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India

Grain and Feed Annual

2018

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Report Highlights:

After a record harvest of 98.5 million metric ton (MMT) last year, India's MY 2018/19 (April/March) wheat production is forecast lower at 94 MMT on lower planting, still record fourth highest crop. Despite sufficient domestic supplies, MY 2018/19 wheat imports are forecast at 1.5 MMT to augment quality wheat requirement. India is set for a record MY 2017/18 (October/September) rice production of 110 MMT and record corn production of 26 MMT. Assuming normal 2018 monsoon, MY 2018/19 rice production is forecast at 109 MMT from 43.5 million hectares, and corn production at 25.5 MMT from 9.2 million hectares, India's record third highest harvest in both cases. India is the largest rice exporters in the world with MY 2017/18 rice exports estimated at a record 13 MMT; and MY 2018/19 exports forecast slightly lower at 12 MMT on forecast relatively tight domestic supplies. Due to growing demand from the feed sector, India is likely to emerge as net importer of corn in MY 2018/19 with imports forecast at 0.5 MMT.

Commodities:

Wheat

Table 1. India: Commodity, Wheat, PSD
(Area in Thousand Hectares, Quantity in Thousand Metric Tons, Yield in MT/Hectare)

Wheat	2016/2017		2017/2018		2018/2019	
Market Begin Year	Apr 2016		Apr 2017		Apr 2018	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	30418	30220	30785	30785	0	29700
Beginning Stocks	14540	14540	9800	9800	0	12500
Production	87000	87000	98510	98510	0	94000
MY Imports	5896	5896	1500	2000	0	1500
TY Imports	6147	6147	1500	1800	0	1500
TY Imp. from U.S.	0	0	0	0	0	0
Total Supply	107436	107436	109810	110310	0	108000
MY Exports	516	516	500	500	0	400
TY Exports	409	441	400	400	0	400
Feed and Residual	4700	4700	5000	5000	0	5000
FSI Consumption	92420	92420	93000	92310	0	93000
Total Consumption	97120	97120	98000	97310	0	98000
Ending Stocks	9800	9800	11310	12500	0	9600
Total Distribution	107436	107436	109810	110310	0	108000
Yield	2.8601	2.8789	3.1999	3.1999	0	3.165

Production:

MY 2018/19 Outlook

The Indian wheat harvest in the upcoming summer is likely to be lower than last year's record production due to soil moisture and temperature stress during planting and early vegetative growth stages (October-early December). Weather conditions have improved since December and the standing crop is progressing well under adequate soil moisture conditions. Assuming normal weather conditions from now through harvest (April), Post forecasts marketing year (MY) 2018/19 wheat production at 94 million metric tons (MMT) from 29.7 million hectares (MHa), lower than last year's revised final production estimate of 98.5 MMT, largely due to lower planting and trend yield. Despite lower planting, the government's preliminary estimate (2nd Advance Estimate of Feb 28, 2018) forecasts 2018 wheat production optimistically at a near-record 97 MMT; they expect a further increase in yield over

last year's record yield despite adverse planting conditions. However, most trade sources are currently estimating the crop in the range of 91 to 94 MMT.

Due to below-normal rains in the second half (August-September) of 2017 monsoon season (See IN7124), sowing of the 2018 wheat crop commenced in October under relatively dry conditions and progressed slowly through December compared to normal years. Wheat planting in the western and central states was particularly affected due to inadequate irrigation facilities compared to the northern states. The Ministry of Agriculture's (MoA) crop situation reports show that progress of planting in the major wheat growing states was delayed by 2-3 weeks, and farmers in central and western states shifted some of last year's wheat area to less irrigation-intensive crops like chick peas and other pulses. The latest crop condition report of February 2018 estimates the MY 2018/19 wheat planting reported by the state departments of agriculture[1] down by more than 4 percent over last year.

Beginning in December growing conditions improved due to lower temperatures, and scattered rains in January/February helped during the critical vegetative growth, tillering, flowering and panicle initiation stages of the standing crop. No major incidences of any pest or disease outbreaks have been reported in the wheat growing states. Market sources report that lower planting in Madhya Pradesh, Maharashtra, and parts of Uttar Pradesh may affect supplies of 'quality' wheat necessary for production of quality flour for higher value processed wheat products. Agriculture experts report that the overall crop condition is good but "less than optimal" compared to last year when record planting, timely sowing, and favorable winter conditions through March resulted in record production and yield. Consequently, Post forecasts MY 2018/19 production at 94 MMT from 29.7 million hectare and assuming the trend yield (3.16 MT/hectare), it would be India's record fourth highest production if realized. Extended cold temperature conditions during March may delay the harvest, but would improve the yield prospects and raise the forecast production estimate. However, an early rise in temperature during March/April (grain filling and maturity stage) and/or heavy rains/hailstorms during harvest could adversely affect the yield prospects and lower the production from the forecast level.

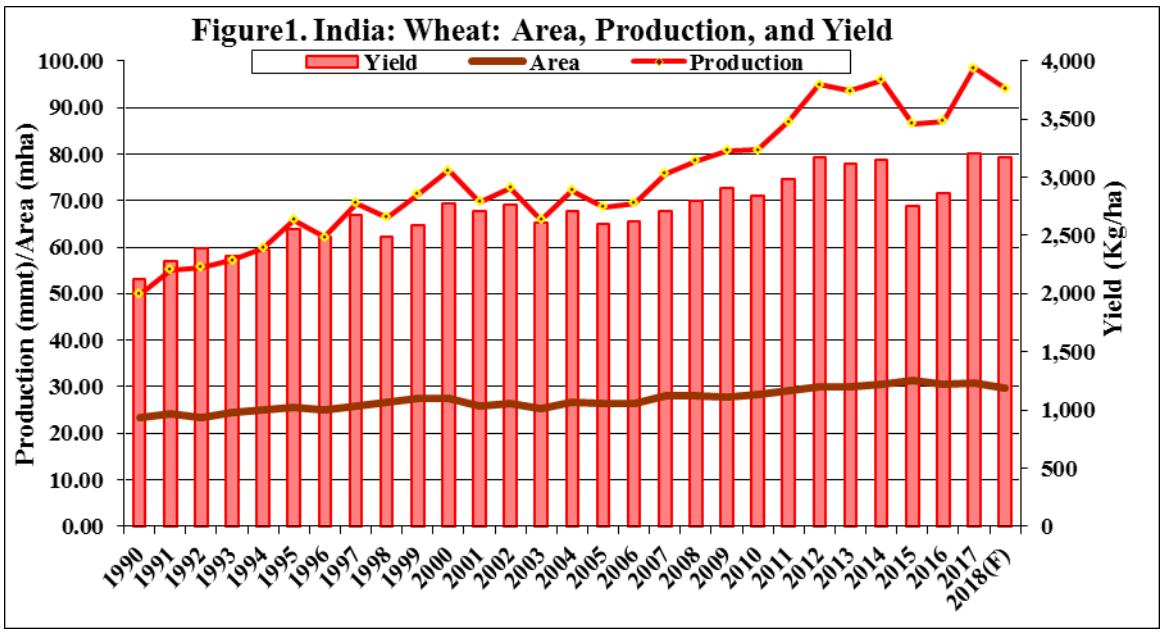
MY 2017/18 Production:

Based on the Government of India's (GOI) final estimates released on February 28, 2018, the MY 2017/18 wheat production estimate is revised marginally higher to a record 98.5 MMT and area is revised to a record 30.8 MHa with the record yield estimated at 3.2 MT/hectare.

Indian wheat can be characterized as soft/medium hard, medium protein, white bread wheat, somewhat comparable to U.S. hard white wheat. Wheat from the central and western regions grown under relatively drier conditions has relatively higher protein and gluten in comparison to wheat from northern India. Wheat yields across major growing states show variations due to 'assured' irrigation availability, soil condition, and adoption of technology. Wheat yields in the largely irrigated northern India (Punjab, Haryana, and Western Uttar Pradesh) are above 4.5 tons per hectare, while yields in western and central states (Gujarat, Rajasthan, Madhya Pradesh, Bihar and parts of Uttar Pradesh) are relatively lower (below 3.0 tons per hectare). The perennial river system from the Himalayas replenishes the surface (canal) and ground (tube wells) systems in north India; the western and central states largely depend on the residual water after the monsoon.

[1] Typically the planting figures reported by the Department of Agriculture of major wheat growing states is lower than the final area figures based on the crop area reported by the Department of Revenue.

India produced about 1.0-2.0 MMT of durum in Madhya Pradesh, Rajasthan, and Maharashtra, mostly for food processors. Over the last decade, more farmers have shifted from durum wheat cultivation to non-durum varieties due to higher profit margins (higher yields and rising government minimum support price (MSP)). Most durum wheat is purchased by the private sector at a premium over common non-durum wheat for higher-value bakery and confectionary products. Availability of relatively 'cheap' high quality imported wheat (APW) for blending and processing over the last few years has lowered the price premium for local durum wheat compared to common wheat. Market sources report that India is likely to produce about 1.0 MT for Durum wheat in MY 2018/19, unchanged from last year level.



Source: MoA, Government of India (GOI); and FAS/New Delhi - MY 2016/17 and 2018/19.

Production of wheat and rice has been the cornerstone of India's agricultural and food security policies and programs since the onset of the famous "Green Revolution' in the mid-1960s. Indian wheat production has grown steadily in the last decade on back-to-back bumper harvests despite two years of weather affected decline in production (MY 2015/16 and 2016/17). Wheat acreage has been relatively stable around 30 million hectares in recent years, and does not show significant year-on-year variation (less than 5 percent) due to the government's minimum price support (MSP) policy, an effective government procurement program in growing states, and relatively stable productivity under irrigated conditions vis-à-vis other competing crops. Although the wheat crop is largely irrigated (over 90 percent), withdrawal of monsoon and residual soil moisture from the previous *kharif* (fall planted) season does influence the progress of planting, while winter temperatures and rains critically influence crop growth and yield prospects. Wheat yields in northern states have nearly peaked and are comparable to other high yielding producers in the world. However, yields in other states have been increasing with the steady expansion in irrigation facilities and adoption of improved production technologies.

Indian wheat cultivation does face future threats of diversion of acreage to non-agricultural use, soil degradation, and climate change. Since most wheat area has assured ground/canal irrigation supplies,

interest from urban developers and other non-agricultural businesses is leading to increasing diversion of prime area out of wheat cultivation, especially areas adjacent to urban habitats. In northern India, over-exploitation of ground water and flood irrigation is causing the problems of soil salinity and declining water table, which may force farmers to switch to less water intensive crops like oilseeds, pulses and corn. Vulnerability of the wheat crop to 'climate change', particularly the 'earlier-than-normal' onset of summer and consequent rise in temperatures (terminal heat) affecting the crop at grain filling/maturity stages (March/April), is a major concern among researchers and policy makers. Of the 31 million hectares under wheat cultivation, researchers estimate that about 10-12 million hectares are prone to terminal heat stress. Indian Council of Agricultural Research (ICAR) and other State Agricultural Universities (SAU) are developing appropriate response mechanisms through agronomic management (early planting) and technologies (short duration varieties) to mitigate potential climate risks. Recent incidences of untimely heavy rains/hailstorms during critical stages (MY 2016/17), which may be related to global warming/climate change, is also a concern for the policy makers on the future of wheat cultivation.

Agriculture experts report that the yields of most of the popular Indian wheat varieties are near their genetic potential, and are showing signs of fatigue due to continuous reuse of seeds by farmers. ICAR, India's apex agriculture research agency, and the SAUs are involved in developing location-specific wheat varieties with traits addressing crop duration, varied soil conditions, rising yield potential, and improved grain qualities; they are doing this largely through traditional breeding methods. Given that wheat seed production and marketing is mostly administered by public sector institutions, the new wheat varieties have been slow to make quick inroads among growers due to inadequate seed multiplication, distribution, and extension facilities with the seed replacement rate estimated around 25 percent only. Biotechnology applications in wheat are limited to experimental marker-assisted breeding in order to develop resistance to biotic and abiotic stresses.

