

**Chapter IV**  
**An Overview of Cotton Cultivation in India**

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## CHAPTER IV

### AN OVERVIEW OF COTTON CULTIVATION IN INDIA

Cotton cultivation had been prevalent in the Indian sub-continent since pre-historic times as revealed by the excavations at Mohenjodaro (now in Pakistan) and other places in our country (Sundaram, *et al*, 1985). Cotton mainly went for exports in the beginning and evidences indicate that India had been an exporter of raw cotton to the world, historically. As early as 1800 AD, India exported 150 thousand bales of cotton lint (Pavaskar, 1985). The ancient status of India in cotton cultivation has been maintained and today India occupies a prominent position in world cotton hierarchy. It ranks first in area under cotton and third in cotton production in the world during 1999-2000.

Organised cotton textile industry is one of the oldest and most firmly established major industries in India. It is nearly two centuries old with the first mill on modern lines having been set up as early as in 1817. Although the cultivation of cotton as also the traditional cotton mills was existent much before, the major expansion of area under cotton cultivation and the establishment of textile mills on modern lines took place in the nineteenth century. The industrial revolution in England during the middle of the nineteenth century resulted in tremendous demand for raw materials like cotton, jute, sugarcane, groundnuts, etc. for British industries. There was a deliberate policy that worked up under pressure from British industries to cultivate these crops. Cultivation of these crops necessitated by the industrial revolution was intensified by the development of an elaborate network of railways in India after 1850. Large quantities of wheat from Punjab, jute from Bengal and cotton from Bombay poured in for export to England (Dutt & Sundaram, 1998). As a result, there was rapid expansion of area under cotton cultivation in India.

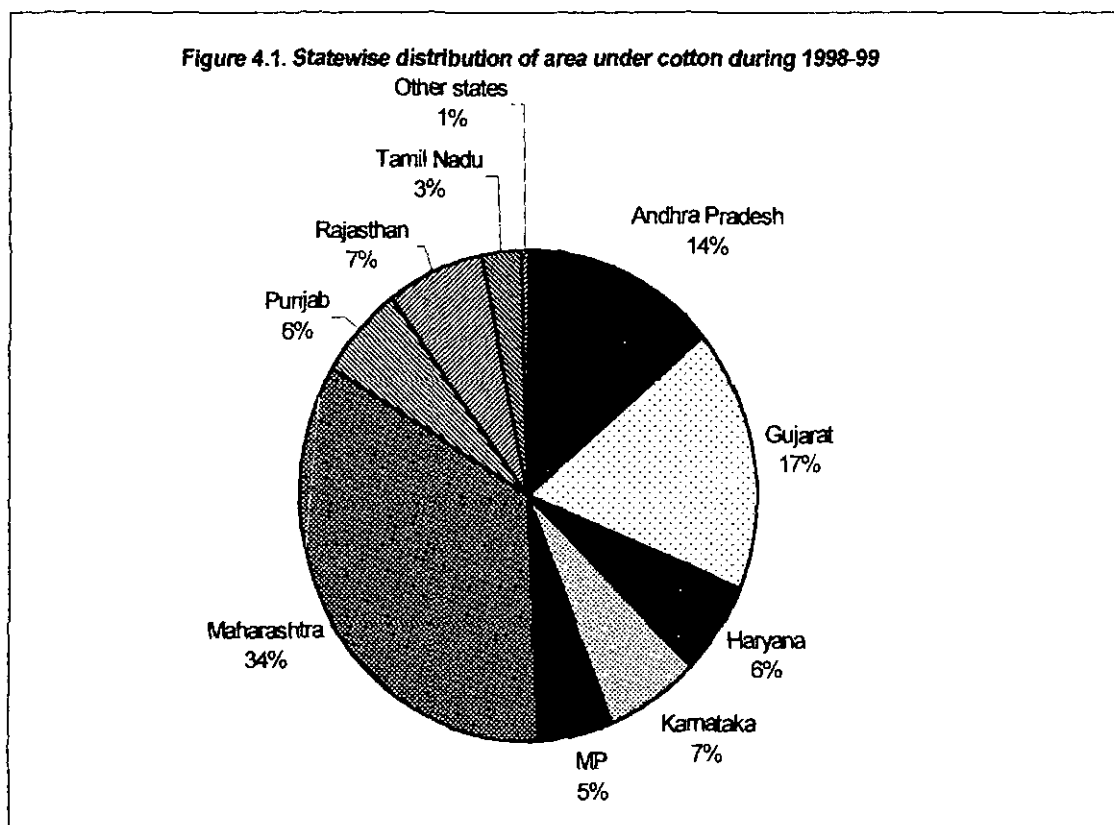
Towards the end of the nineteenth century, 6 million hectares of area was brought under cotton cultivation yielding more than 3 million bales of cotton. However, two thirds of the production of cotton went to exports. The swadeshi movement started in 1920s as a part of the freedom struggle gave further impetus to domestic use of cotton. The area under cotton cultivation expanded to 10 million hectares during the 1920s with a production of 5.5 million bales. The Second World War affected Indian exports of cotton adversely. With partition of the country, while around 25 per cent of the area and 40 per cent of cotton production was lost to Pakistan, 98 per cent of the cotton textile industry was left in India, which made the country a net importer of cotton overnight. Soon after independence, the Indian cotton textile industry faced severe shortages of raw cotton. During the years of war, considerable acreage under cotton cultivation was lost due to the absence of demand for Indian cotton abroad and the need to grow more food at home. Moreover, the best cotton growing areas where a major portion of the medium and long staple cotton was produced belonged to Pakistan after partition. In order to increase cotton production, measures were taken to recover the acreage lost by cotton, to restore purity to a number of cotton varieties in cultivation that had got mixed up and to produce the medium and long staple cottons in increased quantities (Kulkarni, 1979).

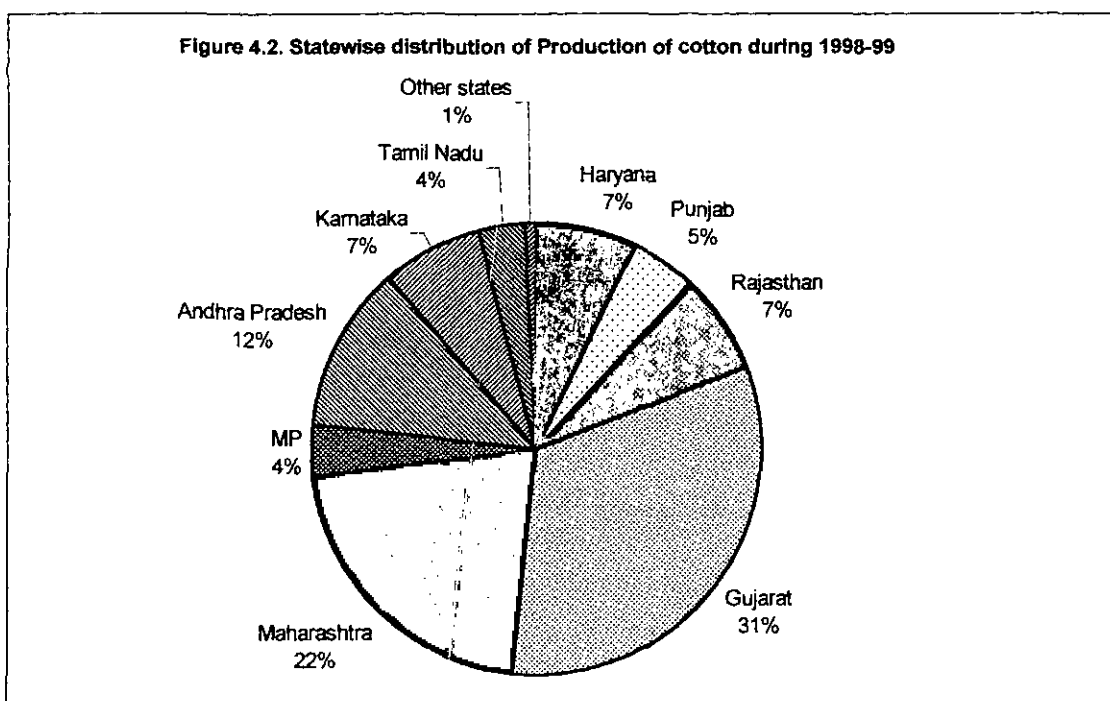
The Government of India removed all legislative and executive curbs on cotton cultivation imposed during the wartime in order to recover the acreage. Further, the government gave financial assistance to the state governments to implement the Cotton Extensive Schemes. Additional areas brought under cotton during 1950-51 were granted remission of land revenue. Consequently, acreage recovered rapidly from 10.66 million acres in 1947-48 to 16.2 million acres in 1951-52. But the total area under cotton has not increased after 1956-57. Since then, greater attention was given

to securing higher per acre yields. Since the First Plan, measures such as the provision of hybrid seeds, multiplication and distribution of improved seed, loans to cultivators for the purchase of seed and fertiliser have been undertaken for cotton development (Gol, 1956). Yields per hectare rose owing to these measures so that domestic production of cotton grew from 48.5 lakh bales in 1961-62 to 107.1 lakh bales in 1993-94. As a result, imports of raw cotton not only fell but exports exceeded imports since the late 1970s (ICMF, 1995).

