CHAPTER 7

AGRICULTURE

As a result of a good monsoon during 1990-91, foodgrains production reached 176 million tonnes, 3 per cent more than in 1989-90. The production of rice and wheat was 74.6 million tonnes and 54.5 million tonnes respectively. Among the commercial crops, sugarcane and oilseeds reached production levels of 240.3 million tonnes and 18.5 million tonnes respectively.

Due to the erratic behaviour of the monsoon, it is expected that the total production of foodgrains during 1991-92 may fall below last year's level—a setback in production is anticipated for kharif foodgrains and the major oilseed crops, groundnut and soyabean. However, the prospects of rapeseed and mustard are bright. The prospects of sugarcane are excellent. Cotton production during 1991-92 may also be higher. Due to a fall in area, production of jute and mesta during 1991-92 may be a little lower than last year's production.

The irrigation potential estimated to have been created by 1990-91 was about 82.8 million hectares. However, there is a cumulative gap in the utilisation of the potential of about 8.6 million hectares till 1990-91.

Fertiliser consumption reached 12.6 million tonnes in 1990-91 and is expected to be about 13.6 million tonnes in 1991-92. Fertiliser subsidy increased from Rs. 3201 crore in 1988-89 to Rs. 4389 crore during 1990-91. As a part of fiscal correction, the Union Budget for 1991-92 increased issue prices of fertilisers by 30 per cent while completely exempting small and marginal farmers from the price increase.

During 1990-91 milk production is estimated to have reached 53.7 million tonnes while egg production has reached a level of 21 billion eggs. As a result of delicensing, dairy industry may face some initial adjustment problems, but it is likely to emerge more competitive and efficient. Fish production in the country has reached 3.8 million tonnes during 1990-91.

The Eighth Plan has given priority to the growth and diversification of the agricultural sector, which is expected to generate surpluses for exports.

Introduction

7.1 Agriculture and allied activities are the mainstay of livelihood of the country's population, as about three-fourths of the population lives in rural areas. The Government has given the utmost importance to the development of this sector. The measures taken from time to time combined with the dynamic response by the farmers, have enabled Indian agriculture to attain considerable resilience to weather shocks in the recent period. The improvement in farm productivity witnessed over the years has assisted in absorbing the impact of natural calamities, like failure of the monsoon, floods, etc. As a result, the influence of the monsoon has been moderated despite the fact that only about one third of the total area under principal crops has assured irrigation facilities. The country has achieved considerable improvement in agricultural production.

7.2 During 1990-91, total foodgrains production in the country reached 176 million tonnes, showing an increase of 3 per cent over the earlier year's performance. The foodgrains production in 1991-92 may be below the target level of 182 million tonnes. The kharif crop has been considerably affected by a long dry spell in the north and north-western parts of the country. However, rabi foodgrains production may show a marginal increase over that in the previous year.

Production Performance

7.3 With a good monsoon, the year 1990-91 turned out to be satisfactory. Foodgrains production increased slightly during this year. The share of rabi crops in total foodgrains production was 43.3 per cent. Coarse grains and pulses constituted 26.8 per cent of the total foodgrains production. The performance of agricultural production during 1980s is shown in Table 7.1.

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7.4 The major foodgrain crops, viz., rice and wheat, achieved record production levels of 74·6 million tonnes and 54.5 million tonnes, respectively, during 1990-91. Among commercial crops, sugarcane production reached a level of 240.3 million tonnes during this year. The favourable monsoon has also led the oilseeds production to increase to 18.5 million tonnes during 1990-91.

7.5 It is too early to indicate the overall production of foodgrains during 1991-92. Current expectations are that foodgrains production during the current year may fall below last year's production level of 176.2 million tonnes. Kharif output, already harvested, is likely to be below last year's level of production of 99.9 million tonnes. This is mainly on account of the long dry spell in the north and north-western parts of the country covering Bihar, Uttar Pradesh, Rajasthan, Madhya Pradesh and Gujarat during the south-west monsoon. Rabi foodgrain production may show a marginal increase over the previous year.

7.6 The dry spell has also adversely affected the output of oilseeds. The output of groundnut crop in Gujarat is likely to be lower, as also soyabean production in Madhya Pradesh. The prospects of rabi oilseeds, particularly rapeseed and mustard are brighter; the targetted level of 8.4 million tonnes may well be achieved.

7.7 The propspects of sugarcane are excellent. Cotton has suffered in Gujarat, Maharashtra, Karnataka and Tamil Nadu, but production may be higher than last year's level of 9.76 million bales. The production of jute and mesta this year may be slightly lower than last year's production level of 9.1 million bales, as the area is reported to have decreased in West Bengal. Targets and achievements of agricultural production from 1988-89 onwards are given in Table7.2.

TABLE 7.2

Targets and Achievements of Agricultural Production

(Million Tonnes/Bales)

Crop	1988-89		1989-90		1990-91		1991-92		
	Target	Achievement	Target	Achievement	Target	Achievement	Target	Likely Achievment	
1	2	3	4	5	6	7	8	9	
1. Rice	68.0	70.5	72.5	73.6	73.7	74.6	76.5	70.5—72.5	
2. Wheat	52.3	54.1	54.0	49.8	54.5	54.5	56.5	54.0– 56.0	
3. Coarse Cereals	33.0	31.5	33.8	34.8	33.3	33.1	34.0	29.0—30.5	
4. Pulses	13.3	13.8	14.7	12.9	15.0	14.1	15.5	14.0—14.5	
5. Total Foodgrains	166.6	169.9	175.0	171.0	176.5	176.2	182.5	167.5—173.5	
6. Sugarcane	195.0	203.0	212.0	225.6	220.0	240.3	230.0	235.0—240.0	
7. Oilseeds	15.7	18.0	16.17	16.9	18.0	18.5	18.5	17.0—17.5	
8. Cotton*	9.8	8.7	10.0	11.4	11.5	9.8	12.0	10.0 -10.5	
9. Jute & Mesta**	9.2	7.9	9.5	8.3	9.0	9.1	9.1	8.5- 9.0	

* Bale of 170 Kgs.

