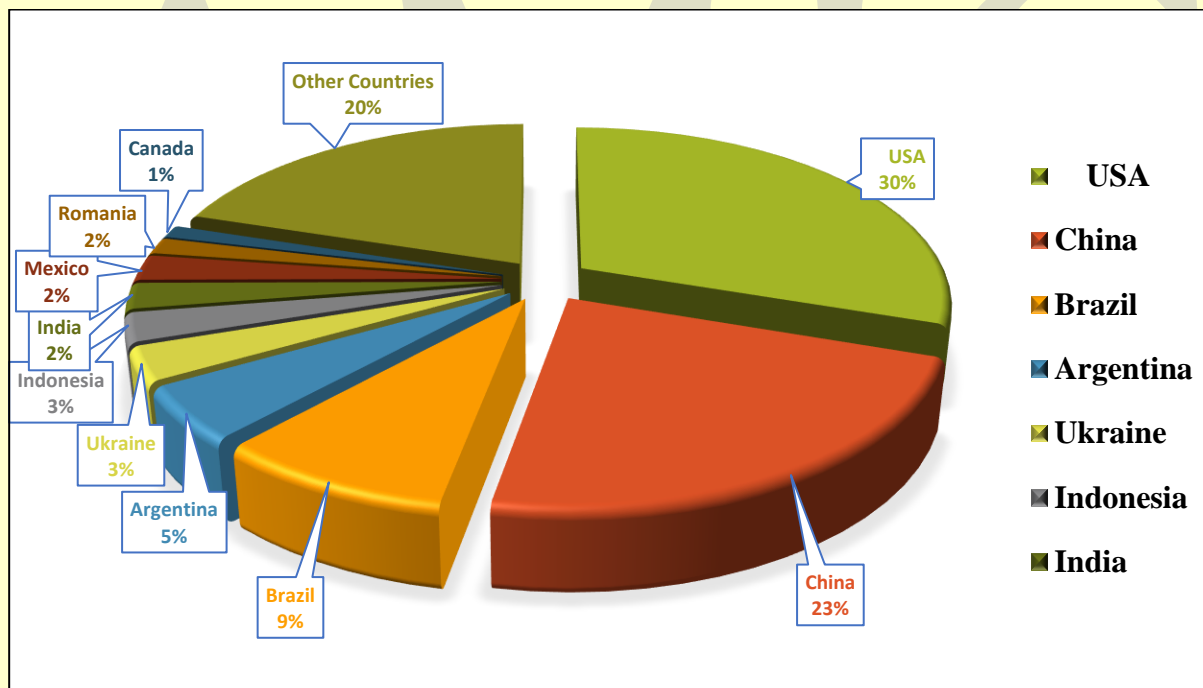


MAIZE OUTLOOK REPORT – January to December 2020

Globally, Maize is known as queen of cereals because of its highest genetic yield potential among the cereals. Every part of the Maize plant has economic value: the grain, leaves, stalk, tassel, and cob all be used to produce a large variety of food and non-food products. It is the most versatile crop and is grown in more than 166 countries across the globe, including tropical, subtropical and temperate regions, from sea level to 3000 m above sea level. It is cultivated on nearly 197 m ha with production of 1148 m tonnes and productivity of 5823.8 kg/ha all over the world having wider diversity of soil, climate, biodiversity and management practices, contributing 37 per cent in the global grain production (FAO STAT 2019). United States of America (USA) is the largest producer of Maize contributing 30 per cent of the total production in the world and Maize is regarded as the driver of the US economy.

Figure 1: Percentage share of major producing countries in world Maize production (2019).



Source: Indiastat, 2020.

Maize is the third most important cereal crop in India after rice and wheat and is grown in a wide range of environments, extending from extreme semi-arid to sub-humid and humid regions which predominantly occupies 82 per cent of the area under cultivation in the Kharif season. It accounts for around 10 per cent of total food grain production in the country. In addition to staple food for human being and quality feed for animals, Maize serves as a basic

raw material to thousands of industrial products that includes starch, oil, protein, alcoholic beverages, food sweeteners, pharmaceutical, cosmetic, film, textile, gum, package, paper industries *etc.* To sum up, the Indian Maize sector has several opportunities in all its sub-sectors like seed, non-seed inputs, farm mechanization, processed foods, industrial products, market-related infrastructure, storage, processing *etc.* It has also enormous potential to provide food security, feed security, nutritional security and enhanced income to Maize growers. Maize qualifies as potential crop for doubling farmer's income. Maize is less water demanding and gives higher yield per hectare. By growing Maize farmers save 90 per cent of water, 70 per cent of power compared to Paddy.