#### 4.1. Geographical spread of cotton cultivation in India

Cotton is grown in more than 20 states in India, but there are nine major cotton-growing states, which accounts for more than 99 per cent of area under cotton and contributes more than 99 per cent cotton production in the country. State-wise area and production of cotton in India during 1998-99 is given in Table 4.1 and the shares of various states in area and production of cotton are indicated in Figures 4.1 and 4.2.





**Table 4.1 – State-wise area and production of cotton during 1998-99**

State	Area (000 ha.)	Production (000 bales )
1. Andhra Pradesh	1278.1 (13.8)	1486.6 (12.2)
2. Gujarat	1607.0 (17.3)	3935.0 (32.3)
3. Haryana	582.0 (6.3)	873.0 (7.2)
4. Karnataka	608.0 (6.5)	855.0 (7.0)
5. Madhya Pradesh	501.5 (5.4)	426.3 (3.5)
6. Maharashtra	3199.1 (34.5)	2618.9 (21.5)
7. Punjab	562.0 (6.1)	595.0 (4.9)
8. Rajasthan	644.6 (6.9)	872.0 (7.2)
9. Tamil Nadu	242.8 (2.6)	430.0 (3.5)
10. Others	62 (0.6)	85.7 (0.7)
<b>All India</b>	<b>9287.1</b> <b>(100.0)</b>	<b>12177.5</b> <b>(100.0)</b>

*Figures in brackets are percentages to total*

#### **4.1.1. Northern Zone**

In the Northern zone, Punjab, Haryana and Rajasthan are main cotton growing states. During 1998-99 these states had covered 17.9 lakh hectares, which was 19.3 per cent of the total area under cotton in the country. In these states, cotton is grown as a kharif crop and around 95 per cent cotton area in this zone is irrigated. This zone had produced 23.4 lakh bales of cotton during 1998-99 that was 19.2 per cent of the total production.

##### **4.1.1.1. Punjab**

In the state, cotton was grown in an area of 5.62 lakh ha, 100 per cent of which is irrigated. Although the area under cotton was on the increase from the seventies, a decline from the peak level is noticed during the recent years. Bhatinda, Faridkot, Ferozepur and Sangrur are the major cotton growing districts that account for 80 per cent of the area under cotton in the state. The cotton crop in the state is being damaged due to excessive rains, flood and extreme heat in the month of October. The production of 5.95 lakh bales of cotton in the state during 1998-99 was less than one-third of the production obtained in 1996-97. The decline in production was on account of both decline in area and sharp decline in yield level, which had touched 607 kg. per hectare in 1991-92 to an extremely low level of 180 kg. per hectare in 1998-99. The trend in area and production of cotton in the northern states during the 1990s is depicted in Figures 4.3 and 4.4, respectively.

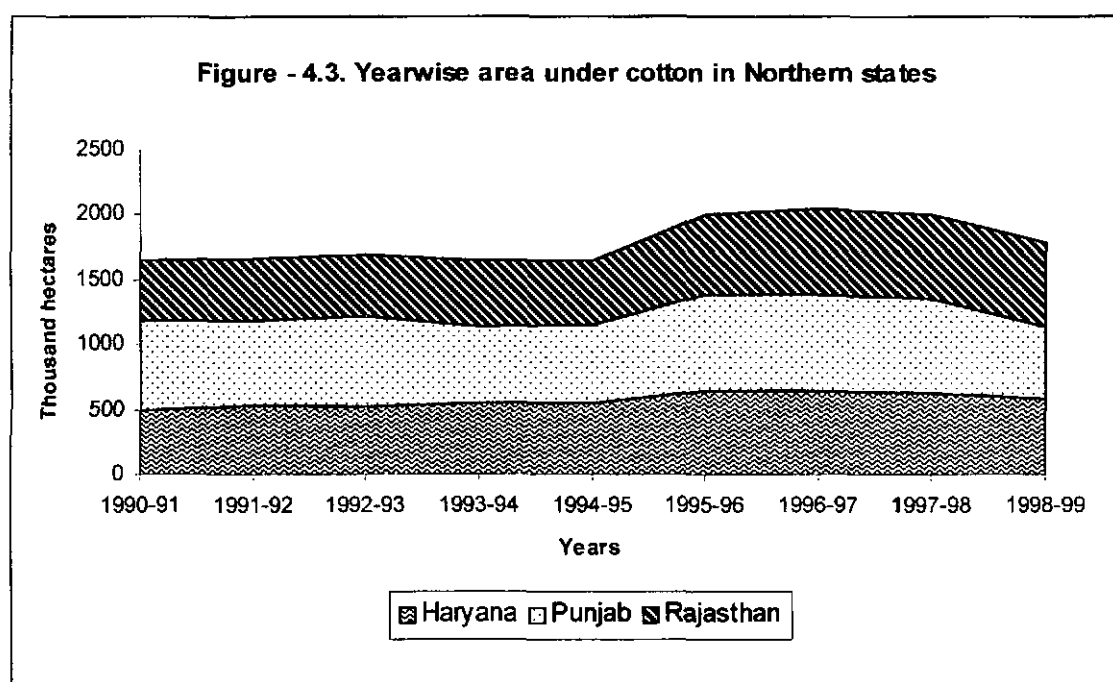
##### **4.1.1.2. Haryana**

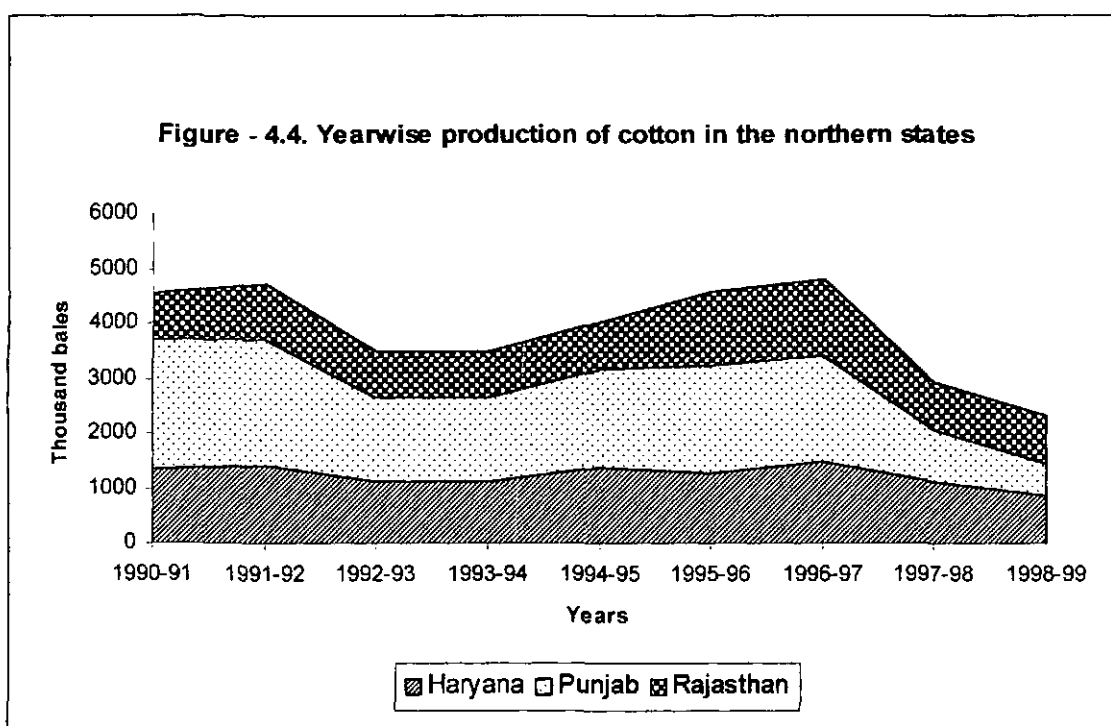
Area under cotton in the state was 5.82 lakh hectares during 1998-99, which was 6.3 per cent of the total cotton area in the country. Hisar and Sirsa are

the two major cotton-growing districts, which account for 80 per cent of the total area in the state. Around 98 per cent of the cotton area in the state is irrigated. Cotton production in the state stood at 8.73 lakh bales, which was 7.2 per cent of the total production in the country. The productivity of cotton, which was around 400 kg. per hectare during the late eighties and early nineties showed a declining trend during late nineties to 301 kg. per hectare in 1997-98 and further to 255 kg. per hectare in 1998-99.

#### 4.1.1.3. Rajasthan

With a coverage of 6.45 lakh hectare under cotton, Rajasthan accounts for nearly 7 per cent of the total cotton area. The production of cotton during 1998-99 at 8.72 lakh bales formed 7.1 per cent of the total production. In the state, 80 per cent of the cotton area is irrigated. Sriganaganagar is one of the important cotton-growing districts in the state, which account for 80 per cent of the cotton area in the state. Desi, medium and superior medium staple varieties are grown in the state.





