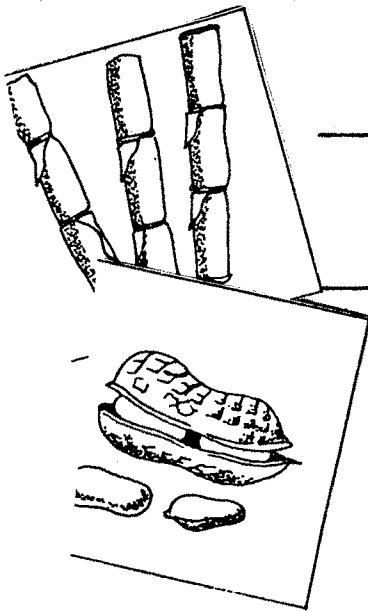


CHAPTER FIVE

CROPPING PATTERN OF NON-FOOD CROPS



5.1 DISTRICT AREA OF NON-FOOD CROPS :

Non-foodgrains form an important constituent of any cropping system. Even though food crops dominate the cropping scene of any region in India, non-food crops are slowly picking up in the interest of making agriculture a commercial occupation and also for increasing the supplies of agricultural raw materials for agro-based industries. In the process, there takes place a shift of the cropping pattern from low-value crops to high-value crops. The statistical data of Kolhapur district will be scanned to find out the significance of this group of crops in the cropping pattern of the district, the time-series behaviour of the cultivators in putting their land under non-food crops and the degree of stability in allocation of land for this purpose.

Column 3 of Table 5.1 gives the aggregate area of land in the district used for non-food crops. Figures in the lower parentheses pertain to the percentage of the district area under these crops to the GCA of the district. As regards the aggregate land under non-food crops, it appears that there were ups and downs from triennium, however, the changes were all the while around 1.50 lakh hectares. Triennium 1966-69 indicated a sudden dip in the area (1.05 lakh hectares) compared to 1.50 lakh hectares of the preceding (1963-66) triennium. Major reason was drought situation during 1966-67. Slump of relatively smaller magnitude could be observed during the triennium 1981-84 (1.39 lakh hectares) on the background of 1.42 lakh hectares during the preceding triennium and 1.55 lakh hectares during the succeeding triennium. If the initial and last triennium are compared, area under non-food crops in the last triennium increased by 4.89 per cent.

The absolute area can be viewed as percentage of the GCA of the district. The percentage figures moved between 34 and 36 per cent for most of the triennium; exceptions were 1978-81 and 1981-84 when the figures stood at 32

per cent. Average for the time-series was 35.08 per cent. That is, a little over one-third of the GCA of the district was occupied by non-food crops.

The long-term tendency in the area appears to be declining. A trend line if drawn on the basis of triennium percentage would be declining though modestly. To conclude, therefore, from mid-seventies proportion of GCA of the district devoted for non-food crops exhibited a declining tendency. This feature is contrary to the kind of change in the cropping pattern normally expected - the kind of change specified at the outset of this chapter. It implies straightway that food crops were getting priority during this sub-period covered by 1975-89. More observations on this phenomenon are reserved for the concluding chapter.

5.2 TALUKA PROFILE OF NON-FOOD CROPS :

Now the micro-level analysis of the district behaviour will be taken up. Taluka is the unit for the purpose. The way in which the talukas of Kolhapur district showed variations in the non-food crops in general and principal crops therein in particular will be studied with reference to two dimensions as before : (a) taluka area vis-a-vis district area of non-food crops and (b) taluka area of non-food crops vis-a-vis GCA of the taluka. The interpretations have been represented on the basis of data in Table 5.1.

5.2.1 TALUKA AREA VIS-A-VIS DISTRICT AREA OF NON-FOOD CROPS :

In Table 5.1, columns 4 to 15 give first of all the absolute area of non-food crops in the taluka during the triennium. Then follow the upper parentheses giving percentage share of the taluka area in the district total. This data would now be serufinised in order to establish conclusions pertaining to the average area under non-food crops and the magnitude of range in which the percentage area moved, the time-series trend behaviour and finally the degree of variability represented by the coefficients of variation.

