

### III. BEHAVIOUR OF INPUT PRICES AND COST OF PRODUCTION

Among the multiple factors that go into the formulation of price policy, the cost of production is the most important. Therefore, before formulating its price support policy, the CACP reviews comprehensively the cost of production of various crops grown in different parts of the country. The data source continues to be the Comprehensive Scheme (CS) of cost of cultivation, operated by the Directorate of Economics and Statistics. Changes in the prices of various inputs occurred since the submission of the last report are considered. The updated indices on prices of inputs and wage rates are obtained from the offices of Economic Adviser, Ministry of Commerce & Industry and Labour Bureau, Ministry of Labour and Employment. The Commission also interacts extensively with the state governments, Agricultural Universities, Agro-Economic Research Centres, FCI, ICAR and above all, the farmers' organizations for their views before formulating price policy recommendations.

3.2 Since the submission of the Commission's report on Price Policy for Rabi Crops for the 2004-05 season, as per the information available from the states, the statutory minimum wages have been revised upwards in the states of Punjab, Haryana, Madhya Pradesh, Rajasthan and West Bengal. The prices of high speed diesel (HSD), as measured by the Wholesale Price Index, have increased by about 20.54 per cent during May 2004 and April 2005. Prices of other petro-based inputs like LDO and lubricants also moved up by 25.38 per cent and 1.63 percent respectively. The prices of other inputs have increased by 22.85 per cent for fodder, 9.93 per cent for non-electrical machinery, 5.74 per cent for tractors, 3.07 per cent for fertilizers, 2.76 per cent for pesticides and by about less than one per cent for electricity used for agricultural purposes during the same period. As per the information available with the Commission from Labour Bureau, Shimla, the actual wages for agricultural labourers are reported to have increased for Assam (2.2%), Bihar (5.4%), Gujarat (4.6%), Haryana (7.9%), Maharashtra (0.05%), Punjab(1.5%) and West Bengal (3.8%) during April 2004 and March 2005. (Table 3.1 & 3.2)

## Estimates of cost of cultivation and projections for 2005-06 crop season

### Wheat

3.3 Fresh estimates of Cost of Cultivation/Production of wheat for 2003-04 became available from the Directorate of Economics and Statistics in respect of Bihar, Chattisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Punjab, Madhya Pradesh, Rajasthan, Uttar Pradesh and Uttaranchal. The details of the latest available estimated costs of wheat and also those pertaining to the preceding year are presented in table 3(A). It is observed that between 2002-03 and 2003-04, the  $C_2$  cost of cultivation per hectare has increased in Bihar, Chattisgarh, Jharkhand, Haryana, Himachal Pradesh, Madhya Pradesh, Uttar Pradesh and Uttaranchal, while the same has registered a decline in the case of Gujarat, Punjab and Rajasthan. However, the  $C_2$  cost of production per quintal has increased in all the states except Gujarat, Madhya Pradesh, Uttar Pradesh and Uttaranchal. In the case of Jharkhand, it is observed that despite a sizeable increase in the cost of cultivation (32.2 per cent), there is a decline in yield from 15.18 to 13.42 quintal per hectare, thereby pushing up the cost of production still further. In the case of Madhya Pradesh and Uttar Pradesh, the increase in the  $C_2$  cost of cultivation is associated with a corresponding increase in the yield also thus resulting in a decrease in the  $C_2$  cost of production. The MSP fixed for wheat for the year 2003-04 at Rs. 630 per quintal had sufficiently covered  $C_2$  cost of production for all the major growing states. Further details of cost of cultivation/production of wheat pertaining to the latest period and the preceding year compiled by DES under the CS are given in Tables 3.3 & 3.4.