Table 1: Indian Exports and Imports of Maize

Years	Export		Import	
	Qty (000' Tonnes)	Value (Rs. Crore)	Qty (000' Tonnes)	Value (Rs. Crore)
2010-11	3010.423	3359.46	16.31244	40.01
2015-16	697.9472	1162.01	181.7639	291.77
2016-17	566.3522	1030.13	83.21679	162.46
2017-18	705.5138	1228.46	30.69654	102.06
2018-19	1051.856	1872.51	86.02479	183.38
2019-20	370.0661	1019.29	458.5107	843.2
2020-21 (April-September)	922.6563	1376.83	16.37995	47.61

Source: Indiastat

Argentina and Brazil have emerged as major exporting nations of Maize in 2019. India has exported 370 thousand tonnes of Maize to the world for the worth of Rs. 1,019.29 crores/ 142.76 USD Millions in 2019-20. The major export destinations of Indian Maize (2019-20) are Nepal, Bangladesh, Myanmar, Pakistan and Bhutan. India was a net importer of Maize till late 1980s, as production growth in the country was not enough to meet the growing demand from poultry and other sectors. In 2019-20, 458.51 thousand tonnes worth of Rs 843 crores of Maize was imported by India in which 41 per cent of Maize is imported from Myanmar followed by Ukraine (34 %) and Singapore (9 %).

Indian Maize is uncompetitive in the international market due to relatively weak international prices. India has witnessed a jump in Maize exports from 2007 and found comparative advantage till 2014. The global prices had come down in 2014-15 which led to fall in subsequent external demand having pushed local prices to lower than MSP, while in 2015-16 the shortage in domestic production pushed prices above international markets, thus making

Maize exports unviable in 2015 and 2016 and again the export started increasing and reached 1.42 MMT in 2020-21.

Figure 2: Percentage of export share to production of Maize.

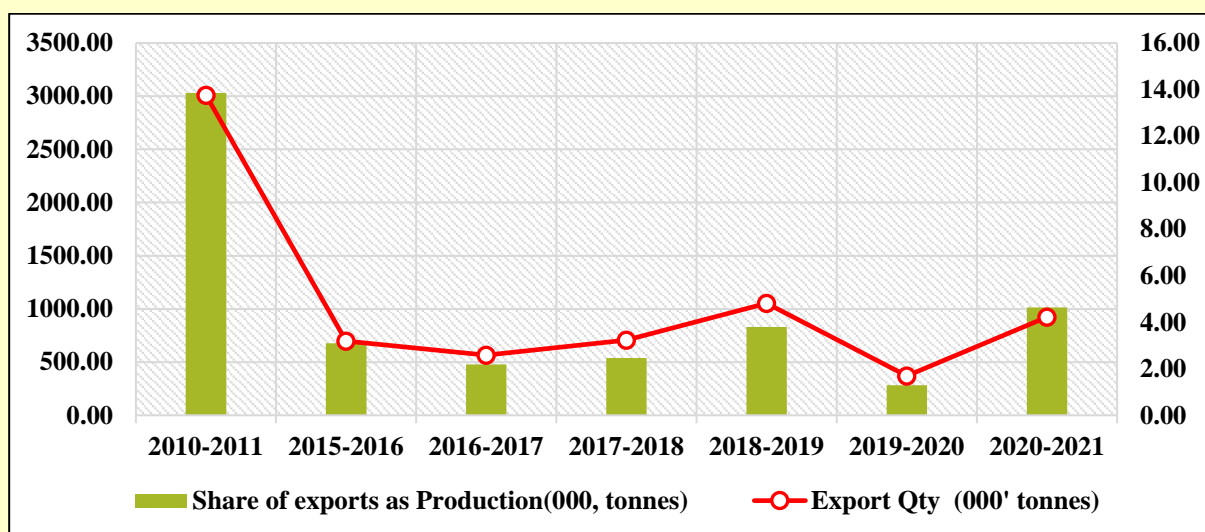


Table 2: Balance sheet of Maize

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21 (F)
Opening Stocks (MMT)	1.5	2.2	1.3	1.9	1.35	0.27	2.26
Production (MMT)	24.4	22.6	26	25	22.72	25.38	24.52
Imports (MMT)	-	0.2	0.1	0.1	0.21	0.34	0.02
Total Supply (MMT)	25.7	25.00	17.4	27	24.28	25.99	26.8
Export (MMT)	1.00	0.4	0.6	0.55	0.58	1.11	1.42
Domestic Consumption (MMT)	22.5	23.3	24.9	25.1	23.43	22.62	23.11
Total demand (MMT)	23.5	23.7	25.5	25.65	24.01	23.73	24.53
Ending Stock (MMT)	2.2	1.3	1.9	1.35	0.27	2.26	2.27

Source: Agriwatch, 2020 F-Forecast

As per some private sources, the data given is compiled in Table 2 & 3. The year 2020-21 started with an opening stock of 2.26 MMT and total availability goes up to 26.8 MMT. Total Maize production in India is estimated at around 24.52 MMT in 2020-21 against our total annual demand including exports, of 25.93 MMT. The ending stocks are expected to be 2.27 MMT in 2020-21.

