CHAPTER - V

SPATIO-TEMPORAL TRENDS OF NON-FOOD COMMERCIAL CROPS
It is the cropping pattern of non-food crops, which is easily susceptible to change with the changes occurring in methods, techniques and even in objectives of farming. Further, crops are the principal indicators of agriculture typology in an area and they are helpful in interpreting and analysing some aspects of socio-economic conditions of the region. With this view in mind, temporal as well as spatial changes along with their present position of non-food crops have been analysed in the present chapter.

The people have been engaged in agriculture since centuries back in this State as in the rest of India. They have so far used the land, most valuable natural resource, at their disposal according to their level of knowledge and attitude towards life. The cropping pattern in Madhya Pradesh is typical of an under developed agricultural economy. Most of the cultivated area is devoted to subsistence food crops, mainly for domestic consumption and local market where the surpluses are traded immediately for domestic and farm necessities. Case crops receive negligible percentage of the cropped area.

**CHANGE IN THE AREAL EXTENT OF THE NON-FOOD CROPS**

During last fifty years, total area of non-food crops increased from 2,212 thousand hectares in 1950-51 to 6,728 thousand hectares in 2000-2001, annexing 4,516 thousand hectares [204.1 per cent] to it. Out of this, 4,444 thousand hectares are added to only oilseed crops. This addition works an increase of 410.7 per cent for all oilseed crops. This is higher than the growth of area under all oilseed crops [116.7 per cent] in the country during 1950-51 to 2000-2001. Differential rates of growth of different crops are clear from Table-5.1.
Table 5.1

M. P.: Changes in Area under Non-Food Crops, 1950-51 to 2000-01
(Area in thousand hectares)

<table>
<thead>
<tr>
<th>Crops</th>
<th>1950-1951</th>
<th></th>
<th>2000-2001</th>
<th></th>
<th>Change in Area</th>
<th>% Change</th>
<th>Net Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area</td>
<td>%</td>
<td>Area</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rape/Mustard</td>
<td>74.4</td>
<td>0.68</td>
<td>417.5</td>
<td>2.33</td>
<td>343.0</td>
<td>461.1</td>
<td>1.65</td>
</tr>
<tr>
<td>Groundnut</td>
<td>181.3</td>
<td>1.68</td>
<td>211.5</td>
<td>1.18</td>
<td>30.2</td>
<td>16.6</td>
<td>-0.50</td>
</tr>
<tr>
<td>Linseed</td>
<td>337.2</td>
<td>3.12</td>
<td>162.3</td>
<td>0.90</td>
<td>-174.9</td>
<td>-51.9</td>
<td>-2.22</td>
</tr>
<tr>
<td>Sesame</td>
<td>375.3</td>
<td>3.47</td>
<td>143.5</td>
<td>0.80</td>
<td>-231.8</td>
<td>-61.8</td>
<td>-2.67</td>
</tr>
<tr>
<td>Soyabean</td>
<td>43.5</td>
<td>0.28</td>
<td>4462</td>
<td>24.96</td>
<td>4418.5</td>
<td>10157</td>
<td>24.68</td>
</tr>
<tr>
<td><strong>Total Oilseed</strong></td>
<td><strong>1082</strong></td>
<td><strong>10.03</strong></td>
<td><strong>5526</strong></td>
<td><strong>30.92</strong></td>
<td><strong>4444</strong></td>
<td><strong>410.7</strong></td>
<td><strong>28.89</strong></td>
</tr>
<tr>
<td>Cotton</td>
<td>773.2</td>
<td>7.16</td>
<td>490.7</td>
<td>2.74</td>
<td>-282.4</td>
<td>-36.5</td>
<td>-4.42</td>
</tr>
<tr>
<td><strong>Total Non-</strong></td>
<td><strong>2212</strong></td>
<td><strong>20.5</strong></td>
<td><strong>6728</strong></td>
<td><strong>37.65</strong></td>
<td><strong>4516</strong></td>
<td><strong>204.1</strong></td>
<td><strong>17.15</strong></td>
</tr>
<tr>
<td><strong>Food Crops</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * Change in area between 1975-76 to 2000-01.

(ii) Commissioner land records and Settlement Tables of Agricultural Statistics of M.P., 2000-01

Among oilseeds, highest increase occurred in area under soyabean [10157.0 per cent] during 1975-76 to 2000-2001. It followed by rape and mustard [460.7 per cent] and groundnut [16.6 per cent] during 1950-51 to 2000-2001. It is observed that the area under groundnut has increased but its proportion in total cropped area decreased [-0.5 point]. But linseed and sesame recorded decrease in area as well as in share. The only commercial crop of the state-cotton lost 282.4 thousand hectares [-36.5 per cent] during 1950-51 to 200-01.

**NET CHANGES IN PROPORTION OF NON-FOOD CROPS**

Differential growth rates of crops have also caused shifts in their significant in total array of crops of the state. Analysis of changes in the proportion of crops is another way of expression of overall change in cropping pattern. Percentage area under all oilseeds increased from 10.03
per cent in 1950-51 to 30.92 per cent in 2000-2001, net addition being 28.89 point. This gain was caused due to increase in the proportion of soyabean [+24.68 points] during 1975-76 to 2000-2001 and rape and mustard [+1.65 points] during 1950-51 to 2000-2001. But sesame [-2.67 points] linseed (-2.22 points) and groundnut (-0.5 points) lost proportion in total cropped area. Several high yielding varieties of cotton have been made available to farmers but percentage area under cotton declined by -4.42 points. Overall relative significance of non-food crops increased fastly by +17.15 points, from 20.5 per cent of total cropped area in 1950-51 to 37.65 per cent in 2000-2001. A change in area under non-food crops is clear from Plate-36A & B.

CHANGE IN PRODUCTION OF NON-FOOD CROPS

The production of non-food crops increased from 473.6 thousand tonnes in 1955-56 to 5133.1 thousand tonnes in 1999-2000, recording an increase of 983.8 per cent during last forty-five years. Out of this, 5055.5 thousand tonnes are added to oilseed crops. This addition works an increase of 1256.3 per cent. This is higher than the growth of production oilseed crops [301.2 per cent] in the country during 1950-51 to 1999-2000. The higher rate of growth of production [1256.3 per cent] than of area [410.7 per cent] under oilseeds apparently proves faster growth of yield rates. This trend varies from crop to crop and from district to district. Among oilseeds, soyabean has recorded very high increase in production [22072.0 per cent] during 1975-76 to 1999-2000. Rape and mustard (1697.4 per cent), groundnut [54.0 per cent] and linseed [13.8 per cent] also recorded growth in production during 1955-56 to 1999-2000. Contrary to this production of sesame decreased [-63.7 per cent]. But despite of declining area, production of cotton increased by 14.94 per cent during the same period. Differential rates of growth of different crops are clear from Table-5.2.