#### 4.1.2. Central Zone

The central cotton zone comprises of the states of Gujarat, Madhya Pradesh and Maharashtra and constitutes the zone with the largest area and production of cotton in the country. During 1998-99, this zone covered 53.1 lakh hectares of cotton area accounting for 57.2 per cent of the total cotton area in the country. There was an increase of 2.6 per cent in area under cotton in this zone from 51.7 lakh hectares in 1997-98 mainly due to increase in area under cotton in Maharashtra and Gujarat. The total production of cotton in this zone was 69.8 lakh bales, which was 57.3 per cent of the total production. Around 8 lakh hectare area in this zone is under irrigation, which is only 15 per cent of the total cotton area sown.

##### 4.1.2.1. Gujarat

In the state of Gujarat, Vadodara, Surendranagar, Bharuch, Sabarkantha, Ahmedabad, Rajkot and Mehsana are the important cotton growing districts, which contributes around 80 per cent of the total cotton area of the state. All important varieties of cotton comprising of short, medium,



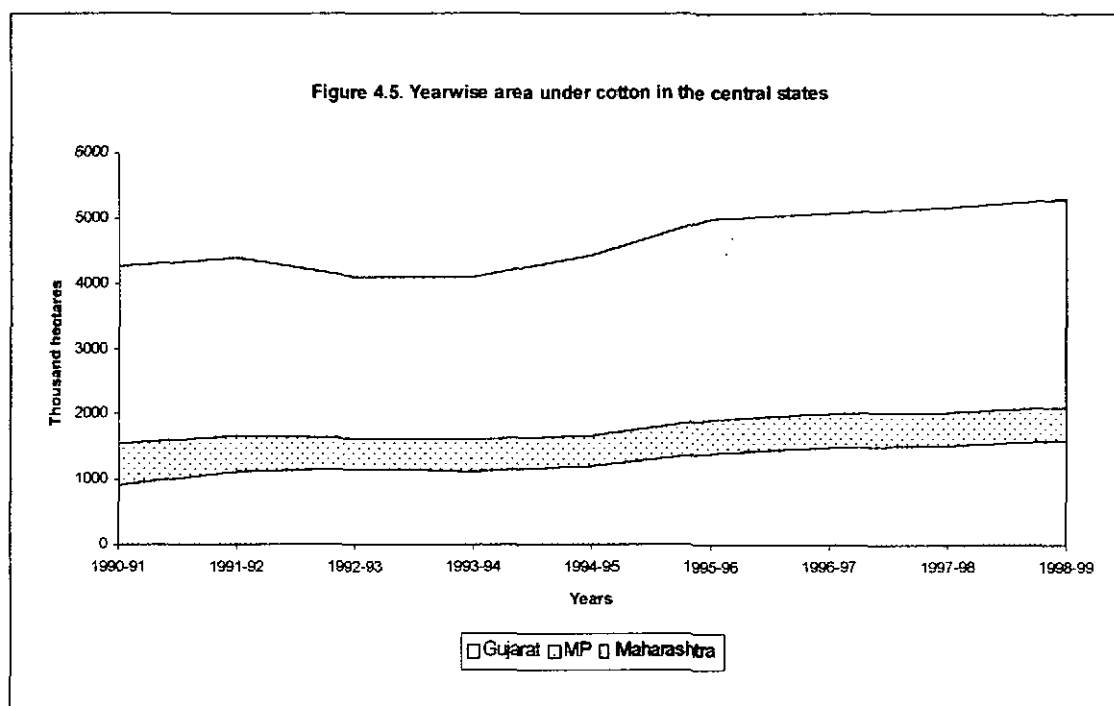
super medium, long and extra-long staple of cotton are grown in the state. During 1998-99, 16.0 lakh hectare area was covered under cotton, which was an increase of 74 per cent from the level of 9.2 lakh hectare in 1990-91. However, compared to the area under cotton that had existed in the state during the seventies and eighties, the observation is that the area has been almost stagnant. On an average, around 6 lakh ha. area is covered under hybrid cotton in the state, which is 37.5 per cent of the total cotton area in the state. One important aspect of cotton cultivation in the state is continuous improvement in productivity from 244 kg. per ha. in 1990-91 to 416 kg. per ha. in 1998-99. Precisely due to this, the state ranks first in production of cotton although its acreage under cotton is only half of the state of Maharashtra, which ranks first in terms of area under cotton. The trend in area and production of cotton in the central states are depicted in Figures 4.5 and 4.6, respectively.

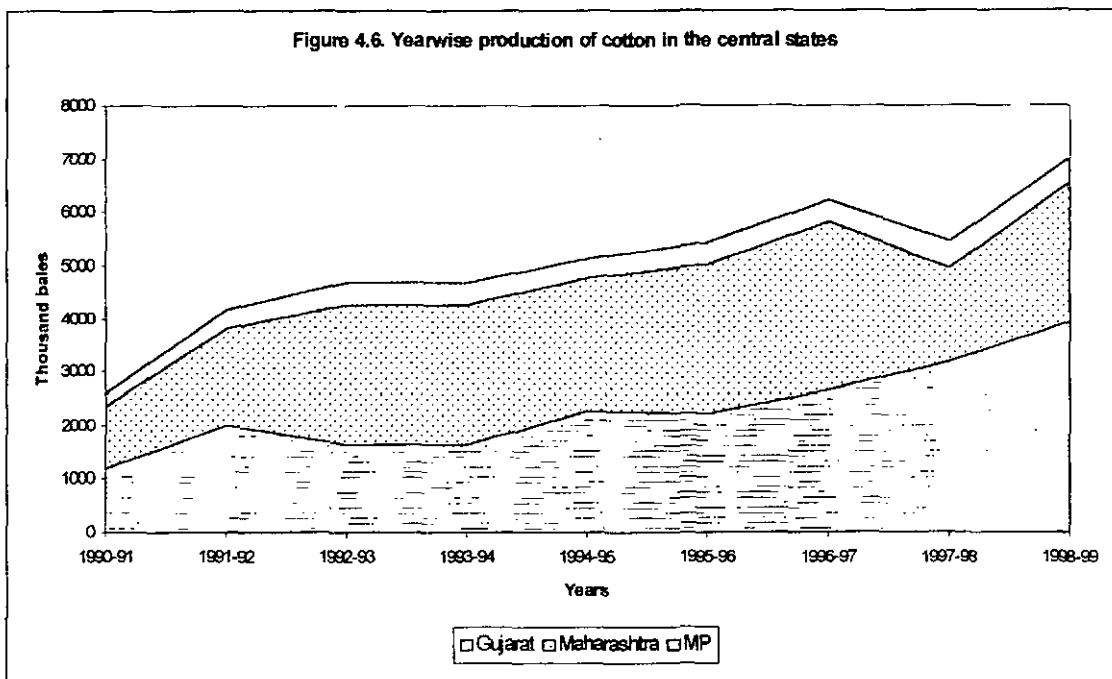
#### **4.1.2.2. Madhya Pradesh**

Cotton was covered in 5 lakh hectares in the state during 1998-99, which was about 5 per cent of the total cotton area in the country. However, the area under cotton in the state seems to be on the decline from a level of 6.08 lakh ha. in 1990-91. The production of cotton in the state at 4.26 lakh bales in 1998-99 formed only about 3.5 per cent of the total production which was due to the deplorably low level of productivity of cotton at 145 kg. per ha. in 1998-99. Khandwa, Khargone and Dhar are the major cotton growing districts in the state which together accounts for three-fourths of the cotton area in the state. Coverage of irrigation for cotton is only about 26 per cent. Due to the low productivity, area under cotton is getting diverted to crops like pulses and soyabean in the state.