** Bale of 180 Kgs.

Rice

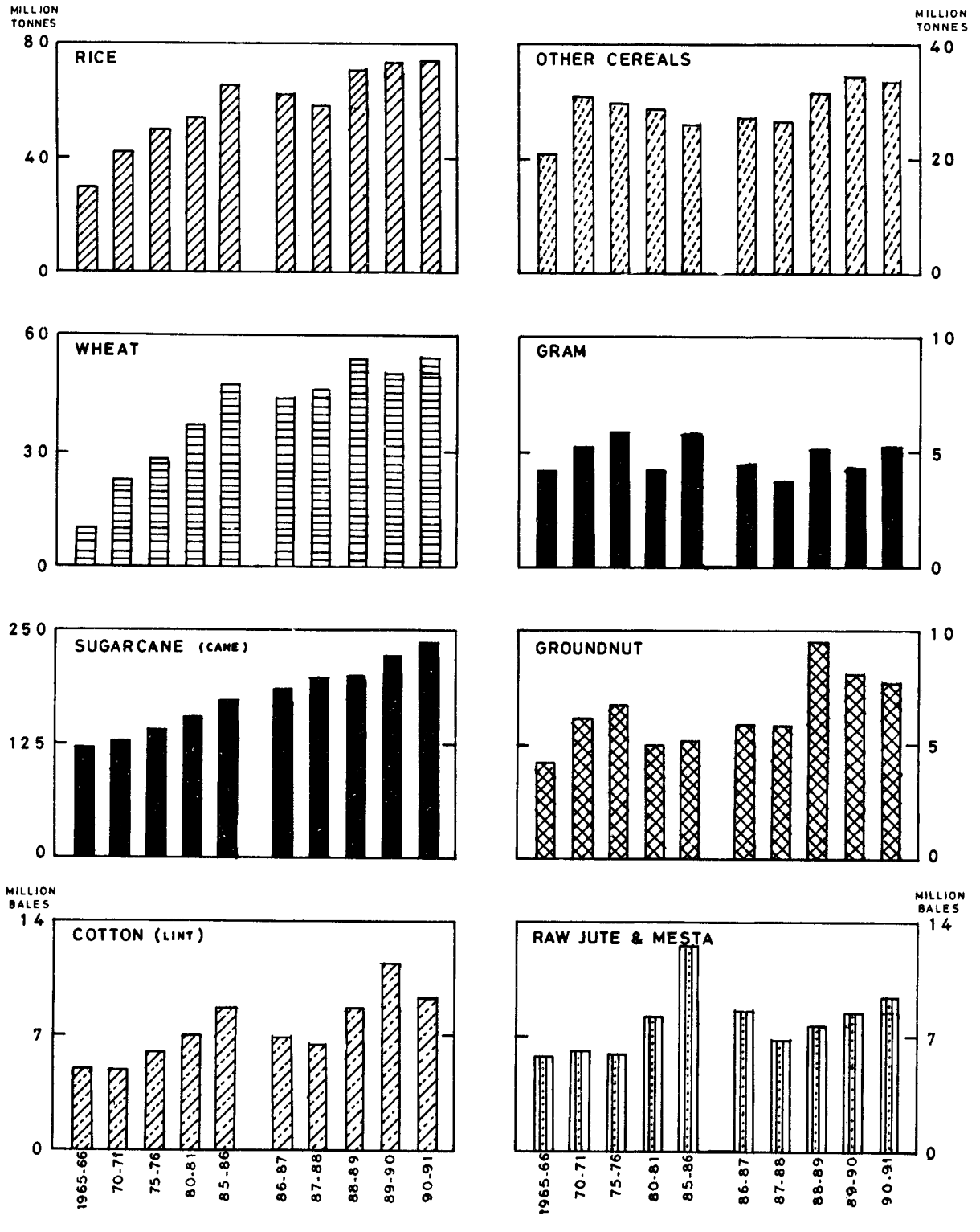
7.8 The area under rice during 1990-91 was 42.60 million hectares. Irrigation coverage is 43 per cent; the remaining area is rainfed. The increase in rice output and productivity in the country owes much to the Integrated Programme for Rice Development which covers 24 states. Among the major states, Assam, Uttar Pradesh, Karnataka and Bihar showed an increase in rice production during 1990-91. In Andhra Pradesh and Tamil Nadu, production declined owing to a decrease in area coverage; in West Bengal and Punjab, rice production declined owing to lower yield per hectare. A target of 76.50 million tonnes of rice has been fixed for 1991-92.

Wheat

7.9 Wheat production witnessed an increase during1990-91 in all the major growing states of Bihar, Gujarat, Haryana, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh. The area covered under the crop has reached 24.0 million hectares.

7.10 The productivity of wheat has increased substantially; in 1990-91 it was 3.4 times as compared to the 1950-51 level. A target of 56.50 million tonnes of wheat production has been fixed for the current rabi 1991-92 season.

AGRICULTURAL PRODUCTION



INDEX OF AGRICULTURAL PRODUCTION

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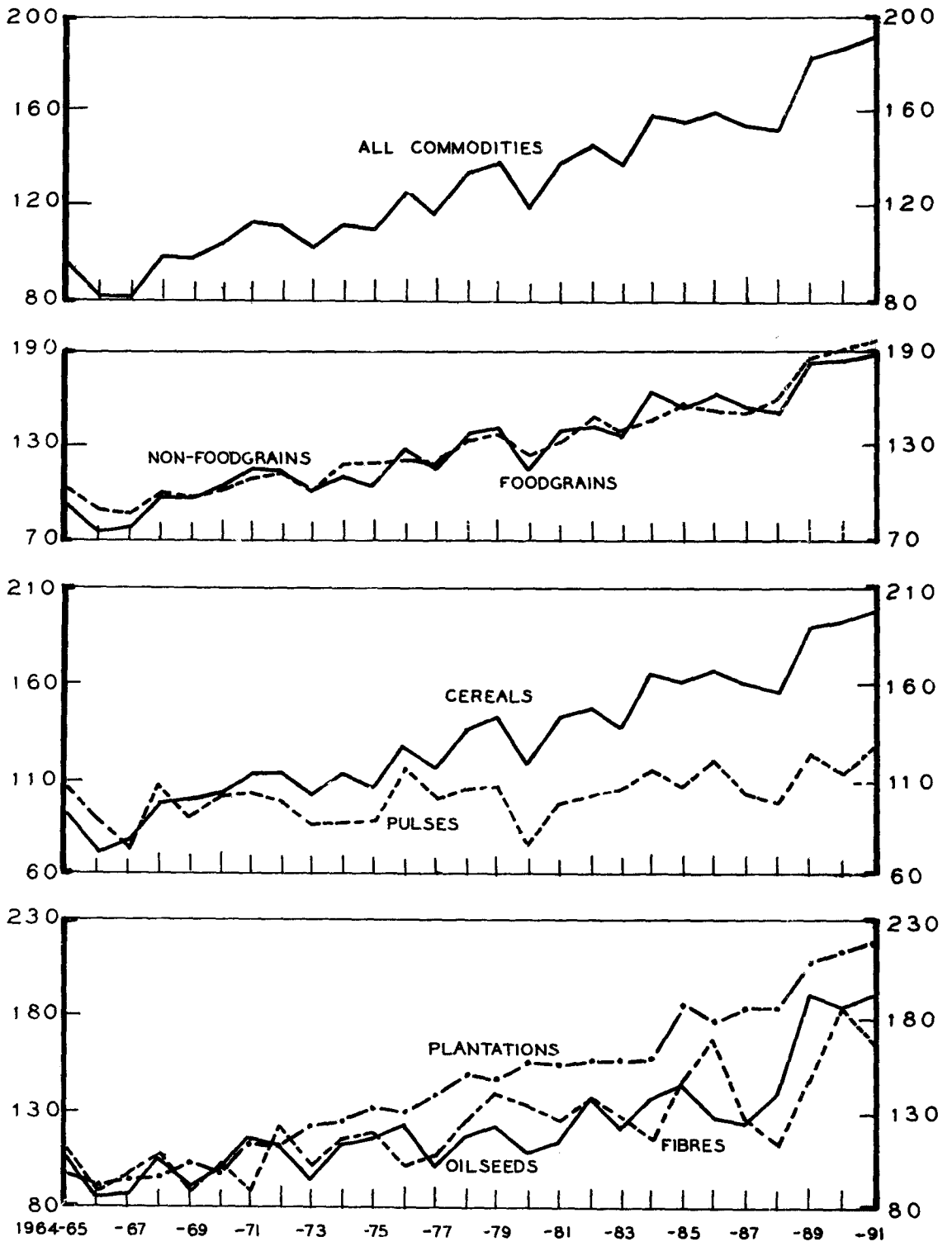
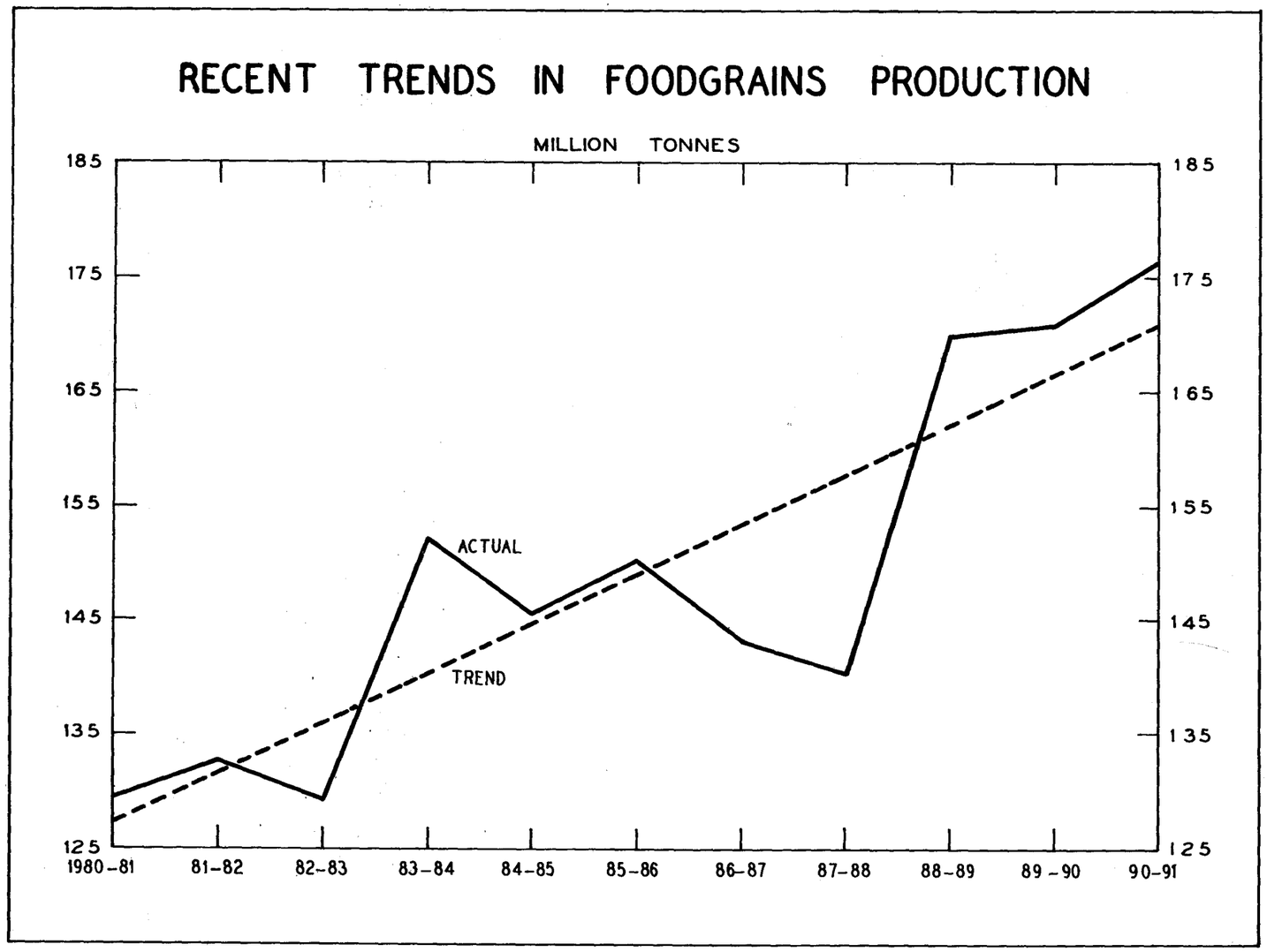



