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Report Highlights:

FAS New Delhi (Post) forecasts India's market (MY) 2023/2024 (April-March) wheat production at 108 million metric tons (MMT) resulting from 31.9 million hectares. Crop performance is better compared to the MY 2022/2023 harvest of 100 MMT arising from 30.5 million hectares. Favorable weather conditions and sufficient soil moisture from the time of planting through the vegetative/reproductive stages buoyed record planting levels. MY 2023/2024 yields are forecast up at 3.39 MT/hectare compared to last year's 3.28 MT/hectare. Post forecasts MY 2023/2024 rice production at 127 MMT, from a planted area of 46.5 million hectares, with yields of 4.09 MT/hectare. Despite an erratic 2022 monsoon, Indian farmers realized good returns from rice over other crops. Farmers benefitted from high government MSP procurement for paddy (un-milled) rice and strong export demand. With the return of the El Niño phenomenon, bringing warmer weather in the latter part of 2023, there are concerns that rabi season plantings could suffer.

EXECUTIVE SUMMARY

FAS New Delhi (Post) forecasts India's market (MY) 2023/2024 (April-March) wheat production at 108 million metric tons (MMT) resulting from 31.9 million hectares. This represents significantly better crop performance compared to the MY 2022/2023 harvest of 100 MMT produced from 30.5 million hectares. Favorable weather conditions and sufficient soil moisture from the time of planting through the vegetative/reproductive stages buoyed record planting levels. Post forecasts MY 2023/2024 yields higher at 3.39 MT/hectare compared to last year's 3.28 MT/hectare. Taking a cue from the experience gleaned from last year's heat stress singeing of the wheat crop at harvest time, farmers this time pursued more timely plantings.

Wheat prices were up in MY 2022/2023, fueled by export demand and tight supplies, hitting record highs by January 2023. The government intervened in the market, releasing 5 MMT of its wheat in the open market at the lower reserve price. Prices dropped in February-March.

Needing to replenish depleted government-held wheat stocks volume, the Indian government is unlikely to relax its export ban on wheat and wheat products, at least through the peak harvest/ marketing period. Policymakers are fretting over reports predicting a strengthening of the El Niño (i.e., the warm phase of the El Niño-Southern Oscillation - ENSO) later in 2023, potentially impacting Indian agricultural production and food supplies. In the run up to India's state (2023) and national elections (May 2024) and to combat food inflation, the government will ensure the availability of sufficient domestic wheat supplies. It will retract the wheat and wheat products' export ban, only if it is comfortable with a favorable combination of the MY 2023/2024 harvest realization, MSP procurement, and expected market prices. If so, it could then allow for controlled exports to neighboring and developing countries.

FAS New Delhi forecasts India's MY 2023/2024 rice production at 127 MMT, coming from a planted area of 46.5 million hectares, with yields of 4.09 MT/hectare (rough rice). Despite the erratic 2022 monsoon, Indian farmers realized good returns from rice over other crops. Farmers benefitted from higher government MSP procurement for paddy (i.e., un-milled) rice and strong export demand. Now with the reports of the reappearance of the El Niño, bringing with it warmer weather in the latter part of 2023, there are concerns that planting prospects for the next *rabi* season (winter planted) could be affected. Summer rice could confront drier conditions. Plantings as a result are foreseen to be slightly lower than last year's record plantings amount.

Despite India's September 2022 export ban on broken rice, and a levying of an export tax of 20 percent on white rice, export demand for Indian rice is strong. Global rice prices have risen to absorb the export tax. Post forecasts MY 2023/2024 rice exports at 21 MMT on tighter domestic supplies, expected lower offtake of highly subsidized rice under the food security programs, and rising costs of higher MSP. Post estimates MY 2022/2023 rice exports at a record 22.5 MMT.

FAS New Delhi forecasts MY 2023/2024 coarse grain production at 52.5 MMT, higher than the estimated MY 2022/2023 production of 52 MMT. Firm prices for corn, millet, and sorghum in the MY 2022/2023 season should support higher planting in the next marketing year. The MY 2023/2024 forecast for coarse grain production includes 33.5 MMT of corn, 12.5 MMT of millet, 4.4 MMT of sorghum, and 2.1 MMT of barley.

COMMODITY:

WHEAT

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

Wheat	2021/2022		2022/2023		2023/2024	
Market Year Begins	Apr 2021		Apr 2022		Apr 2023	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	31125	31125	30459	30459	0	31870
Beginning Stocks (1000 MT)	27800	27800	19500	19500	0	9250
Production (1000 MT)	109586	109586	104000	100000	0	108000
MY Imports (1000 MT)	29	29	100	50	0	50
TY Imports (1000 MT)	30	30	100	50	0	50
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	137415	137415	123600	119550	0	117300
MY Exports (1000 MT)	8033	8037	5500	5500	0	1000
TY Exports (1000 MT)	10567	10567	2000	2000	0	1000
Feed and Residual (1000 MT)	7000	7000	6000	6000	0	6000
FSI Consumption (1000 MT)	102882	102878	99475	98800	0	99800
Total Consumption (1000 MT)	109882	109878	105475	104800	0	105800
Ending Stocks (1000 MT)	19500	19500	12625	9250	0	10500
Total Distribution (1000 MT)	137415	137415	123600	119550	0	117300
Yield (MT/HA)	3.5208	3.5208	3.4144	3.2831	0	3.3888

(1000 HA), (1000 MT), (MT/HA).
MY = Marketing Year, begins with the month listed at the top of each column.
TY = Trade Year, which for wheat begins in July for all countries. TY 2023/2024 = July 2023 - June 2024.

PRODUCTION

MY 2023/2024 Outlook

FAS New Delhi (Post) forecasts India's market (MY) 2023/2024 (April-March) wheat production at 108 million metric tons (MMT) resulting from 31.9 million hectares. This represents significantly better crop performance compared to the MY 2022/2023 harvest of 100 MMT arising from 30.5 million hectares.[1] Favorable weather conditions and sufficient soil moisture from the time of planting through the vegetative/reproductive stages resulted in record planting levels. Post foresees much higher yields this harvest season compared to those resulting from the MY 2022/2023 terminal heat-stressed crop.

India's wheat crop is on track to see very good performance in the upcoming market year. The crop is benefitting from favorable weather conditions holding steady throughout the country's wheat growing areas. Advantageous weather sustained record plantings back in November 2022, while promoting good crop development during the growing season. Despite higher temperatures

[1] The official Second Advance Estimate for Production of Food Grains for 2022/2023 (Indian Crop Year July-June) pegs MY 2023/2024 wheat production at a record 112.2 MMT based on the crop condition through first week of February when the crop was progressing well under normal winter temperature.

shooting up starting the second week of February 2023, the upcoming wheat crop continues progressing well thanks to relatively low night temperatures. Farmers are also mitigating high daytime temperature stress with the use of light irrigation. However, should normal weather conditions slip, that is, if there is a round of extreme weather events, including temperature increases or even untimely rains closer to the harvest time (running April to early May), then production numbers could falter.

Area: Adequate precipitation during the second half of the 2022 monsoon, along with its timely withdrawal, contributed to ideal wheat planting conditions during October to November in the major wheat production states. With the Indian government's wheat procurement having faltered in MY 2022/2023, the government has raised its minimum support prices (MSP) by 5.5 percent over last year's to Indian rupees (INR) 21,250 ($260) per metric ton (MT), which was meant to encourage higher plantings. Unusually strong wheat prices in MY 2022/2023 persuaded farmers to plant wheat in the *rabi* (winter-planted) season with a marginal shift of pulses and coarse grain acreage to wheat. Based on preliminary planting reports, MY 2023/2024 wheat area is estimated at a record 31.9 million hectares, up 4.6 percent compared to last year.

Yields: FAS New Delhi forecasts MY 2023/2024 yields higher at 3.39 MT/hectare compared to last year's 3.28 MT/hectare, but still lower than the previous record of 3.53 MT/hectare set in MY 2019/2020.[2] Taking a cue from the experience glean from last year's heat stress singeing of the wheat crop at harvest time, farmers this time around pursued more timely plantings, that benefited from adequate soil moisture conditions (see, GAIN-INDIA | IN2022-0045 | India - Extreme Temperatures Scorch Indian Wheat Production). The onset of winter's lower temperatures in the second week of November 2022, along with adequate irrigation water availability supported the wheat crop during its critical growth stages (i.e., at vegetative growth, tillering, flowering, and panicle initiation).

Experts report that the rise in temperature commencing the second week of February 2023 onwards, led to daytime temperatures ranging 2^{o}- 3^{o} Celsius higher than normal. However, nighttime temperatures continued to hover within the safe range (i.e., were staying below 15^{o} Celsius) which has been favorable for the standing crop. Farmers mitigated the higher daytime temperatures by resorting to light irrigation, in an attempt to lower the ambient temperatures around the canopy of the standing crop. Currently, the crop is at the advanced maturity stage, progressing well without any visible impact of heat stress or pest and/or disease incidences in the wheat growing states.

With the heralding of an early summer this season, yield prospects might be adversely affected if there is a repetition of 2022's extreme weather events at harvest time. If daytime temperatures do spike upwards of 38^{o}- 40^{o} Celsius, along with nighttime temperatures staying above 18 ^{o}- 20^{o} Celsius during the grain filling stage in late March-April, and or untimely rains/hailstorms occur during the harvest, this could limit yields. If so, this potentially could lower forecasted production by 5-10 MMT.

[2] Previous record MY 2019/2020 yield of 3.53 MT/hectare due to an abnormally extended winter through April 2020, helping to boost yields upwards.

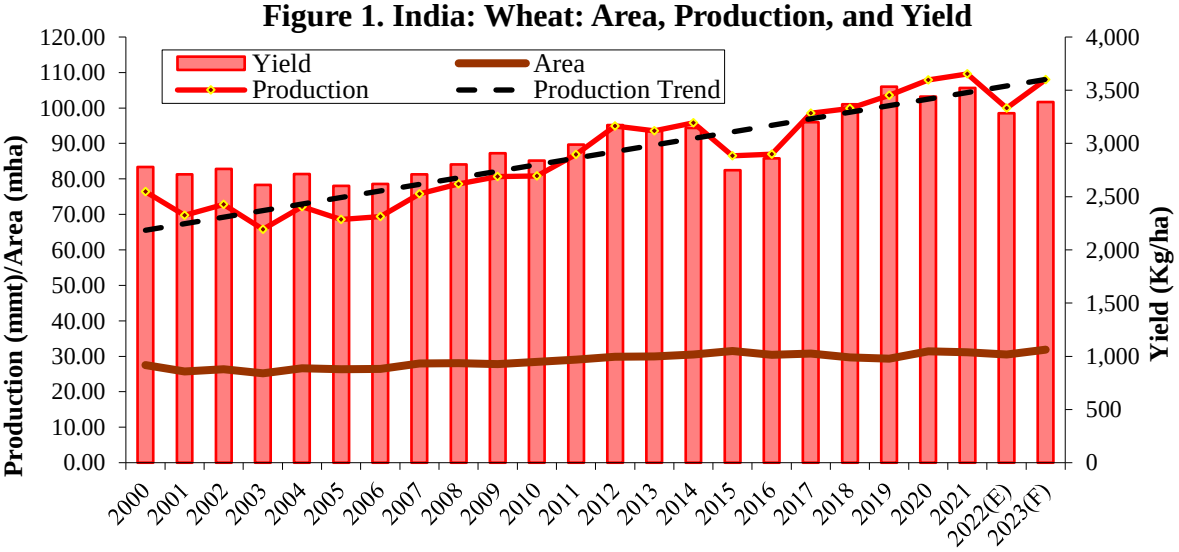
MY 2022/2023 Production Unchanged – Too Much Heat Eats Up the Wheat

FAS New Delhi's MY 2022/2023 wheat production estimate remains unchanged at 100 MMT, notwithstanding the Ministry of Agriculture and Farmers Welfare's (MOAFW) reported estimate of 107.7 MMT. Post's estimation diverges from that of the MOAFW's based on the market fundamentals observed during the ongoing market year. With the Indian government's wheat procurement under the MSP program declining by more than half over the previous year, and the central government imposing an export ban on wheat and wheat products early in MY 2022/2023, the government reported estimates do not correspond with the record rise in domestic wheat prices. Indian agricultural expert reports, and Post's own field crop travel observations indicate that terminal heat-stress beginning in March 2022 affected yields by 5-10 percent in the major wheat growing states. Post's trade sources estimate the MY 2022/2023 harvest in the range of 92-98 MMT. FAS New Delhi estimates MY 2022/2023 wheat production at 100 MMT from 30.5 million hectares.

