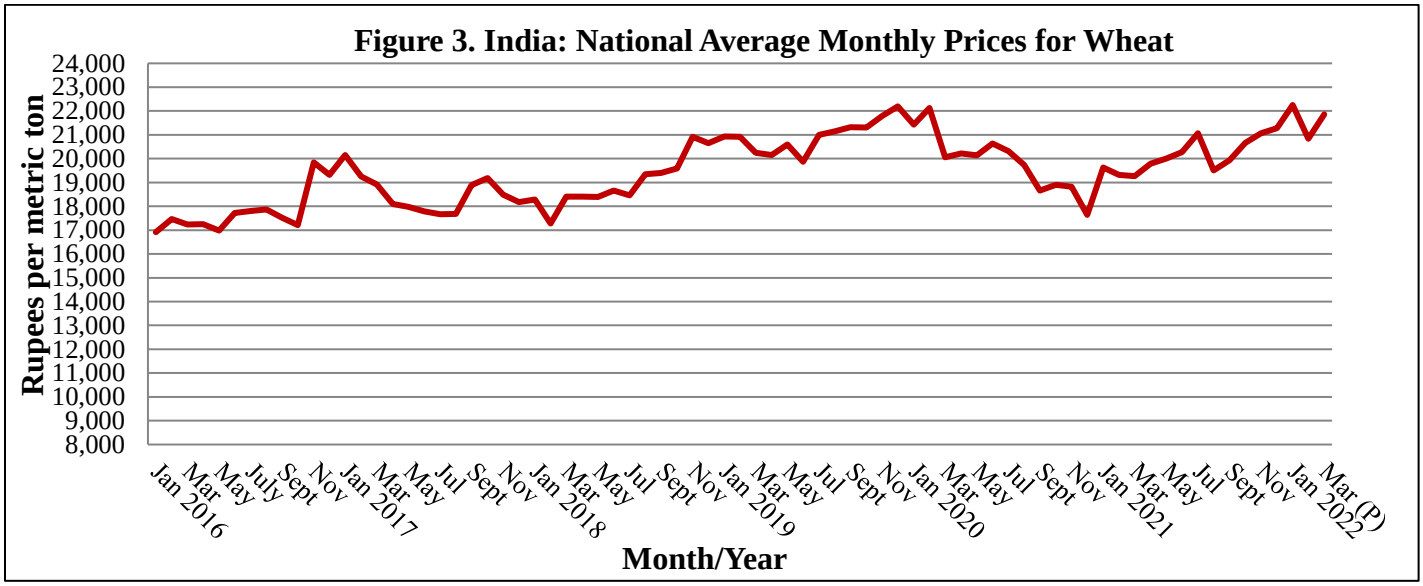
Source: Food Corporation of India.

MSP Procurement this year will be lower than last year's in most of India's wheat production states. Procurement is set to drop in Madhya Pradesh, Uttar Pradesh, and Rajasthan, where relatively lower state taxes encourage higher private trade activity in their markets. This time around, in comparison to the past two years, the government will not face the pressure of having to arrange to store wheat stocks and or liquidate subsidized wheat through food subsidy programs. The government is still anticipated to have sufficient wheat stocks on hand to meet food security program commitments, plus sufficient surplus for open market supplies.

The government distributes 24-25 MMT of wheat yearly under the National Food Security Act (NFSA) through the public distribution system (PDS), and an additional 2-3 MMT for other food security programs. Indian government wheat sales under the open market sale scheme (OMSS) to private traders are estimated at 7 MMT in Indian fiscal year (IFY) 2021/22 (April-March) compared to 2.5 MMT in IFY 2020/21. Despite forecast lower opening stocks and procurement, and after ensuring mandatory buffer stocks (7.5 MMT), the government will have sufficient surplus (15-20 MMT) for the OMSS requirement in the upcoming marketing season.

Prices: Domestic prices have been on the upward trend for most of the 2021/22 season on steady export demand from the regional buyers. Despite expected record harvest of the upcoming crop, domestic prices have firmed up recently on strong export demand following the Russian invasion of Ukraine.

Despite the forecast record upcoming harvest, average spot prices have firmed up in March 2022. Average spot prices in the first half of the month in the major producing states ranged between Indian rupees (INR) 20,110 ($265) to INR 23,100 ($304) per MT, above the MSP of INR 20,150 ($265) per MT for MY 2022/2023. Private traders expect prices to remain firm during the harvest/marketing period (April-July), with exporters and traders becoming more aggressive in covering the harvest and competing with MSP procurement.



Source: AgMarketNet, MOAFW.

TRADE

Riding on record harvests, major government stocks liquidated at subsidized prices in the domestic market, and seeing firm global wheat prices, India is emerging as a wheat exporter in the region. With the Russo-Ukrainian war disrupting supply from the Black Sea region, Indian wheat is primed for record exports this coming season.

Exports: Post forecasts 2022/23 wheat exports at 10 MMT on lower prices in the region and ample domestic supplies. Based on trade data reports, India's 2021/22 wheat exports are estimated at 8.5 MMT. Provisional official figures for 2021/22 estimate wheat and wheat product exports from April 2021 to January 2022 at 6.6 MMT (wheat grain equivalent), with exports headed to Bangladesh (3.5 MMT), Sri Lanka (51,000 MT), United Arab Emirates (49,500 MT), and Indonesia (40,000 MT). Firm global prices, with high international freight costs, make Indian wheat competitive in Bangladesh, Nepal, Sri Lanka, and the Middle East and South Asia.

Recent global market developments, along with a weakening Indian rupee versus the U.S. dollar, and strong end season export demand will push 2021/22 wheat exports to 8.5 MMT.[7] Assuming no significant changes in the global market situation (i.e., further expansion/escalation of the conflict in the Black Sea region), India's 2022/23 wheat/wheat product exports are forecast higher at 10 MMT on expected continued Indian wheat export competitiveness in the region and forecasted sufficient domestic supplies.

Imports: India's import duty of 40 percent and more-than-sufficient domestic supplies limit imports of wheat. Imports of wheat and wheat products (pasta and western breads) in 2022/23 is forecast at 25,000 MT, unchanged from last year. Imports for 2020/21 are revised up to 26,000 MT based on the latest TDM data.

Tariffs: The import tariffs for wheat (Harmonized Tariff System – HS 1001) and wheat products are unchanged since April 2019. Besides the basic custom duty, imports of wheat and wheat products (HS chapters 10 and 11) incur the Social Welfare Surcharge of 10 percent of the basic duty, while wheat products (HS chapter 19) incur a Goods and Services Tax (GST) duty of 12 percent equivalent to the local sales tax (see, Appendix 4).

[7] Trade sources report Indian wheat is currently $25-30 cheaper than similar wheat from other origin.

STOCKS

Post's 2021/22 wheat ending stocks figure is revised lower to 21 MMT resulting from higher offtake of government wheat under the COVID-19 relief programs drawing down the government wheat stocks. Latest official figures report government wheat stocks on March 1, 2022, at 23.4 MMT, which are estimated to decline to 19.2 MMT by the end of 2021/22. Estimates for privately held wheat stocks are not available. Market sources, however, report that there are 1.8 MMT of wheat above the normal pipeline stocks for wheat exporters and local millers, sufficient to meet 45-50 days' supply prior to the new crop's arrival at the end of April.[8]

Forecast lower government wheat supplies (opening stocks and procurement) and continued normal offtake of wheat under food security programs and OMSS sales are likely to push government held wheat stocks further down in 2022/23. Ending stocks are forecast at 14 MMT, which includes 13.5 MMT government wheat stocks and 0.5 MMT stocks with exporters (lower than last year on tighter end season supplies).[9]

POLICY

Price Support and Food Security Programs: The government's farmer support and food security programs are: (i) the government MSP procurement of select crops to ensure remunerative prices for farmers, and (ii) distribution of food procured under MSP under the NFSA and other programs to ensure food for vulnerable segments of the population. Moreover, wheat and rice are the focus food grains for both the government's MSP procurement and distribution under food security programs. The Indian government establishes the MSP for wheat and 23 others crops on the recommendations of the Commission for Agricultural Costs and Prices (CACP). Government agencies like the Food Corporation of India and state marketing agencies are mandated to procure wheat (and rice) at MSP for central government stocks. The NFSA 2013 creates an entitlement for eligible beneficiaries (50 percent and 75 percent of the urban and rural populations) receiving 5 kgs. of rice, wheat, or coarse grain (millet) at INR 3 (~3.9 U.S. cents), INR 2 (~2.6 U.S. cents) and INR 1 (~1.3 U.S. cents) per kilogram. The government sells wheat via the OMSS to the private trade to stabilize open market prices.