RECENT TRENDS IN FOODGRAINS PRODUCTION
MILLION TONNES
185
175
165
155
145
135
125
ACTUAL
TREND
1980-81
81-82
82-83
83-84
84-85
85-86
86-87
87-88
88-89
89-90
90-91

Coarse Grains

7.11 The area covered under coarsegrains; namely, jowar, bajra, maize, ragi, small millets and barley, was of the crder of 36.55 million hectares during 1990-91. The production of all coarse grains crops, except barley and bajra, declined. There was a fall of 3 per cent in the area covered under coarse grains. For the year 1991-92, a target of 34 million tonnes has been fixed.

Pulses

7.12 The production of pulses, reached 14.06 million tonnes in 1990-91, an increase of 9.4 per cent over the previous year. While gram, the major pulse crop, recorded a 23 per cent increase to reach 5.20 million tonnes, the other kharif and rabi pulses also showed marked increases of 8-10 per cent. The output of arhar, however, declined from a level of 2.75 million tonnes in 1989-90 to 2.43 million tonnes in 1990-91.

7.13 Pulses are grown mainly under unirrigated conditions; only about 9 per cent of the area under pulses has assured irrigation facilities. The major pulses (arhar and gram) are being produced in the states of Gujarat, Haryana, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and Uttar Pradesh. Gram and arhar are grown in an area of about 7.4 million hectares and 3.6 million hectares, respectively. Gram accounted for 30.4 per cent of total area and 37 per cent of the pulse production during 1990-91; arhar accounted for 14.8 per cent of the area and 17.3 per cent of production in 1990-91.

7.14 The production of pulses in 1991-92 has been targetted at 15.5 million tonnes (6.1 million tonnes in kharif and 9.4 million tonnes in rabi season). This is to be achieved through the continuance of pulse development programmes such as National Pulses Development Project (NPDP) and the Special Foodgrains Production Programme (SFPP)—Pulses. The main objective of NPDP is to increase production by adopting location-specific technology. NPDP is supplemented by a special programme under SFPP-Pulses, covering schemes for: (a) plant protection umbrella for gram and arhar crops against pod borers, cut worms and termites in 11 states and (b) the expansion of area under summer moong/urad through the distribution of seeds at concessional rates. Recently, pulses have also been included in the mandate of the Technology Mission on Oilseeds. An integrated approach to crop production technology and price support/market intervention is being adopted to increase productivity.

Oilseeds

7.15 Oilseed production is shown in Table 7.3. The favourable monsoon assisted in increasing the production of nine oilseeds to a level of 18.5 million tonnes during 1990-91. This was achieved despite a 14 per cent decline in the production of kahrif groundnut because of adverse weather conditions in Gujarat. The improvement in oilseeds production became possible on account of higher production of the main rabi oilseeds in 1990-91.

TABLE 7.3

Production of Oilseeds

(Million Tonnes)

Oilseeds	1985-86	1986-87	1987-88	1988-89	1989-90 (Revised)	1990-91 (Final)
1	2	3	4	5	6	7
Groundnut						
Kharif	3.76	4.43	4.18	7.49	6.10	5.25
Rabi	1.36	1.45	1.67	2.17	2.00	2.37
TOTAL	5.12	5.88	5.85	9.66	8.10	7.62
Castorseed	0.31	0.23	0.20	0.41	0.52	0.72
Sesamum	0.50	0.45	0.58	0.68	0.74	0.81
Rapeseed & Mustard	2.68	2.60	3.46	4.38	4.12	5.15
Linseed	0.38	0.32	0.39	0.36	0.33	0.34
Nigerseed	0.19	0.13	0.18	0.18	0.19	0.19
Safflower	0.35	0.35	0.46	0.44	0.49	0.32
Sunflower						
Kharif	0.17	0.25	0.38	0.22	0.27	0.34
Rabi	0.11	0.17	0.25	0.15	0.36	0.55
TOTAL	0.28	0.42	0.63	0.37	0.63	0.89
Soyabean	1.02	0.89	0.90	1.55	1.80	2.42
TOTAL						
Kharif	5.95	6.38	6.42	10.53	9 62	9.73
Rabi	4.88	4.89	6.23	7.50	7.30	8.73
TOTAL	10.83	11.27	12.65	18.03	16.92	18.46

7.16 Under the Oilseeds Production Programme (OPP), a centrally sponsored scheme, the pattern of assistance is 75:25 sharing basis between Government of India and State Governments, except for production of breeder seed and frontline demonstration by the Indian Council of Agricultural Research (I.C.A.R.) and the production of foundation seed by states with 100 per cent central assistance. The programme is in operation in 321 districts in 18 states in 1991-92.

