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Economic Impact of Monsoon Deficit in India:

Production, Supply Chain
and Price Risks



Executive Summary

Drought declarations across large parts of Karnataka, Maharashtra and Andhra Pradesh mark the point at which a rainfall shortfall becomes an economic event. The Centre has also flagged drought conditions in Telangana and Rajasthan, where state assessments are still under way. The question now is how the shortfall moves through farm output, food prices, rural incomes, credit quality and public finances. Declarations trigger relief spending, input support and loan rescheduling, so the

stress reaches budgets and balance sheets as well as fields. That spread is neither immediate nor uniform. A deficit in a well-irrigated crop with comfortable stocks may barely show up in prices. The same deficit in a rain-fed crop with concentrated production and thin buffers can keep inflation elevated for months. This paper traces where that stress is likely to surface, through which channels, and what it means for food inflation, rural demand and India's growth outlook.

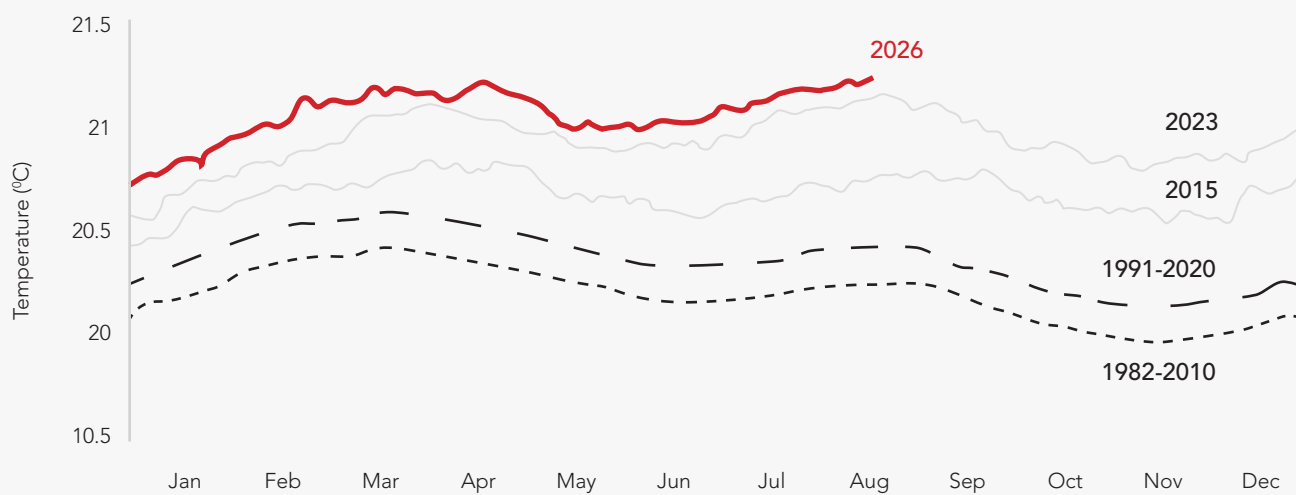


Introduction

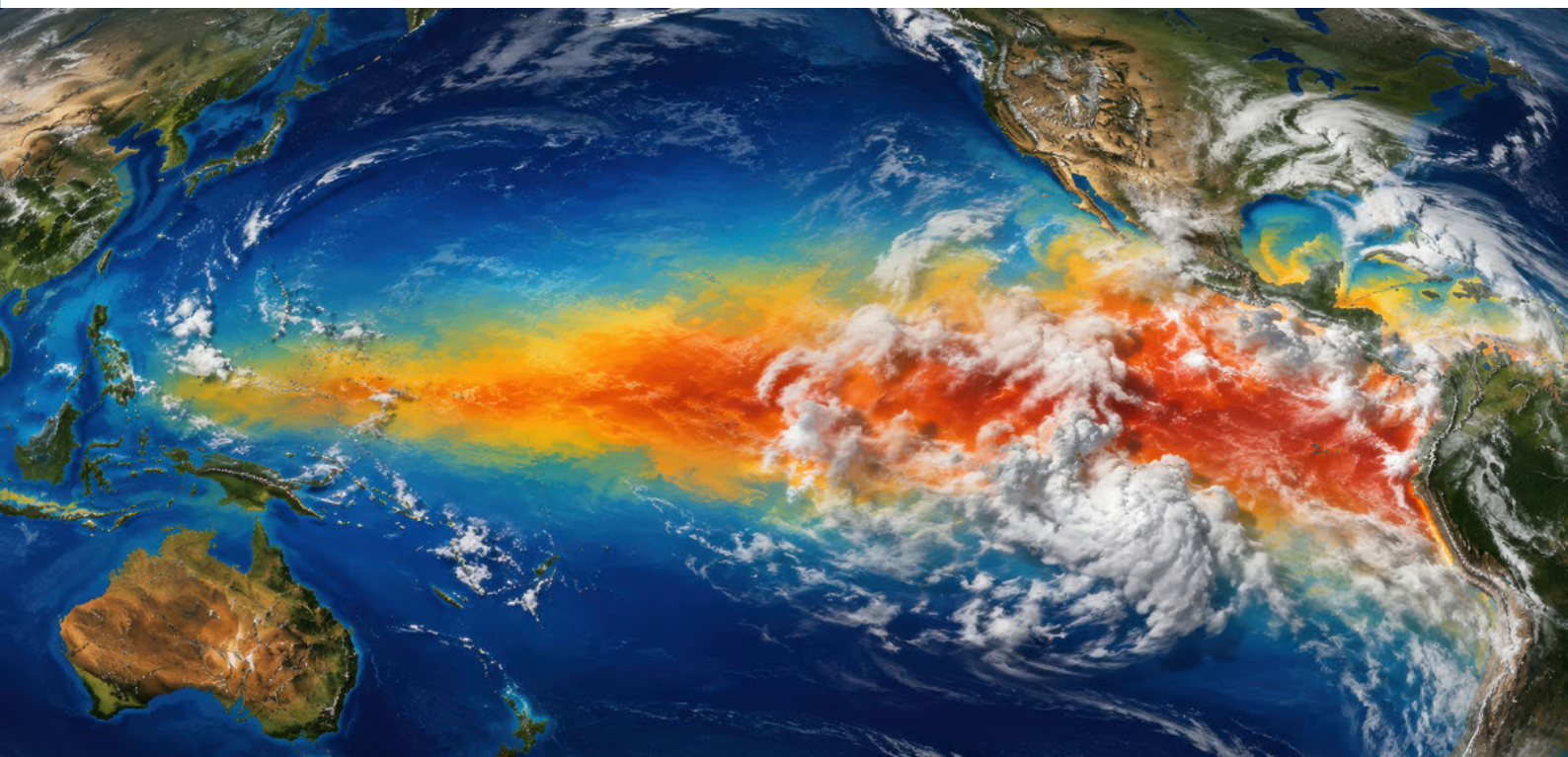
El Niño is best viewed as a source of risk rather than an economic outcome in itself. The extent to which that risk affects agricultural production, food supplies and prices depends on the evolving performance of the

monsoon. The analysis therefore begins with an assessment of observed rainfall patterns and deficit concentrations across the country before tracing their potential implications for India's food economy.

