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YES BANK

MAIZE SECTOR IN INDIA

Navigating transformation in demand-supply dynamics

2026

MESSAGE

India's maize sector stands at a defining moment. Once viewed largely as a supplementary cereal, maize has emerged as a strategically important crop integral to the country's food, feed, and fuel economy. Rising demand from animal feed, starch processing, food manufacturing, and the ethanol blending programme has firmly positioned maize as a cornerstone of India's evolving agri-industrial landscape.

This transformation, however, brings a distinct set of challenges. Productivity gaps, uneven regional performance, post-harvest losses, quality inconsistencies, and fragmented value chains continue to constrain the sector's full potential. Aflatoxin contamination — a safety risk that spans the entire value chain from field to processing — poses an additional and often underappreciated threat to farmer incomes, industrial raw material quality, and export competitiveness. Addressing these issues is essential not only to ensure raw material security for industry but also to enable higher, more stable incomes for farmers, especially small and marginal farmers in rainfed regions, for whom maize offers a vital pathway to diversification and resilience.

This report comes at a timely juncture. It presents a comprehensive assessment of the global and Indian maize ecosystem, combining data-driven analysis with insights from stakeholders across the value chain. The report examines demand–supply dynamics, consumption patterns, trade and price trends, policy frameworks, and field-level challenges, and outlines actionable pathways to strengthen the sector. The five strategic pathways identified underscore the need for coordinated action through strong public–private partnerships, industry participation, and institutional collaboration.

At FICCI, we believe that sustainable agricultural growth must be farmer-centric, market-led, and innovation-driven. In this context, strengthening India's maize ecosystem becomes vital, as it underpins industrial growth, supports the biofuel transition, and contributes meaningfully to rural prosperity and inclusive development.

Ms. Jyoti Vij
Director General
FICCI

MESSAGE

India's maize sector is at a defining stage in its evolution. Maize has emerged as one of the most dynamic components of Indian agriculture, driven by rising demand across food, feed, industry, and energy. This moment goes beyond growth. It presents an opportunity to reshape how maize is cultivated, processed, traded, and valued, with farmer prosperity at the centre of the value chain.

From seed to shelf and from farm to fuel, maize supports national priorities. It strengthens food and nutrition security, underpins the livestock and poultry economy, enables industrial value addition, and contributes to the clean energy transition. For farmers, this relevance creates stable and diversified income opportunities when productivity gains on the farm are translated into value across markets.

This Knowledge Report reflects that conviction. The next phase of growth in the maize economy cannot rely on expanding cultivated area alone. It must come from improving performance across the value chain, beginning at the farmer's field. Raising on-farm productivity remains the most direct pathway to improving incomes and making maize cultivation dependable, while helping protect income stability under increasing climate variability.

The framework of the report rests on three interlinked pillars.

Productivity is the foundation. It enables farmers to produce reliably from the same land through improved seeds, sound agronomic practices, better water management, and timely inputs. Productivity is not only about yields, but also consistency, reducing downside risk while strengthening farm profitability.

Innovation reshapes value creation beyond the farm gate. Maize supports a widening range of end uses across food, feed, industrial products, and renewable energy. This includes strengthening downstream processing ecosystems such as feed, starch, fermentation, bio-energy, and allied industries that convert farm-level productivity into economic value. Realising this opportunity requires investment in processing capacity and integrated supply chains.

Technology makes progress durable. Precision agriculture, digital advisory platforms, improved post-harvest systems, and transparent market linkages help convert productivity into predictable outcomes, reducing losses and improving price realisation.

Together, these pillars point to a maize value chain that is productive, inclusive, and globally competitive. Such a transformation strengthens farmer incomes, enhances food and energy security, and positions agriculture as a future-ready sector.

This transformation requires collective effort. Farmers, scientists, industry leaders, policymakers, and civil society all have vital roles to play, including women whose contribution across the maize value chain is essential.

I commend the FICCI , the YES BANK team and the experts who have contributed to this Knowledge Report. It offers a clear roadmap for stakeholders across the maize ecosystem.

Mr. Subroto Geed
Co- Chairman FICCI Committee on Agriculture and
President- South Asia, Corteva Agriscience

MESSAGE

India's maize sector stands at a critical inflection point.

Dubbed the 'Queen of Cereals', maize has been one of Indian agriculture's greatest success stories. Production has nearly doubled over the past decade to around 50 million metric tonnes, reflecting steady gains in both acreage and productivity. Yet even this strong growth trajectory may not be sufficient to meet what lies ahead.

Demand for maize is surging and is projected to reach 72 million metric tonnes by 2030-31. This rise is being driven by factors like the rising demand for animal feed, the increasing role of maize as a feedstock in biofuels, and its expanding industrial applications. As a result, maize is fast emerging as a strategic commodity.

Encouragingly, the strong rise in maize demand is bringing greater attention to the sector's structural opportunities. Addressing these will require a decisive shift in how India approaches the maize value chain.

We at Godrej Agrovet are playing an important role in driving the necessary transformation. Our leadership presence in the animal nutrition segment means we are closely aligned with one of the largest and fastest-growing sources of demand for maize. At the same time, our crop care business supports maize farmers in enhancing productivity and safeguarding yields.

But any transformation cannot be achieved in silos. It will require collaboration across stakeholders.

In this context, the FICCI–YES BANK report makes a valuable contribution. It provides a comprehensive view of the opportunities within the maize ecosystem, highlights the structural challenges that must be addressed, and outlines a clear and actionable roadmap to unlock the sector's potential.

India stands on the cusp of what could well be a new 'Maize Revolution'. Seizing this moment will be critical for the broader goals of agricultural resilience, economic growth, and national security.

Mr. Sunil Kataria
Co- Chairman, FICCI Committee on Agriculture and
CEO and MD, Godrej Agrovet Limited

FOREWORD

Maize has emerged as one of India's most strategically important crops.

From an agricultural production perspective, maize is the third largest foodgrain produced in the country after rice and wheat. Over the last decade, production has more than doubled, from about 22.6 million MT in 2015-16 to an estimated 50 million MT in 2025-26. In fact, maize is the fastest growing cereal crop in India. Between 2015-16 and 2025-26, while acreage, production and productivity of maize grew at a CAGR of 4.5%, 8.3% and 3.6%, that of cereals grew at 0.9%, 3.3% and 2.3% respectively. More importantly, just about 42% of maize is cultivated under irrigated conditions, compared to about 70% of rice and 95% of wheat. This indicates the crop's intrinsic ability to adapt to varied agro-climatic conditions and generate better farmer incomes, especially in resource-constrained rainfed farming ecosystems.

From a demand perspective, while maize continues to be a key source of food and nutritional security, especially in traditional growing regions of India, less than 7% of domestic production is used for food consumption. About 94% is utilized for industrial purposes including 54% for animal and poultry feed, 25% for biofuel production and 14% for the starch industry. This multi-sectoral demand has made maize one of the most critical crops in India's agricultural economy, linking farmer incomes, animal protein supply, industrial growth, food security and energy security into a dynamic continuum.

However, when a crop begins to serve multiple sectors simultaneously, the pressure on the underlying ecosystem intensifies. The poultry feed and starch industries demand different grain quality parameters. The ethanol industry introduces a new layer of demand dynamics with significant implications on pricing and availability. While maize production is growing rapidly to meet such demands, the maize value chain continues to face critical challenges that hamper optimum farmer income realisation on one hand while causing supply insecurity for industries on the other. In this context, while farm-level productivity improvement remains essential, this alone may not be able to unlock the full potential value of this crop. There is an urgent need to build a stronger ecosystem, with better post-harvest handling infrastructure, scientific aflatoxin management, stricter quality assurance, better logistics infrastructure and seamless market connectivity.

The Government of India, along with various state governments, has undertaken several initiatives to promote the sustainable growth of the maize ecosystem, including through programmes focused on crop diversification, productivity enhancement as well as post-harvest infrastructure modernisation. While these initiatives have positively influenced the maize ecosystem in previous years, there is now a clear need for a focused, co-created public-private strategy to address the transformative shifts occurring in India's maize demand-supply dynamics. With coordinated public–private action, scientific innovation, and a strong policy foundation, India can position maize as a growth engine for rural livelihoods, industrial competitiveness and national food and energy security in the years ahead.

YES BANK is pleased to Knowledge Partner with FICCI for the 12th edition of the India Maize Summit, during which this report titled 'Maize Sector in India – Navigating Transformation in Demand-Supply Dynamics' is being released. The report captures an overview of the supply and demand dynamics of maize, enumerates critical challenges faced by stakeholders across the value chain and identifies pathways aimed at the holistic and sustainable development of India's maize sector. I hope this report serves as a valuable reference for all stakeholders committed to strengthening India's maize ecosystem.

Sincerely,

Manish Jain
Executive Director
YES BANK Ltd.

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Executive Summary

India's maize sector is undergoing a significant transformation. Over the last decade, maize has evolved from being a supplementary cereal to becoming a key raw material for multiple industries including animal feed, starch processing, food manufacturing and biofuel production. The rapid expansion of industrial demand in India, especially driven by the ethanol blending programme and animal feed demand, has positioned maize as a strategically critical crop for India's economy.

As India navigates rising maize demand, addressing supply chain challenges such as low productivity, poor post-harvest handling and inadequate post-harvest infrastructure becomes essential. In this context, this report provides an overview of the global demand - supply scenario, deep dives into the dynamics of India's maize ecosystem, identifies critical bottlenecks across domestic value chain and outlines key interventions for strengthening India's maize sector.

Chapter one of this report highlights the rapid transformation of maize within India's agricultural landscape. Maize continues to be the fastest growing cereal in India in terms of area, production and productivity. Over the last decade, production has nearly doubled from 22.57 million MT (in 2015–16) to about 50 million MT (in 2025–26). Rising consumption, especially for ethanol and feed industries, is expected to push the domestic demand levels to nearly 72 million MT by 2030–31. This anticipated growth underscores the urgent need for productivity enhancement, improved post-harvest management and stronger value-chain integration. The chapter also captures the growing strategic importance of maize in India's biofuel transition, as it has emerged as a key feedstock for ethanol production, surpassing rice and sugarcane.

Chapter two presents the global scenario of maize, covering production, consumption, trade, stocks and price movements. In 2025, global maize production was about 1.26 billion MT. USA, China, Brazil, Argentina and India collectively accounted for about 71% of the global output. On the consumption front, animal feed continues to hold the largest share, followed by biofuel and industrial applications. International maize exports remain concentrated among top exporters such as the USA and Brazil, while imports demand is more widely distributed across multiple countries. Despite geopolitical uncertainties, global maize prices are expected to follow a stable long term trajectory supported by adequate stocks.

Chapter three provides an in-depth analysis of India's maize area, production, productivity, consumption patterns, trade flows and price dynamics. Estimates indicate that India produced about 50 million MT of maize in 2025–26 across a cultivated area of about 13.69 million hectares. Maize productivity varied widely across states and seasons —with states like Andhra Pradesh and West Bengal achieving yields comparable to global benchmarks, while kharif season productivity in major rainfed states remained comparatively lower.

On the consumption side, animal feed accounted for about 54% of the total domestic maize use, followed by ethanol (25%) and starch (14%). About 7% was utilized for food, food processing and other uses. The chapter also captures trade, stock and price trends.

Chapter four outlines the key growth drivers and challenges across the maize supply chain. With domestic demand for maize growing faster than production and the fact that maize provides the right opportunity for crop diversification and increasing farmer income (specially for small and marginal farmers in rainfed areas), there is an imminent need to identify and address key barriers hindering growth of the Indian maize ecosystem. Multiple challenges across the value chain are depressing farm gate prices on one hand, while limiting the availability of good quality maize at competitive prices for end use industries on the other. Based on empirical evidence and detailed discussion with stakeholders across the value chain, key challenges have been identified. These include:

Challenges at Farm level

- Heavy dependence on rainfed cultivation and kharif season
- Climate related yield risks
- Inadequate pest and disease management
- Low mechanization
- Limited access to credit

Challenges in Post harvest handling and storage

- Lack of scientific drying
- Insufficient rapid testing facilities
- Moisture related spoilage
- Aflatoxin risk
- Limited storage and aggregation infrastructure

Industry level issues

- Varietal mismatch between what is grown and what industry needs
- Quality inconsistency
- High raw material costs
- Import constraints

Chapter five outlines the policy ecosystem supporting maize sector development, covering central and state government programs aimed at enhancing productivity, enabling crop diversification, modernizing post-harvest systems and promoting industrial usage. Key initiatives include the National Food Security and Nutrition Mission (NFSNM), Soil Health Card Scheme, Pradhan Mantri Fasal Bima Yojana (PMFBY) and ICAR–IIMR's extensive research pipeline supporting high-yielding and stress-tolerant hybrids. The chapter also captures policy support for feed, starch and ethanol industries, including the ethanol blending programme, interest subvention schemes and state-led missions such as Odisha's Mukhyamantri Maka Mission and Uttar Pradesh's Rapid Maize Development Scheme.

Chapter six of the report identifies five key pathways to strengthen the maize ecosystem in India. The first is improving farm level productivity through accelerated adoption of high-yielding hybrids, precision agronomy, climate resilient practices and higher mechanization. The second is strengthening post harvest handling by scaling scientific drying, storage infrastructure and bulk logistics while promoting FPO-led aggregation models. Third, building a robust quality assurance ecosystem by improving moisture management, expanding rapid testing, aligning grading standards and driving awareness on aflatoxin risks. Fourth, stabilizing raw material supply for industry by enhancing cluster-based sourcing models, developing long-term procurement frameworks, rationalizing import policies and focusing on industry-specific varietal development for feed, fuel, starch and food sectors. Fifth, aligning policies to balance food–feed–fuel priorities by improving data intelligence, enhancing forecasting systems, revisiting trade policies and anchoring ethanol expansion on productivity-led growth of maize.

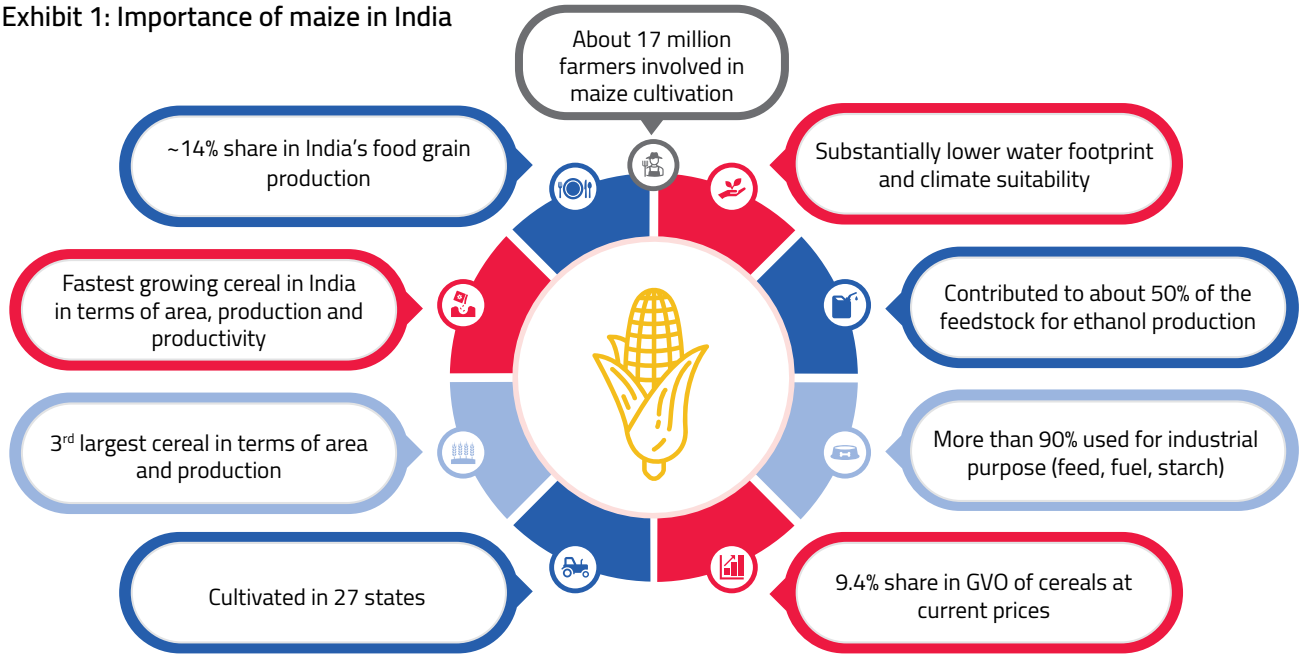
Implementing these interventions in a co-creation mode with strong public-private partnership as well as institutional partnership has the potential to strengthen industrial supply security while enhancing farmers' livelihood and rural prosperity.

1 Introduction

Maize has emerged as one of the fastest transforming crops within India's agricultural landscape. It has transitioned from a supplementary cereal to a critical input supporting multiple downstream value chains including feed, starch, food processing and ethanol.

Over the past decade, maize has recorded the fastest growth among major cereals across acreage, production and productivity. Between 2015–16 and 2025–26, the acreage under maize expanded at a CAGR of 4.5%, production grew at 8.3% and yield improved by 3.6%. In comparison, growth in food grains was significantly lower, with acreage growing at 0.8%, production at 3.3% and yield at 2.5%[1]. With production nearly doubling from 22.57 million MT in 2015–16 to about 50 million MT in 2025–26 and cultivated area increasing by 4.88 million hectares[2] during this period, maize has firmly positioned itself as a strategic crop for both agricultural transformation and industrial growth (refer exhibit 1).

Exhibit 1: Importance of maize in India



Source: https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2225982&reg=1&lang=1 ,UPAg Portal, MoSPI, Industry discussions, YES BANK Analysis

[1] UPAg Portal, YES BANK Analysis

[2] Area and production calculations are based on the Second Advance Estimates for maize acreage and output for 2025–26, to which the zaid season acreage and production figures for 2024–25 have been added, as 2025–26 zaid season estimates are presently unavailable.

The strategic role of maize is further reinforced by its promotion as a viable bioethanol feedstock, supporting national efforts to expand petrol blending and enhance energy security. The Government of India's strong focus to diversify raw material for bioethanol production has significantly driven the consumption of maize in the ethanol industry. As a result, maize has now emerged as the leading feedstock for ethanol, surpassing both sugarcane and rice. In 2024-25, about 12.5 million MT of maize was utilised for ethanol production, accounting for nearly 50% of the total feedstock used by the sector[3].

Simultaneously, other maize based industries like animal & poultry feed industries and starch industries are growing at 6-8% per annum[4] driven by rising demand for meat, starch and its derivatives and other value-added products. Consequently, the overall maize demand in India is projected to reach about 72 million MT by 2030-31, with ethanol alone expected to consume 20–25 million metric tonnes[5].