Soyabean

Soyabean occupies first place among all crops in the state. Soyabean is comparatively a new entrant to the list of commercial crops of the state.
Table 5.2
Madhya Pradesh; Changes in Production and Yield of Non-Food Crops
1955-56 to 1999-2000
(Production in 000 tonnes and Yield in kg/ha)

<table>
<thead>
<tr>
<th>Crops</th>
<th>Production</th>
<th></th>
<th></th>
<th>Yield per hectare</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rape/Mustard</td>
<td>35.2</td>
<td>632.7</td>
<td>1697.4</td>
<td>419</td>
<td>978</td>
</tr>
<tr>
<td>Groundnut</td>
<td>144.4</td>
<td>222.4</td>
<td>54.0</td>
<td>596</td>
<td>931</td>
</tr>
<tr>
<td>Linseed</td>
<td>90.3</td>
<td>102.8</td>
<td>13.8</td>
<td>266</td>
<td>401</td>
</tr>
<tr>
<td>Sesame</td>
<td>87.2</td>
<td>31.6</td>
<td>-63.7</td>
<td>250</td>
<td>221</td>
</tr>
<tr>
<td>Soyabeanc</td>
<td>20.0</td>
<td>4434.4</td>
<td>22072</td>
<td>455</td>
<td>1064</td>
</tr>
<tr>
<td><strong>Total Oilseed</strong></td>
<td><strong>402.2</strong></td>
<td><strong>5457.9</strong></td>
<td><strong>1256.3</strong></td>
<td><strong>372</strong></td>
<td><strong>976</strong></td>
</tr>
<tr>
<td>Cotton†</td>
<td>396.7</td>
<td>456.5</td>
<td>15.1</td>
<td>406</td>
<td>449</td>
</tr>
</tbody>
</table>

**Note:**  
† Production in Thousand bales of 170 kg each.

**Source:**  

It is grown on 4462 thousand hectares in 2000-01, which constitutes 24.96 per cent of total cropped area and 66.3 per cent of total cropped area of all non-food crops in the state. It is about 70.0 per cent of the total soyabean cropped area in the country. Cultivation of the soyabean was started in the Dewas district. Later on, it spread over other contiguous districts of Malwa plateau and reached to the Narmada valley, the Betul - Chhindwara plateau and Bundelkhand plateau. Proportion of cropped area under soyabean ranges from 0.06 per cent in Balaghat and Bhind to 76.8 per cent in Ujjain and 63.0 per cent in Indore district 2000-01. There are thirteen districts out of 37 have higher proportion of soyabean than the state average. [24.96 per cent]. These districts are concentrated in the four areas. These areas are (i) Malwa plateau, (ii) middle Narmada valley, (iii) east Nimar plain and (iv) Betul plateau. Though soyabean is sown in all districts of state more than three-fifths [61.1 per cent] of soyabean cropped
area is confined in nine districts [viz. Ujjain, Indore, Shajapur, Rajgarh, Dhar, Sehore, Mandsaur, Hosangabad and Dewas] each having more than two lakh hectares under this crop. Other seven districts have devoted one-fifth [23.03 per cent] of area under soyabean. It is between 0.5 to 1 lakh hectares in these seven districts. Thus, more than 95.7 per cent [4277.1 thousand hectares] of soyabean area is confined in twenty-three districts. It is worth mentioning that in 1983-84 first nine soyabean producing districts comprised 79.8 per cent and first nineteen districts 97.6 per cent of soyabean cropped area. Thus, the degree of concentration of soyabean production is declining.

**Changes in Area:** Growth in area under soyabean has been much lower than that of production. Total area under soyabean was 238.7 thousand hectares in 1980-81, which reached to 4462 thousand hectares in 2000-01. Thus area under soyabean recorded 1768.8 per cent increase, while soyabean production increased by 4480.9 per cent during this period. There is a wide range of variation in growth rate of area under this crop during this period. Change in area under soyabean varies from 80.0 per cent in Gwalior and 100.0 per cent in Bhind to 77200.0 per cent in Shivpuri and 56000.0 per cent in Damoh district. There are twenty-six districts out of thirty-seven districts, which have higher growth of soyabean cropped area than the state average [1768.8 per cent]. Out of them thirteen districts have very high growth, more than 7075.2 per cent [more than 4 times of state average] of area under this crop. These districts are distributed in the six areas: (i) Bundelkhand plateau, (ii) Vindhyan region, (iii) Guna-Shivpuri-Moren tract, (iv) upper Narmada valley, (v) east Nimar plain, and [vi] Mandsaur plateau. Among them only four districts are major producers of soyabean. Such districts are Mandsaur, Khandwa, Sagar and Guna. Contrary to them, districts have lower growth of soyabean cropped area than the state average. Out of them six districts are major contributors of soyabean area. Thus majority of districts showing high growth are not major producers and contribution of minor producers is increasing rapidly of soyabean area.
Soyabeans was just a experimental crop upto 1963 and about this production of this crop was started in the Indore division. In 1964-65, about 2 thousand tonnes of soyabeans were produced from 4 thousand hectares. Area under soyabeans could reach to only 3 thousand hectares by 1970-71. But it increased phenomenally after 1971-72, from 8.0 thousand hectares in the same year to 238.7 thousand hectares in 1980-81 and 4462 thousand hectares in 2000-01. Thus area under soyabeans recorded 55675.0 per cent [556 time] increase even during 1971-72 and 2000-01. Such phenomenal increase has been recorded by none of the crops in the state. At the same time, area under cotton, jowar and groundnut has been shrinking; and such soyabeans has acquired principal position among commercial crops in the state. Such rapid expansion has been made possible by the introduction of suitable varieties of soyabeans. Secondly, yield of soyabeans is much higher than several pulse crops and groundnut, which have been displaced by it. Thirdly, because of short maturity period (90 to 105 days), second crop can be grown on the same field in the rabi season also. At the same time, soyabeans is a leguminous crop and enriches the soil with nitrogen. Economic factors also favoured large-scale expansion of soyabeans cultivation. Government is encouraging its cultivation not only by fixing supporting price but also by providing assistance for inputs, seeds and technical know-how. It fetches comparatively high prices. The association of oilseeds growers, formed in 1979, has facilitated the marketing of soyabeans. Establishment of more 50 soyabeans processing plants provides ready market for it. Because of these reasons this state is at top in the production of soyabeans increased phenomenally in this state.