### 4.1.2.3. Maharashtra

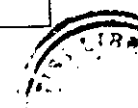
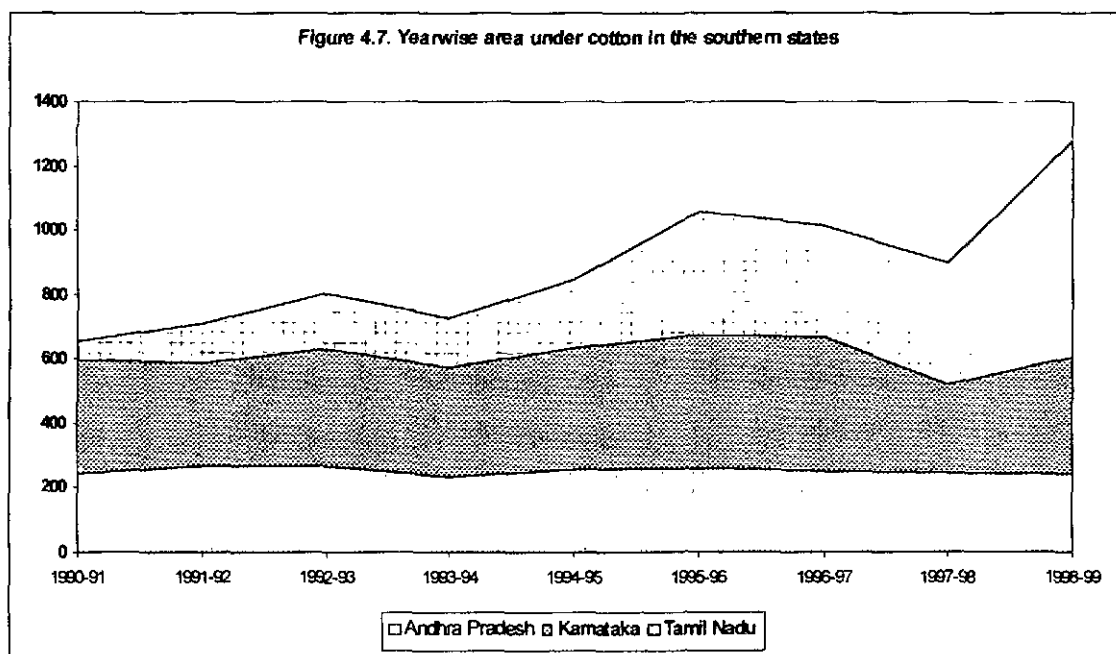
The state stands first in area under cotton with acreage of 32 lakh hectares, which forms more than one-third of the total cotton area in the country. The production of cotton during 1998-99 was 26.19 lakh bales, which formed only 21.5 per cent of the production, which is indicative of a very low level of productivity of cotton in the state, at 139 kg. per hectare during 1998-99. In the state, only 3 per cent of the cotton area is under irrigation, which is indicated often as the major reason for poor productivity. Akola, Dhule, Yeotmal, Amaravati, Parbhani, Nanded, Jalgaon, Jalna, Aurangabad, Buldhana, Wardha and Nagpur are the major cotton districts in the state, which together account for 80 per cent of the area. Although, all varieties of cotton are grown in the state, hybrid varieties constitute 40 per cent area and production. The Monopoly Procurement Scheme of raw cotton is under vogue in the state since 1972-73. As per the provisions of the scheme, the State Government is bound to purchase the entire quantity of cotton produced in the state and cotton producers are also bound to tender the entire produce to the procurement centers.

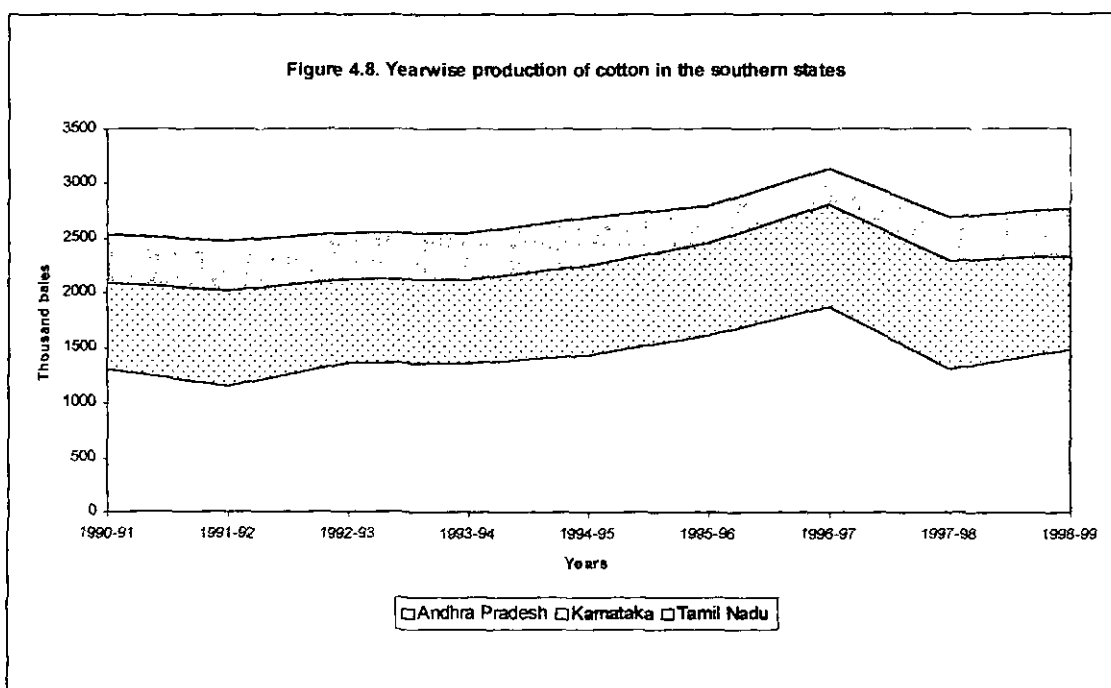




#### 4.1.3. Southern Zone

In the Southern zone, major cotton growing states are Andhra Pradesh, Karnataka and Tamil Nadu. The coverage of area under cotton in this zone during 1998-99 was 21.3 lakh hectares representing 22.9 per cent of the total area. The production from the zone at 27.7 lakh bales formed only 22.7 per cent of the total production. Around 7 lakh hectare area under this zone is covered under irrigation, which is one-third of the total cotton area in the zone. The trend in area and production of cotton in the southern states are depicted in Figures 4.7 and 4.8, respectively.





#### 4.1.3.1. Andhra Pradesh

During the nineties, the area under cotton in the state has almost doubled from 6.55 lakh hectares in 1990-91 to 12.8 lakh hectares in 1998-99 and production has increased from 11.01 lakh bales to 14.87 lakh bales during the same period. More than 50 per cent of the cotton area in the state is irrigated. Three districts in the state viz., Guntur, Prakasam and Adilabad covers around 75 per cent of the total cotton area in the state. Around 7 lakh hectare (70 per cent) is covered under high yielding/ hybrid cotton varieties, which contribute more than half of the cotton production in the state. However, the yield of cotton in the state shows a decline from a level of around 300 kg. per hectare obtained during the eighties and early part of nineties to 246 kg. per hectare in 1997-98 and further to 198 kg. per hectare in 1998-99.

#### **4.1.3.2. Karnataka**

Area under cotton in Karnataka was 6.08 lakh hectare during 1998-99. The state stands second among the southern states in cotton acreage, next to Andhra Pradesh. The area under cotton in the state works out to 6.5 per cent of the total area in the country and the production during 1998-99 of 8.55 lakh bales worked out to 7.0 per cent of the total production. It means the state has only average performance in terms of productivity (239 kg.) unlike other southern states of Andhra Pradesh and Tamil Nadu. In the state, the districts of Bellary, Bijapur and Belgaum accounts for 80 per cent of the area under cotton. Hybrid cotton though accounts for more than 50 per cent of the cotton production and the productivity in the state continues to be low.

#### **4.1.3.3. Tamil Nadu**

*Among the major nine states where cotton is cultivated, area and production is the lowest in Tamil Nadu at 2.4 lakh hectares (2.6 per cent) and 4.3 lakh bales (3.5 per cent), respectively. Long and extra-long staple varieties of cotton are grown pre-dominantly in the state. Madurai, Thirunelveli and Ramanathapuram are the major cotton growing districts in the state*

#### **4.2. Distribution of area**

Over the years, few states cultivating cotton have lost area under the crop substantially and few other states have brought good extent of area under cotton cultivation. Time-series data on state-wise area under cotton from 1950-51 to 1998-99 is given in Appendix - 6 and the shares of different states in area is given in Appendix - 7. The shares of different states in total area under the crop at different points of time are given in Table 4.2.

**Table 4.2. Shares of different states in Total area under cotton  
(Percentages)**

States	1950-51	1960-61	1970-71	1980-81	1990-91	1998-99
AP	9.7	4.1	4.2	5.4	8.8	13.8
Gujarat	21.1	23.7	20.8	20.1	12.4	17.3
Haryana	0.0	1.2	2.5	4.1	6.6	6.3
Karnataka	16.0	12.9	13.1	12.2	8.0	6.5
MP	13.2	10.1	9.1	7.6	8.2	5.4
Maharashtra	26.2	32.9	37.0	34.1	36.7	34.4
Rajasthan	2.6	2.6	3.0	4.6	6.1	6.9
Punjab	4.8	5.9	5.2	8.3	9.4	6.1
Tamilnadu	4.9	5.2	4.1	2.8	3.2	2.6
Others	1.5	1.4	1.1	0.9	0.6	0.7
All India	100.0	100.0	100.0	100.0	100.0	100.0

During 1998-99, 34.4 per cent of area under cotton was in Maharashtra and another 17.3 per cent in Gujarat, thus making western region of the country occupy more than half of the area. The northern region comprising of Punjab, Haryana and Rajasthan had a share of 19.3 per cent while the southern region comprising of Tamilnadu, Karnataka and Andhra Pradesh had a share of 22.9 per cent. While the share of Gujarat in area under cotton declined from 21 per cent to 17.3 per cent between 1950-51 and 1998-1999, the share of Maharashtra had gone up from 26 per cent to 34 per cent during the same period. Although there had been decline in the share of Andhra Pradesh between the 50s and 60s (9.7 per cent to 4.1 per cent), the share had increased from 9.7 per cent to 13.8 per cent between 1950-51 and 1998-1999. But, there had been decline in the share of area in other two southern states, more sharply in Karnataka from 16 per cent to 6.5 per cent and by nearly half in Tamilnadu (from 4.9 per cent to 2.6 per

cent). Other major state to experience sharp decline in the share of area under cotton was Madhya Pradesh which had a share of 13.2 per cent in 1950-51 that declined to 5.4 per cent 1998-99. All the northern states that cultivate cotton experienced substantial increase in their area shares, from nil in 1950-51 to 6.3 per cent in 1998-99 in Haryana, from 2.6 per cent to 6.9 per cent in Rajasthan and from 4.8 per cent to 6.1 per cent in Punjab.