This surge in domestic demand has made it increasingly important to address persistent constraints across the maize value chain. Challenges such as low and variable farm productivity, weak post-harvest systems, quality inconsistencies and fragmented market linkages continue to limit farmer incomes while restricting the availability of high-quality maize at competitive prices for downstream industries.

Enhancing supply chain efficiency has therefore become essential to safeguard food security and support industrial growth. As maize assumes a central position within India's cereal economy, sustained improvements in productivity, post harvest management, quality assurance and value chain integration will be critical for strengthening its long term contribution to agricultural growth.

This report reviews global and domestic trends in maize production, consumption and trade; examines key challenges across the value chain and outlines strategic interventions aimed at building a more resilient, efficient and market aligned maize ecosystem in India.

[3] The estimate of 12.5 million MT has been derived based on a maize-based ethanol supply of 478 crore litres to OMCs during ESY 2024–25 (source: GEMA https://gemabharat.org/wp-content/uploads/2025/12/Ethanol-Supplied-To-Oil-Marketing-Companies.pdf) and using the PIB-reported conversion factor that 100 litres of ethanol can be produced from 2.63 quintals of maize. (https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=1707222&reg=3&lang=2#:~:text=Biofuels%20from%20Surplus%20from%20Food,upon%20number%20of%20factors%20viz.)

[4] Industry Discussions

[5] Why maize deserves centre stage in India's agricultural roadmap - The Economic Times

2 Global Maize Outlook

Maize is a versatile multi-purpose cereal crop, grown in diverse climates and ecologies across the globe. Its cultivation spans more than 170 countries across the Americas, Asia, Europe and Africa. Maize serves as an essential food staple across sub-Saharan Africa and Latin America, providing a balanced composition of carbohydrates (66-76%), moderate protein (5–13%), oil and fatty acids (3-18%), dietary fibers and essential micronutrients such as iron, zinc, magnesium and provitamin A and vitamin E.[6] On the other hand, maize is an important industrial and feed crop in countries like the United States and Brazil, where it is used mainly for livestock feed, ethanol production, starch manufacturing and food processing. Recognising this diversity in maize utilization is essential for interpreting global patterns in cultivated area, yield enhancement and production dynamics.

2.1 Area, Production and Yield Trends

Global maize production has grown at a CAGR of 1.98% over the last decade (2015 to 2025), increasing from 1,036.9 million MT in 2015 to 1,261.5 million MT in 2025[7].

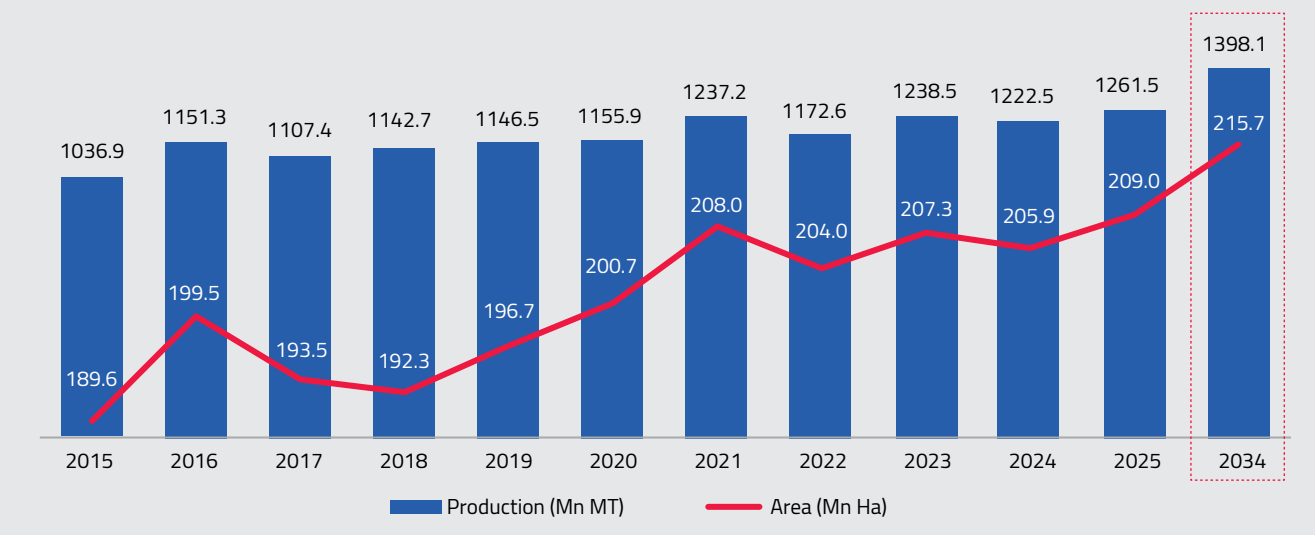
By 2034, maize output is projected to reach 1,398.1 million MT, growing at a CAGR of 1.15% during 2025-2034[8] (refer exhibit 2). In the coming decade, a higher share of global maize production is expected to originate mainly from yield improvements owing to use of improved and more widely accessible high yielding seed varieties, enhanced input use efficiency and improved agronomic practices. However, factors such as impact of climate change on yields, rising input and fertilizer costs, constraint in area expansion for maize cultivation and increased pest incidences could constrain maize output growth.

[6] FAO

[7] OECD-FAO Agricultural Outlook 2025-2034

[8] OECD-FAO Agricultural Outlook 2025-2034

Exhibit 2: Global maize production and area trends

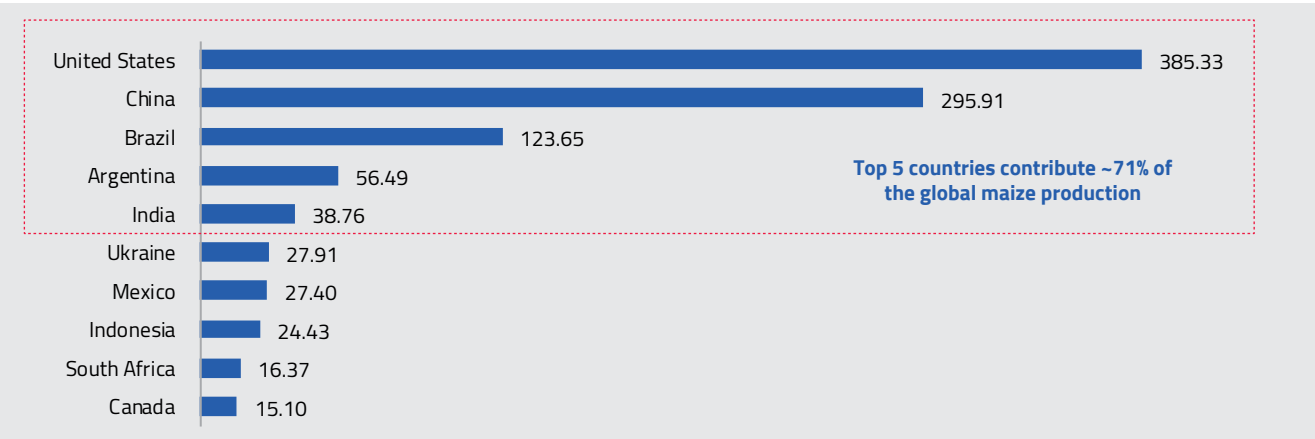


Source: OECD-FAO Agricultural Outlook 2025-2034, YES BANK Analysis, OECD-FAO estimates are on a marketing-year basis. The marketing year for maize starts on 1 September globally, and on 1 March in Australia

In 2025, United States was the world's largest producer of maize, with a total production of 385.33 million MT, followed by China (295.91 million MT), Brazil (123.65 million MT), Argentina (56.49 million MT) and India (38.76 million MT)[9]. Together, these five countries accounted for approximately 71% of global maize production in 2025 (refer exhibit 3).

Over the next decade, Brazil and United States are expected to drive the largest increases in global maize supply, adding about 30 million MT and 19 million MT respectively to production (by 2034 compared to 2025 levels). Increased production in Brazil is projected to be largely driven by the continued expansion of its second-crop (safrinha) maize area. Exhibit 3 shows top 10 countries in terms of maize production.

Exhibit 3: Top 10 countries in terms of maize production (Million MT) in 2025



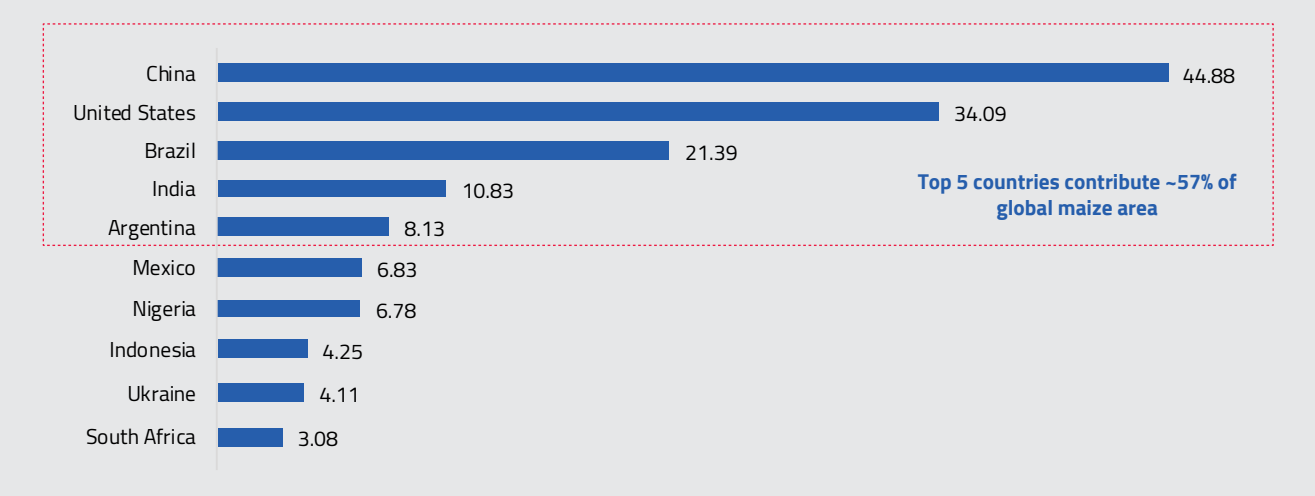
Source: OECD-FAO Agricultural Outlook 2025-2034, YES BANK Analysis. OECD-FAO estimates are basis marketing-year for maize which starts on 1 September globally, and on 1 March in Australia.

Note: As per 2nd Advance Estimates of Ministry of Agriculture and Farmers Welfare for 2025-26, maize production is estimated to be 46.15 Mn MT. This data excludes summer season estimates for 2025-26.

[9] OECD-FAO Agricultural Outlook 2025-2034, Note: As per 2nd Advance Estimates of Ministry of Agriculture and Farmers Welfare for 2025-26, maize production is estimated to be 46.15 Mn MT. This data excludes summer season estimates for 2025-26

In terms of area, maize cultivation has increased from 189. 6 million Ha in 2015 to 209 million Ha in 2025, growing at a decadal CAGR of 0.98%[10]. Five countries, namely, China (44.88 million Ha) United States (34.09 million Ha), Brazil (21.39 million Ha), India (10.83 million Ha) and Argentina (8.13 million Ha), together account for approximately 57% of global maize acreage (refer exhibit 4)[11].

Exhibit 4: Top 10 countries in terms of maize acreage (Million Ha) in 2025



Source: OECD-FAO Agricultural Outlook 2025-2034, YES BANK Analysis. OECD-FAO estimates are basis marketing-year for maize which starts on 1 September globally, and on 1 March in Australia.

Note: As per 2nd Advance Estimates of Ministry of Agriculture and Farmers Welfare for 2025-26, maize acreage is estimated to be 12.84 Mn Ha. This data excludes summer season estimates for 2025-26.

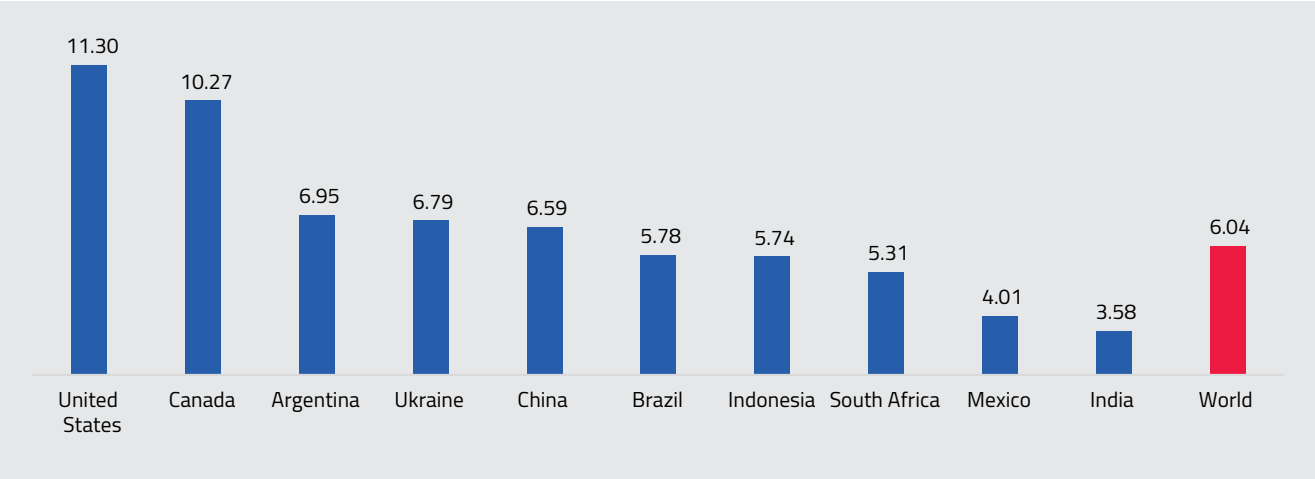
Global maize area is expected to grow at a modest CAGR of 0.34% during 2025-2034 due to land constraints. As a result, production growth in maize would primarily depend on productivity gains and increased planting of biotech varieties. Over the last decade, the global average productivity of maize has grown from 5.47 MT/Ha (in 2015) to 6.04 MT/Ha (in 2025), witnessing a CAGR of 0.99%. In 2025, among the top 10 maize producing countries, the highest yields were recorded in the USA, with average productivity of 11.30 MT/Ha, followed by Canada (10.27 MT/Ha) and Argentina (6.95 MT/Ha) (refer exhibit 5).

[10] OECD-FAO Agricultural Outlook 2025-2034, YES BANK Analysis

[11] OECD-FAO Agricultural Outlook 2025-2034, YES BANK Analysis

Note: As per 2nd Advance Estimates of Ministry of Agriculture and Farmers Welfare for 2025-26, maize acreage is estimated to be 12.84 Mn Ha. This data excludes summer season estimates for 2025-26.

Exhibit 5: Productivity of maize across major producing countries (in 2025, MT/Ha)



Source: OECD-FAO Agricultural Outlook 2025-2034, YES BANK Analysis. OECD-FAO estimates are on a marketing-year basis. The marketing year for maize starts on 1 September globally, and on 1 March in Australia

Note: As per 2nd Advance Estimates of Ministry of Agriculture and Farmers Welfare for 2025-26, maize yield is estimated to be 3.60 MT/Ha. This data excludes summer season estimates for 2025-26.

The global maize production, acreage and yield outlook for the top 4 maize producing countries during the period 2025 to 2034 is detailed in exhibit 6.

Exhibit 6: Maize outlook of top producing countries for the period 2025 to 2034

USA

- The U.S is expected to remain as the world's largest maize exporter during the period 2025-2034
- U.S. maize production is projected to increase by 33 million MT by 2034, the largest absolute gain globally.
- Maize is expected to continue as the primary feedstock for ethanol production, comprising 99% of production by 2034.

China

- China's maize production is projected to increase by 27 million MT by 2034.
- China's maize imports are expected to decline by 20% by 2034 from the base period due to the country's strategic reserve and trade policy, increased domestic production, and feed diversification.
- Maize feed demand in China is projected to increase by about 1% p.a., down from 2.5% in the previous decade, due to slower livestock production growth and improvements in feed efficiency.

Brazil

- Brazil's annual maize production growth rate is projected to surpass global average maize production growth rate of 1.2% p.a.
- Brazil's maize export growth is expected to be more than double the world average of 1.6% p.a. over the base period to 2034
- Ethanol consumption and production in Brazil are both projected to increase by 2.1% p.a., driven by the National Biofuels Policy
- Maize-based ethanol output is expected to reach 9.6 billion liters by 2034 from existing 7 billion litres in 2024

Argentina

- Argentina is expected to add 14 million MT of maize production by 2034.
- Argentina is expected to contribute ~33 Mn MT of global maize exports by 2034

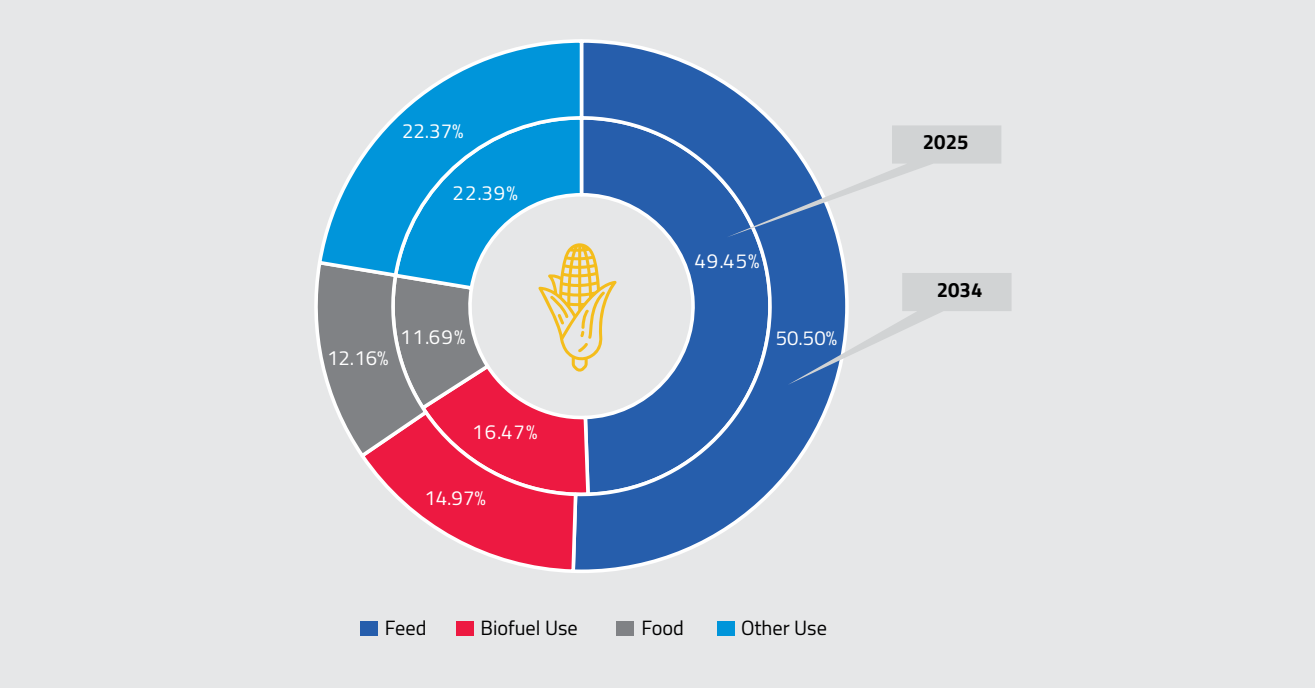
Source: OECD/FAO (2025), OECD-FAO Agricultural Outlook 2025-2034, Paris and Rome, https://doi.org/10.1787/601276cd-en.

