

## AGRICULTURE

*On account of the erratic behaviour of south-west monsoon, foodgrains production in 1991-92 fell by 5.3 per cent to 167.1 million tonnes from a record level of 176.4 million tonnes in 1990-91. Production of rice and wheat was 73.7 million tonnes and 55.1 million tonnes respectively. There was a substantial decline in the production of coarse cereals and pulses. Production of oilseeds at 18.3 million tonnes in 1991-92 was 1.6 per cent less than previous year's production of 18.6 million tonnes. Sugarcane attained a record production of 249.3 million tonnes. Production of cotton at 9.8 million bales was same as that of the previous year whereas jute and mesta recorded production of 10.2 million bales which was 10.9 per cent higher than that of 9.2 million bales of the previous year.*

*Production of foodgrains during 1992-93 is expected to be of the order of 176.7 million tonnes - 98.7 million tonnes of kharif and 78.0 million tonnes of rabi. Production of oilseeds is expected to be around 20 million tonnes. The acreage under sugarcane is reported to have gone down resulting in a decrease in cane production from 249.3 million tonnes in 1991-92 to 230 million tonnes in 1992-93. Production of cotton is expected to be of the order of 11.7 million bales and that of jute and mesta 7.6 million bales.*

*Monsoon during 1992 was 92 per cent of the long-term average. Though it was a little delayed and sluggish up to middle of July, its temporal and spatial spread was more even than in the previous year. The cumulative irrigation potential likely to be created and utilised by the end of 1992-93 would be 83.9 million hectares and 75.7 million hectares respectively.*

*Fertiliser consumption during 1992-93 is expected to be around 12.7 million tonnes of nutrients. In August 1992, prices of urea were reduced by 10 per cent, and control over price and movement of phosphatic and potassic fertilisers was withdrawn. Import of naphtha and di-ammonium phosphate (DAP) has been decanalised.*

*Agricultural loans increased from Rs.8846 crore in 1990-91 to Rs.11199 crore in 1991-92 and are targeted to increase further to Rs. 17438 crore in 1992-93. The problem of huge overdues, is however adversely affecting the viability of the whole agricultural credit system.*

*Though the total resource flow to agriculture has increased substantially, agricultural investments have declined during the 1980s. The recurrent expenditure on the various input subsidies for fertiliser, electricity, irrigation, credit and other agricultural inputs have been mounting. There is need to gradually reduce the subsidies and allocate the resources so saved for investment in irrigation system which has a high potential to enhance yields.*

### Monsoon During 1992

During the south-west monsoon season from 1 June to 30 September 1992, country-wide rainfall was 92 per cent of the long-term average. Rainfall was sluggish up to the middle of July, but improved thereafter. By the end of the season, 30 out of 35 meteorological sub-divisions accounting for 67 per cent of the districts received normal to excess rainfall. The comparative performance of the monsoon for different years may be seen in Table 7.1. Bihar, eastern Uttar Pradesh and most parts of the north-eastern region received deficient rainfall.

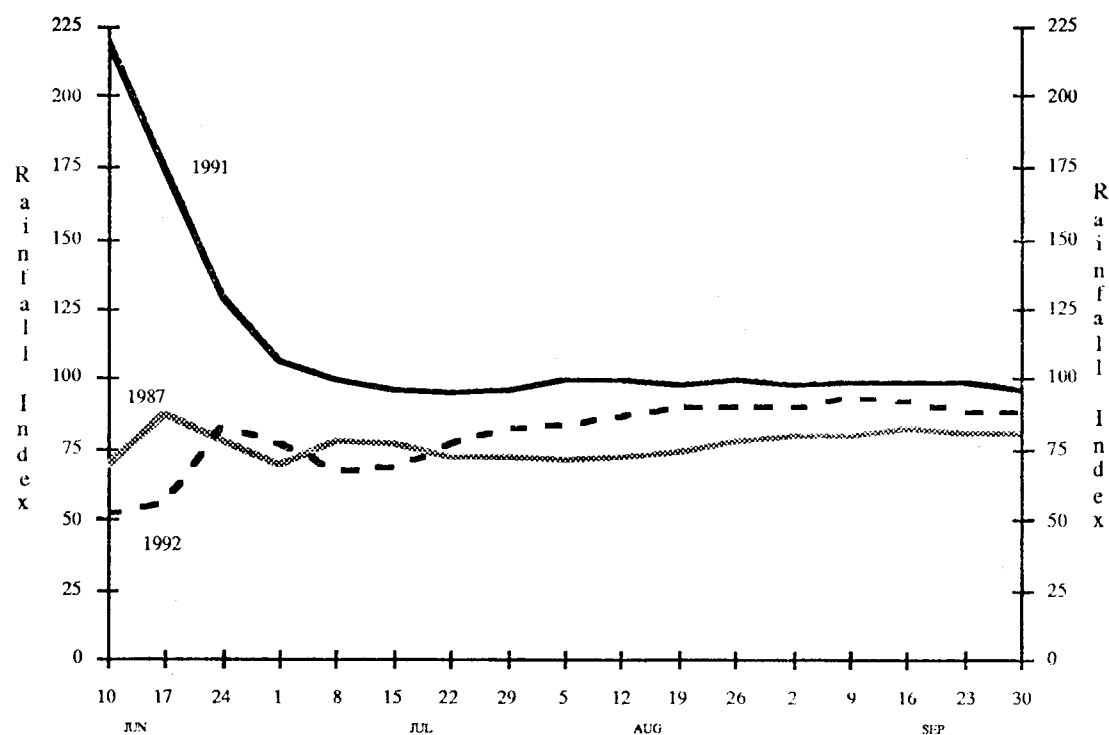
TABLE 7.1

### Monsoon Performance (June-September)

Year	Number of meteorological sub-divisions		Total	Proportion of districts with normal or excess rainfall	Ratio of actual to normal rainfall
	Normal or higher	Below normal			
1	2	3	4	5	6
					(per cent)
1987	14	21	35	43	81
1988	32	3	35	88	119
1989	29	6	35	72	101
1990	32	3	35	84	106
1991	28	7	35	68	92
1992	30	5	35	67	92

7.2 In order to assess the impact of the total rainfall received during the south-west monsoon season on the production of kharif cereals, its spatial and temporal distribution has been analysed by constructing rainfall indices. The All-India and State-wise kharif cereals production-weighted cumulative rainfall index numbers for the entire season have been computed by assigning weights based on share in the production of kharif cereals for the triennium ending 1985-86. A comparative picture of the temporal distribution of rainfall during the south-west monsoon season of 1992 as compared to 1987 (drought year) and 1991 is shown in Figure 7.1.

