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CRISIL Opinion



Every third year, pulses catch price-fire



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Every third year, pulses catch price-fire

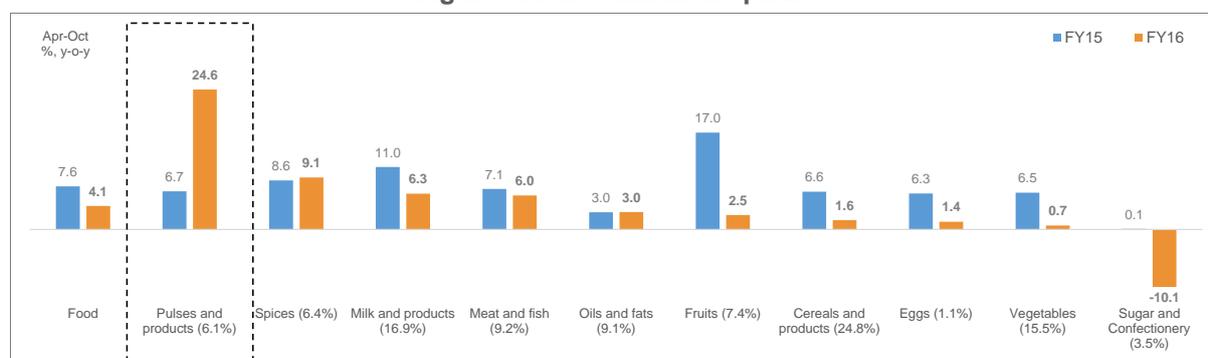
Inflation has come down sharply this year for three reasons: the decline in global crude oil and commodity prices, sluggish domestic demand conditions, and softening food inflation. Of these, the biggest contributor to the decline in the consumer price inflation (CPI) has been food prices. Carrying a 39.1% weight in the CPI, food inflation is down to 4.1% average so far this fiscal compared with 7.6% in the same period last fiscal (Figure 1). But while nearly all food components are seeing a decline in inflation, pulses inflation has seen the sharpest spike in a decade (Figure 2). The CPI and WPI inflation for pulses was 42.2% and 53%, respectively in October.

The last few years have seen frequent and regular acceleration in pulse-prices. Historically (1983-84 to 2014-15) WPI pulse-inflation rate in India has averaged 8.9%, which is higher than the overall WPI inflation of 6.7% average. But in the last decade - 2004-05 to 2014-15 – while overall WPI inflation rate fell to 6.3%, pulses inflation has been much higher at 9.4% average. Such high inflation rate in pulses is undesirable for a country where pulses are second most important part of diet after cereals and an average Indian spends nearly 5% of his food expenditure on pulses.

Data for the last decade shows a clear pattern of spike in pulses inflation every third year. A variety of factors explain these peaks and troughs. This year though, the peak is higher than the previous two peaks, with WPI inflation already crossing 34% average so far.

Both supply and demand factors are responsible for keeping the price level high. Supply constraints arise from lower production, while demand factors arise from higher incomes (especially in rural areas), which has caused a shift in food consumption from cereals/staples to more protein-based items (especially pulses). As a result, pulses prices have spiraled in years when there have been adverse supply shocks as is the case this fiscal. Three consecutive monsoon shocks – deficient southwest monsoons in 2014 and 2015 affecting the kharif season output, and weather disturbances in March 2015 affecting rabi output - have hurt overall pulses production. At the same time, global pulse prices are elevated and the rupee is weak, suggesting that resorting to imports could provide limited comfort to domestic prices.