Note: Base period is average of observation values of 3-year period from 2022-2024. All absolute and percentage changes are estimated relative to the base period, unless stated otherwise

2.2 Consumption

Over the last decade, global maize consumption has exhibited steady growth, increasing from 1,043.08 million MT in 2015 to 1,253.15 million MT in 2025, at a CAGR of 1.94%[12]. This expansion has been driven by differentiated growth across end-use segments, with biofuel demand registering the fastest growth at a CAGR of 2.29%, followed by feed use at 2.11%, food consumption at 1.39% and other uses at 1.24%. In terms of sectoral end use, in 2025, animal feed accounted for 49.45% of total global maize consumption, followed by biofuel (16.47%), food (11.69%) and other usage (22.39%) (refer exhibit 7).

Exhibit 7 : Global trends in sectoral offtake of maize



Source: OECD-FAO Agricultural Outlook 2025-2034, YES BANK Analysis

The global consumption of maize is expected to increase to 1,403.22 million MT in 2034 at a CAGR of 1.85%, driven mainly by higher demand for animal feed. The proportion of maize used in animal feed is expected to further increase to about 50.5% (from current 49.4% in 2025), mainly due to rapid expansion of the livestock and poultry sectors in Asian countries. It is projected that feed consumption will grow at a CAGR of 1.50% during the period 2025 to 2034. Similarly, food consumption is expected to grow by 1.71% during the same period.

The use of white maize as food is also projected to rise steadily, led by Sub-Saharan Africa, where food consumption of maize is growing at about 2.8% per annum and maize remains a key staple contributing nearly one-quarter of caloric intake[13]. An increase of 1.26% CAGR has been projected for "other uses" category, while the biofuel category is anticipated to experience a CAGR growth of 0.19%. It is expected that the growth of maize for biofuel production will be moderate, as current biofuel related policies focus on other sources of ethanol (both natural and artificial) for blending.

[12] OECD-FAO Agricultural Outlook 2025-2034

[13] OECD/FAO (2025), OECD-FAO Agricultural Outlook 2025-2034, Paris and Rome, https://doi.org/10.1787/601276cd-en.

Key factors influencing global maize consumption across various end use segments is captured in exhibit 8.

Exhibit 8: Key factors influencing global maize demand across various end use segments

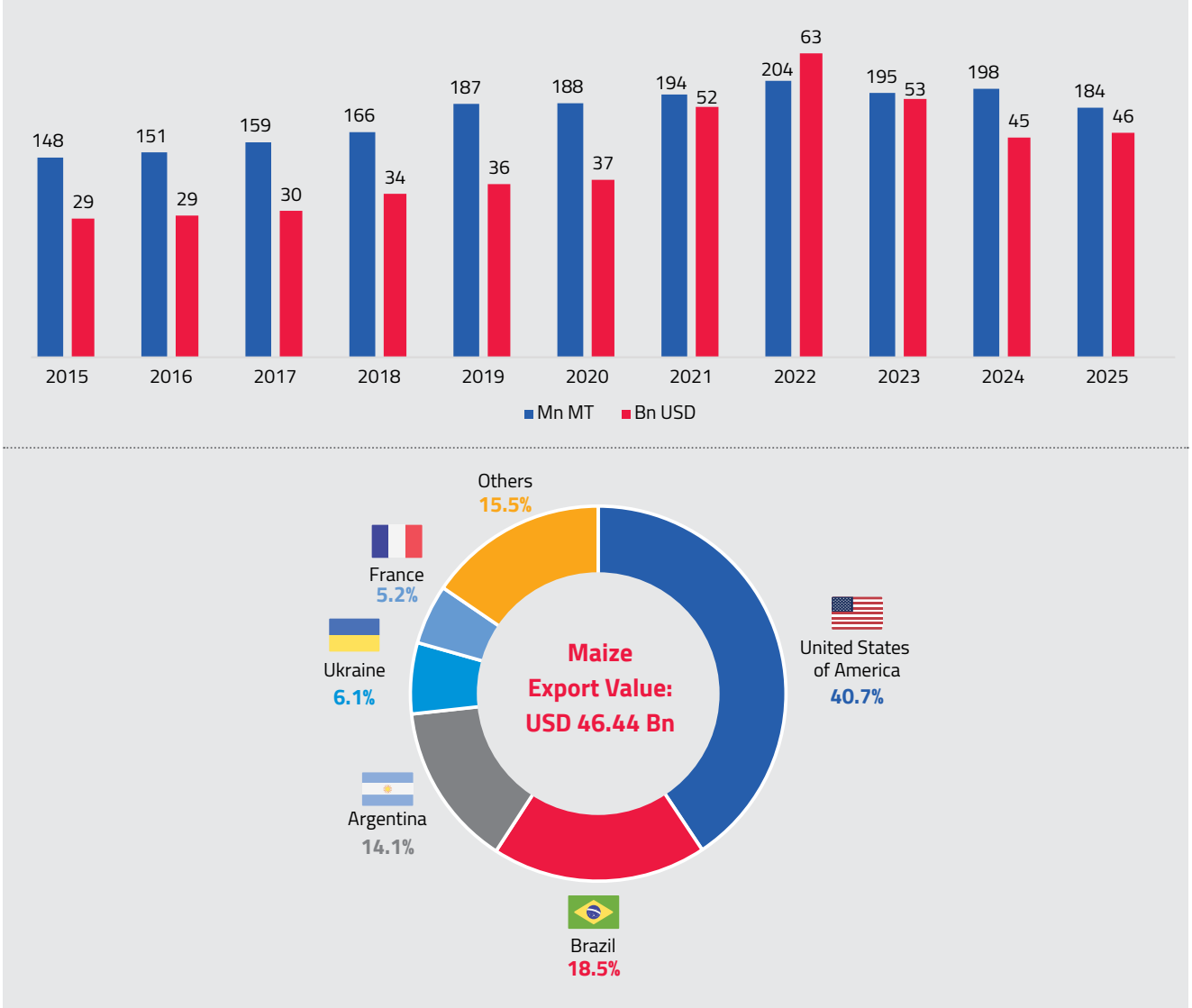
FACTOR	INFLUENCE
Rising Demand for Animal Feed 	▪ Rapid growth in consumption of poultry meat, eggs, dairy and aquaculture products, particularly in emerging middle income economies—is driving a sustained increase in demand for compound feed, where maize remains the primary energy source. ▪ Globally, feed accounts for nearly 50% of total maize utilization and this share is projected to rise further as livestock and poultry systems expand and modernize. ▪ The most significant expansion in feed-driven maize demand is expected in Asia and the Americas, where scaling of commercial livestock and poultry enterprises is accelerating.
Expanding Biofuel Use 	▪ Global biofuel use is projected to increase at ~0.9% per annum upto 2034, supported by increasing transport fuel demand and supportive domestic policies and rising production capacities in countries such as India, Brazil and Indonesia. ▪ Maize continues to remain the principal feedstock for ethanol in key producing geographies and policy measures—such as increased procurement price of maize based ethanol—support structural growth in maize diversion toward biofuel. ▪ While the biofuel segment is expanding, its incremental growth remains moderate relative to the feed sector, keeping its proportional share comparatively lower.
Increased Demand for Industrial Usage 	▪ A growing proportion of global maize output is being channeled into starch, sweeteners, processed foods, bioplastics, pharmaceuticals, textiles and other industrial applications, supported by rapid urbanization and expansion of food processing capacities. ▪ Industrial consumption is strengthening across Asia, particularly in China, where manufacturing capacities for starch, sweeteners and derivatives continue to scale up in response to rising downstream demand.
Food Use: Regional and population-Driven 	▪ In Sub-Saharan Africa, maize food use growth is fastest—2.8% annually and maize delivers nearly 25% of caloric intake. ▪ Growth is concentrated in Africa, Mexico and Central America, where maize is a key staple for tortillas, porridge, meal and beverages.

Source: OECD/FAO (2025), OECD-FAO Agricultural Outlook 2025-2034, Paris and Rome, https://doi.org/10.1787/601276cd-en.; YES BANK Analysis

2.3 Trade Trends

In the year 2025, global exports of maize were valued at approximately USD 46.44 billion, spanning across 85 countries[14]. This export value grew at a CAGR of 4.93% over the last decade, rising from USD 28.69 billion in 2015. Bulk of this trade was concentrated among the top five maize exporting nations, which together accounted for about 84% of total exports. The leading exporters were USA (40.7%), Brazil (18.5%), Argentina (14.1%), Ukraine (6.1%) and France (4.2%) (refer exhibit 9). In volume terms, global maize exports reached 184.37 million MT in 2025. Export volumes grew at a CAGR of 2.26% over the decade, up from 147.51 million MT in 2015.

Exhibit 9: Global maize export trend and key exporters



Source: ITC TradeMap (Data an on 23.04.2026), YES BANK Analysis

[14] ITC Trade Map, YES BANK Analysis

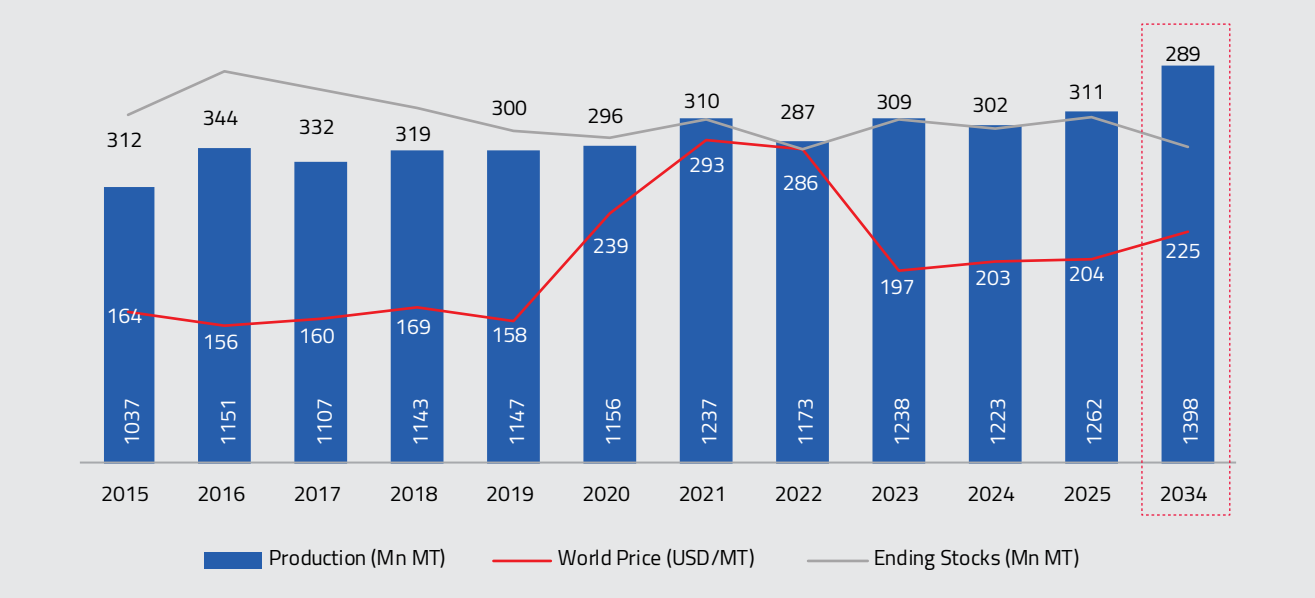
ITC trademap data analysis indicates that the top 5 importers contributing just about 39% of total value of imports. The leading importers were Japan (12%), Korea (9%), Spain (7%), Italy (6%) and Colombia (6%)[15]. China, once a major global maize importer, is no longer among the top buyers as its import demand has decreased from about 13.8 million MT in 2024 to 2.65 million MT in 2025[16]—driven by record domestic harvests and a strengthened national push toward grain self-sufficiency.

2.4 Stock and Price Trends

Global maize stocks typically follow the pattern of production i.e., with increase in production ending stock also increases. With higher production in the USA and India, global maize ending stocks increased from 302 Mn MT in 2024 to 311 Mn MT in 2025.

The global maize prices are expected to increase marginally from USD 203 per MT in 2024 to USD 204 per MT in 2025 (refer exhibit 10). The geopolitical tensions around the Strait of Hormuz have lifted energy and oil prices, supporting ethanol and biodiesel demand prospects, indirectly increasing the demand of maize[17]. However, the impact of conflict on maize prices remains modest, given the ample availability of global maize stocks. In the coming decade, global maize prices are expected to return to their medium-term trajectory, reaching an estimated USD 225 per MT by 2034.

Exhibit 10: Trend of global maize stock and price vis-à-vis production



Source: OECD-FAO Agricultural Outlook 2025-2034, YES BANK Analysis

[15] ITC Trade Map data as on 26.04.2026

[16] ITC Trade Map data as on 26.04.2026

[17] AMIS Market Monitor Report (April 2026 Edition)

3 Indian Maize Outlook

With an annual production of about 50 million MT (2025-26) and a 14%[18] share in the country's total food grain production, maize is the 3rd largest food grain produced in India after rice and wheat. Globally, India ranks 4th in terms of acreage and 5th in terms of annual production, contributing about 6% and 4% to world acreage and production respectively.

In India, Maize is cultivated year round, across most states and serves a wide variety of purposes including for food, feed, fodder, starch, ethanol and other industrial applications. Owing to its high adaptability and tolerance to climatic variability, maize thrives in 21 different agro-ecological regions in the country and is grown across all three crop seasons of Kharif (June-October), Rabi (November- April) and Zaid (February- May).

Every component of the maize plant carries economic value; the grains, leaves, stalk, tassel and cob are all used to produce a variety of food, feed, fodder and diverse industrial products. It stands out as a highly efficient crop in terms of biomass production. Its straw has long been utilized as animal fodder and is considered superior in quality to most non legume cultivated fodders. With a water footprint of approximately 2,060 litres per kilogram[19], maize also has lower irrigation requirements, which not only reduces pressure on freshwater resources but also enhances its suitability for climate-resilient agriculture. Estimates suggest that just about 42% of maize is cultivated under irrigated conditions, compared to 70% of rice and 95% of wheat[20].

In India, the production and consumption of maize have both increased significantly, driven by a notable transformation in its consumption pattern over the years. Historically, maize consumption in India was predominantly food based, with about 70% used as food until the late 1980s.[21] However, rapid urbanization, expansion of the poultry and dairy industries and rising demand from starch, food processing and other industrial sectors have significantly altered the consumption pattern. Today, nearly 93% of maize is used for industrial and feed purposes, marking a significant structural shift in demand.

Maize continues to be the fastest growing cereal crop in India in terms of area, production and productivity. Between 2015-16 and 2025-26, while the acreage, production and yield of maize have grown at a CAGR of 4.5%, 8.3% and 3.6%, respectively, that of food grains as a whole has grown at 0.8%, 3.3% and 2.5% (refer exhibit 11).

[18] UPAg Portal, YES BANK Analysis

[19] https://agris.fao.org/search/en/providers/122535/records/65dff59f4c5aef494fe72bec

[20] https://desagri.gov.in/ (Land Use Statistics at a Glance 2023-24)

[21] Kumar, R., K. Srinivas and N. Sivaramane (2013), Assessment of the maize situation, outlook and investment opportunities in India. Country Report – Regional Assessment Asia (MAIZE-CRP), National Academy of Agricultural Research Management, Hyderabad, India.

Exhibit 11: Comparative assessment of area, production and productivity trends

Crop	2025-26			10-year CAGR (%)		
	Area (Mn Ha)	Production (Mn MT)	Yield (MT/Ha)	Area	Production	Yield
Rice	49.15	140.65	2.9	1.2%	3.0%	1.8%
Wheat	33.46	120.21	3.6	1.0%	2.7%	1.7%
Maize*	**13.69**	**50**	**3.7**	**4.5%**	**8.3%**	**3.6%**
Bajra	6.24	8.84	1.4	-1.3%	0.9%	2.3%
Jowar	3.61	4.23	1.2	-5.1%	-0.02%	5.3%
Ragi	1.35	2.01	1.5	1.7%	1.0%	-0.7%
Barley	0.73	2.34	3.2	2.1%	5.0%	2.8%
All cereals	107.77	324.79	3.0	0.9%	3.3%	2.3%
All pulses	25.91	23.87	0.9	0.4%	3.9%	3.5%
All foodgrains	**133.68**	**348.66**	**2.6**	**0.8%**	**3.3%**	**2.5%**

Source: UPAg Portal, YES BANK Analysis

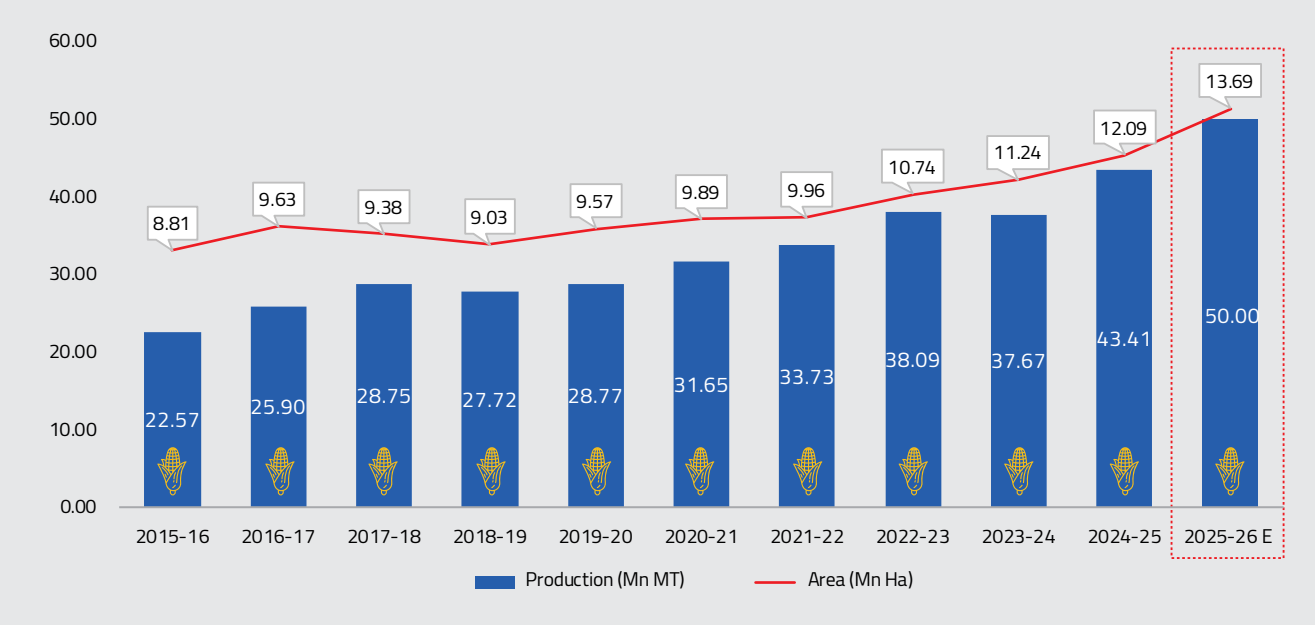
* As per the 2nd advance estimates by MoA&FW, maize production for 2025-26 is 46.15 Mn MT across 12.83 Mn Ha. Since these estimates exclude the zaid/ summer crop, previous years' summer season area and production have been added to arrive at the total estimates for 2025-26.