Figure 7.1. Rainfall index weighted by  
kharif cereal production  
(10 June to 30 September, 1992)



7.3 The temporal distribution of rainfall during 1992 was more even and favourable to the kharif crops than that of the previous year. Though the total rainfall received during the south-west monsoon season in 1991 and 1992 was of the same order, the rainfall during the current year witnessed an improvement as the season progressed, which is in contrast to a sharp fall in rainfall activity during 1991. The distribution of rainfall over time and space after the middle of July 1992 was generally good. The cumulative rainfall during the post south-west monsoon season i.e. 1 October to 31 December 1992, was excess or normal in 16 meteorological subdivisions against 11 during the corresponding period of last year. The main States or divisions which received deficient or scanty rainfall during the post-monsoon period are Andaman & Nicobar Islands, Assam, Maghalaya, West Bengal, Bihar, Orissa, east Madhya Pradesh, Jammu & Kashmir, Punjab, Haryana, Gujarat, Madhya Maharashtra, Vidarbha and Goa. The spatial distribution of the rainfall during 1987, 1991 and 1992 is given in Table 7.2.

TABLE 7.2  
Rainfall Indices Weighted by Cumulative Kharif  
Cereals Production - State-wise

States	Produ- ction weights	Rice area under irrigation*	1987	As on 15 July 1991	1992	(Per cent) As on 30 September		
						1987	1991	1992
1	2	3	4	5	6	7	8	9
Andhra Pradesh	8.70	95.50	90.93	171.16	84.10	73.63	117.30	88.16
Assam	3.34	33.80	75.44	90.64	77.18	104.89	98.45	77.25
Bihar	7.94	36.20	99.47	56.81	54.44	132.74	94.45	61.37
Gujarat	3.30	43.10	52.26	48.88	55.93	47.02	78.38	111.84
Haryana	2.49	98.80	52.71	76.91	42.63	30.07	68.77	87.93
Himachal Pradesh	0.85	51.60	43.37	50.86	51.44	50.23	72.07	91.34
Jammu & Kashmir	1.23	92.40	93.70	N.A.	N.A.	68.49	N.A.	N.A.
Karnataka	5.80	66.10	87.65	140.97	103.07	81.52	100.01	108.78
Kerala	1.31	43.10	79.15	129.23	99.46	70.60	115.56	115.57
Madhya Pradesh	9.42	20.00	60.37	64.92	46.58	73.21	86.93	87.54
Maharashtra	7.51	21.40	89.89	134.43	64.03	75.41	97.49	95.72
Orissa	6.13	36.30	71.86	79.47	69.51	68.45	99.69	92.98
Punjab	6.91	98.70	43.36	86.74	57.28	37.56	79.74	79.22
Rajasthan	4.02	37.40	65.95	44.35	24.49	47.75	73.11	106.53
Tamil Nadu	8.06	91.30	93.56	186.03	105.55	90.48	106.37	94.74
Uttar Pradesh	12.87	38.60	54.65	54.12	52.57	66.47	88.15	81.91
West Bengal	8.40	24.60	95.09	107.86	81.08	128.35	110.79	91.99
All India	100.00	44.90	76.93	95.87	68.39	80.94	96.10	88.76

N.A. Not Available.

\* Indicates percentage of irrigated area under rice in 1988-89.

### Production Performance during 1991-92 and Prospects during 1992-93

#### Reservoir Situation

7.4 The total live storage in 58 important reservoirs monitored by the Central Water Commission at the end of September 1992 was about seven per cent lower than the level of last year; it came down from 99 TMC to 92 TMC.

7.5 Performance of agricultural production during the last four years and the prospects during 1992-93 are shown in Table 7.3.

#### Rice

7.6 The area under rice was 42.3 million hectares in 1991-92, about one per cent less than the previous year. With only 45 per cent of the total area under irrigation, there is heavy dependence on rains during the south-west monsoon. The total production of rice in 1991-92 was 73.7 million tonnes, against previous year's record production level of 74.3 million tonnes. The decrease in production can mainly be attributed to a decline in area since yield remained almost at the same level (1741 kg per hectare) as in the previous year. Decreases in production of kharif rice were reported by Bihar, Uttar Pradesh, Tamilnadu, Madhya Pradesh and Maharashtra due to a decline in area, a result of unfavourable weather conditions at the time of sowing. Orissa, West Bengal and Karnataka have, however, reported increases in production of rice.

