CHAPTER 2

AGRICULTURAL PRODUCTION

Indian agriculture has acquired a remarkable degree of resilience during the last decade. This is evident from the fact that it was able to withstand the adverse effects of the successive run of poor monsoons for three years culminating in the drought of 1987-88 and has recorded substantial spurt in production in response to favourable monsoon. Agricultural production has recorded a compound growth rate of 2.7 per cent per annum during the 80s. It is also significant that output change is almost entirely explained by productivity growth.

2.2 The Index of agricultural production which had declined by 3.7 per cent in 1986-87 and one per cent in 1987-88 is expected to have recorded an increase of 20.8 per cent during 1988-89. The growth in 1988-89 was widespread over crops and regions. Foodgrains production recorded an increase of over 21 per cent, the production of pulses increased by 25 per cent in 1988-89 reaching a peak level of 13.7 million tonnes. The increase in oilseeds was over 41 per cent and in cotton over 36 per cent.

Monsoon

2.3 Throughout its four-month spell, both the quantum of rainfall and distribution of precipitation in 1989 was good. Although this year, monsoon was not ideally distributed or the rainfall as copious as in the preceding year, it was good enough to ensure a high level of farm production. The South-West monsoon set over Kerala on June 3rd, 1989 advanced thereafter and the entire country was covered by July 2nd, 1989 as against the normal date of such coverage by July 15. The progress of the monsoon was satisfactory practically in most of the meteorological sub-divisions. 29 out of 35 meteorological sub-divisions (83 per cent) received excess or normal rainfall (constituting 77% of area of the country). This year no meteorological sub-division received scanty rainfall. Out of six meteorological sub-divisions with deficient rainfall, the deficiencies were marginal (close to normal) in 5 meteorological sub-divisions (constituting 18% of the area). Deficiency was significant only in East Rajasthan. Thus, in about 95 per cent of the area, the rainfall in 1989 was satisfactory. For the country as a whole, the rainfall at the end of monsoon season was 101.4 per cent of the normal rainfall. The rainfall situation can be seen from the following table:

TABLE 2.1

Monsoon Rainfall (June—September)

	1983	1984	1985	1986	1987	1988	1989
1. Number of meteorological sub-divisions :							
(a) Excess/ Normal rains .	33	26	26	21	14	32	29
(b) Deficient/ Scanty rains .	2	9	9	14	21	3	6
(c) Total	35	35	35	35	35	35	35
2. Per cent of districts having normal to excess rains	85	64	65	52	43	88	72

2.4 The All-India Cumulative Rainfall Index for the entire season, constructed by using area sown under kharif rice in each meteorological zone as weights, indicates that rainfall recorded this year was 98.67 per cent of normal. While South and East zones recorded rainfall above normal, West, North and Central zones recorded rainfall below normal. The details are as under:

TABLE 2.2

Regional Rainfall Indices

(June to September)

Year	All India	West	North	East	South	Centre
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 .	88.7	75.6	62.5	103.6	75.5	77.4
1988 .	109.6	121.2	116.5	107.6	123.9	90.3
1989 .	98.7	96.6	90.9	101.3	114.6	82.2

2.5 This year's monsoon rainfall is better than in any other year during this decade except those of 1988 and 1983 which were excess rainfall years. In fact, the 1989 monsoon is the third best of the decade. The following table indicates the performance of the monsoon:

TABLE 2.3

Performance of Monsoon

Year	Total monsoon rainfall over the country as a whole
1981 . .	100 per cent of normal
1982 . .	86 per cent of normal
1983 . .	113 per cent of normal
1984 . .	96 per cent of normal
1985 . .	93 per cent of normal
1986 . .	87 per cent of normal
1987 . .	81 per cent of normal
1988 . .	119 per cent of normal
1989 . .	101 per cent of normal

2.6 A special feature of this year's rainfall distribution is that most of the drought prone areas of the country such as Gujarat, parts of Maharashtra, Interior Karnataka, Rayalaseema and Tamil Nadu have received good rainfall. There were no severe floods except in some localised areas. The flood prone areas like Uttar Pradesh, North Bihar, West Bengal, Orissa and the states in North-East India were largely free from major floods. Thus, 72% of the districts received excess or normal rainfall.

2.7 The seasonal rainfall in different meteorological sub-divisions having excess, normal and deficient rainfall are given as under:

Rainfall	Meteorological Sub-divisions
(1) Excess	(1) Marathwada (2) Coastal Andhra Pradesh (3) Telangana (4) Rayalaseema (5) Lakshadweep (6) Arunachal Pradesh.
(2) Normal	(1) Andaman & Nicobar Islands (2) Assam and Meghalaya (3) Nagaland, Manipur, Mizoram and Tripura (4) Sub-Himalayan West Bengal and Sikkim (5) Gangetic West Bengal (6) Orissa (7) Bihar Plateau (8) Bihar Plains (9) East Uttar Pradesh (10) Hills of West Uttar Pradesh (11) Punjab (12) Jammu & Kashmir (13) East Madhya Pradesh (14) Gujarat Region, Daman, Dadra and Nagar Haveli (15) Saurashtra, Kutch and Diu (16) Konkan & Goa (17) Madhya Maharashtra (18) Vidarbha (19) Tamil Nadu and Pondicherry (20) Coastal Karnataka (21) North Interior Karnataka (22) South Interior Karnataka (23) Kerala
(3) Deficient	(1) Plains of West Uttar Pradesh (2) Haryana, Chandigarh and Delhi (3) Himachal Pradesh (4) West Rajasthan (5) East Rajasthan and (6) West Madhya Pradesh.
(4) Scanty	Nil.

2.8 The total live storage in the 47 reservoirs monitored by Central Water Commission till the end of December, 1989 was 80.84 TMC which forms 77 per cent of the full reservoir level (FRL) as against 88.03 TMC representing 83 per cent of FRL during the corresponding period last year. Thus, the total live storage available this year was 6 per cent less than the last year. The reservoirs position in all the 47 reservoirs was, however, 106 per cent in comparison with the past six years average position. There were 5 reservoirs having less than 30 per cent of live storage capacity at FRL, while there was only one reservoir (Gandhisagar in Madhya Pradesh) having less than 25 per cent of FRL. Investigations by the Ground Water Board indicate that there has been a significant rise in the sub-soil water table level. In parts of Madhya Pradesh, Maharashtra and Gujarat, substantial increase(more than 8 metres level) has been observed. Localised rise has also been reported from parts of Punjab,Haryana and West Uttar Pradesh. Considering the water levels in the reservoirs, the release of water is being carefully monitored so that the minimum irrigation could be provided at critical stages of crop growth. It is also ensured that adequate quantity of water is available for irrigating the rabi crops.

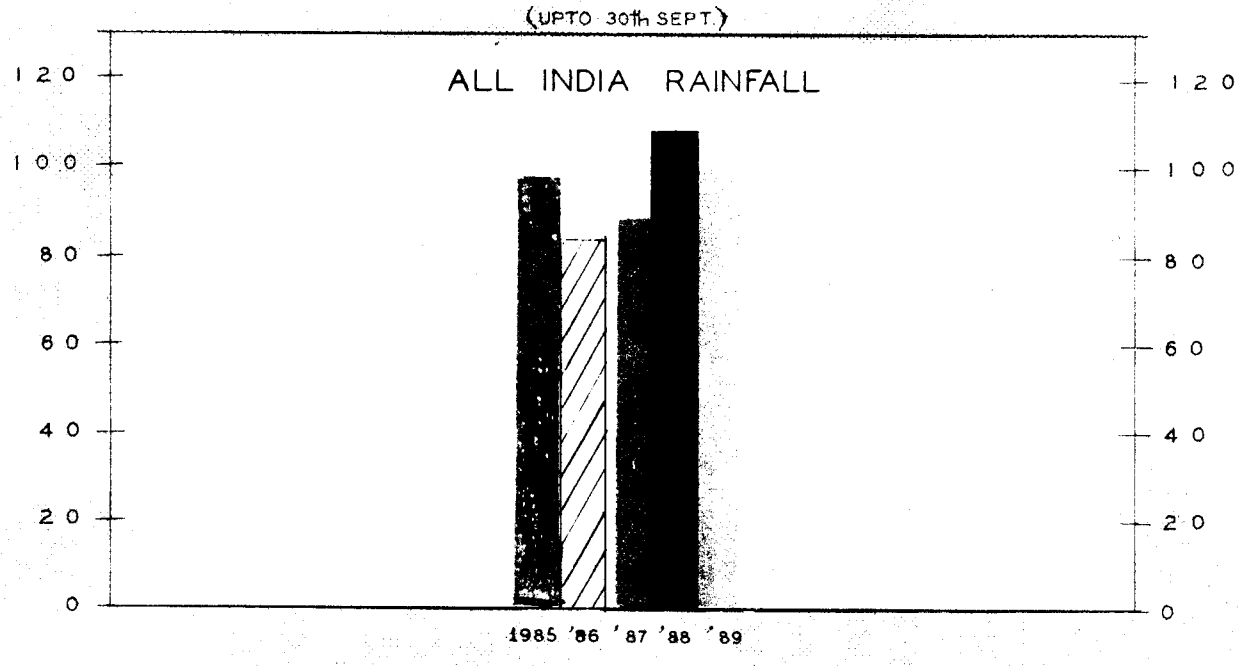
Production Performance

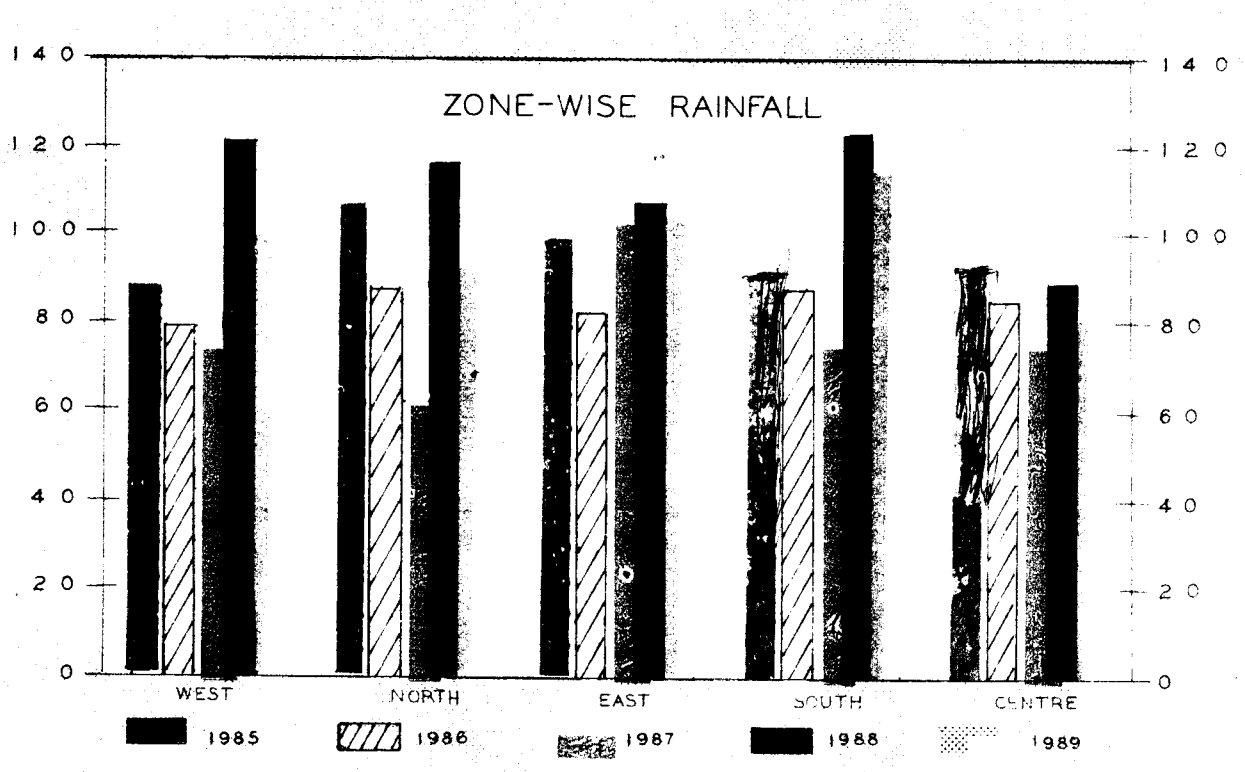
2.9 The average foodgrains production during the period 1985-86 to 1987-88 was 145 million tonnes. Consequent upon an excellent monsoon combined with the thrust programmes like Special Foodgrains Production Programme (SFPP) and Special Rice Production Programme (SRPP), foodgrains production recorded an appreciable—a record-increase of 21.3 per cent to 170.3 million tonnes in 1988-89 as against 140.4 million tonnes in 1987-88 and surpassed by 11.7 per cent the previous peak production of152.4 million tonnes in 1983-84. On a peak

MONSOONS 1985-89

ACTUAL RAINFALL AS PERCENTAGE OF NORMAL

(UPTO 30th SEPT.)