Daily Sea Surface Temperature, World

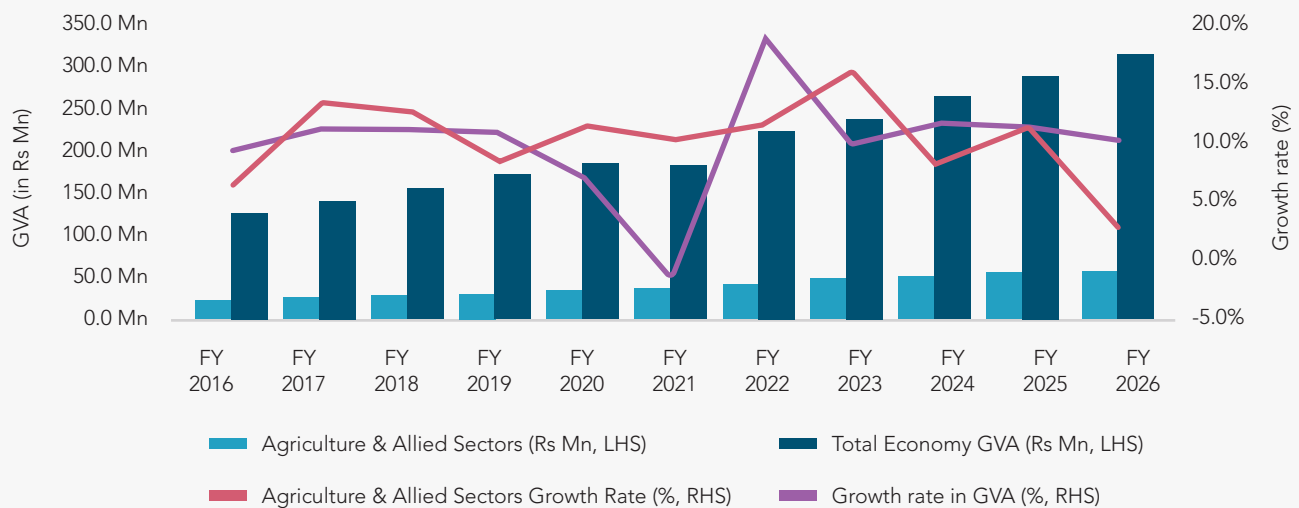


Source: NOAA OISST V2.1, Climate Change Institute, University of Maine



Indian Agricultural Sector

Agriculture & Allied Sector's Contribution to GVA



Source: UPAG, Dun & Bradstreet Research

The economic importance of the monsoon reflects the continued dependence of Indian agriculture on seasonal rainfall. Agriculture contributes nearly 17% of India's GVA, while the southwest monsoon supplies close to three-fourths of annual precipitation and

remains a key driver of crop production. Consequently, assessing the implications of a monsoon deficit begins with understanding where rainfall shortfalls have emerged and which agricultural regions are most exposed.

Share of Crops is Highest in Agricultural GVA



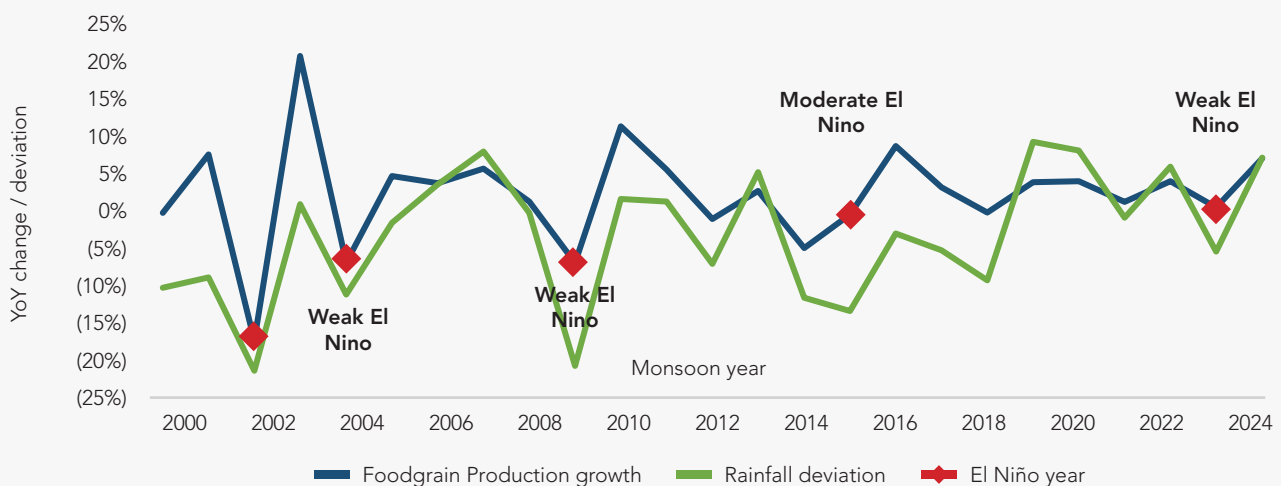
Source: UPAG, Dun & Bradstreet Research

El Niño, Rainfall and Foodgrain Output

El Niño increases the risk of weaker monsoon rainfall, but its impact on agricultural production depends on how rainfall deficits interact with crop geography, crop calendars and irrigation availability. Not all rainfall shortfalls translate into production losses, and not all production losses are large enough to

affect markets. Historical evidence suggests that risks become economically significant when deficits are widespread or concentrated in key producing regions during sensitive crop-growth stages, overwhelming existing adaptive capacity and reducing available supply.