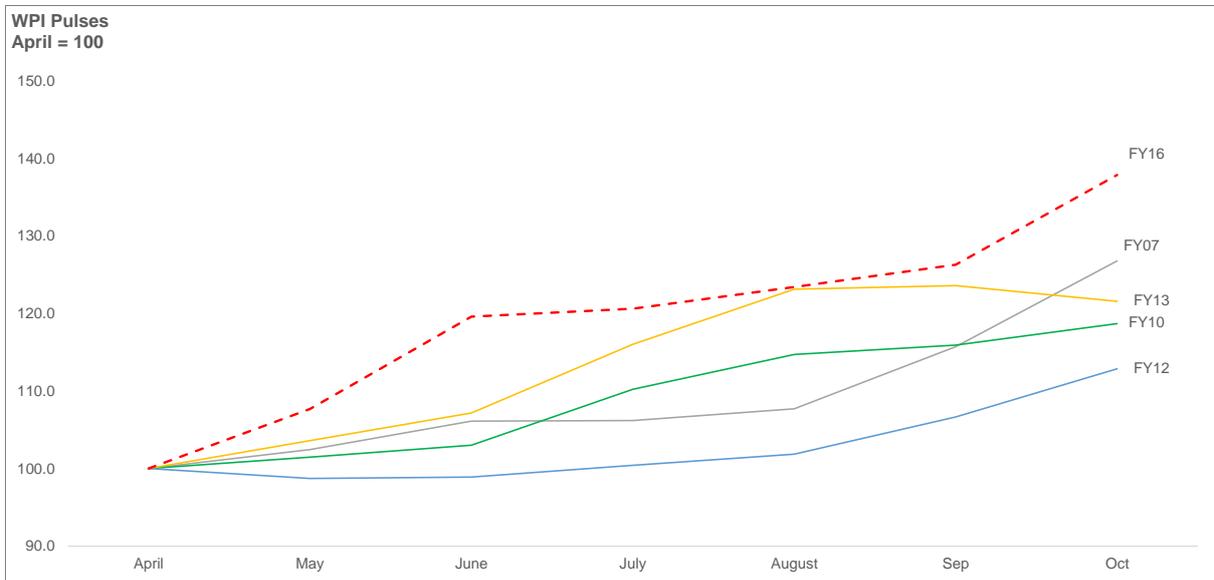
Figure 1: Pulse-inflation spirals



Note: Figures in brackets indicate weight in the WPI index

Source: CSO, CRISIL Research

Figure 2: WPI pulse-index at its most elevated level



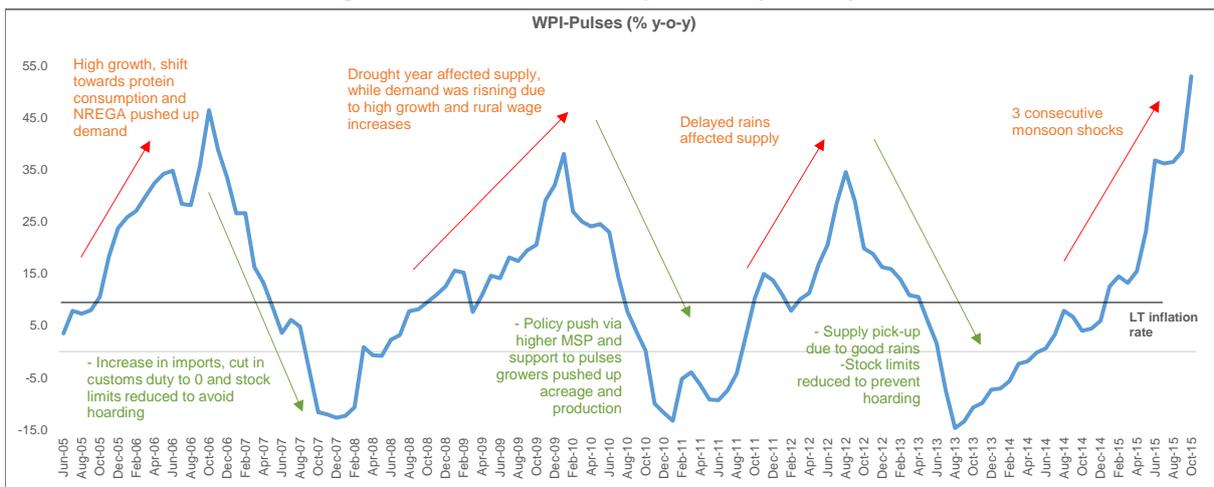
Note: Figures in brackets indicate weight in the WPI index