Production Trend – The Future Challenges

Indian wheat production is trending upwards, but with production sliding below the trend lines in years of extreme weather events.[3] Gains in production are driven by the steady increase over time of the Indian government's MSP procurement operations, the steady replacement of older cultivars with new and improved higher yielding varieties, the expansion in irrigation facilities, and generally favorable monsoon rains over the last decade.

Figure 1. India: Wheat: Area, Production, and Yield



Source: Ministry of Agriculture and Farmers Welfare, FAS New Delhi's estimate for 2022 (MY 2022/2023) and forecast for 2023 (MY 2023/2024).

Indian wheat is of the white bread quality, that is, soft- to medium-hard, and is a medium protein wheat, comparable to U.S. hard white wheat. India produces durum wheat in the states of

[3] The MY 2015/2016 harvest was affected by untimely heavy rains and hailstorms during the advanced in March/April, the MY 2016/2017 and MY 2022/2023 production was also impacted by the early onset of summer and terminal heat stress.

Madhya Pradesh, Rajasthan, and Maharashtra for local food processors. With imports of high-quality imported wheat (Australian Premium White - APW) for blending being halted in 2019, due to high import duties, India's durum wheat producers have been obtaining since then a 25 percent price premium above common wheat prices.[4] While official estimates are not available, field reports indicate that there are higher plantings of durum wheat in the past rabi 2022 season compared to those of the previous year on growing domestic demand. MY 2023/2024 durum production is forecast at 2 MMT compared to 1.8 MMT last year.

Preferred Winter Crop: Wheat is the preferred rabi crop in the irrigated areas of northwestern and central India. Farmers' preference is fueled by the Indian government's relentless expansion of MSP and procurement operations (that bolsters market prices), along with high and steady wheat yields compared to those of competing rabi crops (i.e., corn, rapeseed, mustard, chickpeas, and other oilseeds and pulses) under irrigated conditions. Wheat acreage over the past decade has fluctuated between 29.6 to 31.9 million hectares, depending on planting conditions.

Yields Vary on Irrigation Availability: Wheat yields in India vary between the production states based on the level of assured irrigation water. The Himalayan glaciers feed into India's perennial river system, replenishing India's northern states' (Punjab, Haryana, and western Uttar Pradesh) surface (canal) and ground (tube wells) systems. Assured water availability enables farmers in northern India to irrigate their fields 5-7 times during the crop season, obtaining yields of about 5 MT/hectare, that is comparable to those of high yield global wheat producers. However, wheat production in India's central and western states, (which include central and east Uttar Pradesh, Madhya Pradesh, Rajasthan, and Gujarat) depends on residual water from the seasonal monsoon rains (June-September), which facilitates just 2-4 assured irrigations during the crop season. Yields in these states come in lower at 1.6 to 3.6 MT/hectare. Government MSP procurement strongly influences wheat's market pricing. Farmers keen on capturing higher returns, have shifted away from traditional, lower yielding/higher quality cultivars to higher yielding/lower quality varieties. These newer cultivars are channeled to the government's procurement program, helping farmers maximize MSP-based net returns per hectare.

Challenges: Notwithstanding India's wheat production trending upwards over the past decade, production is already facing climatic challenges and stresses. Indian wheat production is confronting an increase in the frequency, intensity, and duration of extreme climate events. Over the last decade, the incidence of the delayed withdrawal of the monsoons, the early onset of summer (leading to crop terminal heat stress), and untimely heavy rains and hailstorms during the crop's reproductive stages are affecting the wheat crop's yields. With the effects of global climate change already being felt locally, and the high probability of more frequent occurrences of extreme weather, there is growing concern among government officials, researchers, and the trade about the long-term sustainability of India's wheat production under the existing input intensive farming practices.

India's National Agriculture Research System, falling under the aegis of the Indian Council of Agricultural Research (ICAR), and various state agricultural universities (SAU) are focusing

[4] Australian Premium White is a blend of white hard-grained wheat varieties selected to ensure high milling performance and consistent flour quality. The minimum percent protein level and hard grain characteristic of APW (includes all Australian Prime Hard and Australian Hard varieties) ensures free milling and good extraction rates.

their ongoing research programs to develop response mechanisms through agronomic management (i.e., early planting and zero tillage) and technological advances (e.g., developing shorter duration varieties) to mitigate climate change risks.

In northern India, farmers' over-exploitation of groundwater through the use of flood irrigation, has led to significant drops in the water table (on average 0.4 to 0.6 meters per annum).[5] The recharge of the aquifer through natural means, that is through seasonal monsoon rains and glacial meltwaters feeding into India's rivers, is struggling to keep pace with water pumping withdrawals (which is itself facilitated through the use of subsidized electricity). The situation has been compounded by the heavy, excessive use of fertilizers that are increasing soil salinity in the wheat growing areas. If the current wheat-rice production practices continue unabated, further declines in the water table will force farmers to shift from wheat to less water-intensive crops such as corn, pulses, and vegetables potentially within the next 8-10 years.[6]

At the same time, some northwestern wheat growing areas report sporadic incidences of yellow rust over the last few years. However, there has been no reported outbreak of the fungus Ug99, which is the wheat stem rust (*Puccinia graminis f. sp. tritici*) of global concern.[7] Since the onset of Ug99 in Africa in late 1990s, the Indian government has been proactively screening and replacing susceptible cultivars with varieties tolerant to Ug99.

CONSUMPTION

Wheat is the main staple cereal in central and northwest India, the country's traditional wheat growing regions, but it competes with rice in the southern and eastern Indian states. FAS New Delhi forecasts food-seed-industrial (FSI) wheat consumption in MY 2023/2024 to reach 99.8 MMT, marginally higher than last year's estimated consumption of 98.8 MMT. Despite the central government's food grain stocks dropping significantly over the last two years, it is likely to raise its wheat allocation under the existing food security programs and open market sale scheme (OMSS) this season out of food inflation concerns. Post forecasts wheat for feed and residual use at 6 MMT, unchanged from last year on expected steady local prices due to forecasted relatively tight domestic supplies. Post estimates India's FSI consumption in MY 2022/2023 at 98.8 MMT, premised on relatively tight domestic supplies and lower offtake of government wheat under various national food security programs compared to MY 2021/2022.

FSI Consumption: India's FSI wheat consumption in MY 2022/2023 declined by nearly four percent in comparison to the previous year due to the Indian government scaling down its subsidized wheat allocation. India opted for higher allocations of rice, under its national food

[5] Typically, cultivation follows a rice-wheat crop rotation, with rice planted in the kharif (fall harvested) season followed by wheat in the rabi (winter planted) season, both crops are water and fertilizer intensive crops.
[6] While corn is being contemplated as a potential alternative to wheat, as a crop it is still a heavy user of water (requiring 486 liters of water to grow one kilogram of corn while wheat requires some 900 liters of water). Vegetables on the other hand have smaller water requirement on a per kilogram of production basis: potatoes (136 liters), cucumbers (127 liters), cabbage (109 liters), tomatoes (100 liters), and lettuce (68 liters). Millet itself takes some 650-1,200 liters of water to produce one kilogram. All of these crops' water requirements, however, pale in comparison to that of rice which takes some 5,000 liters of water to produce one kilogram.
[7] Ug99 is a lineage of wheat stem rust first detected in Uganda in 1998. It can cause up to 100 percent crop losses; it is virulent against many resistance genes which have previously protected wheat against stem rust.

security programs commencing in May 2022 (see, GAIN-INDIA | IN2022-0052 | India Grain and Feed Update).[8] Tight domestic supplies, leading to high wheat prices, have put pressure on wheat consumption in the non-traditional wheat consuming eastern and southern regions.

Despite the Indian government's MY 2022/2023 wheat ending stocks being drawn down significantly, along with tight forecasted supplies, the central government will likely expand wheat allocations under the national food security programs and open market sale scheme to the private trade out of food inflation concerns. With elections scheduled in the key wheat consuming states later in 2023, and national elections in early 2024, market sources anticipate a higher level of government market intervention going forward to control wheat prices in MY 2023/2024. FAS New Delhi forecasts FSI wheat consumption in MY 2023/2024 upwards of 99.8 MMT.

Households, local restaurants, and eateries account for 80 percent of the wheat consumed domestically as *atta* (whole wheat flour) and *maida* (white flour). About 12-14 percent of wheat goes into the production of processed products such as raised breads, biscuits (cookies), and other bakery items. There is also a small market for high-quality wheat (about 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 around 28 MMT per annum. Market sources report that most mills operate at 55-60 percent of their capacity, processing 16 MMT of wheat annually. Most wheat, however, continues to be milled by the informal sector in small neighborhood flour mills.

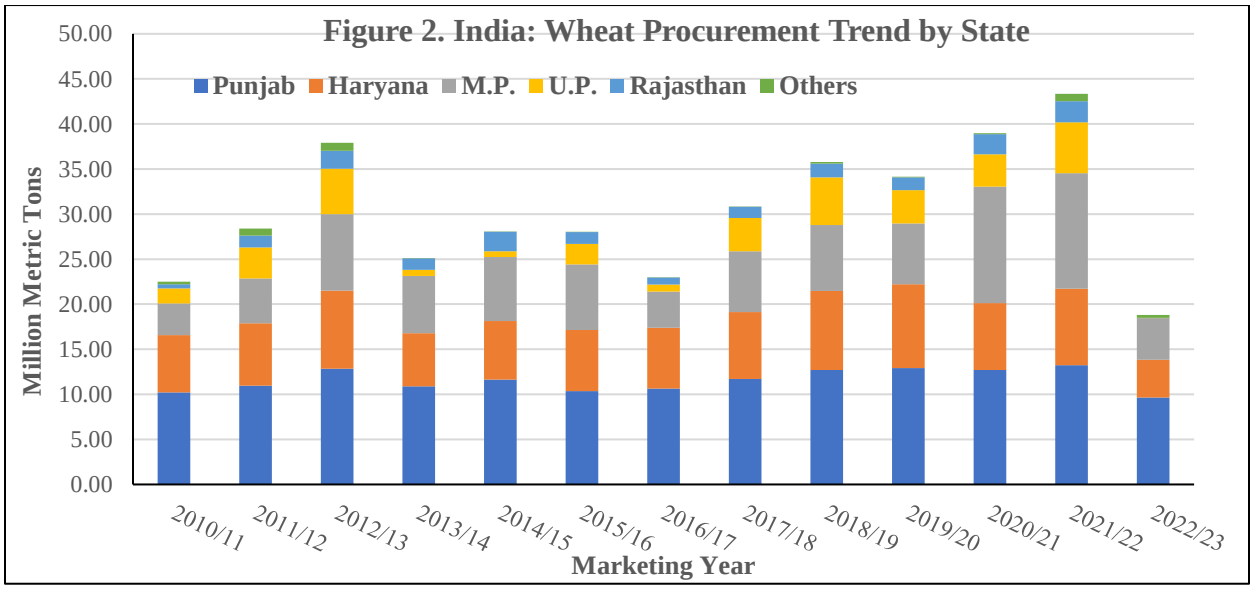
Feed Use: Typically, spoiled wheat, that is wheat deemed unfit for human consumption, whether government-held or private trade stocks, and wheat bran from the flour milling industry are used as animal feed. The feed from this wheat and bran is used mainly with dairy cattle and the domestic Asian water buffalo (*Bubalus bubalis*) along with smaller quantities utilized as poultry feed. Smaller-scale farmers also use inferior quality wheat, broken wheat, and wheat bran for feeding lactating dairy cows and water buffalo at the household level (i.e., informal sector). Due to the likely lower spoilage of government-held wheat stocks, which have been dropping recently to more manageable levels, and the forecast of steady wheat prices, Post expects stagnant demand for wheat for animal feed. FAS New Delhi forecasts MY 2023/2024 wheat feed and residual consumption at 6 MMT, largely unchanged from last year's level.