Foodgrain Growth, Rainfall Deviation and El Niño Years (2000-2024)



Source: UPAG; IMD; DA&FW; NOAA PSL, Dun & Bradstreet Research

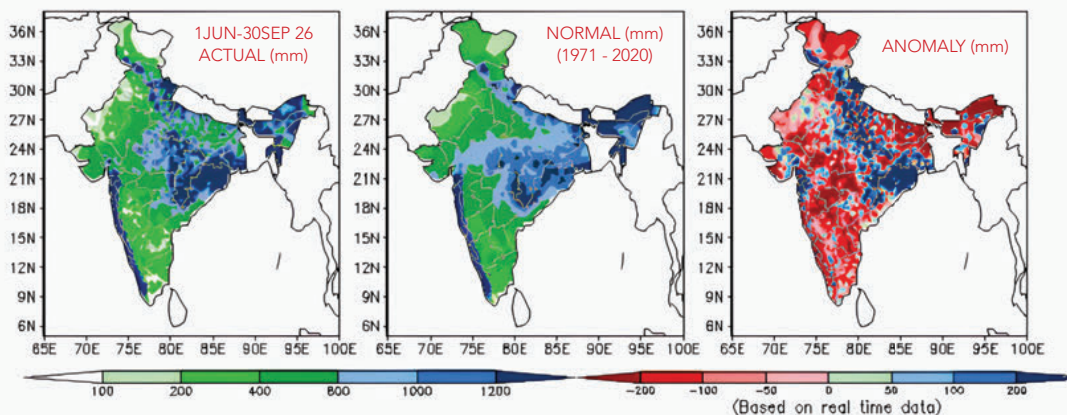
Status of Prevailing Southwest Monsoons

Rainfall deficits matter less for how much rain is missing than for where it is missing. A weak monsoon becomes an economic risk when it affects major producing regions, disrupts crops during critical growth stages and coincides with limited irrigation coverage. Under these conditions, a weather event can become a production shock, with consequences that extend well beyond agriculture into food processing, supply

chains and business costs. The key question is therefore not whether rainfall has been below normal, but whether the affected regions account for enough of India's food production to influence supply availability and prices. The following analysis examines that risk through the lens of production concentration, drought vulnerability and transmission across the food economy.

Spatial Distribution of Southwest Monsoon Rainfall and Rainfall Anomalies across India, Jun-Sep 2026

Seasonal Rainfall and Anomaly, Jun-Sep 2026



Source: IMD

Irrigation - Critical Shock Absorber

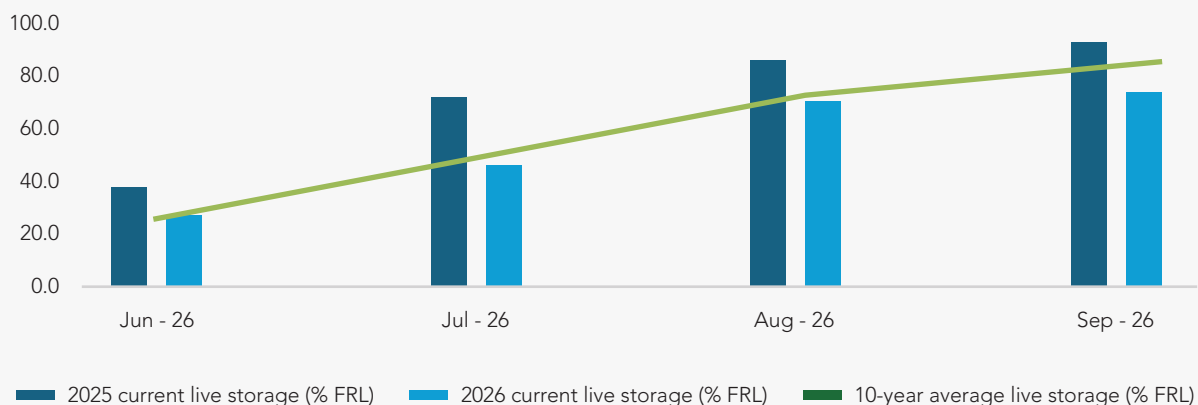
Irrigation is the first buffer against weak rainfall, but its effectiveness depends on the water actually available from reservoirs, canals and groundwater during critical crop stages rather than on installed coverage alone. This capacity varies across crops and regions and is currently under some pressure because reservoir storage is below both last year's level and the 10-year seasonal average.

The weaker surface-water cushion is most relevant for reservoir-dependent command

areas, where prolonged shortfalls could affect late-stage kharif crops and reduce water available for the rabi season. The extent of the impact will depend on groundwater access, canal releases and the crops grown in affected areas. Lower storage therefore signals reduced buffering capacity, not confirmed production loss. Whether water stress translates into lower output will become clearer through sowing patterns, crop conditions and yields, which provide the next set of indicators.



Water Reservoir Levels in 2026 are below levels



Source: CMIE, Dun & Bradstreet Research (as on 1st October 2026)

Note: FRL - Full Reservoir Level

Early Signs of Stress

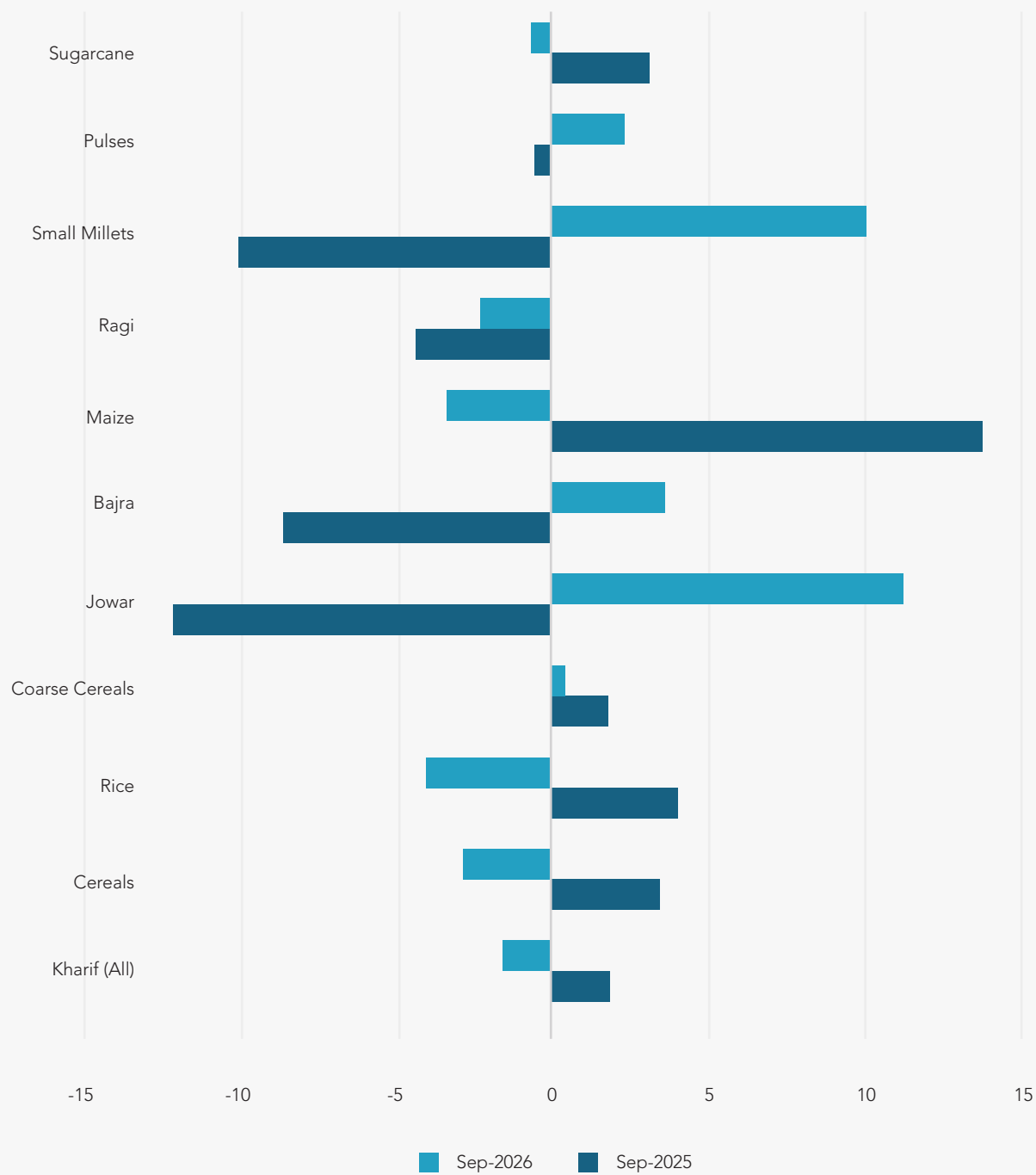
Kharif sowing provides an early indication of how weather conditions are affecting production decisions. As of 5 Oct 2026, total sowing was 1.1% lower YoY and foodgrain acreage 1.6% lower. Although modest, these declines matter because they include crops with a large weight in India's foodgrain basket.