Research and Development: The National Agricultural Research System (NARS) is developing location-specific wheat varieties with traits addressing crop duration, varied soil conditions, and improved grain qualities along with raising grain yield levels through traditional breeding. Biotechnology applications are limited to experimental marker-assisted breeding trials designed to develop resistance to biotic (diseases, insects, other pests) and abiotic (temperature, precipitation, and relative humidity, among others) stresses.

Trade Policy: Since 2011, there are no restrictions on wheat and wheat product exports, and none are likely to be imposed due to forecasted sufficient domestic supplies. High tariffs aside, India's phytosanitary requirement that wheat samples drawn from a single consignment contain no more than 100 quarantine seeds (more than 50 quarantine seeds species specified) per 200 kgs. and other SPS issues prevent U.S. wheat exports to India.

MARKETING

India is emerging as a regional wheat supplier because of competitive pricing due to strong global prices and large surplus domestic supplies. Ample domestic supplies will keep foreign wheat out of India in 2022/23 and into the near future unless the country has a major crop failure.

[8] Historically pipeline stocks with local trade and millers to meet their supplies requirement for 30 days is not included in the needing stocks estimate.
[9] Forecast stocks still nearly double the government's mandatory April 1 buffer stock norm of 7.46 MMT.

RICE

Table 2. India: Commodity, Rice, Milled, PSD

Rice, Milled	2020/2021		2021/2022		2022/2023	
Market Year Begins	Oct 2020		Oct 2021		Oct 2022	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	45400	45769	47000	47000	0	46000
Beginning Stocks (1000 MT)	33900	33900	37000	37000	0	42000
Milled Production (1000 MT)	124370	124370	129000	129000	0	125000
Rough Production (1000 MT)	186574	186574	193519	193519	0	187519
Milling Rate (.9999) (1000 MT)	6666	6666	6666	6666	0	6666
MY Imports (1000 MT)	0	0	0	0	0	0
TY Imports (1000 MT)	0	0	0	0	0	0
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	158270	158270	166000	166000	0	167000
MY Exports (1000 MT)	20199	20199	20500	20500	0	18000
TY Exports (1000 MT)	21191	21203	20500	20500	0	18000
Consumption & Residual (1000MT)	101071	101071	103500	103500	0	106000
Ending Stocks (1000 MT)	37000	37000	42000	42000	0	43000
Total Distribution (1000 MT)	158270	158270	166000	166000	0	167000
Yield (Rough) (MT/HA)	4.1096	4.0764	4.1174	4.1174	0	4.0765

Notes: MY = Marketing Year, begins with the month listed at the top of each column.
TY = Trade Year, begins in January for all countries; TY 2022/2023 = January-December 2023.

PRODUCTION

Assuming a normal 2022 monsoon season (June-September), India's 2022/23 rice production is forecast at 125 MMT, from 46 million hectares planted area, with yields of 4.08 MT/hectare (rough rice). In 2021/22, farmers saw good returns relative to other crops as the above-normal 2021 monsoon and weather conditions supported record yields. Farmers will plant rice in the 2022/23 kharif season anticipating higher MSP and government procurement. High vegetable oil prices may shift some unirrigated rice area to oilseeds. Timely, well-distributed 2022 monsoon rains are critical for forecast area planted and yields - 40 percent of the rice area is rainfed (unirrigated). Delayed, erratic, or a below normal monsoon or floods and cyclones in eastern and coastal belt areas will lower production by 5-10 MMT; well-distributed rains can augment production by 2-4 MMT.

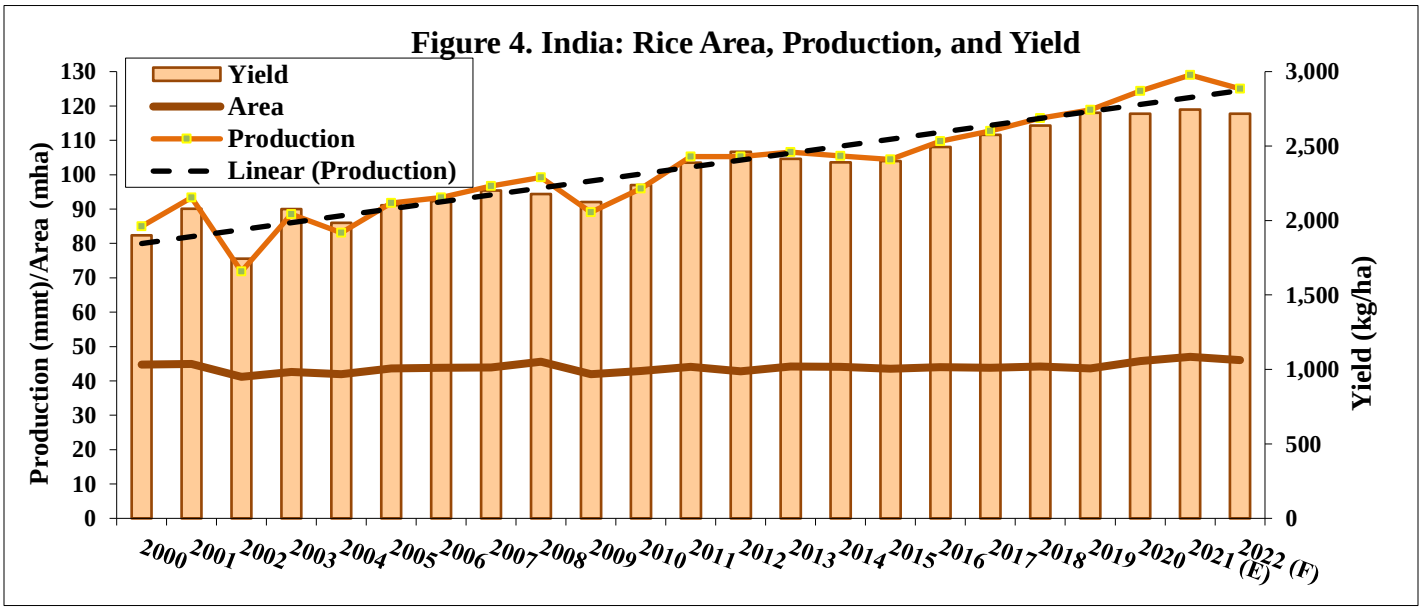
Post estimates 2021/22 rice production at a record 129 MMT (110 MMT in the fall harvest and 19 MMT for the winter-planted crop), compared to last year's total production of 124.4 MMT (105.2 MMT kharif and 19.2 MMT rabi) on higher planting and yields due to favorable weather conditions throughout the season. Post's estimate is slightly higher than official ICY 2021/2022 second advance estimate for rice production of 127.9 MMT based on past trends of the progress of advance estimate to final estimate.

India's globally popular long-grain aromatic *basmati* rice is grown in the northern states of Punjab, Haryana, western Uttar Pradesh, Uttarakhand, and Himachal Pradesh. Due to relatively tight supplies, basmati growers realized higher prices (10-15 percent) and better profit margins in 2021/22 compared to the previous year. Assuming normal 2022 monsoon and weather conditions, 2022/23 basmati rice production is forecast higher at 9.8 MMT from 2.2 million hectares, compared to 8.5 MMT from 2 million hectares in 2021/22. The high yielding PUSA basmati 1121 variety (since 2003), and the shorter duration semi-dwarf PUSA basmati 1509 variety (since 2013) account for 82-85 percent of the total basmati planted area.

Production Trends and Future Challenges: Predominantly a kharif season crop, rice is the most important food crop cultivated across India, contributing to over 40 percent of total food grain production. Requiring significant water in the transplanting and early growth stages, planting of the kharif rice crop closely follows the onset of the southwest monsoon in June/July, and its subsequent progress through September to augment the water requirement at critical crop growth stages. There is a small winter planted rice crop cultivated in the irrigated eastern and southern states of West Bengal, Odisha, Andhra Pradesh, Telangana, and Tamil Nadu.

Indian rice production is trending upwards, scaling to record levels in the past five years thanks to rising yields on favorable monsoon rains and use of improved varieties. In the last two years, rice acreage expanded markedly due to favorable monsoon, more irrigation resources, and rising MSP procurement.