Figure 7.2

# AGRICULTURAL PRODUCTION

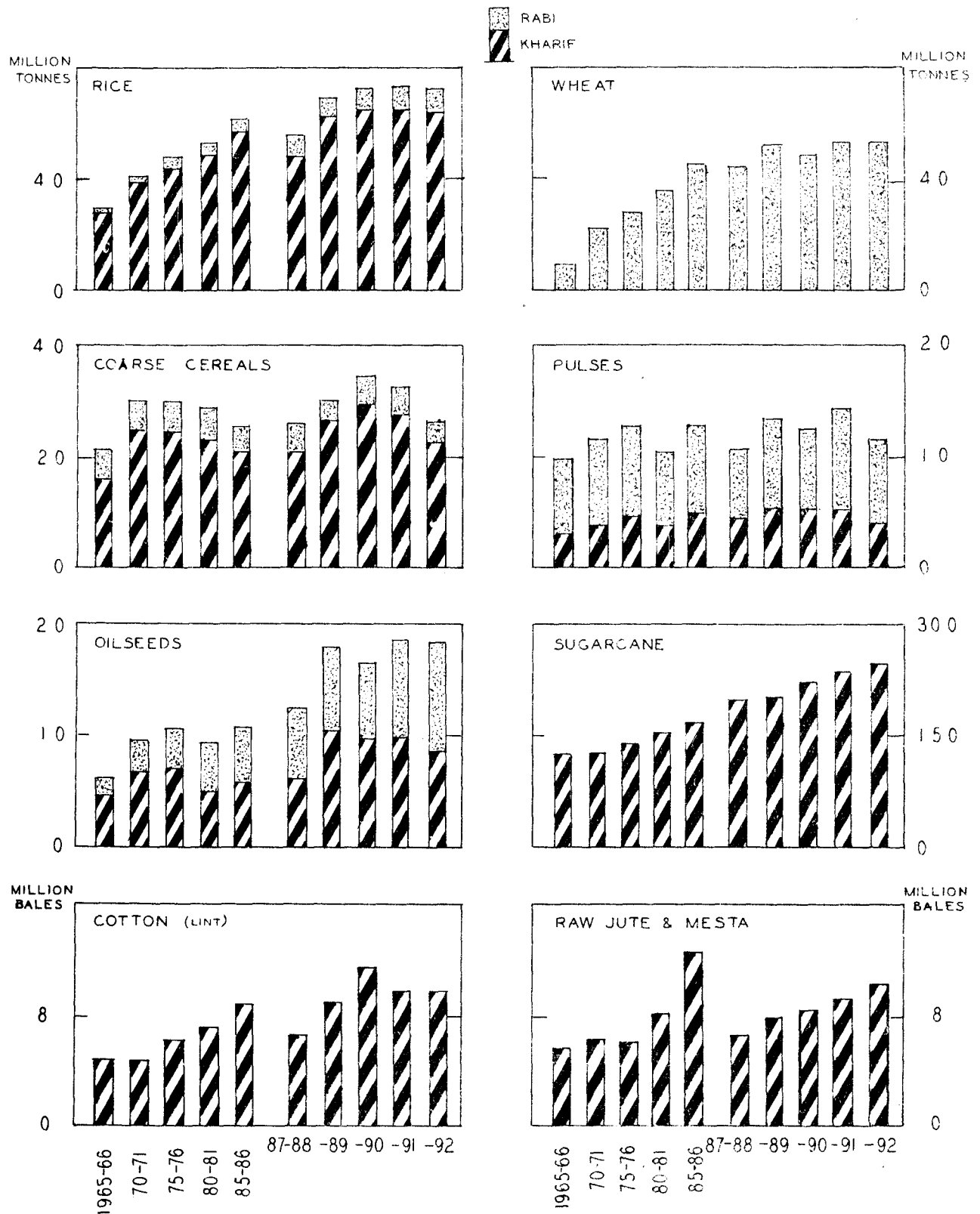


Figure 7.3

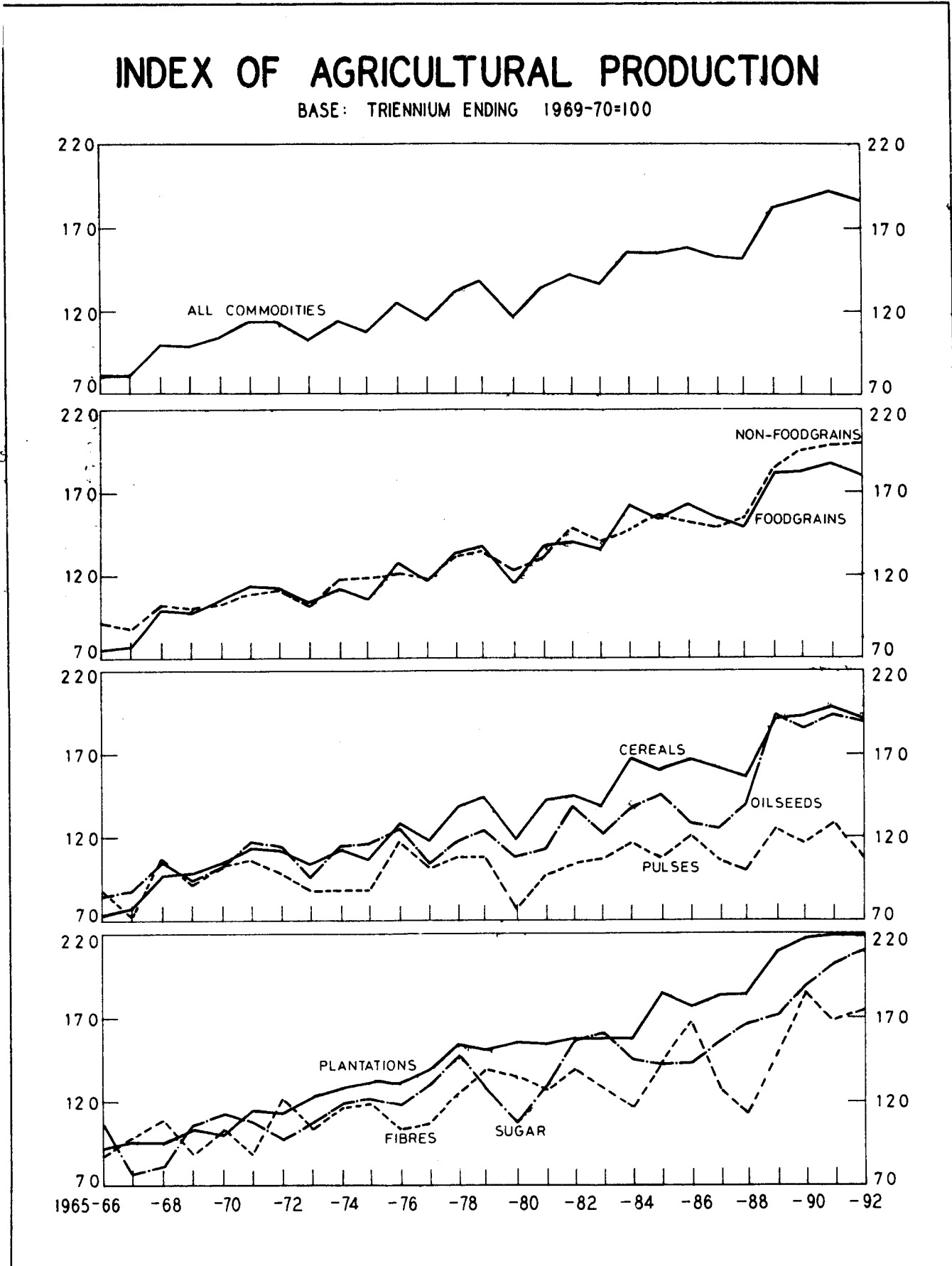


TABLE 7.3  
Performance of Agricultural Production

	1988-89	1989-90	1990-91 Revised	1991-92 Target	1991-92 Final	1992-93 Target	1992-93 Likely
1	2	3	4	5	6	7	8
	(Million tonnes)						
Rice	70.5	73.6	74.3	76.5	73.7	77.3	71.5
Wheat	54.1	49.8	55.1	56.5	55.1	57.0	56.0
Coarse cereals	31.5	34.8	32.7	34.0	26.3	34.2	34.7
Pulses	13.8	12.8	14.3	15.5	12.0	14.5	14.5
Total foodgrains	169.9	171.0	176.4	182.5	167.1	183.0	176.7
Kharif	95.6	101.0	99.4	103.2	91.4	103.3	98.7
Rabi	74.3	70.0	77.0	79.3	75.7	79.7	78.0
Oilseeds	18.0	16.9	18.6	18.5	18.3	19.0	20.0
Sugarcane	203.0	225.6	241.0	230.0	249.3	243.0	230.0
Cotton @	8.7	11.4	9.8	12.0	9.8	12.0	11.7
Jute & mesta \$	7.9	8.3	9.2	9.1	10.2	9.2	7.6

(Percentage variation in production over the previous year)

Rice	24.1	4.4	1.0	-0.8	-3.0
Wheat	17.1	-7.9	10.6	Negligible	1.6
Coarse cereals	19.3	10.5	-6.0	-19.6	31.9
Pulses	25.5	-7.2	11.7	-16.1	20.8
Total foodgrains	21.0	0.6	3.2	-5.3	5.7
Kharif	28.2	5.6	-1.6	-8.0	8.0
Rabi	12.9	-5.8	10.0	-1.7	3.0
Oilseeds	41.7	-6.1	10.1	-1.6	9.3
Sugarcane	3.2	11.1	6.8	3.4	-7.7
Cotton	35.9	31.0	-14.0	0.0	19.4
Jute & mesta	16.2	5.1	10.8	10.9	-25.5

@ Bales of 170 kg each  
\$ Bales of 180 kg each

7.7 During kharif 1992 the area under rice is expected to have gone down because of late arrival of monsoon. The yield may also have been adversely affected in Bihar, east Uttar Pradesh, parts of east Madhya Pradesh and Andhra Pradesh because of deficient rains. The net result would be lower production during kharif 1992 as compared to the previous year. The total production of rice (kharif and rabi) during 1992-93 is expected to be about 71.5 million tonnes.