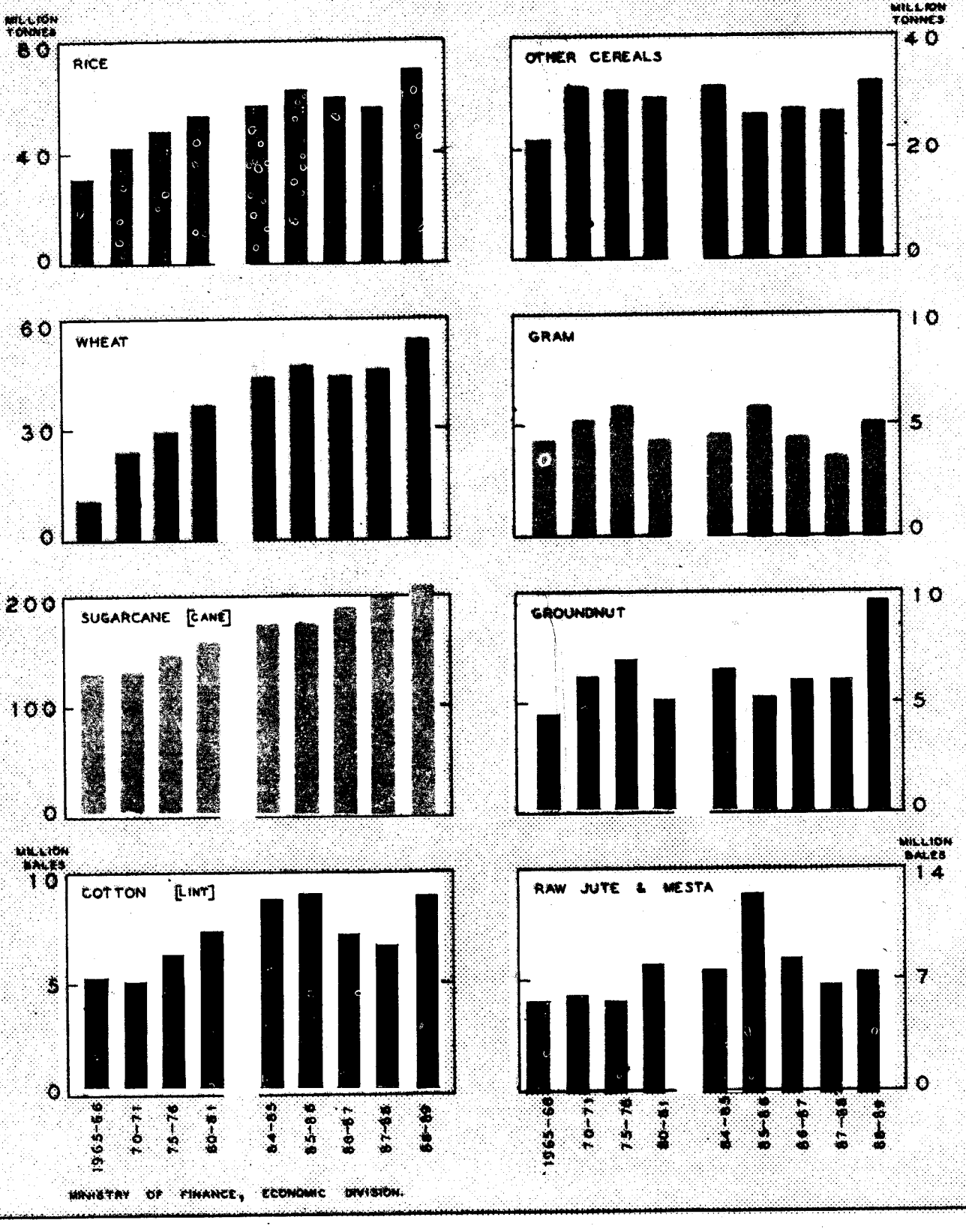


NOTE :-

WEST — RAJASTHAN, GUJARAT AND MAHARASHTRA
NORTH — H.P., J & K, PUNJAB, HARYANA AND U.P.
EAST — ASSAM, W. BENGAL, BIHAR AND ORISSA
SOUTH — A.P., KARNATAKA, KERALA AND TAMIL NADU
CENTRE — M.P.

MINISTRY OF FINANCE, ECONOMIC DIVISION.

AGRICULTURAL PRODUCTION



to peak basis annual compound growth of foodgrains production works out to 2.2 per cent between 1983-84 and 1988-89.

2.10 Both kharif and rabi crops contributed to the increased output in 1988-89. The kharif foodgrains output increased by 29.3 per cent to a record level of 96.42 million tonnes as against 74.56 million tonnes in 1987-88. Rabi foodgrains output at 73.83 million tonnes was also at a record level, which was 8.04 million tonnes or 12.2 per cent higher than in the previous year. The foodgrains output trends in recent years have exhibited some significant qualitative changes. The contribution of rice to the increase in output has been much higher than the contribution of wheat. The share of rabi output in total foodgrains output has steadily increased although in 1988-89 its share went down. The share of rabi output has improved in the case of rice and pulses. (Table 2.4).

TABLE 2.4

Agricultural Production

(Million Tonnes/Bales*)

Crop	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Rice	53.77	42.33	53.63	53.25	47.12	60.10	58.34	63.83	60.56	56.86	70.67
	(2.1)	(—21.3)	(26.7)	(—0.7)	(—11.5)	(27.6)	(—2.9)	(9.4)	(—8.1)	(—6.1)	(24.3)
Wheat	35.51	31.83	36.31	37.45	42.79	45.48	44.07	47.05	44.32	46.17	53.99
	(11.8)	(—10.4)	(14.1)	(3.1)	(14.3)	(6.3)	(—3.1)	(6.8)	(—5.8)	(4.2)	(16.9)
Pulses	12.18	8.57	10.63	11.51	11.86	12.89	11.96	13.36	11.71	10.96	13.70
	(1.8)	(—29.6)	(24.0)	(8.3)	(3.0)	(8.7)	(—7.2)	(11.7)	(—12.4)	(—6.4)	(25.0)
Coarsegrains	30.44	26.97	29.02	31.09	27.75	33.90	31.17	26.20	26.83	26.36	31.89
	(1.4)	(—11.4)	(8.6)	(7.1)	(10.7)	(22.2)	(—8.0)	(—15.9)	(2.4)	(—1.8)	(21.0)
Kharif Foodgrains	78.08	63.25	77.65	79.38	69.90	89.23	84.52	85.25	80.20	74.56	96.42
	(0.5)	(—19.0)	(22.8)	(2.2)	(—11.9)	(27.6)	(—5.3)	(0.9)	(—5.9)	(—7.0)	(29.3)
Rabi Foodgrains	53.82	46.45	51.94	53.92	59.62	63.14	61.02	65.19	63.22	65.79	73.83
	(10.5)	(—13.7)	(11.8)	(3.8)	(10.6)	(5.9)	(—3.4)	(6.8)	(—3.0)	(4.1)	(12.2)
All Foodgrains	131.90	109.70	129.59	133.30	129.52	152.37	145.54	150.44	143.42	140.35	170.25
	(4.3)	(—16.8)	(18.1)	(2.9)	(—2.8)	(17.6)	(—4.5)	(3.4)	(—4.7)	(—1.2)	(21.3)
Groundnut	6.21	5.77	5.01	7.22	5.28	7.09	6.43	5.12	5.88	5.85	9.54
	(1.9)	(—7.1)	(13.3)	(44.4)	(—20.9)	(34.3)	(—9.3)	(—20.4)	(14.6)	(—0.5)	(63.1)
Rapeseed & Mustard	1.86	1.43	2.30	2.38	2.21	2.61	3.07	2.68	2.60	3.45	4.41
	(12.7)	(—23.1)	(60.8)	(3.5)	(—7.1)	(18.1)	(17.6)	(—12.7)	(—2.8)	(32.7)	(27.8)
Oilseeds@	10.10	8.74	9.37	12.08	10.00	12.69	12.95	10.83	11.27	12.65	17.89
	(4.5)	(—13.5)	(7.2)	(28.9)	(—17.2)	(26.9)	(2.1)	(—16.5)	(4.1)	(12.2)	(41.4)
Sugarcane	151.66	128.83	154.25	186.36	189.51	174.08	170.32	170.65	186.09	196.74	204.63
	(14.3)	(—15.1)	(19.7)	(20.8)	(1.7)	(—8.1)	(—2.2)	(0.2)	(9.0)	(5.7)	(4.0)
Cotton (lint)*	7.96	7.65	7.01	7.88	7.53	6.39	8.51	8.73	6.91	6.83	8.69
	(9.9)	(—3.9)	(—8.4)	(12.4)	(—4.4)	(—15.1)	(33.2)	(2.6)	(—20.9)	(—7.7)	(36.2)
Jute & Mesta*	8.33	7.96	8.16	8.38	7.17	7.72	7.79	12.65	8.62	6.78	7.70
	(16.5)	(—4.4)	(2.5)	(2.6)	(—14.3)	(7.7)	(0.9)	(62.4)	(—31.9)	(—21.3)	(13.6)

*170 kgs. each for cotton and 180 kgs each for jute and mesta.

@Nine major oilseeds including groundnut, castorseed, sesamum, rapeseed and mustard, linseed, safflower, nigerseed, sunflower and Soyabean.

Figures in brackets are per cent increase or decrease over the year.

2.11 The performance of foodgrains production was constrained by unfavourable weather conditions in the first two years and the severe drought which occured in 1987-88. As a result, the targets of foodgrains production could not be achieved in the first three years of the Seventh Plan. However, there was a recovery in foodgrains production as also of other crops and output reached to their respective peak levels. (Table 2.5)

2.12 As far as the state-wise performance is concerned, the drought in the third year i.e. 1987-88 badly affected the area and production of foodgrains in majority of the states. The year 1988-89 brought about sharp recovery in almost

all the states. The average growth in foodgrains production in different states during the first four years works out to be as high as 8.52 per cent in Haryana followed by 7.82 per cent in Andhra Pradesh, 7.69 per cent in Rajasthan, 6.45 per cent in Bihar, 5.60 per cent in West Bengal, 5.12 per cent in Orissa, 4.58 per cent in Madhya Pradesh, 4.52 per cent in Uttar Pradesh and 3.1 per cent in Maharashtra. There was, however, a negative growth in the states of Kerala, Karnataka and Assam.

2.13 Agricultural production may register a significant increase in 1989-90 and foodgrains production in 1989-90 is likely to cross the record production of 170 million tonnes achieved in 1988-89.

Rice

2.14 Rice, which is the most important cereal crop in India, is grown over an area of 40-41 million hectares in the country. With only about 42 per cent of rice under irrigated conditions, a large area is rainfed and enormous fluctuations in foodgrains production in the country are primarily due to variability in the production of rice. The production of rice which had declined in 1986-87 and 1987-88 due to drought conditions to 60.6 million tonnes and 56.9 million tonnes respectively increased substantially to 70.7 million tonnes in 1988-89. The increase in production in 1988-89 was due to both increase in acreage (7.9 per cent) and yield per hectare (15.2 per cent). The increase of 14 million tonnes (24.3 per cent) in 1988-89 over 1987-88 was largely contributed by major rice producing states of Andhra Pradesh (3.5 million tonnes), Bihar (1.4 million tonnes), Orissa (1.8 million tonnes), Uttar Pradesh (3.2 million tonnes) and West Bengal (1.3 million tonnes). Incidentally, these States registered substantial increase in yield per hectare. The increase in rice production would have been still higher but for decline in production registered in the states of Punjab, Tamil Nadu and Assam. In Punjab output declined wholly due to fall in yield per hectare—it declined from 3164 kgs. in 1987-88 to 2772 kgs. in 1988-89. In Assam and Tamil Nadu, the fall in production was both due to decline in acreage and yield per hectare. The increase in rice production can largely be attributed to the effective implementation of the Special Foodgrains Production Programme for rice which covered 108 districts in 13 states and the Special Rice Production Programme in Eastern States.