5.2.1.1 Average area :

A summary account of the average area of each taluka alongwith the range of variation of the percentage area is given in Table 5.2

Table 5.2
Talukawise range of share of under non-food crops
(Percentages)

Taluka	Range of share	Range magnitude (percentage for the points)	Average share for the entire period
1. Karvir	9.31 to 10.39	1.08	9.76
2. Panhala	7.25 to 7.90	0.65	7.57
3. Hatkanagale	9.96 to 14.02	4.06	11.92
4. Shirol	5.83 to 12.86	7.03	9.00
5. Kagal	11.30 to 12.86	1.56	12.60
6. Gadhinglaj	10.49 to 11.71	1.22	11.13
7. Chandgad	6.52 to 11.36	4.84	8.49
8. Ajara	5.61 to 7.81	2.20	6.84
9. Bhudargad	4.31 to 7.15	2.84	4.95
10. Radhanagari	5.49 to 7.34	1.85	6.48
11. Gagan Bawada	1.34 to 2.50	1.16	2.21
12. Shahuwadi	7.37 to 11.26	3.89	9.98

Perusal of Table 5.2 brings out that there was a well spread-out distribution of non-food crops over the district, thus avoiding too much concentration in a specific pocket. The hierarchy of the talukas observed from the average share of area of each taluka for the entire period would be as follows : Kagal, Hatkanagale, Gadhinglaj, Shahuwadi, Karvir, Chandgad, Panhala, Ajara, Radhanagari, Bhudargad and Gagan Bawada. It should specifically be noted that out of the first six in the above order, except Shahuwadi, all other talukas were

from eastern peninsula of the district. The lower ranking talukas were from the western hilly region. These five talukas together commanded on average 54.41 per cent of the district land under non-food crops.

The range magnitude within which the percentage area moved over the 27 year period in question was quite narrow, and was spread between 0.50 to 5.00 percentage points for all the talukas, barring Shirol which had a range magnitude of 7.03 percentage points. This is an indication of a fair degree of stability of the group of crops.

5.2.1.2 Trends :

The percentage data of all the trienniums may be juxtaposed in order to find out the long-term tendency of the various talukas in devoting their land for non-food crops in general. Trend lines are fitted and shown in Chart 13. The diagrams therein point out that rising trend prevailed in case of Panhala, Chandgad, Ajara, Bhudargad, Radhanagari and Shahuwadi. Importantly, all these talukas were from the western hilly tract. Herein the uptrend was marginal in case of Panhala and Radhanagari. All these talukas together commanded an average of 44.31 per cent of the district area under non-food crops. On the other side the downtrend was revealed by Karvir, Hatkanagale, Shirol, Kagal, Chandgad and Gagan Bawada. In this group, except Gagan Bawada, all other talukas were from the eastern region of the district. Not only that, they were relatively prominent talukas growing non-food crops. All these six talukas together commanded nearly 56 percent of the area under non-food crops. Obviously, overall trend for the district would be influenced more by the group of talukas having downtrend. This is how the trend for the district as a whole had a downward trend, though the downward tendency was not very sharp.