7.17 Oil palm is regarded as one of the richest yielders of edible oil per unit area; its yield is 4-5 times that of the conventional oilseeds. The Expert Committee constituted by the Government of India in 1986 identified about 575, 000 hectares as suitable for oil palm cultivation in nine states, namely, Andhra Pradesh Karnataka, Kerala, Tamil Nadu, Assam, Maharashtra, Orissa, Tripura and West Bengal. Two more states have been identified recently by the ICAR, namely, Gujarat and Goa. The Technology Mission on Oilseeds has been declared as the nodal agency for the development of oil palm. A number of schemes were introduced in 1990-91 to initiate advance action for promoting oil palm cultivation during the Eighth Plan, viz., the setting up of oil palm nurseries, frontline demonstration on gardens and expansion of the capacity of the Seed Germinator Central Plantation Crop Research Institute (CPCRI), Palode, Kerala.

7.18 A target of 18.50 million tonnes has been fixed for oilseeds production during 1991-92. Already the kharif groundnut crop has been seriously affected due to monsoon failure in Gujarat. It may be difficult to achieve the targetted oilseeds production.

Cotton

7.19 Cotton is grown in 7.4 million hectares. Only 30 per cent of the crop is irrigated. Cotton production fell from 11.42 million bales in 1989-90 to 9.76 million bales in 1990-91. The area under the crop in Gujarat, Karnataka, Punjab and Tamil Nadu declined considerably. Only Andhra Pradesh recorded substantial increase in production. The pest heliothis attacked the crop at the flowering stage in Punjab, Haryana and Rajasthan. In other states, unfavourable weather conditions led to lower productivity. A target of 12 million bales has been fixed for 1991-92.

Jute and Mesta

7.20 Production of jute and mesta increased from 8.29 million bales in 1989-90 to 9.1 million bales in 1990-91. All the maojr producing states, viz; West Bengal, Assam, Andhra Pradesh, Bihar and Orissa, registered a substantial increase. A target of 9.1 million bales has been fixed for 1991-92.

Sugarcane

7.21 Favourable weather and Government measures, such as price incentives raised sugarcane production to 240.3 million tonnes in 1990-91 as against 225.6 million tonnes in 1989-90. Uttar Pradesh contributed 43 per cent. The increase in production was mainly due to an increase in area.

7.22 Sugar production in 1990-91 aggregated 11.9 million tonnes as against 11 million tonnes in 1989-90. In 1991-92, sugar production is expected to reach 12 million tonnes. The increase in the availability of sugar led the Government to allow export of 0.56 million tonnes of sugar. The Statutory Minimum Price (SMP) for 1991-92 was increased to Rs. 26 per quintal from Rs. 24 announced earlier. A further increase of the SMP to Rs. 27 has been announced for 1992-93.

Horticultural Crops

7.23 Horticulture covers a wide range of crops such as fruits, vegetables, coconut, cashewnut, spices and ornamental plants. Horticulture in dry and hilly areas plays a crucial role in establishing ecologically sound farming systems. The development of horticulture faces a number of constraints, such as, shortage of quality planting material, lack of complementary development inputs such as credit and extension services, losses due to perishability, lack of suitable post-harvest technology and weak infrastructure. Various schemes are under implementation for the development of horticulture.

7.24 The production of vegetables, went up from 34 million tonnes to 53.8 million tonnes during the Seventh Plan period. Coconut was declared an oilseed crop to encourage for its development. Assistance is being provided by the Coconut Development Board. Coconut production has increased substantially. The country produces about 1.8 million tonnes of spices of which 120,000 tonnes, worth Rs. 300 crore is exported annually. Pepper is the most important spice and accounts for about 80 per cent of export earnings from spices. Cashew is another important export crop. In 1989-90 around 45,000 tonnes of cashew kernel worth Rs. 360 crore was exported. In 1990-91 exports increased to 50,000

tonnes worth Rs. 441 crore. Domestic production of 274,000 tonnes was not sufficient to meet the requirements of cashew processing industries. About 40,000 tonnes of raw nuts are imported annually.

Tea

7.25 Production of tea increased from 544 million kg in 1979-80 to around 719 million kg in 1990-91. The increase in production was achieved mainly through an increase in yield, from 1490 kg to around 1700 kg per hectare. There has recently been a considerable increase in tea production in South India. The average yield is about 2000 kg per hectare in South India as against about 1600 kg in North India.

7.26 Tea production during 1990-91 reached 719 million kg compared to 703 million kg in 1989-90. As tea is one of the main agro-exports, the Government has made vigorous efforts to increase its production. The Tea Board is operating a number of schemes. The target for production in 1991-92 is 735 million kg.

7.27 The domestic market takes about two-thirds of the tea output. Domestic demand increased from 328 million kg in 1985-86 to 500 million kg in 1989-90. Although exports of tea declined from 210 million kg in 1989-90 to 199 million kg in 1990-91, export earnings increased from Rs. 905 crore in 1989-90 to Rs. 1045 crore in 1990-91. The average realisation rose from about Rs. 43 to about Rs. 52 per kg. A target of tea exports of 210 million kg valued at Rs. 1200 crore, has been fixed for 1991-92.

Coffee

7.28 Coffee production has been fluctuating depending upon weather conditions. Moreover, coffee is a biennial crop. Coffee production increased from 200,000 tonnes in 1984-85 to 215,000 tonnes in 1988-89. In 1990-91, the production was around 173,000 tonnes.

7.29 Most of the coffee produced in the country is exported; domestic consumption is stable around 55,000 tonnes. 111,000 tonnes of coffee worth Rs. 278 crore was exported in 1990-91 as against 130,000 tonnes, valued at Rs. 363 crore, in 1989-90. The decline in export earnings was mainly due to a fall in the international prices after quotas were suspended.

Rubber

7.30 Government has been making energetic efforts to increase the production of natural rubber. Production of natural rubber is estimated to be 365,000 tonnes in 1991-92 compared to 330,000 tonnes in 1990-91. The increase in production was due to an increase in area as well as an improvement in yield per hectare. It is estimated that around 461,000 hectares will be under rubber in 1991-92. As a result of promotional efforts, in addition to the traditional rubber-growing states of Kerala and Tamil Nadu, other non-traditional states have also succeeded in growing natural rubber.

7.31 With the growth of the automobile and the road transport industry, consumption of rubber has increased over the years. It is expected to increase from 364,000 tonnes in 1990-91 to around 380,000 tonnes in 1991-92. The gap between domestic demand and supply is normally met through canalised imports. In 1990-91, around 31,700 tonnes was imported as against 26,500 tonnes in 1989-90. With the Rubber Board taking continuous measures to improve rubber production, no canalised imports of natural rubber is expected in 1991-92.

Factors influencing Agricultural Production

7.32 Agricultural production depends on a number of factors ranging from weather conditions to input applications and institutional support. Since most of the cropped area does not have assured irrigation, monsoon play a crucial role.

Monsoon

7.33 The south-west monsoon during 1991 turned out to be somewhat on the lower side of the normal. In the south-west monsoon season from 1 June to 30 Septmeber, 1991 the country-wide rainfall was 92 per cent of the long period average. Eighty per cent of the meteorological sub-divisions (28 out of 35) got normal to excess rainfall. However, the weakening of the monsoon for quite some time from the middle of June, 1991, and its subsequent erratic behaviour, adversely affected agricultural operations, particularly in north and north-western parts of India. Both paddy and groundnut crops were affected. Rainfall and the performance of the monsoon since 1981 onwards are given in Table 7.4.

TABLE 7.4

Monsoon Performance

(June-September)

Year	Number of Meteorological Sub-Divisions			Percent of districts having normal to excess rainfall	Percent of normal rainfall
	Excess/ Normal	Deficient/ Scanty	Total		
1	2	3	4	5	6
1981	28	7	35	69	100
1982	24	11	35	48	85
1983	32	3	35	85	113
1984	25	10	35	64	96
1985	26	9	35	65	93
1986	21	14	35	52	87
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

7.34 The regional distribution of rainfall as reflected in the All India Cumulative Rainfall Index for the entire season, constructed by using the average area sown under kharif rice in each meteorological zone as weights, (for the triennium 1980-81 to 1982-83), indicates that rainfall recorded this year was 98.7 per cent of normal. The south had very good rainfall. The details are given in Table 7.5.