TABLE 2.5

Targets and Achievements of Agricultural Production during Seventh Plan

(Million tonnes/bales)

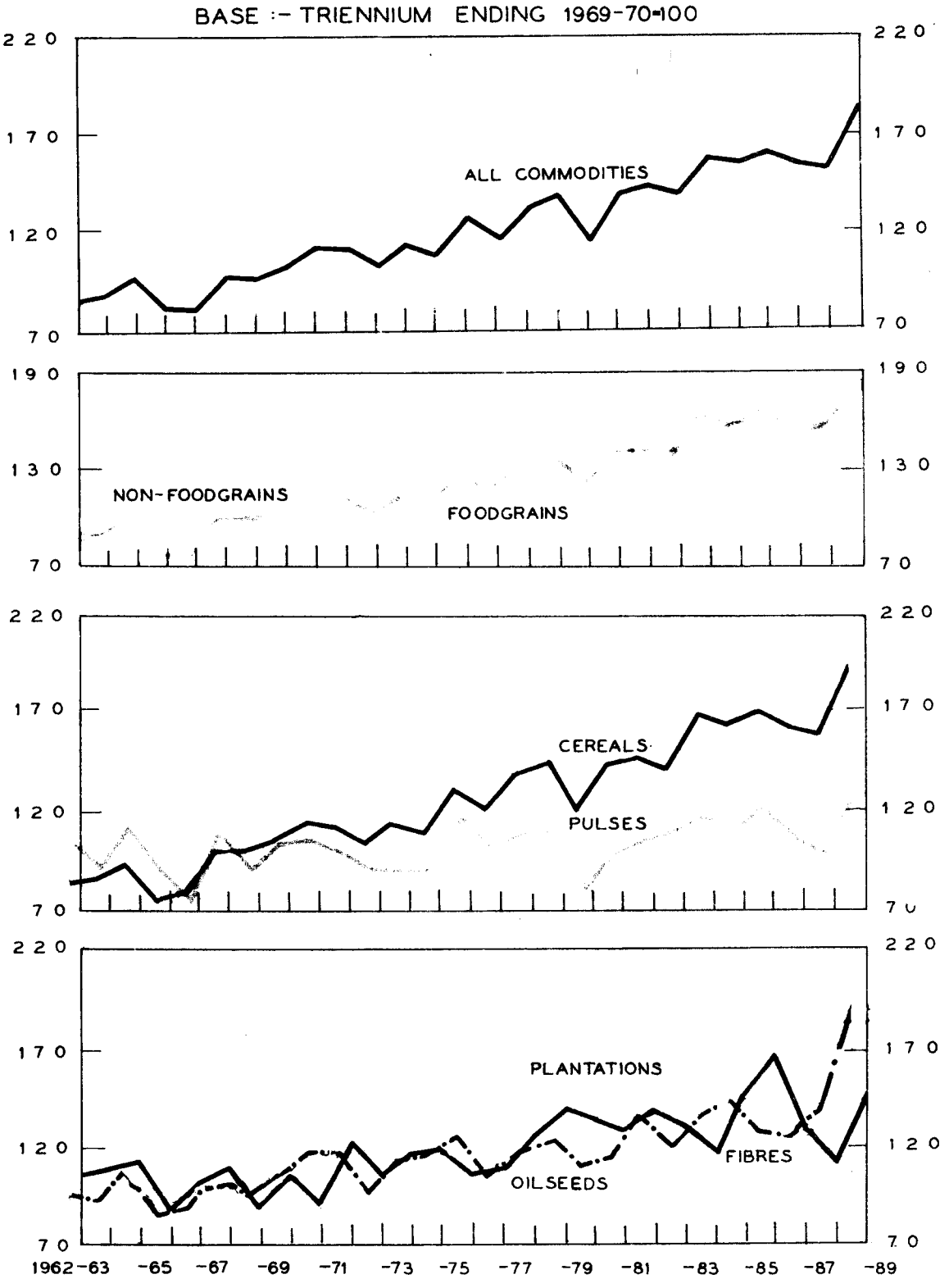
Crop	1985-86		1986-87		1987-88		1988-89		1989-90	
	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement	Target	Likely Achievement
1	2	3	4	5	6	7	8	9	10	11
1. Rice . . .	63.50	63.83	65.00	60.56	64.65	56.86	67.95	70.67	72.50	70.5-71.2
2. Wheat . .	49.20	47.05	49.00	44.32	50.51	46.17	52.32	53.99	54.00	52.5-53.8
3. Coarse cereals .	33.00	26.20	32.00	26.83	32-32.5	26.36	33.00	31.89	33.75	33.0-33.5
4. Pulses . .	13.50	13.36	14.00	11.71	14-14.5	10.96	13.30	13.70	14.75	14.0-14.5
5. Total Foodgrains	159.20	150.44	160.00	143.42	160-163	140.35	166.57	170.25	175.00	170.0-173.0
6. Oilseeds . .	13.60	10.83	14.80	11.27	14.15	12.65	15.66	17.89	16.50	16.9
7. Cotton* . .	8.50-8.60	8.73	8.80	6.91	8.30	6.38	9.78	8.69	10.00	9.5
8. Jute & Mesta@ .	8.65	12.65	8.50	8.62	8.60	6.78	9.20	7.70	9.50	7.85
9. Sugarcane .	191.00	170.65	185-190	186.09	180-185	196.74	195.00	204.63	212.00	205.0

*Bale of 170 kgs.

@Bale of 180 kgs.

INDEX OF AGRICULTURAL PRODUCTION

BASE :- TRIENNIUM ENDING 1969-70=100



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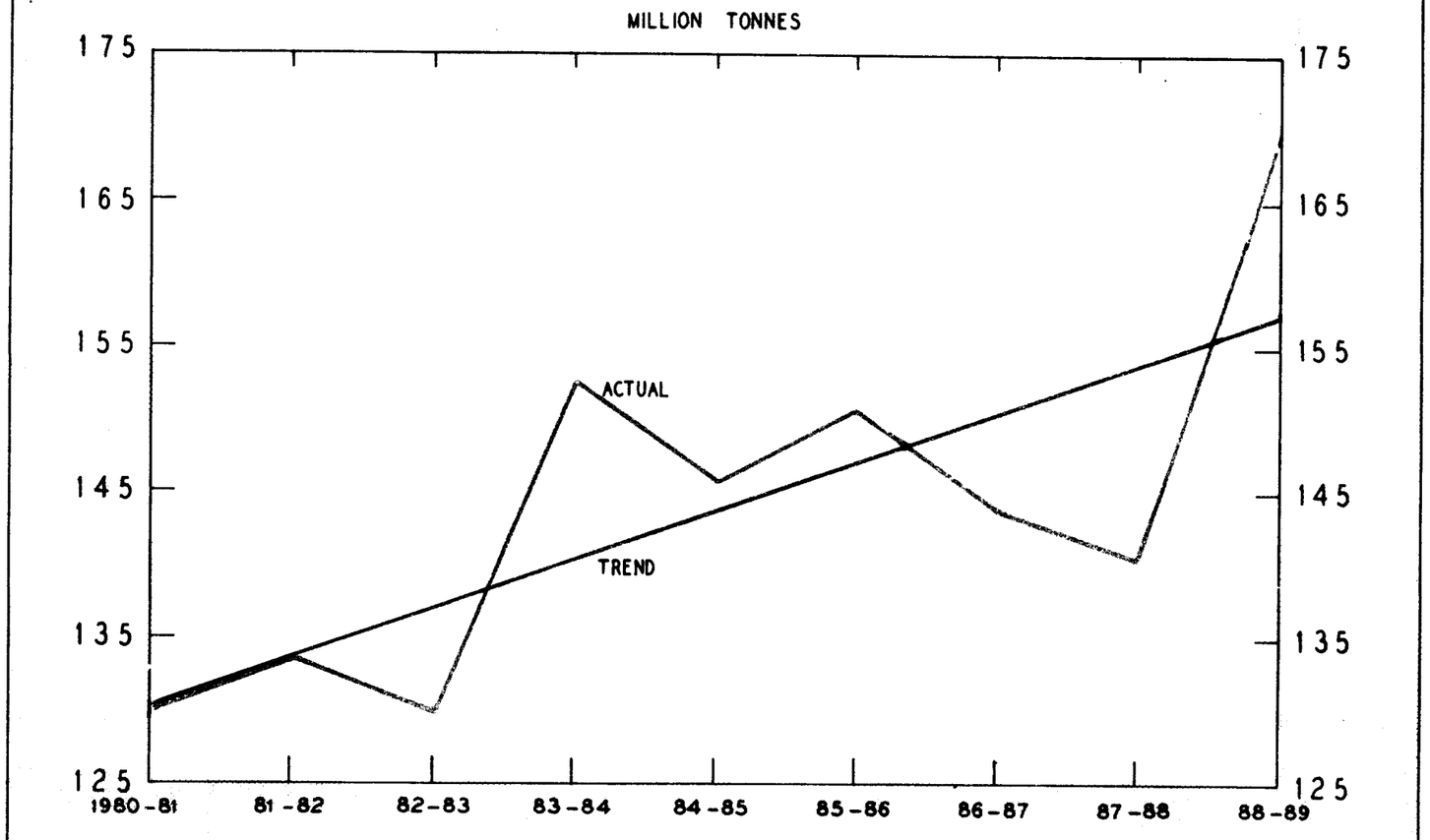
RECENT TRENDS IN FOODGRAINS PRODUCTION



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2.15 About 67 per cent of the total area under rice is located in eastern region—this includes Assam, Orissa, Bihar, Eastern Madhya Pradesh, Eastern Uttar Pradesh and West Bengal—where productivity is lower than the national average. As against this, the share of production is about 55 per cent. In order to exploit full potential of rice production in these areas, Special Rice Production Programme (SRPP) was introduced from the first year of the Seventh Plan for these eastern states in 430 blocks. The scheme was extended to Tripura from 1988-89 in 9 blocks. Thus, the scheme covers 439 blocks. The emphasis in the SRPP has been on the spread of rice production technology through farmers training system, development of infrastructual facilities like irrigation improvement, drainage provision, land development, establishment of input sales centres, construction of godowns for input storage and location specific seed multiplication and distribution. Besides, inputs like seeds, fertilisers, improved farm implements, plant protection equipments and pesticides are made available to resource poor farmers at subsidised rate. As a result, the production in these areas has been slowly improving and has shown stability even during the adverse weather conditions.

2.16 In 1988-89, increase in acreage, production and per hectare yield over 1987-88 in eastern states was substantial. While area increased by 10 per cent to 28.9 million hectares, the production advanced by about 28 per cent to 38.9 million tonnes thereby increasing the yield per hectare from 1479 kgs. in 1987-88 to 1703 kgs. in 1988-89 in these states.

2.17 Rice production in 1989-90 has been targeted at 72.5 million tonnes (Kharif Rice 64.5 million tonnes and Rabi Rice 8 million tonnes). With the monsoon in time and its coverage normal, the overall kharif crop condition in the major rice growing States was reported to be statisfactory. Owing to satisfactory monsoon in rabi rice areas, it is expected enough water will be available in canal commands as well as in tank irrigated areas for rabi cultivation. Efforts have been made to maximise the per unit area production with better management of irrigation water, other inputs and adoption of improved rice production technology. Despite a normal monsoon and other measures undertaken, the increase in rice production is expected to be only marginal, may be lower than the targetted level. On the whole, the anticipated rice production is placed in the range of 70.5 to 71.2 million tonnes as against the target of 72.5 million tonnes. The shortfall in rice production in 1989-90 in relation to the target is reported mainly in states of Andhra Pradesh, Bihar, Maharashtra, Uttar Pradesh and West Bengal where monsoon behaviour was somewhat erratic. In Andhra Pradesh floods affected the crop while in Bihar and Maharashtra inadequate rains affected the plantings. The delayed rain in Uttar Pradesh and West Bengal resulted shrinkage in acreage. The shortfall in rice production in these states has, however, been offset by the increased production reported by other major rice producing states like Punjab, Orissa, Tamil Nadu, Madhya Pradesh, Karnataka and Assam.

Wheat

2.18 The success of foodgrains production over the past is mainly attributed to the performance of wheat in the country. The overall contribution of wheat to total foodgrains has increased from 13 per cent in 1950-51 to about 32 per cent in 1988-89. During the same period the share of rice remained stable at 41-42 per cent but that of coarsegrains declined sharply from 29 per cent to about 19 per cent. Wheat occupying 53 per cent of the total area under rabi food crops and contributing 73 per cent of the rabi foodgrains production is the most important rabi crop in the country. The averagearea under this crop in the country during the last five years has been around 23 million hectares. Of this, 18 million hectares are irrigated. During 1988-89, the area increased in almost all major wheat growing states, yet the total wheat area was below the earlier peak of 24.7 million hectares reached in 1983-84. On account of the favourable weather conditions and higher input use the yield of wheat in 1988-89 at 2241 kgs. per hectare, however, crossed the peak level of 2046 kgs. achieved in 1985-86.

2.19 Consequent upon the increase in acreage from 23.1 million hectares in 1987-88 to 24.1 million hectares in 1988-89 as also increase in productivity, production of wheat increased by 16.9 per cent from 46.2 million tonnes in 1987-88

to a record level of 54 million tonnes in 1988-89. The increase of 7.8 million tonnes was largely shared by Uttar Pradesh (2.9 million tonnes), Rajasthan (1.1 million tonnes), Gujarat (1.2 million tonnes) and Haryana (1.3 million tonnes). In Punjab the increase in production was about 5 lakh tonnes. In fact, most of the major wheat producing states in 1988-89 have crossed the peak levels achieved earlier. The substantial increase in wheat production in 1988-89 came in the wake of effective implementation of Special Foodgrains Production Programme for wheat in 71 districts of seven States of Uttar Pradesh, Bihar, Madhya Pradesh, Rajasthan, Gujarat, Haryana and Punjab.

2.20 Uttar Pradesh has shown good potential for growth in wheat production. For the year 1988-89 production of wheat in Uttar Pradesh is placed at 19.7 million tonnes which is higher by 2.9 million tonnes over the earlier peak of 16.8 million tonnes in 1985-86. Despite this, the peak productivity of 2250 kgs. per hectare recorded in 1988-89 is lower than the productivity of 3668 kgs. per hectare in Punjab. Bihar is another state where wheat production and productivity have increased substantially, although yield per hectare is presently only about 50 per cent of the yield in Punjab. This indicates that there is a great potential for increasing production of wheat particularly in states covered under SFPP for wheat if adequate and proper inputs are available.