#### Wheat

7.8 During 1992, the production of wheat was 55.1 million tonnes, roughly at the same level as in the previous year. The area under wheat declined by 4.9 per cent from 24.2 million hectares in 1991 to 23.0 million hectares in 1992. The decline in the area under wheat was offset by an improvement in yield, which reached a record level of 2397 kgs per hectare. Uttar Pradesh, Rajasthan, Punjab and Haryana reported increased production

whereas Madhya Pradesh, Gujarat and Maharashtra reported lower production during 1992 over 1991.

7.9 The moisture content in the soil at the time of the sowings of rabi crops for 1993 was quite good. Wheat production during 1993 is anticipated to be around 56 million tonnes.

### **Coarse Cereals**

7.10 Jowar, bajra, maize, ragi, small millets and barley constitute coarse cereals. The area under total coarse cereals was 33.75 million hectares in 1991-92, 7.1 per cent less than in the previous year. This can partly be attributed to inadequate rains during the south-west monsoon of 1991 in the major producing states of Rajasthan, Gujarat, Maharashtra, Madhya Pradesh, Uttar Pradesh and Bihar. As a result of decline both in area and yield, the production of coarse cereals during 1991-92 was 26.3 million tonnes, registering a fall of 19.6 per cent over the previous year.

7.11 Because of fairly good rainfall in the major producing states, the production of coarse cereals is expected to be around 34.7 million tonnes during 1992-93, 31.9 per cent more than in 1991-92.

### **Pulses**

7.12 The production of pulses also suffered a setback during 1991-92 as these are grown mainly under rainfed conditions and the weather was not very conducive for their cultivation. It was 12.0 million tonnes in 1991-92, 16.1 per cent less than in the previous year. All the pulses i.e. tur, gram and other pulses showed a decline in production. Production of gram, the major pulse crop, declined substantially.

7.13 With fairly good rainfall in the major pulses growing States, production of pulses during 1992-93 is expected to be about 14.5 million tonnes.

### **Oilseeds**

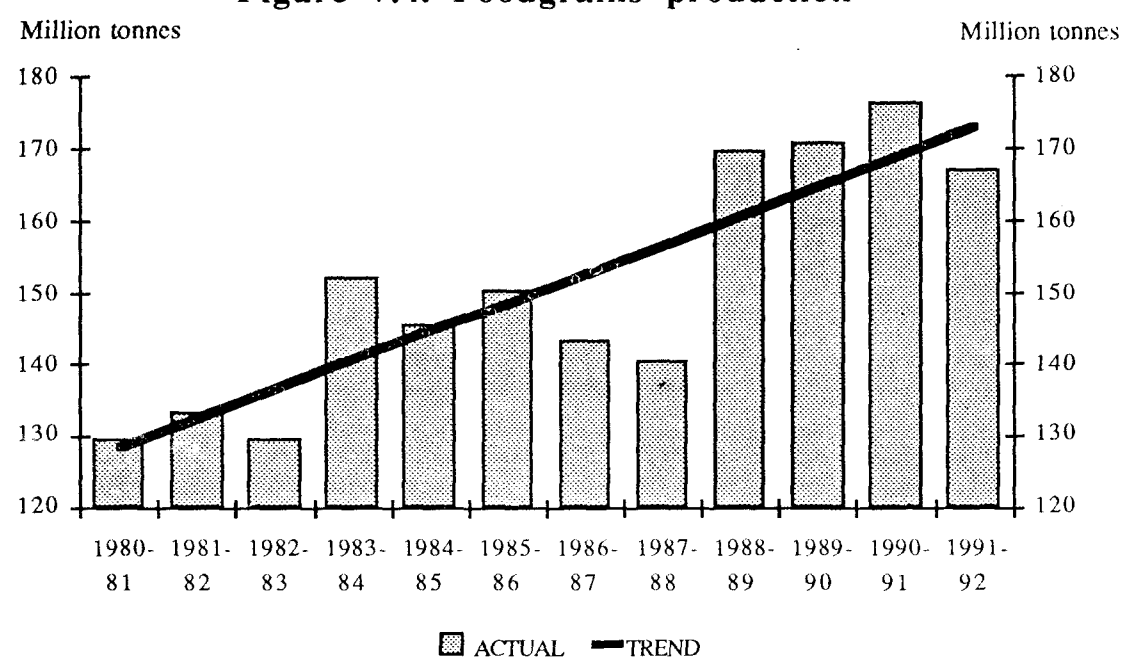
7.14 The production of nine oilseeds (groundnut, rapeseed and mustard, soyabean, sunflower, sesamum, castorseed, nigerseed, linseed and safflower) was estimated at 18.3 million tonnes during 1991-92 against previous year's production of 18.6 million tonnes. Kharif oilseeds, particularly, groundnut in Gujarat, part of Andhra Pradesh and Maharashtra and soyabean in Madhya Pradesh and Rajasthan, suffered a setback during 1991-92 because of adverse weather conditions prevailing at the critical stage of crop growth. However, production of sunflower and rapeseed & mustard recorded impressive increases during 1991-92, owing to higher acreage in the major producing States of Rajasthan, Uttar Pradesh and Haryana. Production prospects during 1992-93 of groundnut (kharif), soyabean and rapeseed & mustard are reported to be excellent. The total production of oilseeds during 1992-93 is expected to reach a record level of 20 million tonnes. Production of oilseeds from 1985-86 to 1991-92 and likely production during 1992-93 are shown in Table 7.4.

### **Sugarcane**

7.15 Production of sugarcane touched 249.3 million tonnes in 1991-92, registering an increase of 3.4 per cent over the previous year. There has been a rising trend in the production of sugarcane during the last few years. Uttar Pradesh, Andhra Pradesh, Karnataka, Haryana, Punjab, Madhya Pradesh, Orissa and Rajasthan have reported increases both in area and production during 1991-92. Maharashtra, Bihar and Gujarat have, however, reported a decrease in cane production.