Figure 4. India: Rice Area, Production, and Yield



Source: MOAFW, and FAS New Delhi estimate for 2021 (MY 2021/2022) and forecast for 2022 (MY 2022/2023).

The Rice Crop's Vulnerability to Climate Change: Despite the increasing production trend, agricultural experts are concerned about the sustainability of the current rice production systems in several states, due to vulnerability to climate change. Several states follow intensive rice-based cropping systems (rice-wheat or rice-rice) resulting in deteriorating soil health, declining water tables, and the emergence of new chemical resistant diseases/pests. The rice crop in the coastal regions is susceptible to a potential rise in sea levels due to global warming. Reports of glacier melt may affect irrigation water supply from perennial rivers originating in the Himalayas to the eastern and northern states. Recent monsoon aberrations – erratic short spells of heavy rains followed by prolonged dry spells - are being attributed to climate change and can affect rice production.

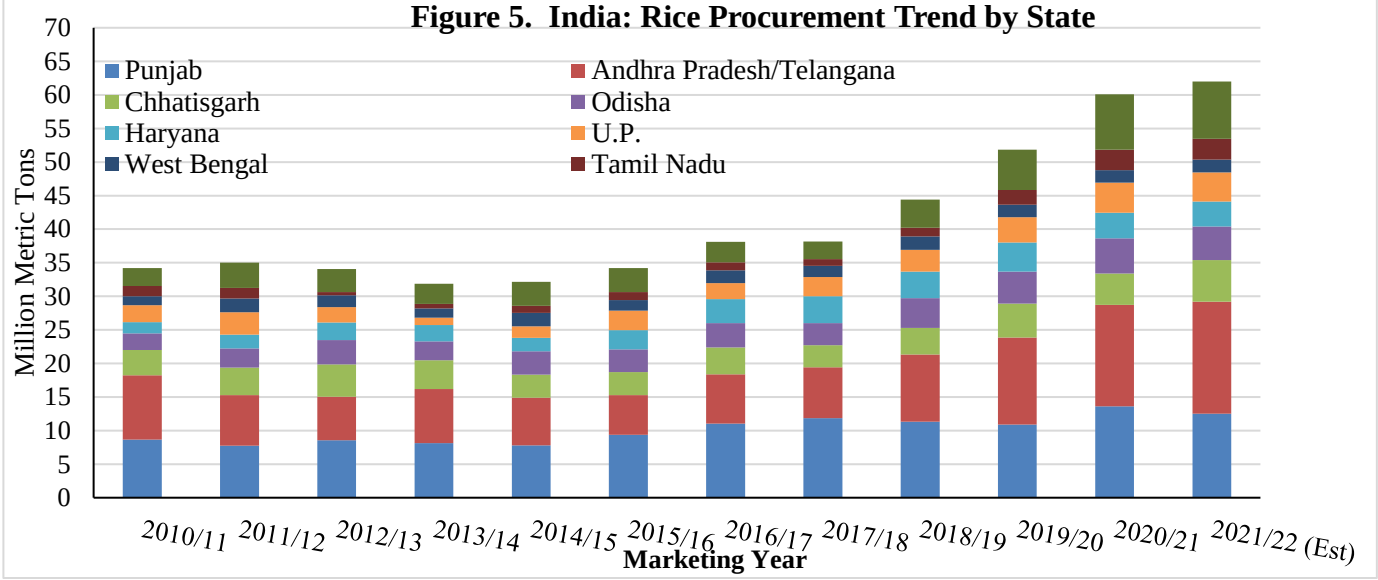
Research and Development: Public sector research focuses on developing new rice varieties/hybrids and crop management practices to improve yields and tackle pests/diseases for various agro-climatic conditions. The private sector focuses on hybrid seeds development and agro-chemicals that control pests and diseases. India's overall rice yields fall below the world average, with productivity varying between the rice producer states.

Hybrid rice is cultivated in eastern and central India for the MSP program and for exports to Africa. Sources report that the area planted to hybrid rice in 2021/22 is 2 million hectares. Public and private sector organizations are working to develop transgenic rice varieties/hybrids to incorporate resistance to various pests, diseases, and abiotic stress, but commercialization is years away. Research focuses on marker-assisted breeding (see, GAIN-INDIA - IN2021-0121 – India Biotechnology Annual - 2021).

CONSUMPTION

Rice consumption in 2021/22 is estimated at 103.5 MMT, up two percent from last year with the government's extension of free food grains under COVID-19 relief programs through September. Consumption in 2022/23 is forecast at 106 MMT based on ample domestic supplies and government stocks. This will permit the government to continue to offload surplus rice under the NFSA and other food security programs.

Government Procurement and Food Security Programs: Rice is the main food grain in food security programs; the government has procured 38-45 percent of the production in recent years (see, Appendix 5). Rice procurement varies from state-to-state but entails the purchase of un-milled paddy rice from farmers through various agencies and having it custom milled.



Source: Food Corporation of India and FAS New Delhi for MY 2021/2022 estimate.

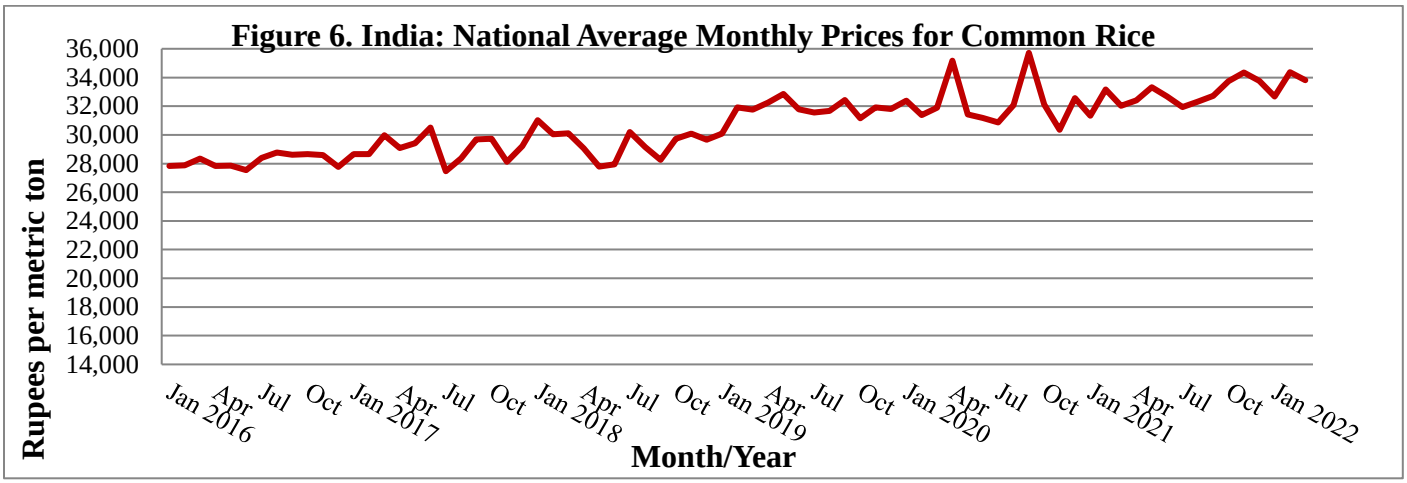
A record harvest and weak domestic prices due to the government's release of free food grain under COVID-19 relief programs drove 2021/22 rice procurement higher than last year and is poised to exceed the 2021/22 target of 54.3 MMT. Procurement through March 11, 2022, is at 49 MMT, compared to 45 MMT last year, with the increases coming in the central and southern states.[10] Procurement will stay steady this marketing season on the expected record March-May harvest. The 2021/22 procurement may reach a record 62 MMT, up from last year's 60.1 MMT. Continuation of the supplemental domestic food aid program will help lower stock levels.

Food and Seed Use: Rice is the staple cereal for two-thirds of India's population, with the balance of the populace consuming a mixed basket of rice, wheat, and other cereals.[11] More than 4,000 rice varieties are grown. Ninety percent of farmers are smallholders (less than two hectares), who retain 45-50 percent of the farm harvest for home consumption and seed use. Most of the high yielding/hybrid coarse rice is procured under the MSP program, with small quantities purchased by private trade for exports. Locally preferred rice types are picked up by the private trade and marketed in bulk and unbranded. Long grain basmati rice and specialty/fragrant types are procured by millers for export and domestic sales in bulk or branded packages.