2.21 Keeping in view the success of SFPP for wheat achieved in 1988-89, the target which was earlier fixed at 54 million tonnes for 1989-90 has been proposed to be raised further to a revised working target of 56 million tonnes. Since the soil and moisture conditions are favourable, the likely area under the crop in 1989-90 could be about 24 million hectares i.e. the same as was in 1988-89. However, the production of wheat in 1989-90 is expected to be in the range of 52.5 to 53.8 million tonnes. The main thrust of the strategy for increasing wheat production has been through improvement in productivity by cultivation of identified high-yielding varieties with recommended package of practices. These, inter alia, include increasing the area wherever possible; provision of high quality seeds of new high-yielding varieties at reasonable rates; use of optimum and balanced doses of fertiliser; efficient water management to provide irrigation at critical stages of crop growth; weed control at proper time; and to ensure adequate supply of power and diesel to run tubewells and pump sets at the time of sowing and irrigation at appropriate timings. Along with these the SFPP for wheat which has been launched from 1988-89 in 71 identified districts is proposed to be intensified and the allocation has been increased from Rs. 13.36 crores during 1988-89 to Rs. 15 crores during 1989-90.

Coarsegrains

2.22 Coarsegrains have a strong influence on the food economy of the country. These are grown mostly in dry areas by small and marginal farmers which are subject to erratic and inadequate rainfall. Only about 7-8 per cent of area under coarse cereals is irrigated. The crops covered under coarsegrains are jowar, bajra maize, ragi, small millets and barley. These are grown in an area of 39 million hectares as against the total area of 128 million hectares under foodgrains in 1988-89. Against the total production of about 170 million tonnes of foodgrains in 1988-89, coarsegrains production amounted to about 32 million tonnes (about 19 per cent). Because of stagnation in production, its share in the total production of foodgrains has declined over years. In the first four years of the Seventh Plan production is lower than the corresponding period of Sixth Plan. Among the main constraints responsible for low production and productivity are: low coverage of area under high yielding varieties because of non-availability of certified seeds in sufficient quantities and reluctance of the farmers to invest on inputs for crops sensitive to climatic conditions. The increase in the output of coarse cereals was largely on account of increase in production of maize and bajra. Jowar production declined from 12.2 million tonnes in 1987-88 to 10.5 million tonnes in 1988-89.

2.23 Jowar which is the most important coarse cereal crop is largely grown in Maharashtra followed by Madhya Pradesh and Karnataka. The majority of area under coarse

cereals is under unirrigated conditions. Ninety-five percent of area under jowar is unirrigated.

2.24 Considering the need for increasing the production of coarse cereals, it has been targetted to produce 33.75 million tonnes in 1989-90. To achieve this target, it is proposed to include development programmes relating to the focus crop of jowar in Uttar Pradesh, Madhya Pradesh, Maharashtra, Andhra Pradesh, Tamil Nadu and Karnataka, bajra in Rajasthan, Gujarat and Haryana and ragi in Karnataka, Andhra Pradesh, Tamil Nadu and Maharashtra during 1989-90. Under the scheme, emphasis is laid on the increased and efficient use of inputs and better management of pests and diseases.

2.25 With the implementation of the Special Foodgrains Production Programme for maize in 28 selected districts of Bihar , Gujarat, Madhya Pradesh, Rajasthan and Uttar Pradesh, maize production increased substantially, by about 46 per cent to 8.3 million tonnes in 1988-89 as against 5.7 million tonnes in 1987-88. One of the components of SFPP for maize is seed distribution at subsidised rates. Apart from the funds provided for the programme component, States were also advised to properly integrate their efforts with other central sector programmes so as to utilise the available funds for the production oriented programmes. With the continuance of the special programme and the reported satisfactory crop condition, the production of maize is expected to be of the order of about 9 million tonnes in 1989-90.

2.26 The overall strategy to increase coarse-grains production both during kharif and rabi seasons, inter alia, included (i) expansion of area under high-yielding varieties, (ii) conservation of soil moisture and its efficient utilisation with the adoption of dry farming techniques through integrated watershed development, (iii) adoption of area approach in potential districts for increasing the production, (iv) preparation of contingent plans for aberrant weather with full support of seed and credit, (v) timely and adequate supply of inputs, and (vi) evolving suitable package of practice keeping in view local conditions through extension system. During rabi 1989-90, efforts are being made to maximise rabi jowar production through stepping up the productivity per unit of area. With various measures undertaken the production of coarse cereals in 1989-90 is anticipated to be in the range of 33.0 to 33.5 million tonnes i.e. nearer to its target of 33.75 million tonnes.

Pulses

2.27 Pulses provide the most valuable food ingredient of protein in diet and are 2-3 times richer in protein than most of cereals. Pulses are grown over an area of 23 million hectares with a production ranging 13-14 million tonnes (accounting for 18 per cent of total area and 8 per cent of total foodgrains production and the yield per hectare ranging 500-600 kgs.) These are grown mainly under rainfed conditions—the irrigated area accounts for only about 8 per cent of the total area. The major pulses producing states are Madhya Pradesh, Maharashtra, Orissa, Rajasthan and Uttar Pradesh, which account for about 68 per cent of the total production in the country.

2.28 The production of pulses which had declined in the drought years of 1986-87 and 1987-88, increased substantially to a record of 13.7 million tonnes in 1988-89 exceeding the peak level of 13.4 million tonnes in 1985-86. The annual average increase during the first four years of the plan thus works out to about 6 per cent. The increase of 2.7 million tonnes of pulses in 1988-89 over 1987-88 was contributed by 1.2 million tonnes of kharif pulses (mainly arhar) which incrased from 4.4 million tonnes to 5.6 million tonnes and by about 1.5 million tonnes of rabi pulses (mainly gram) which increased from 6.6 million tonnes to 8.1 million tonnes. Production of arhar increased from 2.3 million tonnes in 1987-88 to 2.7 million tonnes, mainly in the states of Madhya Pradesh and Gujarat. Gram production increased from 3.6 million tonnes to 5.1 million tonnes during the same period. The increase was more perceptible in Rajasthan, Haryana, Maharashtra and Uttar Pradesh. The increase in gram production in 1988-89 can partly be attributed to increase in area which increased from 5.77 million hectares in 1987-88 to 6.89 million hectares in 1988-89 and partly to increase in yield per hectare which increased from 629 kgs. to 735 kgs during the period. The

increase in productivity came in the wake of special foodgrains production programme implemented in 28 selected districts of gram producing states.

2.29 Despite efforts made to increase the production of pulses, it has not brought about any perceptible change in per capita availability. In fact, pulses production has shown a declining trend during the last two decades. As a result per capita availability has declined over the years from 69 gms per day in 1961 to around 40 gms per day in 1989. With increased emphasis on balanced nutrition, the declining per capita availability has indeed been a cause of concern. The increase in production has not kept pace with the increase in population. To increase the availability of pulses, the import of pulses has been allowed under Open General Licence. The imports have gradually grown from 2.28 lakh tonnes in 1983-84 to 8.26 lakh tonnes in 1988-89.

2.30 In order to encourage higher production and to arrest the declining trend in the per capita availability, its production in 1989-90 has been targetted at 14.75 million tonnes. The strategy for increasing production of kharif pulses include coverage of area under early arhar varieties, utilisation of kharif fallows, inter-cropping and increased use of inputs. In the case of rabi pulses, emphasis is laid on increasing the production of gram. Acreage under summer moong and urad is proposed to be expanded. The strategy for increasing the production of pulses during the rabi season includes (i) fitting of rabi pulses like gram, peas and lentil into irrigated farming system especially in the major producing states; (ii) popularising inter-cropping of gram with mustard, safflower and rabi jowar; and (iii) covering maximum area under moong/urad in the rice fallows with residual moisture. To supplement the efforts of the State Governments, the Centrally Sponsored National Pulses Development Project continues to be in operation in major pulses growing states during 1989-90. The project is considered a district oriented mission and is expected to achieve incresed level of production within a time frame. The basic objective of this programme is to increase the production by adopting location specific technology for pulses like gram, arhar, peas, lientil, moong and urad.

Oilseeds

2.31 The production of oilseeds which had declined in the first three years of the Seventh Plan from the peak level of 12.95 million tonnes in 1984-85, increased to record level of 17.89 million tonnes in 1988-89. This commendable performance is ascribed to success in research and cultivation of high yielding varieties over a fairly large area. Agricultural scientists are reported to have evolved 40 new high breed varieties which have substantially higher yield potential. With the increase of 41.4 per cent (60.4 per cent in kharif oilseeds and 21.5 per cent in rabi oilseeds) in 1988-89, the annual average increase in production in the first four years works out to as much as 10.3 per cent. This has enabled the country to substantially reduce its dependence on imports which had been growing over the years due to slow growth in output in the face of faster growth of demand.

2.32 Oilseeds are grown in an area of about 20 million hectares. The cultivation is mostly limited to rainfed areas (84 per cent). The bulk of the vegetable oil production is derived from nine cultivated oilseeds, namely, groundnut, rapeseed/mustard, sesamum, safflower, niger-seed, soyabean, sunflower—forming the edible group—and linseed and castorseed forming the inedible group. Groundnut and rapeseed/mustard are the most important crops which together account for about 78 per cent of the total oilseeds production in 1988-89. Soyabean and sunflower, though introduced relatively recently, have also augmented the domestic availability of edible oils. Among the kharif oilseeds producing states, Gujarat is the largest producing state while Uttar Pradesh is the largest producer of rabi oilseeds.

2.33 With the help of support measures undertaken by Government, oilseeds production has gone up in recent years significantly. While kharif oilseeds increased from 64.2 lakh tonnes in 1987-88 to 103.0 lakh tonnes in 1988-89, rabi oilseeds output advanced from 62.4 lakh tonnes to 75.8 lakh tonnes during the same period. The increase of 38.8 lakh tonnes in kharif oilseeds came through the increase mainly in groundnut production from 58.5 lakh tonnes to 95.44

lakh tonnes. Soyabean, sesamum and castor-seed also recorded increases in varying proportions, while output of sunflower and safflower registered a decline. The increase in rabi oilseeds was mainly contributed by rapeseed/mustard which increased from 34.5 lakh tonnes to about 44.1 lakh tonnes in 1988-89. The groundnut crop which was badly affected by drought conditions in Gujarat in 1987-88 turned out to be the best in 1988-89—groundnut production in 1988-89 at 29 lakh tonnes surpassed the previous peak of about 22 lakh tonnes achieved in 1981-82. The increase was in the main due to significant increase in yield per hectare which reached an all time high of 1577 kgs. per hectare —the previous peak level of 996 kgs. recorded in 1981-82. Rabi oilseeds in recent years have made an even more significant contribution to the total oilseeds pool and helping the country tide over shortfalls from kharif oilseeds. Production of rapeseed/mustard increased from 34.5 lakh tonnes in 1987-88 to a record level of 44.1 lakh tonnes in 1988-89. The increase of 27.8 per cent in the production of rapeseed/mustard came both from increase in acreage as well as increase in per hectare yield—the per hectare yield at 907 kgs. was the highest achieved so far. Although this crop benefits maximum from irrigation (accounting for 50 per cent of area under irrigation) among the rabi oilseeds, its productivity has been fluctuating.

2.34 Among other oilseeds, production of soyabean, which is mainly grown in Madhya Pradesh, also registered a substantial increase from 9 lakh tonnes in 1987-88 to 15 lakh tonnes in 1988-89. The production of different oilseeds during 1988-89 may be seen from the following table :

TABLE 2.6

Production of Oilseeds

(Lakh tonnes)

Oilseeds	1985–86	1986–87	1987–88	1988–89*
Groundnut:				
Kharif	37.6	44.3	41.8	73.1
Rabi	13.6	14.5	16.7	22.4
TOTAL	51.2	58.8	58.5	95.5
Castorseed	3.1	2.3	2.0	4.2
Sesamum	5.0	4.5	5.8	6.7
Rapeseed & Mustard	26.8	26.0	34.5	44.1
Linseed	3.8	3.2	3.9	3.5
Nigerseed	1.9	1.3	1.8	1.7
Safflower	3.5	3.5	4.6	4.3
Sunflower				
Kharif	1.7	2.5	3.8	2.4
Rabi	1.1	1.7	2.6	1.6
TOTAL	2.8	4.2	6.4	4.0
Soyabean	10.2	8.9	9.0	15.0
TOTAL				
Kharif	59.5	63.8	64.2	103.1
Rabi	48.8	43.9	62.3	75.8
TOTAL	108.3	112.7	126.5	178.9

*Provisional

2.35 Despite steady progress in oilseeds production, country is far behind in achieving self-sufficiency. The supply of edible oils still falls short of demand. As a result, edible oil continued to be imported in 1988-89. The imports during the oil year 1988-89 (November-October) at about 3.7 lakh tonnes were quite modest compared to 18.2 lakh tonnes imported in 1987-88.

2.36 Considering the need to augment the supply of edible oils and thereby reduce the import dependence, a production target of 165 lakh tonnes of oilseeds has been fixed for 1989-90 —89 lakh tonnes of kharif oilseeds and 76 lakh tonnes of rabi oilseeds. The basic approach to achieve the kharif production target adopted include extension of area in general and under groundnut, soyabean and sunflower in particular and increase in productivity. This is sought to be achieved through (a) diversion of certain areas unsuitable for rice to groundnut in Madhya Pradesh and Orissa, (b) introduction of soyabean in Orissa, Uttar Pradesh, Bihar and Maharashtra and Gujarat, (c) inter-cropping of sunflower with groundnut in Gujarat and (d) extension of soyabean cultivation in kharif fallows in Madhya Pradesh. Similar strategy has been adopted in th case of rabi oilseeds which, among other measures includes (a) diversion of low yielding wheat area to rapeseed/mustard in northern region, (b) inter-cropping of mustard with sugarcane, (c) extension of groundnut cultivation during rabi season in command areas and paddy fallows with limited irrigation water availability and (d) extension of rabi sunflower cultivation in Andhra Pradesh, Karnataka, Maharashtra and Tamilnadu. In addition, the existing development programmes continued to operate. The centrally sponsored oilseeds development schemes like National Oilseeds Development Project (NODP) and oilseeds Production Thrust Project (OPTP) were continued. NODP provides financial assistance to the states on 50 : 50 basis for prepositioning of stocking of seed, opening of additional retail outlets in interior areas, seed village scheme, distribution of input kits, supply of plant protection chemicals and equipments etc. Besides, 100 per cent central assistance under the project is given to the states for production of foundation seeds and to ICAR for production of breeder's seeds. This scheme envisaged to cover 175 lakh hectares under all nine oilseeds.