#### 4.3. Distribution of production

The shares of various states in total production of cotton were not in conformity to their area shares. Time-series data on state-wise production of cotton from 1950-51 to 1998-99 is given in Appendix - 8 and the shares of different states in total production of cotton during the same period is given in Appendix - 9. Shares of different states in production of cotton at different points of time are given in Table 4.3.

**Table 4.3. Shares of different states in total production of cotton**

*(Percentages)*

States	1950-51	1960-61	1970-71	1980-81	1990-91	1998-99
A P	5.9	2.1	1.7	10.7	11.2	12.2
Gujarat	26.1	26.3	34.9	24.4	13.4	32.3
Har	0.0	2.4	7.8	9.3	11.7	7.2
Kar	10.5	7.2	7.2	6.7	7.0	7.0
MP	9.2	8.5	4.7	3.8	4.0	3.5
Mahara	23.3	29.9	10.7	18.1	19.1	21.5
Raj	4.3	2.7	5.1	5.5	9.3	7.2
Punjab	10.6	12.6	18.2	16.8	19.4	4.9
TN	7.4	7.0	7.7	3.8	4.2	3.5
Others	2.7	1.3	1.9	0.8	0.6	0.7
All India	100.0	100.0	100.0	100.0	100.0	100.0

During 1998-99, 32.3 per cent of production of cotton was in Gujarat followed by Maharashtra with 21.5 per cent. Throughout the period from 1950-51 to 1998-99 Gujarat had a larger share in output compared to its area share. For instance, as against a share of 21.1 per cent in area in 1950-51 its production was 26.1 per cent and these shares were 23.7 and 26.3 per cent 1960-61, 20.8 and 34.9 per cent in 1970-71, 20.1 and 24.4 per cent in 1980-81, 12.4 and 13.4 per cent in 1990-91 and 17.3 and 32.3 per cent in 1998-99, respectively. Maharashtra's performance in cotton production was discouraging as it could contribute only 21.5 per cent of the total production while occupying 34.4 per cent of the area under the crop during 1998-99. The share of production of Maharashtra was consistently lower compared to its area share. The share of the state in area and production of cotton was 26.2 and 23.3 per cent, 32.9 and 29.9 per cent, 37 and 10.7 per cent, 34.1 and 18.1 per cent and 36.7 and 19.1 per cent during 1950-51, 1960-61, 1970-71, 1980-81 and 1990-91, respectively.

The shares of output from the northern states of Punjab, Haryana and Rajasthan were 4.9 per cent, 7.2 per cent and 7.2 per cent from areas of 6.1 per cent, 6.3 per cent and 6.9 per cent, respectively during 1998-99. The output shares of these states were consistently higher than their area shares, except for Punjab, which demonstrated a very low output share compared to previous years.

In the southern region, Andhra Pradesh had a share of 12.2 per cent in production during 1998-99 from an area of 13.8 per cent, Tamilnadu had 3.5 per cent production from 2.6 per cent area and Karnataka had 7.0 per cent production from 6.5 per cent of the area.



#### 4.4. Variations in productivity

The differential performance of various states in cotton production in comparison to their area shares could be seen in the difference in productivity levels of cotton between the states. Time-series data on state-wise yield of cotton from 1950-51 to 1998-99 is given in Appendix - 10 and the yields of cotton in major states at different points of time are given in Table 4.4.

**Table 4.4. Yield of cotton in major states at different points of time**  
(kg/ha)

States	1950-51	1960-61	1970-71	1980-81	1990-91	1998-99
AP	53	65	45	304	286	198
Gujarat	109	139	179	185	244	416
Haryana	-	243	329	349	401	255
Karnatak	58	70	59	83	197	239
MP	61	105	55	77	111	145
Maharash	78	114	31	81	117	139
Rajasthan	146	130	184	185	343	230
Punjab	197	268	371	309	463	180
Tamilnad	133	168	200	203	290	301
All India	88	125	107	152	225	223

*Source: CMIE, 2000*

The yield of cotton at all-India level was 223 kg per hectare during 1998-99. The states recorded higher yield than average yield at country level included the southern states of Karnataka (239 kg) and Tamilnadu (301 kg), northern states of Haryana (255 kg) and Rajasthan (230 kg). The yield level was just 139 kg per hectare in the major cotton state of

Maharashtra, while the second major state of Gujarat recorded an impressive yield of 416 kg per hectare. The yield of Madhya Pradesh, another major cotton state, was also considerably lower (145 kg) compared to the average yield at the country level.

#### 4.5. Trends in production

The production of cotton in the country had grown from 30 lakh bales in 1950-51 to 122 lakh bales 1998-99. The production was at the peak in 1996-97 when the country produced 142 lakh bales. The production of cotton had been growing in all the individual states as well. The compound annual growth rates of production of cotton during the three sub-periods between 1950-51 and 1997-98 are given in Table 4.5.

**Table 4.5. Compound Annual Rates of Growth (CARG) in production of cotton**

States	<i>(Percentages)</i>		
	1950-51 to 1967-68	1968-69 to 1983-84	1984-85 to 1997-98
AP	-1.46	15.07	7.59
Gujarat	4.72	0.42	6.62
Haryana	-	4.83	5.68
Karnataka	0.09	3.63	3.65
MP	-0.41	-1.35	4.15
Maharashtra	2.57	1.73	5.17
Rajasthan	3.57	7.25	8.28
Punjab	4.46	1.48	-0.17
Tamilnadu	3.23	-1.31	-1.77
All India	3.24	2.32	4.36

Between 1950-51 and 1967-68, i.e. during the pre-green revolution period, the production of cotton in the country had been growing at annual compound growth rate of 3.24 per cent. Compared to this, the growth was slower during the post-green revolution period I (1968-69 to 1983-84) (2.32 per cent) and was faster during the post-green revolution period II (1984-85 to 1997-98) (4.36 per cent). This trend in production was generally true for almost all the cotton growing states. For instance, the growth rates of production in the state of Maharashtra were 2.57 per cent, 1.73 per cent and 5.17 per cent, respectively during the three periods. The states of Andhra Pradesh and Madhya Pradesh recorded negative growth rates during the pre-green revolution period. While Madhya Pradesh continued to record the negative growth rate in the second period also, Andhra Pradesh recorded a very high growth rate of 15.07 per cent per annum during 1968-69 to 1983-84. Second state to record negative growth rate during this period was Tamilnadu (-1.31 per cent).

During the period from 1984-85, the growth rate in production of cotton was high in all the important cotton states except Punjab and Tamilnadu. During 1984-85 to 1997-98, among the major cotton growing states, Rajasthan recorded the highest growth rate (8.28 per cent) followed by Andhra Pradesh (7.59 per cent), Gujarat (6.62 per cent) Haryana (5.68 per cent) and Maharashtra (5.17 per cent).

#### **4.5. Sources of growth in cotton production**

Growth in agricultural production is the combined effect of the absolute growth in area under the crop as well as from the growth in production per unit area, i.e. yield. The growth in area under a particular crop is possible either by bringing new area under cultivation or substituting area under less

profitable crops by that particular crop which would be more remunerative. The growth in yield or production per unit area is possible by the introduction of HYV seeds and by resorting to improved cultivation practices using irrigation, fertilisers and pesticides.

#### 4.5.1. Growth in area under cotton

Area under cotton in the country increased from 58 lakh hectares in 1950-51 to 79 lakh hectares 1967-68, recording a growth rate of 1.34 per cent per annum, was stagnant between 1968-69 and 1983-84 recording a growth rate of 0.3 per cent per annum and grew faster during 1984-85 to 1997-98 at a rate of 1.80 per cent per annum to 89 lakh hectares in 1997-98. The compound annual growth rates of area under cotton in different states during the three sub-periods are given in Table 4.6.