[10] See https://agricoop.nic.in/sites/default/files/CWWG%20Minutes%20as%20on%2011.03.2022_0.doc page 6.
[11] India's population is estimated at 1.339 billion (Central Intelligence Agency, July 2021 est.).

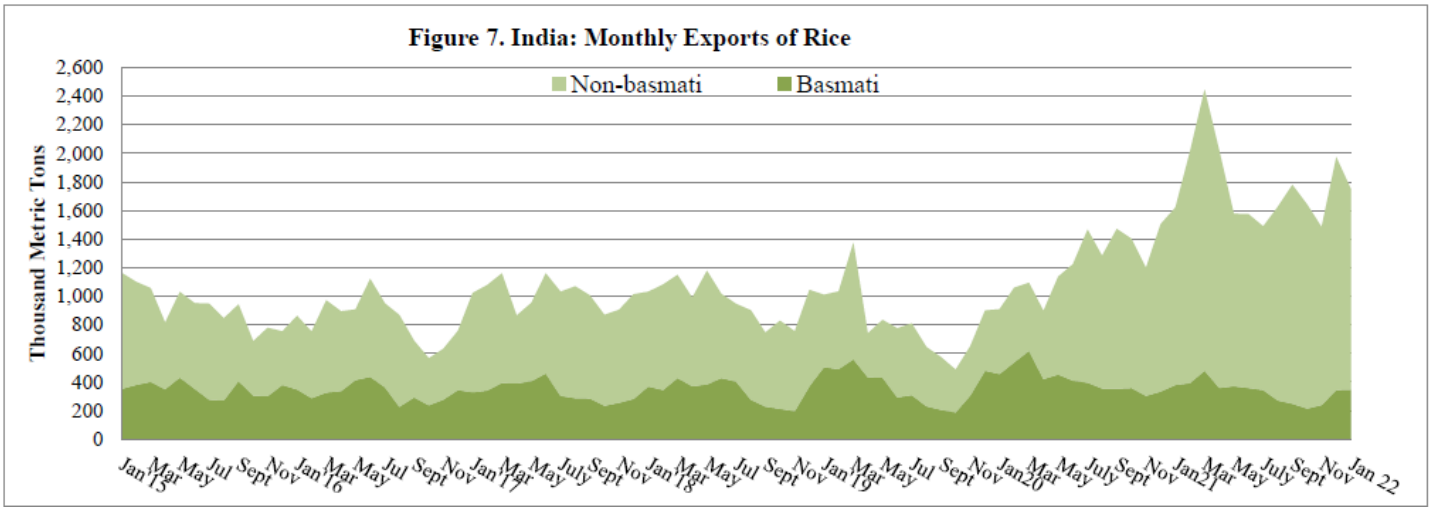
Feed and Industrial Use: The livestock feed industry uses small quantities of broken rice and de-oiled rice bran as fillers in commercial feed. A small quantity of broken/damaged rice unfit for human consumption is used for alcohol production, mostly by the potable liquor industry, and the by-product, distillers-dried-grains with solubles (DDGS), is sold to the feed industry. The government permits that inferior quality rice from central government stocks be used for ethanol production for fuel use at a fixed offer price from the oil marketing companies. Sources report that there are some rice-based ethanol projects on the anvil in certain states. While there are no official or reliable industry estimates available for rice for feed consumption, sources report increasing usage of inferior/broken rice compared to other cereals in recent years, currently estimated at around 4.5-5.5 MMT, mostly due to relatively lower prices compared to that of other cereal feed ingredients.

Prices: Despite strong export demand and record domestic production, the ample supply of government subsidized rice has kept 2021/22 domestic prices steady. Market prices during the balance of 2021/22 likely will stable due to the record rabi harvest and continuation of the supplemental free food grain program. Prices may respond to major changes in international prices as a reflection of the recent spike in global food prices.



Source: AgMarketNet, MOAFW.

TRADE



Source: Monthly exports through January 2021, Directorate General of Commercial Intelligence (DGCIS).

In 2011, India lifted its export ban on coarse rice, making it the world's leading rice exporter. Following the 2020 COVID-19 outbreak, its global market share shot up. Rice exports in 2021/22 are estimated at a record 20.5 MMT (16.5 MMT coarse rice and 4 MMT basmati rice), up from last year's exports of 20.2 MMT. Assuming no major changes in global demand, Post forecasts 2022/23 rice exports at 18 MMT (14.2 MMT coarse rice and 3.8 MMT basmati rice) on tighter domestic supplies, rising cost on expected higher MSP, and competing origins' supply. India in the near-term will not restrict rice exports given surplus domestic supplies.

Exports: India's 2021/22 (October 2021-January 2022) total rice exports are officially estimated at 6.8 MMT, up from 5.7 MMT during the same period last year on increased coarse rice exports to Bangladesh, China, and African countries. Other buyers are Nepal, Saudi Arabia, Iran, and Middle East and South Asian countries. Basmati rice exports are relatively weak due to tight domestic supplies and high freight costs compared to last year. Sources report that competition from other origins, particularly white rice ones, will affect the pace of exports in the coming months. Assuming no significant change in the current price parity for Indian rice, 2021/22 rice exports are expected to reach 20.5 MMT, and 2022/23 exports are forecast at 18 MMT.

Imports: India's high import tariff (70 percent) on rice remains unchanged. However, there are no other applied/applicable taxes, social surcharge, or GST on rice. India requires that rice import consignment be accompanied by a certificate from the exporting country that the rice is not genetically engineered (GE). The import of GE rice is banned (see, GAIN-INDIA - IN2021-0121 – India Biotechnology Annual -2021).

STOCKS

With a forecasted near-record harvest and anticipating strong government procurement, India's 2022/23 ending stocks are projected to grow to 43 MMT (40 MMT government rice and 3 MMT in private stocks held mainly by rice exporters). There is no published information about privately held rice stocks; these are reported in the 2-4 MMT range depending on the market situation. On March 1, 2022, government held stocks hit a record 59.1 MMT, increasing 15 percent compared to the same period last year and over four times the government's peak buffer stocks of 13.58 MMT (April 1, 2021).[12] Assuming higher monthly offtake in the remaining marketing season due to relatively tight wheat stocks, 2021/22 government ending stocks are estimated at 39 MMT, up from 34.75 MMT last year and private stocks at 3.0 MMT, up from 2.75 MMT last year.

POLICY

Production Developments and Market Support: The Indian federal and most state governments follow comparable production and market support policies for rice. There are various rice-specific development schemes such as the Special Rice Development Program (SRDP) and Promotion of Hybrid Rice (price subsidies on seed) from the central government. Several state governments have specific programs for rice growers, which subsidize improved seeds, mechanization (rice transplanters and harvesters), and water conserving practices.

MARKETING

Indian high-quality basmati rice competes with long grain U.S. rice in the Middle East and in the European Union. Indian exports of basmati rice and other specialty/fragrant rice to the United States have been rising in recent years, with demand driven by expats from India, the Middle East, and South Asian countries.

[12] March 1, 2022, rice stocks include 29.58 MMT milled rice and 44.11 MMT un-milled paddy rice compared to March 1, 2021, rice stocks of 28.24 MMT milled rice and 34.5 MMT un-milled paddy rice.