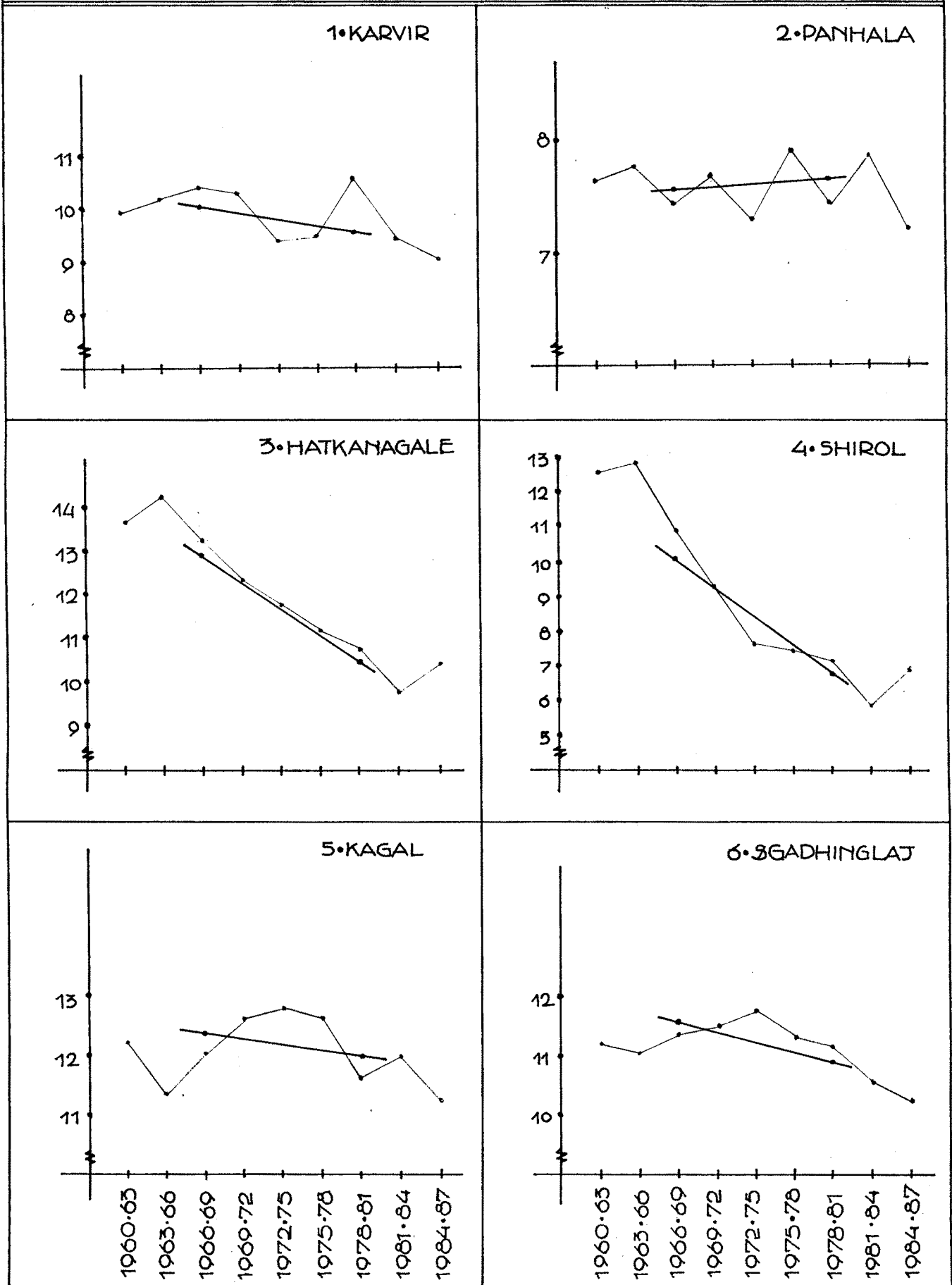
5.2.1.3 Coefficient of variation :

The earlier section opined that, because the range values were quite low, there was high degree of stability.