2.37 In addition to the aforesaid, the efforts of the Technology Mission on Oilseeds, established in May 1986, have been directed towards harnessing the best of production, processing and management technologies for accelerating self-reliance. The Mission has adopted a four pronged strategy which includes (a) improvement of oilseed crop technology for stepping up yield and profit to the farmer, (b) improved processing and post-harvest technology which can increase the oil yield from traditional and non-conventional sources of oil, (c) strengthening of services to the farmers, particularly to supply technology, seeds, fertilisers, pesticides, irrigation, credit etc. and (d) improving institutions or post-harvest services including price support to farmers and financial and other support to processing industry.

2.38 Government announced an integrated oilseeds policy on 5th January, 1989 which, inter alia, highlights its commitment to support farmers with technology, inputs and attractive prices and safeguard the interest of the consumers with reasonable prices within a price band. As a sequal to this policy, the Government appointed National Dairy Development Board (NDDB as the Market Intervention Agency for procurement of oilseeds and oil for building a buffer stock so as to ensure incentive price to the farmers and release the same during the lean season at moderate prices to the consumers.

2.39 With the adoption of various developmental measures and the favourable weather conditions, the production of oilseeds in 1989-90 is expected to be about 16.9 million tonnes.

Cotton

2.40 Production of cotton which had declined to 63.8 lakh bales in 1987-88 increased to nearly 86.9 lakh bales in 1988-89, registering an increase of over 36 per cent. This is close to the peak of 87.3 lakh bales reached in 1985-86. At this level it is still below the target of 97.8 lakh bales. The annual average increase in the first four years of the Seventh Plan works out to only 2.57 per cent: the small increase was due to severe set-back in the output during 1986-87

and 1987-88 owing to drought conditions as cotton is basically a rainfed crop in major traditional cotton growing areas. Of all the states, Punjab has made substantial progress. Cotton production in Punjab has increased by about 71 per cent since 1984-85. Both expansion in acreage and productivity have contributed towards increase in cotton production in Punjab. Production in other states has been fluctuating. Punjab, having better irrigation facilities, could achieve continuous increase in productivity from 185 kgs. per hectare in 1983-84 to 475 kgs. per hectare in 1988-89. In fact, the yield in northern region is much higher than the yield recorded in southern and central region.

2.41 The country produces a wide range of a varieties of cotton which include short staple, medium staple, super-medium staple, superior medium staple, long staple and superior long staple. The north-western belt comprising Punjab, Haryana and Rajasthan specialises mainly in short and medium staple varieties, while southern and western parts of the country produce basically long and superior long staple varieties. Considering the need to increase the output of better quality cotton, emphasis was laid on increasing the production of medium and long staple cotton. As a result, the varietal composition of cotton has undergone a significant change. The long and superior-long staple cotton now account for over 50 per cent of the total production as against 26 per cent in 1970-71. Consequently, the country became surplus in so far as long staple cotton is concerned and the dependence on import virtually disappeared. In fact, such a situation prompted the Government to announce a long-term export policy in October 1986 whereby exports were permitted. Now the country has emerged as one of the exporting countries.

2.42 Despite significant increase in cotton production, the country is still in short supply of medium and long staple cotton. In order to increase the production of these varieties, a Centrally Sponsored Intensive Cotton Development Programme, which was started in 1971-72, was revised during the Seventh Plan and emphasis was laid only on increasing the production of long and medium staple cotton. Keeping in view the incidence of pests, the scheme which was continued in all major cotton growing states of Andhra Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan and Tamil Nadu, was slightly modified for incorporating the provision for plant protection measures during 1989-90. The target of production for 1989-90 was fixed at 100 lakh bales. This is sought to be achieved through (a) increasing the production of medium and long staple cotton by 6 lakh bales through the distribution of certified seeds and extending the package of improved practices over larger areas (b) increasing productivity and improving quality of cotton yield.

2.43 The production in 1989-90 is anticipated to reach a record level of about 95 lakh bales since cotton growing areas have reported ideal weather and crop conditions. The production may, however, fall below the targeted level of 100 lakh bales.

Jute

2.44 Thanks to the substantial increase in productivity, the production of jute and mesta, increased by 13.6 per cent from 67.78 lakh bales in 1987-88 to 77.03 lakh bales in 1988-89. On the whole, the average increase in the first four years of the Seventh Plan works out to 5.86 per cent.

2.45 The production of raw jute which had declined to as low level as 57.93 lakh bales in 1987-88, increased by 14.4 per cent to 66.25 lakh bales in 1988-89. The increase came wholly through increase in productivity. Except for Assam, other major jute producing states viz. West Bengal, Orissa and Bihar recorded increase in production. While production in West Bengal increased by 24.5 per cent from 36.38 lakh bales in 1987-88 to 45.31 lakh bales in 1988-89 wholly on account of substantial increase in productivity, in Bihar the increase was of the order of 16.3 per cent where output advanced from 8.82 lakh bales in 1987-88 to 10.26 lakh bales in 1988-89. In Assam, the jute crop was smaller by about 24 per cent in 1988-89 mainly due to floods which damaged the standing crop and affected the productivity which declined significantly from 1622 kgs. per hectare in 1987-88 to 1265 kgs. per hectare in 1988-89. Despite the developmental measures

and the passing of Jute Packaging Materials (Compulsory Usage) Act, 1987 which became effective from 1st June 1987 (could not be effectively implemented till July 1988 due to stay orders by courts) could not induce the farmers to increase the production of raw jute to the targeted level of 92 lakh bales. Now, perhaps, this Order and the consequential increase in demand for jute goods in view of the record production of foodgrains may give a boost to jute output in 1989-90.

2.46 The production of mesta, despite fall in acreage, increased from 9.9 lakh bales in 1987-88 to 10.8 lakh bales in 1988-89. In this case also the increase came through substantial increase in productivity which increased from 680 kgs. per hectare to 849 kgs. per hectare. About 44 per cent of the crop was produced in Andhra Pradesh followed by Orissa 17 per cent and Bihar 14 per cent. Maharashtra, Tripura, Karnataka and West Bengal also produced some quantity of mesta. Except for Andhra Pradesh, all other major mesta producing states recorded decline in output largely on account of fall in area.

2.47 Consequent to the likely increased demand for jute goods in 1989-90, a production target of 95 lakh tonnes of jute and mesta was envisaged. In order to step up the production through increase in productivity and improve the quality of fibre, a Centrally Sponsored Special Jute Development Programme, which replaced the earlier Intensive Jute Development Programme, has been launched for three years beginning from 1987-88 on 100 per cent central share. Under the programme, the major emphasis is laid on the timely supply of certified seeds, implements and plants and plant protection equipments, demonstration of package of practices, farmers' training programme on crop production technology, construction of retting tanks and training on jute grading etc.

2.48 Based on the climatic conditions i.e. dry spell and moisture stress as they existed at the time of sowings the production of jute and mesta in 1989-90 is expected to be around 78.5 lakh bales i.e. slightly higher than last year's level but it may not achieve the targeted level of 95 lakh bales.

Sugarcane

2.49 Both acreage and production of sugarcane increased to record levels in 1988-89. While area under sugarcane increased by 2.74 per cent from 3.28 million hectares in 1987-88 to 3.37 million hectares in 1988-89, the production increased by 4 per cent from 196.7 million tonnes to 204.6 million tonnes in 1988-89. The earlier highest level of acreage was 3.36 million hectares and production 189.5 million tonnes in 1982-83. Over 1984-85, the annual average increase in production during the first four years of the Seventh Plan works out to 4.74 per cent. While other important cane growing states recorded increase in production, Uttar Pradesh and Punjab recorded a substantial fall. Despite, larger plantings, the production fell short considerably which disturbed the sugar scenario in 1988-89 when its output was much smaller than the expectation. Sugarcane is an irrigated crop. However, being a long duration crop, its growth and productivity is also influenced by behaviour of the weather. Monsoon being above average during 1988-89 the crop achieved good growth yet the yield per hectare turned out to be lower on account of abnormal temperature stress at the time of germination in some states. Further, the crop in some states was adversely affected due to failure of north-east monsoon and inadequate availability of irrigation water. In addition, during 1988-89 season early flowering took place in some states. In totality, however, the yield per hectare in 1988-89 worked out to be marginally higher than 1987-88. This was mainly on account of higher productivity recorded in Andhra Pradesh, Bihar, Gujarat, Haryana, Punjab and Tamil Nadu. The increase in yields in these states was offset by sharp declines in yields recorded in Uttar Pradesh, Maharashtra and Karnataka.

2.50 Even though the weather played truant, sugarcane production in 1988-89, except in Uttar Pradesh, Punjab and Rajasthan, was higher in almost all the major cane producing states. The maximum increase was contributed by Tamil Nadu followed by Andhra Pradesh, Gujarat, Haryana, Karnataka and Maharashtra. While increase in production in Karnataka and Maharashtra came wholly through increase in acreage, in other states the increase came through both

increase in acreage and productivity. The decline in production in Uttar Pradesh was due to both decline in area and yield per hectare while the shortfall in Punjab was wholly due to decline in area.

2.51 Over 1984-85 the annual average increase in cane production during the first four years of the Seventh Plan works out to 4.74 per cent. In fact, production rose continuously during this period. The rising trend in cane production is the outcome of various policy measures undertaken by the Government and the developmental efforts initiated by the sugar industry in general and the concerted efforts made by the cane growers in particular. To make the cane cultivation more profitable, the Statutory Minimum Prices (SMP) for sugarcane are being revised upwards at regular intervals. These prices were increased twice for the 1989-90 sugar season (October-September) from Rs. 19.50 to Rs. 20 per quintal in October, 1988 and further to Rs. 22 per quintal in October 1989. Sugar industry pays a much higher price than SMP fixed by the Central Government, which is called state advised price and which serves a greater inducement for higher production. Sugar factories of their own also undertake developmental measures in their respective areas for which loans at cheaper rate of interest are being provided from Sugar Development Fund. While the price paid by Government to the mills for levy sugar is determined, on the basis of SMP for sugarcane, the viability of the mills, who have to pay a higher "state advised price" is maintained by making adjustment in levy: free sale quota, as necessary, from time to time. With appreciable increases made by State Government in state advised prices, which have facilitated increased production of sugar, the proportion of free-sale quota has been increased significantly to 55 per cent in 1988-89.

2.52 With a view to increase the production of sweetening agents in general and sugar in particular so as to meet the increased level of consumption, greater emphasis has been laid on increasing the cane production in the country mainly through (a) production of quality seed cane, (b) increasing irrigation facilities, judicious and timely use of fertiliser application, (c) better management of ratoons, (d) greater and effective participation of sugar factories in cane development programmes, (e) transfer of technology through various extension systems and (f) larger coverage under plant protection measures.

2.53 The production of sugar in 1988-89 fell to 87.52 lakh tonnes as against 91.10 lakh tonnes recorded in 1987-88. The fall was more prominent in Uttar Pradesh. Considering the need to step-up the sugar output in 1989-90, the Government allowed, as an incentive, higher free-sale quota (80 per cent against normal 55 per cent) of sugar produced during 1st October 1989 to 15th November, 1989 in excess of the average production of the previous three seasons during the same period. The statutory minimum price of sugarcane was also raised to Rs. 22 per quintal. Sugar production upto end-January has been 9.8 per cent higher than the corresponding level last year.

Plantation Crops

2.54 Plantation crops like tea, coffee and rubber play an important role in the economy of the country. Besides providing gainful direct and indirect employment to millions of workers, it supports ancillary industries, foreign exchange earnings and contribution to State and Central exchequer. In order to boost the production of plantation crops, Government has been undertaking development measures so that not only the domestic demand is met but leaves enough to enlarge the export market.

Tea

2.55 Indian tea enjoys the unique distinction of being a commodity of mass consumption in the domestic front and at the same time the leader in the global export of the commodity. Production of tea in 1988-89 is estimated to be of the order of 701 million kgs. as against 665 million kgs. in 1987-88—an increase of about 5 per cent. During the first year of the Seventh Plan actual production exceeded the target but there was steep fall in the second year because of adverse weather conditions. During the third and fourth years the production maintained a reasonable uptrend. The target for 1989–90 has been fixed at 760 million kgs. The bulk (75 to 80 per cent) of tea production comes from Northern India. In this region, Assam followed by West Bengal are the major contributors in tea production. Among South Indian states

Tamil Nadu and Kerala are the major producers of tea.