Table 3: Consumption Breakup

Consumption Breakup	2019-20	2020-21 (F)
Poultry & cattle Feed	14.27	14.62
Starch & brewery	4.66	4.66
Human Consumption	1.85	1.86
Seed	0.27	0.27
Shortage & Wastage	1.02	0.98
Storage & Moisture Loss	0.56	0.71
Total Domestic Consumption	22.62	23.11

Source: Agriwatch F: Forecast

Maize consumption in India can broadly be divided into three categories viz. Feed, food and Industrial non-food products (mainly starch). The most important use and demand driver of Maize is poultry and cattle feed which accounts 63 % of total Maize consumption and nearly 8 per cent of Maize is consumed by humans. The major consumption states in India are Karnataka, Andhra Pradesh, Punjab, Gujarat, Haryana, Telangana, Tamil Nadu, Bihar, West Bengal. There are many drivers of Maize demand in India, the most important being (1) growing demand from poultry sector, consuming more than half of the domestic production; (2) growing urbanization, leading to increased demand for processed foods like corn flakes, bakery products, etc; (3) growing organised dairy sector, requiring more of fine cereals or Maize-based concentrates; and (4) rising international price due to diversion of Maize grain towards biofuel production.

Table 4: Area and production of major producing states of Maize (Area- lakh ha, production-lakh tonnes)

States	1950-51		1990-91		2000-01		2010-2011		2018-19		Total food grain production (2018-19)	% Share (2018-19)
	A	P	A	P	A	P	A	P	A	P		
Andhra Pradesh	1.38	0.38	3.09	6.46	5.28	15.81	7.44	39.53	2.66	15.63	108.39	14.42
Bihar	5.66	3.12	6.65	10.38	6.21	14.97	6.46	14.40	6.69	24.83	156.00	15.91
Karnataka	0.10	0.05	2.52	6.37	6.69	21.36	12.88	44.44	13.40	37.58	108.88	34.51
Madhya Pradesh	3.62	1.12	8.77	12.37	8.40	12.18	8.31	10.52	12.67	41.31	322.09	12.83
Maharashtra	0.30	0.13	1.09	1.35	3.30	3.03	8.91	26.02	9.27	17.66	103.04	17.13
Rajasthan	3.11	0.94	9.84	13.03	9.71	10.16	11.43	20.53	8.45	18.92	212.89	8.89
Uttar Pradesh	8.34	6.51	10.85	14.32	9.08	14.753	7.54	11.14	7.33	15.26	546.43	2.79
India	31.59	17.29	59.04	89.62	66.11	120.43	85.53	217.26	90.27	277.15	2852.09	9.72

Source: Indiastat, 2020.

In the country, more than three-fourths of the Maize is grown in Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Bihar, Uttar Pradesh, Telangana, Gujarat and Tamil Nadu. Maize cultivation is done in two production environments namely traditional Maize growing areas (Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh) and non-traditional Maize areas, (Karnataka and Andhra Pradesh). In traditional areas, the crop is primarily grown as a subsistence crop to meet food needs. In contrast, Maize in the non-traditional areas is grown for commercial purposes i.e., mainly to meet the feed requirements of the booming poultry sector. Since 1990s, a regional shift in Maize production has taken place in India in big way, as southern states emerged as the largest Maize-producing states, while Maize area started tapering in the traditional major Maize-growing states.

Table 5: Area and production of major Maize growing districts of Andhra Pradesh (2019-20).

Districts	Area (000'ha)		Production (000'tonnes)		Yield (Kg/ha)
	2019-20	Position	2019-20	Position	2019-20
Srikakulam	41	4	261	3	6391
Vizianagaram	38	5	245	4	6471
West Godavari	48	2	440	2	9108
Guntur	48	1	503	1	10455
Kurnool	45	3	237	5	5297
Other districts	81		435		-
Andhra Pradesh	301		2121		7055

Source: apagrinet.gov.in

In 2019-20, the highest Maize yield was observed in Guntur district. In terms of Maize production, the major districts were Guntur (5.03 lakh tonnes), West Godavari (4.40 lakh tonnes), Srikakulam (2.61 lakh tonnes), Vizianagaram (2.45 lakh tonnes) and Kurnool (2.37 lakh tonnes).