**Figure 7.4. Foodgrains production**



**TABLE 7.4  
Production of Oilseeds**

Oilseeds	(Million tonnes)							
	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
1	2	3	4	5	6	7	8	9
Groundnut	5.12	5.88	5.85	9.66	8.10	7.51	7.07	7.80
Kharif	3.76	4.43	4.18	7.49	6.10	5.12	4.85	5.60
Rabi	1.36	1.45	1.67	2.17	2.00	2.39	2.22	2.20
Castorseed	0.31	0.23	0.20	0.41	0.52	0.72	0.58	0.69
Sesamum	0.50	0.45	0.58	0.68	0.74	0.84	0.67	0.69
Rapeseed & mustard	2.68	2.60	3.46	4.38	4.12	5.23	5.84	5.80
Linseed	0.38	0.32	0.39	0.36	0.33	0.33	0.30	0.30
Nigerseed	0.19	0.13	0.18	0.18	0.19	0.19	0.16	0.19
Safflower	0.35	0.35	0.46	0.44	0.49	0.32	0.20	0.40
Sunflower	0.28	0.42	0.63	0.37	0.63	0.87	1.18	1.18
Kharif	0.17	0.25	0.38	0.22	0.27	0.33	0.38	0.38
Rabi	0.11	0.17	0.25	0.15	0.36	0.54	0.80	0.80
Soyabean	1.02	0.89	0.90	1.55	1.80	2.60	2.28	2.95
TOTAL	10.83	11.27	12.65	18.03	16.92	18.61	18.28	20.00
Kharif	5.95	6.38	6.42	10.53	9.62	9.80	8.92	10.50
Rabi	4.88	4.89	6.23	7.50	7.30	8.81	9.36	9.50

7.16 During 1992-93, the acreage under sugarcane is expected to decline owing to heavy cane overdues and the inability of the sugar mills to accept cane from farmers during the previous year specially in the northern States. The production of sugarcane during 1992-93 is expected to be lower at about 230 million tonnes.

### **Cotton**

7.17 Cotton, basically a rainfed crop (irrigated area being only 33.6 per cent), is grown over an area of 7.7 million hectares. During 1991-92, the production of cotton was estimated at 9.8 million bales (of 170 kg.), almost the same as in the previous year. Maharashtra, Gujarat, Madhya Pradesh and Rajasthan have reported a decrease both in production and yield, primarily owing to unfavourable weather conditions prevailing during the south-west monsoon of 1991. This was, however, offset by higher production in Punjab, Andhra Pradesh, Karnataka, Haryana and Tamilnadu.

7.18 The production prospects of cotton during 1992-93 are excellent. It may reach a record level of 11.7 million bales during 1992-93.

### **Jute & Mesta**

7.19 The production of jute & mesta was 10.2 million bales (of 180 kg.) in 1991-92, showing a substantial increase of 10.9 per cent over the previous year's production of 9.2 million bales.

7.20 The acreage under jute is expected to have declined in 1992 due to scanty pre-monsoon (March to May 1992) rains in the eastern States, particularly in West Bengal. The production of jute and mesta together may be around 7.6 million bales during 1992-93.

## **Plantation Crops**

### **Tea**

7.21 Tea production during 1991-92 reached 727 million kg compared to 719 million kg in 1990-91. The increase in production was mainly through increase in yield which rose from 1707 kg. per hectare in 1990-91 to 1761 kg per hectare in 1991-92. Domestic demand constitutes about two-thirds of the tea output. Exports during 1991-92 has been estimated to be 210.4 million kg. valued at Rs.1157.14 crore. An export target of 210 million kg. valued at Rs.1200 crore has been fixed for 1992-93.

### **Coffee**

7.22 Coffee production varied from about 195000 tonnes in 1984-85 to 170000 tonnes in 1990-91. In 1991-92, the production is estimated to be around 180000 tonnes. Most of the coffee produced in the country is exported; domestic consumption is stable around 55000 tonnes.

### **Rubber**

7.23 Natural rubber is grown in about 466 thousand hectares. Production of natural rubber is anticipated to be 392000 tonnes in 1992-93 registering an increase of 7 per cent over the previous year. The increase in production was due to an increase both in area and yield. Consumption of rubber is expected to increase from 390000 tonnes in 1991-92 to around 410000 tonnes in 1992-93. The gap between domestic demand and supply is normally met through canalised imports. No imports of natural rubber were made in 1991-92.

**TABLE 7.5**  
**Development of Irrigation Potential and its Utilisation**

1	2	3	4	(Million hectares)	
				1991-92 (Likely)	1992-93 (Target)
	Seventh Plan end	1990-91	At the end of 1990-91	5	6
1 Major and medium irrigation					
Potential	29.9	0.4	30.3	0.6	0.7
Utilisation	25.5	0.5	26.0	0.6	0.7
2 Minor irrigation					
Potential	46.6	1.8	48.4	1.9	2.0
Utilisation	43.1	1.7	44.8	1.7	1.9
3 Total					
Potential	76.5	2.2	78.7	2.5	2.7
Utilisation	68.6	2.2	70.8	2.3	2.6

Note :- Irrigation projects with a Cumulative Command Area (CCA) of more than 10000 hectares are classified as major projects and projects with CCA of more than 2000 hectares and up to 10000 hectares as medium projects.

### Irrigation

7.24 By the end of 1991-92, the cumulative irrigation potential created was 81.2 million hectares comprising of 30.9 m.ha. under major & medium and 50.3 m.ha. under minor irrigation projects. The target for the year 1992-93 is an additional 2.7 m.ha. (0.7 m.ha. under major & medium projects and 2.0 m.ha. under minor irrigation projects). Thus the total potential likely to be created by the end of the year 1992-93 would be 83.9 m.ha. The development of irrigation potential and their utilisation are given in Table 7.5.

7.25 There has been a lag in utilisation of created potential, particularly in major and medium irrigation projects. At the end of 1991-92, utilisation was 73.1 m.ha. against a created potential of 81.2 m.ha. This leaves a gap of 8.1 m.ha. (4.3 m.ha. in major & medium and 3.8 m.ha. in minor irrigation). The main reasons for the gap are delays involved in the development of on-farm works like construction of field channels, land levelling and adoption of the warabandi system and finally the time taken by farmers in switching over to the new cropping patterns, i.e. from dry farming to irrigated farming.

7.26 A Centrally sponsored Command Area Development Scheme was initiated in 1974-75 with the basic objective of bridging the gap between potential created and potential utilised and increasing agricultural production from the irrigated commands. The programme inter alia envisaged execution of on-farm development works like construction of field channels, land levelling and shaping, implementation of warabandi (network of distributories and minors over the command area) for rotational supply of water and construction of field drains. In addition, the programme also encompasses adaptive trials, demonstration and training of farmers and introduction of suitable cropping patterns. Up to March 1992, Rs.3214 crore was spent on the programme, of which the Central assistance amounted to Rs.1081 crore.

7.27 Minor irrigation schemes include ground water and surface water projects. While ground water schemes include dugwells, shallow tubewells and pumpsets, the surface water includes tanks and reservoirs diversion schemes, lift irrigation from rivers and streams etc. These schemes have been accorded special attention under the Special Foodgrains Production Programme. For 1992-93, the targets for irrigation potential created and utilisation are 2.0 m.ha. and 1.9 m.ha. respectively. Emphasis is being laid on

creation of minor irrigation schemes to cover both surface and ground water. Because of advantageous water table levels, the eastern sector will receive special attention for exploration of minor irrigation during the Eighth Plan.