TABLE 7.5

Regional Rainfall Indices

(June – September)

Year	India	Zones				
		West	North	East	South	Central
1	2	3	4	5	6	7
1979	77.0	85.2	52.1	84.4	94.8	69.0
1982	89.4	83.5	94.9	87.8	88.8	93.1
1986	85.3	78.4	88.9	83.7	89.9	86.5
1987	88.6	75.6	62.4	103.6	74.7	77.4
1988	109.6	121.2	116.5	107.6	123.9	90.3
1989	98.6	96.6	90.9	101.3	114.6	82.2
1990	102.3	113.9	112.0	97.8	93.2	112.4
1991	98.7	93.8	90.3	99.5	114.7	91.5

Reservoir Situation

7.35 The weakening of the monsoon for some time and its further erratic behaviour has affected water levels in tanks and reservoirs. The total live storage in 56 important reservoirs monitored by the Central Water Commission in the last week of September 1991 was 2.7 per cent lower than the level of last year: it came down from 100.37 TMC to 97.62 TMC.

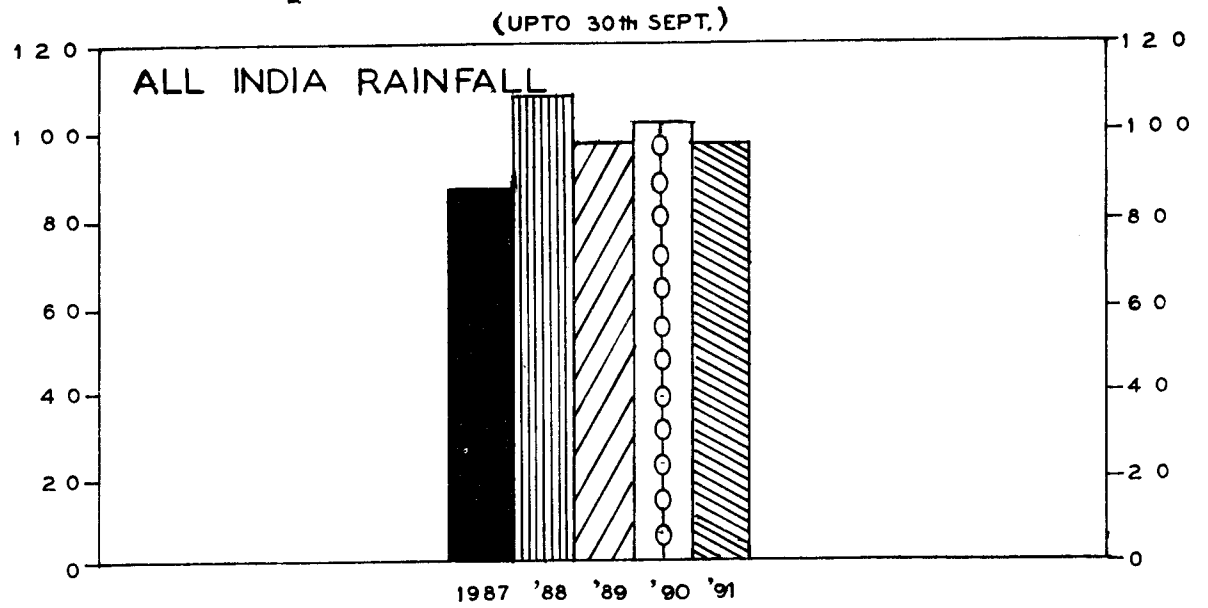
Irrigation

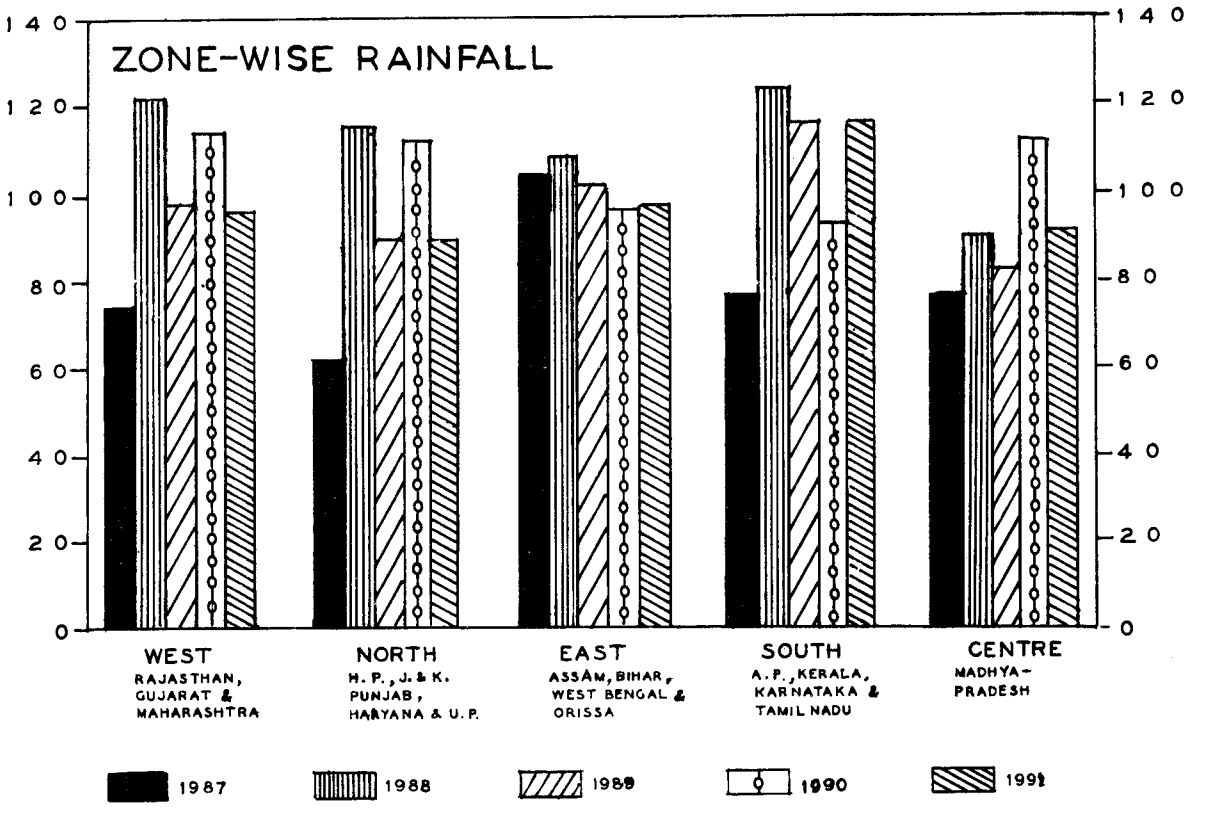
7.36 Punjab, Haryana, Western Uttar Pradesh, parts of Andhra Pradesh and Tamil Nadu, have assured irrigation facilities. At the end of 1989-90, 32.9 million hectares of land was under major and medium irrigation and 46.8 million hectares under minor irrigation. Another 3.02 million hectares is estimated to have been added in 1990-91 (0.69 million hectares through major and medium and 2.33 million hectares through minor irrigation). Thus the total potential likely to have been created by the end of 1990-91 adds up to 82.8 million hectares. Till the end of Seventh Plan, about Rs. 25,813 crore was spent by the Government for the creation of an irrigation potential of 32.9 million hectares under the major and medium projects. In spite of this massive investment, the utilisation of the

MONSOONS 1987-91

[ACTUAL RAINFALL AS PERCENTAGE OF NORMAL]

(UPTO 30th SEPT.)





created potential is considerably low. The cumulative gap in the utilisation of the potential till the end of 1990-91 is about 8.6 million hectares. The details are given in Table 7.6.