**Changes in Proportion of Area:** Proportion of area under soyabeans increased from 1.12 per cent in 1980-81 to 24.96 per cent in 2000-01, net addition being + 23.85 per cent points. This addition varies very widely [Plate-37A]. Proportion of area under soyabeans varies from 0.03 point in Bhind and 0.06 point in Balaghat to 73.0 point in Ujjain and 56.3 point in Shajapur district. Share of soyabeans increased in all thirty-seven districts during this period. Out of them, thirteen districts have higher addition than the state average [23.85 points]. These districts lie in three tracts-
north-central Malwa plateau, middle Narmada valley, and Betul plateau. All these thirteen districts are major producers of soyabean. There are eight districts recording medium addition in share of soyabean area. These districts are located in the (i) Guna-Shivpuri plateau, (ii) Sagar-Damoh plateau, (iii) Vidisha-Raisen Tract, and (iv) Chhindwara-Seoni plateau. Among them four districts [Sagar, Guna, Vidisha and Raisen] are significant producers of soyabean. Contrary to them sixteen districts recording low and very low addition are distributed in the Chambal region, Bundelkhand upland, Vindhyan region, Baghelkhand plateau, Maikal and Balaghat Plateau. These districts are also not significant producers of soyabean.

Changes in Production: Production of soyabean is 4434.4 thousand tonnes in 1999-2000, which is 81.25 per cent of total production of all oil seeds. Production of soyabean in the state constitutes 64.4 per cent of the total soyabean production in the country. Production of this crop is concentrated in the three areas. These are (i) the Malwa plateau, (ii) middle Narmada valley, and (iii) middle Satpura region. Ujjain is the largest producer by producing 570.0 thousand tonnes or 12.85 per cent of total soyabean in the state. It is followed by Mandsaur [10.35 per cent], Shajapur [8.42 per cent], Sehore [7.4 per cent], Ratlam [6.7 per cent], Dewas [6.3], Hosangabad [6.0 per cent], Dhar [5.6 per cent], Indore [5.6 per cent], and Rajgarh [5.3 per cent]. They produce three-fourths (74.6 per cent) of total soyabean production of the state. Besides them Narsinghpur, Raisen, Guna, Vidisha, Betul and Sagar are also worth mentioning. All these sixteen districts contribute 3916.7 thousand tonnes which is more than 88.5 per cent of total soyabean production.

Total production of soyabean increased from 96.8 thousand tonnes in 1980-81 to 4434.4 thousand tonnes in 1999-2000, thus recording an increase of 4480.9 per cent during 1980-81 to 2000-01. It ranges from 300.0 per cent in Balaghat, Sidhi and Bhind to 65471.4 per cent in Mandsaur and 5,87,000 percent in Morena district. Similar to the area production increased in all thirty-seven districts during this period and twenty of them have recorded higher growth than the state average [4480.9
per cent]. These districts are concentrated in (i) the north and northeastern Malwa plateau, (ii) Bundelkhand plateau, (iii) Vindhyan region, (iv) Maikal plateau, (v) Chhindwara-Seoni plateau, and (vi) upper Narmada valley (Plate-37B). Among them only eight districts are major producers of soyabean. Seven districts recorded medium growth. They are Panna, Shahdol, Dhar, Khargone, Shajapur, Sehore and Raisen. Among them four districts are major producers. Remaining seven districts recorded low and very low growth. Among them only four districts are major producers [viz. Indore, Dhar, Dewas and Hosangabad]. Thus majority of districts showing high and very high growth of production are not major producers and contribution of marginal producers is increasing rapidly in soyabean production.

Changes in Yield Rate: Yield of soyabean (1064 kg/hectare) is much higher than those of all oilseeds. It ranges from only 371 kg/ha in Khargone and 486 kg/ha in Sidhi to 2085 kg/ha in Gwalior district. It is remarkable that the distributional pattern of yield rate varies with that of the production. Out of 37 districts, eleven districts have higher yield rates of soyabean than the state average [1064 kg/ha]. Out of them, eight districts are important producers also. Only three districts could not figure in production despite higher yield per unit. Such districts are in the Balaghat, Morena and Gwalior. At the same time, eight districts of northeastern Malwa plateau, middle Narmada valley and Betul plateau could become principal soyabean producers despite low and very low yield rates. It could become possible because of comparatively larger area under this crop.

High growth in production is the consequence of increasing yield rate from 406 kg/hectares in 1980-81 to 1064 kg/hectares in 1999-2000. This works an increase of 162.1 per cent. It ranges from 35.1 per cent in Khargone and 45.9 per cent in Sidhi to 327.2 per cent in Morena and 317.0 per cent in Gwalior districts. (Plate-37C) There are twelve districts having higher growth than the state average [162.1 per cent]. Seven of them [Ujjain, Mandsaur, Ratlam, Rajgarh, Morena, Chhindwara and Narsinghpur] also recorded high and very high growth in production also
MADHYA PRADESH

[A] NET CHANGES IN AREA UNDER SOYABEAN
1980-2001

[B] CHANGES IN PRODUCTION OF
SOYABEAN
1980-2000

[C] CHANGES IN YIELD OF
SOYABEAN
1980-2000

[D] TREND OF AREA, PRODUCTION & YIELD OF SOYABEAN,
1964-2000

PLATE - 37
and five districts are major producers. Contrary to them five districts Balaghat, Dewas, Shajapur, Gwalior and Raisen recorded low and medium growth in output in spite of very high growth in yield rate, due to very slow growth in area under soyabean. Twenty-five districts have lower growth than the state average. Out of them twelve witnessed low and very low growth [less than 100.0 per cent] in yield rate. These districts are located in the Bundelkhand plateau, Vindhyan region, Maikal plateau, Betul Hosangabad tract and southwestern part of the state. Among them only four districts Sidhi, Datia, Betul and Hosangabad have low growth in output of soyabean and two districts [Hosangabad and Betul] are major producers of this crop. Contrary to them, eight districts showed rapid growth in their production despite low and very low growth in yield rate. It is due to high increase in area under soyabean. Trend of area, production and yield rate is clear from Plate-37D.

