

# Time for structural strike on inflation

Slower food output growth calls for more fiscal policy measures, reforms

CRISIL Insight

December 2024



## Snapshot

- Inflation has stayed elevated this fiscal, after rising sharply for major food crops during fiscals 2021 to 2024. The average food inflation rate during the period doubled compared with fiscals 2017 to 2020, coinciding with a slowdown in food production growth
- Weather shocks seem to be the prime factor behind slower yield and production growth
- Elevated global food prices impacted the domestic prices of majorly traded crops, such as rice, wheat, maize and edible oils. Geopolitical uncertainty and adverse weather conditions hit supplies at various times during the period. The global food price index rose 9.5% between fiscals 2021 to 2024, compared with 0.7% between fiscals 2017 with 2020
- While fiscal policy has been proactive in taming short-term fluctuations in food prices by managing food supplies<sup>1</sup>, it needs to double down on long-term easing of food inflation, by supporting agriculture productivity, production and supplies

India's inflation problem is unique and so should the solutions be.

After the Covid-19 pandemic, most economies employed monetary tools to address short-term inflation pressures, while India preferred a mix of the monetary and the fiscal.

The reason is retail inflation pressure in India comes majorly from food prices.

Monetary policy typically tries to contain household inflation expectations by raising interest rates and keeping excess demand in check.

Fiscal policy has played an active role, too, by influencing the availability of food in the market whenever prices take off.

However, there is a need to bring down food inflation on a structural basis. Fiscal policy and reforms — which raise agricultural yields, productivity and supplies — are crucial.

Arithmetically, to durably achieve the Reserve Bank of India's (RBI) Consumer Price Index (CPI) inflation target of 4%, with non-food inflation at its trend rate of ~5%, food inflation will have to drop below 3% — a level seen only twice in the past decade.

This insight looks at the role of domestic production and global supply disruptions in driving domestic inflation. We focus on fiscals 2021-2024, which saw above-trend food inflation and was the primary reason for driving the headline above the RBI's 4-6% tolerance band.

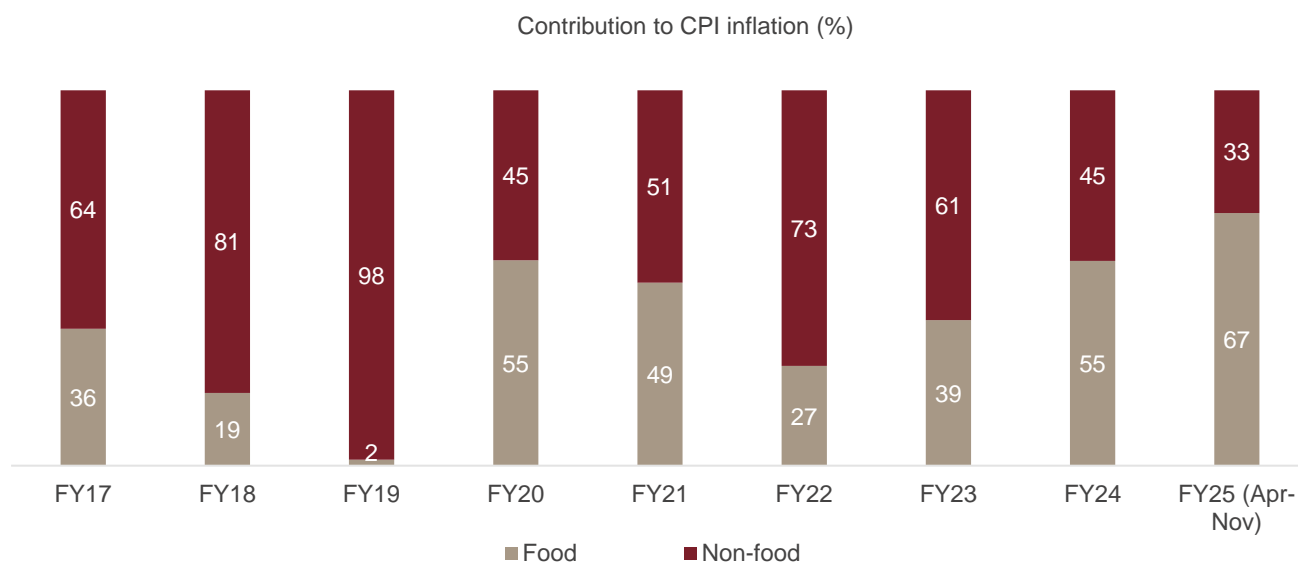
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<sup>1</sup> Release of food stocks via open market sales, facilitation of imports, restriction on exports, stock limits to prevent hoarding and speculation and food security through the Pradhan Mantri Garib Kalyan Anna Yojana among others

## Inflation has risen across crops in recent years

For a while now, food inflation has been the pain point, keeping the headline up and restricting the hands of the RBI. The contribution of food inflation to the overall CPI has steadily risen, from ~27% in fiscal 2022 to 55% last fiscal and 67% this fiscal so far.