**Table 3 (A): Cost Estimates for Wheat**

(Rupees)

States	Years	A <sub>2</sub> +FL/hect	C <sub>2</sub> /hect	A <sub>2</sub> +FL /qtl	C <sub>2</sub> /qtl	C <sub>3</sub> /qtl	Yield/he c. (qtl)	Implicit Price	MSP (qtl)
Bihar	2003-04	10360	15457	413.58	616.07	677.85	21.90	613.53	630
	2002-03	10246	15211	405.97	602.92	667.70	22.53	595.65	620*
Chattisgarh	2003-04	8429	12170	560.58	808.63	913.56	12.43	802.82	630
	2002-03	7473	11749	452.70	708.74	811	13.81	778.35	620*
Gujarat	2003-04	13104	17866	393.94	537.15	590.87	31.59	706.42	630
	2002-03	13540	18371	433.50	588.21	654.42	29.20	774.66	620*
Haryana	2003-04	14863	23581	319.23	506.72	571.23	39.93	630.05	630
	2002-03	14538	23128	300.33	477.81	535.46	39.61	629.75	620*
Himachal Pradesh	2003-04	8843	13957	518.23	818.16	910.21	12.57	685.77	630
	2002-03	7547	11830	448.87	703.41	785.46	12.40	655.12	620*
Jharkhand	2003-04	9071	12875	594.74	844.07	928.48	13.42	600.47	630
	2002-03	6558	9740	399.29	592.90	652.19	15.18	600.15	620*
Madhya Pradesh	2003-04	9291	14992	352.99	568.11	624.92	22.88	669.63	630
	2002-03	9108	14255	420.55	654.13	721.00	18.35	682.11	620*
Punjab	2003-04	13714	22415	308.41	504.24	559.89	40.00	630.44	630
	2002-03	13445	22997	288.63	493.8	551.04	40.66	626.84	620*
Rajasthan	2003-04	13559	19613	345.70	499.37	549.31	32.99	691.93	630
	2002-03	14920	22086	325.74	482.15	530.37	33.05	684.87	620*
Uttar Pradesh	2003-04	12486	19241	313.15	482.78	535.89	34.01	579.07	630
	2002-03	11979	18593	326.39	507.65	564.86	30.70	586.58	620*
Uttaranchal	2003-04	13602	18644	460.91	624.92	687.41	23.50	634.00	630
	2002-03	13974	18433	491.56	649.24	733.18	21.84	630.84	620*

\*: In addition a one time Special Drought Relief of Rs.10 per quintal was announced

3.4 The Commission has arrived at the likely levels of cost of production of wheat in different growing states for the ensuing season of 2005-06, based on the cost of cultivation/production for the latest available period 2003-04, as discussed above. The methodology for projecting the estimates remains the same as for the previous season. The per hectare variable cultivation costs are projected using input price projection and then the per quintal costs are calculated using the yields and fixed costs. Further, in order to make the projections more consistent and realistic, each of the latest three years estimates, provided by the Directorate of Economics and Statistics, wherever available are being projected and their averages taken.

3.5 According to the above mentioned projection methodology, and on the basis of the actual input price movements observed so far, the per quintal average paid out cost including imputed cost of family labour (i.e.  $A_2+FL$ ) for wheat for 2005-06 is projected to Rs 442, Rs.468, Rs 338, Rs 431, Rs 319, Rs. 376 and Rs 359 per quintal in Bihar, Gujarat, Haryana, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh respectively. The average projected unit costs of production (cost  $C_2$ ) of wheat in these states worked out to Rs. 612, Rs.617, Rs.516, Rs.650, Rs.516, Rs.525 and Rs. 528 respectively, while the  $C_3$  costs were Rs.673, Rs.679, Rs.567, Rs.715, Rs.567, Rs.578 and Rs.581 per quintal respectively. The weighted average projected cost of production of wheat for 2005-06 for all these states worked out to Rs.363 on  $A_2 + FL$  basis, Rs.542 on cost  $C_2$  basis and Rs.596 per quintal on cost  $C_3$  basis. The MSP for wheat fixed at Rs.640 per quintal for the 2004-05 crop season already provides a profit cushion of about 24 per cent for Punjab and Haryana and 21 percent for Uttar Pradesh over  $C_2$  cost of wheat projected for 2005-06. (Table 3 (G))

3.6 The Commission also receives Cost of Cultivation estimates from various State Governments. These data are examined at length and also compared with the corresponding CS data and also with the subsequent projections made on the basis of this data by the Commission for the ensuing season. Despite certain conceptual and methodological differences between the two sets of data due to which they may not be strictly comparable, the data that become available from the states are found to be useful for cross checking purposes. These data

sometimes relate to more recent years than those made available under CS and have a lot of utility.