3.1 Area, Production & Productivity

In the year 2025-26, about 50 million MT of maize was produced across a total cultivated area of about 13.69 million ha in India[22]. Over the period from 2015-16 to 2025-26, production has nearly doubled from 22.57 million MT about to 50 million MT growing at a CAGR of 8.3%, while acreage under cultivation has increased from 8.81 million Ha to about 13.69 million Ha growing at a CAGR of 4.5%. This suggests that production gains have been driven more by improvements in productivity than by expansion in cultivated areas. Exhibit 12 highlights trends in the area and production of maize in India from 2015-16 to 2025-26.

[22] As per the 2nd advance estimates by MoA&FW, maize production for 2025-26 is 46.15 Mn MT across 12.83 Mn Ha. Since these estimates exclude the zaid/ summer crop, previous years' summer season area and production have been added to arrive at the total estimates for 2025-26.

Exhibit 12: Decadal trends in area and production of maize in India



Source: UPAg Portal, Ministry of Agriculture & Farmers Welfare, YES BANK Analysis

* As per the 2nd advance estimates by MoA&FW, maize production for 2025-26 is 46.15 Mn MT across 12.83 Mn Ha. Since these estimates exclude the zaid/ summer crop, previous years' summer season area and production have been used to arrive at the final estimates for 2025-26.

In India, maize is principally grown in two seasons: rainy (kharif) and winter (rabi) with some production in summer (zaid) season. During 2025-26, Kharif accounted for 72% of the maize area followed by rabi (22%) and summer (6%)[23]. In terms of production, Kharif accounted for 60% of the total maize production followed by rabi (32%) and zaid (8%). The average productivity of maize cultivated in kharif was 3.1 MT/ha while it was 5.3 MT/ha in rabi and 4.5 MT/ha in summer (refer exhibit 13). There has been significant increase in yield in both kharif and rabi season over the last decade.

[23] UPAg Portal, YES BANK Analysis

Exhibit 13: Season wise trends of maize (in terms of area, production and yield)

Season wise trends			
Kharif			
Year	Area (Mn Ha)	Production (Mn MT)	Yield (MT/Ha)
2015-16	7.18	16.05	2.24
2025-26	9.82	30.25	3.1
Rabi			
2015-16	1.63	6.51	4.01
2025-26	3.02	15.90	5.3
Summer (Zaid)*			
2015-16	0.00	0.00	0.00
2025-26	0.85	3.85	4.5
Total			
2015-16	8.81	22.57	2.6
2025-26	13.69	50	3.7

Source: https://upag.gov.in/ , Ministry of Agriculture & Farmers Welfare, YES BANK Analysis

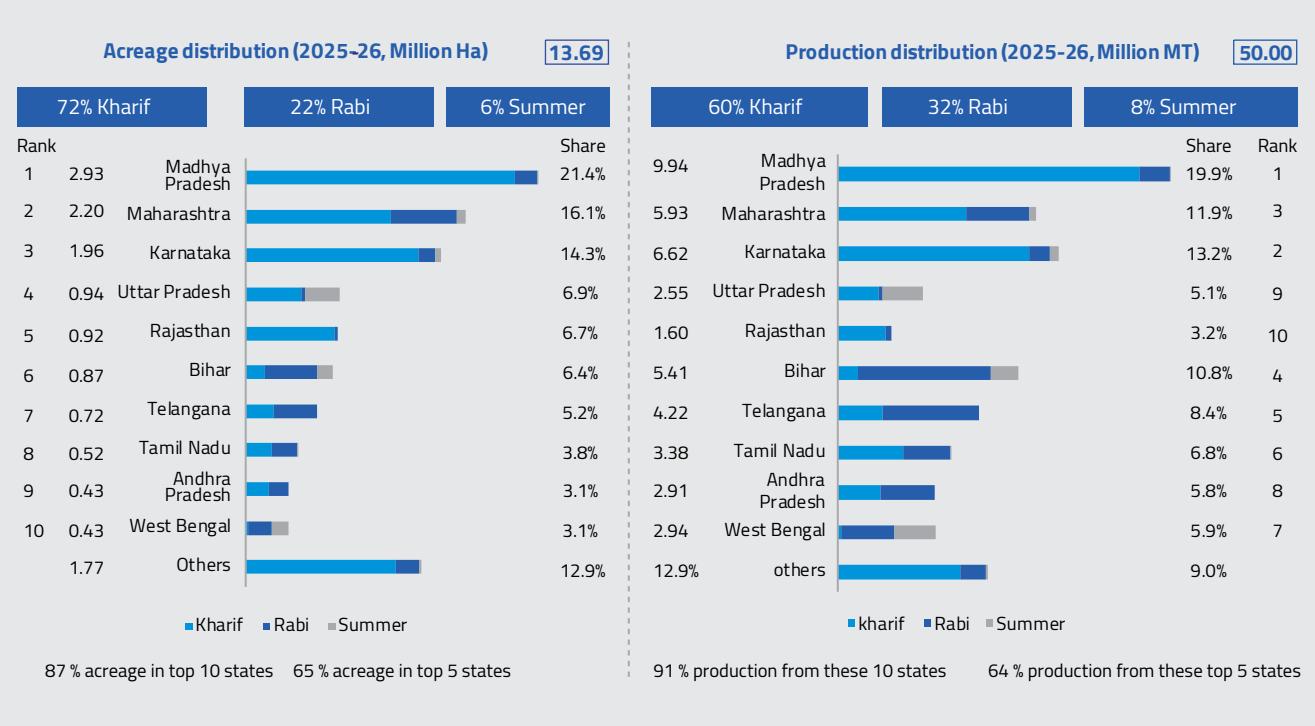
* The data for the summer/ zaid season area, production and productivity is for 2024–25, as the corresponding estimates for 2025–26 have not been published.

Maize cultivation in India is predominantly a kharif-season activity across major producing states such as Madhya Pradesh, Rajasthan, Karnataka and Maharashtra. In contrast, states like Bihar, Andhra Pradesh, Tamil Nadu and Telangana play a significant role in rabi maize production. Compared to kharif maize, rabi maize benefits from longer sunshine hours and lower pest pressure, resulting in higher yields[24]. Zaid (summer-season) maize, though currently a relatively small segment of India's overall maize acreage, is witnessing an upward trend with states such as Uttar Pradesh, Bihar, West Bengal, Karnataka and Maharashtra increasing maize production during this period.

During the year 2025-26, the top 10 maize producing states contributed about 91% and 87% to total country's maize production and area respectively (refer exhibit 14).

[24] Jat, R.K., Durgude, S., Meena, V.S., Sohane, R.K., Singh, R.N., Reddy, I.R., Kumar, S., Pazhanismy, S., Meena, S.K., Sharda, K. and Singh, S., 2025. Unlocking winter maize potential: pioneering on-farm strategies for resilient yields in challenging climates. Frontiers in Agronomy, 7, p.1562623.

Exhibit 14:Top 10 maize states of India in terms of production and acreage



Source: https://upag.gov.in/ , Ministry of Agriculture & Farmers Welfare, YES BANK Analysis

* As per the 2nd advance estimates by MoA&FW, maize production for 2025-26 is 46.15 Mn MT across 12.83 Mn Ha. Since these estimates exclude the zaid/ summer crop, previous years' summer season area and production have been added to state totals to arrive at the state level estimates for 2025-26.

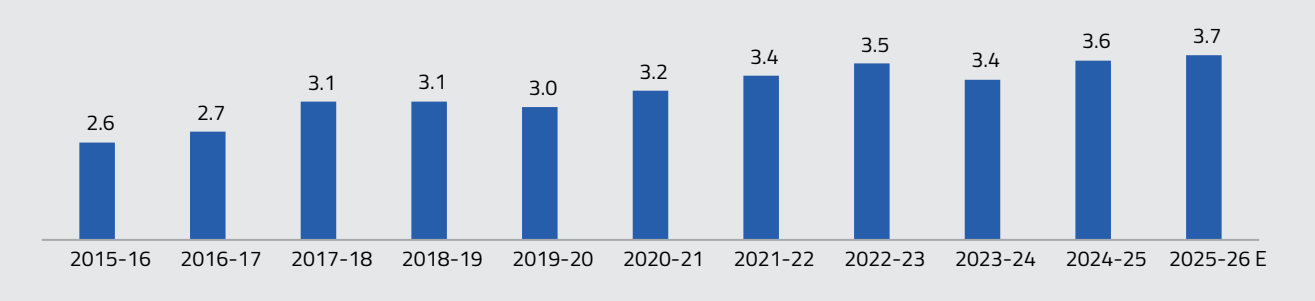
Productivity

Over the period 2015-16 to 2025-26, average productivity in India increased from 2.6 MT/Ha to 3.7 MT/Ha, growing at a decadal CAGR of 3.7% (refer exhibit 15). This improvement has been driven by better nutrient management practices, wider adoption of high yielding variety seeds and the crop's climate resilient nature. The private seed industry has been instrumental in advancing productivity by continually introducing superior, higher yielding hybrids, predominantly single cross hybrids.

At present, hybrid maize, which is mostly feed and industrial grade, constitutes around 70%[25] of the cultivated area, while food grade corn cultivated from traditional cultivars remain largely confined to household and subsistence consumption in regions where maize forms part of the local diet.

[25] Industry discussions

Exhibit 15: Decadal trends in productivity of maize in India (in MT/Ha)

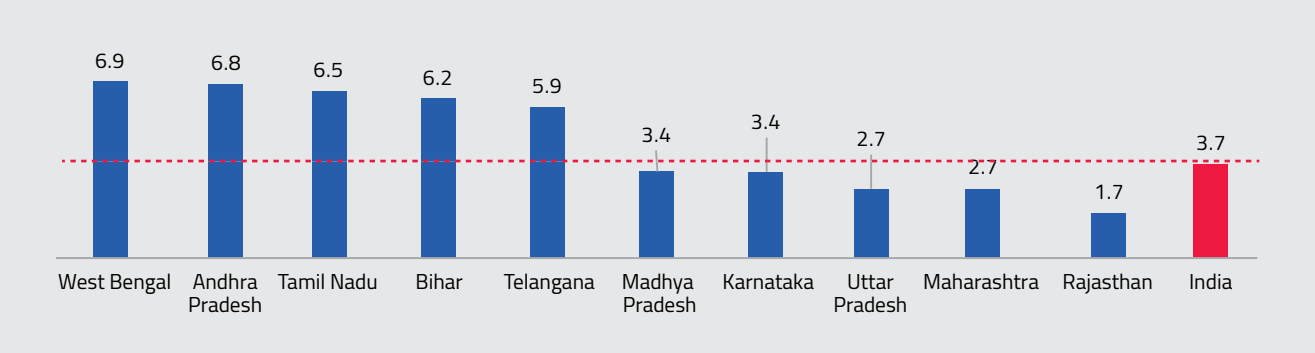


Source: UPAg Portal, YES BANK Analysis

*Productivity of maize has been estimated based on calculations done for area and production for the year 2025-26. As per the 2nd advance estimates by MoA&FW, maize production for 2025-26 is 46.15 Mn MT across 12.83 Mn Ha. Since these estimates exclude the zaid/ summer crop, last years' summer season area and production have been added to arrive at the total estimates for 2025-26.

Productivity of maize, across the top 10 maize producing states is indicated in exhibit 16. West Bengal, Andhra Pradesh, Tamil Nadu, Bihar and Telangana registered productivity levels higher than the average India productivity, owing to prominent rabi season cultivation in these states.

Exhibit 16: Productivity across top 10 maize producing states in India (MT/Ha, 2025-26)



Source: UPAg Portal, YES BANK Analysis

*Productivity of maize for states has been estimated based on calculations done for area and production for the year 2025-26. The 2nd advance estimates by MoA&FW exclude the zaid/ summer crop, hence previous years' summer season area and production have been added to arrive at the state wise total estimates for 2025-26.

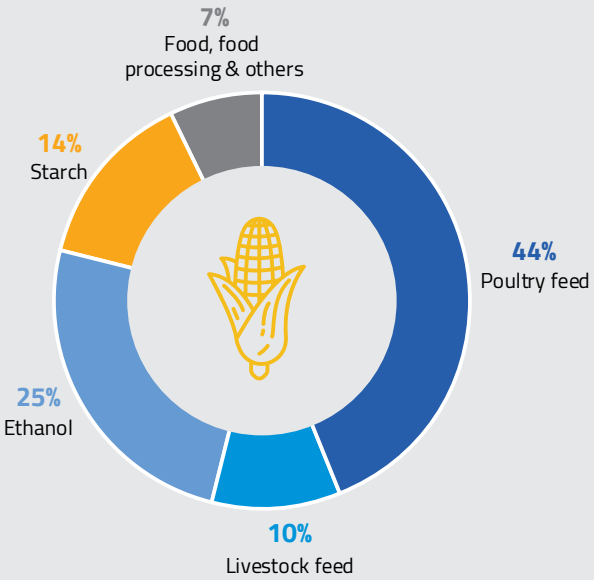
When benchmarked against the global average maize productivity of 6.04 MT/ha[26], only a few states of India surpass this threshold. Telangana (5.9 MT/ha), Bihar (6.2 MT/ha), Tamil Nadu (6.5 MT/Ha), Andhra Pradesh (6.8 MT/ha) and West Bengal (6.9 MT/ha) registered productivity levels close to or above the global benchmark. All other maize-growing states in India continue to operate at productivity levels lower than global average of 6.04 MT/ha.

[26] OECD-FAO Agricultural Outlook, 2025-2034

3.2 Consumption

India's maize consumption was estimated at about 50 million MT for 2025-26[27]. The animal feed industry accounted for around 54% (poultry feed-44% and livestock feed- 10%) of total maize consumption, making it the largest demand segment, followed by the ethanol industry (25%), starch industry (14%) and food, food processing and other uses (7%). (refer exhibit 17).

Exhibit 17: End use wise contribution to maize consumption in India (2025-26)



Source: Industry discussions

An overview of the key trends in each of the end use sectors and their impact on maize demand is captured herewith.

Feed Industry

India is one of the largest and fastest growing compound feed markets in the world. Poultry and dairy sectors constitute major sources of feed demand in India. Of the total feed requirements met through compound feed, approximately 72-75% is for poultry feed and 10-12% for cattle feed[28].

Animal feed formulations typically draw on a range of raw materials including maize, wheat, bajra, soybean, oil cakes, sugarcane and rice bran among others. Among these ingredients, maize is extensively used as a primary source of calories in feed formulations as it leads to highest conversion of dry substance to meat, milk and eggs as compared to other cereal grains. With moderate protein and crude fibre content, maize remains particularly well suited for poultry nutrition. In the poultry feed industry, maize constitutes about 60-65% of the feed formulation, making it a critical raw material for the industry.

Overall, in animal feed formulations, maize continues to play a central role as strong demand from the local feed industry drives significant maize utilization, reinforced by sustained growth in poultry and livestock sectors.

[27] Industry discussions
[28] Industry discussions

Starch Industry

Maize has about 65-70% starch content, making it a highly suitable raw material for starch processing. The starch industry in India has an estimated crushing capacity of 11-12 million MT and relies predominantly on maize for production of starch for multiple industrial and food uses.

Maize used for starch production was estimated to be around 7 million MT in 2025-26 and is expected to grow at ~5-6% over next few years[29]. Maize starch and its derivatives have wide utility across various industries, including food, paper, pharmaceutical, textiles, cosmetics, adhesives and bio-plastics. Growth in e commerce is further boosting demand for paper and cardboard packaging, indirectly supporting expansion in the starch industry.

In the food sector, maize starch and derivatives are used as sweeteners, flavour & colour enhancers, thickening agents, stabilizers and inducers of crispiness, bulkiness, anti-crystallization, texture, humectant, dusting and extrusion. Sweeteners derived from maize starch are increasingly being adopted as substitutes for sugar in industrial food processing. Rising health consciousness among consumers is also driving preference for products formulated using maize starch and derivatives due to their nutritional content.

Food Industry

Increasing consumer awareness around health and wellness has resulted in a marked shift in preference towards snacks that are baked or roasted, rather than fried. Maize serves as a key ingredient in many such processed snacks and savouries. Maize based snacks are comparatively low in bulk density and are popularised as high fibre and comparatively low-calorie healthy snacks.

Demand for food grade corn in processed food segment is also growing steadily, driven by its use in breakfast cereals, RTE savouries, extruded snacks, traditional namkeens and popcorn. Popcorn in particular has emerged as a major product category within India's snacks industry, indicating substantial potential for further growth. Frozen sweet corn and baby corn are the other two categories with high potential, on account of their health benefits and exotic nature.

High value derivatives of maize such as corn glucose, corn oil, dextrose and sorbitol are widely used in the food processing industry. The use of maize in processed foods, particularly in the FMCG sector, is expected to grow at about 5% annually[30].