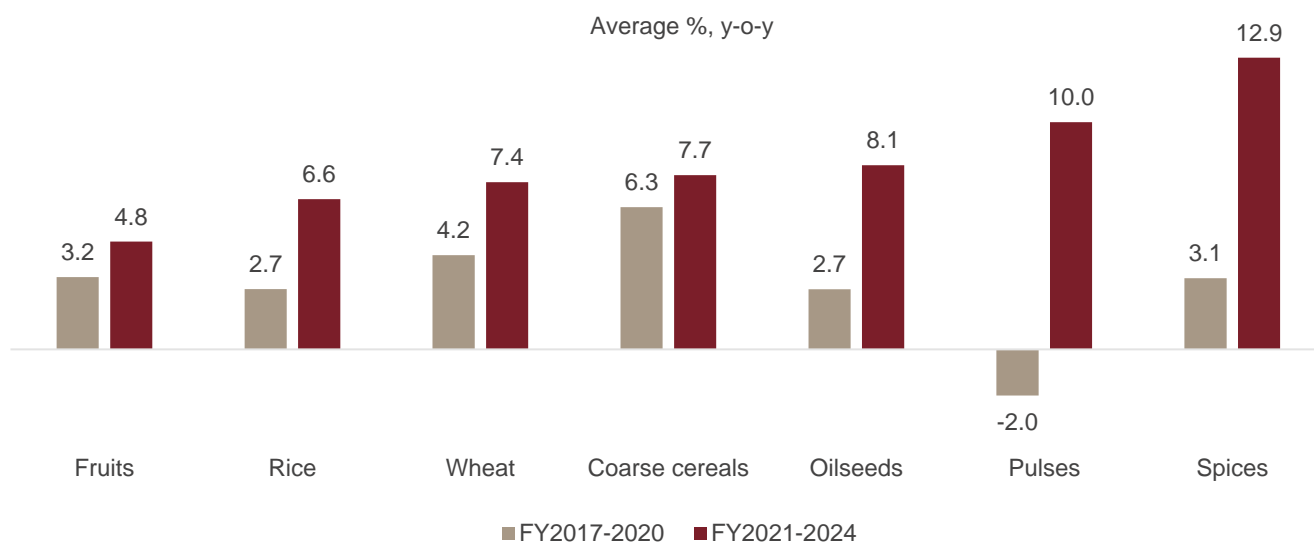
### Rising contribution of food to headline inflation



Source: NSO, CEIC, CRISIL

The rise in food prices has been broad-based. During fiscals 2021 to 2024, average food CPI inflation doubled to 6.4%, compared with 3.2% in fiscals 2017 to 2020.

### Crops saw higher CPI inflation during fiscals 2021-2024



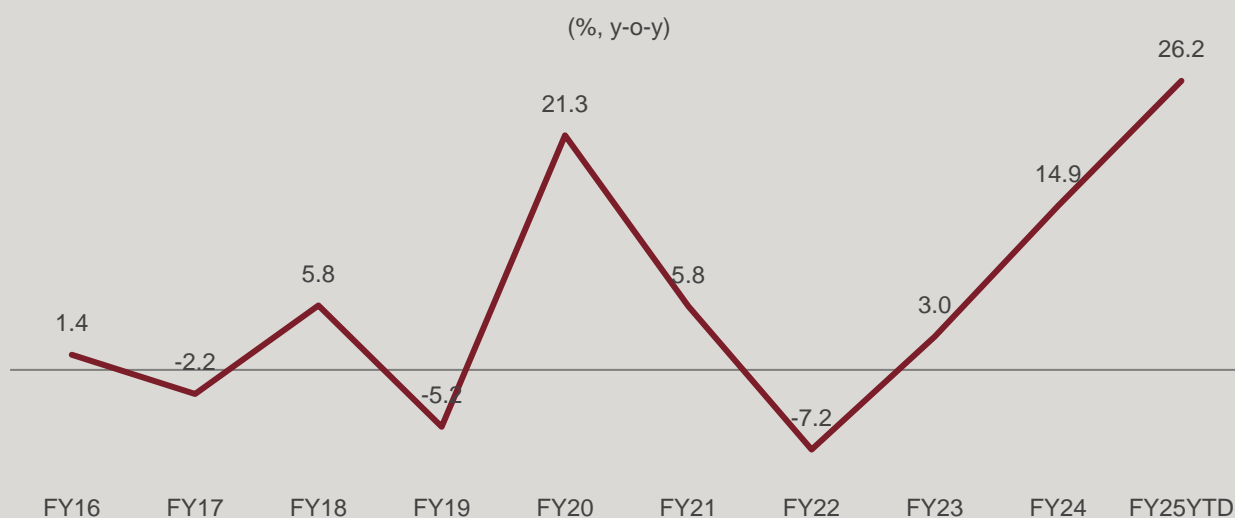
Source: NSO, CEIC, CRISIL

This fiscal so far, food CPI inflation has averaged 8.4%, compared with the RBI's upper-tolerance limit of 6% for the headline. To be sure, the arrival of kharif crop would soften food inflation in the coming weeks, but sticky vegetable inflation and pricier food globally can restrict the fall.

## The relentless rise in vegetable inflation

Within horticultural crops, vegetable prices have increased relentlessly in the past three fiscals, hitting an decadal high this fiscal. There has been large volatility in on-month inflation and the peaks have been hitting higher. Last fiscal, vegetable inflation hit 37.4% in July while in April it was -6.5%. The inflation rate was in double-digits in seven of the 12 months last fiscal, but also negative in three months. This year, the vegetable inflation rate has surged to 42.2% in October, while the lowest rate being 6.8% in July.

### Vegetable inflation has risen to an eight-year high



Note: FY25YTD is average inflation between April-November 2024

Source: NSO, CEIC, CRISIL

## Reasons for higher food inflation

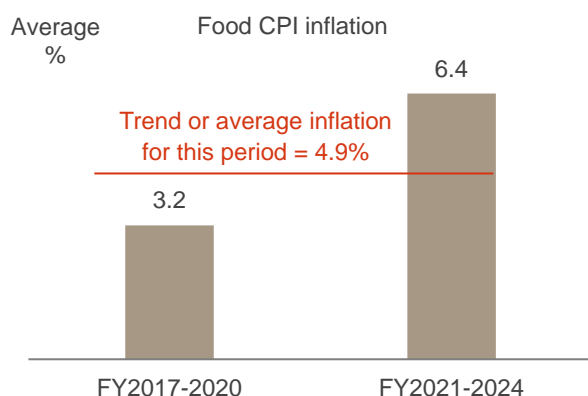
While rising demand — stemming from a growing population and changing food habits — is a headwind for food prices, supply-side weakness is another significant reason keeping food prices up in recent years. To boot, domestic production growth has slowed. Global food prices, which have fallen prey to supply disruptions due to weather and geopolitical uncertainties, have added to the pressure on domestic prices.