2.56 The Seventh Plan had envisaged additional production of 140.6 million kgs. This was sought to be achieved through adoption of various measures—both long-term and short-term measures to encourage new planting, replanting and rejuvenation, pruning and infilling, drainage, irrigation, improved cultural operation as well as factory modernisation. Many developmental schemes which are in operation to provide financial support, include Tea Plantation Finance Scheme, Tea Machinery and Irrigation Equipment Hire-Purchase Scheme, Darjeeling Interest Subsidy scheme, Capital Subsidies for Extension Planting, Water Management, Vacancy Infilling and Installation of Captive Power Generating Sets, New Tea Unit Financing Scheme and Replanting Subsidy Scheme. Though there has been increasing trend in production during the Seventh Plan period, the physical targets laid down could be achieved only partially owing to combination of factors such as non-availability of additional land for extension planting, inadequate incentives for replanting, rejuvenation and infilling, low retention of surpluses owing to higher taxation, adverse climatic factors etc.

2.57 Exports, which forms around 1/3 of the production, have delclined from the levels achieved in 1977 when country exported about 230 million kgs. These have fluctuated between a low of 196 million kgs. in 1986-87 and a high of 222 million kgs. in 1988-89. Similarly, value of exports varied between Rs. 580 crores in 1986-87 and Rs. 674 crores estimated for 1988–89. Despite the fluctuations in volume of exports, India continues to realise higher unit price on exports—it was Rs. 30.50 per kg. in 1988-89 as against Rs. 29.53 per kg. in 1986-87. To enable the export rise steadily, a much greater emphasis is being laid to promote the export and marketing of value added teas.

Coffee

2.58 With the estimated infrastructural support extended by Coffee Board in the fields of research, extension and credit, production of coffee, though fluctuated, has increased significantly over years. It increased from about 119 thousand tonnes in 1980-81 to 215 thousand tonnes in 1988-89. Recurring drought conditions in the coffee producing areas has been one of the limiting factors affecting coffee production. Coffee crop faced several ups and down since 1984-85. Production of 195 thousand tonnes in 1984-85 came down to 122 thousand tonnes in subsequent year, and again from 192 thousand tonnes in 1986-87 to 125 thousand tonnes in 1987-88 and thereafter increased to 215 thousand tonnes in 1988–89. Substantial increase of 72 per cent in production of coffee in 1988–89 over 1987-88 was owing to favourable weather conditions and expansion of acreage under the crop. The production of coffee during the first four years of Seventh Plan averaged 160 thousand tonnes. Except for 1985-86 and 1987-88, production exceeded the targeted levels. In 1989-90, production is estimated to be of the order of 165 thousand tonnes as against the target of 180 thousand tonnes. Karnataka, Kerala and Tamil Nadu are traditional coffee producing states. These together account for 94 per cent of area and almost entire production of coffee.

2.59 While domestic consumption of coffee has increased considerably, exports have also increased both in volume and value. During 1988-89 export earnings were around Rs. 280 crores as against Rs. 263 crores in 1987-88. In order to maximise exports, export duty on coffee was abolished in August 1988. Efforts are also being made to increase the domestic consumption.

Rubber

2.60 Rubber, which is mainly grown in Kerala, Tamil Nadu and Karnataka, is mostly accounted by small growers who share 80 per cent of area and 77 per cent of production. Production of natural rubber grew from 153 thousand tonnes in 1980–81 from 278 thousand hectares to 257 thousand tonnes in 1988–89 from about 400 thousand hectares. The remunerative price and financial and technical support are major factors contributing to appreciable increase in new planting and replanting. The performance of rubber production during the Seventh Plan period has been quite impressive for it exceeded the targets in the first four years of the plan. In the terminal year i.e. 1989–90 also the anticipated production of 275 thousand tonnes will be higher than the target of 265 thousand tonnes. This achievement has come through the adoption of development strategy

which, inter alia, include (i) modernisation of the existing plantations, (ii) expansion of rubber cultivation, particularly in non-traditional areas, and (iii) improvement of quality and marketing of rubber.

2.61 Rubber was until recently grown mainly in the traditional state of Kerala and Kanyakumari district of Tamil Nadu. As a result of promotional efforts, rubber is now grown successfully in the non-traditional states/Union Territories of Karnataka, Tripura, Assam, Meghalaya, Mizoram, Manipur, Nagaland, Andaman & Nicobar Islands, Goa, Maharashtra and Orissa.

2.62 The consumption of rubber increased substantially and exceeded the domestic production. This had led to import of 60 thousand tonnes in 1988-89. In view of the widening gap between domestic supply of and demand for natural rubber, the Rubber Board has embarked on ambitious scheme to increase the production substantially. Multi-pronged Schemes have been evolved. These includes bringing in additional areas under rubber plantations, popularisation of high yielding class and vigorous campaign to persuade small growers to go in for replanting under the Plantation Development Scheme by providing subsidy and loan to them. Other schemes are (i) disbursement of high yielding planting materials, (ii) supply of certain inputs at concessional rates, and (iii) encouraging cooperatives by providing financial assistance for improving the processing and marketing of rubber. Besides, Government implemented various measures for the expansion of area under rubber in non-traditional regions.

Agricultural Inputs

2.63 In order to increase the production through increase in productivity, efforts have been made continuously to enlarge the availability of agricultural inputs and extend its coverage to all the agricultural crops. The developments made in this regard are elaborated in the following paragraphs.

Irrigation

2.64 Expansion of irrigation has been the main element of strategy for increasing foodgrains production. Thus, realising the fact that higher level of crop production and its stability can be obtained only through irrigation, measures have been undertaken to develop the irrigation facilities in the country. The approach has been to expand irrigation to the new needy areas and ensure efficient use of the available irrigation facilities. Accordingly, it was proposed to increase the irrigation potential from 67.5 million hectares at the end of the Sixth Plan to 80.4 million hectares by the end of the Seventh Plan. The additional potential of 12.9 million hectares was envisaged to come through both major and medium irrigation (4.3 million hectares) and minor irrigation (8.6 million hectares). Increasing emphasis is being laid on the development of minor irrigation structures since these are quick maturing and labour ntensive. As against the creation of additional irrigation facilities, the utilisation was targeted at 10.9 million hectares (3.9 million hectares in the case of major and medium irrigation and 7 million hectares under minor irrigation). Against these targeted levels the actual achievements are given in the following table.

TAABLE 2.7

Development of Irrigation Potential and its Utilisation

(Million hectares)

Irrigation (additional area)	Seventh Plan			1985–86	1986–87		1987–88		1988–89		1989-90
	Assumed base level (84—85)	1985–90 Target		Achievement	Target	Achievement	Target	Achievement	Target	Achievement	Target
1. *Major and Medium Irrigation*											
Potential	30.01	4.30	0.63	0.51	0.69	0.46	0.70	0.68	0.97	0.69	0.82
Utilisation	25.33	3.90	0.62	0.49	0.58	0.66	0.64	0.53	0.74	0.53	0.63
2. *Minor Irrigation*											
Potential	37.52	8.60	1.70	1.52	1.73	1.63	1.68	1.62	2.87	1.72	1.95
Utilisation	35.25	7.00	1.30	1.32	1.26	1.36	1.41	1.41	2.69	1.55	1.74
3. *Total*											
Potential	67.53@	12.90	2.33	2.03	2.42	2.09	2.38	2.30	3.84	2.41	2.77
Utilisation	60.58@	10.90	1.92	1.81	1.84	2.02	2.05	1.94	3.43	2.08	2.37

@Cumulative level.

2.65 In the first four years of the Seventh Plan, the additional irrigation potential created add up to 8.63 million hectares as against the target of 10.97 million hectares (during 1985-86—1988-89). The additional potential created during this period was 2.34 million hectares as against a target of 2.99 million hectares under major and medium irrigation and 6.49 million hectares against a target of 7.98 million hectares under minor irrigation. The shortfall in achievement over the targeted level during the Seventh Plan is on account of lower achievement of 1.49 million hectares under minor irrigation and 0.65 million hectares under major and medium irrigation. In respect of major and medium irrigation, the shortfall is mainly due to inadequate funding owing to overall constraints of resources, increasing cost of some projects resulting in delay in fulfilment of benefits, problems of land acquisition and forest clearance and thin spreading of available resources over a number of projects etc. The states which have not achieved even 50 per cent of ultimate potential under major-medium irrigation include Assam, Bihar, Maharashtra, Orissa, Gujarat and Madhya Pradesh. In the case of minor irrigation, comparatively, greater progress has been made in the states of Uttar Pradesh, Gujarat, Punjab, Haryana and Rajasthan. The states lagging behind are Assam, Orissa, Bihar, Maharashtra, Tamil Nadu, West Bengal, Madhya Pradesh, Kerala and Karnataka.

2.66 Despite undertaking developmental measures including command area development, there is still gap in utilisation of created irrigation potential. The gap is not only between target and achievement in terms of potential created but also between potential and utilisation. As against the total potential of 8.83 million hectares created during the first four years of the Seventh Plan, the utilisation of irrigation facility was limited to 7.85 million hectares. In the drought year of 1986-87 and 1987-88 the achievement in utilisation was more than the targeted level of utilisation. Utilisation of the created potential in most of the major irrigation projects is considerably low largely due to lack of development of network of field drains and land shaping or levelling. Lack of involvement of farmers is also an important constraint in achieving full utilisation of created potential.

2.67 With the objectives of bridging the gap between creation and utilisation of irrigation potential and optimising agricultural production from irrigated land, the Centrally Sponsored Command Area Development Programme was launched in 1974-75 so as to create enabling conditions for effective conveyance of water to fields, on-farm development, drainage and on-farm water management. The programme broadly covers construction of field channels, land levelling, field drains and introduction of warabandi for rotational supply of water to ensure equitable and assured supply of water to each and every farm holding. It also includes arrangement for supply of inputs and credits, agricultural extension, construction of markets and godowns and development of ground water for conjunctive use.

2.68 The Seventh Plan envisaged a coverage of 6.81 million hectares under field channels, 1.82 million hectares under land levelling and 8.04 million hectares under warabandi; as against this, the State Governments fixed the targets at much lower levels—4.25 million hectares, 0.71 million hectares and 5.17 million hectares respectively. Even these targets have not been achieved by the States and, in fact, in states like Andhra Pradesh, Kerala, Madhya Pradesh, Orissa and West Bengal, the achievement is less than 50 per cent. During the first four years of the Plan construction of field channels covered an area of 2.52 million hectares, land levelling 0.33 million hectares and warabandi 2.99 million hectares. The lower achievement is largely attributed to problems connected with inadequate provision of finance in the States' Plans and difficulties in land acquisition. Despite the limitations, the programme, on the whole, has been effective in narrowing down the gap. The gap may further get narrowed down as the programme extends over large areas.

2.69 Minor irrigation schemes which include all groundwater schemes—consisting of dugwells, shallow tubewells and pumpsets—and surface water schemes which include diversion schemes, storage tanks and lift irrigation schemes, have been

given special attention in expanding the irrigation facilities. The Seventh Plan had envisaged the creation of additional potential of 8.6 million hectares (7.1 million hectares through groundwater and 1.5 million hectares through surface water). As against this, the additional potential created during the first four years amounted to 6.49 million hectares while the actual utilisation added up to 5.64 million hectares. The gap between created potential and utilisation has resulted from lack of energisation of tubewells. Realising the need for utilising the groundwater resources so as to provide assured irrigation, it was contemplated to construct 6 lakh shallow tubewells annually in the holdings of small and marginal farmers under Special Foodgrains Production Programme in 134 identified districts of 12 states. As against this, 3.43 lakh shallow tubewells/dugwells are likely to be constructed during 1988-89. Further, energisation of tubewells programme was also strengthened and Rural Electrification Corporation energised 2.62 lakh shallow tubewells/dugwells during 1988-89 as against a target of 2.56 lakhs.

2.70 In the background of the past performance in the creation of potential and utilisation of irrigation facilities, in 1989-90 emphasis has been laid on speedy completion of ongoing projects which can give early benefits. The target for the creation of additional irrigation potential has been fixed at 2.77 million hectares—0.82 million hectares under major and medium irrigation and 1.95 million hectares under minor irrigation. As against this, utilisation of potential is anticipated at 2.37 million hectares. The main consideration in the formulation of minor irrigation programme for 1989-90, inter alia, include prioritisation of ongoing surface water schemes, stepping up institutional investment, provision of subsidy to small and marginal farmers to encourage private minor irrigation programme for tribal, backward, drought prone areas and areas having predominantly SC/ST farmers.