Source: Ministry of Industry, CSO, CRISIL Research

Pulses inflation is an issue every third year

Data for the last decade shows a clear pattern of spike in pulses inflation every third year. A variety of factors explain these peaks and troughs (Figure 3). This year though, the peak is higher than the previous two peaks, with WPI inflation already crossing 34% average so far.

Figure 3: Pulse inflation spike every third year



Source: Ministry of Industry, CRISIL Research

There are several factors behind high inflation in pulses in general and its frequent spikes. While weak supply and rising demand keep pulses inflation elevated, weather-related shocks to production

spawn sharp spikes. This years' spike is explained by supply-side shocks mainly from deficient monsoon and higher global prices.

A price-spike cycle usually begins with a monsoon shock that hurts production. Given that demand-side factors in recent years have been strong, supply shortfall pushes up market prices. In many of these years, high global pulses prices have meant that imports provided little comfort to domestic prices. In fact, higher global prices lend impetus to exports. This was especially true during fiscals 2011 and 2012 when global food prices rose nearly 18% and 10%, respectively. Around the same period, domestically, rural wages surged 20% on average, pushing up farm labour cost and demand. In this scenario, both to disincentivise exports and to cover rising production costs, the government announced large increases in minimum support prices (MSPs), which tend to act as a floor for market prices. MSPs were up 12-18% in fiscals 2011 and 2013, which kept prices high.

Why is supply insufficient and volatile?

Over time, supply of pulses has failed to catch up with demand. Production remained stagnant for nearly 7 years since fiscal 2004, while demand accelerated, causing per-capita availability of pulses to decline and prices to spiral. Although there was some policy push to production after 2010, yields have remained low because of weather shocks, low irrigation cover, and lack of access to latest production technologies.

Pulses account for about 20% of area under foodgrain production, but less than 10% of foodgrain output. Also, over time, production of pulses has failed to catch up with demand. Output has grown less than 2% average in the last 20 years, while acreage has grown even lesser at 0.8%. Not surprisingly, yield rose only 0.9%.

Between fiscals 2004 and 2010, acreage was constant at 23 million hectare and output stagnated at around 14-15 million tonne (MT). This led to higher dependence on imports, which quadrupled to 4 MT from 1 MT. Thereafter, however, the inclusion of pulses under the National Food Security Mission provided a policy push to production. The NFSM was implemented in 14 producer-states covering about 98% of the pulses growing area. Under the 'Accelerated Pulses Production Programme', the government provided improved production technology, high-yield seeds, nutrient inputs, crop advisories, higher MSPs for pulses and improved procurement mechanisms, all of which had a visible impact on raising productivity. While yields grew by nearly 5% between 2009 and 2013, there was little improvement in acreage. And recently production suffered because of repeated monsoon shocks.

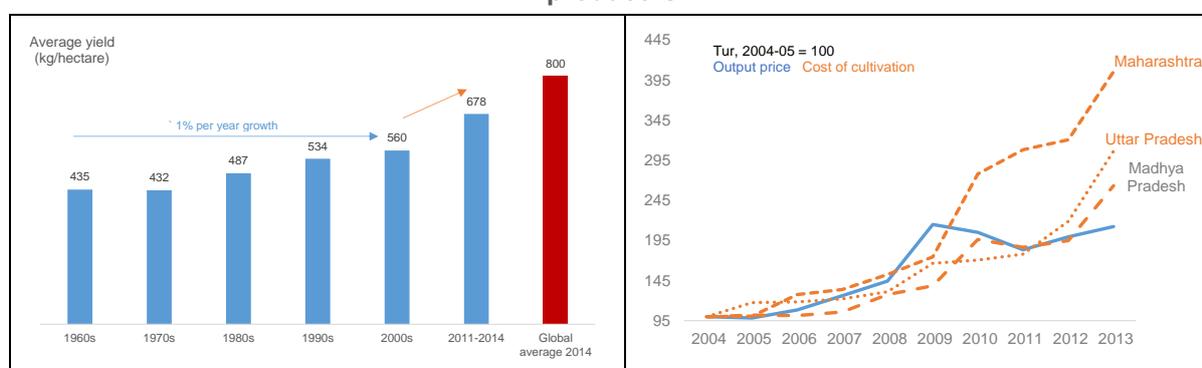
So what's behind the low acreage?