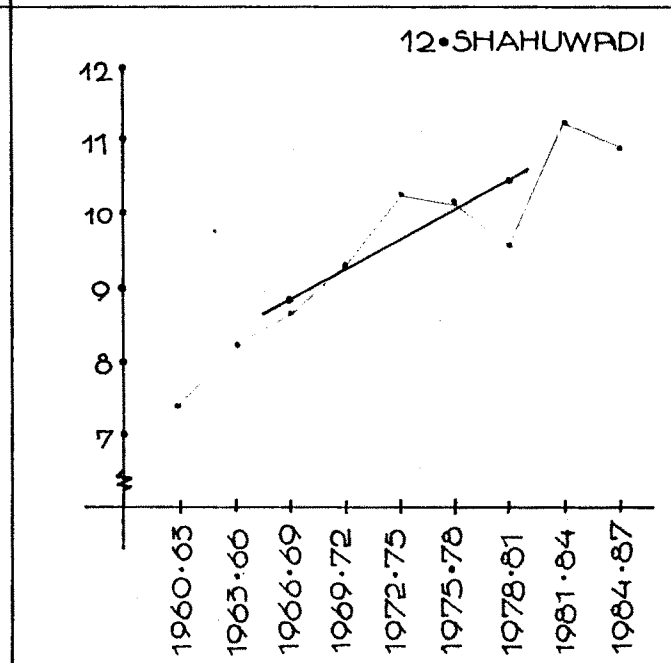
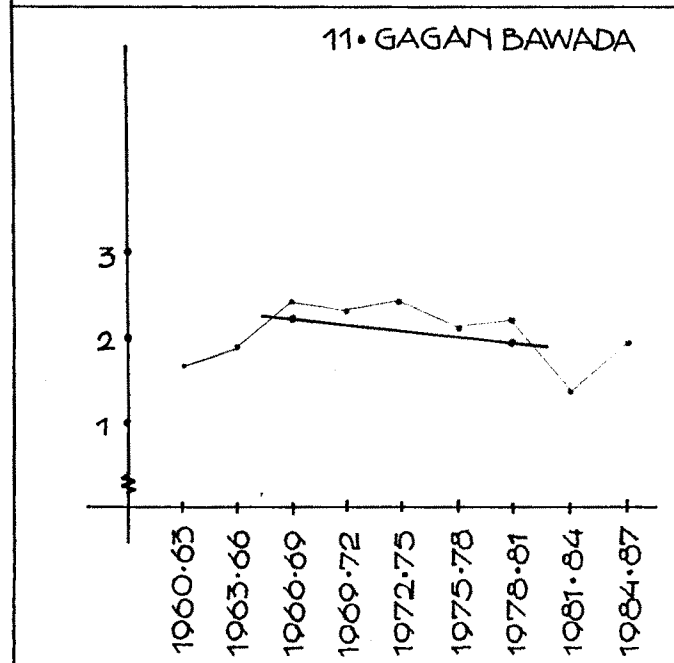
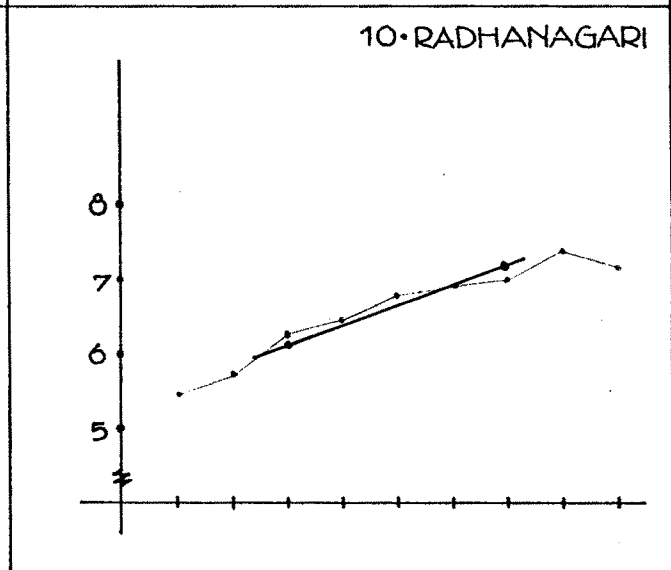