TABLE 7.6

Development of Irrigation Potential and its Utilisation

(Million hectares)

Item	Achievement upto Seventh Plan end	Expected achievement during 1990-91	Expected cumulative achievement upto 1990-91	Target for 1991-92
1	2	3	4	5
1. Major & medium irrigation				
Potential	32.91	0.69	33.60	0.64
Utilisation	27.89	0.71	28.60	0.64
2. Minor irrigation				
Potential	46.83	2.33	49.16	2.33
Utilisation	43.53	2.03	45.56	2.06
3. Total				
Potential	79.74	3.02	82.76	2.99
Utilisation	71.42	2.74	74.16	2.70

7.37 Since 1974-75, Command Area Development (CAD), a centrally sponsored scheme, is in operation with the basic objective of optimising the utilisation of the created irrigation potential by bridging the gap between the potential created and utilisation and increase in agricultural production from irrigation command areas. The programme broadly covers on-farm development works such as construction of field channels, land levelling and shaping and implementation of warabandi for rotational supply of water to ensure equitable and assured supply of irrigation water to holdings. Attention will be focussed on employment and other economic activities, farmers' participation in operating the system and better water management practices in the further expansion of the programme. The programme includes arrangements for the supply of inputs and credit, agricultural extension, the construction of markets and godowns and the development of ground water for conjunctive use. The programme at present covers 157 major/medium irrigation projects, spread over 20 states and 2 union territories, covering a Culturable Command Area (CCA) of 20.7 million hectares. Cumulatively till March, 1990, an area of 11.3 million hectares was expected to have been covered by field channels, 2.0 million hectares by land levelling and 5.2 million hectares by warabandi. During the year 1990-91, the achievements under field channels, warabandi and land levelling were 0.55 million hectares, 0.58 million hectares and 0.033 million hectares against the target of 0.72 million hectares, 0.96 million hectares and 0.08 million hectares, respectively. The targets for 1991-92 fixed for field channels, warabandi and land levelling are 0.95 million hectares, 0.89 million hectares and 0.10 million hectares, respectively. Minor irrigation schemes include ground water and surface water schemes. While ground water schemes include wells, shallow tube wells and pumpsets, the surface water schemes include 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. The forthcoming annual plans will concentrate more directly on creation of minor irrigation scheme to cover surface and ground water. Due to advantageous water table levels, the Eastern sector will receive special attention for minor irrgation.

7.38 The progress of the irrgation develoment has not been uniform among the states. National Water Resources Council, was set up in 1983 to meet the need for evolving a national policy for the development and use of water resources for deriving optimum benefits. The Council adopted the National Water Policy in September, 1987. According to this Policy, the adoption of an integrated multi-disciplinary approach to planning and formulation of projects has been recommended. Next to drinking water, highest priority has been accorded to irrigation.

Seeds

7.39 Next to assured irrigation, use of High Yielding Varieties (HYV) of seeds has improved crop productivity substantially. The HYV Programme had covered 63.9 million hectares by 1990-91. Crop-wise coverage of area under HYV is given in Table 7.7.

TABLE 7.7

Area Under High Yielding Varieties of Seeds

(Million Hectares)

Crop	Seventh Plan Target	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91*	1991-92 (Target)
1	2	3	4	5	6	7	8	9
Paddy	32.0	23.5 (57.0)	24.0 (58.4)	22.1 (57.3)	25.4 (60.8)	26.2 (62.1)	28.1	30.0
Wheat	22.0	19.1 (83.0)	19.2 (83.0)	19.7 (85.4)	20.2 (83.8)	20.3 (86.4)	20.4	22.0
Jowar	6.5	6.1 (37.6)	5.5 (34.5)	6.1 (38.7)	6.1 (41.8)	6.9 (46.0)	6.7	8.0
Bajra	6.5	5.0 (46.8)	5.3 (46.8)	4.0 (45.4)	5.9 (49.0)	5.6 (51.4)	5.1	6.0
Maize	3.0	1.8 (31.0)	2.2 (37.0)	2.2 (38.8)	2.5 (42.4)	2.3 (39.0)	2.6	3.0
Ragi	—	—	—	—	—	—	1.1	1.0
Total	70.0	55.4	56.2	54.1	60.1	61.2	63.9	70.0

* Provisional

Figures in parentheses give the percentage of HYV area to total area under the crop.

7.40 The distribution of certified/quality seeds increased from 5.70 million quintals in 1989-90 to 5.71 million quintals in 1990-91. The distribution of certified seeds increased from 3.9 million quintals in 1989-90 to 4.1 million quintals during 1990-91. A target of 4.9 million quintals of certified seeds to be distributed has been fixed for 1991-92.

7.41 There is no statutory control on the prices of seeds. The prices of seeds are fixed by the public sector seed corporations and private companies on the basis of their commercial judgement. The seeds are distributed through National Seeds Corporation, State Farms Corporation of India, State Seeds Corporations, State Departments of Agriculture and other private and co-operative agencies.

Fertilisers

7.42 For improving the yields of different crops, proper application of fertilisers is crucial. Consumption of fertilisers reached 12.6 million tonnes in 1990-91 and is expected to be of the order of 13.6 million tonnes in 1991-92. Trends in fertiliser consumption during the 1980s are given in Table 7.8.

TABLE 7.8

Consumption of Chemical Fertilisers

(Million tonnes of nutrients)

Year	Nitrogenous	Phosphatic	Potassic	Total NPK
1	2	3	4	5
1980-81	3.7	1.2	0.6	5.5
1981-82	4.1	1.3	0.7	6.1
1982-83	4.2	1.5	0.7	6.4
1983-84	5.2	1.7	0.8	7.7
1984-85	5.5	1.9	0.8	8.2
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 (Provisional)	8.0	3.3	1.3	12.6
1991-92 (Anticipated)	8.5	3.6	1.5	13.6

7.43 Production of fertilisers has shown a gradual increase over the years. During 1990-91 the production of nitrogenous and phosphatic fertilisers was about 9 million tonnes. The gap in the domestic demand is met through imports. As fertiliser is one of the crucial inputs in improving crop yields and its price affects the cost of cultivation, Fertiliser Retention Price and Subsidy Scheme was introduced with effect from 1 November, 1977 under which fertilisers are supplied at a uniform and subsidised prices to the farmers throughout the country. The details of fertiliser production, its imports and subsidies are given in table 7.9.

TABLE 7.9

Fertilisers: Production, Imports and Subsidies

Year	Production (N+P) (000 Tonnes)	Imports (000 Tonnes)	Subsidies (Rs. Crore)		
			On imported fertilisers	On domestic fertilisers	Total
1979-80	2983	2005	282	321	603
1980-81	3005	2759	335	170	505
1981-82	4093	2041	100	275	375
1982-83	4404	1132	55	550	605
1983-84	4533	1355	142	900	1042
1984-85	5181	3624	727	1200	1927
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	9044	2758	659	3730	4389
1991-92	10000@	2793	1100*	2900*	4000*

@ Target
* Budget Estimates.

7.44 As a part of fiscal correction, the Union Budget for 1991-92 presented on 24 July, 1991 increased the issue prices of fertilisers by 40 per cent on an average; low analysis fertilisers, such as, calcium ammonium nitrate, ammonium chloride, ammonium sulphate and sulphate of potash were decontrolled. In addition, in respect of single super phosphate, a ceiling on the subsidy per tonne payable to producers was also announced with a view to moving towards total deregulation. Subsequently, with effect from 14 August, 1991, the average price increase on fertilisers was reduced by 10 per cent and made 30 per cent, and small and marginal farmers were exempted from the price increase. In order to reduce the administrative difficulties in the implementation of dual pricing of fertilisers, Government framed guidelines and provided funds to state and union territory governments.