- 1 **Yield remains fairly low** despite the recent rise seen because of the policy push. Yields rose from about 570 kg/hectare, to about 700 kg/hectare. Still, they are much lower than average global levels of about 800 kg/hectare (Figure 4).

- 2 **High fluctuation in prices** has meant that farmers are seldom sure of getting stable returns. This may have led to large-scale substitution of area under pulses cultivation to other high-value crops that give comparatively higher returns.
- 3 **Pulses are highly risk-prone crops** because most of the production is rain-dependent. Barely 16% of total pulses area is covered by irrigation and hence the crop is highly vulnerable to monsoon shocks.
- 4 **Production is also risky** because of inadequate post-harvest storage facilities, absence of assured marketing outlets (unlike wheat and rice) and lack of government assurance for purchase under public distribution.
- 5 **Profitability is low and declining** as cost of inputs continues to soar. The largest disparity between cost of cultivation and output prices is in *urad*, *gram* and *tur*. In *urad*, while output prices in the last decade have risen by 12%, cost of cultivation in major producer states have risen in the range of 12-26%. Similarly, in *gram* and *tur*, output prices grew about 10%, but cost of cultivation rose 12-18% (Figure 4).

The fall in yields could continue this fiscal, too, as production suffers. This does not bode well for prices given that demand for pulses is relatively inelastic in the short term. This naturally increases import dependence. Historically, India has imported about 3 to 4 MT a year since 2008. This year, however, imports might have to go up to 10 MT to bring down prices, said an Assocham study.

Figure 4: Low yield and rising cost of cultivation are major disincentives to pulses producers



Source: CEIC, Ministry of Agriculture, Ministry of Industry, CRISIL Research

Why is demand for pulses rising?

Increasing population, faster growth in per capita income, rising rural wages and changing dietary habits, have had a direct impact on pushing pulses demand. In India, consumption of pulses is at a much higher frequency than other sources of protein. As per a study¹ based on the National Family

¹ IIPS and ORC Macro. 2007. National Family Health Survey (NFHS-3), 2005-06: India. Mumbai, India: International Institute for Population Science

Health Survey 2005-06, about 89% of the population consumes pulses at least once a week. This is likely to have risen further.

- 1 **Per capita income growth:** The sustained rise in demand was a consequence of rapid economic growth after fiscal 2004, which led to a sharp rise in incomes and affluence. Another big push to demand came when rural incomes rose following the implementation of the National Rural Employment Guarantee Scheme in 2006. Over time, as coverage of the scheme expanded and wage rates increased, rural wages rose sharply - by 17% average between fiscals 2010 and 2013. Per capita income grew by almost 7% in real terms between fiscals 2004 and 2012, or twice the rate in the previous decade. This pushed up demand, including that for pulses.
- 2 **Changing dietary habits:** During this period, there was a visible shift in preference towards pulses, and away from a cereal-dominated diet. Data from the National Sample Survey Organisation show that consumption spending on pulses, as a source of protein in the diet, surged nearly 12% annually between fiscals 2005 and 2012. In contrast, spending on cereals rose about 6-7% per year (Table 1). In real terms, too, pulses consumption rose -- by about 0.5%, while cereal consumption fell 1% between fiscals 2005 and 2012. Spending on pulses grew at a much faster pace compared with actual consumption indicating elevated inflation. Given India's high population growth of 1.5% per year, despite higher spending, per capita availability of pulses was constant at 35 gram per day. High inflation therefore meant eroded purchasing power.