Government Procurement and Sales: A lower harvest coupled with relatively strong domestic prices (partially fueled by high global prices) resulted in the Indian governments wheat procurement in MY 2022/2023 declining to 18.8 MMT. This volume is less than half of the previous year's procurement volume of 43.3 MMT (record high).

[8] Government wheat offtake under the various food security programs in MY 2022/2023, during the April 2022 to January 2023period is estimated at 21.8 MMT compared to 43.5 MMT during MY 2021/2022 (April 2021 to March 2022). During the same period in MY 2022/2023 rice offtake went up to 55.5 MMT compared to 55.1 MMT in the previous full year (April 2021 to March 22). With most of the wheat and rice supplied free or highly subsidized price to over 830 million people, wheat consumption is likely to be partially substituted by rice MY 2022/2023. Despite the government announcing a 5 MMT quota for sale of subsidized wheat to private trade in February/March, MY 2022/2023 wheat consumption is estimated lower than last year.

With the rollout of an official forecast of a bumper harvest, along with the likely continuation of the export ban on wheat and wheat products, the Indian government is signaling its intent to bolster its MY 2023/2024 MSP wheat procurement. Reports indicate that the government aims to procure some 34.2 MMT of wheat this upcoming MSP season.

Recently wheat prices have cooled. Prices have softened in no small measure as a result of the Indian government's decision to release 5 MMT of wheat to the private trade in February-March 2023. The 5 MMT of wheat was released at highly subsidized prices, followed by the announcement of fixed reserve prices falling around those of the MSP level for sales under the OMSS in MY 2023/2024. Post anticipates that the private trade will be less active, even sidelined, in the market during this upcoming harvest/marketing season (April-July). However, an incidence of heat stress in the coming month and or speculation arising of weather-related crop damage may encourage farmers and local traders to retain higher than normal stocks for late season sales.



Source: Food Corporation of India.

The central government's MSP procurement in the upcoming season will be higher than last year's in India's wheat production states. With the government-held food grain stocks having dropped, the government now has ample storage capacity for the incoming wheat crop. It is anticipated that procurement operations will happen at a quick pace. With the forecasted MY 2023/2024 production volume, government procurement will easily reach its target of 34.2 MMT, and probably surpass it. The Indian government aims to ensure that it has sufficient wheat stocks on hand to meet its food security program commitments, plus its OMSS requirements.

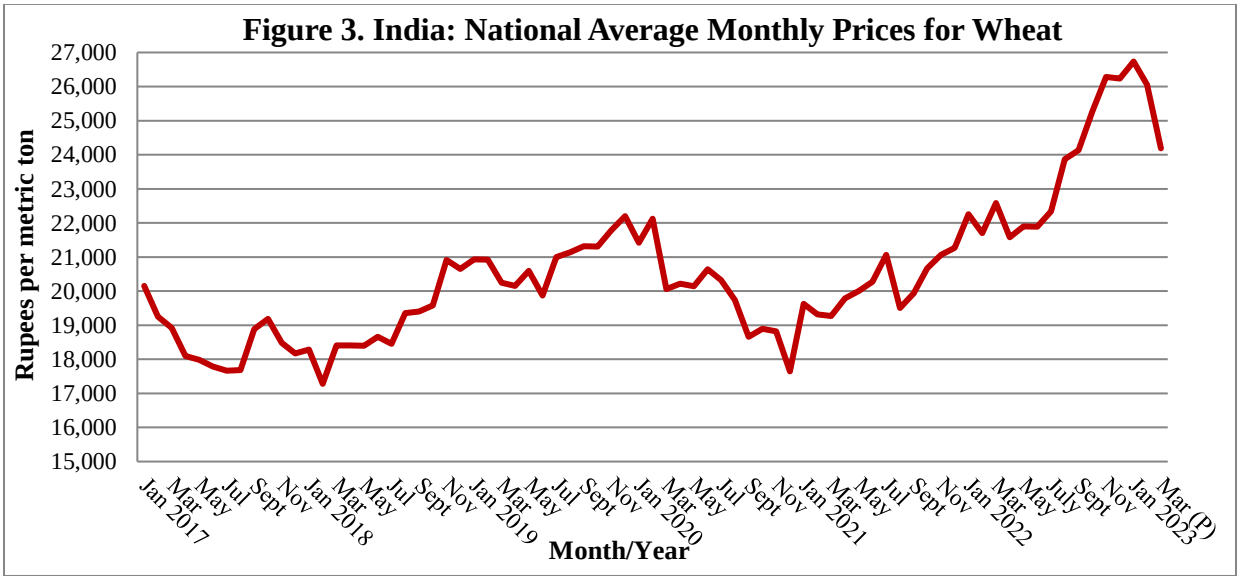
Typically, the Indian government distributes some 24-25 MMT of wheat per annum under the National Food Security Act (NFSA) through the public distribution system (PDS) to some 830 million registered beneficiaries.[9] This volume, however, dropped in MY 2022/2023 to 20 MMT

[9] India's population exceeds 1.399 billion, growing at 0.7 percent annually (Central Intelligence Agency, March 2023 estimate).

due then to low wheat stock inventories. An additional 2-3 MMT of wheat is distributed usually through other food security programs. Government wheat sales under the open market sale scheme to private traders are estimated at 3 MMT in Indian fiscal year (IFY) 2022/2023 (April-March), compared to 7.1 MMT in the preceding IFY 2021/2022.[10]

Despite forecasted lower opening stocks, significantly higher MSP procurement ranging 34-35 MMT will allow the government to take in sufficient wheat stocks to meet its food security programs' requirements (i.e., 24-25 MMT). It will also strengthen mandatory buffer stocks (to 7.5 MMT) and meet its OMSS requirements (10-12 MMT) in the upcoming marketing season.

Prices: Domestic prices have been on the upward trend for most of the MY 2022/2023 season. This uptick was initially fueled by export demand and then subsequently by tight domestic supplies. Prices reached record high levels earlier in January 2023.



Source: AgMarketNet, Ministry of Agriculture and Farmers Welfare.

The Indian government intervened in the market to control escalating wheat prices in January 2023. It released upwards of 5 MMT of government-held wheat in the open market at the lower reserve price. Indian domestic wheat prices as a result declined sharply in February-March. Average spot prices in the first half of March 2023, in India's major wheat production states are now ranging between INR 21,000 ($256) to INR 22,000 ($268)/MT, as compared to the MSP price of INR 21,250 ($260)/MT that is being earmarked for the MY 2023/2024 season. Market sources expect prices to remain around the MSP level during the April-July 2023, harvest/marketing period. The private trade is unlikely to seek to compete with the government's MSP procurement. However, there is always the possibility of an extreme climate event occurring, and impacting the harvest, which could affect future price movements.

[10] The additional 2 MMT out of the 5 MMT quota announced by the government is likely to spillover in MY 2023/2024.

TRADE

Needing to replenish depleted government-held wheat stocks volume, the Indian government is unlikely to relax its existing export ban on wheat and wheat products, at least through the peak harvest/marketing period. Policymakers are fretting over reports pointing to the likelihood of a strengthening of the El Niño (i.e., the warm phase of the El Niño-Southern Oscillation - ENSO) later in 2023, potentially impacting Indian agricultural production and food supplies.

In the run up to India's state (2023) and national elections (May 2024), and to combat food inflation fears, government officials will pull out all the plugs to ensure the availability of sufficient domestic wheat supplies.[11] The government will review its wheat and wheat products export ban policy, only if it is comfortable with a favorable combination of the MY 2023/2024 harvest realization, government MSP procurement success, and expected market prices. If so, it could then possibly allow for controlled exports of Indian wheat to neighboring and developing countries out of its own geopolitical interests.

Exports: Despite highly competitive prices of Indian wheat, due to high global prices and foreseen sufficient domestic supplies, FAS New Delhi forecasts MY 2023/2024 wheat and wheat product exports at 1 MMT limited to exports to neighboring and developing countries. Based on the latest trade data and information collected, India's MY 2022/2023 wheat and product exports are estimated at 5.5 MMT. Provisional Indian official trade figures estimate wheat and wheat products exports for April to December 2022, at 5.3 MMT (see, Appendix III). With the Indian government unlikely to relax its export ban, MY 2022/2023 exports will stay at 5.5 MMT.

Imports: FAS New Delhi forecasts India's MY 2023/2024 imports at 50,000 MT. India's import duty of 40 percent, along with its forecasted sufficient domestic supplies restrict import prospects for wheat and wheat products. Imports will be limited mainly to pasta and western-style wheat flour products. Post, based on the latest trade data and market reports, estimates MY 2022/2023 wheat and wheat products' imports dropping lower to 50,000 MT. Wheat and wheat products imports during April-December 2022 are estimated at 22,000 MT; trade sources are reporting imports of an additional 20,000 MT wheat on advance licenses (duty-free imports for re-export of value-added products).

STOCKS

Based on the latest Indian government-held wheat stocks estimate being reported, and the expected offtake under the national food security programs along with the sale to the private trade in March, FAS New Delhi estimates MY 2022/2023 ending stocks lower at 9.3 MMT. Government wheat stocks on March 1, 2023, are officially reported standing at 11.7 MMT, in comparison to the 23.4 MMT recounted last year. Assuming normal offtake for the national food

[11] In February-March 2023, three Indian northeast states - Meghalaya, Tripura, and Nagaland – vote. By November, Mizoram is also expected to go to polls. The Indian southern state of Karnataka votes in May. Telangana, India's youngest state, has elections in November-December. Madhya Pradesh (India's second largest state) and Chhattisgarh and Rajasthan will go to the polls in November-December. These elections will serve as a litmus test for the May 2024 national elections. See, NDTV https://www.ndtv.com/india-news/which-states-vote-in-2023-your-guide-to-the-semi-finals-for-2024-elections-3653254.

security programs (1.6 MMT) and offtake of wheat by private trade under OMSS in the month of March, MY 2022/2023 ending stocks are likely to drop to 9.3 MMT (i.e., 8.5 MMT government-held stocks plus 0.8 MMT additional private stocks) compared to last year's 19.5 MMT (i.e., 19 MMT government-held stocks plus 0.5 MMT private stocks).

Forecasted higher production, along with the central government's intent to rebuild its depleted grain stocks will bolster government-held wheat stocks in MY 2022/2023. Post forecasts MY 2023/2024 ending stocks somewhat higher at 10.5 MMT, premised mostly on government-held wheat stock volumes.

