

# Agriculture

According to India metrological department (IMD), monsoon rainfall for the country as a whole has been normal this year as the actual rainfall received during the June-September period was 99 per cent of its long-term average. For the season as a whole, of the total 36 agro-meteorological sub-divisions, 32 sub-divisions (covering about 72 per cent of the total 525 districts in the country) have received normal to excess rainfall. The spatial distribution of overall seasonal rainfall this year is comparatively better than last year's rainfall, which is reflected in the shares of sub-divisions as well as districts, which received normal to excess rainfall (Fig A.1). Evidently, in comparison to both last year as well as 2002, which was a drought year, the spread of overall monsoon rainfall during this year has been similar to the year that followed the drought, 2004, and slightly better than the two years that preceded the drought year-2000 and 2001.

Judging the performance of monsoon rainfall based on aggregate data and for the entire season as a whole, however, is not proper as this does not reveal the real variations in rainfall at dis-aggregated regional/state level and also its distribution during all four months of the monsoon season. Month by month analysis of the progress of monsoon rainfall during the season shows that behaviour of monsoon rainfall this year remained fairly inconsistent.

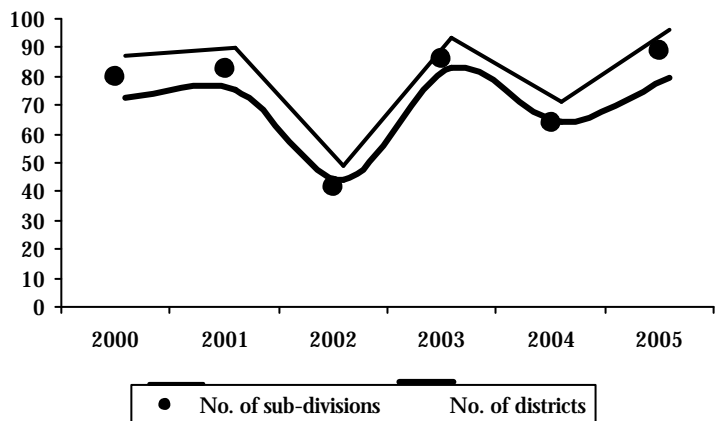
First, the monsoon arrived in Kerala and its adjoining parts about four days

later than its expected date of arrival and after covering a few parts of peninsular India there was a protracted break in the advancement of the monsoon. It was after a delay of about two weeks that the monsoon started progressing over the north-eastern parts of the country. After the third week of June, however, the monsoon advanced fairly rapidly and covered the entire country by the end of June, approximately two weeks ahead of its normal schedule. Due to its late arrival and passive activity during the first three weeks of June, however, overall rainfall during the month of June remained deficient in all four regions of the country (Table A.1).

The monsoon rainfall was uneven

Second, as the season progressed spatial distribution of rainfall across different regions of the country started getting close to normal in the month of July. Most parts of the country received normal to excess

**Fig A.1: Percentage of Agro-meteorological Sub-divisions and Districts that Received Normal/Excess Rainfall**



**Table A.1: Deviations in the Monsoon Rainfall Indices from the Normal**

Region	June	June-July	June-August	June-September
Eastern	-34.8	-21.9	-12.8	-14.3
Western	-15.1	2.7	6.6	8.9
Northern	-45.7	-9.5	-21.1	-13.4
Southern	-17.9	7.3	7.3	16.6
All India	-26.7	-6.3	-6.1	-2.4

Source: Computed.

Notes:

1. These are deviations in regional level rainfall indices computed on the basis of un-irrigated area under foodgrains as weights.
2. The eastern region includes – Assam, Bihar, Orissa and West Bengal
3. The western region includes – Gujarat, Madhya Pradesh, Maharashtra and Rajasthan
4. The northern region includes – Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab and Uttar Pradesh
5. The southern region includes Andhra Pradesh, Karnataka, Kerala and Tamil Nadu

rainfall but despite this late improvement, rainfall during the June-July period still remained below normal in two of the four regions (the eastern and northern regions). The overall deficiency in rainfall at the national level, however, decreased from 27 per cent by the end of June to six per cent by the end of July.

Third, in the month of August again rainfall remained relatively subdued, which led to a huge deficiency in the overall monsoon, particularly in the northern parts of country. This is clearly reflected in the below normal rainfall in this region during the first three months of the season. There was some improvement in the performance of monsoonal rains in the eastern region, which had also witnessed below normal rainfall during the first two months of the season. At the national level, however, there was no change in the seasonal rainfall deficiency.

Fourth, acute deficiency in the northern region was particularly severe, which even continued in the month of September despite significant recovery in monsoon rainfall during this month, which witnessed heavy rainfall in the western and southern parts of the country. There was

further aggravation in rainfall deficiency in the eastern region as well.

Thus, considering the poor performance of monsoon rainfall last year in several parts of the country, this year's monsoon rainfall turned out to be somewhat better but from an overall perspective the year 2005-06 witnessed poor temporal as well as spatial distribution of monsoon rainfall. Further, extremely heavy rains in Gujarat as well as Maharashtra led to severe flood situations in these two states and at the other extreme, rainfall remained largely deficient in states such as Jharkhand (-35 per cent), Assam (-24 per cent) and Bihar (-22 per cent).