## Slowing domestic production growth due to softer yield growth

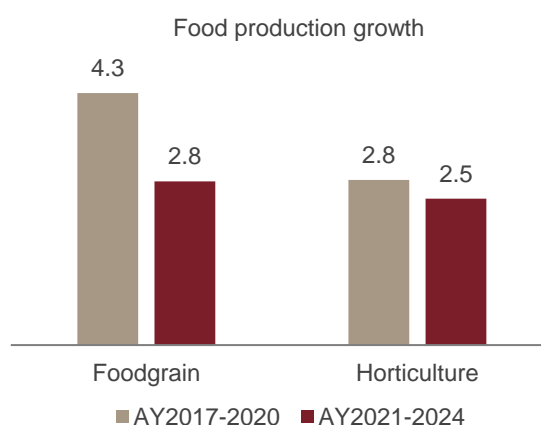
India's foodgrain production grew an average 2.8% in the agriculture years (AY) 2021-2024<sup>2</sup> – slower than 4.3% in AY 2017-2020. That is also slower with the decadal average of 3.3% in AY 2011-2020.

Horticulture production growth was relatively less slow at 2.5% in AY 2021-2024, compared with 2.8% in AY 2017-2020 and 3.7% in 2011-2020.

### Average food inflation



### Average food production growth

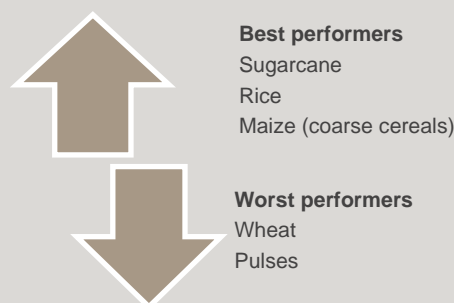


Note: Food production data is based on the agriculture years, which start from July and end in June. For example, AY 2021 refers to July 2020-June 2021. FY=AY in case of food production

Source: Ministry of Agriculture, NSO, CEIC, CRISIL

## The production picture varies across crops

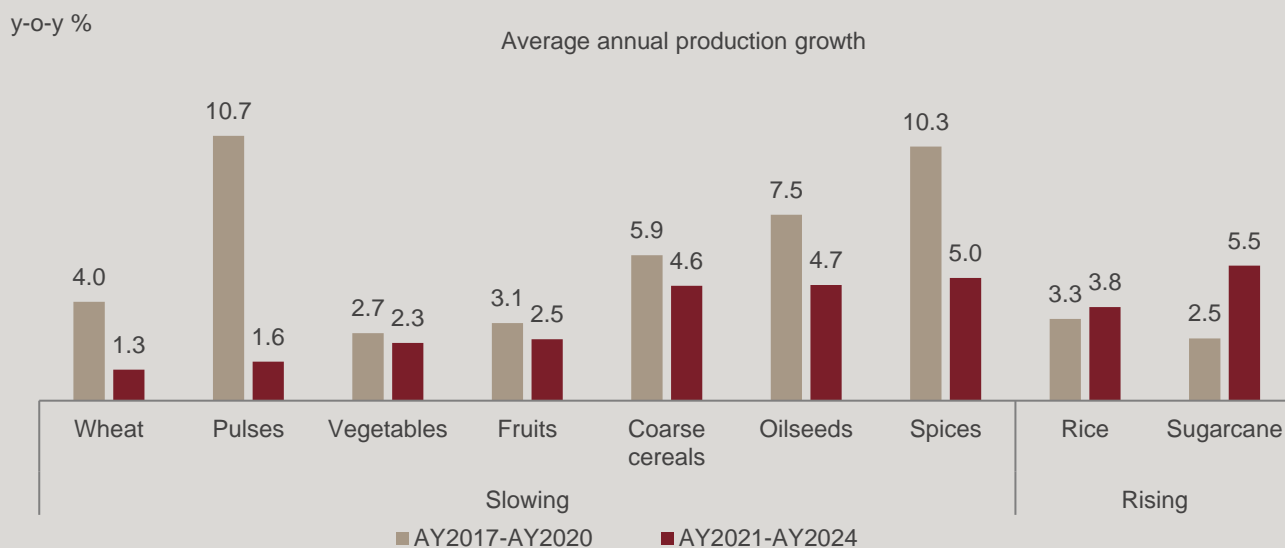
**7/9** crops saw domestic production slowing in AY2021-2024 compared with AY2017-2024



Wheat and pulses saw the weakest production growth in AY 2021-2024, due to reducing acreage and slower yield growth. Sugarcane and rice had the highest production growth in AY 2021-2024, driven by increased acreage despite sluggish growth in yield.