3.7 Gujarat and Madhya Pradesh provided estimates of cost of cultivation/production of wheat for the years 2003-04 and 2004-05, whereas in the case of Uttar Pradesh and West Bengal the estimates are available for the year 2003-04. The cost estimate provided by Uttar Pradesh is on the higher side as compared to the corresponding CS estimate, mainly due to lower yield considered by the state. The states of Gujarat and Madhya Pradesh have provided cost estimates for irrigated and unirrigated wheat separately. In the case of Madhya Pradesh, the weighted average cost of cultivation for the year 2003-04 works out to Rs 13481 per hectare. Using the CS yield, in the absence of state yield and apportioning this estimate for the main product, the cost of production for the state works out to Rs 501 per quintal which is lower than the corresponding CS estimate for the year. The cost estimate provided by West Bengal at Rs 818 per quintal is on the higher side although no comparison is possible because of non-availability of corresponding CS data for these states.

3.8 The states that have provided the projected cost of production of wheat for the forthcoming sowing season of 2005-06 are Haryana, Punjab and Maharashtra. In order to make a meaningful comparison between the projections made by CACP and those provided by the states, certain additional items of costs considered by the states such as management costs, marketing charges, profit etc. have been excluded and adjusted as per the concepts currently used by DES. Table 3(l) presents the details of the comparison of projected costs. It is observed that even after adjustment, the projected C<sub>2</sub> cost of production for Punjab at Rs.632 per quintal is higher than the CACP's projection of Rs 516 per quintal mainly due to consideration of higher rental value of owned land by the state as against Rs.6751 estimated under CS for 2003-04. Higher expenditure on machine labour and higher rental value of land considered by Haryana as compared to the CS data are the main factors contributing to higher projection made by the state. *These cost differentials are regularly discussed in the meetings which the Commission holds with the state governments before the submission of the report.*

## BARLEY

3.9 The cost estimates of barley for 2003-04 became available for the states of Rajasthan and Uttar Pradesh. It is observed from Table 3(B) that between 2002-03 and 2003-04, the C<sub>2</sub> cost of cultivation per hectare as well as the cost of production per quintal declined in both the states. At the same time, the average yield on sample holdings registered an increase in both Rajasthan and Uttar Pradesh. The MSP fixed for 2003-04 at Rs.525 per quintal had sufficiently covered C<sub>2</sub> cost of production in both these states.

**Table 3 (B) : Cost Estimates for Barley**

(Rupees)

States	Years	A <sub>2</sub> +FL/ hec	C <sub>2</sub> /hec	A <sub>2</sub> +FL /qtl	C <sub>2</sub> /qtl	C <sub>3</sub> /qtl	Yield/ hec. (qtl)	Implicit Price	MSP (qtl)
Rajasthan	2003-04	12072	17076	294.06	416.44	462.94	32.30	522.33	525
	2002-03	14205	20191	331.64	470.39	517.43	28.02	588.92	500*
Uttar Pradesh	2003-04	9848	15880	290.28	468.49	518.76	28.51	511.46	525
	2002-03	9982	15908	305.90	491.11	545.39	26.27	522.97	500*

\*: In addition a one time Special Drought Relief of Rs.5 per quintal was announced

3.10 The average A<sub>2</sub> +FL cost of barley for 2005-06 is projected at Rs. 399 per quintal for Rajasthan and Rs.341 per quintal for Uttar Pradesh following the same methodology as used in the case of wheat. The average C<sub>2</sub> cost of production of barley for these states are projected at Rs 538 and Rs. 507 per quintal respectively and costs C<sub>3</sub> at Rs.592 and Rs.558 per quintal respectively. The weighted average cost of production of barley for 2005-06 works out to Rs.521 per quintal on cost C<sub>2</sub> basis and Rs.573 per quintal on C<sub>3</sub> basis.