COARSE GRAINS – CORN, MILLET, SORGHUM, AND BARLEY

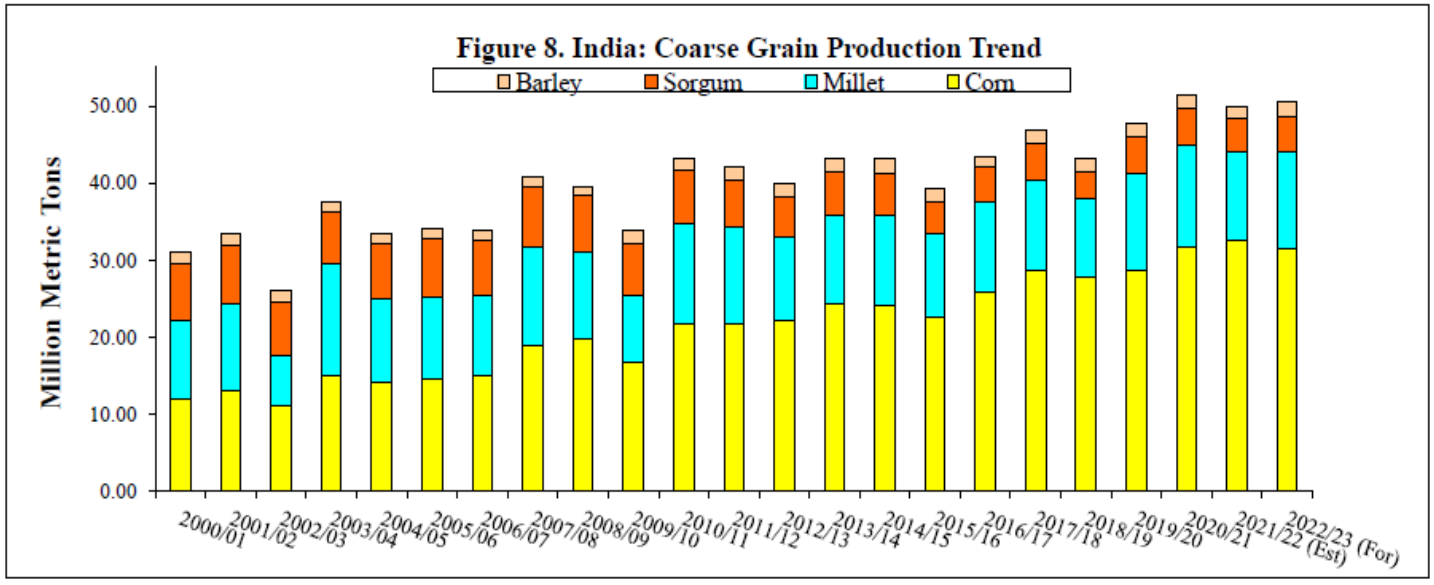
PRODUCTION

MY 2022/23 Outlook

With 82-85 percent of the coarse grain cultivation being rainfed, the performance of the 2022 monsoon will determine the planting and productivity of coarse grains this upcoming season. Assuming a normal 2022 monsoon, 2022/23 coarse grain production is forecast at 50.6 MMT, up from than 2021/22 estimated harvest of 49.9 million metric tons. Field sources report that favorable weather conditions at the time of planting through the critical crop growth stage (November 2021-February 2022) have supported higher planting and yield prospects for 2022/23 (April/March) barley crop (harvest begins in mid-April). Strong end-season prices should support a recovery in planting under sorghum and millet, but higher oilseed prices will contain increase in corn planting in the upcoming season. The MY 2022/23 forecast coarse grain production figure includes production of 31.5 MMT of corn, 12.5 MMT of millet, 4.7 MMT of sorghum, and 1.9 MMT of barley on trend yields.

MY 2021/2022 Production: Despite 2021 monsoon rains supporting a record corn harvest, 2021/22 total coarse grain production is estimated at 49.9 MMT on lower production of other coarse grains. Timely planting with above normal 2021 monsoon rains and favorable weather conditions for the winter planted season corn boosted the yield prospects with 2021/22 corn production estimated at 32.5 MMT (record). However, production of millet, sorghum, and barley are estimated down from last year on lower plantings (area shifted to rice and pulses). Despite some incidence of fall armyworm (*Spodoptera frugiperda*) in some corn, sorghum, and millet areas, above-normal 2021 rains and monitoring/control measures mitigated crop loss in 2021/22.

Production Trend: Over three-fourths of India's coarse grain production is cultivated during the kharif season (corn, sorghum, and millet), with the balance cultivated in the rabi season (corn, sorghum, and barley) under rainfed conditions. Over the last decade coarse grain production has shown a slightly upward trend, driven by growth in corn productivity, while sorghum, millet, and barley production have been stagnant or declining.



Source: MOAFW and FAS New Delhi for MY 2020/2021 estimate and MY 2021/2022 forecast.

Corn: Production is trending up on productivity gains from new improved hybrid seeds and favorable weather conditions. Growing demand from feed manufacturers and the starch industry encourages farmers to cultivate corn, with plantings at 9.6 -9.9 million hectares. In recent years the private sector has developed higher yielding new hybrids. Hybrid corn, which is mostly feed and industrial grade, accounts for 75-80 percent of the planted area, while food grade corn produced using traditional cultivars is grown in the north.

Other Coarse Grains: Sorghum and millet production, mostly unirrigated, fluctuates year-to-year depending on the monsoon rains. These crops have not experienced significant productivity-enhancing technological (varietal or agronomic) breakthroughs and or demand for industrial or commercial usage. With rising supplies of subsidized rice and wheat through food security programs, consumers have shifted away from sorghum and millet, further eroding the crop's profitability. Consequently, sorghum and millet cultivation has been declining, with acreage shifting to more profitable cereals (rice, wheat, corn, and pulses) and other competing crops (oilseeds and cotton). Barley is a relatively small winter crop cultivated in northwestern India, with production of 1.7-1.9 MMT based on weather conditions. Traditionally, India produced six-row varieties of barley for food and feed use, which is unsuitable for malting. More recently, a few high-quality/malting grade barley varieties have been developed through public-private breeding programs and are now replacing the traditional varieties.

CONSUMPTION

Coarse grain consumption in 2022/23 is forecast at 48.9 MMT on expected higher demand from the animal feed sector and recovery in other coarse grains production. Corn consumption growth in 2022/23 will be contained due to expected firm prices owing to strong global demand and forecast tight supplies, with the feed sector substituting demand with cheaper cereals and other coarse grains. Demand for corn by the poultry sector is recovering in 2021/22. However, higher corn use was offset by lower supplies of other coarse grains; 2021/22 coarse grain consumption is estimated at 47 MMT compared to 47.5 MMT in the previous year.

After the COVID-19 pandemic second wave and soymeal price hike of early 2021, India's poultry industry recovered strongly in 2021/22 thanks to consumer demand improving for poultry products and more stable feed ingredient prices later in the year. The starch industry's corn demand is growing on strong domestic and export demand for textile products. There is a small (3 MMT) but growing use of low-quality corn, other coarse grains, and some wheat and rice for the high-end potable liquor industry for blended whiskies and other spirits. Food use of corn and other coarse grains, however, has been lower than in the previous year due to higher supplies of subsidized wheat and rice made available through the government's public distribution system.

Animal Feed Use: India's growing economy and an expanding middle class are fueling demand for more animal protein (primarily poultry). The growth of the country's poultry sector has increased demand for corn. With no information on India's animal feed production and ingredient use made available by the government, estimations are difficult. Sources, however, do report that commercial feed accounts for 55 percent of the total animal feed market. The commercial feed industry caters to the poultry (72-75 percent), aquaculture (12-15 percent), and dairy cattle (10-12 percent) feed sectors. Corn and soybean meal are the main ingredients used by the commercial feed industry, supplemented by other coarse grains and oilseed meals, inferior quality wheat, wheat bran, and low-quality broken rice (milling waste), depending on prices. Small quantities of DDGS from grain-based ethanol plants are used by poultry and aquaculture feed manufacturers.

India's poultry and aquaculture industry depends primarily on commercial feed, varying feed ingredients in mixes based on prices. The dairy sector, largely backyard operations (2-3 animals), consumes limited amounts of compound feed and depends on home-made feed mixes - oil cakes, household food waste, inferior quality wheat, and other cheap grain mixes – to feed to lactating cows/buffaloes. A growing trend among dairy farmers