Maize also continues to hold a prominent position in the kitchens of traditional maize growing regions such as Rajasthan where maize is primarily grown for preparation of maize flour, which in turn is used to prepare the traditional "Makki ki roti". Additionally, rising demand for coarse grain based, fortified or multi grain flour in urban markets is also expected to drive maize demand further.

[29] Industry discussions

[30] https://economictimes.indiatimes.com/small-biz/sustainability/why-maize-deserves-centre-stage-in-indias-agricultural-roadmap/articleshow/127596209.cms?from=mdr

Ethanol Industry

The ethanol production in India is estimated to reach 12,000 million litres for Ethanol Supply Year (ESY) 2025-26[31], driven by the Government of India's target of achieving 20% ethanol blending (E20). In July 2025, India achieved an ethanol blending rate of 19.93%[32], marking a significant milestone towards the national target.

During FY 2025–26, approximately 12.5 million MT of maize was utilized for ethanol production, reflecting the crop's growing importance as a key feedstock under the E20 programme.[33] To boost ethanol production and strengthen domestic supply, the Government has introduced several policy measures, including an administered price mechanism for Ethanol procurement under the Ethanol Blended Petrol (EBP) Programme, a reduction in GST rate to 5% on Ethanol supplied for EBP Programme and introduction of multiple Ethanol Interest Subvention Schemes (EISS) between 2018 and 2022 to support Ethanol production from both molasses as well as grains.

Supported by this sustained policy push, rising blending requirements and increasing investments in grain based distillation capacity, the ethanol industry is expected to continue expanding at an annual growth rate of 4-5%[34].

Fodder & Silage

Maize stalks and shanks serve as valuable sources of fodder and feed and are also widely used in the preparation of silage for the lean season. The quality of maize fodder is considered better than that of sorghum and pearl millet, as the latter contain anti-nutritional components such as prussic acid (HCN) and oxalate, respectively. Approximately 1 million Ha of cultivated maize area in India is dedicated to fodder production[35].

Silage maize, which has a relatively short crop duration of about 80 days, is regarded as an effective option for addressing fodder shortages. With the dairy sector growing at about 6%[36] and the increasing shortage of fodder, the demand for silage maize is expected to rise.

Exhibit 18 captures the impact of various end use sectors on maize demand.

Exhibit 18: Impact of end use sectors on domestic maize demand

Feed industry	High impact on maize demand	★★★★★
Starch Industry	Medium to high impact on maize demand	★★★★☆
Food Industry	Low to medium impact on maize demand	★★☆☆☆
Ethanol	High impact on maize demand	★★★★★
Fodder & silage	Medium impact on maize demand	★★★☆☆

Source: Industry discussions, YES BANK analysis

[31] Industry discussions

[32] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2155110&reg=3&lang=2

[33] Industry discussions; https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=1707222&reg=3&lang=2#:~:text=Biofuels%20from%20Surplus%20from%20Food,upon%20number%20of%20factors%20viz.

[34] Industry discussions

[35] Industry discussions

[36] PIB

3.3 Trade Scenario

India exported about 4,41,529.75 MT of maize in the year 2025, valued at USD 170.3 million. Nepal was the major importing nation, contributing to 67.3% of total maize exports, followed by Sri Lanka (12.3%), Bhutan (6.9%), Oman (3.8%) and Bangladesh (2.7%).

In 2025, India also imported 2,60,015.86 MT of maize worth USD 78.5 million. Top countries which exported maize to India were Myanmar (53.6%), Ukraine (27.8%), Singapore (9.9%), South Africa (5.1%) and Brazil (2.3%) (refer exhibit 19).

Exhibit 19: Top 5 maize trade partners for India in 2025- Quantities in '000 MT

Country	Volume exported (in '000 MT)	% Share
Nepal	297.0	67.3%
Sri Lanka	54.4	12.3%
Bhutan	30.4	6.9%
Oman	16.8	3.8%
Bangladesh	12.0	2.7%

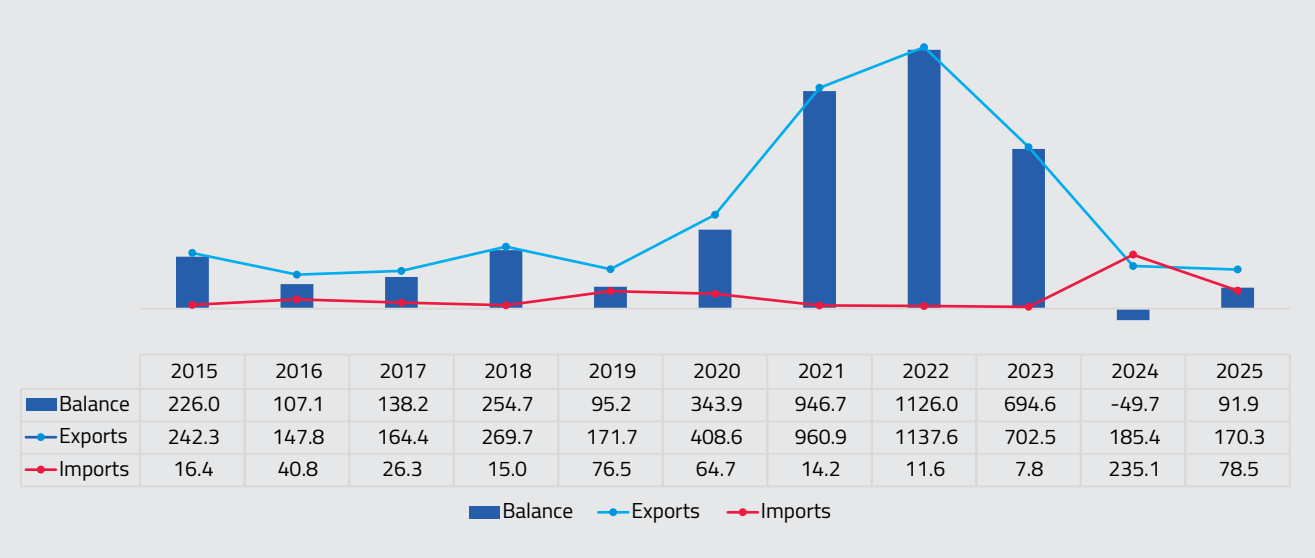
Country	Volume imported (in '000 MT)	% Share
Myanmar	139.3	53.6%
Ukraine	72.3	27.8%
Singapore	25.6	9.9%
South Africa	13.2	5.1%
Brazil	6.0	2.3%

Source: APEDA, DGFT, YES BANK Analysis

India's maize export performance has been erratic, shaped by shifts in domestic production and consumption, volatile domestic prices, modest yields and varying global demand. During the period between 2015 and 2025, maize exports decreased from USD 242.3 million in 2015 to USD 170.3 million in 2025 (refer exhibit 20) with multiple peaks and dips in exports value during the decade. This reduction in maize exports in 2025 was driven by higher domestic prices, strong demand from the poultry and ethanol industry, weather impacts and loss of price competitiveness. Domestic demand for maize surged after the government increased the procurement price of ethanol made from maize by 8.8% to INR 71.86 per liter[37].

[37] https://www.reuters.com/markets/commodities/indias-corn-exports-plunge-local-prices-rally-strong-demand-2024-01-18/

Exhibit 20: Maize – import and export trends



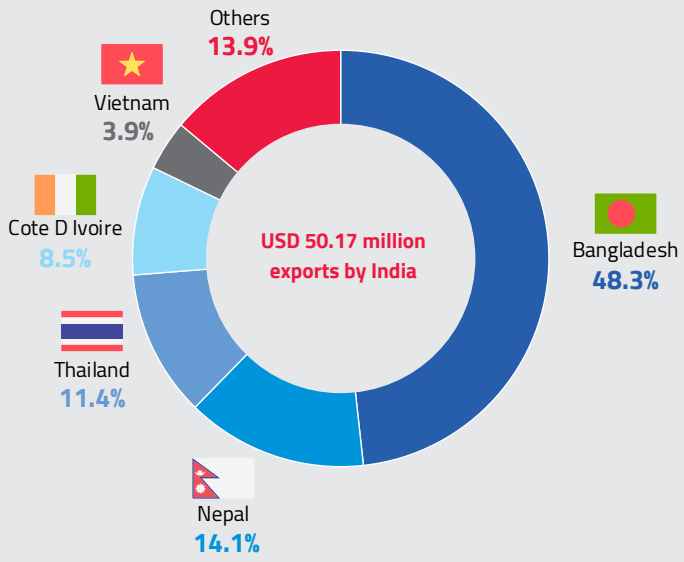
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Balance	226.0	107.1	138.2	254.7	95.2	343.9	946.7	1126.0	694.6	-49.7	91.9
Exports	242.3	147.8	164.4	269.7	171.7	408.6	960.9	1137.6	702.5	185.4	170.3
Imports	16.4	40.8	26.3	15.0	76.5	64.7	14.2	11.6	7.8	235.1	78.5

Source: APEDA, DGFT, YES BANK Analysis

3.3.1 Maize Seed Trade

India exported USD 50.17 million worth of maize seed in 2025. Over the last decade, the export value of maize seed has grown at a CAGR of 8.93%, increasing from USD 21.32 million in 2015 to USD 50.17 million in 2025. The top 5 importing countries of Indian maize seed in 2025 were Bangladesh (48.3%), Nepal (14.1%), Thailand (11.4%), Côte d'Ivoire (8.5%) and Vietnam (3.9%). These countries collectively accounted for 86% of India's maize seed exports (refer exhibit 21). India also imported maize seeds; however, the value of these imports was minimal when compared with the value of exports.

Exhibit 21: Maize seed exports by India in 2025 (in terms of value)

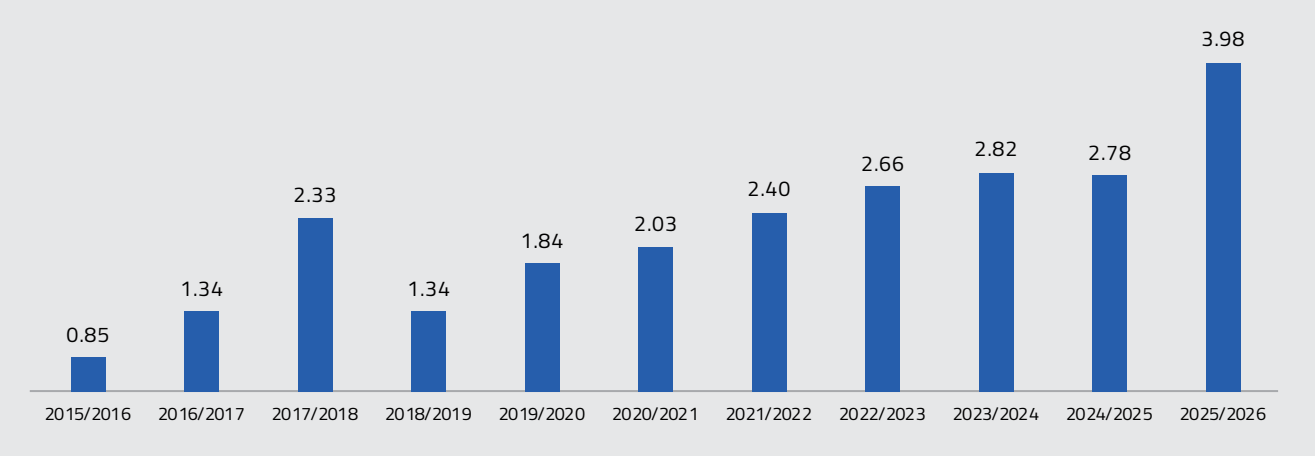


Source: ITC Trade Map, YES BANK Analysis

3.4 Stock and Price Trends

In India, maize ending stocks for 2025/26 was estimated at 3.98 million MT, reflecting a 43% increase over the previous year (refer exhibit 22).

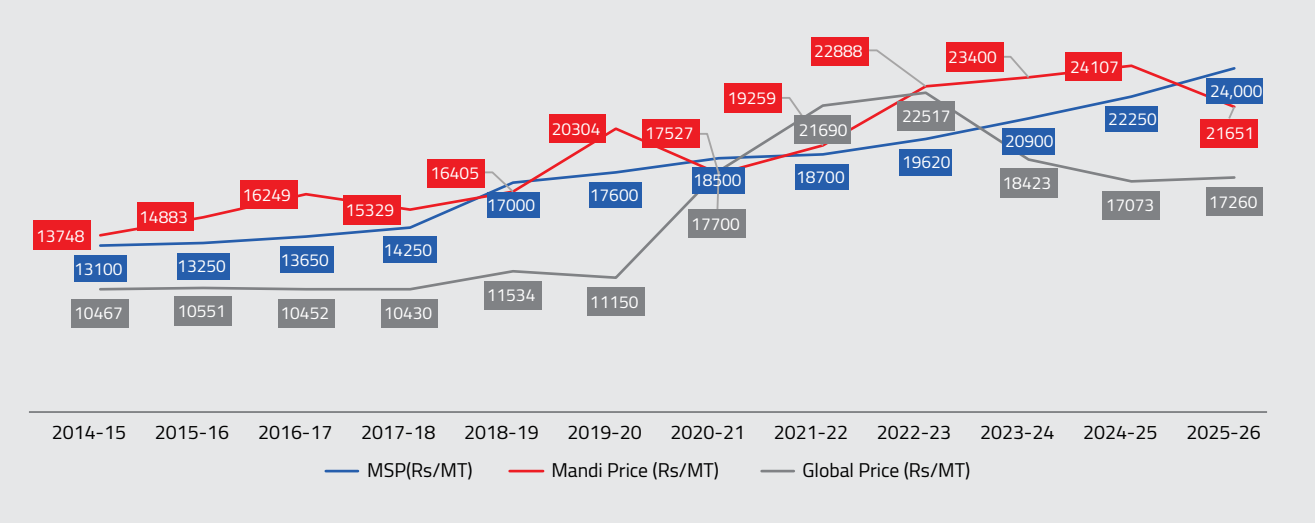
Exhibit 22: Maize ending stocks movement in India (in million MT)



Source: https://apps.fas.usda.gov/psdonline/app/index.html#/app/home (USDA)

Maize prices in India have shown a broad upward trajectory over the period 2014-15 to 2025-26, with both MSP and modal mandi prices increasing steadily (refer exhibit 23). MSP has moved up consistently from INR 13,100/MT in 2014-15 to INR 24,000/MT in 2025-26, reflecting policy-led price support for maize growers. Mandi prices have also risen from INR 13,748/MT to INR 21,651/MT during the same period, though with sharper year-to-year fluctuations, especially after 2018-19. Global maize prices remained relatively stable and lower than domestic prices up to 2019-20, before rising sharply during 2020-21, 2021-22 and 2022-23, broadly mirroring global commodity market disruptions. However, from 2023-24 onwards, global prices softened, while domestic MSP continued to rise and mandi prices remained elevated, indicating that Indian maize prices are increasingly being supported by policy initiatives (such as the ethanol blending programme) and strong domestic demand drivers rather than only global price movements.

Exhibit 23: Comparison of maize price per MT

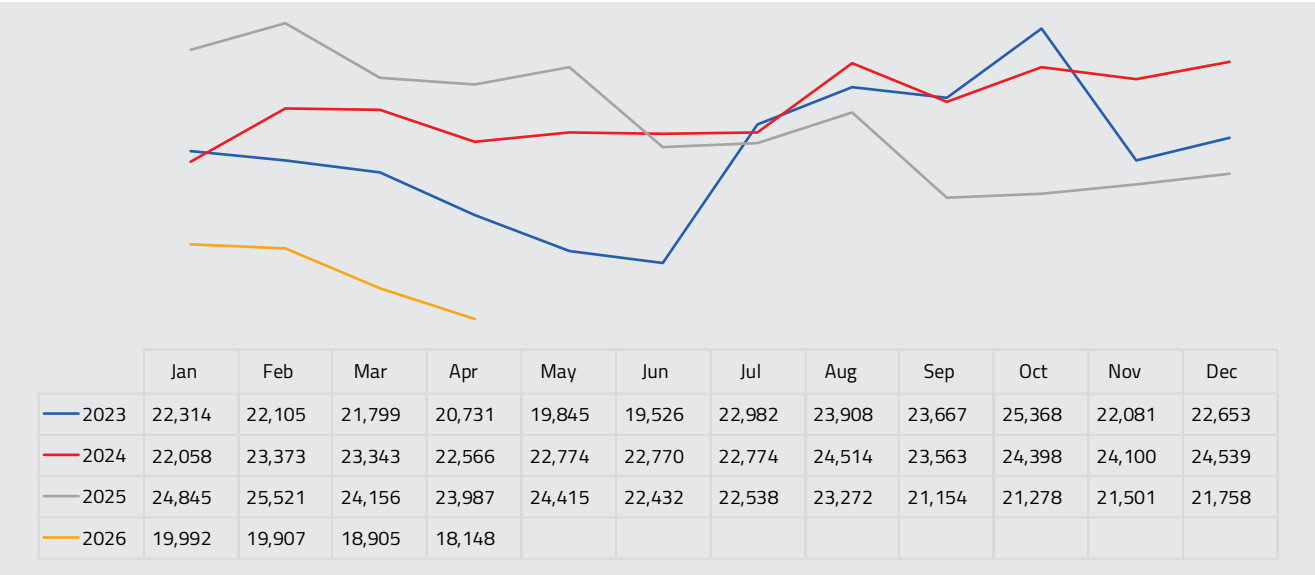


Source: UPAg Portal, OECD-FAO Agricultural Outlook 2025-2034, Agmarknet, YES BANK Analysis

Note: The conversion rate for USD to INR has been taken from RBI (https://www.rbi.org.in/scripts/referenceratearchive.aspx).

Domestic maize mandi prices have remained firm over the last 3 years (refer exhibit 24), though with intermittent corrections. In 2023, modal mandi prices fluctuated from around INR 21,000 – 22,000 /MT levels to a peak of INR 25,368/MT in October, before easing towards the end of the year. During 2024, prices largely remained above INR 22,000/MT and were broadly range-bound, touching a peak of INR 24,539/MT in December. In 2025, prices strengthened further to INR 25,521/MT in February, but subsequently tapered through the year, moderating to the INR 21,500/MT range by November–December. The available 2026 data from January to April indicates a muted price trend, with prices remaining below the corresponding levels seen in 2024 and 2025.