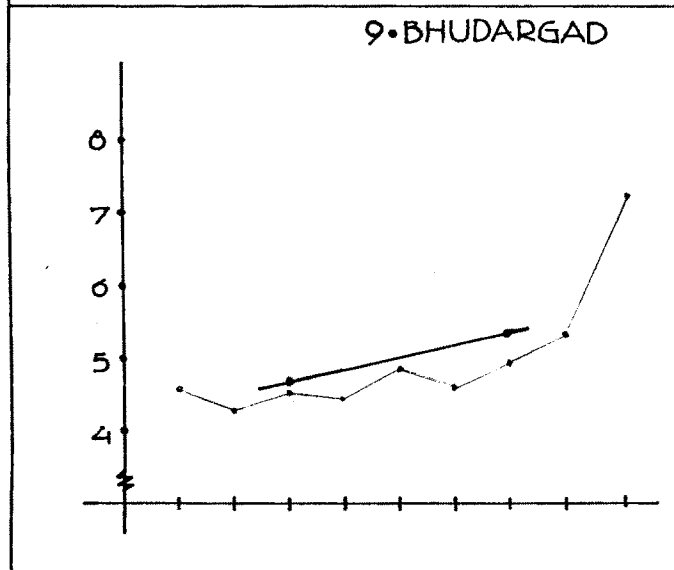
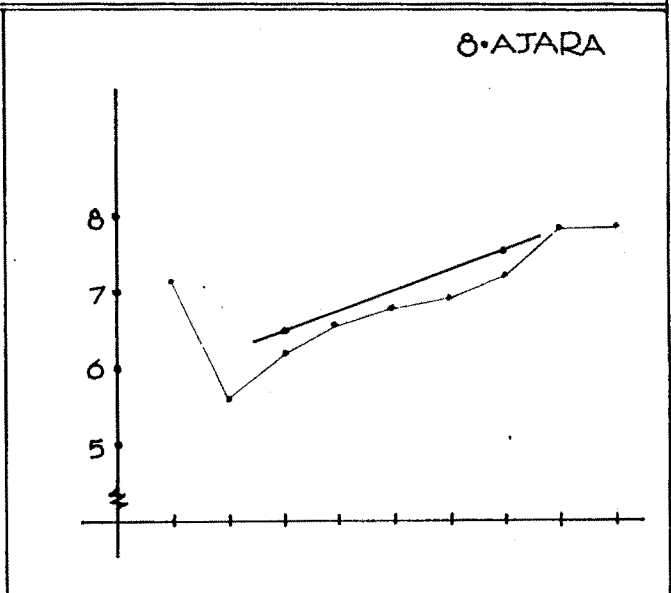
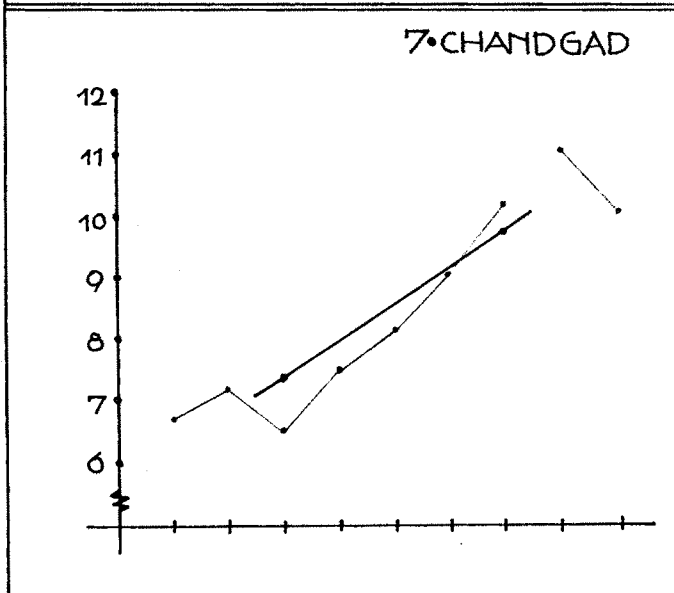