POLICY

Price Support and Food Security Programs: The Indian government's farmer support and food security programs are hinged on two pillars: 1) government MSP procurement of select crops meant to ensure remunerative prices for farmers and 2) distribution of MSP procured foods through the NFSA, and other food security programs meant to ensure food for vulnerable segments of the population.

The Indian government establishes MSP procurement for wheat and 23 other select crops based on the recommendations of the Commission for Agricultural Costs and Prices (CACP). Wheat and rice, however, are the main MSP procurement and distribution food grains under the food security programs. Government agencies such as the Food Corporation of India (FCI) and state marketing agencies are mandated to procure wheat (and rice) at MSP for government-held stocks.[12] The NFSA 2013 creates an entitlement for eligible beneficiaries (50 percent of the urban and 75 percent of the rural populations), each receiving 5 kilograms of rice, wheat, or a coarse grain at INR 3.00 ($0.039), INR 2.00 ($0.026) and INR 1.00 ($0.013) per kilogram, respectively. The government sells wheat through the OMSS to the private trade to stabilize market prices.

With domestic wheat prices rocketing to record highs in January 2023, spot prices in the major markets reached INR 31,000-32,000 ($378-390)/MT. This forced the Indian government to intervene in the market to temper prices through the initial release of 3 MMT of government-held wheat to the private trade (see, GAIN-INDIA | IN2023-0015 | India Grain and Feed Update February 2023), an amount that was subsequently raised by 2 MMT for a total volume of 5 MMT. The central government also lowered the reserve prices from INR 23,500 ($287)/MT, plus freight charges from the government warehouse to the disbursement points to INR 21,500 ($262)/MT for sale throughout India. The government has now announced that the reserve price will be valid for sale to the private trade under the OMSS through MY 2023/2024.

Research and Development: The National Agricultural Research System (NARS) under the leadership of Indian Council of Agriculture Research, and comprising various state agriculture universities, is developing agronomic practices and location-specific wheat varieties with traits

[12] The Food Corporation of India was setup under the Food Corporation's Act 1964, in order to fulfill following objectives of the Food Policy: 1) the effective price support operations for safeguarding the interests of the farmers and 2) distribution of foodgrains throughout the country for public distribution. It is a statutory body created and run by the Indian government. It is housed within the Ministry of Consumer Affairs, Food and Public Distribution.

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) stresses.

Trade Policy: On May 13, 2022, India's Ministry of Commerce and Industry's Directorate General of Foreign Trade (DGFT) prohibited exports of all wheat Indian Trade Classification (ITC) harmonized system (HS) categories 1001, 1001.19, 1001.9910, and 1001.9920 citing the spike in global wheat prices, fearing the food security risk it posed to India, and other vulnerable countries (see, GAIN-INDIA | IN2022-0046 | India Bans Wheat Exports Due to Domestic Supply Concerns). On August 27, 2022, the DGFT issued another notification prohibiting exports of wheat products (ITC HS category 1101). Post anticipates that the export restrictions are likely to continue, with the export ban running through August-September 2023; and possibly reviewed only after ensuring that there are sufficient domestic supplies.

While there are currently no restrictions on wheat and wheat products imports, India's phytosanitary requirement that wheat samples being drawn from a single consignment contain no more than 100 quarantine seeds (from more than 50 quarantine seeds species specified), per 200 kilograms and other SPS issues effectively bans U.S. wheat exports to India. India's high import tariffs on wheat and wheat products effectively limits imports to western-style wheat products for high-end consumers and luxury hotels.

Tariffs: The import tariff for wheat (harmonized tariff system – HS 1001) and wheat products remains 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 which is equivalent to the local sales tax (see, Appendix IV). In the past when facing crop failure and lower domestic supplies, the Indian government has lowered import duties to supplement domestic production in order to meet consumption requirement through imports.

MARKETING

Recently, India had begun to emerge as a regional wheat supplier based on competitive prices, that is until the government placed the ban on exports of wheat and wheat products. With the official government forecast of a near-record harvest in March-April 2023, and relatively lower domestic prices compared to those of global suppliers, foreign-origin wheat imports by India in MY 2023/2024 will be low. However, crop damage, due to extreme weather events in the coming weeks, should it occur, could force India to supplement its domestic supply through imports to help manage food inflation concerns in an election year. In the event the harvest now underway is reduced relative to expectations, keep an eye out for India then to bring in wheat from the Black Sea, mainly from Russia through government-to-government sales.

COMMODITY

RICE

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

Rice, Milled	2021/2022		2022/2023		2023/2024	
Market Year Begins	Oct 2021		Oct 2022		Oct 2023	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	46279	46279	47000	47000	0	46500
Beginning Stocks (1000 MT)	37000	37000	34000	34000	0	29000
Milled Production (1000 MT)	129471	129471	132000	128000	0	127000
Rough Production (1000 MT)	194226	194226	198020	192019	0	190519
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)	166471	166471	166000	162000	0	156000
MY Exports (1000 MT)	22025	22025	22500	22500	0	21000
TY Exports (1000 MT)	22119	22119	22500	22500	0	21000
Consumption and Residual (1000 MT)	110446	110446	111000	110500	0	111000
Ending Stocks (1000 MT)	34000	34000	32500	29000	0	24000
Total Distribution (1000 MT)	166471	166471	166000	162000	0	156000
Yield (Rough) (MT/HA)	4.1968	4.1968	4.2132	4.0855	0	4.0972
(1000 HA), (1000 MT), (MT/HA) MY = Marketing Year, begins with the month listed at the top of each column TY = Trade Year, which for Rice, milled begins in January. TY 2023/2024 = January 2024 - December 2024						

PRODUCTION

FAS New Delhi, in assuming a normal 2023 monsoon season (June-September), forecasts India's MY 2023/2024 rice production at 127 MMT, coming from a planted area of 46.5 million hectares, with yields of 4.09 MT/hectare (rough rice).

Despite the erratic 2022 monsoon, Indian farmers realized good returns from rice over other crops. Farmers benefitted from higher government MSP procurement for paddy (i.e., un-milled) rice and strong export demand. Now with the reports of the reappearance of El Niño, bringing with it warmer weather in the latter part of 2023, there are concerns that planting prospects for the next rabi season could be affected. Summer rice would also be confronting likely drier conditions. Plantings as a result are foreseen to be slightly lower than last year's record plantings level.

With over 40 percent of India's rice area being rainfed (i.e., unirrigated), the timely and well-distributed 2023 monsoon rains are critical for the country's forecasted area planted and yields. A delayed, erratic, or a below normal monsoon, or, alternatively, floods and cyclones in India's eastern and coastal rice belts can potentially lower forecasted production by 5-10 MMT. A well-distributed monsoon, along with a weaker El Niño influence, may, on the other hand, raise production by 2-5 MMT.

FAS New Delhi estimates MY 2022/2023 rice production at 128 MMT (i.e., 108 MMT coming from the fall harvest kharif and 20 MMT from the winter-planted rabi crops), compared to the previous year's record production of 129.5 MMT (i.e., 105.2 MMT of kharif and 19.2 MMT rabi rice). Post estimates are slightly lower than India's official second advance estimate of 130.8 MMT, due primarily to weak monsoon rains in July-August 2022. In eastern India these weak monsoon rains delayed plantings and affected, the kharif season's rice yields. Moreover, the early onset of summer also affected the planting for prospects of summertime rice.

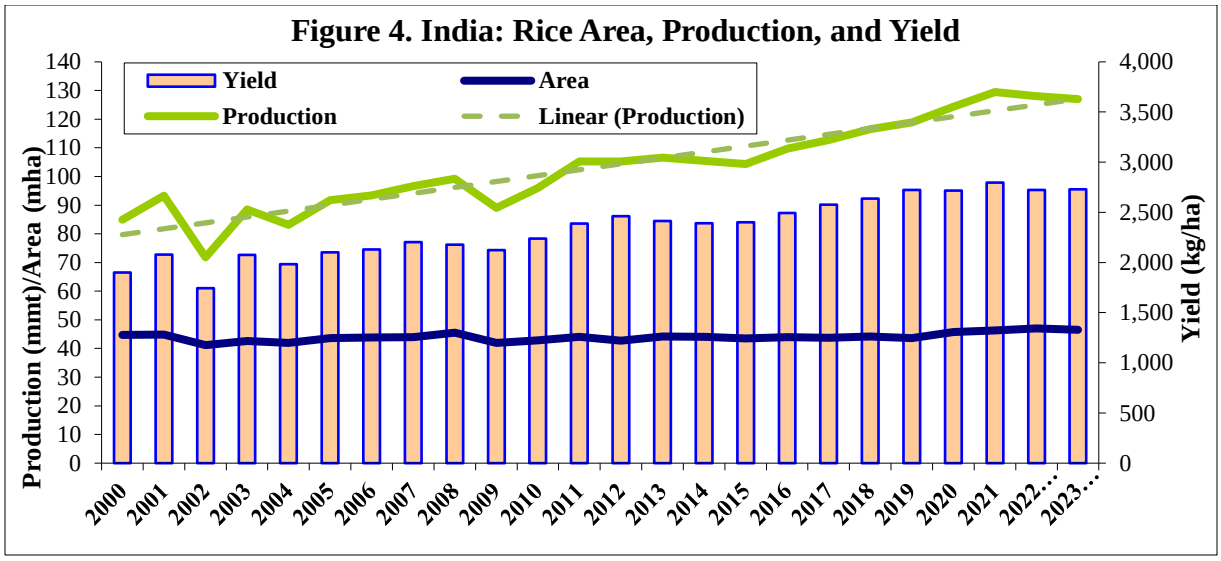
Rice remains the most important food crop cultivated across India, contributing well over 40 percent of the country's food grain production. Requiring significant water at the time of transplanting and its early growth stages, rice remains predominantly a fall harvested crop. In India, rice plantings and progress, are dependent on the timely onset of the southwest monsoon in June and early part of July and its subsequent progress through September. There is a small winter-planted and summer rice crop cultivated in the irrigated eastern and southern states of West Bengal, Odisha, Andhra Pradesh, Telangana, and Tamil Nadu.

Basmati Rice: Globally popular, long-grain aromatic basmati rice is grown in the northern states of Punjab, Haryana, western Uttar Pradesh, Uttarakhand, and Himachal Pradesh. Basmati growers have realized higher prices, up 10-15 percent, and better profit margins in MY 2022/2023 compared to the previous year thanks to strong export demand. Post, in assuming a normal 2023 monsoon and weather conditions, forecasts MY 2022/2023 basmati rice production higher at 10 MMT coming from 2.2 million hectares, as compared to the estimated 9.5 MMT of basmati produced in MY 2022/2023, that came from 2.1 million hectares.

Hybrid Rice: Cultivated primarily in eastern and central India, hybrid rice is increasingly being channeled to supply the government's MSP procurement program. While there is scant official, or even industry data, seed industry sources report hybrid rice plantings over the last few years have been ranging between 2 to 2.2 million hectares. Hybrid rice has faced the challenge of overcoming lower market acceptance domestically; Indian consumers retain a strong preference for the traditional rice cultivars. However, with expanded MSP procurement in the non-traditional rice production states, their receptivity for hybrid rice has grown. Competitively priced hybrid rice is also being exported to African markets. As yet, India continues not to have any approved rice variety derived from biotechnology under commercial cultivation.

Production Trends: Indian rice production over the last two decades has been trending upwards, hitting a record high in MY 2021/2022 on generally favorable monsoon rains and rising yields thanks to the use of new improved varieties. However, in the last few years, rice acreage has increased at the expense of the other coarse grains and pulses. Rice production has expanded into non-traditional production states driven by the Indian government's MSP procurement demands.