7.28 Strengthening the infrastructure for irrigation is one of the major objectives of the Eighth Plan. The major elements of the strategy envisaged for meeting this objective include giving priority attention to the completion of on-going projects, ensuring speedy transit to irrigated agriculture and optimum use of water through Command Area Development(CAD) programme, installation of sprinkler and drip irrigation systems in water scarce and drought-prone areas and encouragement to minor surface water and lift irrigation schemes.

7.29 Irrigation charges should be such as to convey the scarcity value of the resource to the users and to foster economy in the use of water. The charges should be adequate to cover the annual maintenance and operational expenses and a part of the fixed costs. The water rates for surface water and ground water should be rationalised with due regard to the interests of small and marginal farmers.

### **Seeds**

7.30 The distribution of certified quality seeds was 5.75 million quintals in 1991-92, roughly the same level as that of the previous year. Expansion of area under location specific High Yielding Varieties (HYV) is a major component of the strategy to increase foodgrains production in the country. The HYV programme is supported by minikits demonstration programme for rice, wheat and coarse cereals for popularising newly identified/released varieties suitable for different agro-climatic zones. Though there has been a considerable increase both in the quantum of quality certified seeds and the area under HYV over the last few years, there has not been a commensurate increase in productivity. To augment the infrastructural facilities for seeds development, a project has been launched with World Bank assistance for varietal development, strengthening of seeds certification agencies and seeds testing laboratories, training and consultancy services and investment credit facility to seed companies. The area under HYV seeds under different crops and their share in the total area are given in Table 7.6.

### **Fertilisers**

7.31 Consumption of fertilisers has gone up marginally to 12.7 million tonnes in 1991-92. The unsatisfactory off-take of fertilisers during 1991-92 was due to erratic monsoon during 1991 and to some extent an increase in fertiliser prices. Trend in fertiliser consumption from 1985-86 onwards is given in Table 7.7.

**TABLE 7.6**  
**Area Under High-Yielding Varieties of Seeds**

Crop	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93*
1	2	3	4	5	6	7	8	9
(Million hectares)								
Paddy	23.5	24.0	22.1	25.4	26.2	28.1	27.2	30.5
Wheat	19.1	19.2	19.7	20.2	20.3	20.4	21.4	22.2
Jowar	6.1	5.5	6.1	6.1	6.9	6.7	8.0	8.3
Bajra	5.0	5.3	4.0	5.9	5.6	5.1	6.0	6.3
Maize	1.8	2.2	2.2	2.5	2.3	2.6	3.0	3.2
Ragi	-	-	-	-	-	1.0	1.0	1.1
Total	55.4	56.2	54.1	60.1	61.2	63.9	66.6	71.6

(Percentage of HYV area to Total Area under the crop)

Paddy	57.2	58.4	57.0	60.9	62.1	65.8	64.3
Wheat	83.0	83.1	85.3	83.8	86.4	84.3	93.0
Jowar	37.9	34.6	38.1	41.8	46.6	46.5	63.5
Bajra	46.7	46.9	46.0	49.2	51.4	48.6	60.0
Maize	31.0	37.3	39.3	42.4	39.0	44.1	51.7
Ragi	-	-	-	-	-	45.5	45.5

\* Provisional

**TABLE 7.7**  
**Consumption of Chemical Fertilisers**

Year	Nitrogenous	Phosphatic	(Million tonnes of nutrients)	
			Potassic	Total NPK
1	2	3	4	5
1985-86	5.7	2.0	0.8	8.5
1986-87	5.7	2.1	0.9	8.7
1987-88	5.7	2.2	0.9	8.8
1988-89	7.3	2.7	1.1	11.1
1989-90	7.4	3.0	1.2	11.6
1990-91	8.0	3.2	1.3	12.5
1991-92	8.0	3.3	1.4	12.7
1992-93 *	8.4	3.2	1.1	12.7

\* Anticipated.

7.32 Production of nitrogenous and phosphatic fertilizers during 1991-92 stood at about 9.9 million tonnes registering about ten per cent increase over the previous year. The gap in domestic demand was met through imports. Details of fertilizer production, imports and subsidies are given in Table 7.8.

7.33 On the recommendations of the Joint Parliamentary Committee on Fertiliser Pricing, the Government announced a package of measures in August and September 1992 relating to pricing and production of fertilizers. With effect from 25 August 1992 the prices of urea have been reduced by ten per cent. Simultaneously, price and movement control in respect of all phosphatic and potassic fertilisers were withdrawn. To maintain relative price parity among all the nitrogenous fertilisers, low-analysis nitrogenous fertilisers, namely calcium ammonium nitrate, ammonium chloride and ammonium sulphate were brought back under price and movement control. In order to enable the indigenous manufacturers of di-ammonium phosphate (DAP) and complex fertiliser to compete with the imported DAP, the import duty on phosphoric acid has been abolished.

TABLE 7.8  
Fertilisers: Production, Imports and Subsidies

Year	Production (N+P)	Imports (N+P+K)	On imported fertilisers	Subsidies	Total
				On domestic fertilisers	
1	2 (Thousand tonnes)	3	4	5 (Rs.crore)	6
1985-86	5756	3399	324	1600	1924
1986-87	7070	2310	197	1700	1897
1987-88	7131	984	114	2050	2164
1988-89	8964	1608	201	3000	3201
1989-90	8543	3114	771	3771	4542
1990-91	9045	2758	659	3730	4389
1991-92	9863	2769	1300	3500	4800
1992-93 *	10000	2915	1009	5568	6577

\* Likely.

7.34 Further, the import of DAP has been decanalised and foreign exchange for import of raw materials and intermediates for manufacture of DAP and complex fertilisers is now being made available at the official exchange rate. The railway freight for phosphatic and potassic fertilisers has also been brought down. These measures are expected to make production and marketing of phosphatic and complex fertilisers more competitive vis-a-vis imports.

7.35 In order to cushion the impact of increase in the prices of decontrolled fertilisers on farmers during rabi 1993 season, the Government has announced a special subsidy of Rs.1000 per tonne for DAP and muriate of potash (MOP) and corresponding relief in the case of complex fertilisers. This scheme will be administered by the State Governments. However, in spite of decontrol of phosphatic and potassic fertilisers, the subsidy liability is expected to be of the order of about Rs.6577 crore during the current year.

#### Pesticides

7.36 The concept of Integrated Pest Management(IPM) has been adopted through need-based and judicious application of pesticides. It aims at better cost-effective plant protection measures by adopting environmentally safe practices. Indiscriminate use of pesticides is discouraged. This technology harmonises with other segments of crop husbandry for achieving greater productivity. During 1991-92, 26 Central Integrated Pest Management Centres have been set up by the Central Directorate of Plant Protection in 22 states and one union territory. Major activities of these centres include crop pest monitoring, promoting

biological control, organising demonstrations and training on IPM both for extension workers and farmers.