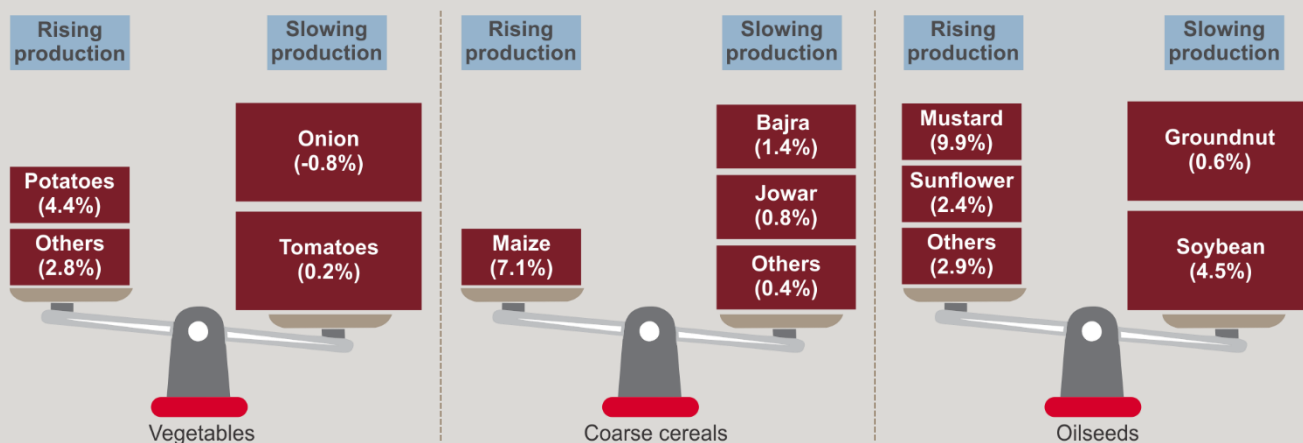
<sup>2</sup> Food production, yield and area data is based on agriculture years, which start from July and end in June. For example, AY 2021 refers to July 2020-June 2021

## Production trends across major food crops



Source: Ministry of Agriculture, CEIC, CRISIL

## Category nuances

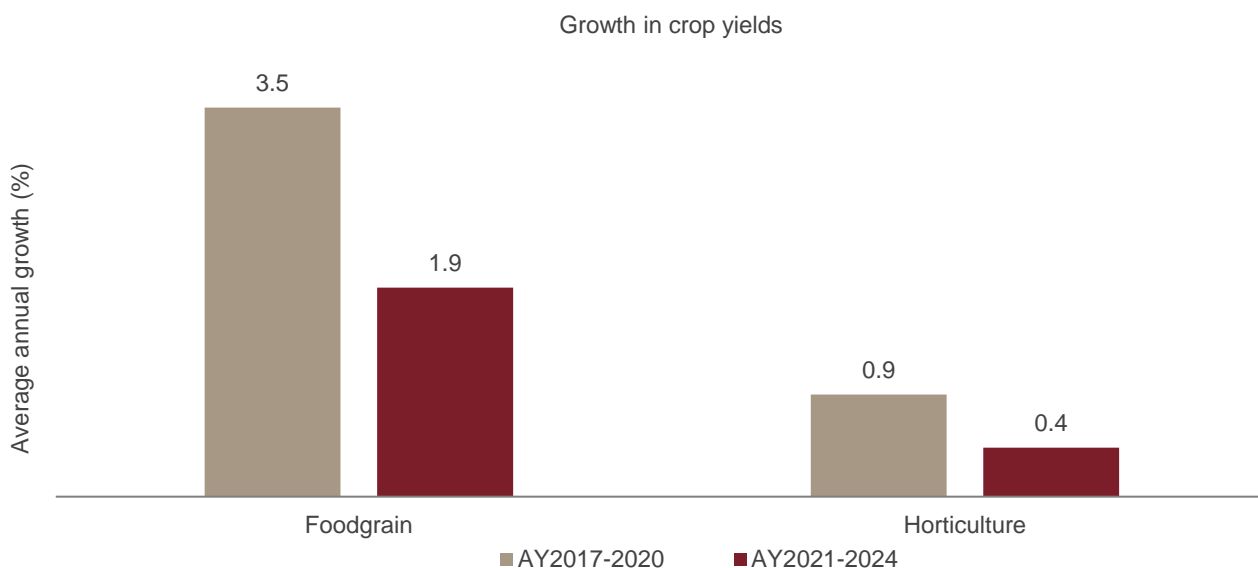


- Production growth in vegetables was slower, driven by lower onion (-0.8% in AY2021-2024 versus 5.8% in AY 2017-2020) and tomato (0.2% versus 3.4%) output. Decline on onions and tomatoes more than offset higher growth in other vegetables. However, potato production was higher (4.4% versus 3%). Production in other vegetables improved
- Among coarse cereals, maize was the best performer (7.1% vs 6.5%). But bajra slowed (1.4% versus 3.4%), along with jowar (0.8% versus 5.6%)
- Oilseeds is a mixed picture. While growth was higher in mustard (9.9% versus 7.8%) and sunflower (2.4% versus -8%), it slowed for groundnut (0.6% versus 13.9%) and soybean (4.5% versus 10.7%). The decline in groundnut and soybean production more than offset the rise in other oilseeds. To be sure, close to 60% of the total edible oil consumption in India is met by imports and, hence, the impact of global price movements is relatively more

## Climate change has delayed catch-up in yields

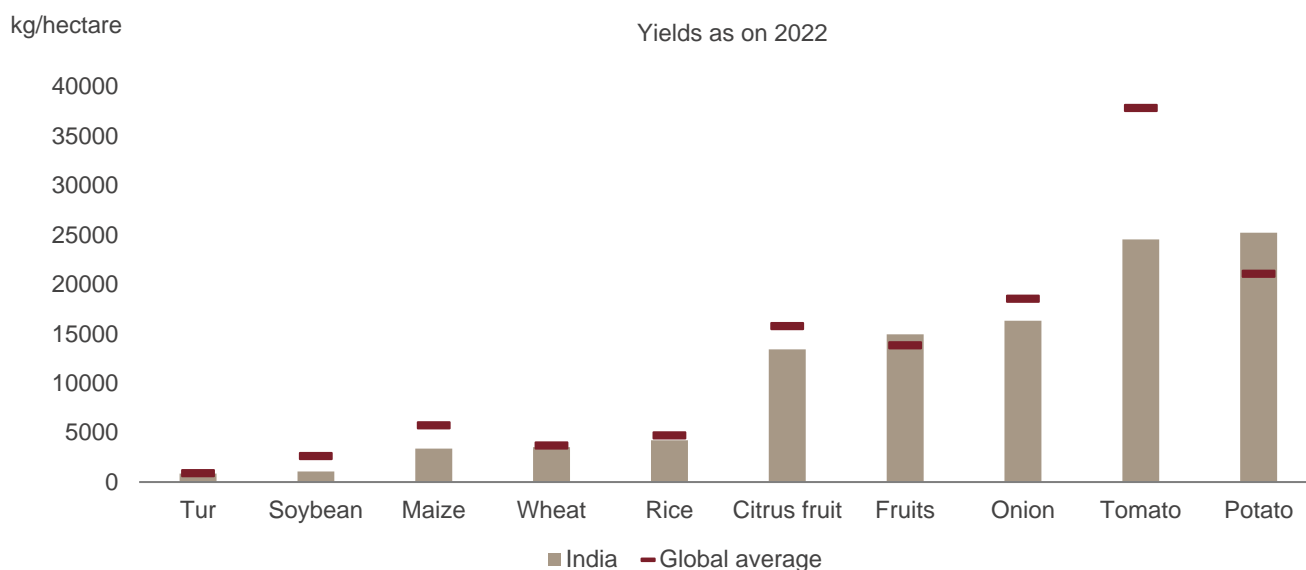
We find slowing crop yields to be a crucial reason behind slower production growth. Yields on both foodgrain and horticulture crops grew at a slower pace during AY 2021-2024, compared with the preceding four years