Rice production has been facilitated by generally favorable monsoons and an expansion in irrigation resources. Nonetheless, India's overall rice yields are well below the world average, but actual productivity will vary between India's rice production states based on access to irrigation resources and agro-climatic conditions.



Source: Ministry of Agriculture and Farmers Welfare, FAS New Delhi estimate for 2022 (MY 2022/2023) and forecast for 2023 (MY 2023/2024).

Climate Change: Despite the increasing production trend, agricultural experts are growing concerned about the sustainability of the current rice production systems in several Indian states, largely due to the crop's vulnerability to climate change and the steady degradation of soil and water resources in key rice growing areas. Several of the rice production states follow intensive rice-based cropping systems (rice-wheat or rice-rice) resulting in deteriorating soil health, declining water tables, and emergence of new chemical resistant diseases and pests.

The growing frequency of extreme weather events, such as abnormal temperature increases, heavy rains, and even prolonged dry spells affect the rice crop's productivity and sustainability. India's coastal rice crop is potentially vulnerable to climate change induced sea level rises. Reports of increased Himalayan glacier melt, due to rise in global temperature, will affect irrigation water supply to India's perennial rivers that water the eastern and northern states. Rising temperatures and extreme weather events, could possibly also unleash a host of pests and diseases upon India's rice crop.

Research and Development: Public sector research focuses on developing new rice varieties/ hybrids and crop management practices to improve yields and manage several pests and diseases for various agro-climatic conditions. The private sector is focusing on hybrid seed development, aiming for higher yields and better quality, while developing agro-chemicals and bio-pesticides that can better control pests and diseases. Public and private sector organizations are working to develop transgenic rice varieties/hybrids that incorporate resistance to various pests, diseases, and abiotic stress, but commercialization is still years away. Ongoing rice research on the application of biotechnology is increasingly focusing on marker-assisted breeding for specified traits (see, GAIN-INDIA | IN2022-0087 | India Biotechnology Annual - 2022).

CONSUMPTION

FAS New Delhi forecasts India's MY 2023/2024 consumption at 111 MMT, driven by the government's need to ensure that there is sufficient rice in the domestic market to fight off food

inflation concerns. Despite the Indian government having scaled down its subsidized grain supplies under its food security programs commencing in January 2023, Post foresees the continuation of sufficient domestic rice supplies and government-held rice stocks.[13]

Rice consumption over the last two years has been stimulated by the Indian government aggressively offloading its surplus rice stocks under COVID-19 relief and other food security programs. FAS New Delhi estimates India's MY 2022/2023 rice consumption at 110.5 MMT, marginally higher than the previous year's consumption volume of 110.4 MMT.[14]

Food and Seed Use: Rice is the dominant staple cereal for nearly two-thirds of India's population, with the balance of the populace regularly consuming rice with wheat, and other cereals. There are more than 4,000 rice varieties being grown across the country based on varying agro-climatic conditions and local consumer preferences. More than 90 percent of farmers are smallholders (working on less than two hectares) retaining nearly half of their produce for home consumption and seed use. Most of the high yielding/hybrid coarse rice is procured under the MSP program, with some being purchased by the private trade for exports. Locally preferred rice types are picked up by the private trade and marketed in bulk and sold to consumers unbranded. Long grain basmati rice and specialty/fragrant types are procured by millers for export and sold domestically in branded packaging.

Although there is no reliable data or long-term studies being conducted on the consumption of the various staples, experts report that India's per capita consumption of rice is stagnant, or declining, with the government at the same time ensuring more-than-sufficient supplies. With a growing economy and expanding middle class, consumers are replacing basic foods such as rice with more nutritious foods that include dairy, meat, pulses, and fruits and vegetables.

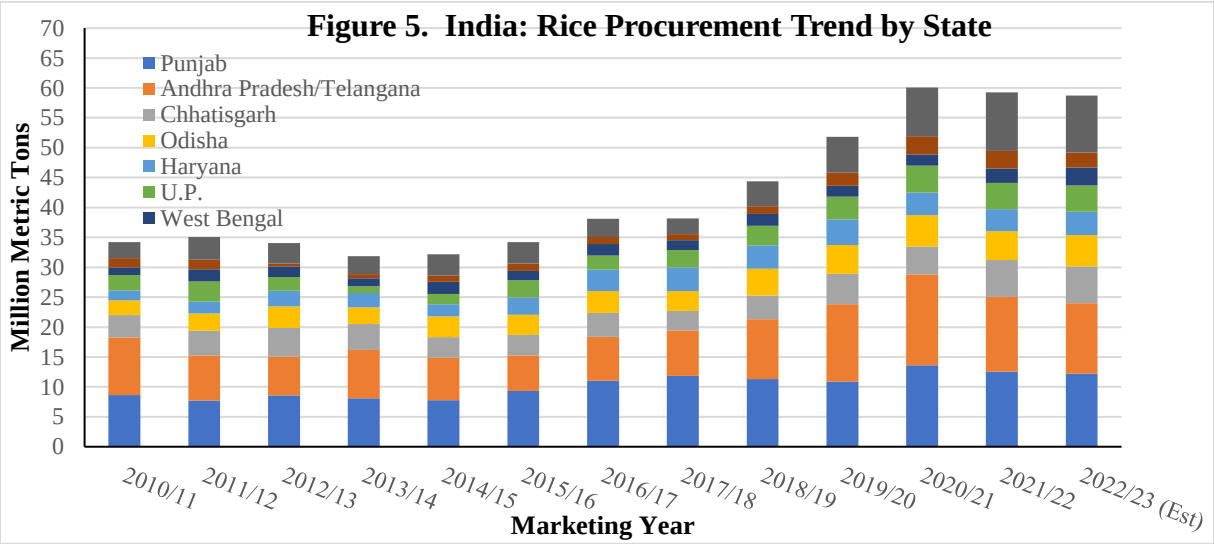
Feed and Industrial Use: The livestock feed industry is increasingly using broken rice and de-oiled rice bran as fillers in commercial feed on relatively lower prices compared to other ingredients, estimated in the range of 6 -7 MMT by industry sources (see, Appendix X). Some broken/damaged rice deemed unfit for human and animal consumption is used for alcohol production, mostly by the potable liquor industry, with the by-products of distillers-dried-grains solubles (DDGS) making its way to the feed industry.

Over the last two years, the Indian government has allowed the use of inferior quality rice from government-held stocks to go into ethanol production for fuel use at a fixed offer price agreeable to the country's petroleum marketing companies. While several new rice-based ethanol projects are in the pipeline, industry sources are concerned whether the government will continue to offer 'inferior' rice for ethanol production given the depleted government-held food grain stocks.

Government Procurement and Food Security Programs: Rice is the main food grain in the Indian government's MSP procurement and food security programs. The government over the past few years has been procuring roughly 45 percent of the country's total rice production (see,

[13] See, GAIN-INDIA | IN2023-0015 | India Grain and Feed Update-February 2023.
[14] Stimulated by the Indian government's offloading of free food grain stocks under the COVID-19 relief program, MY 2021/2022 consumption went up by a whopping 9.3 percent over previous year. The most vulnerable members of the populace have been adequately covered under the government's subsidized food security schemes.

Appendix V). Rice procurement varies from state-to-state, with the central government purchasing un-milled paddy rice from farmers through various agencies and having it custom milled. Some of the Indian states also procure rice as levies on private mills. Buoyed by rising domestic harvests and expanding MSP procurement in non-traditional rice surplus states, government rice procurement has grown significantly over the past few years.

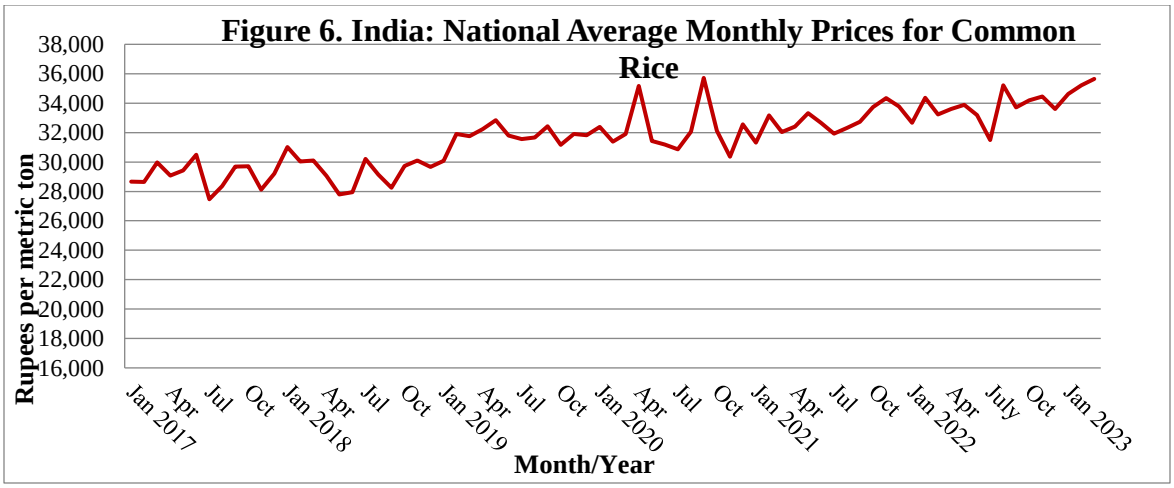


Source: Food Corporation of India and FAS New Delhi MY 2022/2023 estimate.

Despite an estimated near-record harvest, firm domestic prices fueled by strong export demand is likely to limit MY 2022/2023 rice procurement to 57 MMT, still accounting for more than 45 percent of total production. Official procurement of rice through March 15, 2023, is estimated at 48.2 MMT, compared to 48.5 MMT at the same time last year, with lower procurement in most states except for those of Odisha, West Bengal, Telangana, and Haryana.

Anticipating a high rabi harvest of around 20 MMT, this will help MY 2022/2023 procurement reach the 57 MMT mark, just marginally lower than last year's 57.95 MMT. With the central government raising allocation of rice under its food security programs, government rice distribution in IFY 2022/2023 is estimated at 65 MMT, coming in nearly 10 MMT higher than last year. Despite the end of the additional free food grain distributions offered through the COVID-19 relief program, the Indian government is likely to continue to ensure sufficient, subsidized rice supplies under its existing programs throughout the balance of MY 2022/2023 and into MY 2023/2024.