The larger risk lies in yields. Historical experience shows that production outcomes can deteriorate even when cultivated area remains stable or expands. In 2023–24, maize output fell 6.0% despite acreage rising 3.4%, as yields declined 9.1%. Current sowing trends are therefore an early warning, not a measure of eventual output; production losses will depend on whether rainfall deficits, moisture stress and higher temperatures persist through critical crop stages.

Crop exposure depends on the timing of water stress. Rice requires sustained moisture, while maize and ragi are most vulnerable during flowering and other critical growth stages. Weaker sowing in rice, maize and cereals therefore warrants monitoring. The crop-level assessment evaluates production risk based on current weather and crop conditions, historical drought vulnerability measured by the IMD Drought Vulnerability Index¹, and each region's contribution to national production. Risk is highest where current-season stress overlaps with structurally vulnerable and production-intensive areas.

¹ The IMD Severe Drought Normalized Vulnerability Index is a district-level measure based on the Standardized Precipitation Index and rainfall data for 1901–2020. Scores range from 0 to 1: nil (0), low (>0–0.25), moderate (>0.25–0.50), high (>0.50–0.75) and very high (>0.75–1). The index indicates historical susceptibility to severe drought, not drought probability, production at risk or current-season stress.

Progress of Kharif Crop Sowing (YoY % change in actual sown area)



Source: CMIE, Dun & Bradstreet Research (as on 5th October 2026)



Rice Production

Rice warrants particular attention because it is India's dominant foodgrain, a major component of the public-distribution system and an important input for milling and packaged-food businesses. As of 5 Oct, rice acreage was 3.5% lower YoY, while the crop remains dependent on sustained moisture availability through most of its growth cycle. Production outcomes will largely be determined by yield performance, which remains sensitive to moisture stress during key

growth stages. Favourable crop conditions in other regions, together with substantial public rice stocks, can absorb moderate losses before they materially affect food availability, procurement operations or downstream food businesses. The key question is therefore not whether rice output weakens, but whether any decline is large enough to overcome existing supply buffers and influence market conditions.

Rice Production and Drought Risk Across Major Producing States



Source: UPaG, IMD, Dun & Bradstreet Research

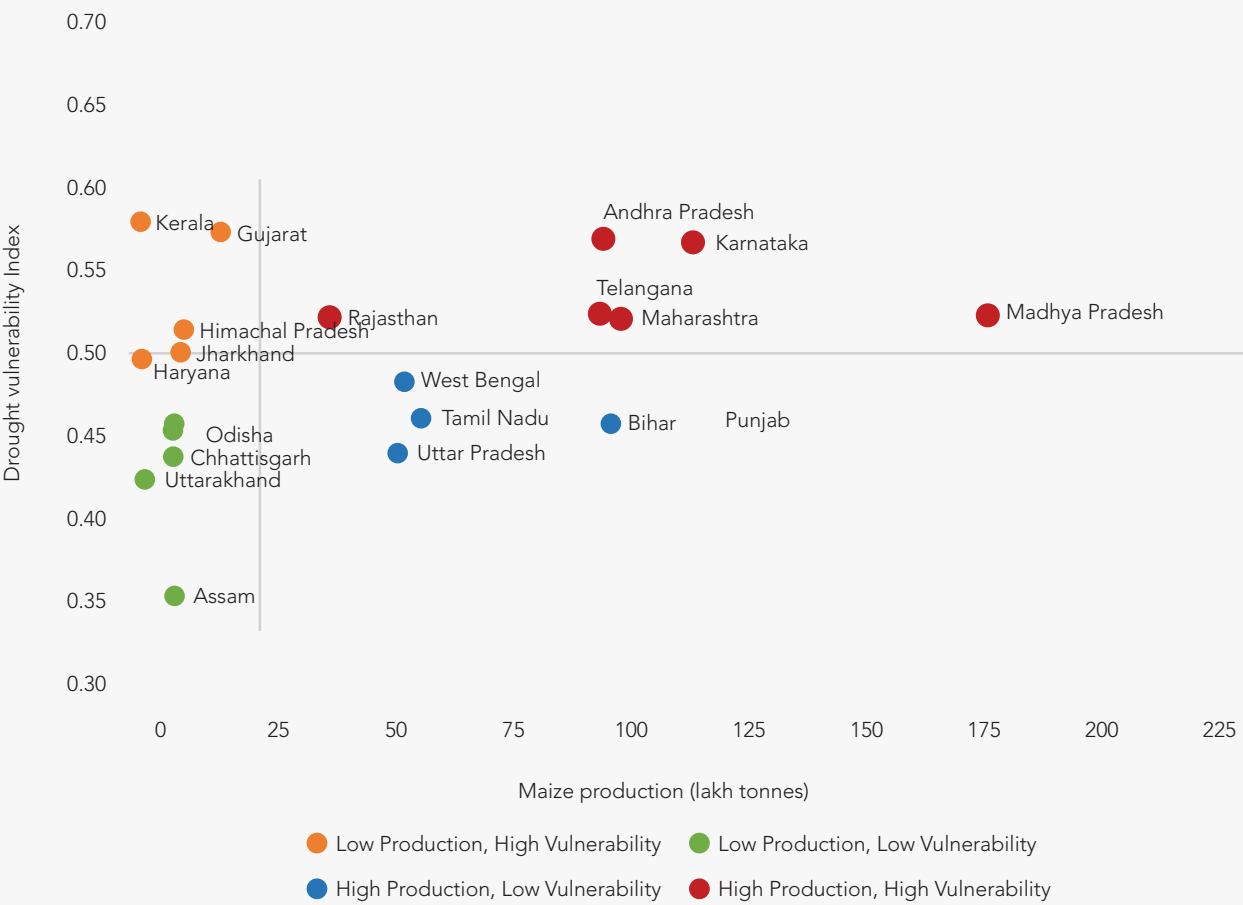
Note: Production and sowing figures refer to crop year 2025–26, while the IMD index reflects historical drought vulnerability and is not specific to a year.