**Rape-mustard**

Rape and mustard are second important rabi oilseed crops in the state. They are grown on 417.5 thousand hectares, which constitute 2.33 per cent of total cropped area of all oilseed crops. Area under rape and mustard in the state constitute 9.33 per cent of the area under these crops of the country in 2000-01. Proportion of cropped area under rape and mustard ranges from almost nil in five districts and below 0.02 per cent in six districts to 33.40 per cent in Morena and 25.02 per cent in Bhind district. There are seven districts with higher proportion of rape and mustard cropped area than the state average [2.33 per cent]. These districts are concentrated in four areas. These areas are: (i) Gwalior and Chambal region, (ii) Bundelkhand upland (iii) Maikal plateau, and (iv) Baghelkhand plateau. Nearly three-fourths [74.6 per cent] of the rape and mustard sown area of the state is in the Gwalior-Chambal region. Highest concentration is in the Chambal division. Morena [39.82 per cent] and Bhind [19.33 per cent] jointly constitute nearly three-fifth [59.13 per cent] of the rape and mustard cropped area of the state.

**Changes in Area:** Growth in area under rape and mustard has been lower than that of production. Total area under rape and mustard was 74.4
thousand hectares in 1950-51, which reached to 417.5 thousand hectares in 2000-01. Thus it increased by about 461.1 per cent during this period, while rape and mustard production increased by 1697.4 per cent in is the same period. There is wide variation in growth of area under rape and mustard. It ranges from – 82.0 per cent in Dhar and 80.0 per cent in Indore and Jhabua to 56860.0 per cent in Tikamgarh district. There are sixteen districts out of 37, which have higher growth than the state average [461.1 per cent]. Districts with higher growth than the state average of area under rape and mustard are concentrated in the five areas. They are (i) Chambal region, (ii) Bundelkhand upland, (iii) middle Narmada valley, (iv) northwestern Malwa plateau, and (v) Betul plateau. Out of them, six districts have very high growth rate [more than 100 times] of area under rape and mustard. These districts are Betul, Hosangabad, Mandsaur, Chhatarpur, Tikamgarh and Damoh. Contrary to them eleven districts recorded decline. These districts are located in the four areas. These areas are (i) southeastern part of the state, (ii) eastern Malwa plateau, (iii) Wainganga basin of Balaghat district, and (iv) Sagar plateau. Out of them, area under rape and mustard reduction drastically in five districts. These districts are Sehore, Dhar, Indore, Jhabua and Ujjain.

Changes in Proportion of Area: Proportion of area under rape and mustard increased from 0.68 per cent in 1950-51 to 2.33 per cent in 2000-01, net addition being +1.65 point. This addition varies very widely (Plate-38A). It ranges from 1.8 points in Guna and 0.46 points in Vidisha to 29.5 points in Morena and 16.9 points in Bhind district. There are nine districts recording decline in proportion of area under rape and mustard during this period. These districts are distributed in the four areas. These areas are (i) Dhar-Jhabua hilly tract, (ii) eastern Malwa plateau, (iii) Sagar plateau, and (iv) Wainganga basin of Seoni district. These districts are not major concentration area of these crops. Contrary to them twenty-five districts recorded increase in share of area. These districts are concentrated in the six areas. These areas are: (i) Chambal region, (ii) Bundelkhand plateau, (iii) Narmada valley, (iv) Baghelkhand plateau, (v) middle and eastern Satpura region, and (vi) Vindhyan region. Highest addition has been in the Chambal region [Morena, Bhind, Gwalior, Shivpuri], Bundelkhand upland
[Datia, Tikamgarh, Chhatarpur] and Maikal plateau. Out of them only five districts are major contributors of area under rape and mustard. Only three districts witnessed no change in share of area under these crops. These districts are Indore, Khandwa and Khargone.

**Changes in Production:** Total Production of rape and mustard was 632.7 thousand tones in 1999-2000, which is 11.6 per cent of total production of all oilseeds. Production of rape and mustard in the state constitutes 10.93 percent of the production these crops of the country. Production of rape and mustard concentrated in the Chambal-Gwalior region and Maikal plateau. Morena is the largest producer [274.8 thousand tones or 43.43 per cent] of rape and mustard in the state, followed by Bhind [19.84 per cent], Mandsaur (6.16 per cent), Gwalior [13.21 per cent], Shivpuri (4.84 per cent), Mandla (3.48 per cent) and Datia (1.38 per cent). These seven districts contribute 584.2 thousand tonnes which 92.33 per cent of total rape and mustard production of the state. More than four-fifths [83.11 per cent] of the rape and mustard production is received from the Chambal-Gwalior region.

Total production of rape and mustard from 35.2 thousand tones in 1955-56 to 632.7 thousand tones in 1999-2000, thus recording an increase of 1697.4 per cent. Area under these crops increased by only 461.1 per cent during it period. There is wide variation in growth of rape and mustard production (Plate-38B). It ranges from- 38.10 per cent in Guna to 39,000.0 per cent in Mandsaur and 27,766.6 per cent in Gwalior district. Production of this crop increased in thirty-two districts. Out of them ten districts have recorded higher growth than the state average [1697.4 per cent]. These districts are concentrated in (i) Chambal-Gwalior region, (ii) Bundelkhand upland, (iii) Mandsaur-Ratlam tract, and (iv) Betul plateau. Six districts out of ten are major producers. Other four districts [Betul, Ratlam, Chhatarpur and Tikamgarh] with high growth are small contributors. There are 22 districts recording lower growth than the state average. These districts are located in the Malwa plateau, Narmada valley, Vindhyan region and southeastern part of the state. Only Mandla is major producer. Only Guna district recorded decline in.
Changes in Yield Rate: Yield of rape and mustard [978 kg/ha] is much lower than that of soyabean [1064 kg/ha] in 1999-2000. It ranges from 79 kg/ha in Vidisha and 271 kg/ha in Rewa to 1259 kg/ha in Morena and 1236 kg/ha in Ratlam district. There are eight districts have higher yield rate than the state average [978 kg/ha]. Out of them only four districts could not figure in production despite higher yield rate. Such districts are Raisen, Shajapur, Ratlam and Narsinghpur. At the same time, five districts of Shivpuri-Datia plateau, Bundelkhand upland and Maikal-Shahdol plateau could become principal rape and mustard producers despite lower yield rates. It could become possible because of comparatively larger area under the crops.