7.37 The consumption of pesticides in 1991-92 is estimated to be 78400 tonnes. Most of the requirements of pesticides were met through indigenous production. A limited quantity of pesticides is imported.

TABLE 7.9

Disbursement of Agricultural Credit								
	(Rs.crore)							
Item	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93*
1	2	3	4	5	6	7	8	9
Cooperatives								
Short term	2787	3007	3120	3594	3689	2306	3843	5096
Medium term	505	585	567	602	709	317	387	441
Long term	582	615	733	655	684	785	1008	1133
Total	3874	4207	4420	4851	5082	3408	5238	6670
Commercial and Regional Rural Banks								
Banks	3131	3809	4009	4233	4719	5438	5961	10768
Grand Total	7005	8016	8429	9084	9801	8846	11199	17438

\* Target

#### Agricultural Credit

7.38 Co-operatives, commercial banks and Regional Rural Banks (RRBs) are providing both long-term and short-term credit to farmers to help them adopt modern technology and improved agricultural practices so as to increase crop productivity and production. The total quantum of agricultural loans has increased from Rs.7005 crore in 1985-86 to Rs.11199 crore in 1991-92. The target for 1992-93 has been fixed at Rs.17438 crore. Agency-wise disbursement of agricultural credit from 1985-86 to 1991-92 and the target for 1992-93 are given in Table 7.9.

7.39 Despite phenomenal increase in overall agricultural credit, there is a serious problem of overdues which has been inhibiting credit expansion on the one hand and economic viability of the lending institutions, specially the cooperatives and the RRBs, on the other. The waiver of agricultural loans in 1990 has further accentuated the problem of recovery. For strengthening the cooperative credit structure, the National Bank for Agriculture and Rural Development (NABARD) is contemplating an institutional strengthening programme. The Government has also initiated certain measures to revitalise the cooperatives on the recommendations of the Agricultural Credit Review Committee. These measures include amendment to State Cooperative Laws, augmenting the reserve base of the Primary Agricultural Credit Societies(PACS), holding elections of cooperative bodies, revitalising PACS by business development planning and formulating Deposit Insurance Guarantee Schemes for PACS.

7.40 Considering the increase in prices of agricultural inputs and with a view to enabling the NABARD to extend adequate credit support for the rabi crop operations, Reserve Bank of India has announced additional lines of credit for short-term agricultural operations in January 1993.

TABLE 7.10

**Progress of Comprehensive Crop Insurance Scheme (CCIS)**

(Kharif 1985 to rabi 1992)

Year	Season	States/ UTs	Farmers covered (Lakh)	Area covered (Lakh ha.)	Sum Insured	Premium collected	Claims paid/ payable
(Rs. crore)							
1	2	3	4	5	6	7	8
1985-86	Kharif	13	26.4	53.7	542.7	9.4	84.1
	Rabi	16	12.1	23.2	238.4	4.5	3.1
1986-87	Kharif	18	39.6	77.4	856.2	15.0	169.4
	Rabi	17	11.3	21.0	242.4	4.5	4.6
1987-88	Kharif	21	46.3	84.1	1140.7	19.1	277.4
	Rabi	19	21.3	32.4	475.4	8.8	12.1
1988-89	Kharif	13	29.6	52.4	547.9	8.8	29.2
	Rabi	9	8.7	10.1	164.1	3.1	3.9
1989-90	Kharif	17	42.3	66.4	873.9	14.5	34.3
	Rabi	17	6.6	9.6	151.6	2.8	2.9
1990-91	Kharif	17	19.4	34.1	515.1	7.7	99.3
	Rabi	16	7.9	10.7	196.3	3.5	4.0
1991-92	Kharif	17	37.6	68.6	931.4	14.4	218.0
	Rabi	15	7.6	10.5	195.2	3.5	8.8

**Comprehensive Crop Insurance Scheme**

7.41 The Comprehensive Crop Insurance Scheme (CCIS) was introduced in April, 1985 and at present covers wheat, paddy, millets, oilseeds and pulses. Half of the premium payable by small and marginal farmers is subsidised equally by the Central and State Governments. Indemnity claims are shared between the Government of India and State Government in the ratio of 2:1.

7.42 Under the scheme 317 lakh farmers have been covered by the end of rabi 1992, insuring a sum of Rs.7071.3 crore. The total amount of claims paid and payable up to rabi 1992 was Rs.951.1 crore. The season-wise progress of the scheme from kharif 1985 to rabi 1992 is shown in Table 7.10.

7.43 With a view to broadbasing the CCIS and implementing it on a self-supporting basis, it has been decided that while the existing CCIS would continue, a pilot scheme would be implemented in one district of every State covering all farmers and all crops against all risks, preferably at lower unit areas and charging actuarial rates of premia. Suitable changes would be made to the existing system depending on the results of the pilot scheme.

**Investment**

7.44 There has been a deceleration in agricultural investment during the 1980s. Gross investment in real terms (at 1980-81 prices) has declined from Rs.4636 crore in 1980-81 to Rs.4357 crore in 1990-91. There was a perceptible decline in public sector investment whereas the private sector investment remained more or less stagnant.



7.45 The general impression that the decline in public investment in agriculture during the 1980s was largely due to the overall resource constraints in the economy does not hold good, especially if the total resource flows from Government budget to the agriculture sector is considered. Although public investment in agriculture declined during the 1980s, current resource flows from the revenue account of the Central and State Governments in the form of subsidies for fertiliser, irrigation, electricity, credit and other agricultural inputs have risen to enormous levels. A large proportion of the total resource flows to the agricultural sector during the last decade went into current expenditure rather than investment. The problem of investment in agriculture is not a problem of total availability of resources but one of their distribution between current expenditure and capital formation. This calls for a gradual reduction in the level of various input subsidies and ploughing back of the resources so released for investment in agriculture sector, specially in irrigation which has high potential to enhance yields.

#### **Agricultural Research and Extension**

7.46 Now that there is little scope to bring additional area under cultivation, the increase in agricultural production in future has to come mainly from increase in productivity. This in turn would depend upon a judicious use of various agricultural inputs such as irrigation, fertiliser, seed and plant protection on the one hand and technological advancement in crop sciences on the other. The Indian Council of Agricultural Research (ICAR) has initiated research projects on almost all the fronts, viz; crops, soil sciences, horticulture, and agricultural extension, with a view to developing high-yielding varieties of seeds which are pest-resistant and are suitable for rainfed conditions and in different agro-climatic zones.

7.47 The Department of Agriculture has taken up a scheme to strengthen the National Centre for Management of Agricultural Extension, Extension Education Institutes and Advanced Training Centres with World Bank assistance. A sub-project is being implemented in north-eastern States to strengthen the agricultural extension network. To improve farmer-scientist interaction, a new scheme is being organised in which non-Governmental organisations (NGOs) and women would be associated.