7.45 The increase in fertiliser prices became necessary for two reasons :—

(i) In its absence, fertiliser subsidies would have reached an unmanageable level and the Government would not have been able to meet Plan needs.

(ii) Fertiliser prices had remained almost unchanged from July 1981 till July 1991 although the prices received by the farmers for their agricultural produce had almost doubled.

In order to compensate the farmers for the fertiliser price rise, procurement/minimum support prices of crops of kharif, 1991 season have been suitably increased. Even after the 30 per cent price increase, the subsidy on fertiliser remains substantial and needs to be reduced further.

Pesticides

7.46 Consumption of pesticides in 1990-91 is estimated to be 82,000 tonnes. The target fixed for 1991-92 is 83,000 tonnes. In order to maximise crop production and protect it from pest attack, major emphasis is being placed on Integrated Pest Management so as to minimise over-dependance on chemical pesticides and to avoid harmful effects to human beings. During 1991-92, 25 Central Integrated Pest Management Centres were set-up in 22 states and one union territory. Major activities of these Centres include crop pest monitoring, promoting biologica

control, organising demonstrations and training in Integrated Pest Management, for extension workers and farmers.

Agricultural Credit

7.47 The policy on agricultural credit continues to be one of providing adequate and timely credit to farmers through institutional agencies such as co-operatives, commercial banks and regional rural banks to support agriculture and allied activities. The major objective of the policy is to enable farmers, especially small and marginal farmers, to adopt modern technology and improved agricultural practices. The total quantum of agricultural loans had reached Rs. 12,329 crore in 1989-90. The target for 1991-92 has been fixed at Rs. 15,455 crore. Agency-wise disbursements of agricultural credit are given in Table 7.10.

TABLE 7.10

Disbursements of Agricultural Credit

(Rs. crore)

Item	1985-86	1986-87	1987-88*	1988-89*	1989-90*	1990-91*	1991-92 (Tgt.)
1	2	3	4	5	6	7	8
COOPERATIVES							
Short-term . . .	2747	2833	3116	3513	3654	2066	5119
Medium-term . .	394	529	613	381	416	317	440
Long-term . . .	533	540	599	719	744	804	1097
	3674	3902	4328	4613	4814	3187	6656
COMMERCIAL BANKS/ REGIONAL RURAL BANKS							
Short-term & Term Loans	3131	3809	4009	4241	7515@	7181@	8799
GRAND TOTAL . .	6805	7711	8337	8854	12329	10368	15455

* Provisional.

@ Targets fixed by the Working Group on Agricultural Credit and Co-operation (including crop insurance).

7.48 Despite a substantial increase in the overall agricultural credit, the problem of mounting overdues has slowed down credit expansion. Overdues have been around 40—42 per cent during the last 3-4 years. They have eroded the lending capacity of the co-operative institutions for want of recycling of funds and ineligibility of the institutional agencies to borrow additional funds from the higher financing agencies. The state and union territory governments and concerned institutional agencies have been requested from time to time to improve the recovery position of co-operative dues. For strengthening of Primary Agricultural Credit Societies (PACS), programme of Business Development Planning (BDP) has been initiated with the objective of making them viable institutions by increasing member participation, augmenting disbursal of loans and to make PACS multi-purpose.

Comprehensive Crop Insurance Scheme (CCIS)

7.49 It is universally observed phenomenon that farming operations are susceptible to the vagaries of nature. In order to protect the farmers from various risks including natural calamities, a Comprehensive Crop Insurance Scheme (CCIS) was introduced in the country with effect from 1 April, 1985 for major foodgrain crops, namely, wheat, paddy, millets, oil-seeds and pulses. It is a voluntary area-based and credit linked scheme. All farmers availing of crop loans from co-operative credit institutions, regional rural banks and commercial banks for growing the above crops are eligible for coverage under the CCIS. The sum insured is equal to the crop loan disbursed, subject to a maximum of Rs. 10,000 per farmer. The premium payable is two per cent of the sum insured for wheat, paddy and millets and one per cent for oilseeds and pulses. Indemnity claims under the CCIS are shared between central government and the respective state government in the ratio of 2 : 1 and 50 per cent of the premium payable by small and marginal farmers is subsidised equally between central and state governments. The objective of the scheme are :

(i) to provide a measure of financial support to farmers in the event of crop failure as a result of natural calamity;

(ii) to restore credit eligibility of farmers after a crop failure, for the next crop season; and

(iii) to support and stimulate production of cereals, pulses and oilseeds.

7.50 Since its inception, the CCIS has been quite popular and beneficial to the farmers. From Kharif 1985 to the end of Kharif 1991 cumulatively 29.4 million farmers have been covered over an area of 51.9 million hectares, insuring a sum of Rs. 6591.41 crore. The season-wise progress of the Scheme can be seen from Table 7.11.

TABLE 7.11

Progress of Crop Insurance Scheme

Season	No. of States/UTs	No. of farmers covered (Lakhs)	Area covered (Lakh hectares)	Sum Insured (Rs. crore)	Premium collected (Rs. crore)	Claims paid/ payable (Rs. crore)
Kharif 1985 . . .	13	26.4	53.7	542.7	9.4	83.9
Rabi 1985-86 . .	17	12.1	23.2	238.4	4.5	3.1
Kharif 1986 . . .	19	39.6	77.4	856.2	15.0	167.0
Rabi 1986-87 . .	18	11.3	21.0	242.4	4.5	7.8
Kharif 1987 . . .	22	46.3	84.1	1140.2	19.1	277.4
Rabi 1987-88 . .	21	21.3	32.4	475.4	8.8	12.1
Kharif 1988 . . .	13	29.6	52.4	547.9	8.8	29.5
Rabi 1988-89 . .	9	8.8	10.2	164.9	3.1	3·9
Kharif 1989 . . .	17	42.3	66.5	873.9	14.5	34.4
Rabi 1989-90 . .	17	6.6	9.6	151.6	2.8	2.9
Kharif 1990 . . .	17	19.4	34.1	515.1	7.6	99.3
Rabi 1990-91 . .	16	7.8	10.4	189.9	3.3	3.1
Kharif 1991 . . .	17	22.4	43.7	646.7	9.5	—

ALLIED SECTORS

Animal Husbandry

7.51 A large number of small and marginal farmers, agricultural labourers and other rural poor depend upon livestock for obtaining gainful employment. Thus animal husbandry plays an important role in the country's rural economy. This sector provides valuable animal proteins for human diet and also other products of mass consumption like wool, hides and skins for the growing needs of various industries. The gross value of output from this sector increased to Rs. 358 billion in 1989-90 which constituted about 25 per cent of the total agricultural output of Rs. 1426 billion.

7.52 The large livestock population enables the country to meet the growing demand for animal protein and raw materials for industry. The main aim of animal husbandry development is to assist the farmers in producing livestock and to facilitate the improvement of their economic condition. Towards this end, short-term and long-term strategies are formulated at the national level. Under the short term strategy, efforts are made to step up the supply-package of services, like technology, improved breeding practices, feed and fodder, health cover and improved management and marketing. The long-term strategy aims at building up institutions and expertise for efficient supply of these services and raising animal productivity. As a result of various policy measures production of milk and eggs has increased significantly. During 1990-91, milk production is estimated to have increased by 4.4 per cent over the previous year to 53.7 million tonnes. Egg production also increased by 4.2 per cent over the previous year to 21 billion eggs.