To date, there have not been any known incidences of Ug99, a wheat rust of global concern, in India. However, reports suggest that about 60-70 percent of India's wheat acreage is under varieties/cultivars susceptible to the disease if it hits India from the Pakistan border side. Local agricultural scientists assert that the agro-climatic conditions in northern India's wheat belt are not conducive to Ug99, but the highly mutative nature of the Ug99 strain could make India's wheat growing areas vulnerable to this rust. The National Agriculture Research System (NARS), which comprises research institutes under the Indian Council of Agricultural Research and various State Agriculture Universities, survey and monitor the wheat crop, and newly developed varieties, for various rusts, including Ug99. In the last few years, the GOI has focused on encouraging the state governments to replace susceptible varieties with Ug99-resistant varieties screened by NARS.

Consumption:

Wheat is the staple food in the growing areas (north, west and central India), but competes with rice in non-growing regions (south and east India). Despite the forecast for tight domestic supplies, India's wheat consumption (FSI) in MY 2018/19 is forecast higher at 93 MMT to feed the growing population. Relatively tight domestic supplies coupled with higher government procurement price (minimum

support price) will raise the domestic prices in the upcoming season compared to last year. Government market intervention programs for supply of subsidized wheat through the public distribution system (PDS), and likely availability of higher quantities of government wheat stocks for sale to the open market will help allay price inflation concerns. Assuming no significant changes in the international market prices and government's import policy, southern India millers are likely to continue to augment their quality wheat (mainly for blending) requirements through imports on expected domestic shortages of quality wheat. Consequently, MY 2018/19 wheat consumption is estimated to increase marginally to 93 MMT on expected firm prices and relatively inelastic demand in the major consuming regions. Wheat use for feed and residual in MY 2018/19 is forecast at 5 MMT, unchanged from last year despite forecast higher prices on expected steady demand from the livestock sectors. However, any change in the existing import policy (duty level) for wheat may change the imports of wheat and consumption in southern India.

MY 2017/18 consumption is revised lower to 92.3 MMT on reports of decline in consumption in the southern states due to relatively higher wheat prices compared to last year. After a record growth of nearly 10 percent in MY 2016/17, FSI consumption in MY 2017/18 has slowed down due to weakening of demand in the non-traditional wheat consuming southern states. Industry sources report that MY 2016/17 consumption was largely fueled by high offtake in the coastal southern region where imported wheat (zero import duty) was more economical than the local wheat from north/central India due to low international prices and freight costs compared to inland transport cost from the growing regions. The GOI's decision to impose 10 percent import duty in March 2017, which was further raised to 20 percent in November 2017, forced the millers to revert back to sourcing local wheat at higher cost (higher MSP and inland transport cost due to higher international fuel prices) compared to the foreign wheat they had used in MY 2016/17. Market sources report that southern-based millers have cut back wheat off take significantly due to higher raw material cost compared to last year as the consumers in these non-wheat states are more price responsive than the traditional states. Relatively weak off take of government wheat stocks, the major supplier of local wheat to non-wheat growing states in normal years, in the ongoing marketing season reflects weak demand for wheat in these regions. Consequently, MY 2017/18 FSI consumption is estimated lower at 92.3 MMT, marginally lower than last year's record consumption.

Wheat as a staple food is consumed at the household level in the form of homemade *chapattis* or *rotis* (unleavened flat bread) using custom milled *atta* (whole wheat flour). Some wheat is also used for various wheat-based processed products like raised breads, "biscuits" (cookies) and other bakery items. Typically, about 55-60 percent of the wheat is marketed, and the balance is used by the farmer for personal food, feed and seed use. About half of the marketed wheat is procured by the government under the MSP procurement program for distribution through PDS, supply to various other food programs, and in smaller quantities for open market sale to private millers to contain domestic prices. The balance is procured from the farmers directly by the private sector for milling, processing and other uses.

Most of the marketed wheat is procured whole wheat and distributed through the open market and public distribution system (PDS) to be either custom milled by the household for home use or milled for processors and institutional buyers. Most of the wheat retained by farmers (about 40-45 percent) is also custom-milled, mostly in the *chakkies* (small flour mills) for home consumption, and small quantities (20-25 percent) are milled for feed use (mainly for milking/lactating cows and buffaloes). Most of the

organized millers produce wheat flour and *atta* for the hotels, restaurants, and institutional (HRI) sector, and a small share is distributed for consumers in branded packs. Market sources report that the market for packaged and branded flour is growing at about 10 percent per annum on growing demand from urban consumers due to the convenience factor. There is a small but growing market for high quality wheat (3-4 MMT) for the baking and confectionary food market which has been growing at a healthy 10-12 percent per annum over the last few years.

Most commercial feed caters to poultry and aquaculture farms, which largely uses corn, oilseed meals, and other coarse grains, including small quantities of spoiled/inferior quality wheat. In the highly disorganized dairy sector (mostly backyard dairy with 2-3 animals), there is very limited use of wheat by the organized feed sector. Most of the feed use in the dairy sector is restricted to lactating animals, and includes some oil cakes, household food waste, and other grain mixes. However, the recent trend of replacing local low-yielding dairy animals by higher yielding cross-bred cows and '*murrah*' breed buffaloes has increased the demand for commercial dairy feed by about 15 percent per annum; this change drives higher wheat usage in dairy feed sector. Typically, the spoiled and inferior quality wheat not deemed fit for human consumption, both government-held and open market, is used for animal feed. Market sources believe that the relatively tight government-held wheat stocks in recent years have limited the diversion of government-held wheat to animal feed.

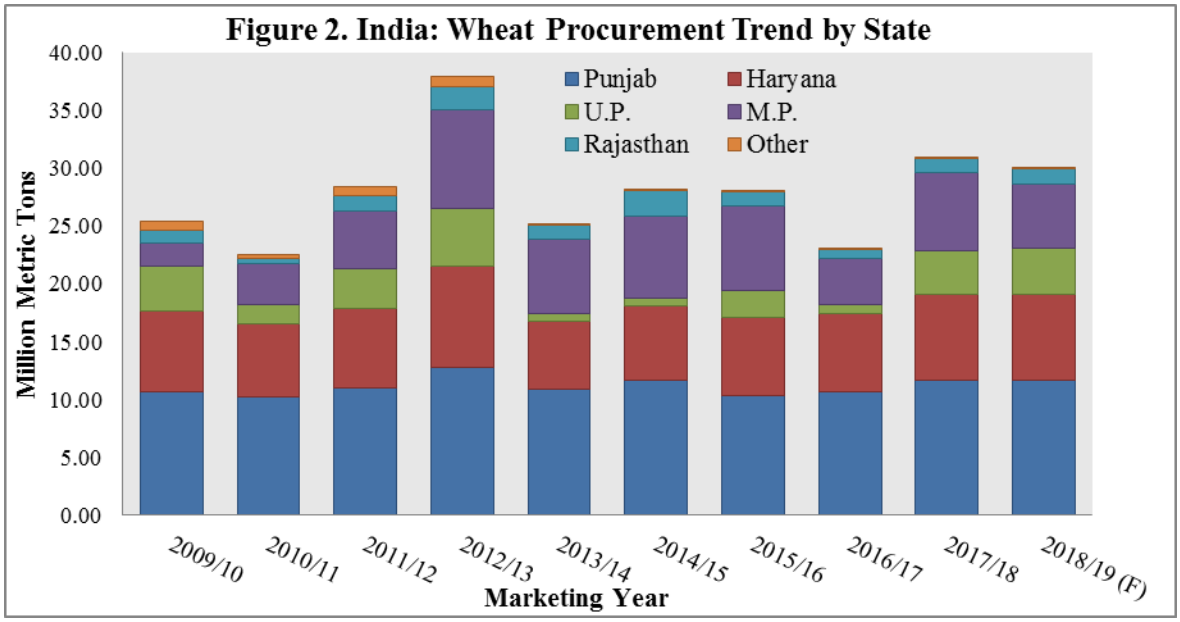
The organized milling sector is relatively small at about 1200-1300 medium to large flour mills with aggregate milling capacity of about 25 MMT. These businesses mill mostly *maida* (flour) and semolina to cater to HRI sector demand, and they produce bran flakes for the mixed feed industry. Market sources report that most mills are operating at 40-60 percent of their capacity and process about 14-15 MMT of wheat per annum.

Procurement and Offtake for Government Programs

Record domestic production and relatively strong government MSP compared to open market prices boosted MY2017/18 government wheat procurement to an estimated 30.8 MMT, more than 34 percent higher than the previous year, but lower than the initial target of 33 MMT. The government has set up a procurement target of 32 MMT for MY 2018/19 on expected 'sufficient' upcoming harvest. Given the significant increase in the MSP and relatively weak domestic prices in the major producing states, wheat procurement is likely to cross 30 MMT, nearly the same as last year despite relatively tight domestic supplies compared to last year. Most of the wheat to the government program is likely to come from the surplus states of Punjab, Haryana, and Uttar Pradesh where the crop is progressing well, and slightly lower quantities compared to last year are likely to come from the states of Madhya Pradesh and Rajasthan due to expected lower crop.

Despite the imposition of the new GST regime, most of wheat marketed in Punjab and Haryana is likely to be procured by the government because they impose additional local taxes/cess compared to other states, which precludes market purchase by private trade in these states. After coming to power in 2017, the BJP government in the leading wheat producing state of Uttar Pradesh has focused on expanding the government MSP procurement operation which will continue for the upcoming harvest season. The Madhya Pradesh government announcement to pay an additional bonus of INR 2000 per MT over and above the MSP to their farmers should also support government procurement in the state despite the lower crop.

With imports blunted by 20 percent duty, private domestic trade is likely to compete with the government procurement program in the states that offer higher open market prices, such as Madhya Pradesh, Rajasthan, and Uttar Pradesh. Consequently, MY 2018/19 government procurement is forecast lower at 30 MMT compared to the government target.