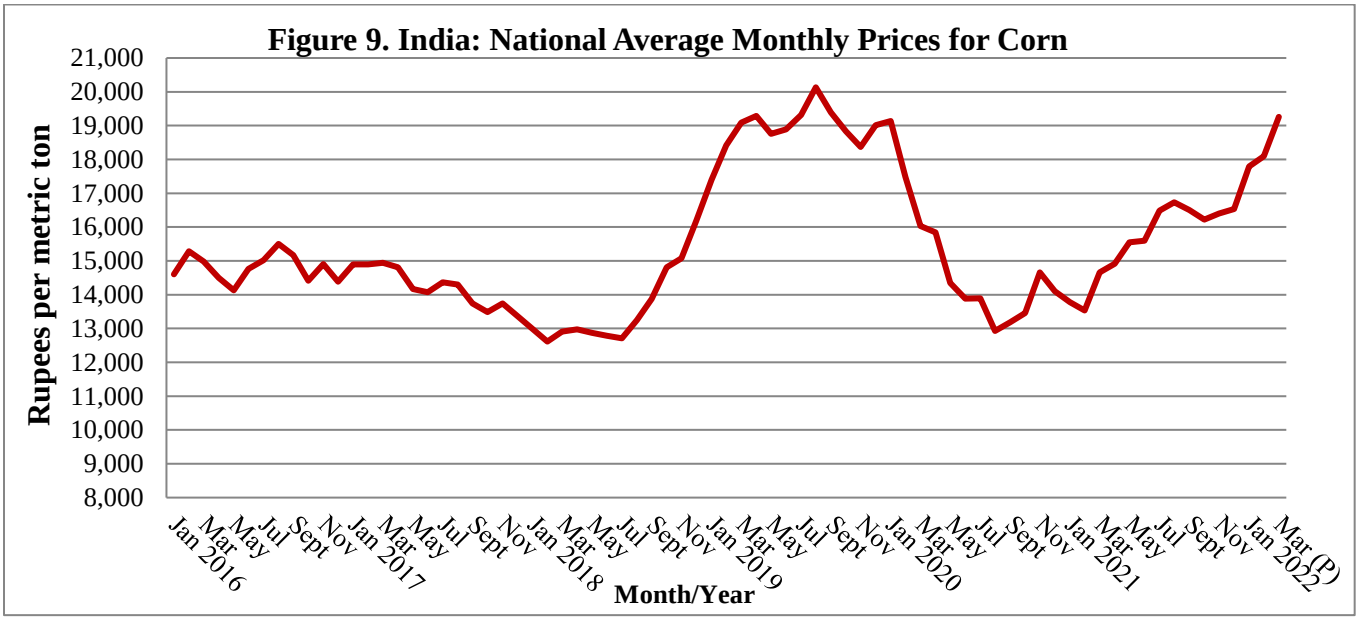
is to replace local, low-yielding dairy cattle breeds with higher yielding crossbred cows and buffaloes. These require high-energy feeds, which has driven up demand for commercial dairy feed by 10-12 percent per year.

Food Use: Corn for human consumption (6-7 MMT) represents a small share of production compared to that for feed use. A proportionately greater percentage of the other coarse grains – sorghum, millet, and barley – goes to food use. Traditionally, these grains were the staple diet for rural and lower income semi-urban households. However, production gains from the Green Revolution and subsidized supplies of rice and wheat under food security programs (e.g., free food grain under COVID-19 relief programs) have replaced these grains in the food basket. Now there is growing awareness about the high-fiber and nutrient content benefits of sorghum and millet (nutrient-cereals) among a small population of 'health conscious' urban consumers incorporating these cereals in their diets. The government declared 2022 as the "Year of Millet" and is allocating funding for promotion of millet cultivation among grower and consumer marketing campaigns.

Industrial Use: Some 3-3.5 MMT of corn is used by starch industry to cater to textile industry needs. India's domestic ethanol program uses molasses (a sugar industry byproduct) as feedstock for ethanol production for fuel use. However, small quantities of ethanol are produced from rice milling industry waste (broken rice), and low-quality wheat, corn, and coarse grains for potable liquor and other industrial uses. Small quantities of DDGS (300,000 MMT to 400,000 MMT) from these ethanol plants are used by the animal feed industry. The government has announced schemes for the private sector for setting up grain-based ethanol plants by offering price incentives over molasses-based ethanol by the government parastatal fuel marketing companies. Sources report that some of these plants are likely to come into operation by end of 2022.

Prices: Recovery in domestic and export demand has fueled corn prices since the beginning of 2021. Despite the record harvest, 2021/22 prices are on the upward trajectory. Prices have gone up further in the last three months in response to global prices spiking due to the Russian invasion of Ukraine.

Figure 9. India: National Average Monthly Prices for Corn



Source: AgMarketNet, MOAFW.

Average spot prices in the first half of March 2022 are up 30 percent compared to March 2021 prices and well above the 2021/22 MSP of INR 18,700 ($246) per metric ton. India's domestic industry is concerned that rising corn prices may lead to export control measures. While prices are expected to ease with the arrival of the crop in April, high global prices will force prices up through the rest of the marketing year.

TRADE

Corn: India is a major corn supplier to nearby markets based on competitive prices due to high global prices and a spike in sea freight costs with the COVID-19 outbreak (2020). Despite India's export competitiveness, Post forecasts 2022/23 exports lower at 2.4 MMT and imports at 100,000 MT on forecast tight domestic supplies and strong demand. Imports are duty-free from less developed countries.

Official statistics in the first quarter of 2020/21 (November-January) estimate corn exports at 1.2 MMT, compared to 1.1 MMT last year, mainly to Bangladesh, Vietnam, Nepal, and South Asia destinations (Appendix 9). The Ukrainian crisis has spurred a global surge in corn prices, making Indian corn now highly competitive in the region. India's 2021/22 corn exports are estimated higher at 3.2 MMT. Sources report that domestic price increases in the last quarter of the marketing year will affect export prospects or bring export control measures.

Other Coarse Grains: India exports small quantities of feed grade sorghum and barley to neighboring countries and the Middle East. In recent years, India has imported small quantities of barley for malting purposes, but imports slowed after the COVID-19 outbreak. Despite expected recovery in the hotel and restaurant sectors, Post forecasts 2022/23 barley imports at 50,000 MT reflecting a forecast record local harvest.

Tariffs: The basic **i**mport duty on coarse grains, 50 percent on corn, sorghum, and millet, remains unchanged. India permits imports of non-GE corn under a tariff-rate-quota (TRQ) of 500,000 MT, with a 15 percent duty (see, Appendix 4).

POLICY

Production Support: Central government coarse grain support programs are small compared to wheat and rice. MSP procurement is limited to a few states and is restricted to NFSA and food security programs. Some states initiate MSP procurement if market prices drop below the MSP threshold.

Trade Policy: There are no export restrictions on corn, millet, sorghum, and barley. Imports of these commodities are allowed subject to the effective import duty and meeting phytosanitary conditions specified in Plant Quarantine (Regulation of Imports into India) Order 2003.[13] Imports of any GE product (GE crops and products derived from GE crops) are subject to approval by the Genetic Engineering Appraisal Committee (GEAC), a biotechnology regulatory body. The GEAC has not approved imports of other GE coarse grains or byproducts. Corn imports fall under a TRQ, which requires the importer to obtain a Ministry of Commerce and Industry issued TRQ allocation certificate in accordance with the Export-Import Facilitation Committee procedures. The government's advance licensing scheme permits duty-free corn imports by processors (e.g., starch manufacturers), against export commitments for processed-end products meeting value-addition norms.

MARKETING

Economic growth is fueling demand growth for corn. With production expansion limited, India will need to import corn and corn products (e.g., DDGS) within the next 2-3 years. Phytosanitary conditions (weed seeds, ergot) and other SPS issues and the non-approval of GE feed corn preclude U.S. corn exports to India.

[13] Imports of corn and other coarse grains are duty-free from the less developed countries.

Table 3. India: Commodity, Corn, PSD

Corn	2020/2021		2021/2022		2022/2023	
Market Year Begins	Nov 2020		Nov 2021		Nov 2022	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	9950	9890	9900	9900	0	9800
Beginning Stocks (1000 MT)	1863	1863	2098	2097	0	1622
Production (1000 MT)	31650	31650	32500	32500	0	31500
MY Imports (1000 MT)	25	25	25	25	0	100
TY Imports (1000 MT)	23	23	25	25	0	100
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	33538	33538	34623	34622	0	33222
MY Exports (1000 MT)	3590	3591	2800	3200	0	2400
TY Exports (1000 MT)	3677	3678	2800	3200	0	2400
Feed and Residual (1000 MT)	16250	16250	18000	18000	0	18500
FSI Consumption (1000 MT)	11600	11600	11800	11800	0	11500
Total Consumption (1000 MT)	27850	27850	29800	29800	0	30000
Ending Stocks (1000 MT)	2098	2097	2023	1622	0	822
Total Distribution (1000 MT)	33538	33538	34623	34622	0	33222
Yield (MT/HA)	3.1809	3.2002	3.2828	3.2828	0	3.2143

Notes: MY = Marketing Year, begins with the month listed at the top of each column.
TY = Trade Year, begins in October for all countries; TY 2022/23 = October 2022-September 2023.