Maize Production

Maize has wider economic exposure because it feeds poultry, livestock and aquaculture and is used in starch, processed foods, alcohol and ethanol. Acreage was 2.9% lower YoY (as of 5 Oct), while yields remain vulnerable during flowering and grain filling, when yields losses can occur even after planting has been completed. Unlike rice, where public stocks can absorb part of a production shortfall, maize shortages tend to affect commercial supply chains more directly.

If lower yields reduce market arrivals, feed costs could rise for poultry, dairy and livestock producers, while input costs increase for starch manufacturers, food processors and ethanol producers. The impact on businesses will depend on the extent of supply tightness and their ability to substitute inputs, diversify sourcing or pass through higher costs.

Maize Production and Drought Risk Across Major Producing States



Source: UPAg, IMD, Dun & Bradstreet Research

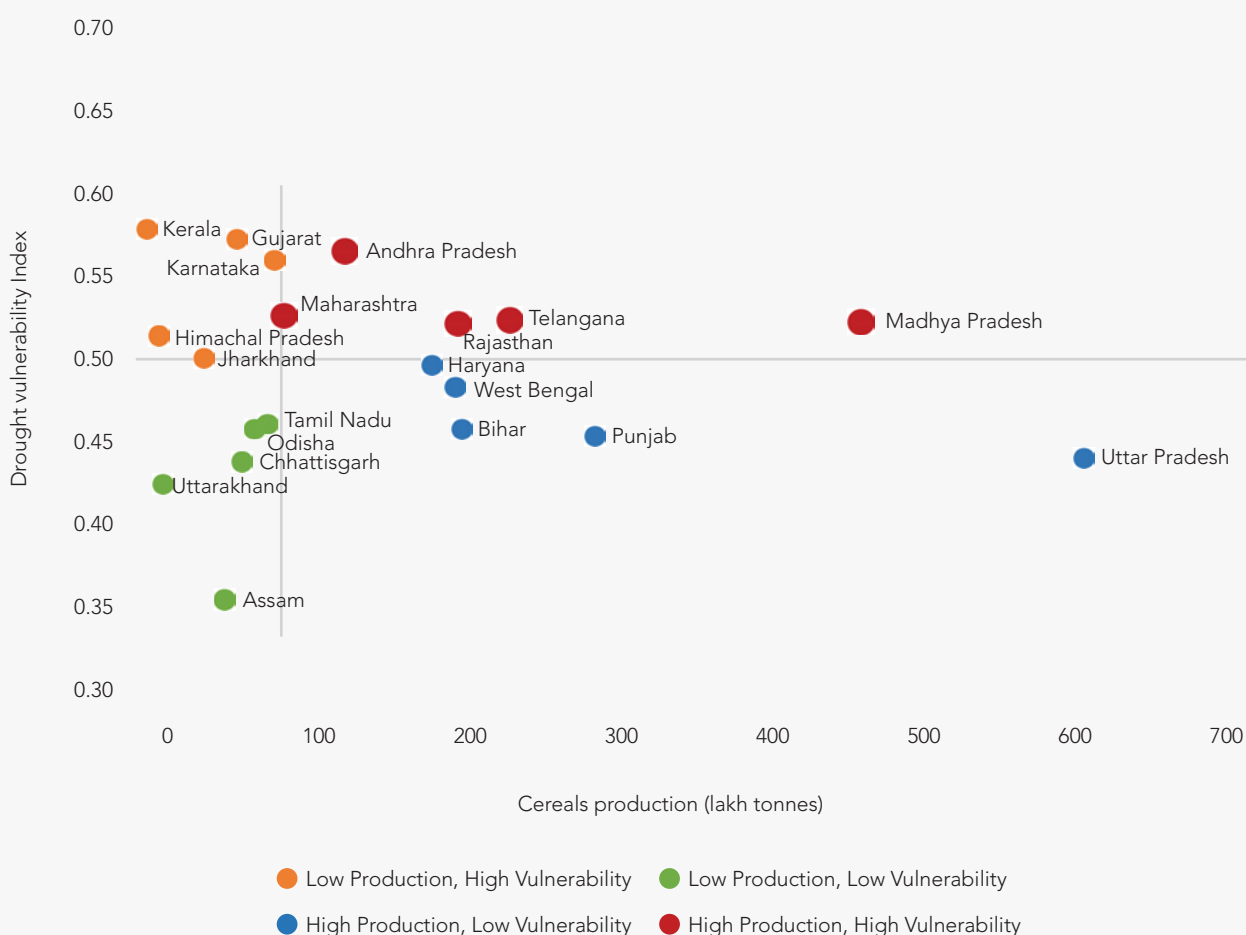
Note: Production and sowing figures refer to crop year 2025–26, while the IMD index reflects historical drought vulnerability and is not specific to a year.

Other Cereals Production

The 2.3% (as of 5 Oct 2026) decline in cereal acreage signals broader foodgrain exposure, although risks vary across crops and regions. Monitoring should focus on current rainfall, soil moisture and crop conditions in key producing states, as simultaneous yield losses across cereal belts would weaken diversification buffers. Pulses face a different risk: imports can partly offset moderate

domestic shortfalls, but they also expose supply to global prices, exchange rates and trade policy. The main concern is therefore greater procurement uncertainty and cost volatility rather than an immediate shortage, although a broad-based production decline could still tighten supplies and raise costs for processors.