**Table 4.6. Compound Annual Rates of Growth (CARG) in Area under cotton**

States	(Percentages)		
	1950-51 to 1967-68	1968-69 to 1983-84	1984-85 to 1997-98
Andhra Pradesh	-3.15	2.91	5.36
Gujarat	2.18	-0.79	1.32
Haryana	-	4.35	5.66
Karnataka	0.73	-0.39	-0.19
Madhya Pradesh	-0.17	-1.24	-0.54
Maharashtra	1.87	0.008	1.01
Rajasthan	2.92	3.91	5.72
Punjab	1.90	3.94	2.08
Tamil nadu	0.76	-2.85	0.12
All India	1.34	0.3	1.80

Among the major states, Maharashtra, Punjab, Rajasthan and Haryana registered positive growth in area under cotton throughout the three sub-periods. The rate of growth was higher in Rajasthan (2.92 per cent) during the first sub-period, and was higher in Haryana (4.35 per cent) during the second sub-period. During the third sub-period, the growth rates ranged from 1.01 per cent <sup>per</sup> annum in Maharashtra to more than 5 per cent per annum in Rajasthan and Haryana. Although the cotton area showed decline in Andhra Pradesh (-3.15 per cent) during the first sub-period, there was absolute increase in cotton area in the state at rates of 2.91 per cent and 5.36 per cent during the second and third sub-periods, respectively. The states to record negative growth in area and experienced absolute decline in area under cotton were Karnataka and Madhya Pradesh. The area under cotton in Karnataka had declined from 9.4 lakh hectares in 1950-51 to 5.2 lakh hectares in 1997-98 and that of Madhya Pradesh had declined from 7.8 lakh hectares to 5.2 lakh hectares during the same period.

#### **4.5.2. Growth in yield**

The yield of cotton in India although is one of the lowest in the world has been growing continuously, especially since 1984-85. The yield per hectare was just 88 kg in 1950-51, which grew to 123 kg in 1967-68, 196 kg in 1984-85 and 265 kg in 1996-97. The growth rates during the three sub-periods were 1.90 per cent, 2.02 per cent and 2.56 per cent, respectively. In all the major states growing cotton, yield has registered positive growth. The major states of Maharashtra, Gujarat, Andhra Pradesh and Rajasthan registered positive growth rates in all the three sub-periods. Karnataka (-0.64 per cent) and Madhya Pradesh (-0.24 per cent) were the only states to record negative growth rates in the first sub-period. The growth rates in yield of cotton in the country during different periods of time as also the growth rates in major states are given in Table 4.7.

**Table 4.7. Compound Annual Rates of Growth (CARG) in Yield of cotton**

*(Percentages)*

<b>States</b>	<b>1950-51 to 1967-68</b>	<b>1968-69 to 1983-84</b>	<b>1984-85 to 1997-98</b>
Andhra Pradesh	1.69	12.16	2.23
Gujarat	2.54	1.21	5.30
Haryana	-	0.48	0.02
Karnataka	-0.64	4.02	3.84
Madhya Pradesh	-0.24	-0.11	4.69
Maharashtra	0.70	1.72	4.16
Rajasthan	0.65	3.34	2.56
Punjab	2.56	-2.46	-2.25
Tamilnadu	2.47	1.54	-1.89
All India	1.90	2.02	2.56

The growth rate was maximum in Punjab (2.56 per cent) followed by Gujarat (2.54 Per cent) and Tamilnadu (2.47 per cent) during the first sub period. The growth rate was maximum in Andhra Pradesh (12.16 per cent) during the second sub-period. During this period also, Madhya Pradesh had negative growth rate (-0.11 per cent) while Punjab also registered negative growth due to intermittent fluctuations in yield. During the recent sub-period from 1984-85 to 1997-98, most of the states recorded impressive growth rates, which included Maharashtra (4.16 per cent), Gujarat (5.30 per cent), Madhya Pradesh (4.69 per cent), Karnataka (3.84 per cent), Rajasthan (2.56 per cent) and Andhra Pradesh (2.23 per cent). The states of Punjab and Tamilnadu recorded negative rates of growth in yield during 1984-85 to 1997-98 due to decline in the higher yield level that achieved earlier, although their yield levels were higher than the average.

#### **4.6. Cultivation practices**

Cotton in India is a monsoon crop with the planting season starting from May and extending to September. Northern States have irrigation for the cotton crop but the Central and Southern states depend largely on rainfall. Thus, total cotton production in the country is vulnerable to weather conditions. Cotton in Northern and Central States is mainly medium and short staple types, while the bulk of the country's long staple and extra long staple cotton comes from southern states.

In the Northern States of Punjab, Haryana and Rajasthan, where cotton is generally irrigated, sowing of the crop starts from April- May and gets extended as it moves down south. In north, the soil is first given a heavy irrigation and one or two ploughings. Thereafter, a light irrigation is given, followed by one or two ploughings and then the soil is planked with a wooden plank (sohaga) before the cotton is sown. In black-soil areas of central and southern India, where the crop is rainfed, cotton is sown by harrowing the field 3 or 4 times with the blade harrow. The land is given a deep ploughing only once in 4-5 years to remove weeds. In the red and lateritic soils of southern India, which are poor in retaining soil moisture, the field is usually given two or three light ploughings or harrowings for raising cotton as a rabi crop. The irrigated crop in these soils is given one watering, ploughed once and the land is prepared well for sowing the irrigated winter crop.

A seed rate of 15 to 25 kg per hectare and a spacing of 75 to 90 cm between the rows are generally recommended for rainfed desi cotton while a seed rate of 12 to 16 kg per hectare and a spacing of 45 to 60 cm between the rows are adopted for irrigated crop. Broadcasting the seed or sowing it in lines with a mechanical seed-drill or by hand are the two common methods for sowing cotton. In the case of ridge sown irrigated crop, hand dib-

bling of the seed at the recommended spacing is commonly followed. This method is also followed in dryland areas of parts of Madhya Pradesh and Andhra Pradesh.

The cotton crop in most of the areas in India is usually not adequately manured. The soils in which cotton is grown are generally sufficient in phosphate and potash, but deficient in nitrogen and organic matter. Therefore, it is necessary to apply nitrogen and organic matter for getting higher yields. Farmyard manure is rarely applied to the crop in the states of Punjab, Haryana, Rajasthan, Madhya Pradesh and Gujarat. Of late, some of the progressive farmers in these states apply 6 to 12 tonnes of farmyard manure per hectare to the rainfed crop and 15 to 25 tonnes of it to the irrigated crop. In Maharashtra, the cotton crop is manured with farmyard manure once in 3 or 4 years at the rate of 12 to 15 tonnes per hectare. In Tamilnadu, the irrigated American cotton crop is usually manured heavily and supplemented with fertilisers. The usual dose recommended is 40 kg of nitrogen per hectare in the case of the irrigated crop and 20kg in the case of the rainfed crop.

In the case of irrigated cotton, the optimum moisture supply during the critical stages of growth and development is the most important aspect of its cultivation. A proper irrigation schedule in the case of this crop in relation to soil type, weather conditions, cultivation practices and the variety is the decisive factor in getting high yields. Surface irrigation by flooding the fields is by far the commonest method practised in several parts of India. In Maharashtra, Tamilnadu and Karnataka, the method of furrow irrigation is in vogue and is considered more rational.

Over the last few decades, over-dependence on chemical control of cotton pests (including insects, pathogens, weeds, etc.) has led to many adverse



effects, notably pollution and health problems. The country has experienced problems with pyrethroid resistance particularly in Tamilnadu and Andhra Pradesh. The average number of spray applications is 5 to 10 but some parts of Tamilnadu and Andhra Pradesh are reported to be spraying upto 20-25 times. A contributing factor to this has been unregulated distribution of registered pesticide products, which resulted in excessive and indiscriminate use of pyrethroids. Although, all pesticides are supposedly to be registered, there appears to be no effective control on the quality of the product reaching the farmers.

Considering the agricultural as well as commercial importance of the crop, vigorous efforts have been made in the past to evolve high yielding varieties and hybrids. Now, almost 40 per cent of the total planted area is under hybrids produced by the private breeding sector. Production and distribution of authentic seed has not yet become a national priority. Irrigated area under the crop, another important determinant of productivity, has been extremely low in important cotton belts. In Maharashtra, the most important state for cotton, the coverage of irrigation was only 3 per cent of the area under the crop. At the national level, while only 39 per cent of the crop has covered under irrigation the coverage was as high as 97 to 99 per cent in states of Punjab, Haryana and Rajasthan during 1994-95. Besides, effective and efficient plant protection measures is another factor that decides the success and productivity of the cotton crop and has to be considered with great importance in the wake of recent catastrophe in Andhra Pradesh where excessive use of pesticides had contributed to crop damage and indebtedness of farmers leading to suicides. It has been reported that supply of good seed and practice of integrated pest management (IPM) alone can bring spectacular increase in production.

#### **4.7. Marketing of cotton**

Cotton being one of the important commercial crop in India, which supplies nearly 70 per cent of the raw material for the textile industry, which directly and indirectly provides employment to around 25 lakh people and which earned a little over Rs. 40,000 crore in foreign exchange during 1996-97, there had been government intervention in cotton trade by way of controls in domestic and international trade. Regulations in cotton marketing were guided by the objectives of increasing the production of cotton; particularly medium, super-medium and long staple varieties, safeguarding the interests of the producers and consumers through price and distribution policies and stabilising cotton price in the long-term.