Dairy Development

7.53 Dairying provides supplementary employment and an additional source of income to a large number of farmers, most of whom are small and marginal farmers. Operation Flood, the world's largest integrated dairy development programme, is aimed at establishing linkage between rural milk producers and urban consumers by organising farmer-owned and managed dairy co-operative societies. The programme which was launched in 1970, is at present in its Third Phase with financial assistance from World Bank and commodity assistance from the EEC in the form of skimmed milk powder and butter oil. Over 64,000 dairy co-operative societie have been organised under the programme in 170 milk-sheds covering about 7.66 million farmer members. These co-operatives have established a processing capacity of 15.5 million litres of milk a day and powder production capacity of 727 tonnes a day. During October, 1991, the co-operatives procured 9.35 million kg of milk per day and marketed 8.0 million litres a day in metropolitan areas, 140 large cities and many other small towns of the country.

7.54 In conformity with the New Industrial Policy announced on 24 July, 1991, the compulsory licensing requirement for most industries, including the dairy industry, has been removed. Some apprehensions were initially expressed in the co-operative dairy sector that this might adversely affect liquid milk availability in the country. They were based on the presumption that with the entry of private industry into the dairy business, liquid milk would be diverted for the production of high value-added milk products. Even though there may be some initial adjustment problems, as the co-operative dairy industry is well organised, it is by and large capable of facing the competition. As the overall objective of the New Industrial Policy is to increase efficiency and competitiveness, the organised dairy industry will emerge stronger. However, during the period of adjustment, care may have to be taken to safeguard the co-operative dairy sector.

Fisheries

7.55 Fish production in the country has increased more than fivefold during the last 40 years. It reached a level of 3.8 million tonnes during 1990-91 from 0.8 million tonnes of production in 1950-51. Fisheries has been recognised as an important source of protein, foreign exchange earner and employment generator. Special efforts have been made to promote extensive and intensive fish farming activity in the inland sector, modernising of coastal fisheries, encouraging of deep sea fishing through joint-ventures, etc. The implementation of the two development programmes for inland fisheries, *viz.*, Development of Aquaculture and National Programme of Fish Seed Development, have led to encouraging results in the form of inland fish production reaching 1.5 million tonnes during 1990-91 as against 0.9 million tonnes in 1984-85. The share of inland fish production in total fish production increasd from 36 per cent in 1980-81 to 40 per cent in 1990-91. Banning of bull trawling by chartered foreign fishing vessels and speedy motorisation of traditional fishing craft led to a quantum jump in marine fish production in recent years. It increased to 2.3 million tonnes in 1990-91 from 1.7 million tonnes in 1984-85. During 1991-92, fish production is expected to be about 4 million tonnes. The marine production export earnings in 1990-91 were of the order of Rs. 890.40 crore and anticipated to cross Rs. 1000 crore during 1991-92.

Agricultural Marketing

7.56 The agricultural marketing system, by and large, operates under the normal forces of supply and demand. The trade is mainly in the hands of private enterprises. The Government intervention is limited mainly to protecting the interests of producers and consumers and also to promoting the organised marketing of agricultural commodities in the country. All the states and union territories except Jammu & Kashmir, Kerala, Mizoram, Sikkim, Andaman & Nicobar Island, Dadra & Nagar Haveli and Lakshadweep, have enacted necessary legislation for the regulation of agricultural produce markets. The number of regulated markets in the country as on 31 March 1991 was 6,640. The Central Government is providing assistance for the creation of infrastructural facilities in the markets and also for setting up of rural godowns. A sum of Rs. 84.52 crore for development of 3,763 markets and Rs. 37.68 crore for the establishment of 4,628 rural godowns have been granted by the Central Government by the end of March, 1991. To facilitate grading, standards have been laid down for 142 agricultural and allied commodities under the Agricultural Produce (Grading and Marking) Act, 1937.

7.57 A number of organisations have been established with specific aims and objects to help the Government in implementation of the policies and developmental programmes relating to agricultural marketing, *viz.*, the Commission for Agricultural Costs and Prices, the Food Corporation of India, the Cotton Corporation of India, the Jute Corporation of India, etc. Agricultural marketing is also being attended to by a network of co-operatives at the primary, state and national levels. Marketing co-operatives are operating in almost all Mandies. Co-operative societies are functioning in the area of processing of fruits and vegetables, sugarcane crushing, ginning & pressing of cotton etc. At the national level, the National Co-operative Development Corporation plans and promotes programmes for the production, processing, marketing, storage, export and import of agricultural produce through co-operatives. The National Agricultural Cooperative Marketing Federation of India Ltd. is the apex co-operative organisation dealing in procurement, distribution, export and import of selected agricultural commodities. A few other organisations in the co-operative sector are: the National Co-operative Tobacco Growers' Federation Ltd., the National Consumers' Co-operative Federation, etc. One of the important functions of the Tribal Co-operative Development Federation of India (TRIFED) is to attend to the marketing problems of the tribals.

7.58 However, the share of co-operatives in the total marketing of agricultural commodities is small.

The specialised Boards have been created for commodities like rubber, coffee, tea, tobacco, spices, coconut, oilseeds and vegetable oil and horticulture. The National Dairy Development Board is also engaged in the marketing of agricultural commodities. Separate Directorates have been created to manage development of special commodities like sugarcane, jute, tobacco, oilseeds, rice, millets, cotton, pulses, cashewnut, cocoa, arecanut and spices. Besides, a number of Development Councils have been set up for special commodities like rice, pulses, jute, millets, cotton, tobacco, oilseeds, sugarcane, arecanut and cocoa. In the field of exports, besides the State Trading Corporation, some of the related bodies are the Cashewnut Export Promotion Council, the Shellac Export Promotion Council, the Agricultural and Processed Food Export Development Authority.

7.59 The role of co-operatives in the marketing of agricultural produce has been progressively expanding. To help the farmers in getting remunerative prices, co-operatives have assumed a major role in price support operations in coarse grains, oilseeds, copra and pulses and in market intervention for potato, onion, ginger and apples. The marketing operations of co-operative marketing societies are mainly in foodgrains; the share of other agricultural produce is very small. The NAFED has been appointed as a Central Nodal Agency for undertaking marketing operations of a number of agricultural commodities covered under the price support operations. During 1990-91, co-operatives marketed agricultural produce of the value of Rs. 5,600 crore approximately as against the achievement of Rs. 6,300 crore during the previous year. The major shortfall was reportedly in Gujarat. Besides, the performance in Bihar, Kerala and Uttar Pradesh was also reported as not up to the desired level during 1990-91. Nearly 90 per cent of the agricultural produce was marketed by co-operatives in Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu and Uttar Pradesh.

Policy Thrust during the Eighth Plan

7.6 : The Eighth Plan, which will begin from 1 April, 1992, has given priority to the growth and diversification of agriculture to the achievements of self-sufficiency in food and the generation of surpluse for export. Even though crop production and productivity have improved considerably over the years, there are striking regional and crop imbalances. In order to spread the benefits of the green revolution, which has remained confined to the north and north-west, to other parts of the country, suitable schemes would be taken up during the Eighth Plan period. Special emphasis in agricultural development is being envisaged for the eastern region, which has adequate rainfall, fertile soil and a vast scope for stepping up agricultural production. In view of the fact that large parts receive inadequate rains and do not have assured irrigation facilities, dryland farming would continue to be an important element of the agricultural strategy. In order to increase oilseeds production and thereby save valuable foreign exchange on their imports, concerted efforts would be made.

Outlook

7.61 The target for production of foodgrains during 1991-92 has been fixed at 182.50 million tonnes, consisting of 103.15 million tonnes during kharif season and remaining 79.35 million tonnes in the rabi season. Even though the monsoon during 1991 turned out to be a normal one, its weakening for quite some time from middle of June, 1991 and subsequent erratic behaviour until the end of August 1991, adversely affected agricultural operations, particularly in the north and north-western parts of India. Both paddy and groundnut crops were also hit by it. Though the rabi production may turn out to be near normal, the overall foodrains production during 1991-92 may be lower than both the target as well as the last year's level. This would, in turn, require special attention in managing the food economy of the country.