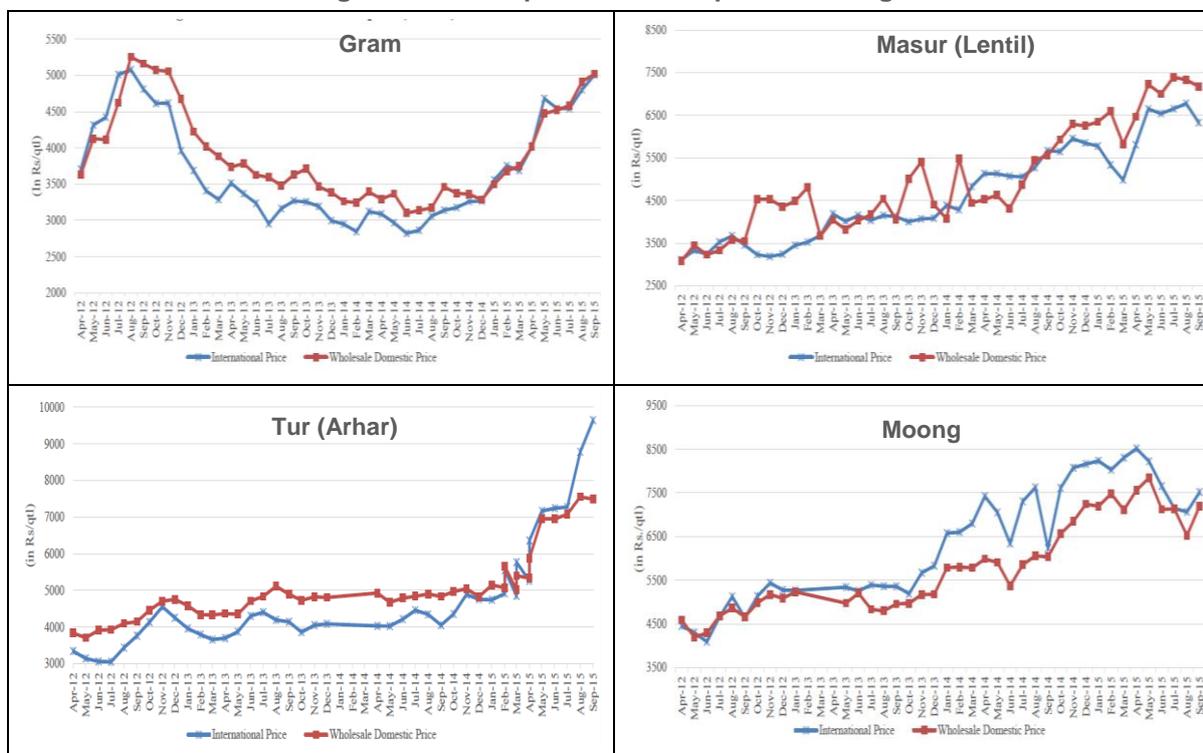
Table 1: Spending tilt towards pulses

Percentage growth, per year, per person between fiscals 2005 and 2012	Cereals		Pulses	
	Rural	Urban	Rural	Urban
Per person spending in value terms	6.2	7.4	12.9	12.3
Per person consumption in quantity terms	-1.1	-1.0	0.5	0.4

Source: NSSO, CRISIL Research

As supply failed to catch up with demand, price pressures remained firm and whenever there was an adverse supply shock, prices spiked. Supply shortfall has had a bigger effect than demand in the current episode of price spike. The demand-side influence is weak as rural wage growth has been declining dramatically and also GDP growth is much weaker. Then there were the successive monsoon shocks to production. In fiscal 2015, pulses production fell 4.3%, and this year, estimates suggest, kharif pulses production growth at 1.1% is much below the trend growth rate of 4.3%. Two successive years of deficient south-west monsoons hurt kharif pulses production, while weather-related disturbances in March destroyed the rabi crop of pulses (which is about 68% of the total production). The government has allowed imports but that has had little impact on prices, given that global pulses prices remain high (Figure 5).