Source: Food Corporation of India, GOI, and FAS/New Delhi forecast for MY 2018/19

Table 2. India: Government Wheat Procurement and PDS Operation

Marketing Year	Production	GOI Procurement[1]	MSP	GOI Total Cost	Offtake from GOI Stocks	PDS Issue Price		
(Apr–Mar)	(Million Tons)	(Million Tons)	INR per ton	INR Per ton	(Million Tons)	INR per ton		
						APL	BPL	AAY/NFSA
2009/10	80.68	25.38 (31.5)	10,800	14,246	22.38	6,100	4,150	2,000
2010/11	80.80	22.51 (27.8)	11,000	14,944	23.07	6,100	4,150	2,000
2011/12	86.87	28.34 (32.6)	11,700	15,953	24.27	6,100	4,150	2,000

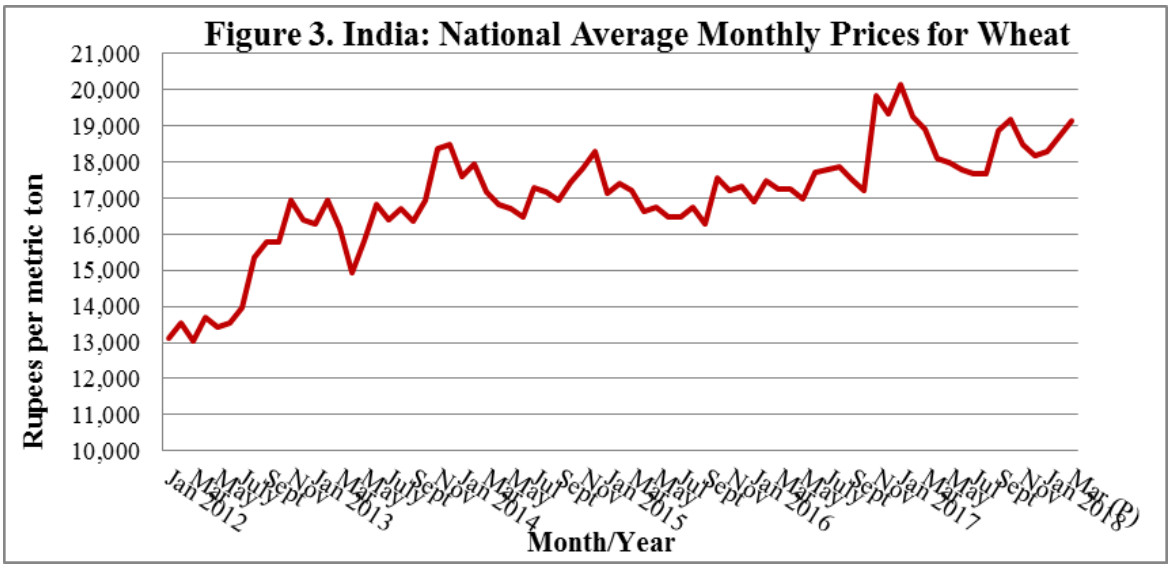
2012/13	94.88	37.92(40.0)	12,850	17,526	33.24	6,100	4,150	2,000
2013/14	93.51	25.09(26.8)	13,500	19,083	30.61	6,100	4,150	2,000
2014/15	95.85	28.02(29.2)	14,000	20,512	27.16	6,100	4,150	2,000
2015/16	86.53	28.09(32.5)	14,500	21,274	31.57	6,100	4,150	2,000
2016/17	87.00	22.96(26.4)	15,250	21,970	29.25	6,100	4,150	2,000
2017/18	98.38	30.83(31.3)	16,250	23,963	25.20	6,100	4,150	2,000
2018/19[2]	94.00	30.00(32.1)	17,350	24,456[3]	na	6,100	4,150	2,000

Sources: Ministry of Agriculture, Food Corporation of India.
Notes: Exchange rate INR 64.8 = US$ 1 on March 9, 2018
[1] Figure in parentheses is GOI procurement as percentage of total production
[2] FAS/New Delhi estimate
[3] Economic Cost includes cost of procurement (MSP), handling, storage, transport, interest, etc.
PDS - Public Distribution System
APL - Above Poverty Line
BPL - Below Poverty Line
AAY -*Antyodaya Anna Yojana* (Poorest of the Poor)
NFSA-National Food Security Act

Over the last decade, the cost of wheat under the MSP program has nearly doubled due to the continued increase in MSP and high overheads of the government procurement, storage and management system. On the other hand, the government has kept the wheat sales price under various food security programs unchanged since 2002. The National Food Security Act (NFSA) 2013 creates an entitlement for eligible beneficiaries (50% and 75% of the urban and rural populations accounting for about 2/3rd of the population) to receive 5 kilograms of rice, wheat, or coarse grain (millet) at subsidized prices of INR 3, 2 and 1 per kilogram, respectively. With most states gradually expanding the effective implementing of the NFSA, increasing quantities of wheat are now being distributed through the public distribution system (PDS) at the 'lowest' price slab of INR 2000/MT. The government distributes about 24-25MMT of wheat under the NFSA and other food security programs annually, and also sells wheat under the OMSS to the private trade to contain domestic prices. Recent official data suggests very low offtake of wheat under the OMSS in MY 2017/18, estimated to barely touch sales of 1 MMT compared to an estimated 4.7 MMT in MY 2016/17. Market sources attribute low open market sale of government wheat due to sufficient open market supplies at prices below the government offer prices (MSP plus inland transport cost).

Prices:

Riding on a record harvest, domestic wheat prices declined significantly from the beginning of MY 2017/18 and remained steady through the marketing season (April-August). Subsequently, domestic prices have followed the normal post-harvest price cycle but are running at much lower levels compared to last year.



Source: Agmarket News, Ministry of Agriculture, GOI.

Domestic prices have ruled steady since November despite the increase in import duty from 10 percent to 20 percent. Spot prices in February 2018 ranged between INR 15,950 ($246) to INR 16,400 ($253) per MT in major producing states, lower than the MSP of INR 17,350 (4268) per MT for the upcoming MY 2018/19 season. Despite forecasts for a sufficient domestic harvest, the GOI's MSP is likely to push new crop prices upward for the upcoming marketing year (April-July) as the private trade seeks to cover their consumption requirements. Prices after the procurement season (April-July) will also be influenced by the international price movement and government policies (import duties and domestic wheat offtake under OMSS).

Table 3. India: Commodity, Wheat, Prices Table

Prices In	Rupees	per uom	metric tons	
Year	2015	2016	2017	%Change
Jan	17,153	16,914	20,149	19.1
Feb	17,397	17,472	19,247	10.2
Mar	17,204	17,242	18,922	9.7

Apr	16,646	17,257	18,092	4.8
May	16,734	16,979	17,980	5.9
Jun	16,485	17,725	17,790	0.4
Jul	16,495	17,804	17,663	-0.8
Aug	16,739	17,863	17,684	-1.0
Sep	16,272	17,513	18,886	7.8
Oct	17,562	17,214	19,188	11.5
Nov	17,217	19,849	18,479	-6.9
Dec	17,316	19,316	18,171	-5.9
Exchange Rate	64.8	Local Currency/US$		
Date of Quote	03/09/2018	MM/DD/YYYY		

National Average Monthly Wholesale Price of Wheat
Source: Agmarket News, Ministry of Agriculture, GOI.

Trade:

India turned into a net importer of wheat in MY 2016/17 and continued importing through MY 2017/18 despite the increases in the import duty. Assuming no significant changes in the international prices and import policy (20 percent import duty and no SPS barrier on fumigation), India's MY 2018/19 imports are forecast at 1.5 MMT, mostly quality wheat by south India millers on expected domestic shortages. At the current duty level, southern India millers may find it economical to import regular wheat vis-à-vis local wheat on expected higher domestic wheat prices after the local wheat marketing season is over in August 2018. Reports of lower planting and production of 'quality' wheat from central and western Indian states may lead to local millers augmenting their requirement for blending purposes through imports. Assuming no significant change in the price parity of Indian wheat compared to international wheat, MY 2018/19 wheat and wheat product exports are forecast lower at 400,000 MT, mostly limited to wheat exports to neighboring Nepal and Bangladesh through land routes, plus some wheat products (flour) to traditional African and middle east markets. Unfavorable late season weather conditions and consequent decline in the upcoming harvest may improve import prospects, while any further increase in import duty may push the forecast for imports lower.

After strong imports in MY 2016/17, MY 2017/18 import prospects were adversely affected by the government's decision to raise the import duty from zero to 10 percent in March 2017, and further to 20 percent in November 2017. Provisional official figures for MY 2017/18 estimate wheat imports during April through December, 2017, at 1.55 MMT (vs 1.9 MMT same time last year), mostly from Ukraine, Australia, and Russia. Market sources report imports of wheat have tapered off from December 2017 onwards after the import duty was raised to 20 percent. Consequently, MY 2017/18 wheat and wheat product imports are likely to reach 2.0 MMT assuming no significant changes in the price parity and import policy in the next two months.

Based on the provisional official figures through November 2017 from the Global Trade Atlas, MY 2017/18 wheat and wheat product exports are estimated at 500,000 MT.

Table 4. India: Commodity, Wheat[1], Import Trade Matrix

Time Period	April-March	**Units**	Tons

Imports for	MY 2016/17		MY 2017/18[2]
U.S.	0	U.S.	0
Others		**Others**	
Ukraine	2,904,019	Ukraine	679,523
Australia	2,202,877	Australia	514,689
Bulgaria	291,924	Russia	353,476
Russia	153,102		
France	107,910		
Total for Others	**5,659,832**	**Total for Others**	**1,547,688**
Others not Listed	89,581	Others not Listed	7,424
Grand Total	**5,749,413**	**Grand Total**	**1,555,112**

Source: Global Trade Atlas and DGCIS, GOI

[1] Does not include wheat product

[2] Provisional data for the period April through December 2017

Table 5. India: Commodity, Wheat[1], Export Trade Matrix

Time Period	April-March	**Units**	Tons
Exports for	MY 2016/17		MY 2017/18[2]
U.S.	0	U.S.	0
Others		**Others**	
Nepal	190,819	Nepal	157,741
UAE	37,270	Bangladesh	6,213
Indonesia	23,890	U.A.E.	6,181
Total for Others	**251,979**	**Total for Others**	**170,135**
Others not Listed	13,930	Others not Listed	16,305
Grand Total	**265,909**	**Grand Total**	**186,440**

Source: Global Trade Atlas and DGCIS, GOI

[1] Does not include wheat product;

[2] Provisional data for the period April through December 2017

Tariffs

Currently, India imposes an import tariff of 20 percent on wheat (HS1001). Due to the record production and relatively weak domestic prices in MY 2017/18, the GOI raised the import duty on wheat from zero to 10 percent in March 2017; and further to 20 percent in November 2017 to contain imports and support domestic wheat prices. There have been no changes in the applicable tariff on other wheat products in the recent past.

Besides the basic custom duty, wheat products incur an additional GST duty of 12 percent equivalent to the local sales tax (countervailing duty). The government in the recent 2018/19 budget replaced the Education Cess (2%) and Secondary and Higher Education Cess (1%) with a Social Welfare Surcharge

of 10 percent of basic custom duty on imported goods, including wheat and wheat products effective March 1, 2018 (see IN8014). See attached the applicable import tariff table for wheat and wheat products.

Table 6: Import Tariffs on Wheat and Wheat Products

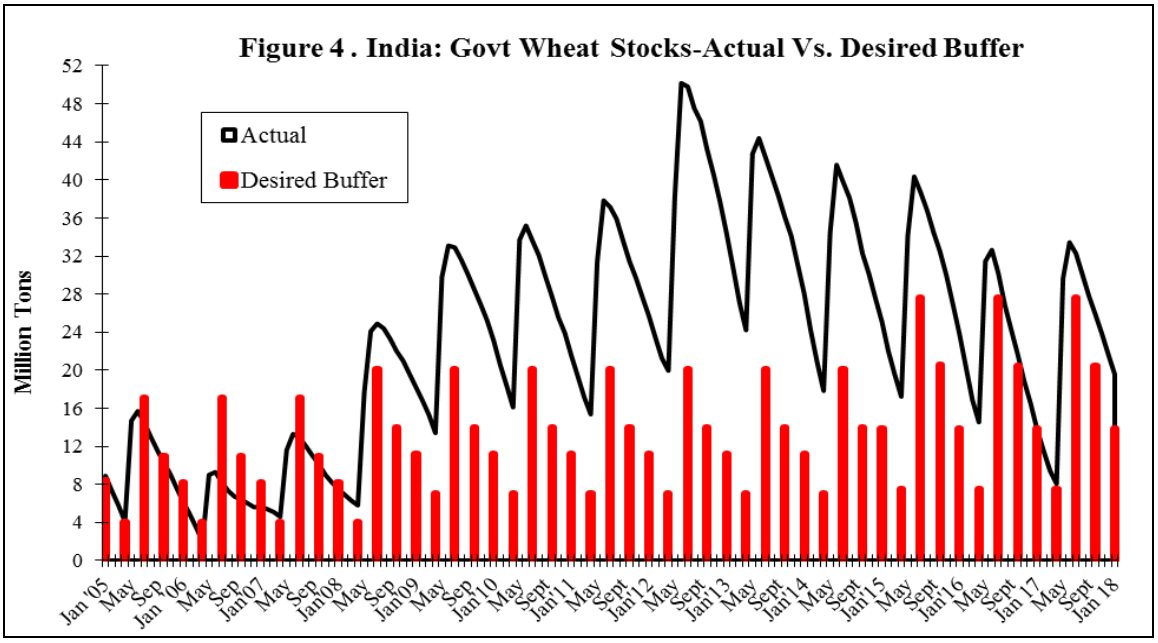
HS Code	Description	Basic Duty (BD) on Assessable value	Social Welfare Surcharge (SWS) on AV+BD	Integrated GST (IGST) on AV+BD+IGST	Total Effective Duty (BD+SWS+IGST)
1001	Wheat and Muslin	20 percent	10 Percent	Nil	22 percent
1101	Wheat and Muslin Flour	30 percent	10 percent	Nil	33 percent
190219	Uncooked pasta, not stuffed or otherwise prepared not containing eggs	30 percent	10 percent	12 percent	49.68 percent
190230	Other Pasta	30 percent	10 percent	12 percent	49.68 percent
190240	Couscous	30 percent	10 percent	12 percent	49.68 percent

Exchange rate on Feb 15, 2018 1US$= INR 63.00

There are no restrictions including export tariffs or taxes on wheat and wheat products after the export ban on wheat was removed on September 9, 2011.