Table 4. India: Commodity, Millet, PSD

Millet	2020/2021		2021/2022		2022/2023	
Market Year Begins	Nov 2020		Nov 2021		Nov 2022	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	9130	9256	9000	8700	0	9000
Beginning Stocks (1000 MT)	612	612	612	612	0	612
Production (1000 MT)	13200	13200	11500	11500	0	12500
MY Imports (1000 MT)	0	0	0	0	0	0
TY Imports (1000 MT)	0	0	0	0	0	0
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	13812	13812	12112	12112	0	13112
MY Exports (1000 MT)	0	0	0	0	0	0
TY Exports (1000 MT)	0	0	0	0	0	0
Feed and Residual (1000 MT)	1400	1400	1500	1500	0	1600
FSI Consumption (1000 MT)	11800	11800	10000	10000	0	11000
Total Consumption (1000 MT)	13200	13200	11500	11500	0	12600
Ending Stocks (1000 MT)	612	612	612	612	0	512
Total Distribution (1000 MT)	13812	13812	12112	12112	0	13112
Yield (MT/HA)	1.4458	1.4261	1.2778	1.3218	0	1.3889

Notes: MY = Marketing Year, begins with the month listed at the top of each column.
TY = Trade Year, begins in October for all countries; TY 2022/23 = October 2022-September 2023.

Table 5. India: Commodity, Sorghum, PSD

Sorghum	2020/2021		2021/2022		2022/2023	
Market Year Begins	Nov 2020		Nov 2021		Nov 2022	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	4270	4380	4600	4000	0	4500
Beginning Stocks (1000 MT)	394	394	587	597	0	347
Production (1000 MT)	4800	4810	4400	4300	0	4700
MY Imports (1000 MT)	0	0	0	0	0	0
TY Imports (1000 MT)	0	0	0	0	0	0
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	5194	5204	4987	4897	0	5047
MY Exports (1000 MT)	57	57	50	50	0	50
TY Exports (1000 MT)	56	56	50	50	0	50
Feed and Residual (1000 MT)	550	550	500	500	0	550
FSI Consumption (1000 MT)	4000	4000	4000	4000	0	4000
Total Consumption (1000 MT)	4550	4550	4500	4500	0	4550
Ending Stocks (1000 MT)	587	597	437	347	0	447
Total Distribution (1000 MT)	5194	5204	4987	4897	0	5047
Yield (MT/HA)	1.1241	1.0982	0.9565	1.075	0	1.0444

Notes: MY = Marketing Year, begins with the month listed at the top of each column.
TY = Trade Year, begins in October for all countries; TY 2022/23 = October 2022-September 2023.

Table 6. India: Commodity, Barley, PSD

Barley	2020/2021		2021/2022		2022/2023	
Market Year Begins	Apr 2020		Apr 2021		Apr 2022	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	590	590	593	590	0	677
Beginning Stocks (1000 MT)	224	224	113	113	0	105
Production (1000 MT)	1720	1720	1666	1660	0	1900
MY Imports (1000 MT)	71	71	70	25	0	50
TY Imports (1000 MT)	14	14	70	10	0	50
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	2015	2015	1849	1798	0	2055
MY Exports (1000 MT)	2	2	5	3	0	5
TY Exports (1000 MT)	2	2	5	3	0	5
Feed and Residual (1000 MT)	400	400	250	250	0	400
FSI Consumption (1000 MT)	1500	1500	1440	1440	0	1500
Total Consumption (1000 MT)	1900	1900	1690	1690	0	1900
Ending Stocks (1000 MT)	113	113	154	105	0	150
Total Distribution (1000 MT)	2015	2015	1849	1798	0	2055
Yield (MT/HA)	2.9153	2.9153	2.8094	2.8136	0	2.8065

Notes: MY = Marketing Year, begins with the month listed at the top of each column.
TY = Trade Year, begins in October for all countries; TY 2022/23 = October 2022-September 2023.

APPENDICES

Appendix 1. India: Government Wheat Procurement, Offtake and PDS Price

Marketing Year	Production	Government of India Procurement[1]	MSP	Government of India Total Cost	Offtake from Government Stocks	PDS Issue Price		
(Apr–Mar)	(Million Metric Tons)	(Million Metric Tons)	Rupees per Metric Ton	Rupees per Metric Ton	(Million Metric Tons)	Rupee per Metric Ton		
						APL	BPL	AAY/NFSA
2010/11	80.80	22.51 (27.8)	11,000	14,944	23.07	6,100	4,150	2,000
2015/16	86.53	28.09 (32.5)	14,500	21,274	31.57	6,100	4,150	2,000
2016/17	87.00	22.96 (26.4)	15,250	21,970	29.25	n/a/2	n/a/2	2,000
2017/18	98.51	30.82 (31.3)	16,250	22,979	25.30	n/a/2	n/a/2	2,000
2018/19	99.87	35.80 (35.8)	17,350	23,597	31.65	n/a/2	n/a/2	2,000
2019/20	103.60	34.13 (32.9)	18,400	26,231	27.19	n/a/2	n/a/2	2,000
2020/21	107.86	38.99 (36.1)	19,250	27,318	36.39	n/a/2	n/a/2	2,000
2021/22	109.59	43.34 (39.5)	19,750	24,997	50.80/3	n/a/2	n/a/2	2,000
2022/23	111.00/3	32.00 (28.8)/3	20,150	25,887	37.00/3	n/a/2	n/a/2	2,000

Source: Ministry of Agriculture and Farmers Welfare, Food Corporation of India, and Government of India Budget.

Notes: APL - Above Poverty Line; BPL - Below Poverty Line; AAY - Poorest of Poor; NFSA - National Food Security Act.
1/: Figures in parenthesis are Government of India procurement as a percentage of total food production.
2/: The NFSA has been implemented in most states, replacing the APL/BPL by the end of 2015.
3/: FAS New Delhi estimate.
4/: Government of India budget estimate.

Appendix 2. India: Commodity, Wheat, Prices Table

Prices In	Rupees	Per Unit-of-Measure	Metric Tons	
Year	2020	2021	2022	% Change
Jan	21,421	19,631	22,251	13.3
Feb	22,127	19,317	20,838	7.9
Mar	20,059	19,266	21,857	13.4
Apr	20,215	19,789		
May	20,139	20,005		
Jun	20,639	20,277		
Jul	20,318	21,066		
Aug	19,736	19,503		
Sep	18,663	19,935		
Oct	18,899	20,668		
Nov	18,821	21,061		
Dec	17,644	21,273		
Exchange Rate	76.64	Local Currency/US$		
Date of Quote	03/11/2022	MM/DD/YYYY		

Note: National Average Monthly Wholesale Price of Wheat.
Source: AgMarketNet and MOAFW.

Appendix 3. India: Commodity, Wheat, Export Trade Matrix

Time Period	**April-March**	**Units**	**Metric Tons**
Exports for	**MY 2020/21**		**MY 2021/22** [1]
U.S.	91,856	U.S.	56,000
Others		**Others**	
Bangladesh	1,194,891	Bangladesh	3,489,004
Nepal	363,332	Sri Lanka	508,324
United Arab Emirates	265,644	United Arab Emirates	495,475
Sri Lanka	108,154	Indonesia	401,581
Qatar	93,324	Philippines	358,341
Yemen	86,000	Nepal	263,174
Indonesia	61,837	Yemen	213,360
Afghanistan	55,584	Djibouti	150,403
Malaysia	32,760	South Korea	132,078
Oman	32,455	Qatar	109,132
Total for Others	**2,293,981**	**Total for Others**	**6,120,872**
Others not Listed	175,591	Others not Listed	418,168
Grand Total	**2,561,428**	**Grand Total**	**65,95,040**

Source: Trade Data Monitor and FAS New Delhi office research.
Trade Data Monitor data includes wheat product in wheat grain equivalent.