Table 6: Growth parameters of Maize before and after bifurcation of Andhra Pradesh.

Particulars	Before Bifurcation		After Bifurcation			
	2010-11		2015-16		2019-20	
	AP	India	AP	India	AP	India
Area (in 000'ha)						
Maize	744	8,553	233	8,806	301	9057
Total cereals& Millets	5868	100,270	2636	98,306	2893	95327
% Share	12.68	8.53	8.84	8.96	10.46	9.44
Production (in 000' tonnes)						
Maize	3,953	21,726	1,411	22,567	2121	28640
Total cereals& Millets	18,874	226,241	13,100	235,218	16345	163820
% Share	20.94	9.60	10.77	9.59	13.20	10.60
Yield in Kg/Hectare						
Maize	5,317	2,540	6,068	2,563	7055	3,070

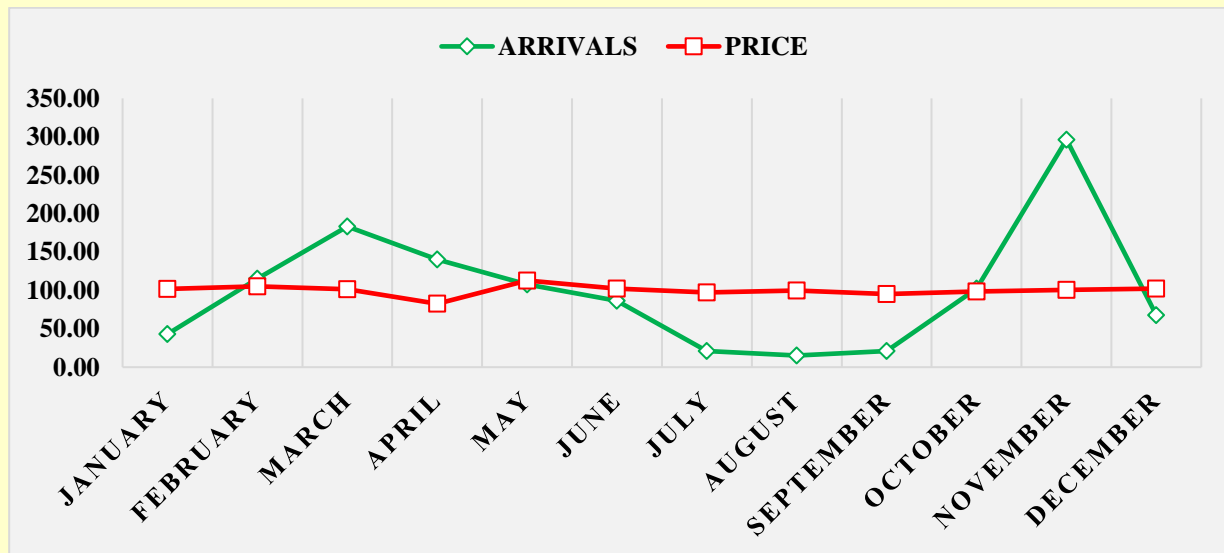
Source: agricoop.nic.in

In combined Andhra Pradesh most of the area under Maize is in Telangana region after bifurcation the area under Andhra Pradesh has decreased. The contribution of Maize production to total cereals and millets was 20.94 per cent before bifurcation and now the contribution has decreased to 13.20 per cent as the area under Maize was declined.

Table 7: Seasonal indices of arrivals and prices of Maize in Kurnool market from 2015 to 2020

Months	Arrivals	Price
January	43.18	102.10
February	115.05	105.07
March	183.29	101.32
April	140.40	82.56
May	107.88	112.85
June	86.57	102.49
July	20.92	97.11
August	15.18	99.80
September	21.20	95.20
October	102.37	98.46
November	296.32	100.59
December	67.65	102.45

Figure 3: Trends in arrivals and prices of Maize from 2015 to 2020 in Kurnool market



Maize cash markets traded weak during the months of March'20 to May 2020, mixed trend during the month of June, August, September and October'20 and showed a firm trend during the month of November and December 2020 compared to previous months and corresponding period in 2019 due to sluggish demand from poultry feed industry in the wake of corona virus and bird flu. As of November 2020, around 5942 hectares of Maize was affected by fall armyworm, out of which 4277 hectares has been treated in Visakhapatnam, Vizianagaram, Guntur, Anantapuram, Kurnool, Chittoor, Krishna and YSR Kadapa districts of Andhra Pradesh.

Under these circumstances, the Agricultural Market Intelligence Centre, ANGRAU expect that Maize is likely to trade in the price range between Rs. 1500-1700 per quintal in coming months for the year 2021.

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