Stocks:

Assuming normal off take of wheat in the last two months (Feb-Mar 2018), MY 2017/18 wheat ending stocks estimate is revised higher to 12.5 MMT based on the latest official wheat stock estimates. MY 2018/19 ending stocks are forecast to decline to 9.6 MMT on expected higher offtake of government wheat through the PDS, other food security programs, and open market sales. With forecast of improved government wheat stocks in MY 2018/19 (higher opening stocks and forecast 30 MMT procurement), the government is likely to supply more wheat in the upcoming marketing year through various food security programs and open market sales to contain any potential domestic price escalation due to the upcoming national elections in 2019.



Source: Food Corporation of India, GOI

The government wheat stocks on February 1, 2018, are officially reported at 17.5 MMT compared to 11.5 MMT for the same period last year. Sources report that the government offtake in the next few months will continue to be limited for food security programs as open market prices for wheat continue to remain weak and well below the government offer prices. Assuming normal monthly offtake for the food security programs in the last two months, MY 2017/18 government wheat ending stocks are estimated at 12.5 MMT compared to 8.1 MMT last year, and significantly higher than the government's desired minimum buffer stock norms of 7.5 MMT. Market sources report no imported wheat stocks by importers/traders except for the pipeline stocks with millers, which is unlike last year when importers/traders held about 1.7 MMT wheat stocks by the end of MY 2016/17.

Estimates of privately-held wheat stocks are not available, but are expected not to be beyond the pipeline stocks due to provisions in the Essential Commodities Act. The PS&D table does not include privately held stocks.

Policy:

Research & Development:

The agriculture sector is a high priority for the GOI and various state governments allocating significant funding to support research, development, and extension activities for new varieties and improved production technologies (e.g., pest management). Although the crop wise allocation is not available, rice and wheat account for the majority of spending as they have been the focus crops for food security. The National Agriculture Research System under the aegis of the GOI's Indian Council of Agricultural Research conducts wheat research and development at the national level, which is complemented by the SAUs, regional research institutions, and agricultural extension agencies at the regional and state levels. The central and state governments also support farmers by subsidizing inputs (fertilizer, seed, power,

irrigation and chemicals), and by including agricultural credit at affordable prices for various crops such as wheat. The GOI and state governments also support development and extension activities for transfer of new varieties and improved production technologies (seed, implements, pest management) to farmers.

Price Support:

The GOI's market intervention programs - MSP for select agricultural crops, and procurement of food grain for distribution through the food security programs - have the twin objectives of ensuring remunerative prices to the farmers and food security at affordable prices to the Indian population. The GOI establishes a minimum support price (MSP) for wheat on the basis of recommendations by the Commission for Agricultural Costs and Prices (CACP). On February 1, 2018, the Finance Minister presenting the GOI's 2018/19 Budget announced that the government target MSP will be at least 1.5 times the cost of production. It was later clarified that the cost of production will be taken as Cost A2 (Cost of all inputs) plus imputed cost of family labor (FL). The CACP report for the Indian *rabi* (winter planted) crop year 2017/18 (July-June) estimates the MSP for MY 2018/19 is already more than double the Cost A2+FL.

Some states also provide additional bonus to their farmers over and above the MSP out of their own exchequers. Despite the central government's earlier directive of 2014 against offering additional state bonuses, the state of Madhya Pradesh declared an additional bonus of INR 2000 per MT to their farmers under the MSP program in MY 2017/18 and further extended it for the upcoming MY 2018/19 also. Government parastatals like the Food Corporation of India (FCI) and various state marketing agencies bear the mandate to procure wheat at the MSP for central government stocks. Subsequently, the government allocates wheat for distribution through the public distribution system and welfare schemes at a subsidized price. In years of sufficient procurement and stocks, the government also sells wheat in the open market to the private trade to stabilize open market prices.

Trade Policy:

India's phytosanitary requirement (i.e., a wheat sample drawn from a single consignment should not contain more than 100 quarantine seeds (31 quarantine seeds have been specified) per 200 kg) and other SPS issues have effectively barred U.S. wheat shipments to India.

Marketing:

India is likely to continue to import wheat on relatively lower international prices and tight domestic supplies, and rising domestic demand. There is also a growing demand for high-protein wheat for the growing bakery/confectionary industry and western style fast food sector. The rapidly growing fast food industry and modernizing bakery/confectionary industry generate demand for specialty flours (used in pizzas and burger buns) that require different wheat classes that are not produced in India. The steady decline in acreage under local durum and 'high protein/hard' wheat varieties (*Sharbati* and *Lok-1)* mostly grown in central India, is likely to create a steady import market for 'high protein' hard wheat for blending to produce specialty flour. However, U.S. wheat continues to be denied market access to India despite numerous discussions at the technical levels in the past.

Commodities:

Rice, Milled

Table 7. India: Commodity, Rice, Milled, PSD
(Area in thousand hectares and quantity in thousand metric tons, Yield in MT/Hectare)

Rice, Milled	2016/2017		2017/2018		2018/2019	
Market Begin Year	Oct 2016		Oct 2017		Oct 2018	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	43097	43993	43700	42900	0	43500
Beginning Stocks	18400	18400	20550	20550	0	20000
Milled Production	109700	109698	110000	110000	0	109000
Rough Production	164566	164563	165017	165017	0	163516
Milling Rate (.9999)	6666	6666	6666	6666	0	6666
MY Imports	0	0	0	0	0	0
TY Imports	0	0	0	0	0	0
TY Imp. from U.S.	0	0	0	0	0	0
Total Supply	128100	128098	130550	130550	0	129000
MY Exports	11220	11772	13000	13000	0	12000
TY Exports	12300	12560	13000	13000	0	12000
Consumption and Residual	96330	95776	97550	97550	0	99000
Ending Stocks	20550	20550	20000	20000	0	18000
Total Distribution	128100	128098	130550	130550	0	129000
Yield (Rough)	3.8185	3.7407	3.7761	3.8466	0	3.759

Production:

MY 2018/19 Outlook:

Assuming normal weather conditions and 2018 monsoon in the country, MY 2018/19 rice production is forecast at 109 MMT from 43.5 MHa and trend yield (3.76 MHa). Despite a below-normal second half of the 2017 monsoon, rice growers realized good returns on sufficient water at the time of planting and critical crop growth stages and relatively firm domestic prices. The government budget announcement on the new MSP pricing formula (1.5 times the cost of production) for the upcoming Indian crop year 2018/19 (July-June) *kharif* season raises the hope of 15-20 percent increase in the MSP for rice over last year, which should further support planting intentions for rice in the upcoming marketing year. However, a timely and well distributed 2018 monsoon performance will be critical for realization of the forecast planted area and productivity. An erratic and weak monsoon across the major growing regions and critical crop growth stages (July-September) can potentially bring down planting by 1-2 MHa and

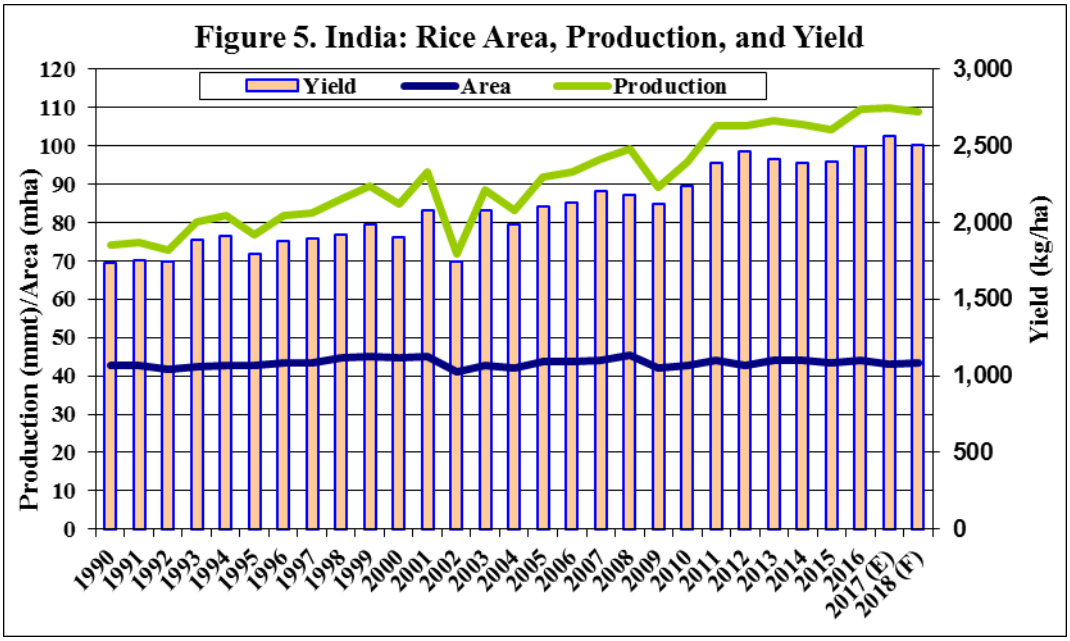
production by 5-8 MMT from the forecast level, while adequate and well distributed rains can raise forecast production by 2-3 MMT.

Record MY 2017/18 Production on Improved Rabi Rice Prospects:

Based on expected higher-than-estimated *kharif* rice yields and *rabi* (including summer) rice planting, Post's MY 2017/18 rice production estimate is raised higher to a record 110 MMT (95.5 MMT *kharif* rice and 14.5 MMT *rabi* rice), marginally higher than the revised MY 2016/17 production of 109.7 MMT (previous record). Despite the 2017 monsoon being 'near-normal', a relatively weak monsoon during August/September, especially in the western and central regions, affected *kharif* (fall planted) rice planting. However, a good northeast monsoon (October-December) in the southern states improved the planting and production prospects for both *kharif* and *rabi* rice in south India. The latest official *rabi* crop condition report shows higher planting of *rabi* rice compared to last year's 'drought'-affected planting in southern India. Sufficient reservoir water availability in southern India is also likely to support good summer rice planting. Provisional yield estimates for *kharif* rice in the irrigated north India and eastern India suggest higher yield realization than earlier expected. Consequently, Post estimates MY 2017/18 rice production at a record 110 MMT, slightly below the government 'optimistic record' forecast production of 111 MMT. Although the planting of *rabi* rice is ahead of last year as per crop condition report of February 2018, a forecast for higher summer temperatures may affect may affect *rabi* rice prospects. Industry sources are currently estimating the MY 2017/18 crop in the range of 105 MMT to 108 MMT.