### Foodgrain crop yields disappoint



Source: Ministry of Agriculture, World Bank, CRISIL

### Crop yields remain below the global averages

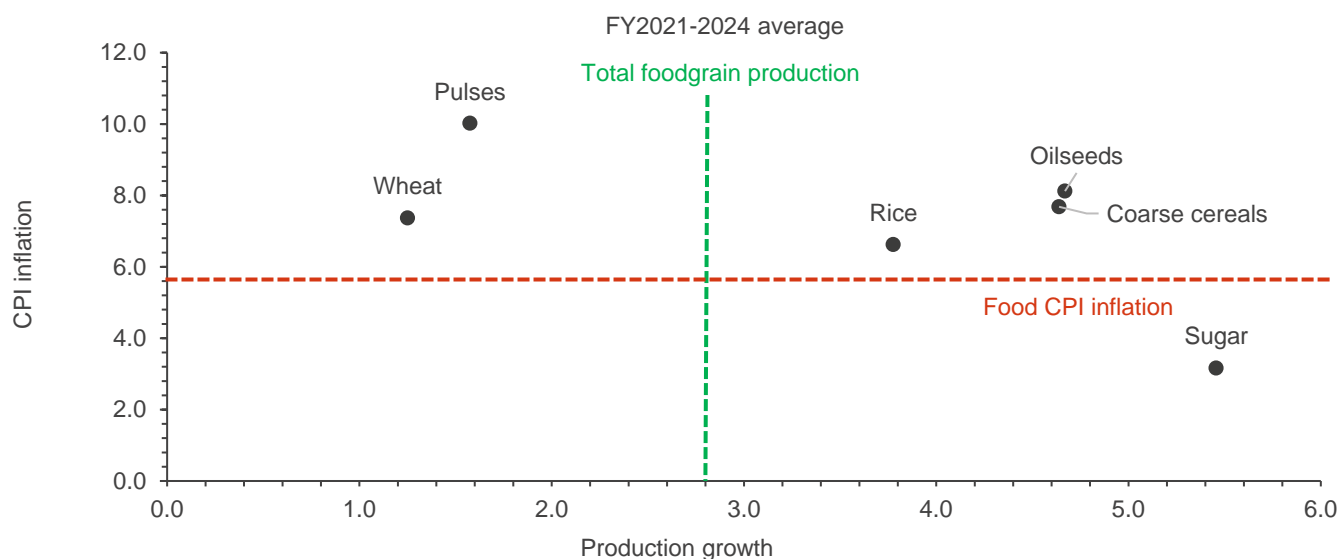


Source: Food and Agriculture Organization, CRISIL

India needs faster growth in crop yields for agricultural productivity to catch up with the world.

But changing weather patterns in recent years has been a spoilsport (refer to “The impact of climate change on yields” box for details).

### Foodgrains with high production also saw high inflation



Source: Ministry of Agriculture, NSO, CEIC, CRISIL

The chart above shows inflation was higher (than overall food inflation) for crops with lower production growth (relative to overall foodgrain production growth) as well as crops with higher production growth. This suggests demand-supply gaps that could not be bridged.

The exception is sugar, where low inflation ties with higher production.

### The impact of climate change on yields

Climate change has altered the pattern of monsoon in India. The incidence of either deficient or excess rains has increased of late.<sup>3</sup> Though monsoon has been broadly normal over the past five years, the change in spatial and temporal distribution has hit crops across stages of growth.

For instance, in 2023, monsoon swayed from deficit in June to normal in July, again to large deficit in August and to excess in September. August 2023 was the driest since record keeping began in 1901. The deficit hit sowing and production, while excess rains towards the end of the season affected standing crops.