Contrary to area, average yield of rape and mustard increased rapidly, from 419 kg/ha in 1955-56 to 978 kg/ha in 1999/2000, thus recording an increase of 133.4 per cent. Changes in yield rate varies from –85.1 per cent in Vidisha to 245.1 per cent in Morena district. Sixteen districts have recorded growth in yield [Plate-38C]. Fifteen districts out of sixteen of high growth in output also and seven districts are major producers of this crop. Only Guna district witnessed decline in output in spite of high growth in yield rate, due to rapid reduction in area. Yield decline in only two districts Vidisha and Sagar. These two districts raised their production despite in destining yield rate due to very high increase in area. Trend of area, production and yield rate is clear from Plate-38D.

Groundnut

Groundnut is an important kharif oilseed and comes at third place among the all oilseeds after soyabean and rape and mustard in the state. It is grown on 211.5 thousand hectares, which constitute only 3.81 percent of the total cropped area of all oilseeds and 3.13 percent of total cropped area of all non-food crops in the state. It is about 3.14 percent of total groundnut cropped area in the country. Proportion of area under groundnut ranges from almost nil in four districts and below 0.01 per cent in three districts to 11.89 percent in Shivpuri and 5.59 per cent in Khargone district in 2000-01. There are nine districts having higher proportion than the state average [1.18 percent of total cropped area in the
state]. These districts are distributed in the four areas. These are (i) Bundelkhand upland, (ii) Nimar plain including Jhabua district, (iii) Betul-Chhindwara plateau, and (iv) Shivpuri plateau. Shivpuri is the largest producer of groundnut. In 2000-2001, area of this district is 60.6 thousand hectares, contributing 28.65 per cent of total groundnut area in the state. Khargone [18.1 per cent], Chhindwara [12.8 per cent], Tikamgarh [8.1 per cent], Jhabua [6.9 per cent], Khandwa [3.6 per cent] and Chhatarpur [3.5 per cent] follow it. Thus more than four-fifths (81.0 per cent) of groundnut cropped area is confined in these seven districts.

**Changes in Area:** Growth is area under groundnut has been much lower than that of production. Total area under groundnut was 181.3 thousand hectares in 1950-51, which reached to 211.5 thousand hectares in 2000-01. Thus it increased by about 16.65 per cent during this period, while groundnut production increased by 54.0 per cent in the 1950-51 to 1999-2000. There is wide range of variation in growth rate of area. It varies from – 94.0 per cent in Ujjain and 92.4 per cent in Raisen to 346300.0 per cent in Datia and 107381.2 per cent in Tikamgarh district. Twenty out of 37 districts have higher growth than the state average [16.57 per cent]. These districts are distributed in the (i) Bundelkhand upland, (ii) Chambal and Gwalior division, (iii) Vidisha plateau, (iv) Vindhyan region, (v) Baghelsonkhand plateau, (vi) eastern Satpura region, (vii) Maikal plateau, and (viii) Damoh-Jabalpur tract. Datia has highest growth [346300.0 per cent], followed by Tikamgarh [107381.2 per cent], Chhatarpur [36560.0 per cent], Gwalior [6847.8 per cent], Shivpuri [3172.3 per cent] and Seoni [1642.2 per cent].

Remaining seventeen districts recorded decline in area under groundnut. These districts are located in the (i) Malwa plateau [exception Vidisha and Guna district], (ii) Nimar plain, and (iii) Narmada valley. Out of them, area under groundnut reduced drastically in ten districts [i.e. Hosangabad, Raisen, Rajgarh, Shajapur, Dhar, Indore, Ratlam, Ujjain, Dewas and Narsinghpur].

**Changes in Proportion of Area:** The proportion of area under groundnut has been fallen from 1.68 per cent in 1950-51 to 1.18 per cent 2000-01. It
declined by -0.5 point. Change in proportion of area under groundnut varies from - 6.43 points in Dhar and - 5.54 points in Jhabua to 11.12 points in Shivpuri and 4.37 points in Tikamgarh district. There are nineteen districts recording decline in share during this period (Plate-39A). These districts are located in the (i) Malwa plateau, (ii) Nimar plain, (iii) Narmada valley, and (iv) Betul plateau.

Drastic reduction in proportion in area under groundnut has been recorded in the major groundnut cultivated districts of Dhar, Jhabua, Khargone, Khandwa, Betul and Mandsaur. Contrary to them, fourteen districts recorded increase in share of area under groundnut during this period. These districts are concentrated in the (i) Bundelkhand upland, (ii) Chambal and Gwalior division, [except Guna district], (iii) eastern Satpura and Maikal plateau, and (iv) Damoh-Jabalpur tract. Out of them, highest addition has been in the Bundelkhand upland [Datia, Tikamgarh and Chhatarpur districts], Shivpuri plateau and Chhindwara-Seoni plateau. These six districts are major cultivated districts of groundnut. Proportion of area remained Bhind, Mandla, Satna and Sidhi districts.

**Changes in Production:** Total production groundnut has been 222.14 thousand tonnes in 1999-2000, which is 4.07 per cent of all oilseeds in the state. Production of groundnut in the state constitutes 4.23 per cent of the total production in the country. Production of groundnut is concentrated in the four areas. These areas are (i) Shivpuri-Datia plateau, (ii) Betul-Chhindwara-Seoni plateau, (iii) Nimar plain including Jhabua hilly area, and (iv) Bundelkhand upland. Shivpuri is the largest producer [60.9 thousand tonnes or 27.38 per cent] of groundnut in the state followed by Chhindwara [16.68 per cent], Khargone [9.0 per cent], Tikamgarh [7.55 per cent], Khandwa [7.06 per cent], Betul [6.47 per cent], Jhabua [5.71 per cent] and Seoni [4.1 per cent]. These eight districts contribute more than four-fifths [83.95 per cent] of total groundnut production in the state.