Exhibit 24: Overview of maize commodity price movement in India from January 2023 to April 2026 (in INR/MT)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	22,314	22,105	21,799	20,731	19,845	19,526	22,982	23,908	23,667	25,368	22,081	22,653
2024	22,058	23,373	23,343	22,566	22,774	22,770	22,774	24,514	23,563	24,398	24,100	24,539
2025	24,845	25,521	24,156	23,987	24,415	22,432	22,538	23,272	21,154	21,278	21,501	21,758
2026	19,992	19,907	18,905	18,148								

Source: Agmarknet, YES BANK Analysis

4 Growth Drivers and Challenges

The maize value chain in India is witnessing sustained growth, driven by rising demand from feed, starch, food processing and ethanol sector.

4.1 Growth Drivers

The key factors that are driving the growth of the maize ecosystem are indicated in exhibit 25.

Exhibit 25: Factors driving growth of maize ecosystem

Intrinsic characteristics of maize	▪ One of the most versatile crop with having wider adaptability under varied agro-climatic conditions ▪ Has high starch and moderate protein content ▪ Has lower water footprint making it suitable for climate-resilient agriculture ▪ Amenable to genetic and molecular engineering to suit human needs ▪ Diverse end-use of commodity (feed, starch, food processing, bio-fuel etc.)
Production and supply strengths	▪ Sustainable scaleup of production to keep pace with growing demand ▪ Improved productivity due to the introduction and better adoption of high-yielding varieties ▪ Cultivation across all 3 seasons- Kharif, rabi and summer, with growing summer season production in recent years

Evolving post-harvest supply chain	▪ Supply chain evolving to a high-value industrial and energy-driven model ▪ More efficient aggregation through the formation of cooperatives and FPOs ▪ Increased investment in bulk storage and trading infrastructure including e-trading and e-marketing platforms ▪ Increasing adoption of modern storage techniques and monitoring systems
Increasing demand from ethanol industry	▪ Government encouraging farmers to diversify from water intensive crops such as rice and sugarcane to more sustainable crops like maize for ethanol production ▪ Ethanol blending of 19.93% achieved in 2025, indicating the industry readiness and consumer acceptance ▪ After successful rollout of E20, the county may gradually scale towards E25, E27 and E30 in a phased, calibrated manner with the support of BIS standards and fiscal incentives
Increasing demand from poultry feed, starch, food and other industries	▪ Poultry feed industry estimated to grow at 8-9% resulting in increased demand of feed thus driving maize sector ▪ Increased demand for starch and its derivatives for food processing, textiles, paper industry etc. ▪ Increasing urbanization, economic growth and rising income leading to increased demand for maize ▪ Health consciousness driving demand for healthy snacks and breakfast cereals such as cornflakes and exclusive edit snacks
Favourable policy environment	▪ Promotion of maize as an alternative for crop diversification ▪ Numerous schemes aimed at doubling farmer income and promotion of climate resilient crops ▪ 'Make in India' focus promoting investment in the development of storage and processing infrastructure
Growing private sector participation in the supply chain	▪ Farm inputs ▪ Contract farming ▪ Storage and logistics infrastructure ▪ E-markets and e-commerce platforms ▪ Growing agritech startups ecosystem to address specific challenges ▪ Growing investments in feed, starch and food processing

Source: PIB, Industry discussions

4.2 Challenges across the Maize Supply Chain

Despite the growth, maize sector continues to face challenges that constrain the reliability, quality and stability of maize supply. Key challenges include farm-level productivity gaps, heightened climate vulnerabilities and post-harvest inefficiencies in drying, storage, aggregation and processing. Risks including fungal contamination and aflatoxin incidence, further impact marketability and industrial usage. Exhibit 26 provides a snapshot of challenges across the value chain.

Exhibit 26: Challenges in the maize supply chain

Farm level 	▪ High dependency on rainfed cultivation ▪ Inadequate plant health care and pest management ▪ Access to credit ▪ Low mechanization ▪ Acreage and production skewed to kharif while demand is throughout the year ▪ Climate extremes impacting productivity
Post-harvest handling 	▪ Low farmer price realization due to inadequate quality management ▪ Fragmentation resulting in insufficient aggregation and limited market access ▪ Testing infrastructure and compliance challenges ▪ Aflatoxin risk in the maize value chain
Processing level 	▪ Varietal quality mismatch, low starch content, high moisture content and low grain weight ▪ High cost of raw material due to involvement of large number of intermediaries ▪ Fluctuating prices, seasonal availability and import restrictions ▪ End products are not competitive in international market

Sources: Industry discussions, YES Bank Analysis

4.2.1 Farm Level Challenges

Though maize yields have increased significantly over the last decade, average maize productivity in India is about 3.7 MT/ha, as compared to 10-11 MT/ha in USA, Canada and France and about 6.6 MT/ha[38] in China. While productivity is better for rabi crop (at 5.2 MT/ha[39]), that of kharif crop, especially for maize used for food consumption, is low. Also, there is wide variation of yield among the states. Key barriers to increasing productivity include:

[38] OECD-FAO Agricultural Outlook 2025-2034, YES BANK Analysis

[39] UPAg Portal, YES BANK Analysis

- **High dependency on rainfed cultivation**

  About 58%[40] of maize in India is grown as rain-fed crop and is prone to vagaries of monsoon that impact productivity. Technological advances, such as drought tolerant varieties and modern irrigation techniques are yet to be popularized and adopted on large scale to significantly mitigate crop loss. Just about 42% of India's maize acreage is irrigated, compared to 69% for total cereals and 63% for total food grains[41]. Also, farmers rely heavily on monsoon which exposes the maize crop to unpredictable weather patterns such as delayed monsoon onset, early withdrawal and uneven rainfall distribution. In several seasons, key districts experience either pronounced deficits or excessive rainfall during critical crop stages. Both conditions directly affect growth, grain formation and final moisture content. Rainfall pattern analyses show that the flowering and maturity stages of kharif maize could suffer around 30–40%[42] of its total water stress, which are especially vulnerable periods for crop development.

- **Inadequate plant health care and pest management**

  More than 140[43] species of insect pests are reported to affect maize in India. Among them, spotted stem borer, pink stem borer, fall armyworm (FAW), corn ear worm, maize aphid and shoot fly are the major insect pests affecting maize productivity. The rapid spread of FAW alone has caused significant crop yield losses of about 33–36%[44] in India. Climatic conditions such as warm and humid climate create a favorable environment for the growth and rapid multiplication of pests in maize. As a result, farmers increasingly depend on chemical pesticides for crop protection. However, the indiscriminate and excessive use of pesticides has led to increased pesticide resistance among pests along with health and environmental risks.

- **Access to credit**

  Ensuring timely, sufficient and affordable access to credit remains a fundamental requirement for maize cultivation. Despite the government's efforts to expand and streamline credit access for farmers, many smallholders still encounter difficulties in obtaining adequate financial support necessary for essential agricultural inputs. Farmers' constrained capacity to invest in high-quality seeds, fertilizers, pesticides and fungicides not only limit overall productivity but also impacts the quality of maize produced across the country.

- **Low mechanization**

  Currently, India's level of mechanization is at 40-45% compared to 90%[45] across the developed nations. Adoption of mechanization varies widely across states, with higher usage of combined harvester and planters in Bihar, Gujarat and Tamil Nadu compared to states such as Madhya Pradesh, Chhattisgarh and Odisha which depend largely on manual labor for these activities. At the farm level, maize experiences about 3.22%[46] operational losses. Incomplete shelling, kernel residues left on cobs, spillage during the process and

[40] https://desagri.gov.in/ (Land Use Statistics at a Glance 2023-24), YES BANK Analysis (Rainfed area has been approximated using non-irrigated cultivation area)

[41] https://desagri.gov.in/ (Land Use Statistics at a Glance 2023-24), YES BANK Analysis

[42] Manivasagam, V.S. and Nagarajan, R., 2018. Rainfall and crop modeling-based water stress assessment for rainfed maize cultivation in peninsular India. Theoretical and applied climatology, 132(1), pp.529-542.

[43] Patel, S. and Rajput, S.K.S., MAJOR PEST OF MAIZE AND THEIR MANAGEMENT.

[44] https://ijcmas.com/special/11/Harsh%20B.%20Patel,%20et%20al.pdf

[45] Home | Department of Agriculture & Farmers Welfare | MoA & FW | Government of India, India

[46] https://www.mofpi.gov.in/sites/default/files/study_report_of_post_harvest_losses.pdf

the loss of immature or lightweight kernels blown away by the aspirator contribute significantly to these losses. This highlights a clear need for improved mechanization for better post-harvest handling practices to minimize avoidable on-farm losses.

- **Acreage and production skewed to kharif while demand is throughout the year**

  More than 90% of maize demand originate from industrial sectors such as animal feed, starch and food processing. While these industries require a steady supply of raw material throughout the year, maize production is heavily concentrated in the kharif season, which accounts for nearly 60% of total output, followed by 32% during the rabi season. This seasonality creates pronounced supply demand mismatches.

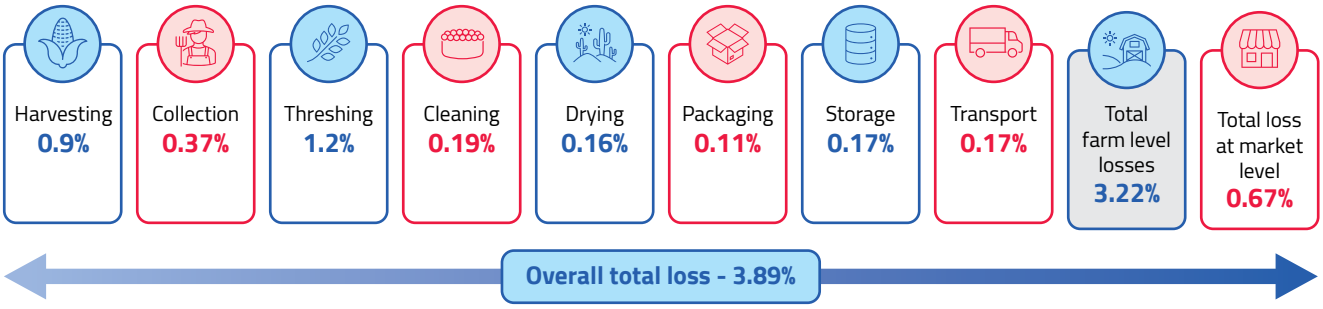
- **Climate extremes impacting productivity**

  The erratic weather patterns, intensified by climate change, lead to frequent drought, heat stress and waterlogging, often occurring within the same growing season and severely affecting yields. Technological advances, such as drought tolerant varieties and modern irrigation techniques are yet to be popularized and adopted on large scale to significantly mitigate crop loss.

4.2.2 Post-Harvest Handling

Post-harvest handling plays a significant role in crop value chain. Effective post-harvest handling ensures adequate quality of grains with proper moisture content and aflatoxin free produce. Post-harvest losses in maize range between 3-4%[47], driven primarily by inadequate drying, fragmented aggregation and poor storage systems (refer exhibit 27).

Exhibit 27 Mapping Post-Harvest Loss Points of Maize



Source: https://www.mofpi.gov.in/sites/default/files/study_report_of_post_harvest_losses.pdf

Inadequate postharvest handling and marketing results in following challenges:

- **Low farmer price realization due to inadequate quality management**

  Poor post-harvest handling by farmers results in poor quality – such as high moisture content, high foreign matter and impurities of animal origin, damaged grains and pest infested or weevilled grains. After the

[47] https://www.mofpi.gov.in/sites/default/files/study_report_of_post_harvest_losses.pdf

harvesting process, maize requires 10-15 days of drying to reduce the moisture levels to 13%-14%[48]. However, most farmers rely on sun drying and improper drying practices lead to moisture levels as high as 18%, making the produce susceptible to fungal growth and aflatoxin contamination. These factors contribute to lower price realization at the farm gate and higher levels of wastage.

- **Fragmentation resulting in insufficient aggregation and limited market access**

  In India, maize farmers are predominantly small and marginal, with average land holdings of less than one hectare. Due to limited quantity produced at the farm level, these farmers depend on village level agents and traders for aggregation and market access. Their low scale of operations and limited access to agricultural markets lead to high intermediation and lower price realization by farmers. While the Government is actively promoting FPOs to address these challenges, their coverage remains limited and many FPOs are still in early stages of development, reducing their ability to significantly enhance efficient post-harvest aggregation.

- **Cost inefficiencies due to poor bulk storage and logistics infrastructure**

  The post-harvest storage, marketing and logistics infrastructure for maize is not adequate to support large scale handling. Most maize is still transported in bags due to lack of bulk handling facilities and rail wagons are not designed for bulk grain movement. High seasonality of production on one hand and year-round demand (specially for poultry and starch industry) on the other, results in significant pressure on the storage and logistics infrastructure.

- **Testing infrastructure and compliance challenges**

  Testing facilities for rapid quality assessment are available in only a limited number of mandis, resulting in inconsistencies in quality based transactions. The lack of standardized moisture level measurement process as well as grading and sorting practices in primary markets further limits buyers' ability to source grain that meet specific industrial specifications.

4.2.3 Aflatoxin Contamination

Aflatoxins—first identified in the 1960s[49]—are a major class of mycotoxins and are commonly detected in cereals, milk, tree nuts and oilseeds. More than eighteen aflatoxin variants have been reported, with B1, B2, G1 and G2 being the most prevalent and hazardous. Globally, aflatoxin contamination is a critical food safety challenge. According to FAO, approximately 25%[50] of global food crops are affected by mycotoxins every year, resulting in substantial post-harvest losses. Several countries have faced export rejections due to aflatoxin related non-compliance. Aflatoxins are highly toxic to livestock and are recognized as carcinogenic to both animals and humans. It is estimated that nearly 5 billion[51] people worldwide are exposed to uncontrolled levels of aflatoxin through their diets. Acute exposure could result in severe health problems, including hepatitis, impaired growth in children, jaundice and gastrointestinal injury and is associated with high morbidity and mortality.

[48] https://www.tourism.rajasthan.gov.in/content/dam/agriculture/Rajasthan%20Agricultural%20Competitiveness%20Project/valuechainreport/RACP_VC_Maize.pdf

[49] https://oar.icrisat.org/12550/1/ICRISAT_Aflatoxin_Time%20Line_2016.pdf

[50] Singh, S.K., Patel, M.B., Thakker, B.N., Barad, A.J., Gogoi, R. and Hooda, K.S., 2019. An overview of challenges and elimination of aflatoxin contamination in maize (Zea mays). Journal of Pharmacognosy and Phytochemistry,8(4),pp.2895-2906.

[51] Shekhar, M., Singh, N., Bisht, S., Singh, V. and Kumar, A., 2018. Effects of climate change on occurrence of aflatoxin and its impacts on maize in India. Int. J. Curr. Microbiol. App. Sci, 7(6), pp.109-116.

Maize is one of the cereals that is most susceptible to aflatoxin contamination. Maize production in India is significantly constrained by fungal contamination, caused primarily by Aspergillus species. These fungi not only lead to quantitative losses but also produce highly toxic and carcinogenic chemical substances known as aflatoxins. Aspergillus species are opportunistic pathogens that infect crops at both pre- and post-harvest levels. Pre-harvest infection occurs when crops are exposed to fungal spores in the field, while post-harvest contamination results from improper storage conditions. Aflatoxin production is influenced by high temperature and humidity, which is favorable to the Aspergillus growth and contamination of maize. Its presence is also enhanced by factors such as stress or injury to the crop, drought, untimely rains before harvest, insect activity, soil type and poor storage conditions. Aflatoxins can be best understood as a culmination of value chain risks. Contamination may begin at the farm, but the risk is often amplified by drying gaps, aggregation practices, storage conditions, transport humidity, port handling and processing decisions (refer exhibit 28).

Exhibit 28: Aflatoxin buildup across the maize value chain

Value-chain stage	Risk factor	Mechanism of contamination	Consequence
Field / pre-harvest 	▪ Drought stress ▪ High temperature ▪ Insect injury ▪ Poor crop nutrition	▪ Stressed plants and damaged kernels become more vulnerable to Aspergillus infection	▪ Higher initial fungal load ▪ Lower probability of achieving good quality maize
Harvest 	▪ Delayed harvesting ▪ Rainfall during harvest ▪ High cob moisture	▪ Moisture and delayed removal from field increase fungal growth	▪ Quality deterioration before market arrival
Farm-level drying 	▪ Sun-drying on mud floors ▪ Inadequate drying time ▪ Lack of tarpaulins or dryers	▪ Grain moisture level remains above safe moisture level ▪ Contact with soil and uneven drying increase contamination	▪ Discounting of farmer price ▪ Distress sale by farmers
Shelling and handling 	▪ Broken kernels ▪ Immature grain ▪ Insect-damaged kernels	▪ Broken and damaged grain carries higher fungal risk	▪ Lower grade maize ▪ Higher cleaning loss
Mandi / aggregation 	▪ Mixing of multiple farmer lots without testing	▪ A contaminated sub-lot can compromise a larger aggregated lot	▪ Loss of value / price discounting ▪ Rejection by organized buyers ▪ Quality disputes

Value-chain stage	Risk factor	Mechanism of contamination	Consequence
Storage	▪ Poor aeration ▪ Moisture migration ▪ Pest infestation ▪ Humid warehouses	▪ Fungal growth continues after procurement if moisture and temperature are not controlled	▪ Deterioration during holding period
Transport	▪ Long-distance movement in bags or poorly ventilated vehicles ▪ Contact with moisture during transport	▪ Temperature changes cause condensation or "sweating," creating local moisture pockets ▪ Moisture contact could result in fungal growth	▪ Clean lots at the point of loading /farm gate may have higher levels of aflatoxins at destination
Port / export handling	▪ Delayed loading ▪ Poor container hygiene ▪ Weak sampling	▪ Export lots face strict testing and may fail due to hotspot contamination	▪ Border rejection ▪ Loss of buyer confidence ▪ Stricter importing-country checks and barriers
Processing	▪ Use of contaminated grain in feed, starch or ethanol	▪ Toxins may survive processing and move into end-products	▪ Feed safety risk ▪ DDGS contamination ▪ Lower by-product value

Source: Industry discussions, YES BANK Analysis

According to FSSAI regulations, maize for human consumption must contain no more than 15 ppb of total aflatoxins (B1, B2, G1 and G2) with Aflatoxin B1 not exceeding 10 ppb. For industrial uses, the permissible limit ranges from 30 to 50 ppb[52]. Grain exceeding these limits is rejected by exporters and by industries that use maize as a raw material. However, the extent of contamination in India varies across geographic locations, agricultural and agronomic practices, storage systems and the conditions under which maize is handled- particularly temperature and humidity. During high risk periods, a considerable share of grain may exceed permissible limits for feed and food applications, making aflatoxin contamination one of the most critical safety challenges in the maize ecosystem. A snapshot of the impact of aflatoxin contamination across end-use sectors is captured in exhibit 29.