■ CHART-13

TREND OF TALUKA AREA OF NON-FOOD CROPS
VIS-A-VIS DISTRICT AREA



■ CHART • 13 [CONTINUED]



for the land devoted to non-food crops in Kolhapur district. This was, of course, a judgement based on a limited consideration of range magnitude. More important is the degree of annual variation brought forth by the values of coefficient of variation. Table 5.3 gives these values.

Table 5.3

C.V. values of taluka shares in the district area of non-food crops.

Taluka	Coefficient of variation (percentages)
1. Panhala	2.64
2. Gadhinglaj	3.14
3. Kagal	4.30
4. Karvir	4.91
5. Radhanagari	8.79
6. Ajara	9.79
7. Hatkanagale	11.49
8. Shahuwadi	12.65
9. Bhudargad	16.56
10. Gagan Bawada	18.18
11. Chandgad	23.20
12. Shirol	26.66

The values of coefficients, by and large, were not too high as was depicted in case of pulses in the preceding chapter. The values were certainly high in case of some of the talukas; even then they could be considered as moderately high and not excessively high like pulses. Actually, Panhala, Gadhinglaj, Kagal and Karvir talukas had quite low value of the coefficient implying thereby fair degree of stability of cultivation of non-food crops. As against these talukas, Chandgad and Shirol revealed high degree of variation from one period to another. Gagan Bawada and Bhudargad too had fairly high degree of variations.

5.2.2 TALUKA AREA OF NON-FOOD CROPS VIS-A-VIS GCA OF THE TALUKA :

Taluka area may now be viewed against the GCA of the taluka itself. This will reflect the significance of the non-food crops in the aggregate cultivation activity of the taluka. Figures in lower parentheses in columns 4 to 15 of Table 5.1 pertain to the percentage of areas to the GCA of the taluka. They will be examined with respect to the three parameters : (a) average area (b) trends and (c) coefficient of variation. Analysis follows.

5.2.2.1 Average area :

Summary statement of the time-series average area of the talukas as also the range of area showing minima and maxima and the magnitude of range are given in Table 5.4

Table 5.4

Talukawise range of area under non-food crops as percentage of the GCA :

(Percentages)

Taluka	Range of share	Average magnitude (percentage points)	Average share for the entire period
1. Karvir	28.16 to 34.31	6.05	31.38
2. Panhala	34.33 to 38.40	4.07	36.43
3. Hatkanagale	29.98 to 44.61	14.63	37.95
4. Shirol	19.85 to 44.81	24.96	31.63
5. Kagal	38.40 to 45.78	7.38	41.80
6. Gadhinglaj	35.32 to 42.91	7.59	39.78
7. Chandgad	26.65 to 34.92	8.27	30.70
8. Ajara	29.83 to 39.64	9.81	35.23
9. Bhudargad	24.60 to 35.35	10.75	27.80
10. Radhanagari	27.79 to 34.31	6.52	32.01
11. Gagan	18.07 to 41.30	23.23	26.25
12. Shahuwadi	34.28 to 47.43	13.15	41.98

It is seen from Table 5.4 that all the talukas in the district devoted sizeable area of their GCA for

cultivation of non-food crops. Average share for the entire period these areas ranged between 26.25 per cent and 41.98 per cent, Gagan Bawada remaining at the minimum and Shahuwadi at the maximum. Though this range of average share was broad, by and large, most of the talukas had the average area between 30 and 40 percent. The top tanker Shahuwadi was followed in decreasing order by Kagal, Gadhinglaj, Hatkanagale, Panhala, Ajara, Radhanagari, Shirol, Karvir, Chandgad, Bhudargad and Gagan Bawada.