Figure 5: Global prices of most pulses are high



Source: Commodity Profile for Pulses - Ministry of Agriculture

Which pulses items are facing the most price rise and why?

Across pulses categories, inflation has spiralled, but the sharpest rise is in *tur*, followed by *moong*, *urad* and *masur*. These carry a weight of 0.4% in the WPI and 1.7% in the CPI inflation baskets, and make up about 65% of total pulses consumption in India. This year, sowing for all these commodities was much below trend. CRISIL’s Deficient Rainfall Impact Parameter² which measures crop-wise impact of weak rains highlights *tur* as the most affected crop this year. Naturally, inflation in *tur* is the highest at average 39% so far (Figure 6).

Within the WPI food inflation index, the three most volatile sub-groups are ‘condiments and spices’, ‘pulses’ and ‘fruits and vegetables’. Within pulses, volatility is highest in *urad*, followed by *gram* and *tur* (Figure 7).

Four states produce about 70% of India’s pulses output – Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh. Of these, except Rajasthan, 4 out of the last 8 years have seen acute rainfall deficiency, causing pulses production to suffer (Table 2). At an all-India level, just about 16% of the

² CRISIL’s Deficient Rainfall Impact Parameter – or DRIP - is computed as a product of percentage deviation of rainfall and percentage un-irrigated area. DRIP is a better indicator than just rainfall deficiency, as it captures the deficiency of rainfall (measured as deviation from normal) as well as the vulnerability of a region (measured as percentage un-irrigated area). The higher the DRIP value, the greater or adverse is the impact.

total area under pulses cultivation is irrigated, compared with 58% for cereals, leaving a large portion of pulses area vulnerable to monsoon shocks. The least irrigated area is in Maharashtra (8.7%) whereas as the most irrigated area under pulses is in Uttar Pradesh (35.1%).

Total area under cultivation of pulses is about 25 million hectare. About a fourth of this is in Madhya Pradesh, where the yield is also the highest. However, in states such as Rajasthan, despite a higher share of area under cultivation, pulses yield is the lowest (Figure 8). This could in part be due to a sharp increase in the cost of cultivation, especially in gram.

Figure 6: Tur has seen the largest prices increases

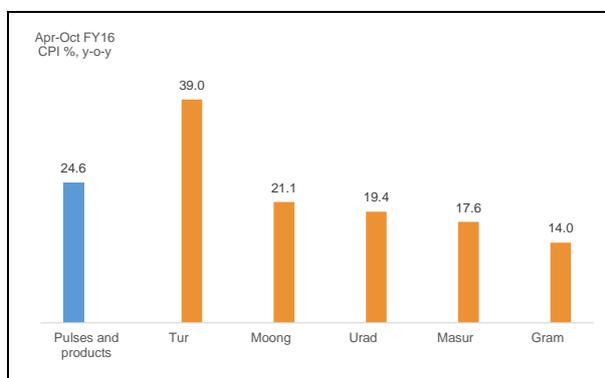
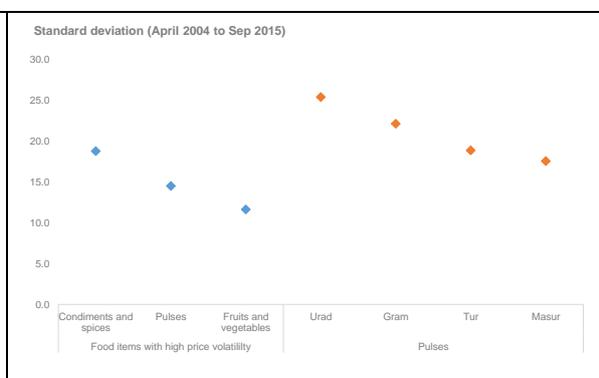