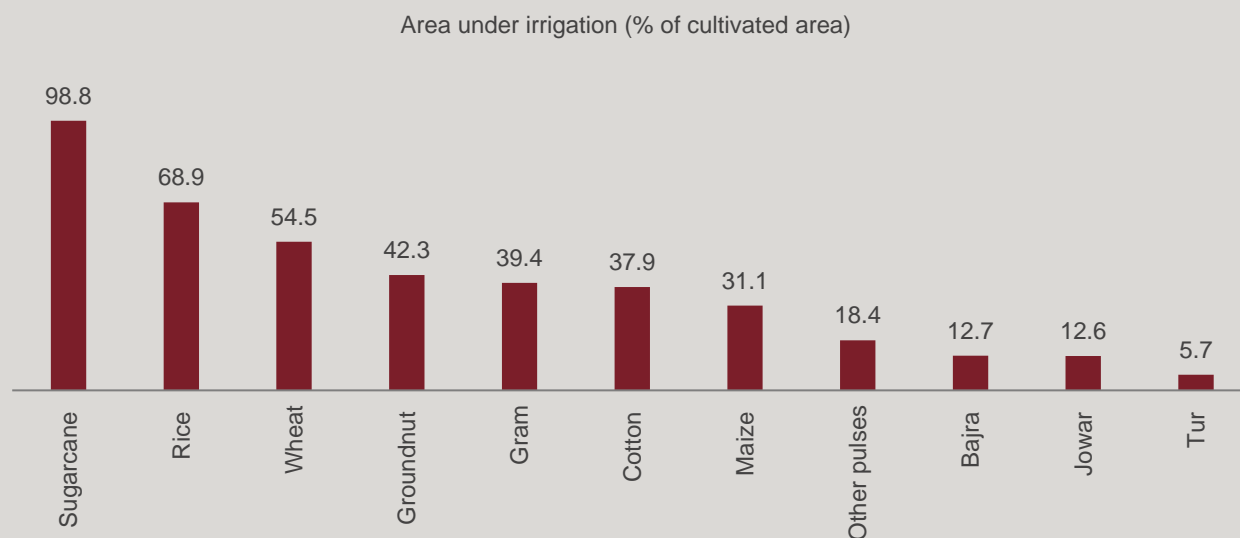
Further, uneven regional distribution of the rains has been impacting some crops more than others. Such vagaries are a bigger problem in less-irrigated regions.

For instance, pulses have the least irrigation cover among major crops. Tur, which is the most consumed pulse in India, has only 5% of the cultivated area under irrigation. In contrast, sugarcane is highly irrigated with 98.8% of the area irrigated.

<sup>3</sup> Shruvan and Vishwas Chitale. 2024. *Decoding India's Changing Monsoon Patterns – A Tehsil-level Assessment*. New Delhi: Council on Energy, Environment and Water



### Sugarcane areas well irrigated, pulses not so



Source: Land use statistics 2023, CRISIL

Climate change is raising average temperatures and increasing the incidence of extreme weather events. A 2020 report by the Ministry of Earth Sciences found the mean temperature in India rose 0.7 degrees over 1901-2018<sup>4</sup>. Year after year, temperatures are hitting record highs. The increase in temperatures is particularly impacting yields of rabi crops — including wheat — that are harvested in March-April.

Wheat yields have been shrinking owing to heatwaves, according to a study by Indian Council of Agriculture Research<sup>5</sup>. For instance, in 2022, abnormally high temperatures coincided with the development stage of wheat, which led to a 15-25% decline in the yield. Wheat harvest typically coincides with the warmest months of the year.

A 2020 study by the Council on Energy, Environment and Water found extreme weather events surged during 2005-2019<sup>6</sup>. The trend is expected to continue as average temperatures are projected to rise further.

Then there are problems like pest attacks. Over the past few years, tomato production has declined because of unseasonal rains and pest attacks.

Changing weather impacted yields and production of many key crops during fiscals 2021-2024 leading to high food inflation.

<sup>4</sup> Assessment of Climate Change Over The Indian Region, Ministry of Earth Sciences, 2020.

<sup>5</sup> Bal, S.K., Prasad, J.V.N.S and Singh, V.K. (2022). Heat wave 2022 Causes, impacts and way forward for Indian Agriculture. Technical Bulletin No. ICAR/CRIDA/TB/01/2022, ICAR-Central Research Institute for Dryland Agriculture

<sup>6</sup> Mohanty, Abinash. 2020. Preparing India for Extreme Climate Events: Mapping Hotspots and Response Mechanisms. New Delhi: Council on Energy, Environment and Water

## A panoply of global supply disruptions

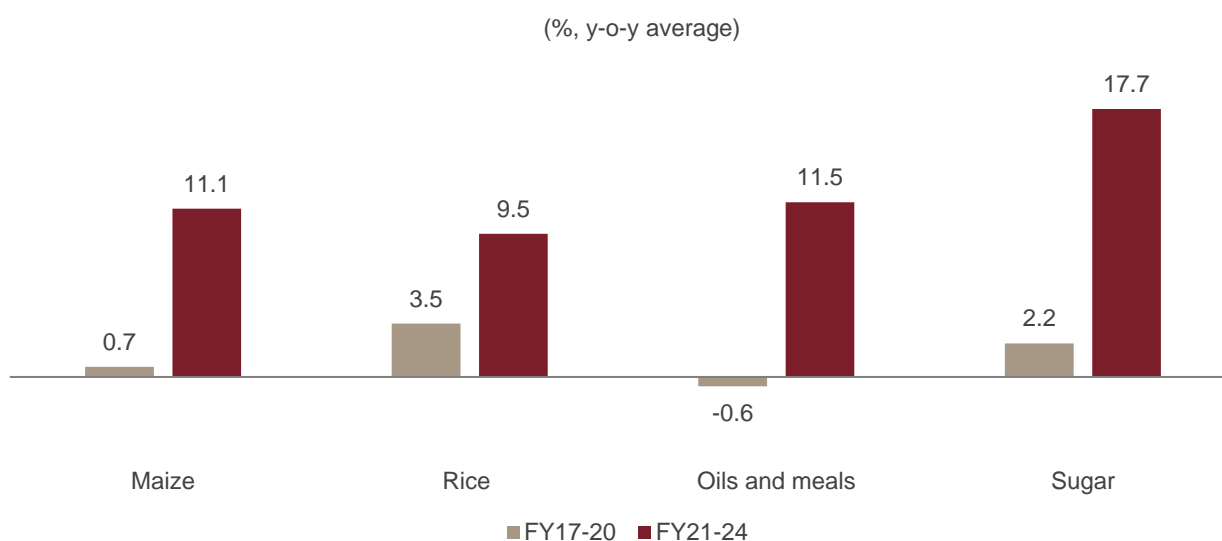
Food prices have risen globally since 2022. Supply disruptions after the start of the Russia-Ukraine conflict triggered sharp price increases in food essentials such as cereals, maize and edible oils, besides other energy and metal commodities. More recently, disruptions in shipping around the Red Sea have pushed up freight costs and delayed deliveries, adding to price woes.