Based on the final official estimate for the ICY 2016/17, MY 2016/17 rice production has been marginally lowered to 109.7 MMT from 43.99 million hectares on lower than earlier estimated yields in southern states.

Accounting for about 40 percent of the country's food grain production, rice is the most important food crop cultivated across the country and throughout the year. Although about 60 percent of the area is irrigated, rice is predominantly a rainfed *kharif* season crop as it requires high quantity of water for transplanting and during major vegetative growth stages. Planting of the *kharif* season crop closely rides on the onset and progress of the south-west monsoon rains during June/July, and crop growth is highly dependent on rains through August-September. There is a small *rabi* crop, mostly irrigated, planted in the eastern and southern states of West Bengal, Odisha, Andhra Pradesh, Telangana and Tamil Nadu.



Source: Ministry of Agriculture, GOI; and FAS/New Delhi (MY 2017/18 and 2018/19).

India's rice acreages have plateaued around 43-44 million hectares, but production in recent years has shown a steady upward trend on improving yields due to the introduction of improved varieties and agronomic practices. The government's program to "Bring the Green Revolution to Eastern India (BGREI)" by promoting the Green Revolution and other improved technologies to the eastern region of the country launched in 2010 has realized significant productivity gains in the states of Bihar, Chhattisgarh, Jharkhand, eastern Uttar Pradesh, West Bengal, and Odisha. Nevertheless, overall rice yields are still well below the world average with wide variations in rice productivity among the various producing states in the country depending on the irrigation water availability and adoption of technology. Researcher and policy makers believe there is further scope for increasing rice productivity in the country by expanding irrigation facilities and adopting technology. However, most rice growing states continue to depend on southwest and northeast monsoons for soil moisture and irrigation water availability critical for planting and production prospects.

Many agriculture experts are increasingly concerned about the sustainability of the current rice production system and its ability to sustain growing food demand for future. Surplus rice growing states like Punjab, Haryana, Uttar Pradesh, Andhra Pradesh, West Bengal, Orissa and other states follow intensive rice-wheat or rice-rice cropping systems, and are facing severe environmental issues, including deteriorating soil health, declining water tables, and emergence of new resistant disease/pests. Several state governments, with support from the central government, have been actively promoting crop diversification from rice to lower water intensive crops like corn, pulses and other horticultural crops. Meanwhile, the government continues to focus on rice and wheat procurement at MSP for the government's food security programs, which helps stabilize market prices compared to alternative crops. Consequently, a significant shift away from rice planting is not imminent in the near future due to lack of more profitable and/or low-risk crop alternatives.

Global warming and climate change issues like glacier melting, aberration in monsoon rains, and rise in sea water levels may also affect the future of rice cultivation in India. Glacier melting may affect the

irrigation water supply through perennial rivers originating in the Himalayas. Experts also attribute recent monsoon aberrations like intermittent short heavy rain spells to climate change, which may affect rice cultivation in the country. A significant share of the rice crop is produced in the coastal regions that are susceptible to the 'potential' rise in the sea levels due to global warming.

Basmati (long grain) Rice:

India's long-grain *Basmati* rice is grown in Punjab, Haryana, western Uttar Pradesh, Uttarakhand and Himachal Pradesh. The introduction of higher yielding *PUSA Basmati 1121* variety in 2003 and shorter duration semi-dwarf *PUSA Basmati 1509* variety in 2013 has supported strong growth in Basmati rice production in the last two decades. The new variety is being increasingly adopted by farmers due to shorter growth cycle, lower irrigation requirements, and higher yields compared to other traditional varieties. *Basmati* rice production in MY 2017/18 has recovered to 9.0 MMT (1.9 million hectares) compared to 8.0 MMT (1.7 million hectares) in the previous year due to higher *Basmati* prices in MY 2016/17. Although the market prices of basmati rice in MY 2017/18 have been relatively flat, farmers' returns have been reasonably good compared to non-Basmati and other crops. Consequently, MY 2018/19 *Basmati* rice production is forecast higher at 9.5 MMT from 2.0 million hectares, assuming normal 2018 monsoon and weather conditions.

Hybrid Rice:

Most of the hybrid rice is cultivated in eastern India (eastern Uttar Pradesh, Bihar, Jharkhand, and Chhattisgarh) but has been gradually spreading in central India also. There are over 50-60 hybrids developed by both private seed companies and public research organizations, but only 25-30 hybrids are popular among farmers, mostly from the private sector. Several state governments offer seed subsidies and other support to encourage adoption of hybrids under various programs. However, the growth of area under hybrid rice cultivation is severely hampered by: (i) the inability to cater to different consumer quality preferences; (ii) low incremental yield realization; and (iii) poor milling quality over traditional varieties. Although there are no reliable official or industry statistics available, market sources report that area planted with hybrid rice in the last few years has ranged from 1.8 to 2.0 million hectare. Nevertheless, several private seed companies and public sector institutions are developing improved hybrid rice varieties focusing on higher yields and addressing the quality concerns.

Biotechnology:

Efforts are underway, mostly by the private sector, to develop transgenic rice varieties to incorporate resistance to various pests, diseases, and abiotic stresses. However, approvals and commercialization of transgenic rice are still years away. Nevertheless, several private seed companies and most public sector rice research organizations are working on marker assisted breeding of rice for resistance to biotic and abiotic stresses and incorporating quality traits.

Consumption:

Rice is the key staple food for the majority of Indians (more than 70 percent) across the country. Although there are no reliable data or long term consumption studies, sources report per capita

consumption of rice has been stagnant or marginally declining in recent years. With the growing economy and rising income levels, consumers are increasingly substituting rice for higher protein/nutrition foods like pulses, meat, dairy, fruits and vegetables. MY 2018/19 consumption is forecast at 99 MMT, about 1.4 percent higher than the previous year on forecast sufficient domestic supplies and growing population. Rice consumption in MY 2017/18 is estimated at 97.6 MMT on higher supplies of government rice under the National Food Security Act and other food security programs (see table 8). Post's MY 2016/17 consumption estimate is revised marginally lower to 95.8 MMT to account for revised final production estimate.

Due to the varied consumer preferences, more than 4,000 varieties of rice are produced and marketed throughout the country. Most of the 'coarse grain' rice is procured by the government and a smaller quantity by traders for exports. The locally preferred rice varieties are procured by the private millers for marketing to the consumers, mostly unbranded/packaged and a small but growing segment of branded/packaged rice. The long grain *Basmati rice* and other specialty rice from various regions are procured by millers for exports or sale as branded/packaged rice in the local markets. About 40-50 percent share of the production is retained by the farmers for their own consumption (locally milled) and seed use.

The livestock feed industry uses de-oiled rice bran and a small quantity of broken rice as fillers in the commercial feed. A small quantity of broken/damaged rice is used for alcohol production, mostly for the potable liquor industry, while the by-product DDGS is sold to the feed industry. However, there are no official or reliable industry estimates available for rice for feed consumption or industrial use.

Procurement and Offtake for Government Programs:

Rice is the other important food grain besides wheat for the government's food security programs. The government procures rice in various states either by directly buying un-milled rice from farmers through various agencies and getting it custom milled or by imposing levies on private mills in the state.

Most rice under the government procurement program came through a mandatory levy on local millers until the late 90s. Under that program, with some variation among the states, local rice millers were required to sell to the government a fixed portion of their milled rice at pre-established rates, called the "levy price," which was linked to the MSP of paddy rice plus milling costs. With the government's raising the MSP significantly in recent years, the government has been largely procuring paddy rice bought at the support price, which is subsequently custom-milled for the government by private millers at the government expense for storage and distribution through the PDS.

Table 8. India: Government Procurement of Rice by State

(Figures in MMT)

State	MY 2015/16	MY 2016/17	MY 2016/17	MY 2017/18
	October-September	October-September	Oct 1 through Mar 1	
Punjab	9.35	11.05	11.05	11.83
Andhra Pradesh	4.34	3.72	2.37	2.55
Telangana	1.58	3.60	1.10	1.22
Chhattisgarh	3.44	4.02	4.02	3.21
Odisha	3.37	3.63	1.88	2.24
Haryana	2.86	3.58	3.57	3.97
Uttar Pradesh	2.91	2.35	2.06	2.86
West Bengal	1.57	1.92	0.55	0.02
Madhya Pradesh	0.85	1.31	1.30	1.10
Tamil Nadu	1.19	1.19	0.09	0.21
Others	2.76	1.72	1.66	0.92
Total	34.22	38.11	29.65	30.12

Source: Food Corporation of India, GOI.

Riding on back-to-back record and near-record domestic harvests, the government rice procurement under the MSP program has been very strong in the last two years. Official sources estimate rice procurement through March 1, 2018, at 30.1 MMT compared to 29.7 MMT by the same time last year. With report of an expected good *rabi* rice harvest, MY 2017/18 procurement is likely to reach 38.5 MMT compared to 38.1 MMT last year.

Table 9. India: Government's Rice Procurement and PDS Operation

Marketing Year	Production	GOI Procurement[1]	MSP for Paddy (Unmilled Rice Common variety)	GOI Economic Cost	Offtake from GOI Stocks in Indian Fiscal Year (Apr/Mar)	PDS Issue Price		
(Oct-Sept)	(Million Tons)	(Million Tons)	INR per ton	INR Per ton	(Million Tons)	INR per ton		
						APL	BPL	AAY/NFSA
2009/10	89.09	32.03 (36.0)	10,000	18,201	27.64	7,950	4,150	3,000
2010/11	95.98	34.20 (35.6)	10,000	19,831	29.96	7,950	4,150	3,000
2011/12	105.30	35.04 (33.3)	10,800	21,229	32.05	7,950	4,150	3,000
2012/13	105.24	34.04 (32.3)	12,500	23,049	32.64	7,950	4,150	3,000
2013/14	106.60	31.85 (29.9)	13,100	26,155	29.20	7,950	4,150	3,000
2014/15	105.48	32.17(30.5)	13,600	29,436	35.57	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[2]	109.70	38.11(34.7)	14,700	31,050	33.71	7,950	4,150	3,000
2017/18[2]	110.00	38.5 (35.0)	15,500	32,970	34.40	7,950	4,150	3,000
2018/19[2]	109.00	na	na	33,103[3]	na	7,950	4,150	3,000

Sources: Ministry of Agriculture, Food Corporation of India.

Notes: Exchange rate INR 64.8 = US$ 1 on March 9, 2018

[1] Figure in parentheses is GOI procurement as percentage of total production

[2] FAS/New Delhi estimate

[3] Economic cost includes cost of procurement (MSP), handling, storage, transport, interest, etc.