Total production of groundnut increased from 144.4 thousand tonnes in 1955-56 to 222.14 thousand tonnes in 1999-2000, thus recording an increase of 54.0 per cent. Area under this crop increased only 16.65 per cent during the same period. There is wide variation in growth of
groundnut production (Plate-39B). It ranges from 100.0 per cent in Hosangabad and Narsinghpur to 16800.0 per cent in Tikamgarh and 5800.0 per cent in Datia district. Production increased in nineteen districts. Out of them fourteen districts have recorded higher growth than the state average [54.0 per cent]. Such districts are concentrated in the (i) Chambal and Gwalior region [except Bhind district], (ii) Bundelkhand upland, (iii) eastern Satpura and Wainganga basin, and (iv) Jabalpur–Shahdol tract. Out of fourteen districts, only four districts are major producers also. Remaining ten districts with high growth are small contributors. Thus majority of districts showing high and very high growth of groundnut production are not major producers and contribution of minor producers is increasing rapidly. There are thirteen districts which recorded decline is production of groundnut during this period. Most of such districts are located in the Malwa plateau, middle Narmada valley and west Nimar plain. Only Khargone, Jhabua and Mandsaur are major producers of groundnut.

Changes in Yield Rate: Yield of groundnut, i.e. 931 kg/hectare, is even much lower than that of soyabean [1066 kg/ hectare] and rape and mustard [978 kg/ha.] in 1999-2000. It ranges from 125 kg/ha in Seoni and 559 kg/ha in Khargone to 1676 kg/ha in Dewas and 1539 kg/ha in Raisen districts. Twenty-two districts have higher yield rate than the state average [931 kg/ha]. Out of them, only seven districts are significant producer of groundnut, and fifteen districts are not significant in production in spite of high yield per unit. Such districts are distributed in the Malwa plateau, middle Narmada valley, Chambal and Gwalior region [Shivpuri and Datia] and Wainganga basin of Balaghat district. Contrary to it five districts of the Dhar- Jhabua hilly tract, west Nimar, Wainganga basin of Seoni and Chhatarpur plateau are significant contributor with very low yield rate. It has been made possible by the large size of area under this crop.

It the case of groundnut it is certain that production went up due to increasing yield rate. Average yield per hectare of groundnut rose from 596 kg in 1955-56 to 931 kg in 1999-2000. It works to be 56.2 per cent
growth. District wise growth in yield rate ranges from 78.38 per cent in Seoni to 372.5 per cent in Raisen district during 1955-56 to 1999-2000. There are fourteen districts having higher growth in yield rate than the state average [56.2 percent]. These districts are concentrated in the north and northeastern Malwa plateau, middle Narmada valley and Betul-Chhindwara plateau (Plate-39C). Three of them are Raisen, Guna and Chhindwara districts of high growth in production also. Only Chhindwara district is major producer. Contrary to them, eight districts viz. Hosangabad, Rajgarh, Shajapur, Dewas, Indore, Mandsaur, Ujjain and Narsinghpur witnessed decline in output in spite of very high growth in yield rate. It is due to drastic reduction in area under groundnut. These districts are not major producers of groundnut. Trend of area, production and yield rate is clear from Plate-39D.

Linseed

Linseed is an important oilseed of the rabbi season. It occupies 162.3 thousand hectares or 2.93 per cent of total cropped area of all oilseeds in the state in 2000-01. It is about 27.5 per cent of total area under linseed in the country. Proportion of area under linseed ranges from nil in Jhabua and below 0.1 per cent in five districts to 4.16 per cent in Balaghat district in 2000-2001. Thirteen districts have higher proportion than the state average [i.e. 0.90 per cent]. These districts are in the eastern part of the state. Highest concentration of area under linseed in the Rewa district. About 17.4 thousand hectares, one devoted to linseed in this district, contributing 10.77 per cent of total linseed area in the state. It is followed by Sidhi [9.2 per cent], Balaghat [8.53 per cent] Chhatarpur [7.5 per cent], Sagar [7.0 per cent], Damoh [6.68 per cent], Seoni [6.4 per cent], Shahdol [6.1 per cent], and Satna [5.3 per cent]. Total area under linseed in these nine districts is 109.4 thousand hectares, which is more than two-thirds [67.5 per cent], of total linseed cropped area of the state.

Changes in Area: Total area under linseed was 337.2 thousand hectares in 1950-51, which reduced drastically to 162.3 thousand hectares in 2000-01. Thus it decreased by -51.87 per cent during this period, while linseed production increased by about 13.8 per cent during 1950-51 to 1999-
2000. There is a wide range of variation in change of area under linseed during 1950-51 to 1999-2000. Change in area under linseed varies from -100.0 per cent in Jhabua and -99.5 per cent in Dhar to 472.4 per cent in Shahdol and 400.8 per cent in Sidhi district. There are only seven districts out of 37 have higher growth of area under linseed. These districts are distributed in the Bundelkhand plateau, BaghelKhand plateau, Maikal plateau and Damoh plateau. Contrary to them, thirty districts recorded reduction in percentage area of linseed during this period. Such districts are located in the (i) Malwa plateau, (ii) Chambal and Gwalior region, (iii) Nimar plain, (iv) Narmada valley, (v) Vindhyan region, and (vi) middle satpura region. Drastic seduction [-90.0 per cent above] in linseed area has been recorded in eighteen districts. These districts are distributed in the Malwa plateau, Nimar plain and middle Narmada valley.

**Changes in Proportion of Area:** Linseed lost its share by -2.22 points, from 3.12 per cent of total cropped area in 1950-51 to 0.90 per cent in 2000-01. Change in proportion of area under linseed varies from -6.25 point in Indore and -5.95 points in Vidisha to 1.40 points in Shahdol district. In thirty-two districts out 37 recorded decline in proportion of area under linseed during this period (Plate-40A). These districts are located in the four areas: (i) Malwa plateau, (ii) Chambal and Gwalior region, (iii) Vindhyan region and (iv) Narmada valley. Drastic reduction has been recorded in the western Malwa plateau, middle Naramda valley, Vidisha-Guna plateau, Rewa-Satna plateau and in Balaghat district. Out of them only six districts are major contributors of area under linseed. Contrary to it, only five districts recorded increase in share of area under linseed. They are located in the Bundelkhand uplands [Chhatarpur, Tikamgarh], Baghelkhand plateau [Shahdol and Sidhi] and Maikal plateau [Madla]. All these districts [exception Tikamgarh] are major contributors of linseed area.