Figure 7: Urad inflation is the most volatile



Source: CSO, CRISIL Research

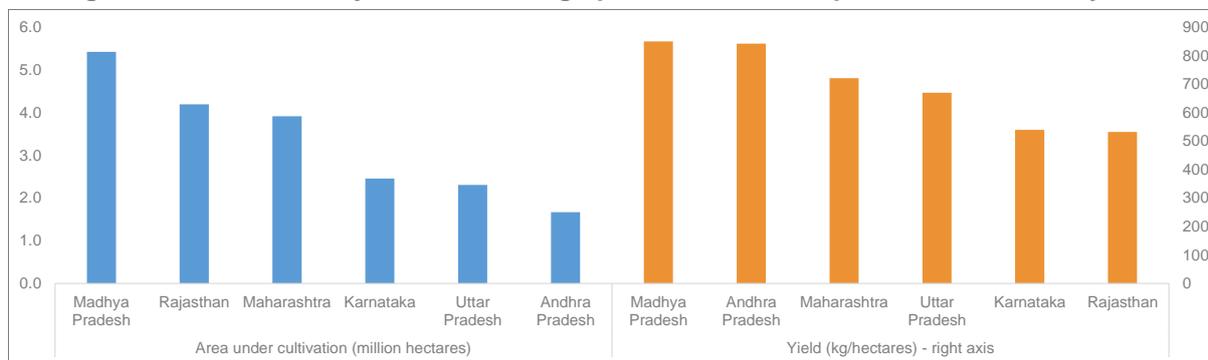
Table 2: Pulses-growing states hurt by monsoon shocks

States	Share in total pulses output (%)	Rainfall deficiency (% deviation from normal)				
		2008	2009	2012	2014	2015
Madhya Pradesh	26.4	-17.6	-29.9	5.7	-20.2	-11.8
Maharashtra	16.2	-9.1	-19.7	-12.9	-17.2	-25.2
Uttar Pradesh	13.2	14.7	-39.9	-16.9	-47.2	-45.8
Rajasthan	12.8	1.7	-33.9	11.0	0.3	10.5

Source: Indian Meteorological Department, Ministry of Agriculture, CRISIL Research



Figure 8: States like Rajasthan have large pulses area under production, but low yields



Note: Data is for 2013-14

Source: CEIC, Ministry of Agriculture, CRISIL Research

What lies ahead?

The contribution of pulses to food inflation is less given its low weight. However, considering that it is a significant component of the consumption basket, rise in pulses prices can have a large impact on inflation expectation and can influence wage-price negotiations. This is especially critical given that the Reserve Bank of India’s inflation target is set at around 4% in the medium-term, and for this to be achieved, food inflation will have to remain significantly low.

There are a number of areas that the government will have to focus on. In India, demand and consumption of pulses will continue to rise as the population increases. Therefore, attaining self-sufficiency in pulses will be an imperative in the medium-to-long run. That’s because very few countries produce the pulses that Indians consume and global supply is limited. India is the largest consumer (27% of global consumption) and producer (25% of world production). However, given the limitations to expand acreage, improving productivity and yields will be most important.

The Indian Institute of Pulses Research forecasts demand at 39 million tonne by 2050, which will require production to grow at an annual rate of 2.2%, compared with the 0.9% seen in the last decade.

Raising the irrigated area under pulses is an imperative, as is making available high-yielding variety seeds and nutrients at a reasonable cost. Both of these will help to raise productivity. Focus on post-harvest storage and transportation facilities is also critical.

Efforts to prevent hoarding and maintaining price stability will also necessary to incentivise producers.

Notes



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