PDS - Public Distribution System

APL - Above Poverty Line

BPL - Below Poverty Line

AAY -*Antyodaya Anna Yojana* (Poorest of the Poor)

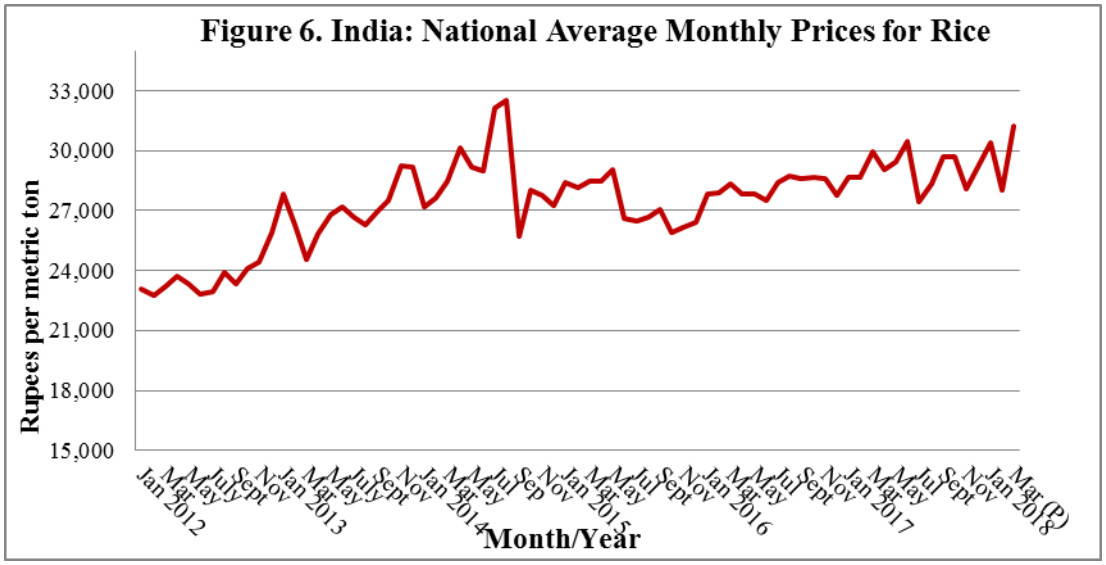
NFSA-National Food Security Act

Government offtake of rice during MY 2017/18 has also been strong compared to last year on sufficient supplies and higher offtake under the expanding NFSA and other food security programs. As in the case

of wheat, there has been no increase in the retail price of rice distributed through the PDS since July 1, 2002, while the MSP has more than doubled over the last decade.

Prices

Despite sufficient domestic supplies, domestic prices during the MY 2017/18 have fluctuated on strong export demand and speculation on the crop size. Market prices during the second half of the season are likely to remain steady but may respond to changes in international prices.



Source: Agmarket News, Ministry of Agriculture, GOI

Table 10. India: Commodity, Rice, Milled, Prices Table

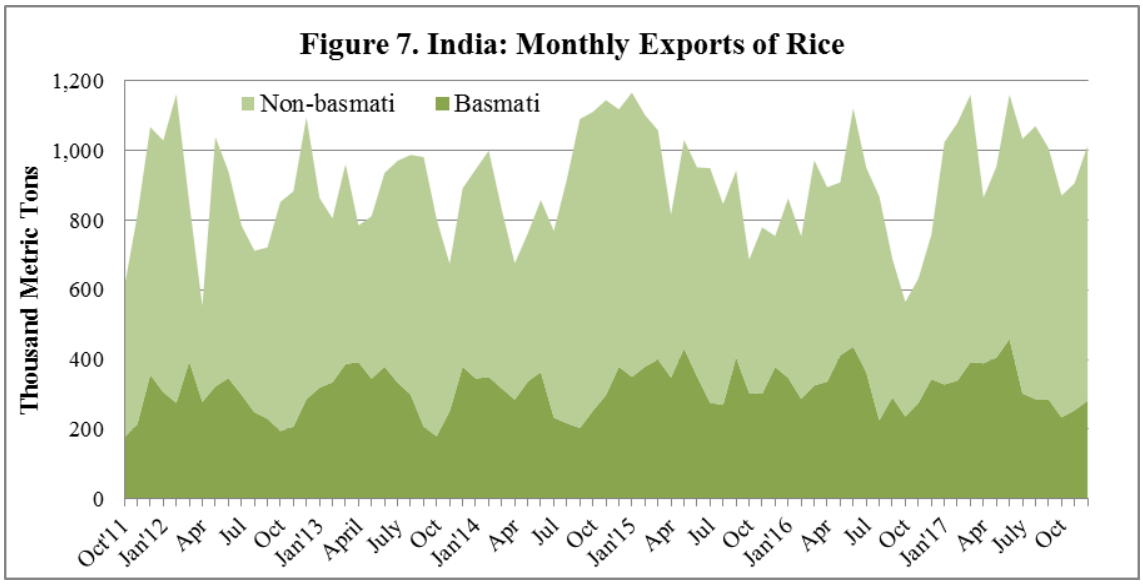
Prices In	**Rupees**	**per uom**	**metric tons**	
Year	2015	2016	2017	%Change
Jan	28,400	27,827	28,656	3.0
Feb	28,149	27,876	28,648	2.8
Mar	28,463	28,343	29,964	5.7
Apr	28,497	27,836	29,072	4.4
May	29,036	27,856	29,422	5.6
Jun	26,582	27,541	30,500	10.7
Jul	26,495	28,393	27,467	-3.3
Aug	26,673	28,761	28,370	-1.4
Sep	27,061	28,610	29,679	3.7
Oct	25,888	28,652	29,718	3.7
Nov	26,136	28,599	28,121	-1.7
Dec	26,451	27,765	29,213	5.2
Exchange Rate	64.8	Local Currency/US$		
Date of Quote	03/09/18	MM/DD/YYYY		

National Average Monthly Wholesale Price of Common Rice

Source: Agmarket News, Ministry of Agriculture, GOI.

Trade:

Since the removal of the export ban on coarse grain rice in 2011, India has emerged as the world's leading rice exporter with exports in MY 2017/18 expected to reach a new record (revised 13 MMT). Assuming current price parity for Indian rice vis-a-vis rice from competing origins, rice exports in MY 2018/19 are forecast at 12 MMT (8.0 MMT coarse rice and 4.0 MMT *Basmati* rice) on expected relatively tight exportable supplies. Additionally, an expected significant increase in the government MSP for the upcoming season may adversely affect the export competitiveness of Indian rice. However, price movements in the international market and value of the Indian Rupee vis-à-vis other currencies may affect the forecast exports. The Indian government is unlikely to impose any export restrictions on rice exports due to sufficient domestic supplies, particularly the government rice stocks.



Source: Monthly exports through December 2018 from Directorate General of Commercial Intelligence (DGCIS), GOI.

Rice exports have continued strong since the last quarter of CY 2017 on strong export demand from neighboring Bangladesh, Iran and African markets. Assuming no significant change in the export competitiveness of Indian rice and a stable value of the Indian rupee vis-a-vis the US Dollar, MY 2017/18 rice exports are estimated to reach a record 13 MMT (9 MMT of coarse rice and 4.0 MMT of *Basmati* rice) at the current pace of monthly exports. Basmati rice is mostly exported to Middle Eastern countries and Europe, while coarse rice is mostly exported to African and neighboring countries.

Preliminary CY 2017 export figures from official data indicate export sales totaling 12.55 MMT, with a significant increase in exports to Bangladesh and Iran. Other major export destinations were neighboring Nepal and Sri Lanka), other Middle Eastern countries (including Saudi Arabia, U.A.E., Iraq), and African countries (Senegal, Benin, Guinea, Cote D' Ivoire, and Somalia.)

Table 11. India: Commodity, Rice, Milled, Export Trade Matrix

Time Period	Jan-Dec	**Units**	Tons
Exports for	CY 2016		CY 2017
U.S.	147,610	U.S.	164,797
Others		**Others**	
Saudi Arabia	925228	Bangladesh	1,301,986
United Arab Emirates	916508	Iran	925,308
Iraq	691127	Senegal	906,749
Benin	688235	Saudi Arabia	851,060
Iran	663713	Benin	808,814
Nepal	596614	United Arab Emirates	665,578
Senegal	547699	Nepal	580,473
Guinea	515726	Sri Lanka DSR	557,279
Cote d Ivoire	353080	Iraq	551,970
Somalia	320179	Guinea	492,925
South Africa	287140	Cote D'Ivoire	479,335
Turkey	249524	Somalia	364,845
Total for Others	**6,754,773**	**Total for Others**	**8,486,322**
Others Not Listed	3,194,344	Others Not Listed	3,901,291
Grand Total	**10,096,727**	**Grand Total**	**12,552,410**

Source: Global Trade Atlas & DGCIS, GOI for December 2017

The GOI removed the import duty on rice in March 2008, and there are no other applicable taxes including social surcharge or IGST. However, imports of rice have been negligible in the recent past due to competitive local prices and consumer preference for local rice varieties.

Stocks:

MY 2018/19 ending stocks are forecast to decline to 18 MMT compared to MY 2017/18 revised ending stocks estimate of 20 MMT on expected continued strong demand and forecast relatively tight domestic supplies.

Based on the higher than expected current government stock levels – the result of strong procurement-- Post's MY 2017/18 rice ending stocks estimate has been raised to 20 MMT. The estimate for government-held rice stocks as of February 1, 2018, is 33.9 MMT compared to 29.3 MMT at the same

time last year. Assuming stronger offtake in the remaining marketing season due to sufficient government stocks, MY 2017/18 government rice ending stocks are estimated at 18 MMT, significantly higher than the GOI's desired buffer stocks of 10.3 MMT. There is no published information, official or otherwise, about privately held rice stocks. Despite sufficient domestic supplies, strong export demand is likely to draw down the privately held MY 2017/18 ending stocks to 2.0 MMT compared to 3 MMT at the same time last year. The rice PS&D table includes both government stocks and estimated privately held stocks.

Policy:

Production and Market Support:

The central and state governments follow the same production and market support policies for rice and wheat. Given the higher coverage of rice compared to wheat, both in terms of acreage and producing states, there are various rice-specific development schemes such as the Special Rice Development Program (SRDP) and Promotion of Hybrid Rice (price subsidies on seed). The central government also undertakes a price support, procurement, and distribution program for rice just as for wheat.

The GOI has banned futures trading in rice since September 2007 on price inflation concerns as policy makers believe that futures trading may lead to speculation.

Trade:

India existing trade policy imposes no export restrictions on rice. On September 9, 2011, the government lifted the export ban on non-Basmati rice, which had been in effect since September 2007 (with *ad hoc* humanitarian exports exempted from time to time). On July 4, 2012, the government removed the minimum export price (MEP) requirement on exports of Basmati rice.

Marketing:

Indian high-quality Basmati and select premium coarse grain varieties compete against U.S. rice in several markets, including the Middle East and European Union. India exports Basmati rice and other specialty/fragrant rice to the United States, which mostly caters to consumers coming from India, the Middle East and South Asia.

Commodities:

Corn

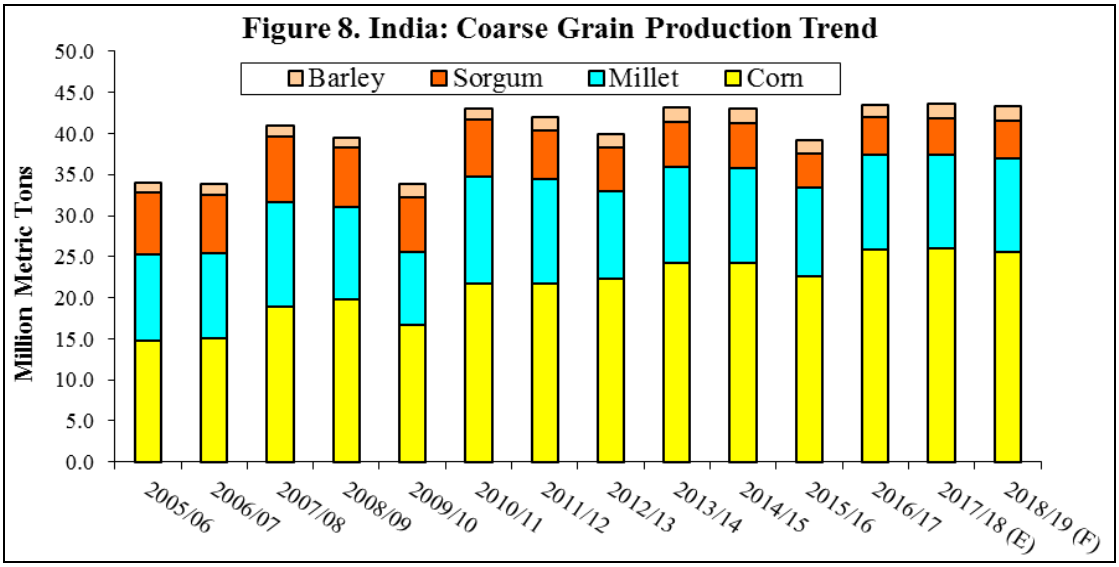
Sorghum

Millet

Barley

Production:

Assuming a normal 2018 monsoon and overall weather conditions during both *kharif* and *rabi* growing seasons, MY 2018/19 coarse grain production is forecast at 43.4 MMT, slightly lower than MY 2017/18 production of 43.7 MMT on expected lower planting of corn and trend yields for all coarse grains. Forecast coarse grain production includes 25.5 MMT of corn, 11.5 MMT of millets, 4.6 MMT of sorghum and 1.8 MMT of barley. More than 75 percent of coarse grains are cultivated during the *kharif* season, while some corn and sorghum, and barley crops are planted during the *rabi* season. With only about 15 percent of coarse grain cultivated under irrigation, production is critically dependent on the performance of southwest (June-September) and northeast (October-November) monsoon rains for both *kharif* and *rabi* (residual moisture) seasons.