Cereals Production and Drought Risk Across Major Producing States



Source: UPAg, IMD, Dun & Bradstreet Research

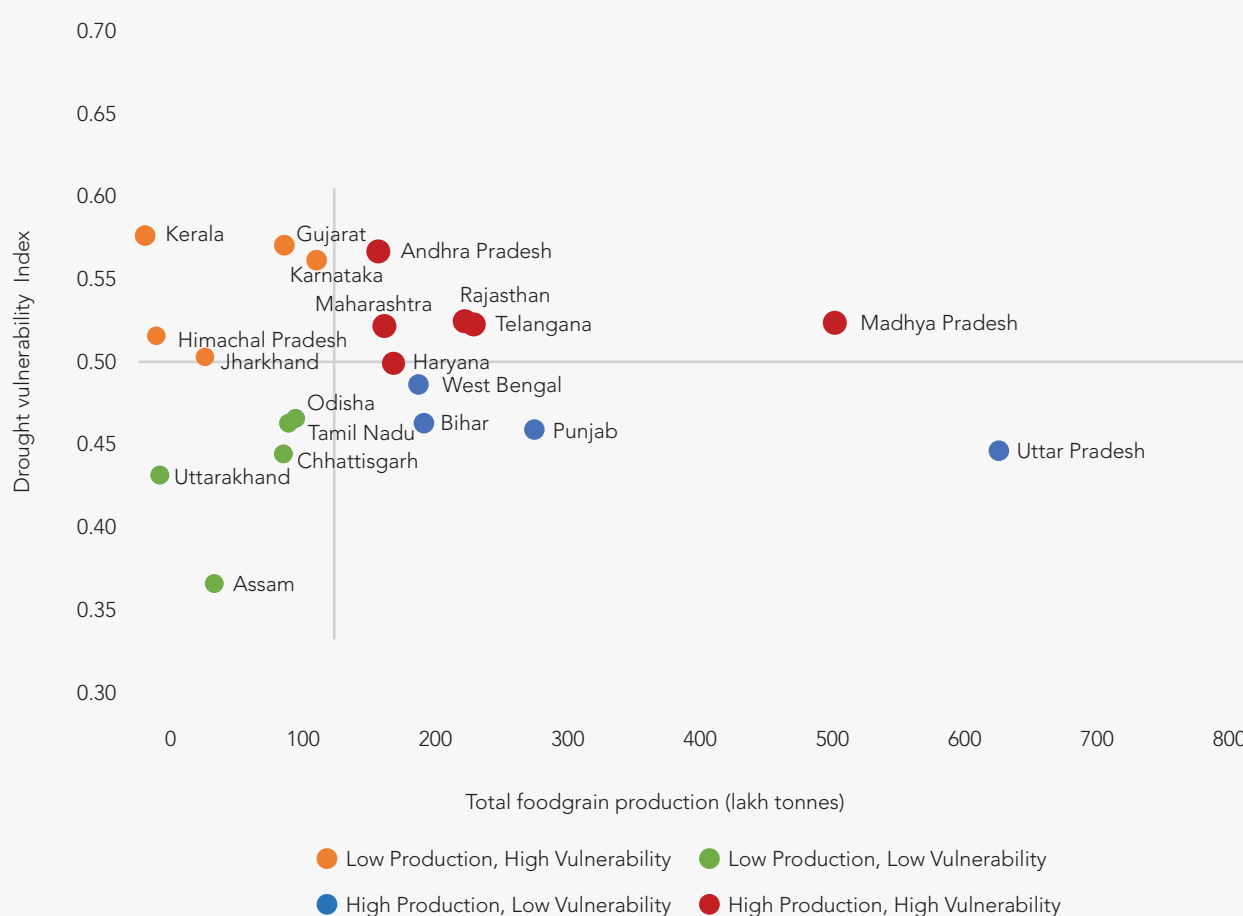
Note: Production and sowing figures refer to crop year 2025–26, while the IMD index reflects historical drought vulnerability and is not specific to a year.

National Foodgrain Production Hotspots

Production concentration determines whether local weather stress becomes nationally significant. Madhya Pradesh, Rajasthan, Telangana, Maharashtra and Andhra Pradesh accounted for 1,400.3 lakh tonnes, or 37.7% of foodgrain output across the 20 states analysed in 2025–26. Monitoring should therefore focus on whether crop conditions deteriorate simultaneously across these major producers, as losses across several states would be

difficult to offset elsewhere. The IMD Drought Vulnerability Index helps identify historically susceptible areas but does not indicate current damage. Given their varied crop mix, covering wheat, rice, maize, millets and pulses, any production shock would affect specific commodity markets and supply chains rather than create a uniform foodgrain shortage.

Drought Vulnerability of States based on Quantum of Production



Source: UPaG, IMD, Dun & Bradstreet Research

Note: Production and sowing figures refer to crop year 2025–26, while the IMD index reflects historical drought vulnerability and is not specific to a year.

State	Key Foodgrain Crops for which the State is Among India's Top 5 Producers
Madhya Pradesh	Wheat, maize, gram, pulses, coarse cereals
Telangana	Rice
Rajasthan	Coarse cereals (millets), gram
Andhra Pradesh	Rice
Maharashtra	Tur, gram, pulses

Source: Economic Survey 2025-26

Wheat & Rice Stock Adequacy

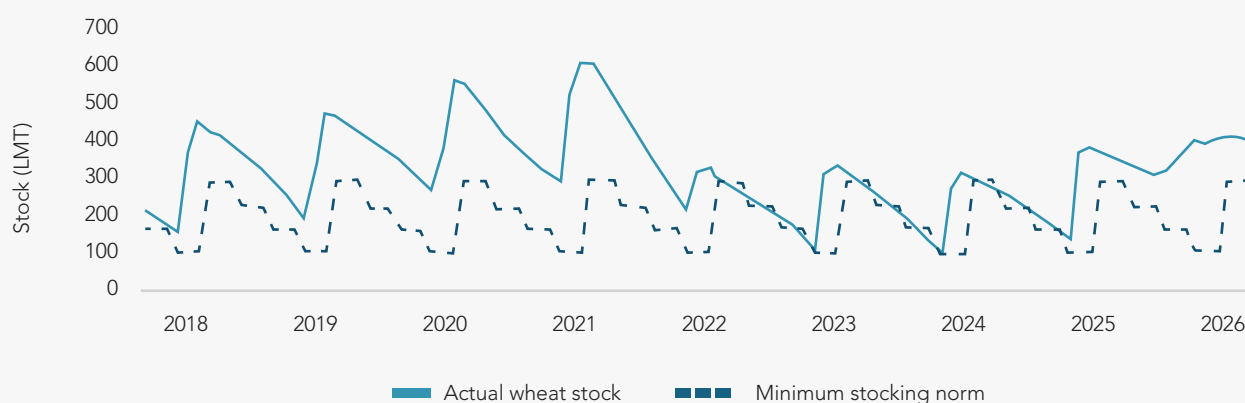
Public grain stocks are the economy's first line of defence against a weather shock becoming an production and inflation shock. Strong rice inventories and adequate wheat reserves mean that a moderate production setback can be absorbed without an immediate impact on consumer prices. However, stocks buy time but they do not eliminate risk. If production losses persist, inventories will gradually be

drawn down, reducing policy room to stabilise markets. Moreover, this buffer is concentrated in rice and wheat. Businesses exposed to maize, pulses or region-specific supply chains cannot rely on the same protection and may face procurement pressures well before food inflation becomes evident in official data.