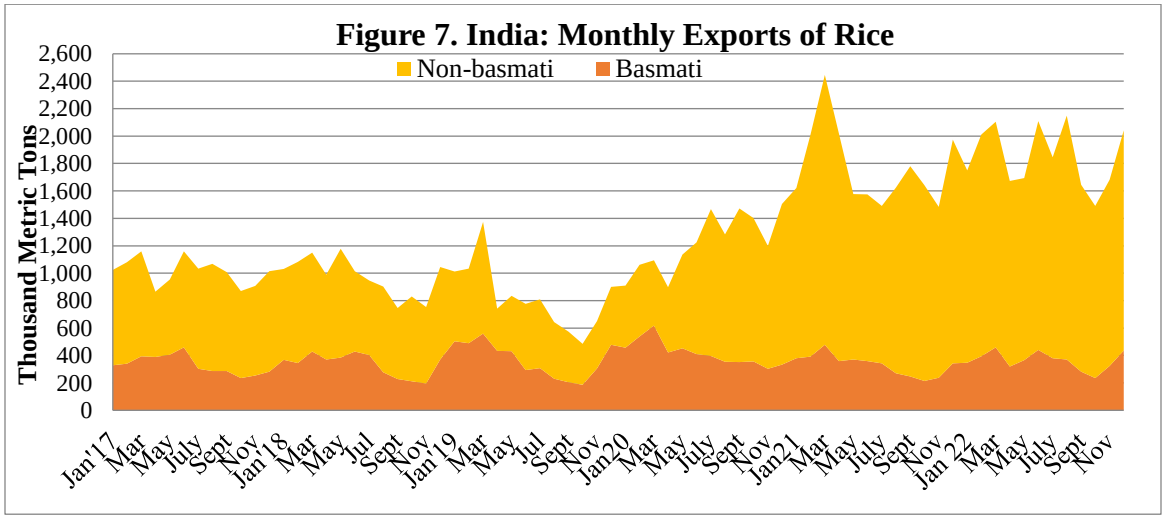
Prices: Despite higher offtake of subsidized government rice under the various food security programs through December 2022, an estimated lower harvest, higher MSP procurement operations, and strong export demand have driven domestic prices higher since the beginning of MY 2022/2023. Market prices during the balance of the market year are likely to depend on the upcoming record rabi harvest and international price movements.



Source: AgMarketNet, Ministry of Agriculture and Farmers Welfare.

TRADE

Exports: India is the world's leading rice exporter since lifting its export ban in 2011. Despite the September 2022 export ban on broken rice, and the levying of an export tax of 20 percent on white rice, export demand for Indian rice remains strong.[15] Global rice prices have risen to absorb the export tax. FAS New Delhi forecasts MY 2023/2024 rice exports at 21 MMT (made up of 16.8 MMT coarse rice and 4.2 MMT basmati rice) on relatively tighter domestic supplies, expected lower offtake of highly subsidized rice under the food security programs, and rising costs of higher MSP. Post estimates MY 2022/2023 rice exports at a record 22.5 MMT (17.7 MMT coarse rice and 4.8 MMT basmati rice), up from last year's exports of 22 MMT.



Source: Directorate General of Commercial Intelligence (DGCIS).

India's MY 2022/2023 rice exports during October-December 2022 are officially estimated at 5.2 MMT, marginally higher than exports during the same period last year (i.e., 5.1 MMT) on increased exports of long grain basmati rice to markets in the Middle East. Major destinations of

[15] See, GAIN-INDIA | IN2022-0081 India Grain and Feed Update - October 2022.

Indian rice exports during the current year are Africa, the Middle East, and neighboring Bangladesh and Nepal.

With forecast domestic supplies being more than sufficient, India is unlikely to impose additional export restrictions in the near-term, but at the same time it will be reluctant to relax existing restrictions out of fears of food inflation. While India's export restrictions have not dampened export demand, they have generated an additional source of tax revenue for the government.

Imports: High import tariffs, along with competitive local rice prices, precludes imports of rice in the near-term. The exception is small quantities of specialty rice for exotic cuisines.

STOCKS

India's MY 2023/2024 ending stocks are forecast lower at 24 MMT (20 MMT government stocks and 4 MMT private stocks) on forecast tight domestic supplies and expected continued higher sales of government rice stocks out of food inflation concerns.[16] Government rice stocks have been on a steady decline since the beginning of 2022 with the government disposing of rice stocks under various food security and COVID-19 relief programs.

On March 1, 2023, government-held rice stocks were estimated at 46 MMT, or 13 MMT lower than at the same time last year. Nevertheless, this volume was still three times the government's peak buffer stocks of 13.58 MMT (on April 1).[17] Assuming lower monthly offtake in the remaining marketing season with the sunsetting of the COVID-19 relief program, MY 2022/2023 government-held ending stocks are estimated at 23 MMT, down from 28.4 MMT last year. Private-held stocks at 6.0 MMT, are up slightly from last year's volume of 5.6 MMT.

POLICY

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

Trade Policy: On September 8, 2022, the Indian government announced an export ban on broken rice, along with an export tax of 20 percent on white rice (see, GAIN-INDIA | IN2022-0081 | India Grain and Feed Update - October 2022), which is likely to continue in the near future. Import tariffs on rice have remained unchanged for the last few years (see, Appendix IV). However, there are no other applied/applicable taxes, social surcharge, or GST on rice. India requires that rice import consignments be accompanied by a certificate from the exporting

[16] There is no published information about privately held rice stocks. These are said to range of 2-6 MMT, depending on the export demand and local supply market situation.
[17] March 1, 2023, rice stocks include 21.05 MMT of milled rice and 37.18 MMT of un-milled paddy rice compared to March 1, 2022, rice stocks of 29.58 MMT milled rice and 44.11 MMT un-milled paddy rice.

country that the rice is not genetically engineered (GE). The import of GE rice is banned (see, GAIN-INDIA | IN2022-0087 | India Biotechnology Annual - 2022).

MARKETING

Indian high-quality basmati rice competes with long grain U.S. rice in the Middle East and in the European Union. India also exports basmati rice and other specialty/fragrant rice to the United States, the Middle East, and South Asia, where vast numbers of Indian expats drive demand.

COMMODITIES

COARSE GRAINS – CORN, MILLET, SORGHUM, AND BARLEY

Table 3. India: Commodity, Corn, PSD

Corn	2021/2022		2022/2023		2023/2024	
Market Year Begins	Nov 2021		Nov 2022		Nov 2023	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	9958	9958	10100	10100	0	9980
Beginning Stocks (1000 MT)	2095	2095	2479	2479	0	2539
Production (1000 MT)	33730	33730	34610	34610	0	33500
MY Imports (1000 MT)	17	17	50	50	0	100
TY Imports (1000 MT)	17	17	50	50	0	100
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	35842	35842	37139	37139	0	36139
MY Exports (1000 MT)	3363	3363	4000	4000	0	3000
TY Exports (1000 MT)	3442	3443	4000	4000	0	3000
Feed and Residual (1000 MT)	18100	18100	18600	18600	0	19500
FSI Consumption (1000 MT)	11900	11900	12000	12000	0	11800
Total Consumption (1000 MT)	30000	30000	30600	30600	0	31300
Ending Stocks (1000 MT)	2479	2479	2539	2539	0	1839
Total Distribution (1000 MT)	35842	35842	37139	37139	0	36139
Yield (MT/HA)	3.3872	3.3872	3.4267	3.4267	0	3.3567
(1000 HA), (1000 MT), (MT/HA)						
MY = Marketing Year, begins with the month listed at the top of each column						
TY = Trade Year, which for Corn begins in October for all countries. TY 2023/2024 = October 2023 - September 2024						

Table 4. India: Commodity, Millet, PSD

Millet	2021/2022		2022/2023		2023/2024	
Market Year Begins	Nov 2021		Nov 2022		Nov 2023	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	9000	8488	9500	8650	0	9000
Beginning Stocks (1000 MT)	620	620	620	620	0	420
Production (1000 MT)	11850	11850	11830	11900	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)	12470	12470	12450	12520	0	12920
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	1600	1600	0	1600
FSI Consumption (1000 MT)	10450	10450	10350	10500	0	11000
Total Consumption (1000 MT)	11850	11850	11950	12100	0	12600
Ending Stocks (1000 MT)	620	620	500	420	0	320
Total Distribution (1000 MT)	12470	12470	12450	12520	0	12920
Yield (MT/HA)	1.3167	1.3961	1.2453	1.3757	0	1.3889
(1000 HA), (1000 MT), (MT/HA)						
MY = Marketing Year, begins with the month listed at the top of each column						
TY = Trade Year, which for Millet begins in October for all countries. TY 2023/2024 = October 2023 - September 2024						

Table 5. India: Commodity, Sorghum, PSD

Sorghum	2021/2022		2022/2023		2023/2024	
Market Year Begins	Nov 2021		Nov 2022		Nov 2023	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	4600	3801	4500	3750	0	4100
Beginning Stocks (1000 MT)	599	599	259	259	0	169
Production (1000 MT)	4150	4150	4400	4100	0	4400
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)	4749	4749	4659	4359	0	4569
MY Exports (1000 MT)	40	40	50	40	0	50
TY Exports (1000 MT)	40	40	50	40	0	50
Feed and Residual (1000 MT)	450	450	450	400	0	450
FSI Consumption (1000 MT)	4000	4000	4000	3750	0	3800
Total Consumption (1000 MT)	4450	4450	4450	4150	0	4250
Ending Stocks (1000 MT)	259	259	159	169	0	269
Total Distribution (1000 MT)	4749	4749	4659	4359	0	4569
Yield (MT/HA)	0.9022	1.0918	0.9778	1.0933	0	1.0732

(1000 HA), (1000 MT), (MT/HA)
MY = Marketing Year, begins with the month listed at the top of each column
TY = Trade Year, which for Sorghum begins in October for all countries. TY 2023/2024 = October 2023 - September 2024

Table 6. India: Commodity, Barley, PSD

Barley	2021/2022		2022/2023		2023/2024	
Market Year Begins	Apr 2021		Apr 2022		Apr 2023	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	592	592	453	453	0	735
Beginning Stocks (1000 MT)	113	113	115	115	0	112
Production (1000 MT)	1656	1656	1370	1370	0	2100
MY Imports (1000 MT)	48	48	150	180	0	100
TY Imports (1000 MT)	101	101	150	180	0	100
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	1817	1817	1635	1665	0	2312
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)	250	250	100	100	0	300
FSI Consumption (1000 MT)	1450	1450	1450	1450	0	1600
Total Consumption (1000 MT)	1700	1700	1550	1550	0	1900
Ending Stocks (1000 MT)	115	115	80	112	0	407
Total Distribution (1000 MT)	1817	1817	1635	1665	0	2312
Yield (MT/HA)	2.7973	2.7973	3.0243	3.0243	0	2.8571

(1000 HA), (1000 MT), (MT/HA)
MY = Marketing Year, begins with the month listed at the top of each column
TY = Trade Year, which for Barley begins in October for all countries. TY 2023/2024 = October 2023 - September 2024

PRODUCTION

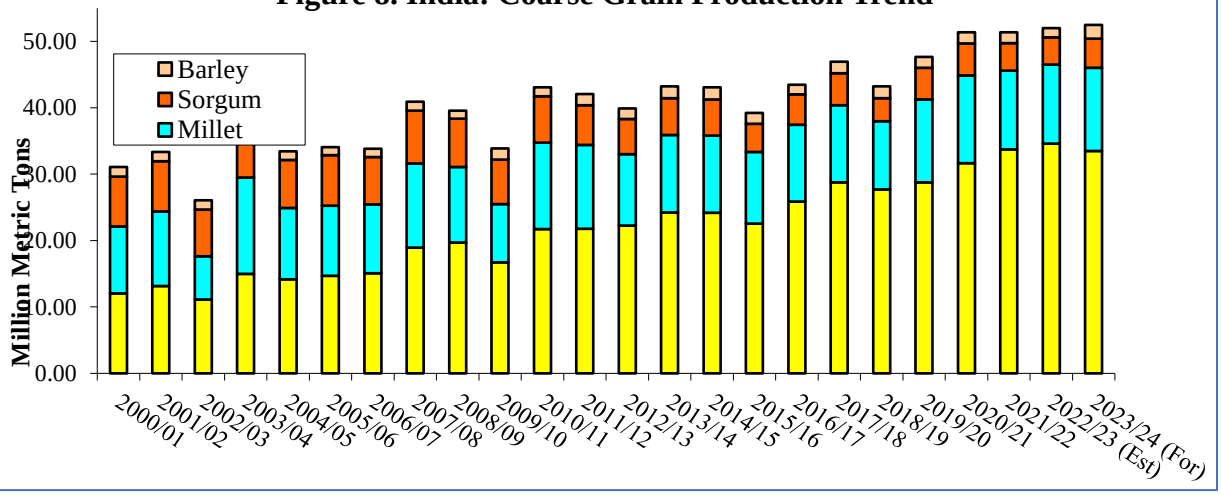
India's coarse grain production depends on the performance of the monsoon, since 85 percent of the coarse grain cultivation is under rainfed (i.e., unirrigated) conditions. Over three-fourths of India's coarse grain production is cultivated during the kharif season (corn, sorghum, and millet), with the balance during the rabi season (corn, sorghum, and barley).