Source: Ministry of Agriculture, GOI; and FAS/New Delhi estimates for MY 2017/18 and 2018/19.

Based on the latest government and market reports, MY 2017/18 total coarse grain production is estimated at 43.7 MMT, marginally higher than last year's revised estimated production on expected record corn harvest. However, production is likely to be lower than the government's 'optimistic' 2nd advance estimate on lower *kharif* planting and production due to weak second half of the southwest monsoon, particularly in the major *kharif* coarse grain growing central and western parts of India. Relatively higher government's support prices (MSP) for pulses also led to a shift in planted area from *kharif corn*, millet and sorghum to pulse crops. MY 2017/18 coarse grain production includes 26 MMT (record) corn, 11.4 MMT of millet, 4.5 MMT of sorghum, and 1.8 MMT of barley.

Planting of most *kharif* coarse grains (corn, millet and sorghum) started under favorable conditions due to timely and normal 2017 monsoon rains in June and July. However, below normal rains in late August/Early September affected the crop during vegetative growth and other critical crop stages affecting yield prospects. Market sources report lower overall yield compared to last year for most coarse grain in the central and western states. Despite lower planting of *kharif* corn, MY 2017/18 production estimate is raised higher to a record 26 MMT based on higher than earlier expected *kharif* corn yields and favorable upcoming *rabi* corn prospects.

Based on the final official estimates, MY 2016/17 coarse grain production has been revised marginally lower to 43.5 MMT on lower than earlier estimated production of corn (25.9 MMT), and millet (11.6 MMT). Based on the final official estimates for MY 2016/17, area and production estimates in the PSDs for the coarse grains have been revised.

Corn Dominates Coarse Grain Supplies:

Corn accounts for the major share of the coarse grain production and has been gaining share in the coarse grain basket over the last decade. Corn production growth has been supported by growing demand (poultry feed and industrial use) and increasing productivity on improved hybrid seeds. Introduction of newer higher yielding hybrids, particularly single cross hybrids, has encouraged farmers to replace traditional varieties with improved varieties. However, MY 2017/18 corn acreage declined on lower planting of *kharif* corn due to dry conditions for the late planted corn and the shift to planting pulses in some states. However, planting of *rabi* corn is estimated higher than last year on sufficient soil moisture in the eastern and southern states. Despite weak market prices during most of MY 2017/18, MY 2018/19 corn acreage is estimated only marginally lower at 9.2 million as most farmers are likely to continue to plant corn on relatively stable and higher returns compared to other coarse grains due to higher yields and steady demand.

Market sources estimate hybrid corn accounts for more than 70 percent of the planted area, most of which is feed/industrial grade corn, while food grade corn is generally produced using traditional cultivars. In the last few years, relatively weak international prices have rendered Indian corn uncompetitive in the international market. Despite weak corn exports, growing demand from the rapidly expanding demand from the domestic poultry industry as well as, commercial animal feed and starch industries has supported back-to-back 'bumper' production in recent years. Expansion of hybrids acreage has slowed down in the recent years, although farmers continue to replace old hybrids with the newer higher-yielding hybrid varieties. India's weak intellectual property regulations (IPR) and slow agriculture biotechnology regulatory system has precluded any major technological breakthrough for productivity gains in corn and other coarse grains.

Sorghum and millet cultivation has been declining over the last two decades on weakening demand and profitability compared to other competing crops. Production is plagued by an absence of any significant major productivity-enhancing technological (varietal or agronomic) breakthrough or expansion of irrigation infrastructure. Also, industrial sector demand is weak and a lack of growing government-driven supplies for various food security programs coupled with shifting consumer preference for wheat/rice have influenced farmer planting decisions for sorghum and millet. Over the last two decades, traditional cultivated area under sorghum and millet has shifted to commercially viable crops like corn, cotton, soybean and other commercial crops. Since sorghum and millet is cultivated largely under unirrigated conditions in relatively dryland areas, production fluctuates year to year depending on the performance of the monsoon.

Production of barley, a relatively small winter crop in north India, has been relatively steady around 1.6-1.8 MMT on demand from the malting and brewing industry. Barley production in MY 2018/19 is forecast at 1.8 MMT on reported higher planting in the traditional barley growing western states on relatively lower water requirement compared to wheat. Traditionally, India produced six-row varieties, which are mostly for food and feed use and are unsuitable for malting. Recently, a few high quality

malting grade barley varieties have been developed through public-private breeding programs, and these varieties are steadily replacing older varieties. Trade sources report that some malting and brewing companies are promoting the cultivation of the malting grade barley varieties under contract farming (buy-back arrangement) in the traditional growing areas of Rajasthan, Punjab, and Haryana.

Consumption:

Despite forecast tight domestic supplies, MY 2018/19 total coarse grain consumption is forecast higher at 44.8 MMT compared to last year's revised estimate of 43.6 MMT on expected steady demand from the animal feed and industrial sector. Market sources report that growth of the poultry, dairy and cotton industry (starch use) will continue to fuel demand for corn and other coarse grains.

Historically, coarse cereals were the staple diet of Indians for rural and lower income households. Since 1960's, coarse grains have been increasingly replaced by rice and wheat driven by the relatively high productivity gains (Green Revolution) and government's food security programs, which ensure supplies for highly subsidized rice and wheat across the country. A recent productivity gain in corn through hybrids has mostly been targeted for feed/industrial grade users, with very limited varietal improvement in food grade corn yields. Although there has not been any published national consumption survey since National Sample Survey - Household Consumption of Good and Services in India, 2011/12 (see Table 10 of IN4005), changing consumer preferences driven by strong economic growth continues to fuel a steady shift away from coarse grains.

Coarse grains are still an important cereal supplement in the staple diet for a large section of subsistence farmers and rural poor that are not appropriately covered under the government food security programs. Sources report a growing 'new market' for coarse grains among "health conscious" urban Indian consumers, including Indians suffering from diabetes and other life style diseases for their higher fiber and nutrient content compared to rice/wheat.

Over the last two decades, corn is increasingly being used for feed and industrial use, particularly poultry feed and starch. The poultry industry has been growing by about 5-6 percent per annum on higher consumer demand for animal proteins due to a growing economy and expanding middle class. The starch industry, largely catering to textile production, is growing at around 3 percent on domestic and export demand. There is small but growing use of corn for ethanol production, mostly for use by the potable liquor industry for blended whisky and other liquor. Some corn is used to produce traditional foods, snacks, and savories.

Animal Feed Use

While there is no published information on India's animal industry, market sources report that the commercial feed industry accounts for more than half of the total market. The commercial feed industry largely caters to poultry (70-75 percent), aquaculture (10-12 percent) and dairy cattle (10-15 percent) feed sectors. Given the small dairy operation (2-3 animals per family), most of the dairy feed supplies are met through farm feed mixes, which are typically given to lactating cows and female buffaloes. Industry sources report that corn and soybean meal dominate the commercial feed market, which is supplemented by other coarse grains and other oilseed meals depending on the comparative pricing.

Small quantities of DDGS from grain based ethanol plants (using broken rice and low-quality grains) are being used by poultry feed manufacturers.

Table 12. India: Usage of Grains, Oil Meals and Other Feed Ingredients

(Quantity in Million Metric Tons)

Commodity	Quantity	Comments
Corn	13.5-14.5	Largely commercial feed for poultry and aquaculture sector
Wheat	4.5-4.8	Largely farm feed mixes and commercial feed for dairy sector
Other Course Grains	2.0-2.5	Largely farm feed mixes and some for commercial feed for all sectors
Soybean Meal	4.4-4.8	Largely commercial feed for poultry and aquaculture sector
Cotton Seed & Meal	3.8-4.0	Largely farm feed mixes and some for commercial feed for dairy sector
Rapeseed Meal	2.8-3.0	Largely commercial feed and some for farm feed mixes for all sectors
Peanut Meal	1.3-1.5	Largely commercial feed and some for farm feed mixes for all sectors
Other Oil Meals	0.7-0.8	Largely commercial feed and farm feed mixes for all sectors
Wheat Bran[1]	2.5-3.0	Largely farm feed mixes and some commercial feed for dairy sector
DDGS	0.2-0.3	Compound feed for poultry sector
Total	36.0-38.0	Compound feed accounts for about 55-60 percent of the total share

Source: FAS New Delhi Estimates based on information from trade sources

[1]Bye product of the roller flour mills

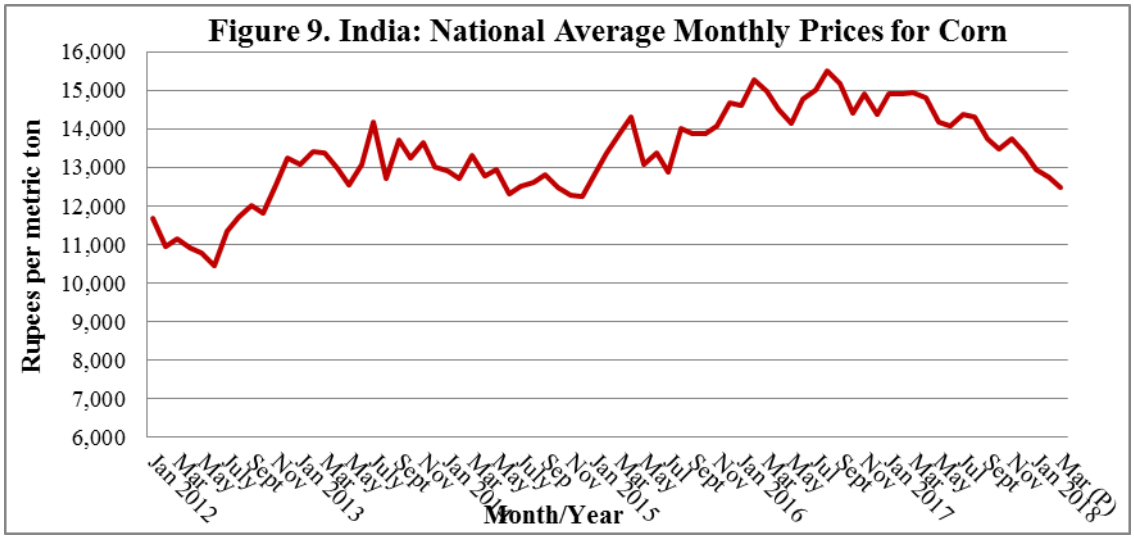
According to industry sources, India's feed industry is growing at a CAGR of 5-7% with poultry, cattle and aqua feed sectors emerging as major growth drivers. Experts report the demand for animal protein and dairy products will increase the compound feed consumption demand by Indian fiscal year 2017/18 (April-March) to 27-28 MMT against an estimated supply of 21-22 MMT. The demand-supply gap is likely to expand in the coming years which may force the Indian feed industry to source feed ingredients from the international market in 3-5 years.