Seeds

2.71 Production and distribution of quality seed is essential for raising agricultural production. Recognising the importance of quality seeds, efforts are being made to maximise production and distribution of foundation and certified seeds through National Seeds Corporation, State Farms Corporation of India and State Seeds Corporations. The high yielding varieties (HYV) programme introduced in 1967-68 and covering paddy, wheat, jowar, bajra and maize, has covered large area under cultivation under different crops and by the end of Sixth Plan the total area covered under the HYV was 56 million hectares. An area of 70 million hectares was targetted during the Seventh Plan. Area covered under HYV under different crops can be seen from the following table :

TABLE 2.8

Area under HYV (Million hectares)

Crop	1979-80	1984-85	1985-86	1986-87	1987-88	1988-89*	1989-90**
Paddy	15.99 (40.6)	22.78 (55.3)	23.47 (57.0)	24.03 (58.4)	22.25 (57.3)	27.20 (65.6)	29.00
Wheat	15.03 (67.6)	19.09 (81.0)	19.08 (83.0)	19.19 (83.0)	19.69 (85.4)	20.67 (85.4)	21.00
Jowar	3.05 (19.3)	5.09 (32.9)	6.08 (37.8)	5.50 (34.5)	6.06 (38.7)	6.67 (44.9)	6.50
Bajra	2.96 (28.0)	5.17 (48.7)	4.99 (46.8)	5.27 (46.8)	3.95 (45.4)	5.84 (48.5)	6.00
Maize	1.35 (23.7)	2.02 (34.8)	1.80 (31.0)	2.19 (37.0)	2.15 (38.8)	2.19 (34.9)	2.50
TOTAL	38.38	54.14	55.42	56.18	54.10	62.57	65.00

*Provisional

**Target

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

2.72 While coverage of area under HYV has been substantial in the case of wheat, it has been very much less under rice. Wheat area covered under HYV range between 81 per cent in 1984-85 and 85 per cent in 1988-89 of the total area under the crop. The coverage under rice has been less and ranged 55-65 per cent of the total area. Similar is the situation in the case of coarse-grains where the coverage is 31—48 per cent. Efforts are therefore being made to expand the rice area under HYV so as to increase the productivity.

2.73 Though erratic, the distribution of certified/quality seeds has increased substantially from 25 lakh quintals in 1980-81 to about 57 lakh quintals in 1989-90. The year to year fluctuations in the distribution of quality seeds are largely attributed to (a) variation in demand of specific crop variety, (b) diversion of area from one crop to another, particularly from higher seed rate crop like groundnut to low seed rate crop like rapeseed and mustard and (c) choice of taking up crops which require less irrigation. The distribution of certified/quality seeds over the years can be seen in the following table :

TABLE 2.9

Distribution of Certified/Quality Seeds

Year	Distribution (lakh quintals)	Percentage increase over the preceding year
1980–81	25.01	—
1981–82	29.81	19.2
1982–83	42.06	41.1
1983–84	44.97	6.9
1984–85	48.46	7.8
1985–86	55.01	13.5
1986–87	55.83	1.5
1987–88	56.30	0.8
1988–89 . . . . . (Anticipated)	56.80	0.9
1989–90 . . . . . (Tentative)	57.04	0.4

2.74 To meet the eventualities of shortage of seeds occurring because of natural calamities like floods, droughts, diseases etc. a scheme of maintaining buffer stock of seeds has been in operation. The scheme is operated as centrally sponsored scheme in which the Centre and State share the cost of maintenance of buffer stock on 50:50 basis. Foundation and certified seeds of only pulses, oilseeds, bajra, jowar and maize are being maintained for states other than those in the North-Eastern Region. For the North-Eastern regions, in addition to pulses and oilseeds, the seeds of paddy and maize are also being kept in buffer stock. In order to create increased infrastructural facilities commensurate with the projected seed production target, the government launched the National Seeds Project with the World Bank assitance. The main objective of the project is to support the government efforts to assist the farmers by ensuring timely and adequate availability of quality seeds of suitable varieties at economical price. The main features of the project are (a) institutional strengthening, (b) restructuring the seed production, processing and storage, (c) development of farms, and (d) research in foundation and breeder seeds production.

2.75 The new policy on seed development, introduced with effect from 1st October, 1988 aimed at to ensure for the farmer high quality seeds available anywhere in the world to maximise his yields, increase productivity and farm income. This is sought to be ensured by permitting access to best available seeds by placing some plant material and seeds under O.G.L. and some through regulated imports. As a result of the new policy, there has been significant increase in the import of high quality seeds, particulary those of oilseeds and vegetables. Quarantine services have been strengthened so as to ensure that exotic pests and diseases do not enter the country. While the liberalised seed policy relating to imports ensure availability of best seed/planting materials to Indian farmers, a number of fiscal and financial incentives have been provided to encourage and promote the growth of indigenous seed industry.

Fertilisers

2.76 Consequent upon the expansion of irrigation facilities and area under high yielding varieties, consumption of fertilisers in the country has increased substantially from 1.5 million tonnes in 1967-68 to 11.04 million tonnes of nutrients (NPK) in 1988-89. With the execution of Special Foodgrains Production Programme and favourable weather conditions, consumption of fertiliser in1989-90 is likely to touch 12.43 million tonnes—an increase of 12.7 per cent over

1988-89 consumption. Details of fertiliser consumption are given in the following table:

TABLE 2.10
Consumption of Chemical Fertilisers

(Million tonnes)

Year	Nitro-genous	Phospha-tic	Potassic	Total NPK
1970–71 . .	1.49	0.46	0.23	2.18
1975–76 . .	2.15	0.46	0.28	2.89
1978–79 . .	3.42	1.11	0.59	5.12
1979–80 . .	3.50	1.15	0.61	5.26
1980–81 . .	3.68	1.21	0.63	5.52
1981–82 . .	4.07	1.32	0.67	6.06
1982–83 . .	4.22	1.44	0.73	6.39
1983–84 . .	5.21	1.73	0.77	7.71
1984–85 . .	5.49	1.88	0.84	8.21
1985–86 . .	5.66	2.00	0.81	8.47
1986–87 . .	5.77	2.11	0.86	8.74
1987–88 . .	5.72	2.19	0.88	8.79
1988–89 . .	7.25	2.72	1.07	11.04
1989–90 . . (Estimated)	7.90	3.31	1.22	12.43

2.77 The consumption of fertiliser during the first three years of the Seventh Plan fell short of targeted levels due to unfavourable weather and unprecedented drought in 1987-88. The fourth and fifth years of Plan i.e. 1988-89 and 1989-90 have been very good years for the development of crops as encouraged by the onset of good monsoon in time and fairly even distribution of rainfall in the country. As a result, consumption of fertilisers increased both in kharif and rabi seasons to 12.43 million tonnes during 1989-90 as against the targeted level of 12.00 million tonnes.

2.78 Since the rainfed areas which constitute 70 per cent of the cultivated areas consume only about 20 per cent of the total fertiliser, efforts have been made to increase the consumption of fertilisers in these areas. Accordingly, the Government has sanctioned a National Project and Development of Fertiliser Use in Low Consumption Rainfed Areas in 60 identified districts in 16 states. The project provides for (i) opening of 200 additional retail outlets in each of the selected districts, (ii) laying out 10 field block demonstrations in each district, (iii) 10 farmers training programme, and (iv) opening of 20 additional soil testing laboratories in Madhya Pradesh, Maharashtra and Rajasthan.

2.79 Along with the increased consumption, fertiliser production has also increased substantially over the years from 2 million tonnes in 1979-80 to 8.96 million tonnes in 1988-89. The production in 1988-89 was an all time high. In addition to increase the capacity of existing units, six gas-based fertiliser projects to produce 7.26 lakh tonnes of urea per annum each were planned to further add to the capacity. Three of these plants at Vijayapur in Madhya Pradesh, Aonla and Jagdishpur in Uttar Pradesh have been completed and have gone into production in 1988. Other plants are at various stages of implementation. With the increase in domestic production, the level of imports has declined considerably in recent years—from 3.62 million tonnes in 1984-85 to about 1.6 million tonnes in 1988-89. Following the introduction of fertiliser retention price and subsidy scheme w.e.f. 1st November 1977 and the increasing trend in production/consumption, subsidy on fertilisers has also been rising. Fertiliser subsidy increased from Rs. 603 crores in 1979-80 to as much as Rs. 3200 crores in 1988-89 and will further go up in 1989-90. The budgeted amount of subsidy on fertilisers in 1989-90 is Rs. 3651 crores. The details are given in the following table:

TABLE 2.11
Fertilisers : Production, Import and Subsidies

Year	Prod-duction (N+P) (000 tonnes)	Im-ports (000 tonnes)	Subsidies (Rs. crores)		
			On im-ported ferti-lisers	On domes-mestic pro-duction	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	323	1600	1923
1986–87 . .	7070	2305	197	1700	1897
1987–88 . .	7131	984	114	2050	2164
1988–89 . .	8964	1608	200	3000	3200
1989–90 . .	6200*	3442	530@	3121@	3651@

@Budget Estimates.
*Upto December 1989.

Pesticides

2.80 Field crops including cereals, oilseeds, pulses, cotton, sugarcane etc. are very vulnerable to pest attack. To save the crops from pests, increasing quantity of pesticides are being made available. As against a target of 75 thousand tonnes for the final year of the Seventh Plan, the consumption of pesticides was of the order of 52 thousand tonnes in 1985-86, 50 thousand

tonnes in 1986-87, 49 thousand tonnes in 1987-88 and about 55 thousand tonnes in 1988-89. The target set for 1989-90 is 85 thousand tonnes, although consumption is likely to be lower because the pest incidence, in general, remained at very low ebb during 1989. The overall availability of pesticides in 1988-89 was satisfactory due to indigenous production and import of about 1000 tonnes. The availability of pesticides, their raw materials and solvents was kept under constant review and remedial actions were taken wherever the possibility of any shortage occurred.

Agricultural Credit

2.81 Timely and adequate credit to the farmers is a very crucial input for increaing agricultural production. The policy on agricultural credit continues to be one of providing adequate and timely credit to farmers through institutional agencies like co-operatives, commercial banks and Regional Rural Banks to support agriculture and allied activities. The major objective of the policy is to enable the farmers specially the small and marginal farmers and other weaker sections to adopt modern technology and improved agricultural practices for increasing production and productivity.

2.82. The total quantum of agricultural loan has been increasing over the years. It has increased from a level of Rs. 6794 crores in 1985-86 to Rs. 11752 crores in 1988-89. The target for 1989-90 has been fixed at Rs. 13294 crores. Agencywise disbursements of agricultural credit are given in the following table:

TABLE 2.12
Disbursement of Agricultural Credit

(Rs. crores)

	1985-86	1986-87 (Provisional)	1987-88 (Provisional)	1988-89 (Provisional)	1989-90 (Target)
Cooperatives					
Short-term .	2747	2824	3320	4153	4494
Medium-term .	394	531	547	422	392
Long-term .	543	560	691	867	893
TOTAL .	3684	3915	4558	5442	5779
Commercial Banks Regional Rural Banks					
Short-term & Term loans .	3110	3796	3934	6310	7515
GRAND TOTAL .	6794	7711	8492	11752	13294

2.83 The National Bank for Agriculture and Rural Development (NABARD) has taken a number of steps to provide adequate refinance facility to the cooperative institutions. The Government also introduced a scheme in 1988-89 and 1989-90 for providing central assistance to the central cooperative banks which are not eligible to operate credit limits on account of heavy overdues. As a part of major relief measures to farmers, the rate of interest on agricultural loans was reduced by a range of 1.5 per cent to 2.5 per cent w.e.f. 1st March 1988 for loans ranging upto Rs. 15,000. Again, w.e.f. 1st March, 1989 interest charged on crop loans between Rs. 15,000 and Rs. 25,000 was reduced to 12 per cent from the existing maximum rate of 14 per cent. Further, the Produce (Marketing) Loans Scheme has been introduced from December, 1988, on a pilot basis, in specified districts in each of the 14 states, where SFPP is under implementation. Loans under this scheme are available to those farmers who have availed of crop loans from the credit institutions for raising paddy, wheat, groundnut, rapeseed/mustard, gram and arhar. The quantum of loan under this scheme is, however, restricted to twice the amount of the crop loan or 75 per cent of the value of produce (hypothecated) at Government announced procurement prices subject to a maximum of Rs. 10,000 per individual.

2.84 Despite phenomenal increase in the overall agricultural credit, the crucial problem of mounting overdues has been inhibiting credit expansion to the desired extent. Overdues have been persisting around 40–42 per cent during the last 3–4 years. Increasing overdues have eroded the lending capacity of cooperative institutions for want of recycling of funds and ineligibility of the institutional agencies to borrow additional funds from the higher financing agencies.

Crop Insurance

2.85 Agriculture in India is subject to natural hazards which not only cause a substantial loss of output in the year in which they occur but also impair the productivity efficiency of the farmers in the ensuing years. Realising the risky character of farming, the comprehensive crop insurance scheme, which is voluntary in

nature and based on area approach and credit linked scheme, was introduced in the country with effect from 1st April 1985 for major cereals-wheat, paddy and millets and critically deficit crops—oilseeds and pulses. The objectives of the scheme are (i) to provide a measure of financial support to the farmers in the event of crop failure as a result of natural calamity, (ii) to restore the 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. Under the scheme, all farmers availing crop loans from cooperative credit institutions, regional rural banks and commercial banks are eligible for insurance coverage. The sum insured is equal to the crop loan disbursed, subject to the 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. Risk-premia and claims under the scheme is shared between Central Government and respective State Government in the ratio of 2 : 1. 50 per cent of the premium payable by small and marginal farmer is subsidised equally between Central and State Governments.