MY 2023/2024 Outlook: FAS New Delhi, assuming a normal 2023 southwest monsoon, forecasts MY 2023/2024 coarse grain production at 52.5 MMT, just slightly higher than the estimated MY 2022/2023 production of 52 MMT. MY 2023/2024 (April-March) barley production being harvested in April 2023, is forecast to recover to 2.1 MMT on higher plantings due to strong prices in the previous season and generally favorable weather conditions. Firm prices for corn, millet, and sorghum in the ongoing MY 2022/2023 season should support higher planting in the upcoming marketing year. However, the performance of the 2023 monsoon (timely onset and rainfall distribution across country) will be essential for achieving the forecast area and production of these crops. The MY 2023/2024 forecast for coarse grain production includes production of some 33.5 MMT of corn, 12.5 MMT of millet, 4.4 MMT of sorghum, and 2.1 MMT of barley based on crop condition to date.

MY 2021/2022 Production: Despite the uneven 2023 monsoon rains, MY 2022/2023 coarse grain production is estimated at a record 52 MMT, bolstered by a record corn harvest. Helping planting prospects were firm domestic corn prices in MY 2021/2022. Favorable weather conditions for winter planted corn boosted planting and yield prospects with MY 2022/2023 corn production estimated at a record 34.6 MMT, a three percent increase over last year's record harvest. Production of sorghum and millet was unchanged from the previous year, while the barley harvest volume declined due to heat stress in March/April 2022.

Production Trend: Over the last decade, coarse grain production is on an upward trend, fueled by corn production. Sorghum, millet, and barley production are stagnant or declining.

Figure 8. India: Coarse Grain Production Trend



Source: Ministry of Agriculture and Farmers Welfare, FAS New Delhi MY 2022/2023 estimate and MY 2023/2024 forecast.

Corn: Corn production is evidencing an upward trend over the last two decades on area and productivity gains from new improved hybrid seeds. Domestic demand from feed manufacturers and the starch industry supports competitive prices. This encouraged farmers to cultivate corn, with plantings rising above 10.1 million hectares in MY 2022/2023.The private seed industry, including major multinational companies, are developing new corn hybrids (largely single cross) with higher productivity gains replacing the old existing cultivars and hybrids. Hybrid corn, mostly feed and industrial grade, accounts for 80 percent of the planted area across the country. Food grade corn, cultivated from traditional cultivars, grows in the north.

Other Coarse Grains: Rainfed sorghum and millet plantings and production are dependent on the timely arrival and the spread of monsoon rains (June-August). These crops have not experienced significant productivity-enhancing technological (varietal or agronomic) breakthroughs, and/or heightened demand for industrial or commercial usage compared to cereals such as rice, wheat, corn and to some extent barley.

With rising production and supplies of subsidized rice and wheat through food security programs since the 1970s, consumers have shifted away from sorghum and millet as staple foods, undermining the crops' profitability. Sorghum and millet cultivation has been declining, with acreage shifting to more profitable cereals (i.e., rice, wheat, corn, and pulses) and other competing crops (oilseeds and cotton). In the last two years, the Indian government has promoted production and consumption of millet for its higher nutrition attributes and sustainable agriculture practice. It may, however, take time for the economic benefits to be seen by farmers.

Barley is a small winter crop cultivated in northwestern India, with production of 1.6 to 2.MMT. India produces six-row varieties of barley for food and feed use. Recently, some high-quality/malting grade barley varieties were developed through public-private breeding programs and are replacing six-row varieties on rising demand from local breweries.

CONSUMPTION

FAS New Delhi forecasts MY 2023/24 coarse grain consumption at 50.1 MMT, up on expected steady growth in animal feed demand and higher consumption of millet, sorghum, and barley. Coarse cereals historically have been the staple cereals for rural households. However, coarse cereal consumption is being displaced as a result of the government pushing out through its food security programs large volumes of highly subsidized wheat and rice. A major share of local corn is used by animal feed and starch industries, while barley is used by the malting industry and for food use.

Steady demand from the poultry and aqua feed sector supported corn consumption in MY 2022/2023. Higher usage of corn by the animal feed industry offset lower supplies of the other coarse grains with MY 2022/2023 coarse grain consumption estimated at 48.4 MMT compared to 48 MMT in the previous year.

With recovery from the COVID-19 pandemic, India's poultry and aquaculture feed industry has grown anew on improving consumer demand for poultry products and export demand for aqua products, namely shrimp. The starch industry's corn demand is also growing on strong domestic

and export demand for textile products. There is a small but rapidly growing use of low-quality corn, other coarse grains, and spoiled/broken rice and wheat, all estimated at around 2-3 MMT, for potable liquor use for distilling blended whiskies and other spirits. Food use of corn and other coarse grains is lower than the previous year due to higher supplies of subsidized rice and wheat from the government's public distribution system and lower harvests of millet, sorghum, and barley.

Feed Use: India's growing economy and expanding middle class fuel demand for more animal protein, primarily poultry and dairy products. There are no reliable published official or industry statistics on animal feed production and ingredient use availability. Industry sources report commercial feed accounts for 55-60 percent of the total animal feed market. The commercial feed industry caters to the poultry (74-75 percent), aquaculture (14-15 percent), and dairy cattle (10-12 percent) feed sectors. Corn and soybean meal are the main ingredients used by the feed industry, supplemented by inferior quality wheat, wheat bran, and low-quality broken rice (milling waste), other oilseed meals and coarse grains depending on relative prices of these ingredients (see, Appendix X). Small growing quantities of domestically produced DDGS from grain-based ethanol plants are used by poultry and aquaculture feed manufacturers.

India's poultry and aquaculture industry depends primarily on commercial feeds. 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, spoiled/broken wheat and rice, and other cheap grain mixes – to feed to lactating cows/buffaloes while in milk. There is a growing trend among dairy farmers to replace low-yielding local dairy cattle breeds with higher-yielding crossbred cows and buffaloes, which require higher-energy feeds, driving a 10-12 percent per annum growth in demand for commercial dairy feed in recent years.

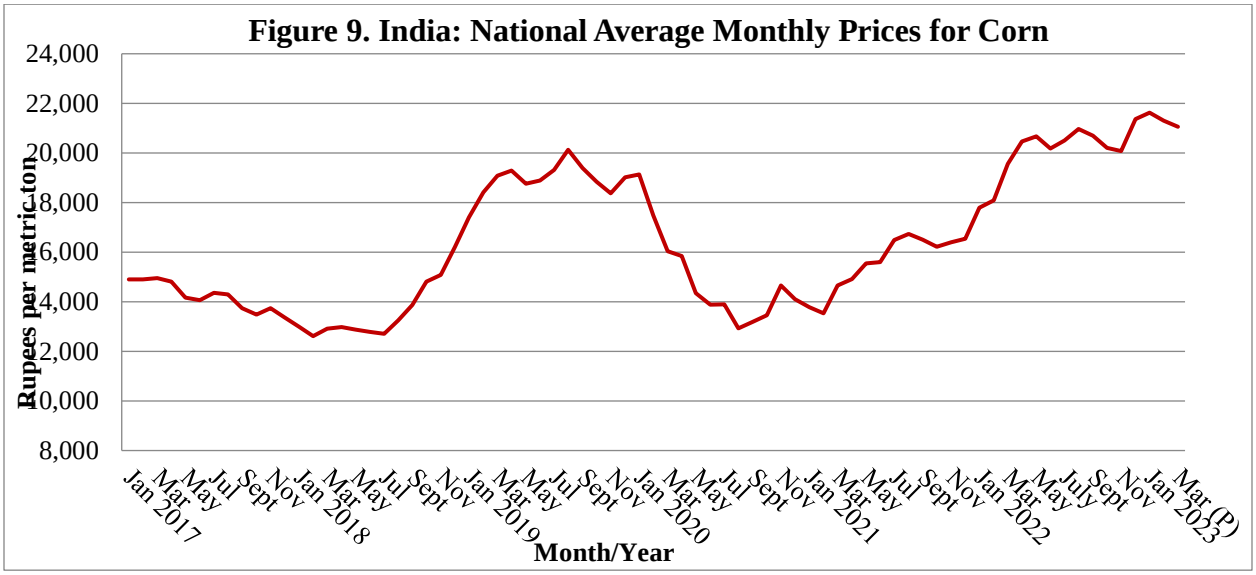
Food Use: Corn for human consumption (6-7 MMT) represents a small share of the production compared to that for feed use. The other coarse grains – sorghum, millet, and barley – see a larger share of production go to food use. These grains were the staple diet for rural and lower income semi-urban households. However, production gains from the Green Revolution, and subsidized rice and wheat under food security programs including free food grain under COVID-19 relief programs have replaced these grains from food baskets. There is growing awareness of the high fiber and nutrient content benefits of sorghum and millet (nutra-cereals) among a small population of 'health conscious' urban consumers incorporating these cereals in their diets. Since 2022, the Indian government has been promoting millet cultivation.[18]

Industrial Use: Some 3.5 to 4 MMT of corn is used by the starch industry to cater to the textile industry's 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 rice, wheat, corn, and coarse grains for potable liquor and other industrial uses. Small quantities of DDGS (300,000 MMT to 500,000 MMT) from these ethanol plants are used by the animal feed industry. The government has announced schemes to the private sector for setting up grain-based ethanol

[18] The Indian government declared 2022 as the Year of Millet, and successfully proposed to the United Nations to declare 2023 as International Year of Millets (IYOM). Since 2022, the government has rolled out several programs in the country and internationally for popularizing millets (see, https://www.mygov.in/campaigns/millet/).

plants by offering subsidized 'excess' rice from government stock, and price incentives over molasses-based ethanol by the government parastatal fuel marketing companies. Some of these plants have come into operation in 2023, but industry sources are not sure about the supplies of subsidized rice to these units.

Prices: Despite the record MY 2022/2023 harvest, strong domestic and export demand has resulted in steady corn prices. Reports of a good rabi harvest has eased local corn prices since the beginning of 2023 but are still significantly higher than prices at the same time last year.



Source: AgMarketNet, Ministry of Agriculture and Farmers Welfare.

Average spot prices in the first half of March 2023, are ranging between INR 19,700 ($241) to 21,350 ($261)/MT, up about eight percent compared to March 2022 prices, and above the MSP price of INR 19,620 ($240)/MT. Prices are expected to ease with the arrival of the rabi (April) crop in the next quarter (April-June). The rabi corn harvest and global prices will affect local corn prices through the balance of the marketing year (July-October 2023).

TRADE

Corn: Since 2020, India has emerged as a major corn supplier to neighboring and southeast Asian countries riding on three consecutive record harvests and relatively strong global prices. FAS New Delhi forecasts MY 2023/2024 corn exports lower at 3 MMT and imports at 100,000 MT on forecasted relatively tight supplies and strong domestic demand.