#### **Animal Husbandry and Dairy Development**

7.48 The gross value of output at current prices from this sector is estimated at Rs.44500 crore which accounted for 25.5 per cent of the total output of agriculture and livestock sectors during 1990-91. The provisional estimate of production of milk is 56.4 million tonnes in 1991-92, registering an increase of five per cent over the previous year.

7.49 Operation Flood Project, the world's largest integrated dairy development programme, was started in 1970 by the National Dairy Development Board. This programme is designed to link rural milk producers with urban consumers and is currently in its third phase of implementation with financial assistance from the World Bank and commodity assistance in the form of skimmed milk powder and butter oil from European Economic Community (EEC). Over 64700 Dairy Cooperative Societies have been organised in 170 Milk Sheds involving about 8.1 million farmer members. A Technology Mission for Dairy Development has been launched in order to systematise and co-ordinate dairy development with various field level developmental programmes. The Government has issued the Milk and Milk Product Order in June 1992 under the Essential Commodities Act, 1955 which seeks to regulate the production, supply and distribution of milk and milk products throughout the country.

#### **Poultry**

7.50 Poultry farming is becoming an important activity of the rural economy as it provides additional income and job opportunities to a large segment of the population particularly the weaker sections of the society. New strains of both eggs and meat type of birds have been developed in the country. As a result, dependence on import and grand-

parent stock from outside the country has, by and large, been eliminated. The provisional estimate of production of eggs during 1991-92 is 22 billion, about 4.5 per cent higher than the previous year's production.

### **Fisheries**

7.51 Production of fish has recorded an all-time high of 4.2 million tonnes during 1991-92, an increase of 10.5 per cent over previous year. This comprised 2.5 million tonnes of marine fish and 1.7 million tonnes of inland fish. Special efforts have been made to promote extensive and intensive fish farming activity in the inland sector through modernisation of coastal fisheries, encouragement to deep sea fishing through joint ventures etc.. The share of inland fish production in total fish production increased from 36 per cent in 1980-81 to 41 per cent in 1991-92. In the case of marine fish a quantum jump in production in recent years was possible through measures like banning of bulk trawler by chartered foreign fishing vessels, speedy motorisation of traditional fishing craft and incentives provided for reimbursement of central excise duty on high speed diesel oil used by the modernised boats. Production of fish is expected to be 4.3 million tonnes during 1992-93. Exports of marine products have registered a substantial increase to the level of Rs.1375 crore in 1991-92 from Rs.893 crore in the previous year. Export earnings are anticipated to be Rs.1675 crore during 1992-93.

7.52 The Eighth Plan aims at increasing the average productivity of fish from the present 1900 kg. to 2500 kg. per hectare per annum and the area under fish culture from the existing three lakh hectares to four lakh hectares. The measures in this regard are envisaged under the Centrally Sponsored Scheme of Fish Farmers Development Agencies and selective introduction of motorised fishing craft for offshore pelagic fishing for exploitation of the underexploited fish resources in the coastal waters. In order to promote export-oriented shrimp production, a World Bank-assisted shrimp culture project estimated to cost about Rs.285 crore is taken up on the east Coast in the States of West Bengal, Orissa and Andhra Pradesh. Prawn farmers are also assisted by giving a subsidy of Rs.30000 per hectare for construction of ponds all along the coastal States.

### **Agricultural Marketing**

7.53 Agricultural trade is mainly carried out by the private enterprises. The Government intervention is limited to protecting the interests of producers and consumers and also promoting organised marketing of agricultural commodities in the country. Most of the Governments of the States and Union Territories have enacted necessary legislation with a view to safeguarding the interest of both the producer-seller and the consumer. The number of regulated markets in the country by March 1992 was 6738. The Central Government is providing assistance for the creation of infrastructural facilities in the markets and also for setting up of rural godowns. These schemes have been transferred to the States and Union Territories with effect from April 1992. To facilitate grading, standards have been laid down for 143 agricultural and allied commodities under the Agricultural Produce (Grading and Marking) Act, 1937. To promote the setting up of cold storages under cooperative sector, the National Cooperative Development Corporation has provided a sum of Rs.70 crore for installation of 241 cold storages having an installed capacity of 7 lakh tonnes till the end of March 1992.

7.54 A number of organisations, namely the Commission for Agricultural Costs and Prices, the Food Corporation of India, the Cotton Corporation of India, the Jute Corporation of India etc., have been established in order to help the Government in the implementation of the various developmental programmes. Agricultural marketing is also being attended to by a network of cooperatives at primary level, state level and at the national level. This network comprises both general marketing societies as well as commodity marketing societies. The marketing of agricultural produce through cooperatives has registered a remarkable growth from Rs.1950 crore in 1980-81 to Rs.6274 crore in 1990-91. The cooperatives are also playing an important role in the procurement operations

of both essential consumer commodities like rice and wheat and commercial crops like cotton and jute. The National Agricultural Cooperative Marketing Federation of India (NAFED) as the apex body of marketing cooperatives in the country, besides providing effective support to the farmers for marketing their produce also undertakes price support and market intervention operations.

### **Agricultural Policy Resolution**

7.55 A Draft Agricultural Policy Resolution was placed in Parliament in December 1992. The draft Resolution seeks to dovetail the agricultural development and research programmes to the challenges in Indian agriculture and addresses itself to the problems of under-employment, unemployment and malnutrition by generating activities through diversification of agriculture and promotion of agro-based industry. Augmenting facilities for processing, marketing and storage, development of rainfed and irrigated horticulture, augmentation of biomass production and increased utilisation of irrigation potential and promotion of water conservation are some of the major objectives of the Draft Agricultural Policy Resolution. It also aims at reviving and strengthening the cooperatives and local communities and increasing the involvement of non-Governmental organisations in agricultural development.

### **Outlook**

7.56 Foodgrains production reached 169.9 million tonnes in 1988-89 and 176.4 million tonnes in 1990-91. Both were good monsoon years. Though the overall rainfall during 1991 was normal, its temporal and spatial spread was erratic. As a consequence foodgrains production fell to 167.1 million tonnes in 1991-92. This reflects our agriculture sector's continuing dependence upon weather and calls for a fresh look at the irrigation system and increased attention to dry land farming. In view of severe resource constraints, the focus in irrigation should be on timely completion of on-going projects. Further, despite a substantial resource flow to agricultural sector, the real capital formation in this sector has declined. This is largely on account of higher budgetary allocations for current expenditure on various input subsidies such as fertiliser, irrigation, power and credit.

7.57 The prevailing fiscal constraints call for a gradual withdrawal of various subsidies and using the resources so saved for stepping up investment in the agricultural sector. Power and water charges for agriculture should be so fixed as to cover at least the working expenses. This would not only ensure economy in water/power use, but also help in keeping the system viable.

7.58 The loan waivers and poor recovery of agricultural advances have adversely affected the agricultural credit system. Timely repayment of loans is absolutely necessary for a smooth functioning of the credit system.