Wheat & Rice Stock Adequacy

Monthly trend Jan 2018 - Sep 2026 | Lakh metric tonnes (LMT)

Monthly wheat stock versus minimum stocking norm



Source: Food Corporation of India, Dun & Bradstreet Research

Monthly rice stock versus minimum stocking norm



Source: Food Corporation of India, Dun & Bradstreet Research

Imports as a Secondary Supply Buffer

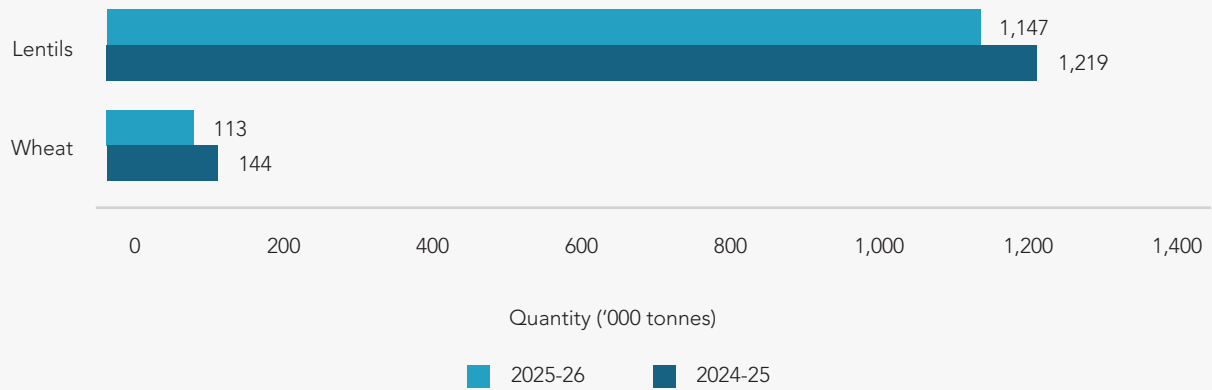
Imports can ease pressure in specific commodities, but they are not a substitute for domestic production. They are most effective where India already has established sourcing channels and meaningful import dependence, such as lentils. Their role is far more limited for rice, wheat and especially maize, where domestic output and public stocks remain

the primary buffers against supply shocks. Even for import-dependent commodities, the relief depends on global availability, landed costs, trade policy and delivery timelines. Imports can therefore soften local shortages, but they are unlikely to offset a broad-based production shock or prevent supply stress from feeding into business costs.