**Changes in Production:** Total production of linseed increased from 90.3 thousand tonnes in 1955-56 to 102.8 thousand tonnes in 1999-2000. It is 1.88 per cent of total production of all oilseed. Production of linseed in the state constitutes 42.65 per cent of the total production in the country.
Production of this crop is concentrated in the seven areas: (i) Bundelkhand plateau, (ii) Vindyan region, (iii) Baghelkhand plateau, (iv) Sehore-Raisen-Hosagabad tract, (v) Wainganga basin, (vi) Maikal plateau, and (vii) Mandsaur plateau. Raisen is the largest producer [10.1 thousand tonnes or 9.82 per cent] followed by Balaghat [7.78 per cent], Seoni [6.1 per cent], Sagar [6.4 per cent], Mandsaur [6.1 per cent], Damoh [5.45 per cent], Rewa [5.35 per cent], and Chhatarpur [5.16 per cent]. Besides them, Jabalpur, Sidhi, Panna and Mandla are also worth mentioning. All these twelve districts contribute 71.2 thousand tonnes, which is more than two-thirds [69.25 per cent] of total linseed production of the state.

This is wide variation in growth of linseed production (Plate-40B). It ranges from -100.0 per cent in Khargone and -87.5 per cent in Narsinghpur to 700.0 per cent in Mandla and 562.5 per cent in Chhatarpur district. Districts recording with higher growth than the state average (13.84 per cent) are concentrated in Bundelkhand plateau, middle and eastern Satpura region, Baghelkhand plateau, Damoh-Jabalpur plateau, Raisen - Sehore tract, Shivpuri plateau and Mandsaur plateau. Out of seventeen districts, twelve districts are major producers. Remaining five districts with high growth are small contributors of linseed production. Thus majority of districts showing high growth of linseed production are major producers. Districts antnessing reductions in linseed production are located in the southwestern and northeastern Malwa plateau, Nimar plain, Chambal region, middle Narmada valley and Vindhyan region. Out of them only two districts Rewa and Satna are major producers of linseed production. Thus majority of districts showing decline of linseed production are not major producers and contributors.

**Changes in Yield Rate:** Yield of linseed is 401 kg/hectares, which is even much higher than that sesame [221kg/ha] in 1999-2000. It ranges from 230 kg/ha in Shahdol to 1075 kg/ha in Gwalior district. There are twenty districts with higher yield than the state average [401 kg/ha]. Out of them only three districts Raisen, Sehore and Mandsaur, are significant producers of linseed and seventeen districts could not make significant place among producers in spite of high yield per unit. Such districts are
located in the Chambal-Gwalior region, northern and northeastern Malwa plateau, middle Narmada valley and Betul-Chhindwara plateau. Contrary to it eleven districts in the eastern part of the state are significant contributors, though yield rate is very low. It has been made possible by the large size of area under this crop.

Average yield per hectare was 266 kg/ha in 1955-56, which rose to 401 kg/ha in 1999-2000, recording an increase of 50.6 per cent. Changes in yield rate ranges from -33.05 percent in Satna to 281.93 per cent in Raisen districts (Plate-40C). There are twenty-three districts out of 37 have higher growth than the state average [50.6 per cent]. Eleven of them are districts of high growth in output also. Yield rate decline in four districts Rewa, Satna, Shahdol and Rajgarh. Only Shahdol district raised their production despite decline in yield rate, due to high increase in area under this crop. Trend of area, production and yield rate is clear from Plate-40D.

Sesame

Sesame is an important kharif oilseed crop in the state. It is grown on 143.5 thousand hectares, which constitutes 2.6 per cent of total cropped area of all oilseeds. It is about 8.2 per cent of total area under sesame in the country. Proportion of area under sesame ranges from nil in Indore and Ujjain to 7.02 per cent in Chhatarpur district. There are eleven districts out of 37 having higher proportion than the state average [0.80 per cent of total cropped area in the state]. These districts are concentrated in the Chambal-Gwalior region, Bundelkhand plateau, Baghelkhand plateau and east Nimar plain. Highest concentration of area under sesame in the Chhatarpur district. In 2000-01, area under sesame in this district is 33.2 thousand hectares, contributing 23.1 per cent of total sesame area in the state. It is followed by Sidhi [13.3 per cent], Tikamgarh [13.2 per cent], Shahdol [6.7 per cent], Panna [5.8 per cent], and Morena [4.9 per cent]. Thus total area under sesame in these six districts is 96.5 thousand hectares, which is more than two-thirds [67.3 per cent] of total sesame cropped area of the state.

Changes in Area: Total area under sesame was 375.3 thousand hectares in 1950-51, which drastic declined to 143.5 thousand hectares in 2000-
2001 recording -61.81 per cent decline during this period. Change in area under sesame varies from -99.4 per cent in Ujjain to 370.8 per cent in Balaghat district. Only one district i.e. Balaghat out of 37 recorded increase in area under sesame. All other 36 districts recorded reduction in percentage area of sesame during this period. Among them 15 districts have drastic decline [above -80.0 per cent]. These districts are distributed in the three areas: (i) Malwa plateau; (ii) middle Narmada valley, and (iii) Guna-Shivpuri plateau.

**Changes in Proportion of Area:** Sesame lost its share by (-) 2.67 points, from 3.47 per cent in total cropped area in 1950-51 to 0.80 per cent in 2000-01. Point's change in share of area under sesame varies from -11.1 points in Shivpuri and -10.1 points in Hosangabad to 0.24 point in Balaghat district (Plate-41A).

**Changes in Production:** Production of sesame declined from 87.2 thousand tonnes in 1955-56 to 31.6 thousand tonnes in 1999-2000 (Plate-41B). It is about 5.38 per cent of total sesame production in the country. Production of this crop is concentrated in the Bundelkhand upland, Baghelkhand plateau, Shivpuri-Morena plateau and east Nimar plain. Chhatarpur is the largest producer [21.84 per cent] of total sesame production in the state. Its followed by Tikamgarh [16.2 per cent], Sidhi [13.6 per cent], Shahdol [5.1 per cent], Morena [4.4 per cent] and Panna [4.1 per cent]. Thus all these seven districts have contributes 22.2 thousand tonnes, which is more than two-thirds [70.25 per cent] of total sesame production of the state.