(Tables 3.8 &3(G))

3.11 The state of Uttar Pradesh provided estimates of cost of production of barley at Rs. 499 per quintal for 2003-04. The cost estimate provided by Uttar Pradesh for the year 2003-04 is higher than the corresponding CS estimate for the year mainly because of consideration of lower yield by the state.

(Tables 3(H) &3(I))

## Gram

3.12 Fresh estimates of cost of cultivation /production of gram for the year 2003-04 became available in respect of Bihar, Chattisgarh, Jharkhand, Haryana, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh. It can be observed from Table 3(C) that the MSP fixed at Rs. 1400 per quintal for 2003-04 covered cost C<sub>2</sub> for all the states for which estimates have been made available except Haryana.

(Table 3.9 & 3.10)

**Table 3 (C): Cost Estimates for Gram**

(Rupees)

States	Years	A <sub>2</sub> +FL/ hec	C <sub>2</sub> /hec	A <sub>2</sub> +FL /qtl	C <sub>2</sub> /qtl	C <sub>3</sub> /qtl	Yield/ hec. (qtl)	Implicit Price	MSP (qtl)
Bihar	2003-04	4858	10279	501.31	1061.13	1184.05	9.21	1689.06	1400
	2002-03	5279	11362	500.43	1076.45	1198.41	10.14	1646.22	1220*
Chattisgarh	2003-04	5083.15	8295	656.26	1070.23	1232.48	7.37	1410.09	1400
	2002-03	5175	7846	866.26	1313.95	1501.97	5.65	1438.86	1220*
Haryana	2003-04	5849	10617	880.79	1597.86	1757.65	6.23	1476.97	1400
	2002-03	5083	8403	1232.75	1982.97	2181.27	3.48	1833.70	1220*
Jharkhand	2003-04	3318	5783	602.50	1049.68	1198.48	5.25	1879.84	1400
	2002-03	4596	6768	652.34	956.65	1113.74	6.74	1680.78	1220*
Madhya Pradesh	2003-04	6474	11362	564.89	991.35	1090.49	10.87	1343.92	1400
	2002-03	6592	11134	776.33	1310.54	1447.97	8.03	1444.62	1220*
Maharash- tra	2003-04	9083	14201	832.31	1307.17	1439.59	10.16	1514.65	1400
	2002-03	6909	9747	940.72	1327.14	1459.85	7.30	1482.07	1220*
Uttar Pradesh	2003-04	6768	12039	658.62	1171.06	1294.42	9.84	1502.58	1400
	2002-03	7428	12520	711.00	1199.20	1319.12	10.07	1429.86	1220*
Rajasthan	2003-04	5319	7368.06	971.02	1338.88	1472.77	5.05	1558.08	1400
	2002-03	7540	11303	1034.73	1543.27	1745.89	6.47	1808.89	1220*

\*: In addition a one time Special Drought Relief of Rs.5 per quintal was announced.

3.13 The average A<sub>2</sub>+FL costs of gram are projected for 2005-06 at Rs. 591, Rs.808, Rs.722, Rs.1099, Rs.719 and Rs.1002 for Bihar, Haryana, Madhya Pradesh, Rajasthan, Uttar Pradesh and Maharashtra respectively. The

corresponding C<sub>2</sub> costs are projected at Rs. 1053, Rs.1521, Rs.1182, Rs.1498, Rs.1193 and Rs. 1388 per quintal respectively. The weighted average cost of production of gram works out to Rs.1259 per quintal on cost C<sub>2</sub> basis and Rs.1385 per quintal on cost C<sub>3</sub> basis for the year 2005-06. (Tables 3.11 &3(G))

3.14 The state of Uttar Pradesh has provided cost estimates of Gram for 2003-04, while Gujarat and Madhya Pradesh have provided the same for 2004-05 also. It may be observed from Table 3(H) that the cost of production estimate provided by Uttar Pradesh for 2003-04 is observed to be much on the lower side than the corresponding CS estimate. The states of Haryana and Maharashtra have projected the costs of gram for the year 2005-06. The cost projected by the state of Maharashtra for gram is on the higher side because of the much lower yield considered by the state. (Tables 3(H) & 3(I))