#### **Prospects for 2005-06**

To a certain extent, the impact of poor distribution of seasonal rainfall is evident in the preliminary estimates of kharif output released by the Ministry of Agriculture. According to these estimates, the output of kharif food grains is likely to be in the region of 105.3 million tonnes, which exhibits only a marginal increase of about 1.9 per cent over the previous year's estimated output of 103.3 million tonnes. In comparison to the target of output set for

Kharif grain output is expected to be 107.8 million tonnes up from 105.3 million tonnes in 2004-05

the current year, however, the shortfall is expected to be about 4.2 per cent, which has mainly occurred on account of loss in the output of rice as well as coarse cereals and pulses.

Our own estimates, however, show that the shortfall in meeting the target may be slightly lower, approximately 2.1 million tonnes, which implies that the food grain output during the current kharif season may be in the region of 107.8 million tonnes if one takes the lower estimate (Table A.2). The main reason for this shortfall is likely to be the under-performance of rice output, which has been particularly affected by the failure of monsoon in the rice-growing areas of the eastern region. According to our estimates the output of both kharif coarse cereals and kharif pulses is expected to be

higher than their last year's output levels due to better rainfall in the dry land areas where these crops are grown.

Like coarse cereals and pulses the prospects for improved output of oilseeds are also encouraging due to better rainfall and the consequent improvement in soil moisture in the oilseeds growing parts of the country. The NCAER estimates for this year suggest significant improvement ranging from 3.6 to 4.2 million tonnes. This is contrary to the initial estimates of the ministry, however, which show 2.5 per cent reduction in the expected output of oilseeds in comparison to last year's output of 14.9 million tonnes. The optimism in our projections stems from reasonably satisfactory performance of monsoon rainfall in oilseed growing regions of the country.

**Table A.2: Estimated Rates of Growth in Crop Output during 2005-06**

Crops	Estimated Output (Ministry of Agriculture) (Million tonnes/bales*)		Deviation of the Actual Rainfall Index from the Normal (Per cent)	Deviation of the Actual Rainfall Index from last Year's Rainfall (Per cent)	Estimated Rates of Growth for 2005-2006 (Per cent)	
	2004-05	2005-06			Estimate I	Estimate II
<b>Rice</b>						
Kharif	71.7	73.8	-9.3	1.6	0.9	3.9
<b>Coarse cereals</b>						
Kharif	26.7	26.4	2.1	23.0	12.4	14.4
<b>Pulses</b>						
Kharif	5.0	5.0	-0.8	18.8	10.6	14.7
<b>Foodgrains</b>						
Kharif	103.3	105.3	-2.4	13.5	4.5	7.3
<b>Oilseeds</b>						
Kharif	14.9	14.6	3.1	19.2	28.1	24.0
Cotton*	17.0	15.9	12.7	38.0	0.8	10.3
Jute and Mesta*	10.5	10.1	-11.8	-7.2	4.7	0.5
Sugarcane	232.3	257.7	-12.7	2.9	0.3	3.9

Source: Computed.

Notes:

1. Estimate I has been worked out using output equations.
2. Estimate II has been worked out using area and yield equations.

For cotton, the ministry's estimates place output at about 15.9 million bales, which is about 6.5 per cent lower than last year's output, but estimates computed by us suggest a growth of 0.1 to 1.8 million bales. This again is due to satisfactory performance of monsoon rainfall in cotton growing regions of the country. The projected rate of growth for jute and mesta is also contrary to the projections prepared by the ministry. The NCAER estimates for jute and mesta also exhibit a marginal improvement in 2005-06 over the previous year's estimated output because the output of jute and mesta is not sensitive to monsoon rainfall.

In the case of sugarcane, the preliminary estimates by the ministry have placed output at about 257.7 million tonnes, which is about 25 million tonnes higher than last year's output. The NCAER's own estimates, however, suggest only a modest improvement compared to last year's sugarcane output.

On these differences in projections made by NCAER and those prepared by the ministry it is important to note that variations in estimated output are due to the differences in methods used to arrive at the estimates. While the ministry's estimates are based on information supplied by the state governments, NCAER estimates are based on regression models,

which incorporate the impact of monsoon rainfall as well as trend factor. Notwithstanding these differences, it is unlikely that the overall rate of growth in agricultural output will be significantly different from NCAER estimates.

Further, based on the poor performance of this sector last year the current year may not turn out to be so bad despite the subdued progress of monsoon rainfall. Thus, as a whole the outlook for the agricultural sector remains positive considering the following facts. Firstly, for most crops the incidence of pests and diseases has so far remained below the economic threshold levels. And there have been no reports of any shortages in the supply of fertilisers or insecticides and pesticides. Secondly, the current level of water storage in 76 major reservoirs of the country during end September was about 29 per cent higher than last year's storage level and 20 per cent higher compared to the average level of storage over the last ten years, during the same period. This augurs well for the ensuing cropping season. Thus, compared to the average rate of growth of about two per cent in the overall agricultural GDP witnessed during the first three years of the Tenth Five Year Plan, the current year is likely to exhibit slightly better rate of growth.

Oilseeds output in 2005-06 is expected to be 3.6 to 4.2 million tonnes more than last year