The market for cotton was totally under private trade until the early 1970s when the Cotton Corporation of India (CCI) was set up by the Government of India in 1970, primarily to canalise imports and exports and to act as an agent to bring stability in the cotton market through buffer stock operations. The Cotton Monopoly Procurement Scheme by the Maharashtra State Co-operative Cotton Growers' Marketing Federation (Maharashtra Federation) introduced by the Government of Maharashtra in the subsequent year eliminated private trade from the major cotton growing state. Regulated markets and grading centres were established on a large scale to weed out the malpractices in the cotton market. Now, the cotton trading in the country is being done by the two sectors viz., the public sector and the private sector. Maharashtra Federation, CCI and other state federations are the major public sector agencies engaged in cotton trade and around 30 per cent of the cotton production is procured by these agencies, while the private sector handles about 70 per cent of cotton crop production. Maharashtra Federation accounts for nearly half of the total procurement. The procurement of cotton by various agencies in the public sector in relation to production of cotton in various years is given Table 4.8

**Table 4.8. Total production of cotton and procurement by public agencies**

(000 bales)

Year	Production	Procurement			
		Maha.Fed	CCI	Oth.Feds	Total
1970-71	4763	Nil	11 (0.23)	Nil	11 (0.23)
1980-81	7010	1261 (18.0)	1183 (16.9)	90 (1.2)	2534 (36.1)
1987-88	6382.0	1240.0 (19.4)	648.4 (10.2)	482.0 (7.6)	2370.4 (37.2)
1988-89	8744.0	1178.0 (13.5)	580.7 (6.6)	310.0 (3.5)	2068.7 (23.6)
1989-90	11422.0	2080.0 (18.2)	1240.0 (10.9)	579.0 (5.1)	3899.0 (34.2)
1990-91	9842.0	1350.0 (13.7)	1019.3 (10.4)	556.0 (5.6)	2925.3 (29.7)
1991-92	9713.9	1063.0 (10.9)	1000.7 (10.3)	543.0 (5.6)	2606.7 (26.8)
1992-93	11402.5	1990.0 (17.5)	1186.6 (10.4)	519.0 (4.6)	3695.6 (32.5)
1993-94	10740.6	1336.0 (12.4)	841.8 (7.8)	540.0 (5.0)	2717.8 (25.2)
1994-95	11887.6	1050.0 (8.8)	843.0 (7.1)	327.0 (2.8)	2220.0 (18.7)
1995-96	13093.3	2775.0 (21.2)	1016.8 (7.8)	230.0 (1.8)	4021.8 (30.8)
1996-97	14231.3	3127 (21.9)	1120 (7.9)	365 (2.6)	4612 (32.4)
1997-98	11140.7	1854 (16.6)	812 (7.3)	301 (2.7)	2967 (26.6)
1998-99	12177.5	2481 (20.4)	429 (3.5)	43* (0.4)	2953 (24.3)

Source : East India Cotton Association, 1999-00

Figures in parentheses are percentages to total production

\* Figures from AP, MP, Gujarat and Punjab are not available

The total procurement of cotton was only 11000 bales in 1970-71 by CCI alone that increased to 25 lakh bales in 1980-81 and to 46 lakh bales in 1996-97 together by CCI and State Co-operative Marketing Federations. The monopoly procurement scheme in Maharashtra accounted for the major share. The total procurement by all agencies was 36.1 per cent of the total production in 1980-81, which included 18.0 per cent by Maharashtra Federation, 16.9 per cent by CCI and 1.2 per cent by all other State Federations taken together. By 1990-91, the procurement made by all agencies increased to 29 lakh bales but constituted only 29.7 per cent of the total production. During this year, procurement as a percentage of total production was low by major agencies at 13.7 per cent by Maharashtra Federation and 10.4 per cent by CCI while the other state federations procured 5.6 per cent. In 1996-97, the procurement made by all agencies reached 46 lakh bales, which were around 32 per cent of the total production.

#### **4.7.1. Procurement by Maharashtra Federation**

The Maharashtra government started the Monopoly Procurement Scheme of cotton in 1971 and since 1972 - 73 the scheme is in operation in the state. The scheme aims at protecting the interests of the cotton growers from Maharashtra state ensuring fair and remunerative prices of cotton, eliminating middle men in cotton trade, stabilising inputs of the cotton growers and bringing about stability and growth in production of cotton in the state. The cotton produced in the state is procured by the state through the Federation, as the principal agent, which in turn operates through the taluka level purchase societies as its sub-agents. The procurement made by the Federation from 1974 -75 to 1998-99 in comparison with the state's production is given in Table 4.9.

**Table 4.9. Production of cotton and procurement by Maharashtra Federation** (000 bales)

Year	Production	Procurement	Percentage
1974-75	1717.0	1766.0	102.9
1975-76	771.0	820.0	106.4
1976-77	833.0	814.0	97.7
1977-78	1263.0	154.0	12.2
1978-79	1317.0	974.0	74.0
1979-80	1695.0	1736.0	102.4
1980-81	1269.0	1261.0	99.4
1981-82	1465.0	1484.0	101.3
1982-83	1609.0	1821.0	113.2
1983-84	814.0	769.0	94.5
1984-85	1467.0	1785.0	121.7
1985-86	1990.0	2988.0	150.2
1986-87	889.0	1300.0	146.2
1987-88	1468.0	1240.0	84.5
1988-89	1373.0	1178.0	85.8
1989-90	2211.0	2080.0	94.1
1990-91	1880.3	1350.0	71.8
1991-92	1155.1	1063.0	92.0
1992-93	1807.7	1990.0	110.1
1993-94	2625.4	1336.0	50.9
1994-95	2500.3	1050.0	42.0
1995-96	2795.8	2775.0	99.1
1996-97	3143.3	3127.0	99.5
1997-98	1753.1	1854.0	105.8
1998-99	2618.9	2481.0	94.7

Source : East India Cotton Association, 1999-00

The Federation initially started procurement at a guaranteed price. Because of the scheme of purchasing cotton at a guaranteed price, the procurement of the Federation in the state was more than the state's production since the beginning of its operations. In 1974-75 the production in Maharashtra was 17.17 lakh bales while the procurement was 17.66 lakh bales i.e. 102 per cent. The excess procurement of cotton than the state's production continued in 1975-76, 1979-80, 1981-82, 1982-83, 1984-85, 1985-86, 1986-87, 1992-93 and 1997-98 while the procurement of cotton was less than the state cotton production in rest of the years. In the event of guaranteed price in Maharashtra being higher than the prices in the bordering states, there was illegal movement of cotton into the state. This was especially observed in the year 1985-86 when the Federation procured 29.88 lakh bales while the production in Maharashtra was only 19.90 lakh bales. The high guaranteed prices paid to the farmers were naturally subsidised by the State Government and hence the state exchequer ended up subsidising not only the farmers in Maharashtra but also those in the bordering states. In 1993-94 while the estimated production in Maharashtra was 26.25 lakh bales, the Maharashtra Federation procured only 13.36 lakh bales (i.e., 50 per cent) while in 1994-95 the estimated production was 25 lakh bales, but the federation procured only 10.5 lakh bales (i.e., 46.6 per cent). This outflow was due to the fact that the farmers besides getting better price also get lumpsum payment (whereas in Maharashtra, they are paid in instalments). The farmers also can avoid repaying their dues to co-operative credit societies which would get adjusted if they sell to the Federation and also avoid making contributions to the Price Fluctuation Fund and Capital Formation Fund of the Federation, the proceeds of which are used to balance losses.

The share of the terminal price received by the producer is the best test of the efficacy of any marketing channel. The share in the ultimate price received by cotton farmers in Maharashtra was not too unsatisfactory. It averaged to 83.9 per cent of the gross sale receipts of the Federation during the 23-year period from 1972-73 to 1994-95. However, it is often pointed out that the very high share in the terminal price received by farmers were made possible by the government contributions received by the federation to off-set its losses (for instance, the federation met losses of Rs.77.17 crore and Rs.308 crore in years 1984-85 and 1985-86 respectively) while the payment made to farmers were 93.23 per cent and 115.82 per cent of the gross sale receipts of the Federation (Shroff, 1997). From 1986-87 season, cotton is being purchased at support prices announced by the Government of India. It could also be noted that the procurement made by the federation was less than the production in most of the years since 1987-88 and was as low as 51 per cent in 1993-94 and 42 per cent in 1994-95.

#### **4.7.1.1. Maharashtra Cotton Monopoly Procurement Scheme**

The monopoly procurement scheme of cotton by the Government of Maharashtra has been in place since 1972 under the Maharashtra Raw Cotton (Procurement, Processing and Marketing) Act, 1971. The Act prohibits carrying on of business in kapas (Section 17), cotton ginning and pressing (Section 18) and transport of kapas outside the state (Section 19). Every grower of cotton is required to sell his produce to Government (Section 20). Grading and pooling of kapas tendered at collection centres has been made obligatory (Section 22). Maharashtra State Co-operative Cotton Growers Marketing Federation has been appointed as an agent of the state government to implement the scheme. The Act provides for a Price Fluctuation Fund (PPF) with a provision (Section 33 (1)) that "where for any cotton season, the final price is less than the guaranteed price, the amount of difference shall be paid

from and debited to the Fund". The monopoly procurement scheme has been receiving the attention of many scholars and administrators, primarily on the basis of the losses it makes to the state exchequer. However, the Act which was originally meant for carrying on for a certain time of all trade in raw cotton by the state got perpetually extended year after year and by five years at a stretch last year. The relevance of the scheme in changing circumstances was also not questioned although several committees have reviewed the implementation of the Act. Some of the indicators of the progress of the scheme are indicated in Table 4.10.