[52] Industry discussions

Exhibit 29: Impact of aflatoxin contamination across end-use sectors

Sector	Impact intensity	Main economic driver of loss
Poultry and livestock feed 	Severe	▪ Reduced feed conversion ratio ▪ Immunity suppression ▪ Lower growth ▪ Higher mortality ▪ Veterinary costs and toxin-binder cost
Dairy and cattle feed 	High	▪ Conversion of aflatoxin B1 into aflatoxin M1 in milk; milk safety risk ▪ Lower productivity
Starch industry 	High	▪ Lower raw material quality ▪ Reduced recovery ▪ Contamination risk in by-products such as maize gluten feed
Ethanol / DDGS 	Moderate	▪ Toxins may survive fermentation and become concentrated in DDGS ▪ Reduced by-product value
Food processing 	Severe	▪ Regulatory non-compliance ▪ Recall risk ▪ Brand damage ▪ Need for stricter raw material testing

Source: Industry discussions, YES BANK Analysis

Monitoring aflatoxin levels remains a challenge across the maize value chain. Although rapid aflatoxin test kits are available, their cost is approximately INR 2,000 per kit[53] and are single-use, making aflatoxin testing economically unviable for most farmers and small-scale stakeholders.

4.2.4 Processing

The farm-level as well as post-harvest handling and storage challenges impact the efficiency of all industries dependent on maize as a raw material. Availability of the right quantity and quality of raw material at the right price and right time is crucial for building a competitive advantage. However, varietal and quality mismatches, high costs of raw material due to involvement of a large number of intermediaries, fluctuating prices, seasonal availability and import restrictions strongly impact the cost efficiencies of these industries.

Each constraint has varying degrees of impact for each industry. An overview of select critical challenges that impact various industries that use maize as raw material is captured herewith.

[53] Industry discussions

- **Feed Industry**
  - Quality- The average grain count for Indian maize is approximately 450 grains/ 100 grams, whereas grain count for US number 2 maize grade typically ranges from 295 to 300 grains /100 grams making it more suitable for feed industry
  - Maize with high moisture content cannot be used for poultry feed due to risk of aflatoxin contamination.
  - The lack of raw material availability for 4 - 5 months and skewed rabi production leads to high storage and transportation costs
  - When maize prices rise sharply, industries turn to alternative grains such as bajra and barley for cattle feed, sorghum, wheat and rice for poultry feed.
  - Lack of bulk logistics infrastructure and need for multiple handling points.
- **Starch Industry**
  - Variability in maize quality, moisture content and protein levels affect starch yield, quality and consistency. The starch content in Indian maize is relatively low, ranging from 65% to 70%, compared to 73% in US number 2 maize.
  - High domestic maize prices result in starch derivatives being uncompetitive in the international market.
  - High import duties and lack of import quota allocation during shortages result in poor capacity utilization and increased costs.
- **Ethanol**
  - The ethanol industry is highly sensitive to fluctuations in maize prices, crude oil markets and currency changes.
  - Feedstock allocation is often dependent on government mandates. Sudden shifts in policy—such as temporary bans on certain feedstocks—could disturb the linkage between producers and oil marketing companies.
- **Food Processing Sector**
  - Lack of focused research and development for high-yielding flour maize varieties suitable for food consumption.
  - Non-availability of right quality maize required for processing – specially for extruded snacks and popcorn. Significant quantity of maize is imported for this purpose.

5 Government Initiatives

Government of India, has rolled out several policy initiatives, schemes and programs to enhance maize productivity, improve farmer income, promote crop diversification, strengthen post-harvest efficiencies and create an enabling ecosystem for sustainable growth of the maize value chain. Exhibit 30 highlights key government initiatives supporting the maize sector.

Exhibit 30 Key Government Initiatives and support policies related to maize

Initiatives towards Enhancing Maize Productivity

- National Food Security and Nutrition Mission (NFSNM) – Coarse Cereals (Maize and Barley))
- Soil Health Card Scheme
- Pradhan Mantri Fasal Bima Yojana (PMFBY)
- Research Support through ICAR–IIMR and CIMMYT

Initiatives For Strengthening Post-Harvest Infrastructure

- Agriculture Infrastructure Fund (AIF)

Initiatives Towards Market Reform & Price Discovery

- Minimum Support Price (MSP)
- Electronic National Agriculture Market (e-NAM)

Initiatives Promoting Industrial Use – Feed, Starch & Ethanol

- Feed - AHIDF scheme for establishment of poultry and cattle feed units, NCDC maize procurement assurance, Tariff Rate Quota (TRQ) maize import policy (5 LMT)
- Starch & Derivatives - PMKSY for establishment of processing infrastructure and PMFME (for promoting ODOP Maize)
- Ethanol / Biofuels - National Biofuel Policy 2018 (Amended in 2022), Ethanol Blending Program (EBP) , Maize Cluster Development around distilleries, Modified Ethanol Interest Subvention Scheme for Conversion of existing sugarcane-based feedstock ethanol plants into multi-feedstock-based plants to use grains like Maize and Damaged Food Grains (DFG), FCI surplus grain allocation, Pradhan Mantri JI-VAN Yojana
- Processed Food - CEFPPC scheme, Cold chain scheme (for sweet corn), PMFME micro-processing
- Fodder / Silage - AHIDF

Initiatives for Crop Diversification

- Crop Diversification Program under Pradhan Mantri- Rashtriya Krishi Vikas Yojana (PM-RKVY))

Source: MoA&FW, MoFPI, MoP&NG, IIMR, CIMMYT, MoFAH&D

5.1 Enhancing Maize Productivity

5.1.1 National Food Security and Nutrition Mission (NFSNM) – Coarse Cereals (Maize and Barley)

The National Food Security and Nutrition Mission (NFSNM), launched as National Food Security Mission (NFSM) in 2007-08 is the Government of India's flagship program for boosting production through area expansion and productivity enhancement. Assistance is being provided to the farmers, through the States/UTs, for demonstration on crop production & protection technologies, for distribution of certified seeds, for Integrated Nutrient and Pest Management measures and for the capacity building of farmers through cropping system-based trainings among others. These interventions are implemented across states through Department of Agriculture and Farmers' Welfare (DA&FW) and have expanded steadily over the years, supporting the shift to ~70% hybridization[54] in maize.

5.1.2 Soil Health Card Scheme

The Soil Health Card Scheme, launched in 2015 and now implemented under the Rashtriya Krishi Vikas Yojana (RKVY) Soil Health & Fertility component, is a nationwide initiative aimed at promoting soil test–based nutrient management and improving long-term soil fertility. The scheme provides every farmer with a Soil Health Card that reports the status of 12 essential soil parameters—including macro-nutrients, micro-nutrients and indicators such as pH, electrical conductivity and organic carbon—along with specific fertilizer and soil amendment recommendations tailored to each plot. Soil samples are collected on a regular cycle, typically twice a year after rabi and kharif harvest and tested through an expanding network of laboratories, including 665 newly established village-level soil testing labs in 17 states as of 2025[55]. This is supported by trained rural youth, SHGs, FPOs and educational institutions. By enabling maize farmers to adopt balanced nutrient management, the Soil Health Card Scheme directly supports higher yields, better grain quality, improved nutrient-use efficiency and reduced risk of moisture and aflatoxin issues, thereby contributing to a more resilient maize production system.

5.1.3 Pradhan Mantri Fasal Bima Yojana (PMFBY)

The Pradhan Mantri Fasal Bima Yojana (PMFBY), launched in 2016, is India's flagship crop insurance programme designed to provide farmers with comprehensive financial protection against crop losses arising from natural calamities, pests and diseases. Under the scheme, farmers pay maximum 2% premium for Kharif crops, 1.5% for Rabi food and oilseed crops and 5% for commercial/horticultural crops[56], with the balance subsidized by the Central and State Governments, making PMFBY one of the most affordable crop insurance products globally. PMFBY covers the entire crop cycle—from pre-sowing risks to post-harvest losses up to 14 days—and is supported by robust technology integration including remote sensing, drones, mobile-based CCE apps and AI-enabled yield estimation, which enhance transparency and speed of claim processing. For maize cultivators, PMFBY plays a critical role in mitigating risks from erratic rainfall, drought, floods and pest outbreaks such as Fall Armyworm, offering a safety net that stabilizes farm incomes and encourages continued investment in improved hybrids and scientific practices.

5.1.4 Research Support through ICAR–IIMR and CIMMYT

The ICAR–Indian Institute of Maize Research (IIMR), Ludhiana plays a pivotal role in advancing India's maize research agenda, with three dedicated projects under the National Food Security Mission (NFSM) aimed at

[54] https://www.iimr.res.in/frontend/files/hybrid%20varieties%202025_compressed.pdf

[55] https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2099759&reg=3&lang=2#:~:text=These%20training%20programs%20are%20designed,reply%20in%20Lok%20Sabha%20today.

[56] https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1738233&reg=3&lang=2#:~:text=Pradhan%20Mantri%20Fasal%20Bima%20Yojana%20(PMFBY)%20is%20being%20implemented%20on,10%20basis%20from%20Kharif%202020.

strengthening genetic improvement and productivity enhancement of the crop. In parallel, an additional maize development project of the International Maize & Wheat Improvement Centre (CIMMYT) has also been approved under NFSM, reinforcing global research collaboration. Complementing these efforts, the broader ICAR system continues to drive substantive advancements in maize R&D, with sustained work on developing high-yielding, stress-tolerant and climate-resilient hybrids and varieties. The extensive network of centres under the ICAR–All India Coordinated Research Project (AICRP) on Maize remains integral to this ecosystem, undertaking multi-location breeding, varietal evaluation and development of location-specific, climate-resilient hybrids suited to diverse agro-ecologies. Reflecting the scale of these public-sector research efforts, a total of 315 maize varieties and hybrids were released by the Central Variety Release Committee (CVRC) during 2014–25 for cultivation across different regions of the country, marking a significant contribution towards enhancing national maize production and productivity. These advancements have contributed to steady national productivity gains, with India's average maize yields improving from ~2.6 MT/ha in 2015-16 to ~3.7 MT/ha in 2025-26 and reaching as high as 6.9 MT/ha in West Bengal[57] under optimized rabi and irrigated production systems. Key initiatives of ICAR-IIMR are provided in exhibit 31.

Exhibit 31 Key Initiatives by ICAR-IIMR

Seed Innovation and Strategic Expansion Initiative	ICAR–IIMR initiated branding and direct sale of its own hybrid maize seeds, improving national access to affordable, high-quality seeds. Recently, IIMR dispatched the first lots of hybrids—LQMH 1, IMH 221, IMH 229, DMRH 1308 and IMH 222—to Himachal Pradesh, J&K and West Bengal. Over past seven years, the institute has developed 25 CVRC-notified hybrids, with 15 more in the release pipeline, reflecting rapid genetic progress. Rising demand has resulted in the highest breeder seed indent share (26–64%) in India for four consecutive years. To decentralize production and reduce seed costs, IIMR partnered with the West Bengal State Seed Corporation, producing 32,465 quintals of hybrid seed across multiple districts.
FAW & Aflatoxin Management Initiative	To address emerging risks such as Fall Armyworm (FAW) and aflatoxin contamination, IIMR developed national IPM guidelines combining monitoring tools, resistant varieties, biocontrol agents and safe chemical interventions. The FAW strategy integrates pheromone trapping, timely scouting, cultural practices and safe pesticide schedules, now widely adopted by state departments. In parallel, IIMR established India's first integrated aflatoxin management protocol, covering crop scheduling, drying standards, cob handling and moisture thresholds for safe storage. These guidelines particularly support kharif maize in humid zones where fungal contamination is a major risk. Both frameworks are shared with state governments, FPOs, AICRP centres and industry stakeholders, strengthening national crop safety standards. Together, they reduce losses, protect farmer incomes and ensure compliance for food, feed and ethanol value chains.

[57] Upaj.gov.in

Maize–Ethanol and Catchment Development Initiative	In response to India's biofuel roadmap, IIMR is developing catchment-level maize expansion strategies to supply upcoming ethanol plants under EBP-20 and EBP 30. The institute works with state governments to identify suitable hybrids, optimize rabi maize expansion and improve aggregation and logistics around ethanol plant clusters. Dedicated stakeholder consultations bring together ethanol producers, state departments, seed companies and researchers to align supply planning. The initiative supports states like Assam and Punjab in converting fallow land into high productivity maize zones. By linking scientific agronomy with industrial demand, IIMR is helping position maize as a reliable feedstock for India's future biofuel economy. This programme is expected to significantly expand maize acreage and stabilize demand for farmers.

Source: ICAR- IIMR

5.2 Strengthening Post-Harvest Infrastructure

The Agriculture Infrastructure Fund (AIF), launched in 2020–21 with INR 1 lakh crore financing facility, provides long-term concessional credit to farmers, FPOs, PACS and agri-enterprises for creating post-harvest and value-chain infrastructure at the farm-gate and aggregation points. Under the scheme, loans up to INR 2 crore receive a 3% annual interest subvention for seven years[58], along with credit guarantee coverage, significantly lowering the cost of capital for establishing assets such:

- Scientific silos
- Drying facility for cereals including maize
- Primary processing units
- Storage and logistics assets

5.3 Market Reforms & Price Discovery

5.3.1 Minimum Support Price (MSP)

The government of India provides for a Minimum Support Price (MSP) for maize cultivators to protect farmer income and promote cultivation of maize. Over the last decade, MSP for maize has increased from INR 1,325/ quintal in 2015–16 to INR 2,400/quintal in 2025–26 at a CAGR of 6.12%[59], supporting farmer income stability despite market volatility.

5.3.2 Electronic National Agriculture Market (e-NAM)

The Electronic National Agriculture Market (e-NAM) has emerged as a transformative digital initiative aimed at improving transparency, efficiency and competition in agricultural marketing. By integrating physical mandis across states onto a unified, pan-India electronic trading platform, e-NAM enables farmers and traders to access real-time price information, standardized assaying, unified weighing and quality parameters and online bidding mechanisms.

[58] https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=154999&ModuleId=3&reg=3&lang=2#:~:text=All%20loans%20under%20this%20financing,up%20to%20Rs%202%20crores.

[59] Upaj.gov.in

The integration of e-mandis with features such as electronic payment settlement, digital gate passes, quality testing labs and assaying infrastructure further strengthens price discovery and reduces transaction costs. The platform complements other government efforts to modernize post harvest systems and serves as a critical enabler of market access in India's rapidly evolving maize ecosystem.

5.4 Promoting Industrial Use – Feed, Starch & Ethanol

The government has introduced targeted policy interventions to ensure steady maize utilization across various end use segments. Exhibit 32 highlights policy interventions impacting various end use segments of maize.

Exhibit 32 Government Interventions Impacting Various End Use Segments of Maize

Industry	Specific Government Policies Affecting Maize Use
Feed (Poultry, Dairy, Aqua)	▪ AHIDF scheme for establishment of poultry and cattle feed units ▪ NCDC maize procurement assurance ▪ Tariff Rate Quota (TRQ) maize import policy (5 LMT)
Starch & Derivatives	▪ PMKSY for establishment of processing infrastructure ▪ PMFME (for promoting ODOP Maize)
Ethanol / Biofuels	▪ National Biofuel Policy 2018 (Amended in 2022) ▪ Ethanol Blending Program (EBP) ▪ Maize Cluster Development around distilleries ▪ Modified Ethanol Interest Subvention Scheme for Conversion of existing sugarcane-based feedstock ethanol plants into multi-feedstock-based plants to use grains like Maize and Damaged Food Grains (DFG) ▪ FCI surplus grain allocation ▪ Pradhan Mantri JI-VAN Yojana
Processed Food	▪ CEFPPC scheme ▪ Cold chain scheme (for sweet corn) ▪ PMFME micro-processing
Fodder / Silage	AHIDF for establishment silage making infrastructure

Source: MoA&FW, MoFPI, Department of Food and Public Distribution, Department of Commerce, DGFT, MoP&NG, NCDC

5.5 Crop Diversification

The Crop Diversification Programme (CDP), implemented by the Department of Agriculture & Farmers Welfare (DA&FW), under the umbrella of Pradhan Mantri–Rashtriya Krishi Vikas Yojana (PM RKVY), is a key centrally sponsored initiative aimed at encouraging farmers to shift from water intensive and ecologically unsustainable crops—primarily paddy—to more sustainable alternatives such as pulses, oilseeds, coarse cereals and nutri cereals (including maize). Launched in 2013–14 for the Original Green Revolution States—Haryana, Punjab and Uttar Pradesh—the programme promotes cropping system sustainability, soil fertility restoration and resource-use efficiency by demonstrating improved production technologies for alternate crops.

Under CDP, farmers receive assistance for alternate crop demonstrations, farm mechanization, value addition infrastructure, site specific interventions (including underground pipelines, maize dryers, green manuring seeds) and awareness and training programmes.

5.6 Initiatives by State Governments

5.6.1 Odisha – Mukhyamantri Maka Mission (MMM), 2023–2028

The Mukhyamantri Maka Mission (MMM), launched by the Government of Odisha for the period 2023–2028, is a dedicated five year statewide programme aimed at transforming the maize ecosystem through productivity enhancement, climate resilience, market development and farmer organization strengthening.

The mission focuses on climate resilient agriculture, promoting drought tolerant and high yielding hybrids, improved agronomic practices and risk mitigating technologies tailored to Odisha's diverse agro climatic zones. Capacity building, extension support and farmer centric training form key pillars of MMM, alongside the promotion of Farmer Producer Organisations (FPOs) to strengthen aggregation, collective marketing and value chain integration. The mission also emphasizes the creation of robust market linkages, encouraging private-sector partnerships and improving access to downstream processors in feed and industrial segments.

5.6.2 Uttar Pradesh - Rapid Maize Development Scheme (RMDS)

The Rapid Maize Development Scheme (RMDS), launched by the Government of Uttar Pradesh in 2023–24, is a flagship initiative aimed at rapidly scaling up maize production across the state in response to rising demand from the ethanol, poultry feed, starch and processed food sectors. With the state targeting to double maize production to 27.30 lakh MT by 2027, RMDS provides a comprehensive package of support to farmers covering seeds, machinery, training and improved post harvest practices.

5.6.3 Assam – A Joint Initiative of the Government of Assam - IIMR for Maize Expansion

Maize cultivation in Assam has expanded rapidly in recent years, driven by a coordinated effort between ICAR–Indian Institute of Maize Research (IIMR), Assam Agricultural University (AAU) and the Government of Assam. What began in 2016–17 as small-scale rabi-season demonstrations on post-kharif fallows—initiated by IIMR under the National Food Security Mission—revealed strong yield potential but faced adoption constraints due to limited seed access, inadequate training and weak market linkages. These early scientific interventions established the viability of maize as a profitable rabi crop, setting the stage for wider expansion.