### Masur (Lentil)

3.15 The estimates of cost of cultivation of lentil became available for 2003-04 with respect to Bihar, Jharkhand, Madhya Pradesh and Uttar Pradesh. From Table 3(D) it is observed that the MSP fixed at Rs.1500 per quintal for 2003-04 covered cost C<sub>2</sub> for all the above four states. (Tables 3.12 & 3.13)

**Table 3(D) : Cost Estimates for Masur(Lentil)\***

States	Years	(Rupees)							
		A <sub>2</sub> +FL /hec	C <sub>2</sub> / Hec	A <sub>2</sub> +FL /qtl	C <sub>2</sub> /qtl	C <sub>3</sub> /qtl	Yield/hec. (qtl)	Implicit Price	MSP (qtl)
Bihar	2003-04	4772	10486	429.22	943.21	1040.43	10.64	1538.09	1500
	2002-03	4886	10353	450.75	955.11	1052.89	10.39	1415.08	1320*
Jharkhand	2003-04	2131	3958	733.10	1363.92	1552.94	2.76	1643.57	1500
	2002-03	2412	3769	530.87	823.60	925.65	4.35	1871.57	1320*
Madhya Pradesh	2003-04	5219	9782	514.18	962.66	1066.93	9.71	1552.05	1500
	2002-03	4767	8162	642.01	1100.24	1224.81	7.05	1458.60	1320*
Uttar Pradesh	2003-04	6550	11352	815.96	1414.24	1623.91	7.79	1493.59	1500
	2002-03	6463	11526	720.21	1283.95	1467.29	8.79	1533.71	1320*

\*: In addition a one time Special Drought Relief of Rs.5 per quintal was announced.

3.16 The cost A<sub>2</sub> +FL of lentil is projected for 2005-06 to an average of Rs.880, Rs. 559 and Rs.664 for Uttar Pradesh, Bihar and Madhya Pradesh. The respective C<sub>2</sub> costs are projected at Rs. 1419, Rs.1070 and Rs.1115 per quintal



respectively. The weighted average cost of production of lentil works out to Rs.1279 per quintal on cost C<sub>2</sub> basis and Rs. 1407 per quintal on cost C<sub>3</sub> basis for the year 2005-06. (Tables 3.14 & 3(G)). Uttar Pradesh provided cost estimates of lentil for 2003-04 and Madhya Pradesh provided the same for 2004-05. The cost estimate provided by Uttar Pradesh at Rs.1118 is much lower than the corresponding CS estimate for the year 2003-04. (Tables 3(G), 3(H) & 3(I))

### Rapeseed/Mustard and Safflower

3.17 The cost estimates of Rapeseed/Mustard became available for 2003-04 with respect to Assam, Gujarat, Haryana, Punjab, Rajasthan, Uttar Pradesh and West Bengal .The MSP fixed at Rs. 1600 per quintal for 2003-04 had covered the C<sub>2</sub> cost with respect to Gujarat, Haryana, Punjab, Rajasthan and Uttar Pradesh.

**Table 3 (E) : Cost Estimates for Rapeseed/Mustard**

(Rupees)