Official trade statistics report corn exports in the first two months (November-December) of MY 2022/2023 at 913,000 MT, up compared to 780,000 MT during the same period last year. Trade sources report that Indian corn is highly competitive ($20-25/MT lower than South American corn) in South Asian markets, with exports in January estimated at around 0.5 MMT.

With local corn prices likely to ease with the arrival of the new winter-planted crop, exports will remain steady through June 2023. Any significant rise in corn prices after the rabi corn crop's is

fully harvested, may fuel demand by local users to impose export controls. The government may prefer to allow duty-free imports under a tariff-rate-quota (500,000 MT) over the export ban to contain prices. Assuming current price parity for Indian corn in the southern Asian markets and no export policy changes, Post estimates MY 2022/2023 corn exports to reach 4 MMT.

Other Coarse Grains: India exports small quantities of feed grade sorghum and barley to neighboring countries and the Middle East. However, exports in MY 2022/2023 declined over last year due to a smaller harvest and relatively high prices. Economic recovery in 2022, coupled with the decline in the MY 2022/2023 harvest, drove up imports of barley in MY 2022/2023. Imports are estimated at 180,000 MT, compared to less than 50,000 MT last year. Despite continued strong economic growth, FAS New Delhi forecasts MY 2023/2024 barley imports at 100,000 MT on a forecasted record harvest.

Tariffs: The import duty on coarse grains remains unchanged. India permits imports of non-GE corn under a TRQ of 500,000 MT with a 15 percent duty (see, Appendix IV).

POLICY

Production and Market Support: The Indian government's coarse grain support programs are small compared to those for wheat and rice. Government MSP procurement is limited to a few states and is restricted to the NFSA and food security programs. The government has recently shifted focus on promoting production and consumption of millet as a nutra-cereal and sustainable crop option against the existing rice-wheat cropping system. Some of the state governments are ready to support MSP procurement of millet and millet usage in food security programs.

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 the Plant Quarantine (Regulation of Imports into India) Order 2003.[19] Imports of any GE product (i.e., GE crops and products derived from GE crops) are subject to approval by the Genetic Engineering Appraisal Committee (GEAC) (biotechnology regulatory agency). The GEAC has not approved imports of GE corn and other 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 and barley. With production expansion limited, India will need to import corn and corn products (e.g., DDGS) within the next 2-3 years, and steadily increase imports of barley for malting use in the near future. Phytosanitary conditions (e.g., weed seeds, ergot) and other sanitary-phytosanitary issues and the non-approval of GE feed corn, prevents U.S. coarse grain exports to India.

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

APPENDICES

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

Marketing Year	Production	Government Procurement[1]	MSP	Government Total Cost	Offtake from Government Stocks	PDS Issue Price		
(Apr–Mar)	(Million MT)	(Million MT)	Rs. Per MT	Rs. Per MT	(Million MT)	Rs. Per MT		
						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	na/2	na/2	2,000
2017/18	98.51	30.82(31.3)	16,250	22,979	25.30	na/2	na/2	2,000
2018/19	99.87	35.80(35.8)	17,350	23,597	31.65	na/2	na/2	2,000
2019/20	103.60	34.13(32.9)	18,400	26,231	27.19	na/2	na/2	2,000
2020/21	107.86	38.99(36.1)	19,250	27,318	36.39	na/2	na/2	2,000
2021/22	109.59	43.34(39.5)	19,750	24,675	50.55	na/2	na/2	2,000
2022/23	100.00/3	18.79(18.8)/3	20,150	26,549	28.00/3	na/2	na/2	2,000
2023/24	108.00/3	33.00(30.6)/3	21,250	27,305/4	32.00/3	na/2	na/2	2,000

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

Appendix II. India: Commodity, Wheat, Prices Table

Prices In	Rupees	Per UOM	Metric Tons	
Year	2021	2022	2023	% Change
Jan	19,631	22,251	26,734	20.1
Feb	19,317	21,704	26,058	20.1
Mar	19,266	22,582	24,193	7.1
Apr	19,789	21,580		
May	20,005	21,895		
Jun	20,277	21,893		
Jul	21,066	22,338		
Aug	19,503	23,868		
Sep	19,935	24,137		
Oct	20,668	25,269		
Nov	21,061	26,284		
Dec	21,273	26,240		
Exchange Rate	81.78	Local Currency/USD		
Date of Quote	03/13/2023	MM/DD/YYYY		
National Average Monthly Wholesale Price of Wheat				

Source: AgMarketNet, Ministry of Agriculture and Farmers Welfare.

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

Time Period	April-March	Units	Metric Tons
Exports for	**MY 2021/2022**		**MY 2022/2023** [1]
U.S.	68641	U.S.	26,026
Others		**Others**	
Bangladesh	4,081,493	Bangladesh	1,298,057
Sri Lanka	643,656	Indonesia	883,254
United Arab Emirates	621,281	United Arab Emirates	542,373
Indonesia	420,412	South Korea	505,406
Philippines	373,861	Yemen	264,686
Yemen	353,594	Thailand	215,402
Nepal	326,715	Sri Lanka	199,979
South Korea	223,455	Philippines	175,931
Djibouti	188,329	Oman	138,886
Qatar	136,304	Somalia	132,310
Total for Others	**7,369,100**	**Total for Others**	**4,356,284**
Others not Listed	598,902	Others not Listed	946,280
Grand Total	**8,036,643**	**Grand Total**	**5,302,590**

Source: Trade Data Monitor; FAS/New Delhi Office Research.
TDM data includes wheat product in wheat grain equivalent.
[1] Provisional data for the period April - December 2022.

Appendix IV: 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 at 15 percent basic duty.
Exchange rate on March 13, 2023, USD $1.00 = INR 81.78.

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

Marketing Year	Production	Government Procurement[1]	MSP for Paddy (Un-milled Rice Common variety)	Government Economic Cost	Offtake from Government Stocks in Indian Fiscal Year (Apr/Mar)	PDS Issue Price		
(Oct-Sept)	(Million MT)	(Million MT)	Rs. Per MT	Rs. Per MT	(Million MT)	Rs. Per MT		
						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	na/2	na/2	3,000
2017/18	112.76	38.19 (33.9)	15,500	32,803	34.67	na/2	na/2	3,000
2018/19	116.48	44.40 (38.1)	17,500	34,441	34.23	na/2	na/2	3,000
2019/20	118.87	51.83(43.6)	18,350	37,201	35.14	na/2	na/2	3,000
2020/21	124.37	60.25(48.4)	18,880	39,393	56.49	na/2	na/2	3,000
2021/22	129.47	57.59(44.5)	19,600	35,625	55.06	na/2	na/2	3,000
2022/23	128.00/3	57.00(44.9)/3	20,600	38,582	65.00/3	na/2	na/2	3,000
2023/24	127.00/3	na	na	39,180/4	na	na/2	na/2	3,000

Source: Ministry of Agriculture and Farmers Welfare, Food Corporation of India, and Indian government budget.

Notes: APL - Above Poverty Line; BPL - Below Poverty Line; AAY - Poorest of Poor; NFSA-National Food Security Act.

1/: Figure in parenthesis is Indian government procurement as percentage of total food production

2/: NFSA implemented in most states replacing APL/BPL by end of 2015.

3/: FAS/New Delhi Estimate.

4/: Indian government budget estimate.

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

Prices In	Rupees	Per UOM	Metric Tons	
Year	2021	2022	2023	% Change
Jan	31,330	32,666	34,626	6.0
Feb	33,173	34,356	35,204	2.5
Mar	32,035	33,223	35,654	7.3
Apr	32,410	33,601		
May	33,323	33,882		
Jun	32,677	33,191		
Jul	31,927	31,483		
Aug	32,314	35,220		
Sep	32,727	33,709		
Oct	33,738	34,186		
Nov	34,341	34,445		
Dec	33,777	33,602		
Exchange Rate	81.78	Local Currency/USD		
Date of Quote	03/13/2023	MM/DD/YYYY		
National Average Monthly Wholesale Price of Common Rice				

Source: AgMarketNet, Ministry of Agriculture and Farmers Welfare.

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

Time Period	Oct-Sep	Units	Tons
Exports for	**MY 2021/2022**		**MY 2022/2023[1]**
U.S.	236,137	U.S.	62,270
Others		**Others**	
China	2,269,205	Cote d'Ivoire	413,098
Benin	1,488,757	Benin	404,317
Senegal	1,411,248	Bangladesh	343,828
Iran	1,264,333	Saudi Arabia	247,214
Cote d'Ivoire	1,043,933	Cameroon	229,333
Togo	1,003,102	Guinea	220,926
Nepal	990,078	Senegal	213,752
Saudi Arabia	900,855	Madagascar	204,961
Guinea	824,043	Iran	198,117
Sri Lanka	775,841	Nepal	193,340
Total for Others	**11,971,395**	**Total for Others**	**2,668,886**
Others Not Listed	9,817,787	Others Not Listed	2,466,412
Grand Total	**22,025,319**	**Grand Total**	**5,197,568**

Source: Trade Data Monitor; FAS/New Delhi Office Research.
[1] Provisional data for the period October - December 2022.

Appendix VIII. India: Commodity, Corn, Prices Table

Prices In	Rupees	Per UOM	Metric Tons	
Year	**2021**	**2022**	**2023**	**% Change**
Jan	13,780	17,791	21,625	21.6
Feb	13,534	18,092	21,302	17.7
Mar	14,657	19,560	21,062	7.7
Apr	14,919	20,461		
May	15,548	20,667		
Jun	15,593	20,175		
Jul	16,482	20,508		
Aug	16,736	20,966		
Sep	16,504	20,690		
Oct	16,220	20,210		
Nov	16,405	20,076		
Dec	16,537	21,365		
Exchange Rate	81.78	Local Currency/USD		
Date of Quote	03/13/2023	MM/DD/YYYY		
National Average Monthly Wholesale Prices of Corn				

Source: AgMarketNet, Ministry of Agriculture and Farmers Welfare.

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

Time Period	Nov-Oct	Units	Metric Tons
Exports for	**MY 2021-2022**		**MY 2022-2023[1]**
U.S.	1	U.S.	0
Others		**Others**	
Bangladesh	1,745,808	Bangladesh	397,617
Vietnam	708,770	Vietnam	269,378
Nepal	476,212	Nepal	100,794
Malaysia	211,091	Sri Lanka	80,359
Sri Lanka	74,815	Malaysia	39,303
Thailand	54,340	Oman	4,300
Bhutan	23,372	Bhutan	3,736
Taiwan	12,435	Yemen	3,560
Oman	10,253	Seychelles	3,091
United Arab Emirates	6,884	Hong Kong	2,620
Total for Others	**3,323,980**	**Total for Others**	**904,758**
Others Not Listed	309,876	Others	8,659
Grand Total	**3,633,857**	**Grand Total**	**913,417**

Source: Trade Data Monitor; FAS/New Delhi Office Research.
[1] Provisional data for the period November - December 2022.

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

Commodity	Quantity (MMT)	Comments
Corn	16.3-18.6	Largely commercial feed for poultry and aquaculture sector
Wheat	6.0-7.0	Largely farm feed mixes and commercial feed for dairy sector
Other Coarse Grains	2.0-2.2	Largely farm feed mixes and some for commercial feed for all sectors
Soybean Meal	5.5-6.3	Largely commercial feed for poultry and aquaculture sector
Cotton Seed & Meal	4.2-4.6	Largely farm feed mixes and some for commercial feed for dairy sector
Rapeseed Meal	3.6-5.1	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	0.6-0.9	Largely commercial feed and farm feed mixes for all sectors
Broken rice/ de-oiled rice bran[/1]	6.0-7.0	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	0.3-0.5	Compound feed for poultry sector
Total	**52.0-59.0**	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