Weather events, such as El Niño, flooding and heatwaves have been reducing production globally as well. The recent rise in global edible oil prices has been attributed to supply disruptions (labour shortages and weather hits) in South-east Asia.

In November 2024, the Food and Agriculture Organisation's Food Price Index reached its highest value since April 2023, driven by edible oils.

The World Bank's Food Price Index rose 9.5% between fiscals 2021 and 2024, compared with 0.7% between fiscals 2017 and 2020. Inflation rose in key commodities such as grains (10.1% in fiscal 2021-24 vs 1.4% in fiscal 2017-20), oils and meals (11.5% vs -0.6%) and sugar (17.7% vs 2.2%).

### Global food prices surge



Source: World Bank, CRISIL

Higher global prices of sugar, maize, rice and oilseeds kept pressure on domestic prices during fiscals 2021-2024. The surge in global edible oil prices has continued this fiscal. The government has devised some policies to incentivise and boost production of some of these crops, possibly capping the upside to domestic inflation (see *the box below*).

## Policy incentives mitigating some pressure The case of maize, rice and sugar

The government has been encouraging the production of ethanol as a climate-friendly alternative. It is blended with petrol to cut fossil fuel consumption in transportation, which improves energy security. The policy push has meant ethanol supply to oil marketing companies (OMCs) increased to 5.45 billion litres in 'ethanol supply years' 2023-24 from 380 million litres in 2013-14. The blending percentage rose from 1.5%<sup>7</sup> to 15%.

Sugar and foodgrains (primarily maize and rice) are used to produce ethanol in India.

The consequent increase in demand for these crops has incentivised farmers to increase their acreage. During AY21-24, sugarcane acreage grew over 5% on average compared with a decline in the preceding four years. Others like rice and maize, too, saw an increase in acreage. As a result, production of these crops increased during fiscals 2021-2024, compared with the preceding four years.

Despite this, inflation was higher, especially in rice and maize, because of higher global prices and an increase in domestic demand (ethanol blending as well as demand for livestock feed in case of maize). Sugarcane, which saw a faster increase in production (since better irrigation reduced its vulnerability to weather shocks), recorded lower inflation in the recent period.

As per the NITI Aayog's projections<sup>8</sup>, the share of grains-based ethanol in total ethanol blending is rapidly rising, while the share of sugar is falling. This implies that the demand for grains to produce ethanol is rising faster than sugar.

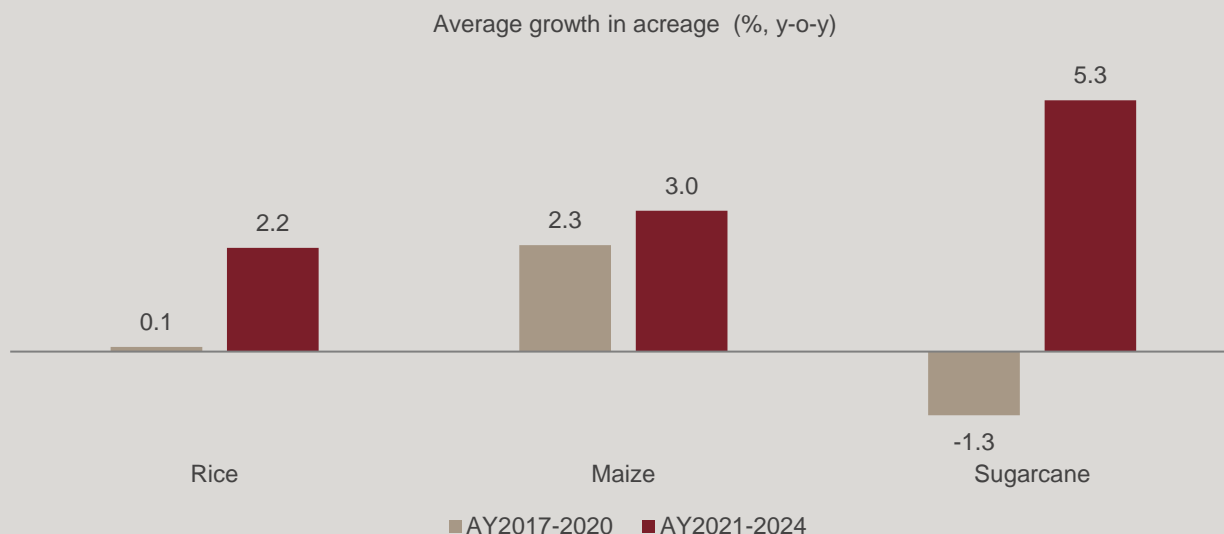
For these crops, demand from ethanol blending is expected to continue. The government has set a 20% blending target by ethanol supply year 2025-26, which is estimated to require more than 10.16 billion litres of ethanol.