States	Years	A <sub>2</sub> +FL /hec	C <sub>2</sub> / Hec	A <sub>2</sub> +FL /qtl	C <sub>2</sub> /qtl	C <sub>3</sub> /qtl	Yield/ hec. (qtl)	Implicit Price	MSP (qtl)
Assam	2003-04	8408	10367	1595.48	1965.49	2162.04	5.27	1491.30	1600
	2002-03	7375	9343	1207.07	1528.73	1703.44	6.11	1186.82	1330*
Gujarat	2003-04	11085	17400	603.61	947.58	1042.34	18.24	1664.18	1600
	2002-03	9782	14417	699.70	1030.99	1137.06	13.87	1550.39	1330*
Haryana	2003-04	9018	16933	545.55	1024.31	1126.74	15.89	1629.23	1600
	2002-03	9606	15358	895.50	1432.54	1575.79	10.30	1647.94	1330*
Punjab	2003-04	7084	14136	579.88	1154.93	1273.33	11.75	1634.87	1600
	2002-03	6350	11954	754.32	1414.97	1577.32	8.09	1731.24	1330*
Rajasthan	2003-04	7611	13586	484.18	863.36	949.70	15.49	1715.22	1600
	2002-03	8667	14823	620.76	1060.86	1166.95	13.76	1785.15	1330*
Uttar Pradesh	2003-04	8342	13900	786.00	1308.55	1447.38	10.24	1666.95	1600
	2002-03	7788	12953	820.24	1365.81	1502.39	9.13	1498.18	1330*
West Bengal	2003-04	10738	16241	1073.39	1614.71	1813.04	9.63	1954.38	1600
	2002-03	10674	15252	991.88	1415.06	1617.39	10.38	1498.79	1330*

\* : In addition a one time Special Drought Relief of Rs.10 per quintal was announced.

3.18 As per the latest methodology, the estimated costs of production of Rapeseed/Mustard in different states have been projected for 2005-06. It can be observed from Table 3(G) that projected cost A<sub>2</sub> + FL for the year 2005-06 varies between Rs.654 and Rs.1382 per quintal, Rs 654 being the cost in Rajasthan

and Rs.1382 being in Assam. The cost  $C_2$  varies between Rs.1020 in Rajasthan and Rs. 1707 per quintal for Assam for 2005-06. The weighted average cost of Rapeseed/Mustard works out to Rs.1186 on cost  $C_2$  basis and Rs.1305 per quintal on cost  $C_3$  basis. The states of Gujarat, Madhya Pradesh, Uttar Pradesh and West Bengal provided cost estimates for Rapeseed/ Mustard. The estimate of cost of production provided by Gujarat for 2003-04 is higher than the corresponding CS estimate on account of much lower yield considered by the state. The cost estimate provided by West Bengal is again higher than the CS estimate because of higher cost on account of human labour and also rental value of owned land considered by the state. The cost estimate provided by Uttar Pradesh at Rs.1189 per quintal is on the lower side as compared to the CS estimate. The projected cost provided by the state of Haryana for the year 2005-06 after due adjustment works out to Rs.1230 per quintal, which is marginally higher than the Commission's projection of Rs.1211 mainly on account of the higher machine labour charges considered by the state. (Tables 3(G) & 3(H))

3.19 The latest estimate for Safflower pertaining to 2003-04 is available for Maharashtra.

**Table 3 (F) : Cost Estimates for Safflower**

(Rupees)

States	Years	$A_2+FL$ /hec	$C_2$ / Hec	$A_2+FL$ /qtl	$C_2$ /qtl	$C_3$ /qtl	Yield/ hec. (qtl)	Implicit Price	MSP (qtl)
Maharashtra	2003-04	5940	7577	2013.54	2572.38	2868.32	2.95	2095.22	1500
	2002-03	3279	4828	1584.16	2336.44	2608.79	2.07	2261.09	1300*

\* : In addition a one time Special Drought Relief of Rs.5 per quintal was announced.

3.20 The estimated cost of production for Safflower has been projected for 2005-06 to an average of Rs.944 per quintal for Maharashtra on cost  $A_2 + FL$  basis. The corresponding  $C_2$  cost is projected to Rs.1475 per quintal for Maharashtra. The projected cost reported by Maharashtra for Safflower at

Rs.2061 per quintal is on the higher side by about 40 per cent than CACP's projection due to higher human labour cost and rental value charges considered by the state.

3.21 Thus the MSP fixed for wheat, barley, gram, lentil, rapeseed/mustard and safflower at Rs.640, Rs.540, Rs.1425, Rs.1525, Rs.1700 and Rs.1550 for the season 2004-05 fully covers the weighted average projected costs for the Rabi season 2005-06 for these crops.