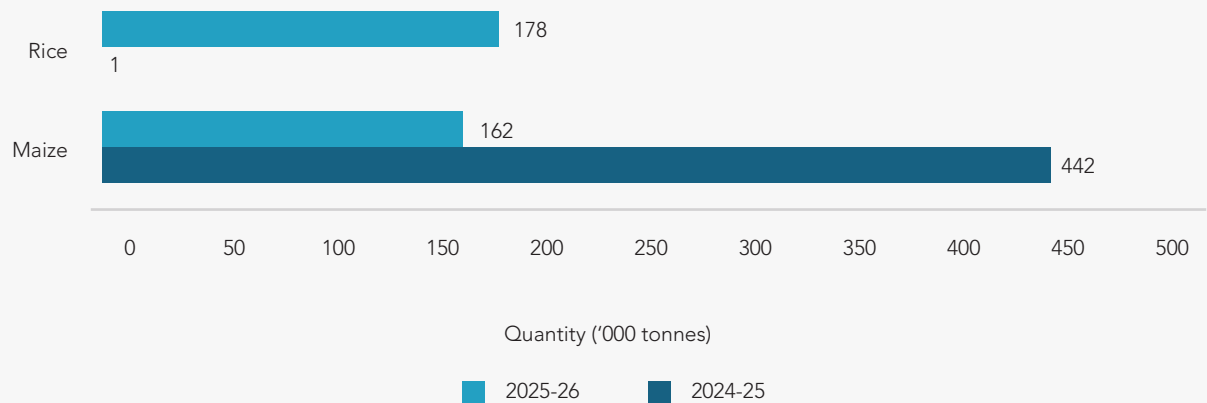
High-Volume Imports

Wheat and Lentil Import Volumes

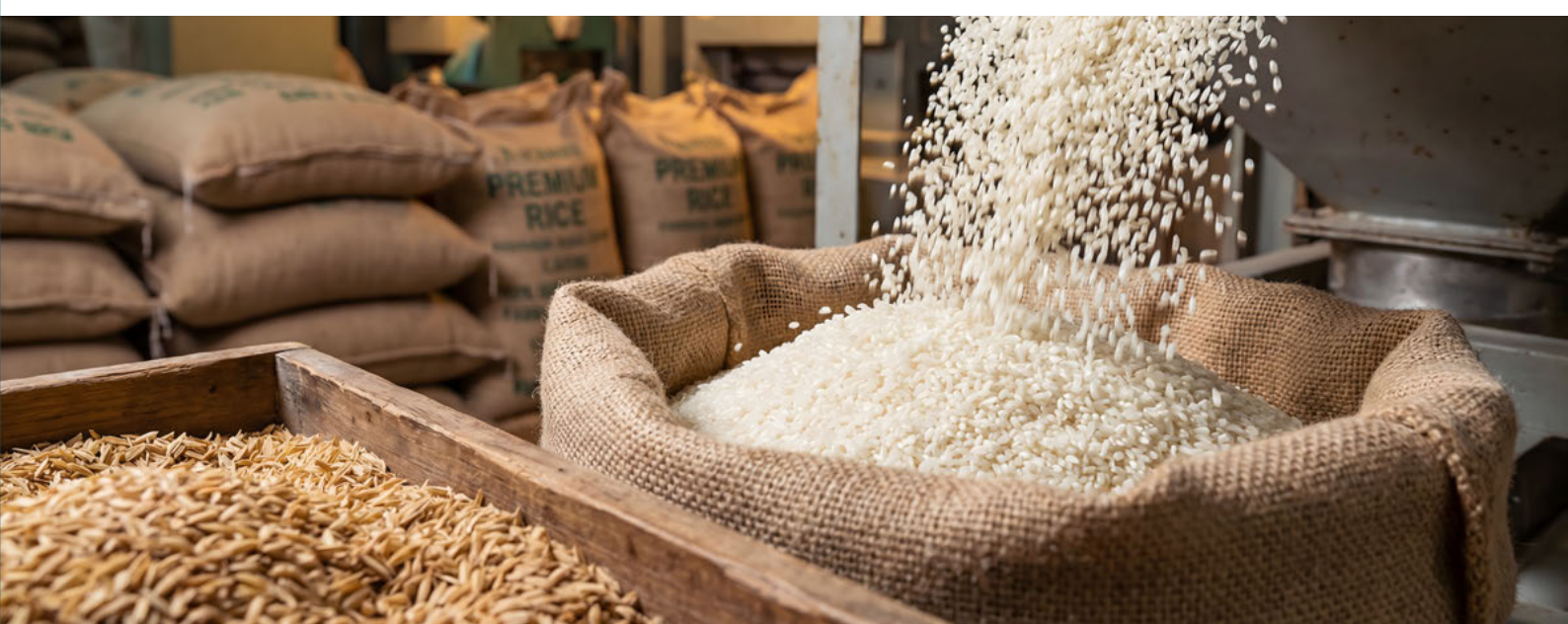


Low-Volume Imports

Maize and Rice Import Volumes



Source: TradeStat-EIDB, Dun & Bradstreet Research



From Farm Gate to Final Demand: Business Transmission Nodes

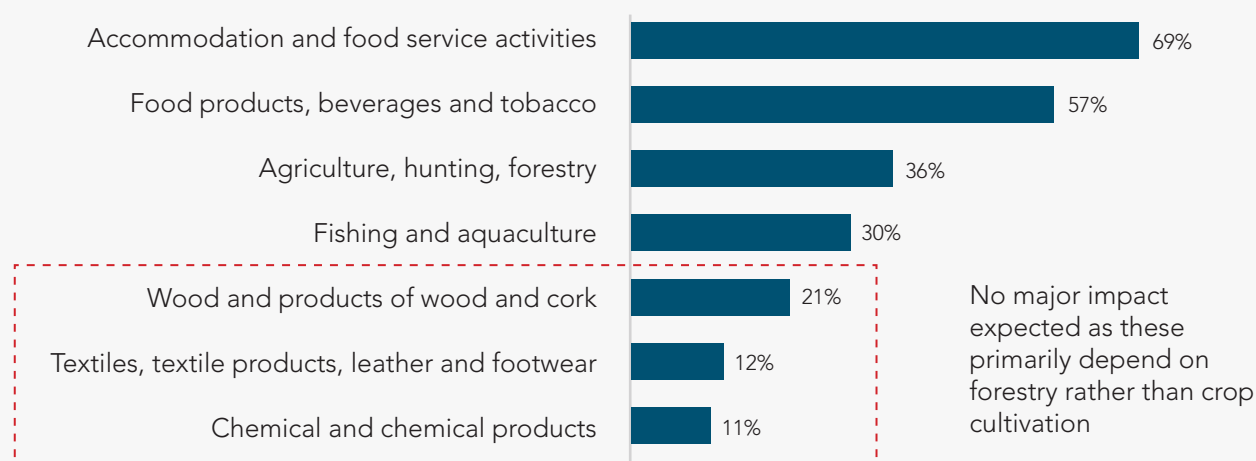
Agricultural stress becomes a business risk long before it becomes an inflation story. Agriculture accounts for 57% of intermediate consumption in food products, beverages and tobacco manufacturing, making food processors the first major transmission channel. As supply conditions tighten, the initial impact is likely to appear through higher procurement costs, larger inventory requirements, more complex logistics and increased working-capital needs. The effects then extend through feed, livestock and aquaculture value chains, where agricultural inputs remain a significant component of production costs.

The risk is greatest where production exposure, drought vulnerability and business concentration overlap. These clusters determine how quickly weather-related stress moves from farms into supply chains and corporate balance sheets. Dun & Bradstreet's business database highlights several such concentrations. Rajasthan and Maharashtra

account for a significant share of cereal-related businesses, while Maharashtra alone represents 21.0% of businesses engaged in cereal-, grain- and seed-based feed manufacturing. Andhra Pradesh and Telangana also host notable concentrations of rice-related businesses, including rice mills and processors. In these ecosystems, production stress can translate into supply disruptions, cost inflation, stretched payment cycles and elevated counterparty risk across interconnected firms.

For businesses, the key risk is therefore not crop failure in isolation, but concentration risk. Organisations with suppliers, customers or borrowers linked to vulnerable commodities and regions may experience cost pressures, operational disruption and weaker payment performance well before those pressures become visible in national inflation or growth data. Understanding these interconnected exposures is likely to be more valuable than monitoring rainfall deficits alone.

Sector-wise Share of Agriculture Inputs in Intermediate Consumption



Source: OECD, Dun & Bradstreet Research

When Production Risk Becomes Inflation Risk

A weak harvest does not automatically become an inflation shock. Supply stress reaches consumers only when production losses are large enough to overwhelm the system's existing buffers, including inventories, market releases, imports and substitution effects. Those buffers are strongest for rice and wheat, where public stocks can absorb temporary disruptions and buy time for policymakers. They are considerably weaker for crops such as maize and pulses, where demand spans food, feed and industrial uses and supply pressures can translate into prices more quickly.

This distinction is critical because production risk and inflation risk are not the same thing. Production risk emerges in the field through

poor rainfall, low reservoir levels, moisture stress, weaker yields and reduced market arrivals. Inflation risk emerges later, when supply shortages persist, inventories are drawn down, wholesale prices continue to rise and policy options become more constrained. The path from one to the other is neither automatic nor immediate.

For businesses, the most useful question is therefore not whether rainfall has fallen short, but where the disruption sits in the transmission chain. Firms that wait for inflation data are often responding to a risk that has already materialised. The earlier signals lie in crop conditions, supply availability, procurement costs and the financial health of suppliers operating in affected regions.



Managing Exposure Beyond the Monsoon

The evidence points to a concentrated risk, not a national food-supply shock. Production stress is building in specific crops and states, while public stocks and irrigation still cushion the wider food system. For businesses, the question is no longer whether the monsoon fell short. It is whether supply is tightening in the commodities, regions and suppliers they depend on. Firms that source from a few suppliers or regions, hold little inventory or have little room to raise prices will be hit first. The pressure will show up in procurement costs and working capital well before it reaches headline inflation. These firms should act before costs rise. They can diversify suppliers, build up inventory of exposed

inputs, lock in contract terms and backup logistics, and keep enough working capital in reserve.

Rainfall deficits alone will not decide what the 2026 monsoon costs the economy. What matters is whether they turn into real production losses, exhaust the buffers and last long enough to squeeze margins and raise consumer prices. The signals to watch are final kharif output estimates, rabi sowing, reservoir levels and prices of exposed commodities. A shock is not inevitable. But by the time it shows up in inflation data, the chance to manage exposure will largely have passed.





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