A major breakthrough occurred in 2023–24 with the integration of maize promotion into the Assam Agribusiness and Rural Transformation Project (APART), a World Bank–supported state initiative. Through this partnership, IIMR provided technical leadership while APART mobilized field teams across 12 districts, training more than 3,200 farmers—many from SC/ST/OBC communities—and enabling the dissemination of best practices in hybrid seed use, crop management, pest control and post-harvest handling. Demonstration plots under this programme achieved impressive yields of around 10.5 MT/Ha, catalyzing a surge in farmer adoption. As a result, rabi maize area grew to 39,000 hectares in a single year and total maize cultivation in the state expanded to 1.04 lakh Ha by 2023–24 with a 39% rise in productivity, reaching 5.14 MT/Ha.

The rapid expansion aligns with Assam's rising industrial demand, particularly from newly approved bioethanol plants requiring 10–12 LMT of maize annually. To bridge the widening gap between production and demand, IIMR—along with the Ministry of Agriculture & Farmers Welfare—has launched a targeted maize expansion initiative focused on ethanol-plant catchments and rabi fallows, with the potential to add nearly 3 lakh hectares under maize cultivation.

6

Pathways to Strengthen the Maize Value Chain

India's maize ecosystem is entering a phase of accelerated growth. Unlocking its full potential requires a coordinated value-chain approach focused on productivity enhancement, scientific post-harvest management, quality assurance, raw material reliability and policy alignment. This chapter outlines the key pathways (refer exhibit 33) for enhancing the efficiency, resilience and long-term sustainability of the maize ecosystem in India.

Exhibit 33: Key pathways to strengthen maize value chain

Source: Industry discussions , YES BANK Analysis

6.1 Enhancing Farm-level Productivity

Improving farm-level productivity remains a critical pathway for strengthening India's maize value chain. While production has expanded over time, yield levels continue to lag global benchmarks, particularly in rainfed regions. Addressing this gap will require accelerated adoption of high-yielding and stress-tolerant hybrids, improved agronomic practices and wider mechanisation. Strengthening the seed ecosystem through faster varietal replacement, coupled with focused extension support on nutrient management, pest control and precision farming, could play an important role in enhancing productivity in a sustainable manner.

- **Accelerating adoption of high-yielding, stress tolerant hybrids seeds.** Hybrid seeds cover ~70% of maize acreage in India[60] with close to 100% coverage in Rabi and Summer season and 40-60% coverage in Kharif growing states of Madhya Pradesh, Rajasthan, Gujarat, Himachal Pradesh and NE states[61]. Focused drive is needed to deliver high yielding varieties for cultivation in traditional areas for food purposes and stress tolerant varieties for cultivation in rainfed kharif. Towards this, while private companies could play a critical role in introducing best quality hybrids, the Government could further enable the process of introducing new hybrid seeds by streamlining the procedure for introduction (such as reviewing the need for a three year confirmatory trial for any hybrid seed being introduced into the state, in spite of it having been tested and approved elsewhere in the country). Hybrid seed development involves long breeding process and usually takes 9-10 years to develop new commercial hybrids. A further 2 to 3 years confirmatory trial requirement increases cost of seed as well as carries the risk of becoming obsolete for private companies – as hybrid maize development has stiff competition. Common and standard set of procedures/guidelines for faster approval would ensure predictability for the seed industry and help in bringing new varieties to the market faster.

- **Strengthening the seed value chain through time-bound varietal replacement and deeper last-mile distribution networks.** Maize seed replacement cycle in many states extends due to limited breeder seed availability. Enhancing foundation seed supply through public-private partnerships, establishment of seed banks on zonal level, faster dissemination of new varieties and development of seed entrepreneurs are essential to ensure a robust seed system. Incentivizing seed production to make it more remunerative for farmers to ensure availability of good quality seeds is also critical.

- **Large scale adoption of balanced nutrient management and precision agronomy, supported by digital advisories, satellite-based crop monitoring and cluster-level demonstrations.** Strategic use of NPK, micronutrients, soil testing, drone spraying and digital advisories could significantly enhance productivity and land use efficiency, while reducing input waste.

- **Promoting mechanisation by enabling shared machinery services through Custom Hiring Centres and FPOs.** Manual maize harvesting leads to losses and delayed sowing in low-mechanisation zones. Pneumatic planters, inter-cultivators and mechanised harvesters available through Custom Hiring Centers (CHCs) could reduce cultivation costs by 15–25%[62] and improve planting precision. Hence, farm mechanisation, particularly for sowing and harvesting, through custom hiring centres, FPO-led machinery banks and targeted capital subsidies need to be expanded.

[60] https://www.iimr.res.in/frontend/files/hybrid%20varieties%202025_compressed.pdf

[61] Industry discussions

[62] https://www.agrijoy.in/post/farm-mechanisation-in-india-the-growing-role-of-custom-hiring-centres

- **Enhancing climate resilience via drought-tolerant hybrids, micro irrigation expansion and region-specific climate advisories.** With ~58%[63] of maize cultivated in rainfed conditions, its production faces high climate risks. Deploying drought-tolerant hybrids, drip/sprinkler irrigation, conservation agronomy (e.g., mulch, zero-till) and localized advisories would stabilise output under climate stress.

6.2 Strengthening Post-harvest Handling and Storage Infrastructure

Improving post-harvest handling and storage systems is essential for preserving grain quality and ensuring that maize meets the specifications required by feed, food, starch and ethanol industries. Majority of maize is still dried, handled and stored using traditional methods, resulting in high moisture content, fungal infection, physical damage and mycotoxin risks. These challenges limit the volume of marketable grain and reduce the efficiency of downstream processing. Modernizing post-harvest operations through scientific drying, efficient aggregation practices and improved storage structures could significantly reduce losses and enhance the quality of maize available across the value chain. Key interventions suggested include:

- **Establishing maize clusters and FPOs to streamline procurement, improve traceability and reduce logistics inefficiencies.** Establishing specialized maize clusters and Farmer Producer Organizations (FPOs) will enhance collective bargaining power and resource utilization. These clusters can focus on specific aspects such as seed production, post-harvest management and value addition.

- **Developing farm level drying and storage infrastructure** by investing in farm level infrastructure such as maize drying and storage facilities is essential to reduce post-harvest losses and improve product quality.

- **Scaling scientific storage infrastructure, including modern warehouses and steel silos, integrated with mechanical drying, grading, cleaning and primary processing capabilities.** Only a small fraction of maize is stored scientifically, leading to physical losses in addition to quality degradation. Scaling modern warehouses, silos and aeration systems with cleaning & drying capabilities would ensure consistent supply quality.

- **Promoting bulk-handling and multimodal logistics**, including rail-linked grain complexes and automated handling systems. Reliance on only truck transport increases costs. Rail-enabled grain complexes and automated loading facilities could reduce logistics cost and ensure steady supply for processors.

- **Leveraging existing schemes** to accelerate investment in drying, warehousing and logistics infrastructure. There are multiple schemes by the Government of India such as Agriculture Infrastructure Fund (AIF), Pradhan Mantri Kisan Sampada Yojna (PMKSY) to fund agri based infrastructure projects.

6.3 Improving Quality Assurance and Managing Aflatoxin Risk

Quality is paramount in case of crops like maize as it directly (consumed by humans) or indirectly (as poultry/cattle feed) enters the cycle of consumption. However, unscientific post-harvest practices lead to high moisture content, which when combines with improper storage, leads to fungal growth and mycotoxin development. Following measures will help to improve quality of maize and manage aflatoxin risk.

[63] https://desagri.gov.in/ (Land Use Statistics at a Glance 2023-24), YES BANK Analysis (Rainfed area has been approximated using non-irrigated cultivation area)

- **Strengthening moisture management protocols** at harvest and during storage through farmer training, rapid drying access and improved handling practices. Drying maize from 25% to <13.5%[64] moisture within 48 hours halts fungal growth. Simple measures such as use of tarpaulins, timely drying and training could help in reduction of quality losses significantly.

- **Expanding rapid testing coverage**, including ELISA-based aflatoxin testing at mandis, warehouses and processing clusters. ELISA kits and portable testing devices at aggregation points enable early segregation of contaminated stocks, meeting feed and export standards and protecting buyer confidence.

- **Standardizing grading norms and quality parameters**, aligned with FSSAI and industry standards, with wider dissemination through FPOs and mandi systems. Aligning with FSSAI moisture and aflatoxin norms for human maize consumption and integrating them into mandi operations would enhance transparency and enforces quality-linked pricing.

- **Increasing stakeholder awareness on contamination risks by driving awareness campaigns** for farmers, FPOs and aggregators on economic losses associated with poor-quality maize. Lack of knowledge at the farmer and aggregator level leads to rejections during procurement. Targeted campaigns and demonstration plots could minimize drying and storage gaps.

- **Enabling digital traceability** and batch-wise quality monitoring systems, particularly for export-sensitive and industrial supply chains.

6.4 Stabilizing Raw Material Supply for Industry

Availability of sufficient quantity of the right quality maize at the right time is critical for efficient industry operations. However, in addition to challenges related to availability of maize through the year, fragmented procurement structures lead to supply volatility.

- **Investing in development of industry specific maize varieties.** For instance, development of waxy corn or glutinous corn variety for use in food, adhesives and textiles.

- **Strengthening FPO-led aggregation**, supported by credit access and market linkage. Despite their aggregation potential, FPOs lack capital and logistics capabilities. Strengthening FPOs through financial access, storage linkages and market contracts would provide dependable quantity as well as quality of maize to processors and reduce procurement costs.

- **Promoting cluster-based sourcing models** that integrate procurement, drying, storage and transport leading to lower costs and consistent quality.

- **Expanding industry-linked procurement** through long-term agreements, volume commitments and quality linked pricing frameworks enabling infrastructure investments and stable prices for farmers.

- **Enhancing participation in organized trading platforms** and e-marketplaces to improve price discovery and reduce information asymmetry. Platforms like e-NAM and private digital exchanges facilitate price clarity and broaden market access, enabling industries to manage sourcing more efficiently while ensuring fair pricing to the farmers.

[64] FAO

- **Rationalizing import duties and regulations such that industry can import during shortage.** Suggested action steps include:
    - While providing for Tariff Rate Quota (TRQ) quota for imports, there is a need to develop a scientific mechanism based on statistical models to arrive at the level of quota and how much to import. In addition to poultry sector, TRQ quotas need to be considered for starch and other industries.
    - Review import quarantine norms to align with international standards. For instance, Aluminum Phosphide as fumigant is used in many parts of the world, but such produce is restricted from being imported into India as only methyl bromide fumigated material is allowed.
    - Review import source of origin regulations. Indian regulations mandate that only non-GM maize can be imported. However, unlike in Europe (which defines that 99.1% non-GMO is acceptable), India does not have a LLP for maize. Also, Indian regulation requires a declaration from the source country that the produce is non-GMO and the location from where it is sources does not cultivate GM crop. This requirement needs to be reviewed as it is difficult to get such declarations from source countries.

- **Reviewing export obligation period for maize:** Export obligation period for maize is currently 6 months from the date of clearance of each consignment by the Customs Authority. This period may be extended to 9 months (with option of additional extensions, post approval) instead of 6 months. This extension would allow industries to better manage the handling and transportation of maize from port to plant, effectively plan production and export marketing, stabilize output pricing and enter long-term contracts with buyers.

6.5 Aligning Policy for Balanced Food–Fuel Outcomes

With growing interest in maize-based ethanol under the E20 programme, balanced policy design is essential to prevent stress on other maize based end use sectors. The E20 ethanol initiative has accelerated maize demand for ethanol, impacting the supply of maize to feed, starch industry.

- **Segregating data between grain and green maize (used for fodder and silage).** Aggregated crop data obscures the real supply of maize available for industrial usage. Segregated, GIS-backed production data will enable informed decisions on maize grain availability and to support informed policy planning.

- **Strengthening market intelligence systems** to enable timely forecasting of supply–demand gaps across food, feed, industrial and fuel segments. With maize usage shifting rapidly toward ethanol, real-time forecasting methods are required to signal early potential supply risks and take corrective steps.

- **Reviewing tariff and trade policies periodically** to manage short-term imbalances and to ensure supply security during deficit years. Import duties and phytosanitary rules to be reviewed periodically to support industry access during shortfalls, while protecting domestic producers.

- **Safeguarding food and feed security**, ensuring ethanol expansion is anchored to productivity-led surplus creation rather than diversion of existing supplies. Ethanol production from maize jumped from 0.8 million MT to 12.5 million MT[65] within two years—underscoring the need for productivity-driven growth to prevent upward pressure on maize prices.

[65] The estimate of 12.5 million MT has been derived based on a maize-based ethanol supply of 478 crore litres to OMCs during ESY 2024–25 as per GEMA and using the PIB-reported conversion factor that 100 litres of ethanol can be produced from 2.63 quintals of maize. (https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=1707222&reg=3&lang=2#:~:text=Biofuels%20from%20Surplus%20from%20Food,upon%20number%20of%20factors%20viz.)

- **Promoting long-term productivity-driven expansion**, particularly in underutilized agro-climatic regions suited for maize intensification. Areas like eastern India which have potential for good maize production are currently underperforming on yield and penetration. Expanding maize in these zones while boosting productivity would ensure sufficient maize supply for food, feed, starch and ethanol.

Meeting India's growing maize demand will depend on coordinated efforts for modernizing production systems, upgrading post-harvest and storage infrastructure, strengthening quality management and stabilizing supply to key industries. Focused interventions across the value chain from accelerated hybrid adoption and precision agronomy to cluster-based aggregation, scientific drying, modern silos, rapid testing and improved trade and procurement frameworks—will be essential to reduce losses and ensure consistent availability. With clear policy direction, targeted investments and strong public-private partnership, India has the innate potential to build a resilient and sustainable maize ecosystem that enhances farmer incomes, improves industrial competitiveness and contributes to national food, feed and clean-energy security.

Abbreviations

AAU	-	Assam Agricultural University
AHIDF	-	Animal Husbandry Infrastructure Development Fund
AI	-	Artificial Intelligence
AICRP	-	All India Coordinated Research Project
AIF	-	Agriculture Infrastructure Fund
APART	-	Assam Agribusiness and Rural Transformation Project
Bn	-	Billion
CAGR	-	Compound Annual Growth Rate
CCE	-	Crop Cutting Experiments
CDP	-	Crop Diversification Programme
CHCs	-	Custom Hiring Centers
CIMMYT	-	International Maize and Wheat Improvement Center
CVRC	-	Central Variety Release Committee
DA&FW	-	Department of Agriculture & Farmers Welfare
DFG	-	Damaged Food Grains
EBP	-	Ethanol Blended Petrol
EISS	-	Ethanol Interest Subvention Schemes
ELISA	-	Enzyme-Linked Immunosorbent Assay
e-NAM	-	Electronic National Agriculture Market
FAO	-	Food and Agriculture Organization
FAW	-	Fall Armyworm
FCI	-	Food Corporation of India
FMCG	-	Fast-Moving Consumer Goods
FPO	-	Farmer Producer Organization
FSSAI	-	Food Safety and Standards Authority of India
GIS	-	Geographic Information System
GM	-	Genetically Modified
GMO	-	Genetically Modified Organism
GST	-	Goods and Services Tax
Ha	-	Hectare

ICAR	-	Indian Council of Agricultural Research
IIMR	-	Indian Institute of Millets Research
IPM	-	Integrated Pest Management
LLP	-	Low Level Presence
MMM	-	Mukhyamantri Maka Mission
Mn	-	Million
MoA&FW	-	Ministry of Agriculture & Farmers Welfare
MoFAH&D	-	Ministry of Fisheries, Animal Husbandry and Dairying
MoFPI	-	Ministry of Food Processing Industries
MoP&NG	-	Ministry of Petroleum and Natural Gas
MSP	-	Minimum Support Price
MT	-	Metric Tonnes
NCDC	-	National Cooperative Development Corporation
NE	-	North East
NFSNM	-	National Food Security and Nutrition Mission
NPK	-	Nitrogen-Phosphorus-Potassium
ODOP	-	One District One Product
OECD-FAO	-	Organisation for Economic Co-operation and Development – Food and Agriculture Organization
PMFBY	-	Pradhan Mantri Fasal Bima Yojana
PMFME	-	Pradhan Mantri Formalisation of Micro Food Processing Enterprises
PMKSY	-	Pradhan Mantri Krishi Sinchai Yojana / Pradhan Mantri Kisan Sampada Yojana
PM-RKVY	-	Pradhan Mantri- Rashtriya Krishi Vikas Yojana
R&D	-	Research and Development
RMDS	-	Rapid Maize Development Scheme
RTE	-	Ready-to-Eat
SHGs	-	Self Help Groups
TRQ	-	Tariff Rate Quota
USA	-	United States of America
USD	-	United States Dollar
UTs	-	Union Territories

List of Exhibits

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At a Glance - A New Generation Private Sector Bank

At YES BANK, we are driven by a deep purpose and relentless commitment to our customers.

Headquartered in Mumbai, YES BANK is the 6th largest private sector Bank in India offering full-fledged banking solutions with its comprehensive bouquet of product and services, digital solutions catering to Retail, MSME, Wholesale and Rural segments. The Bank has a pan India presence with 1,255 branches, 235 BCBOs and 1,331 ATMs (including CRMs and BNAs) in over 300 districts in India.

The Bank operates its Brokerage business through YES SECURITIES, a wholly-owned subsidiary of the Bank. The Bank has a pan-India presence including an International Banking Unit {IBU) at GIFT City in the Ahmedabad district, Gujarat and a Representative Office in Abu Dhabi. Through a growing pan-India presence, we empower our customers to achieve their full potential and serve India's future businesses.

The Bank's vision rests on three strategic pillars:

Universal Banking with Granular Focus: Maintain our role as a universal bank while concentrating on refining and expanding each business segment.

Digital Leadership and Relationship Banking: Leverage our established digital market leadership to serve the new-age economy and future value pools, ensuring we also support and capture transactional business.

Employee-centric Culture and Efficient Processes: Prioritise an employee-focussed culture, streamline processes, and develop a scalable technology infrastructure.

YES BANK has consistently fostered a strong sustainability ethos within its culture, enabling it to respond effectively to evolving ESG expectations, regulations, and opportunities. The Bank continuously monitors ESG and climate developments, collaborating with stakeholders to integrate key sustainability themes and practices into its operations.

Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies. FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community.