Appendix 4: Import Tariffs on Major Grains and Products

HS Code	**Description**	**Basic Duty (BD) on Assessable value**	**Social Welfare Surcharge (SWS) on BD**	**Integrated GST (IGST) on AV+BD+SWS**	**Total Effective Duty (BD+SWS+IGST)**
Wheat and Wheat Products					
100.11.900	Wheat	40 percent	10 Percent	Nil	44 percent
100.19.920	Meslin	100 percent	Nil	Nil	100 percent
110.10.000	Wheat and Muslin Flour	30 percent	10 percent	Nil	33 percent
190.21.900	Uncooked pasta, not stuffed or otherwise prepared not containing eggs	30 percent	10 percent	12 percent	48.96 percent
190.23.000	Other Pasta	30 percent	10 percent	12 percent	48.96 percent
190.24.000	Couscous	30 percent	10 percent	12 percent	48.96 percent
Rice					
100.61.090	Paddy Rice in Husk	80 percent	Nil	Nil	80 percent
1006.2	Husked (brown) rice	80 percent	Nil	Nil	80 percent
1006.3	Semi milled or wholly milled rice	70 percent	Nil	Nil	70 percent
1006.4	Broken Rice	80 percent	Nil	Nil	80 percent
Coarse Grains					
100.3	Barley	Nil	Nil	Nil	Nil
100.5	Corn*	50 percent	10 percent	Nil	55 percent
100.7	Grain Sorghum	50 percent	10 percent	Nil	55 percent
100.82.100-100.82.900	Various Millets	50 percent	10 percent	Nil	55 percent

Note: * India has a TRQ of 500,000 on imports of corn with a 15 percent basic duty.
Exchange rate on March 11, 2022, 1US$= INR 76.64

Appendix 5. India: Government's Rice Procurement, Offtake and PDS Price

Marketing Year	Production	Government of India Procurement[1]	MSP for Paddy (Un-milled Rice Common variety)	Government of India Economic Cost	Offtake from Government Stocks in Indian Fiscal Year (Apr/Mar)	PDS Issue Price		
(Oct-Sept)	(Million Metric Tons)	(Million Metric Tons)	Rupees per Metric Ton	Rupees per Metric Ton	(Million Metric Tons)	Rupees per Metric Ton		
						APL	BPL	AAY/NFSA
2010/11	95.98	34.20 (35.6)	10,000	19,831	29.96	7,950	4,150	3,000
2015/16	104.41	34.22(32.8)	14,100	31,255	32.13	7,950	4,150	3,000
2016/17	109.70	38.11(34.7)	14,700	31,050	33.71	n/a/2	n/a/2	3,000
2017/18	112.76	38.19 (33.9)	15,500	32,803	34.67	n/a/2	n/a/2	3,000
2018/19	116.48	44.40 (38.1)	17,500	34,441	34.23	n/a/2	n/a/2	3,000
2019/20	118.87	51.83(43.6)	18,350	37,201	35.14	n/a/2	n/a/2	3,000
2020/21	124.37	60.08(48.3)/3	18,880	39,393	56.49	n/a/2	n/a/2	3,000
2021/22	129.00/3	62.00(48.1)/3	19,600	35,972	55.00/3	n/a/2	n/a/2	3,000
2022/23	125.00/3	n/a	n/a	36.700/4	n/a	n/a/2	n/a/2	3,000

Source: Ministry of Agriculture and Farmers Welfare, Food Corporation of India, and Government of India Budget.
Notes: APL - Above Poverty Line, BPL - Below Poverty Line; AAY - Poorest of Poor.
NFSA-National Food Security Act
1/: The Figure in parenthesis is the Indian government's procurement as percentage of total food production.
2/: The NFSA has been implemented in most states, replacing the APL/BPL by the end of 2015.
3/: FAS New Delhi estimate.
4/: Government of India budget estimate.

Appendix 6. India: Commodity, Rice, Milled, Prices Table

Prices In	Rupees	Per Unit-of-Measure	Metric Tons	
Year	2020	2021	2022	% Change
Jan	32,382	31,330	32,666	4.3
Feb	31,379	33,173	34,363	3.6
Mar	31,899	32,035	33,801	5.5
Apr	35,165	32,410		
May	31,420	33,323		
Jun	31,180	32,677		
Jul	30,860	31,927		
Aug	32,068	32,314		
Sep	35,716	32,727		
Oct	32,123	33,738		
Nov	30,363	34,341		
Dec	32,563	33,777		
Exchange Rate	76.64	Local Currency/US$		
Date of Quote	03/11/2022	MM/DD/YYYY		

Note: National Average Monthly Wholesale Price of Wheat.
Source: AgMarketNet and MOAFW.

Appendix 7. India: Commodity, Rice Milled, Export Trade Matrix

Time Period	Oct-Sep	Units	Metric Tons
Exports for	**MY 2020/21**		**MY 2021/22[1]**
U.S.	175,456	U.S.	65,266
Others		**Others**	
Bangladesh	2,160,729	Nepal	483,913
Benin	1,387,721	China	436,292
Nepal	1,224,171	Benin	400,301
Senegal	1,036,062	Cote d'Ivoire	384,653
China	1,005,074	Iran	355,491
Saudi Arabia	999,542	Bangladesh	343,165
Iran	847,914	Senegal	342,723
Cote d'Ivoire	8,47,699	Sri Lanka	321,119
Iraq	818,193	Togo	309,630
Vietnam	712,876	Guinea	274,448
Total for Others	**11,039,981**	**Total for Others**	**3,651,735**
Others Not Listed	8,983,738	Others Not Listed	3,090,610
Grand Total	**20,199,175**	**Grand Total**	**6,807,611**

Source: Trade Data Monitor and FAS New Delhi office research.
[1] Provisional data for the period October 2021 through January 2022.

Appendix 8. India: Commodity, Corn, Prices Table

Prices In	Rupees	Per Unit-of-Measure	Metric Tons	
Year	**2020**	**2021**	**2022**	**% Change**
Jan	19,133	13,780	17,791	29.1
Feb	17,481	13,534	18,093	33.7
Mar	16,033	14,657	19,258	31.4
Apr	15,839	14,919		
May	14,349	15,548		
Jun	13,881	15,593		
Jul	13,897	16,482		
Aug	12,932	16,736		
Sep	13,186	16,504		
Oct	13,457	16,220		
Nov	14,655	16,405		
Dec	14,098	16,537		
Exchange Rate	76.64	Local Currency/US$		
Date of Quote	03/11/2022	MM/DD/YYYY		

Note: National Average Monthly Wholesale Price of Wheat.
Source: AgMarkNet and MoAFW.

Appendix 9. India: Commodity, Corn, Export Trade Matrix

Time Period	Nov-Oct	Units	Metric Tons
Exports for	**MY 2020-21**		**MY 2021-22[1]**
U.S.	5	U.S.	1
Others		**Others**	
Bangladesh	1,506,032	Bangladesh	523,718
Vietnam	1,110,031	Vietnam	336,846
Nepal	586,082	Nepal	176,278
Malaysia	254,537	Malaysia	74,163
Bhutan	22,130	Sri Lanka	19,350
United Arab Emirates	21,328	Taiwan	11,409
Syria	18,000	Oman	6,578
Oman	17,664	Bhutan	5,807
Qatar	16,627	Japan	2,176
Yemen	6,496	Hong Kong	1,934
Total for Others	**3,558,927**	**Total for Others**	**1,158,259**
Others Not Listed	32,145	Others	10,780
Grand Total	**3,591,077**	**Grand Total**	**1,169,040**

Source: Trade Data Monitor and FAS New Delhi office research.
[1] Provisional data for the period November 2021 through January 2022.

Appendix 10. India: Usage of Grains, Oil Meals and Other Feed Ingredients

Commodity	Quantity (MMT)	Comments
Corn	16.0-17.5	Largely commercial feed for poultry and aquaculture sector
Wheat	6.0-6.5	Largely farm feed mixes and commercial feed for dairy sector
Other Coarse Grains	2.0-2.4	Largely farm feed mixes and some for commercial feed for all sectors
Soybean Meal	5.2-5.8	Largely commercial feed for poultry and aquaculture sector
Cotton Seed & Meal	4.2-4.5	Largely farm feed mixes and some for commercial feed for dairy sector
Rapeseed Meal	2.8-4.3	Largely commercial feed and some farm feed mixes for all sectors
Peanut Meal	1.5-1.6	Largely commercial feed and some farm feed mixes for all sectors
Other Oil Meals	0.7-0.9	Largely commercial feed and farm feed mixes for all sectors
Broken rice/ de-oiled rice bran/1	4.5-5.0	Largely commercial feed for poultry and aquaculture sector
Wheat Bran/2	5.5-6.0	Largely farm feed mixes and some commercial feed for dairy sector
DDGS	0.2-0.3	Compound feed for poultry sector
Total	**49.0-54.0**	Compound feed accounts for about 60 percent of the total share

Source: FAS New Delhi Research based on information from trade sources.
[1]Byproduct of the rice mills.
[2]Byproduct of the roller flour mills.

Attachments:

No Attachments