**Changes in Yield Rate:** Yield of sesame (221kg/hectare) is even much lower than the all oilseeds in 1999-2000. It ranges from 132 kg/ha in Satna to 495 kg/ha in Chhindwara district. There are twenty-two districts having higher yield rate than the state average. Among them only six districts Chhatarpur, Tikamgarh, Shivpuri, Morena, Khandwa and Narsinghpur are significant producers of sesame and sixteen districts could not make significant place among producers in spite of high yield per unit. Such districts are distributed in the north and northeastern Malwa plateau, Bhind-Datia-Gwalior tract, middle Narmada valley, Wainganga
basin of Balaghat district and Chhindwara plateau. Contrary to it fifteen districts have lower yield rate than the state average. Among them only three districts [Sidhi, Shahdol and Panna] are significant contributors. It has been made possible by the large size of area under this crop.

Average yield per hectares from 250 kg/ha in 1955-56 to 221 kg/ha in 1999-2000. Thus recording a decrease of -11.67 percent. Changes in yield rate ranges from -58.1 percent in Jhabua to 231.6 per cent in Chhindwara districts. There are twenty-seven districts of growth in yield rate (Plate-41C). Trend of area, production and yield rate is clear from Plate-41D.

**Cotton**

Cotton has significant place among commercial crops of the state. But it is being displaced by soyabean. It is grown on 490 thousand hectares in 2000-01, which is only 2.74 per cent of total cropped area of non-food crops in the state. It is about 5.72 per cent of the total cotton cropped area in the country. Proportion of cropped area under cotton ranges from nil in twenty-six districts to 31.13 per cent in Khargone district. Cotton is cultivated only in eleven districts. Out of them only seven districts have higher proportion than the state average [2.74 per cent]. These districts are concentrated in the three areas: (i) Nimar plain, (ii) southwestern Malwa plateau, and (iii) Chhindwara plateau. Total cotton sown area in these seven districts in 488.3 thousand hectares, which more than 99.5 per cent of total cotton cropped area of the state. More than three-fourths [85.31 per cent] of the cottonsown area is in Indore division. Highest concentration is in the Nimar plain. Khargone [43.38 per cent] and Khandwa [20.27 per cent] jointly constitute more than 63.65 per cent of cotton growing area of the state.

**Changes in Area:** Total area under cotton was 773.2 thousand hectares in 1950-51, which reduced to 490.7 thousand hectares in 2000-01, recording decrease of -36.53 per cent during this period. Despite this, cotton production increased by about 14.7 per cent during 1950-51 and 1999-2000. Change in area under this crop varies from -100.0 per cent in nineteen districts to 194.1 per cent in Chhindwara districts. There are only
five districts out of 37, which show positive growth in area under cotton. These districts are major contributors of area under this crop. Contrary to them, thirty-two districts recorded reduction in percentage area of cotton during it period. Out of them, cotton disappeared totally from nineteen districts and no cotton is grown in them. These districts are located in the six areas: (i) Chambal-Gwalior region, (ii) Bundelkhand plateau, (iii) Vindhyan region, (iv) upper Namada valley, and Seoni plateau, (v) north-eastern Malwa plateau, and (vi) southern Baghelkand plateau. In other 6 districts also loss was up to 100 per cent. These twenty-five districts are not major contributors of area under cotton.

**Changes in Proportion of Area:** Proportion of area under cotton declined rapidly, by -4.42 percentage points, from 7.16 per cent of total cropped area in 1950-51 to 2.74 per cent in 2000-01. Point change in proportion of area under cotton varies from -30.57 points in Shajapur and -24.84 points in Ujjain to 7.14 points in Khargone district. Thirty-five districts out of thirty-seven have recorded decline in share of area under cotton during this period (Plate-42A). Among them eight districts have rapid reduction. These districts are distributed in the Malwa plateau. Among them Ratlam and Dewas are significant contributors of area under this crop. Contrary to it only four districts Dhar, Jhabua, Khargone and Chhindwara have recorded increase in share of area under cotton. These districts are major contributors to the area under this crop. In Balaghat and Mandla share of cotton cropped area remained constant.

**Changes in Production:** Production of cotton is 456.5 thousand bales in 1999-2000. It is 4.73 per cent of the total cotton production in the country. In the state cotton is produced only in eleven districts. These districts are concentrated in the southwestern part of the state. Khargone is the largest producer [192.2 thousand bales or 42.24 per cent] of cotton in the state. It is followed by Khandwa [19.19 per cent], Dhar [19.1 per cent], Chhindwara [7.78 per cent], Dewas [6.62 per cent], Ratlam [3.41 per cent] and Jhabua [1.14 per cent]. These seven districts contribute 45.25 thousand bales, which is 99.45 per cent of total production of the state. Thus highest
concentration of production is in the Nimar plain. Khargone and Khandwa jointly continue 61.43 per cent of cotton production of the state.

Total production of cotton increased from 396.7 thousand bales in 1955-56 to 456.5 thousand bales in 1999-2000, thus recording an increase of 15.1 per cent. Area under this crop decreased by about -36.5 per cent during same period. There is wide variation in growth of cotton production. It ranges from -100.0 per cent in thirteen districts to 763.4 per cent in Chhindwara district (Plate-42B). Five districts have higher growth than the state average [14.70 per cent]. These districts are Dewas, Dhar, Khargone, Khandwa and Chhindwara and are major producers also. Contrary to it, nineteen districts recorded decline in production of cotton. These districts are concentrated in northeastern Malwa plateau, middle Narmada valley and Seoni plateau, Baghelkhand plateau and Indore-Ujjain tract. These districts are not major producers. It can safely be concluded that production increased in major producing districts and declined in marginal contribution.

**Changes in Yield Rate:** Yield of cotton is 449 kg/ha in 1999-2000. It ranges from 127 kg/ha in Sehore to 740 kg/ha in Chhindwara district. Four districts (Shajapur, Dhar, Chhindwara and Seoni) have higher yield rate than the state average [449 kg/ha]. Among them only Dhar and Chhindwara are major producers. Contrary to it, five major cotton producing districts- Khargone, Khandwa, Dewas, Ratlam and Jhabua have very low yield rate.

Average yield rate per hectare was 406 kg/ha in 1955-56, which rose to 449 kg/ha in 1999-2000. Thus recording an increase of 10.46 per cent. Changes in yield rate ranges from -100.0 per cent in eight districts to 395.9 per cent in Seoni district. There are ten districts out of 37 having higher growth in yield rate (Plate-42C). Trend of area, production and yield rate is clear from Plate-42D.