**Table 4.10 – Progress of Maharashtra Cotton Monopoly Procurement**

Particulars	Scheme			
	1976-77	1990-91	1995-96	1996-97
Number of villages under the scheme	22147	22150	23000	23000
No. of cotton growers (Lakhs)	10.0	15.0	24.0	24.0
Total procurement (Lakh Qtls.)	40.97	65.85	131.03	149.89
Procurement Cost (Rs. Crores)	110.75	461.39	1564.41	1846.01
Expenses and other costs (Rs. Crores)	21.96	97.26	448.46	467.43
Total cost (Rs. Crores)	132.73	558.65	2012.87	2313.44
Price of bales sold (Rs. Crores)	187.56	555.34	1958.44	2378.65
Price of seeds sold (Rs. Crores)	44.16	205.30	413.24	602.83
Other receipts (Rs. Crores)	-	5.99	94.17	25.76
Total receipts (Rs. Crores)	231.72	766.63	2465.85	3007.24
Surplus (Rs. Crores)	100.01	205.82	452.98	693.80
Share credited to PPF (Rs. Crores)	25.00	51.46	(-)-552.90	(-)-377.95





From the table, it is clear that there has been growth in the number of villages covered, number of cotton growers covered, procurement of cotton and the gross receipts of the Federation from the scheme. However, during 1995-96 and 1996-97, the Federation had to debit the Price Fluctuation Fund. Reports indicate that the scheme had run up losses of Rs.2700 crore at the end of 2000-01.

#### **4.7.2. Cotton Corporation of India**

The latter half of '60s experienced successive crop failures on account of bad monsoons that played havoc with Indian agriculture and the production of several crops including cotton suffered heavy losses. Agro-based industries were particularly in jeopardy because of the shortage of raw material. The shortage of domestic cotton resulted in problems in textile industry and the need for buffer stocking of the commodity to tide over the periodical stress was strongly felt. It was also considered necessary for the government to take over the import trade of cotton and also to intervene effectively in the domestic trade so that the legitimate interests of the producers and consumers were protected. Accordingly, the Cotton Corporation of India [CCI] was registered on 31 July 1971 as a Company fully owned by the Govt under the Companies Act 1956. The primary objective of the CCI was to channelise the import and export of cotton and to purchase cotton at support prices from the cotton growers mainly to supply to the state owned National Textile Corporation (NTC).

CCI now carries out trading in cotton both in the domestic and the export market and also act as agency for implementing the minimum support price mechanism. It procures cotton from about 200 purchasing centres in 8 major cotton producing states (excluding Maharashtra), for supply to NTC, and other institutional buyers like Khadi and Village Industries Commission, State Textile Corporations, etc. and undertakes export of cotton as per quota released by the Government. In Madhya Pradesh, Gujarat and Andhra Pradesh the CCI operates in 108 centres.

The cotton procured by the CCI ranged from 10 - 18 per cent of total cotton production in the country. However, a remarkable shift in the procurement operations can be seen from 1978-79 where the CCI was advised to undertake commercial purchases of cotton so that the cotton prices do not fall below the prescribed minimum and also to undertake maintenance of buffer stocking operations in addition to providing raw material for the National Textile Corporation. Accordingly, the procurement of cotton by CCI, which was less than 1 lakh bales in 1974-75, rose to more than 10 lakh bales in 1978-79 and further to around 16 lakh bales in 1985-86. On an average it processes 10 lakh bales of cotton per annum. The share of the farmers in the CCI's receipts ranged from 82 to 95 per cent and averaged 87.5 per cent over the 25 years of its functioning (Shroff, 1997). Procurement operations of CCI in various states are given in Table 4.11

**Table 4.11. Procurement of cotton by CCI from various states**

(000 bales)

Year	A .P.	Guj	Har	Kar	M.P	Raj	Pun	TN	Total
1974-75	6.6	16.6	0.5	2.4	1.7	1.0	1.0	2.1	31.9
1975-76	8.1	44.7	6.7	23.0	7.7	14.9	21.3	23.2	149.5
1976-77	34.1	121.5	41.9	40.9	65.7	69.1	132.8	28.9	534.9
1977-78	29.2	111.9	46.2	36.3	65.8	93.8	113.5	35.8	667.2
1978-79	41.3	267.4	79.4	121.6	91.9	104.8	188.6	82.0	1036.4
1979-80	70.1	164.7	108.7	104.4	133.0	147.2	344.3	41.6	1114.1
1980-81	122.3	215.5	74.6	114.9	199.2	128.7	259.2	85.0	1179.4
1981-82	111.9	242.2	71.8	62.2	162.1	134.0	19.1	72.3	1055.8
1982-83	145.8	211.1	85.2	57.9	86.0	162.7	183.0	38.2	970.8
1983-84	123.6	94.5	49.6	47.9	70.9	58.5	55.6	24.3	524.9
1984-85	109.1	124.7	64.8	39.1	116.6	88.8	94.1	31.0	668.7
1985-86	337.7	496.6	105.3	100.5	208.6	141.4	157.4	26.0	1573.6
1986-87	108.2	76.6	164.1	3.1	134.9	160.3	169.0	6.7	823.4
1987-88	182.1	28.3	83.4	9.7	133.9	45.6	159.8	5.7	648.4
1988-89	96.7	99.5	67.3	25.7	88.8	51.0	143.1	10.4	580.7
1989-90	244.6	212.8	142.2	26.0	185.4	121.0	285.9	20.8	1240.0
1990-91	248.9	204.9	79.4	24.2	214.7	108.1	131.3	7.9	1019.3
1991-92	171.6	154.4	109.9	74.0	126.5	149.4	207.4	7.2	1000.7
1992-93	157.8	226.6	137.7	66.0	101.6	162.9	328.0	5.3	1186.6
1993-94	162.1	164.0	47.0	31.2	168.7	130.2	69.0	4.3	841.8
1994-95	100.1	223.9	80.2	23.6	187.6	111.2	114.7	0.1	843.0
1995-96	211.3	231.8	72.8	24.2	223.7	123.0	122.4	2.4	1016.8
1996-97	177.7	305.4	85.9	52.1	231.8	156.2	105.3	2.7	1120.0
1997-98	193.6	248.6	33.5	23.6	189.1	97.4	23.8	0.4	812.2
1998-99	118.5	172.0	5.0	17.5	34.8	62.5	15.5	1.5	429.6
1999-00	122.9	112.9	18.5	16.7	44.2	124.2	35.7	2.7	508.0

Source : East India Cotton Association, 1999-00

#### 4.7.3. Other State Marketing Federations

State co-operative marketing federations do participate in cotton trading in all other major cotton growing states. On an average the total procurement of these federations together were around 4 lakh bales per annum. Among these Federations, the Gujarat State Co-operative Marketing Federation plays the dominant role in cotton marketing. The Federation

started its procurement operations in 1981-82 and during the last 16 years the average procurement of the Federation was 1.93 lakh bales per annum. The total procurement operations of various state federations are given in Table 4.12.

**Table 4.12. Procurement of cotton by various state federations**

State	<i>(000 bales)</i>					
	1989-90	1990-91	1994-95	1995-96	1996-97	1997-98
Gujarat	188.0	215.0	101.0	77.0	198.0	179.0
Punjab	223.0	156.0	45.0	40.0	67.0	30.0
Haryana	65.0	68.0	87.0	57.0	30.0	8.0
Rajasthan	12.0	22.0	30.0	12.0	31.0	30.0
MP	36.0	54.0	34.0	23.0	26.0	36.0
AP	33.0	15.0	5.0	9.0	N.A.	N.A.
Karnataka	14.0	20.0	16.0	10.0	12.0	17.0
Tamilnadu	8.0	6.0	9.0	2.0	1.0	1.0
<b>Total</b>	<b>579.0</b>	<b>556.0</b>	<b>327.0</b>	<b>230.0</b>	<b>365.0</b>	<b>301.0</b>

*Source: East India Cotton Association, 1999-00*

The procurement operations in cotton by other state federations is on the decline. The total procurement was maximum in the year 1989-90 at 5.79 lakh bales which was 5 per cent of the total production in the country which came down to a minimum of 2.3 lakh bales in 1995-96 representing only 1.8 per cent of the production. Other than Gujarat State Co-operative

Marketing Federation, Punjab Federation and Haryana Federation are the major agencies among this group.

Private sector handles around 70 per cent of cotton produced in the country. Before the cotton lint reaches the ultimate consumer, namely, textile mills, it is generally moved from the primary markets to the secondary markets where the assembling of unginned cotton generally takes place before distribution. The producers sell Kapas to village merchants, itinerant traders or agents of textile mills and owners of ginning and pressing factories.