Domestic Corn Market:

MY 2018/19 corn consumption is forecast higher at 26.5 MMT on expected steady demand for poultry feed, starch, and ethanol. Forecast consumption includes 14.5 MMT for poultry feed, 1.5 MMT for other animal feed, 1.8 MMT for starch, 1.5 MMT for ethanol, and balance for food, seed and other uses.

MY 2017/18 corn consumption is estimated at 25.5 MMT, on lower production of food grade corn due to dry conditions in the food grade corn growing regions in western and central India.

Riding on back-to-back record domestic production in MYs 2016/17 and 2017/18, local corn prices have been declining since January 2017. Currently the market prices for corn in the major producing and consuming states are even below the government's MSP (INR 14,250/$220 per MT) on upcoming harvest of another bumper *rabi* crop.



Source: Agmarket News, Ministry of Agriculture, GOI. Also see Table-17.

Food use accounts for a major share of sorghum, millet, and barley consumption. Some poor quality (largely weather and rain damaged) grains are also fed to cattle. The new malting barley varieties are being used for brewing (650,000- 700,000 metric tons). Indian sorghum is not traditionally fed to chickens due to its high tannins (poor taste), but is reportedly increasingly incorporated in the production of spirits, industrial alcohol, and starch.

India's domestic ethanol program for fuel does not affect the domestic and export market demand for cereal grains and its byproducts. The domestic ethanol program uses molasses (a sugar industry byproduct) as feed stock, and does not utilize cereal grains for producing ethanol for "fuel". There is no commercial production of ethanol or DDGS from corn in India. However, small quantities of ethanol are produced from the rice milling industry waste (broken rice) and lower quality wheat and coarse grains to be used for potable liquor and other industrial uses, and none for 'fuel' use. Small quantities of DDGS (200,000 MMT to 300,000 MMT) from these ethanol plants are used by the animal feed industry.

Trade:

Indian corn is uncompetitive in the international market due to relatively weak international prices. Due to expected tight domestic supplies, Post forecasts MY 2018/19 corn exports lower at 300,000 MT, mostly to neighboring Nepal and some seed exports. MY 2018/19 imports are forecast to increase to

500,000 under the existing tariff rate quota of 500,000 MT on relatively tight domestic supplies and expected strong demand.

Since MY 2015/16, Indian corn has been priced out of the international market due to relatively firm domestic prices driven by the government MSPs and strong domestic demand. Despite relatively lower domestic prices in MY 2017/18, Indian corn remains uncompetitive in the export market on weak international prices. Based on the current pace of exports for the first quarter of MY 2017/18, MY 2017/18 exports are estimated to reach 600,000 MT, mostly to neighboring Nepal and a small quantity by land routes to Bangladesh.

India exports small quantities of sorghum and barley, largely to neighboring countries and the Middle East. Strong prices due to tight supplies resulted in India turning into a net importer of barley in MY 2016/17, mostly for malting purpose. Barley imports in MY2018/19 are forecast higher at 400,000 on expected steady demand from the malting industry.

Tariff

India imposes a basic import duty of 50 percent on sorghum and millet, while the import duty for barley is zero. India allows corn imports under a tariff rate quota (TRQ) of 500,000 MT with a zero percent duty. Imports of corn outside the TRQ are subject to a 50 percent import duty. To import corn under the TRQ, the importer must obtain a Tariff Rate Quota Allocation Certificate issued by the Directorate General of Foreign Trade (DGFT). This certificate is issued in accordance with procedures developed by the EXIM Facilitation Committee.

Table 13: Import Tariffs on Coarse Grains

HS Code	Description	Basic Duty (BD) on Assessable value	Social Welfare Surcharge (SWS) on AV+BD	Integrated GST (IGST) on AV+BD+IGST	Total Effective Duty (BD+SWS+IGST)
1003	Barley	Nil	Nil	Nil	Nil
1005	Corn*	50 percent	10 percent	Nil	55 percent
1007	Grain Sorghum	50 percent	10 percent	Nil	55 percent
10082110-100829	Various Millets	50 percent	10 percent	Nil	55 percent

* India has a TRQ of 500,000 on imports of corn at zero duty
Exchange rate on Feb 15, 2018 1US$= INR 63.00

Policy:

Production:

The GOI production policy and program for coarse grains is significantly lower on coverage and budgetary support compared to rice and wheat. The government's MSP procurement program and food distribution program through the PDS for coarse grains are restricted to a few states and limited to procurement of food grade grains strictly for NFSA and other food security programs.

Unlike wheat and rice, the government does not have any buffer stock commitments for coarse grains. The GOI does not allow the use of food grains, including coarse cereals, to produce biofuels. However, grains certified not fit for human consumption can be used to produce ethanol for industrial use, including use for blending for potable liquor. Efforts to produce ethanol from other feed stocks like sweet sorghum stover and crop waste are still at the research stage.

India has not commercialized any genetically engineered (GE) coarse grain crops. Some corn events from the private sector are going through the regulatory approval process but are progressing slowly and are several years away from commercialization. Several Indian seed companies and public sector research institutions are developing various GE crops including corn and sorghum, but it may take several years before it can be commercialized. Most biotech events in other coarse grains (sorghum and millet) are still at the developmental stage, and have not been submitted for regulatory approval.

Trade:

Currently, the GOI imposes no restrictions on exports of corn, millet, sorghum, and barley. Imports of these commodities are also allowed by private trade subject to the effective import duty and phytosanitary conditions specified in the Plant Quarantine (Regulation of Imports into India) Order 2003.

The GOI's phytosanitary requirements for weed seeds, ergot, and other SPS issues, including no approvals to date for any GE corn events, have effectively banned U.S. coarse grain exports to India. Imports of any GE product, including GE corn and food products derived from GE crops are subject to approval by India's biotech regulatory agency, the Genetic Engineering Appraisal Committee (GEAC). To date, the GEAC has not approved any GE coarse grains or byproducts for import.

Marketing:

Growth of the poultry and starch industries and consequent demand from these sectors is soon likely to outstrip domestic production of corn, eventually creating steady demand for imported corn in the next three to five years. Growth in the brewing industry is expected to fuel demand for malting grade barley. India is likely to continue to import small quantities of food grade corn (e.g., sweet corn etc.,) and popcorn for the food processing industry due to growing consumer demand and low domestic supplies. In MY 2018/19, India is likely to import corn and barley again to augment domestic supply shortages.

Production, Supply and Demand Data Statistics:

Table 14. India: Commodity, Corn, PSD

(Area in Thousand Hectares, Quantity in Thousand Metric Tons, Yield in MT/Hectare)

Corn	2016/2017	2017/2018	2018/2019

Market Begin Year	Nov 2016		Nov 2017		Nov 2018	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	9890	9633	9600	9300	0	9200
Beginning Stocks	850	850	1335	1335	0	1285
Production	25900	25900	27150	26000	0	25500
MY Imports	79	79	50	50	0	500
TY Imports	78	78	50	50	0	500
TY Imp. from U.S.	7	7	0	0	0	0
Total Supply	26829	26829	28535	27385	0	27285
MY Exports	594	594	600	600	0	300
TY Exports	542	542	600	600	0	300
Feed and Residual	14500	14500	16000	15500	0	16000
FSI Consumption	10400	10400	10500	10000	0	10500
Total Consumption	24900	24900	26500	25500	0	26500
Ending Stocks	1335	1335	1435	1285	0	485
Total Distribution	26829	26829	28535	27385	0	27285
Yield	2.6188	2.6887	2.8281	2.7957	0	2.7717

Table 15. India: Commodity, Sorghum, PSD
(Area in Thousand Hectares, Quantity in Thousand Metric Tons, Yield in MT/Hectare)

Sorghum	2016/2017	2017/2018	2018/2019
Market Begin	Nov 2016	Nov 2017	Nov 2018

Year						
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	5862	5624	4829	4870	0	5200
Beginning Stocks	151	151	198	196	0	146
Production	4570	4568	4660	4500	0	4600
MY Imports	0	0	0	0	0	0
TY Imports	0	0	0	0	0	0
TY Imp. from U.S.	0	0	0	0	0	0
Total Supply	4721	4719	4858	4696	0	4746
MY Exports	23	23	50	50	0	50
TY Exports	24	24	50	50	0	50
Feed and Residual	500	500	600	500	0	500
FSI Consumption	4000	4000	4000	4000	0	4000
Total Consumption	4500	4500	4600	4500	0	4500
Ending Stocks	198	196	208	146	0	196
Total Distribution	4721	4719	4858	4696	0	4746
Yield	0.7796	0.8122	0.965	0.924	0	0.8846

Table 16. India: Commodity, Millet, PSD

(Area in Thousand Hectares, Quantity in Thousand Metric Tons, Yield in MT/Hectare)

Millet	2016/2017		2017/2018		2018/2019	
Market Begin Year	Nov 2016		Nov 2017		Nov 2018	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	9102	9094	8759	8870	0	9100
Beginning Stocks	287	287	547	547	0	447
Production	11560	11560	11640	11400	0	11500
MY Imports	0	0	0	0	0	0
TY Imports	0	0	0	0	0	0
TY Imp. from U.S.	0	0	0	0	0	0
Total Supply	11847	11847	12187	11947	0	11947
MY Exports	0	0	0	0	0	0
TY Exports	0	0	0	0	0	0
Feed and Residual	1500	1500	1600	1500	0	1400
FSI Consumption	9800	9800	9900	10000	0	10200
Total Consumption	11300	11300	11500	11500	0	11600
Ending Stocks	547	547	687	447	0	347
Total Distribution	11847	11847	12187	11947	0	11947
Yield	1.2701	1.2712	1.3289	1.2852	0	1.2637

Table 17. India: Commodity, Barley, PSD
(Area in Thousand Hectares, Quantity in Thousand Metric Tons, Yield in MT/Hectare)

Barley	2016/2017		2017/2018		2018/2019	
Market Begin Year	Apr 2016		Apr 2017		Apr 2018	
India	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	589	589	656	656	0	720
Beginning Stocks	246	246	173	173	0	170
Production	1440	1440	1750	1747	0	1800
MY Imports	388	388	350	350	0	400
TY Imports	324	324	400	400	0	400
TY Imp. from U.S.	0	0	0	0	0	0
Total Supply	2074	2074	2273	2270	0	2370
MY Exports	1	1	50	50	0	50
TY Exports	1	1	25	50	0	50
Feed and Residual	500	500	600	550	0	600
FSI Consumption	1400	1400	1450	1500	0	1600
Total Consumption	1900	1900	2050	2050	0	2200
Ending Stocks	173	173	173	170	0	120
Total Distribution	2074	2074	2273	2270	0	2370
Yield	2.4448	2.4448	2.6677	2.6631	0	2.5

Table 18. India: Commodity, Corn, Prices Table

Prices In	Rupees	per uom	Metric tons	
Year	2015	2016	2017	%Change
Jan	12,829	14,600	14,896	2.0
Feb	13,385	15,286	14,897	-2.5
Mar	13,865	14,982	14,947	-0.2
Apr	14,302	14,501	14,815	2.2
May	13,062	14,129	14,168	0.3
Jun	13,390	14,762	14,068	-4.7
Jul	12,888	15,015	14,366	-4.3
Aug	14,010	15,505	14,299	-7.8
Sep	13,878	15,169	13,745	-9.4
Oct	13,875	14,411	13,488	-6.4
Nov	14,073	14,901	13,743	-7.8
Dec	14,687	14,381	13,369	-7.0
Exchange Rate	64.8	Local Currency/US$		
Date of Quote	03/09/18	MM/DD/YYYY		

National Average Monthly Wholesale Prices of Corn

Source: Agmarket News, Ministry of Agriculture, GOI