2.86 Coverage under the scheme has been continuously expanding since its inception. Enhanced coverage under the scheme is not only due to active participation of states implementing the scheme but also to other states/union territories joining the scheme. Thus, during the year 1987-88 scheme was implemented in 18 states and 3 Union Territories against 14 states and 2 Union Territories in 1985-86. There was considerable progress during 1987-88 in terms of coverage-about 46 lakh farmers cultivating 84 lakh hectares of land were covered in kharif 1987 as against 40 lakh farmers and 77 lakh hectares covered in kharif 1986. Even coverage in rabi 1987-88 has been spectacular. However, due to drought conditions and floods in 1986-87 and 1987-88, claims shot up from Rs. 84 crores in kharif 1985 to Rs. 277 crores in kharif 1987. Although 1987 was the worst drought year for many states, position of claims for kharif 1987 crops in Gujarat was particularly adverse i.e. nearly 69 times the premium income. Other major claims were reported in Maharashtra, Orissa, Andhra Pradesh and Karnataka. Consequent upon the quantum jump in claims and heavy losses, the scheme was temporarily suspended in January 1988. But it was re-introduced in September 1988 with some modifications. The sum insured was reduced from 150 per cent to 100 per cent of crop loans and limited to a maximum of Rs. 10,000 per farmer. The coverage in Kharif 89 was about 19 lakh farmers cultivating 29 lakh hectares of land.

2.87 The progress of the scheme can be seen from the table given below :

TABLE 2.13

Crop Insurance Scheme

	Kharif 1985	Rabi 1985–86	Kharif 1986	Rabi 1986–87	Kharif 1987	Rabi 1987–88	Kharif 1988	Rabi 1988–89	Kharif 1989
No. of States	11	14	15	14	18	17	13	9	15
No. of Union Territories . .	2	3	3	3	3	4	NIL	NIL	1
No. of Farmers covered (lakhs) .	26.36	12.12	39.55	11.28	46.31	21.28	29.64	8.73	19.27
Area covered (lakh hect.) . .	53.74	23.18	77.40	20.99	84.08	32.36	52.35	10.12	28.57
Sum Insured (Rs. crores) . .	542.73	238.41	856.20	242.37	1140.15	475.44	547.88	164.09	377.30
Premium collected (Rs. crores) . .	9.41	4.47	14.98	4.51	19.08	8.84	8.82	3.12	6.17
Claims paid/payable (Rs. crores) .	83.91	3.11	168.05	7.84	277.17	12.07	29.47	3.90	N.A.

Animal Husbandry

2.88 Animal husbandry, being an integral part of agriculture plays a significant role in providing animal protein for the large population and at the same time provides gainful employment particularly to small/marginal farmers, agricultural labourers, and other rural poor and thereby raising their economic status. The gross value of output from this sector in 1986-87 was Rs. 242 billion which is about 25 per cent of the total agricultural output including animal husbandry of Rs. 967 billion. This, however, did not include contribution of animal draught power which is reported to be quite significant. Efforts are being made to improve the vast population of livestock of over 193 million bovine and 20.8 million poultry birds by providing basic infrastructure and adopting improved technology.

2.89 With its large livestock population, the country has vast potential for meeting the growing needs of animal protein and raw material for the industry. The main objectives of the Seventh Plan in this direction are (i) to consolidate the gains achieved under various programmes of animal husbandry, (ii) to provide infrastructure necessary to achieve accelerated growth in livestock production, and (iii) to enable as large a section of rural population as possible, including small and marginal farmers, agricultural labourers and other rural poor to improve their nutritional and economic status by providing them with gainful employment through livestock rearing. As a result of the developmental efforts, milk and eggs production have increased significantly. Milk production increased by more than 18 per cent from 41.5 million tonnes in 1984-85 to 49.1 million tonnes in 1988-89, while eggs production increased from 14.3 billion to over 18 billion during this period. During the first four years of the Seventh Plan the per capita availability of milk has risen from 56.2 kgs. in 1984-85 to 61.2 kgs in 1988-89, while per capita availability of eggs has gone up from 19 eggs to 23 eggs.

2.90 To safeguard the interest of the small and marginal farmers and other poor rural population, livestock insurance scheme has been in operation since 1974. The scheme introduced by the four subsidiary companies of the General Insurance Corporation of India has covered 206 lakh cattle heads in 1988-89 as against 161 lakhs in 1985.

Dairy Development

2.91 In order to provide a linkage between the producers and the consumers, a rational approach to dairy development has been evolved. An integrated dairy development programme commonly known as Operation Flood was launched in 1970 to correct the deficiencies of the dairy sector by organising village milk producers in the dairy cooperative societies. The first phase of Operation Flood I was aimed at capturing a liquid milk market in the four metropolitan cities by linking 27 milk sheds. During second phase Operation Flood II (1980-85) the programme was extended to all the states in the country—about 34,500 dairy cooperative societies had been organised in 136 milk sheds. Operation Flood III (1985–94) is being implemented with financial assistance from the World Bank and commodity assistance from EEC in the form of skimmed-milk powder and butter oil. Over 60,000 dairy cooperative societies have been organised in 173 milk sheds involving over 6 million farmer members to procure an average of 8.3 million kgs per day during April-September 1989 as against 6.7 million Kgs. in April-September, 1988 and marketed 7.3 million Kgs. of milk a day in over 535 cities and towns of the country as against total milk processing capacity of 14 million kgs. a day and powder production capacity of 654 tonnes a day. A Technology Mission for Dairy Development has been constituted to give policy directions for a systematic dairy development in the country.

Fisheries:

2.92 Fisheries play an important role in augmenting food supply, generating employment, raising nutritional levels and in earning foreign exchange. Fish production has gradually increased from 24.4 lakh tonnes in 1980-81 to 31.5 lakh tonnes comprising 18.2 lakh tonnes from the marine sector and 13.3 lakh tonnes from inland sector in 1988-89. The export earnings were of the order of Rs. 598 crores in 1988-89. The main thrust of the fisheries development programme is to promote the extensive and intensive fish farming activity

in the inland sector and encouraging deep sea fishing in marine sector so as to optimise fish production. This is sought to be achieved through a package of technical, financial, training and extension measures.

Rural Development:

2.93 The Seventh Five Year Plan stipulated the target of bringing down the percentage of people living below the poverty line in rural areas to 28.2 per cent by the end of the Plan. In order to achieve this objective along with various development programmes like expansion of irrigation facilities, increasing productivity of dryland agriculture and development of village and small industries, a number of beneficiary oriented and area specific poverty alleviation programmes have been continued. The major poverty alleviation programmes being implemented include Integrated Rural Development Programme (IRDP), National Rural Employment Programme (NREP) and Rural Landless Employment Guarantee Programme (RLEGP). During 1989-90, however, NREP and RLEGP have been merged into one single rural employment programme known as Jawahar Rozgar Yojana (JRY).

2.94 Integrated Rural Development Programme launched in 1978-79 and extended all over the country in 1980-81, is a self employment programme to raise the income generation capacity of the target groups—below the poverty line. This is a major poverty alleviation programme. It seeks to identify families with income less than Rs. 4800 per annum to provide them income generating assests through a mix of subsidy and bank credit. During the first four years (upto December 1989) of the plan over 16.8 million families have been assisted and Rs. 3006 crores of budgetary funds and Rs. 4867 crores of term credit have been utilised. At the national level about 45.4 per cent of the families assisted belonged to SC/ST. To support IRDP, two sub-programmes of Training of Rural Youth for Self Employment (TRYSEM) and Development of Women and Children in Rural Areas (DWCRA) were formulated. While TRYSEM is intended to give training in technical skills for managing the assets, DWCRA seeks to engage women in poorer groups in economic activities. Under TRYSEM about 8.73 lakhs rural youths from families below the poverty line have been provided technical skills to enable them to take up self employment in agriculture and allied activities, industries, services, business activities etc. Under DWCRA a total number of 22581 groups of women in rural areas are engaged in income generation activities benefiting, 4.32 lakh women below the poverty line.

2.95 The National Rural Employment Programme launched in October 1980, aimed at creation of additional wage employment opportunities for unemployed and under-employed persons in rural areas, while simultaneously creating productive community assets for strengthening rural economic and social infrastructure and improving the overall quality of life in rural areas. In the wake of drought conditions, emphasis has shifted on creation of assets which are in conformity with the objectives of drought proofing. Accordingly, works which help in creating productive infrastructures like minor irrigation works, rural water supply works, construction/renovation of village tanks and land development are being undertaken. In the Seventh Plan period an outlay of Rs. 2487 crores was provided for NREP. It was envisaged to generate employment of 290-million mandays per annum. Under this scheme, 1476 million mandays of employment has been generated during the first four years of the Seventh Plan as against the target of 1160 million mandays. This programme has now been merged into a Jawahar Rozgar Yojana. The objective of Rural Landless Employment Guarantee Programme (launched on 15th August, 1983) was to improve and expand employment opportunities for the rural landless and provide guaranteed employment to atleast one member of every rural landless household upto 100 days in a year, while at the same time creating durable assets. Besides works relating to social forestry, minor irrigation works, land development, augmenting ground water resources etc., Indira Awas Yojana is an important component of the programme under which construction of dwelling houses for the poorest of the poor belonging to SC/ST and freed/bonded labourers in rural areas is taken up. The programme is fully funded by the centre. A part of the wages are required

to be paid in the form of subsidised foodgrains. During the first four years of the Plan 1153 million mandays of employment has been generated as against a target of 971 million mandays of employment. For 1988-89, target for employment generation was 260 million mandays and the achievement was 295 million mandays. Although the target of employment generation was over achieved, the guarantee part of the scheme could not be operationalised due to paucity of resources. However, preference in employment was given to landless labourers, women, scheduled castes and scheduled tribes. The programme has been merged with Jawahar Rozgar Yojana.

2.96 In 1989-90 for more effective implementation of wage employment programmes, a new employment generation programme known as Jawahar Rozgar Yojana has been introduced. Earlier NREP and RLEGP and the Jawahar Lal Nehru Rozgar Yojana (announced for 120 backward districts in the 1989-90 Budget) have been merged into the new programme. To create 837 million mandays of employment generation, a sum of Rs. 2623 crores (including Rs. 523 crores as states' share and the subsidised value of foodgrains) have been provided. The main features of the Yojana, inter alia, include (i) all rural works which result in creation of durable productive community assets will be taken up, (ii) preference is to be given to works (a) having potential of maximum direct and continuing benefits to the member of the poverty groups and (b) which can be owned by or assigned to groups of beneficiaries, (iii) higher priority is to be given to works which are required for infrastructure of poverty alleviation programme like Desert Development Programme, Drought Prone Area Programme, Development of Women and Children in Rural Areas Programme, Integrated Rural Development Programme and construction of primary school buildings, (iv) development of private land belonging to small and marginal farmer who may be below poverty line, and (v) works relating to the land development will include land shaping, construction of drainage, field channels etc. An employment of 492 million mandays have been generated upto December, 1989 against the target of 873 million mandays for the year.

Agro-climatic Zones :

2.97 In the face of the regional imbalances noticed in the agricultural development in the country and the unexploited potential, agricultural planning based on agro-climatic zones is being considered. The strategy of agro-climatic planning aims at a more scientific utilisation of available resources, both natural and man-made. The potential for growth and diversification would be fully exploited after taking a holistic view of the climate, soil type, topography, water resources and irrigation facilities and relating them to requirements of output and employment.

2.98 The country has been divided into 15 agro-climatic zones on the basis of a commonality of agro-climatic factors like soil type, rainfall, temperature, water resources etc. The agro-climatic zones are:

(1) Western Himalayan Region
(2) Eastern Himalayan Region
(3) Lower Gangetic Plains Region
(4) Middle Gangetic Plains Region
(5) Upper Gangetic Plains Region
(6) Trans-Gangetic Plains Region
(7) Eastern Plateau and Hills Region
(8) Central Plateau and Hills Region
(9) Western Plateau and Hills Region
(10) Southern Plateau and Hills Region
(11) East Coast Plains and Hills Region
(12) West Coast Plains and Ghats Region
(13) Gujarat Plains and Hills Region
(14) Western Dry Region
(15) The Islands Region

The main objectives of agro-climatic planning are (i) to attempt a broad demand-supply balances of major commodities at the national level but based on potential and prospects of various zones, (ii) maximise net income of producers, (iii) generate additional employment for the benefit particularly of landless labourers, and (iv) provide the framework for the scientific and sustainable use of natural resources particularly land, water and forests, in the long run.

2.99 Land and water development strategies and cropping patterns suitable for each region have been worked out as also non-crop based agricultural activities like forests, animal husbandry and fisheries have been taken into account. Agro-processing activities are to be emphasised. An attempt is being made to develop a package of more appropriate projects for each region, as also involve the financial institutions more directly in the agricultural planning process. The studies/surveys undertaken in these zones would be the basis for the formulation of 8th Plan.

Outlook

2.100 Throughout four months spell, both quantum of monsoon rainfall and distribution of precipitation was satisfactory. Kharif operations in virtually all the states were normal and there were no major problems encountered in the supply of quality seeds and inputs like fertilisers. With the continuance of various thrust programmes an other measures to increase the agricultural production, the kharif prospects are very bright and foodgrains output in 1989-90 kharif season may approximate to the target of 98 million tonnes. In regard to commercial crops also, the outlook is re-assuring and a good harvest of oilseeds, cotton and sugarcane is likely to be achieved during the current agricultural year. The operations for rabi are expected to be normal and if no serious weather aberrations develop and considering the fact that last year it had reached a level of 74 million tonnes, rabi production may exceed the targetted level of 77 million tonnes. The expected increase in foodgrains production should enable the Government to build up a sizeable stock of foodgrains in fulfilling the commitment of supplies for public distribution system. Procurement of rice upto the end of February, 1990 was 9.68 million tonnes as against 6.27 million tonnes during the same period of last year.