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<sup>7</sup> October 2024, <https://pib.gov.in/PressNoteDetails.aspx?NotelId=153363&ModuleId=3&reg=3&lang=1>

<sup>8</sup> NITI Aayog, *Roadmap for Ethanol Blending in India 2020-25, 2021*

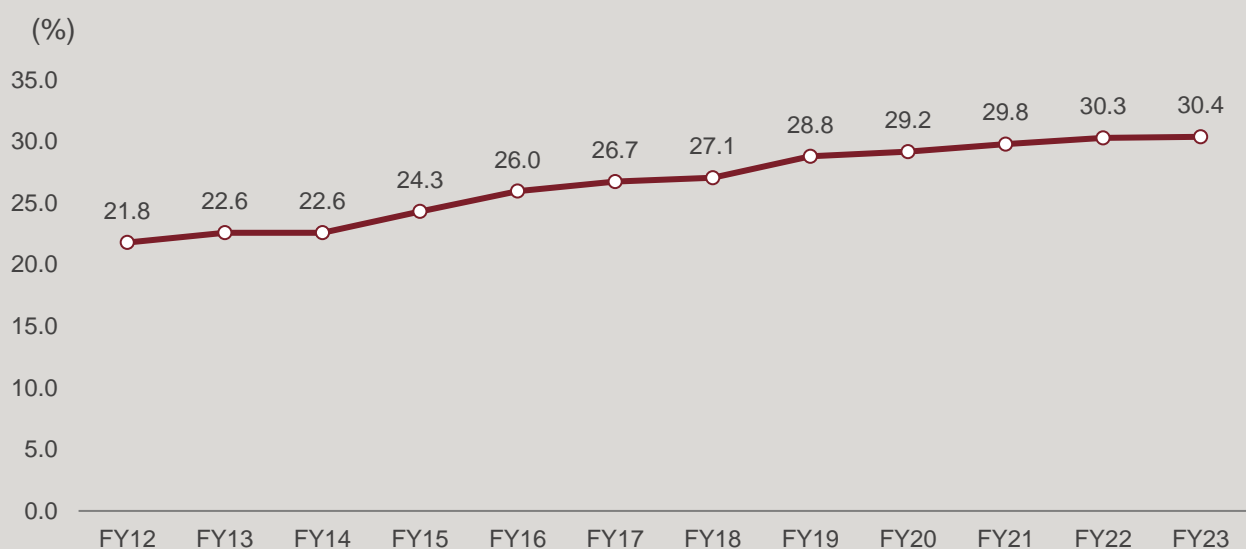
### Area under sugarcane, maize and rice increase



Source: Ministry of Agriculture, CEIC, CRISIL

Growing demand from other segments could also be a factor. For instance, a large quantity of maize produced in India is also used to make poultry and animal feed. With the share of livestock in agricultural gross value added (GVA) rising, demand for maize is also seeing a spike. In fiscal 2023, livestock’s share in agriculture and allied GVA stood at 30.4% (latest available data), up from around 22% a decade ago.

### Share of livestock in agricultural GVA on the rise



Sources: NSO, CEIC, CRISIL

The case of these crops clearly demonstrates how policies can be instrumental in boosting farm production.

## Enhancing the role of fiscal policy in structurally taming food inflation

While fiscal policy has been deployed proactively to tame short-term fluctuations in food prices, it needs to double down on steps for durable easing of food inflation, by supporting agriculture productivity, production and supplies.

Low yields are a key factor that contributed to the country's slower foodgrain production in recent years. While crop yields are already lagging global averages, climate change and increasing frequency of extreme weather events have aggravated the problem. Now, it may be even more difficult for the domestic yields to catch up with the global averages as India is among the countries that are most vulnerable to climate change.

The agriculture sector can combat climate change only by building resilience in the production, logistics and transport stages. Raising agricultural productivity cannot be the sole responsibility of farmers, particularly since average low income, low scope for leverage and small farm sizes constrain their ability to adopt technology in cultivation.

Weak private sector investment<sup>9</sup> and participation in agriculture, make it an imperative for the government to step in to drive up productivity.

Some steps to increase yields are as follows:

- The government should promote adoption of high yielding, climate resistant seed varieties at a large scale. These are needed to sustain food production amid climate risks. Some steps have already been taken. For instance, the government recently released 109 seed varieties of climate-resilient and bio-fortified foodgrain and horticulture crops.<sup>10</sup> But the government must promote them on a mass scale among farmers
- Overuse of water and fertilisers is also an issue as it can harm soil health in the long run.<sup>11</sup> Farmers must be sensitised and trained in optimal use of irrigation and fertiliser
- Amid heightening weather unpredictability, the government must take steps to make forecast of unseasonal and extreme weather events easily accessible for farmers

According to a recent study,<sup>12</sup> if the country were to meet and sustain the government's 20% ethanol blending target, the transport sector will require 10 billion litre ethanol by 2025, 12 billion litre by 2030 and 20 billion litre by 2050. To meet this demand without compromising on food security, an additional 3.5 to 10 million ha of land will have to be brought under maize and sugarcane cultivation over the next two decades. Given the rising urbanisation, rapid ground water depletion, increasing weather shocks and slower growth in yields, the expected surge in demand could increase imports — especially of maize, according to the study.

Apart from the steps mentioned above, the country needs to build and upgrade its logistics and transportation infrastructure to reduce losses in food supply owing to wastage and perishing. Towards this end, the government has increased budget allocation to the Agriculture Infrastructure Fund, PM Kisan Sampada Yojana (for agriculture

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<sup>9</sup> *Economic Survey 2023-24*

<sup>10</sup> <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2044754>

<sup>11</sup> *Economic Survey 2023-24*

<sup>12</sup> *December 2024, 'Decarbonising India's transport sector: Navigating trade-offs of biofuel use and electrification', The Center for Study of Science, Technology and Policy (CSTEP)*

supply chains) and PLI scheme for the food processing industry this fiscal. The government can also rope in the private sector to help build a robust infrastructure.

The country does not yet have an efficient price discovery mechanism for farmers. The prices farmers receive for their produce is much lower than the prices consumers pay when they buy the same produce from the market.

The food procurement infrastructure also varies across crops. Crops with low procurement remain vulnerable to price fluctuations, which affects farmers' sowing decisions. Steps must be taken to reduce distortions in food distribution.

In the last few years, the government has been active in managing food supplies and containing price spikes. These measures will continue in the short term. But urgent attention is required on speeding up adoption of measures to sustainably increase food production and reduce volatility and price pressures.

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