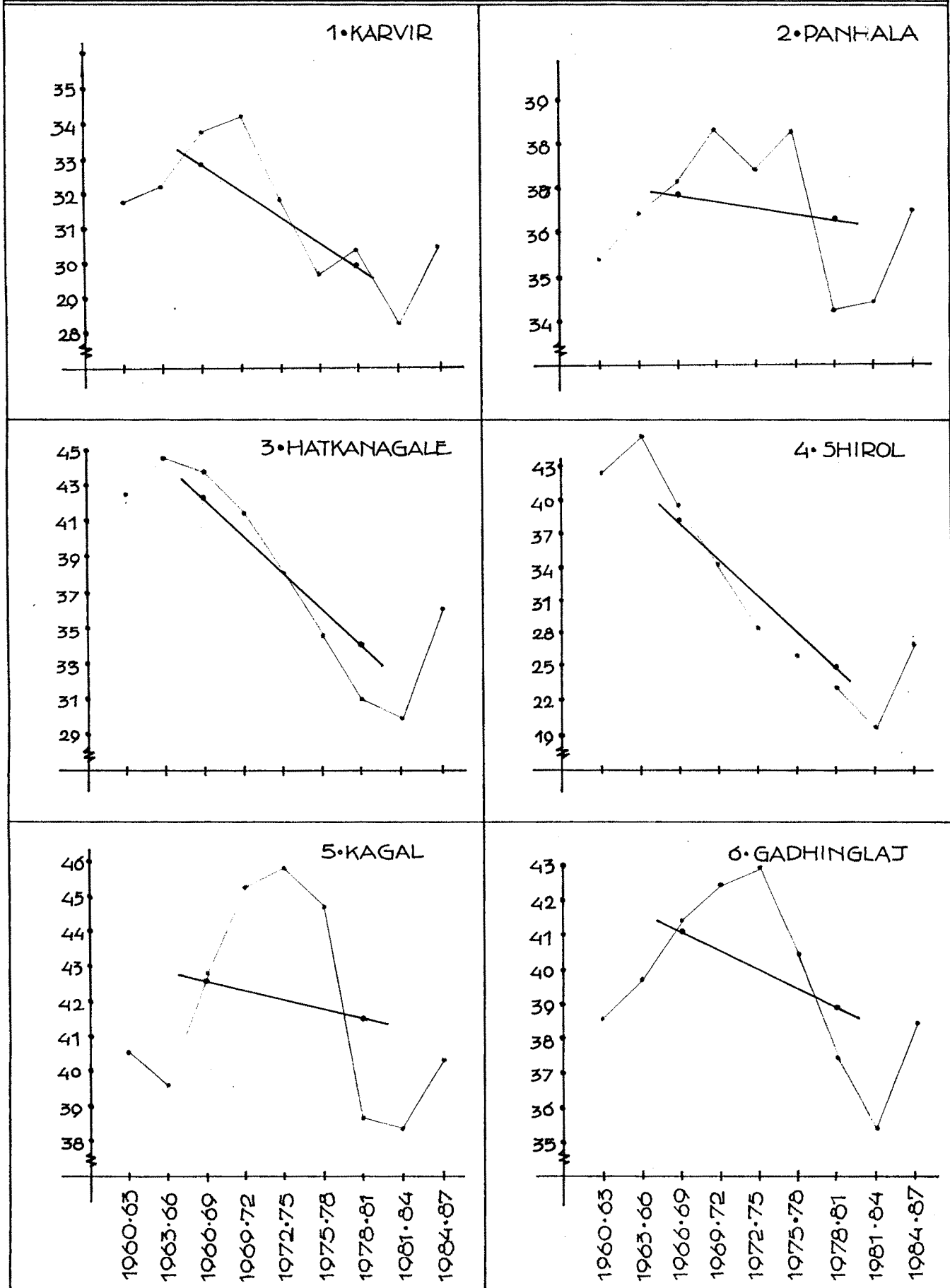
Coming to the range magnitude within which the percentage shares moved, Shirol and Gagan Bawada had very wide range of 24.96 and 23.23 percentage points. Panhala, Karvir and Radhanagari had quite narrow range. Hatkanagale, Bhudargad and Shahuwadi exceeded the magnitude range of 10 percentage points implying thereby greater variability.

5.2.2.2 Trends :

The overall movement of the percentage area during the 27 year span is presented and a trend line is fitted for each taluka in the graphical presentation of chart 14. It is observed that Chandgad, Ajara, Bhudargad, Radhanagari, Gagan Bawada and Shahuwadi talukas had rising trends. All these talukas happened to be from the western hilly region of the district. Importantly, as compared to the talukas of the east, normally their average percentage shares were low. It means that over the years, these talukas desired to change over to non-food crops gradually. Opposite tendency was observed with Karvir, Panhala, Hatkanagale, Shirol, Kagal and Gadhinglaj which faced a falling trend. Basically, all these talukas had relatively larger share of their GCA devoted to non-food crops as could be perceived from their average share shown in the last column of Table 5.4. The downtrend, whether marginal or pronounced, was a manifestation of shift of area from the group of non-food crops to food crops. Furthermore, the falling trend of these six important talukas had overweighed the rising

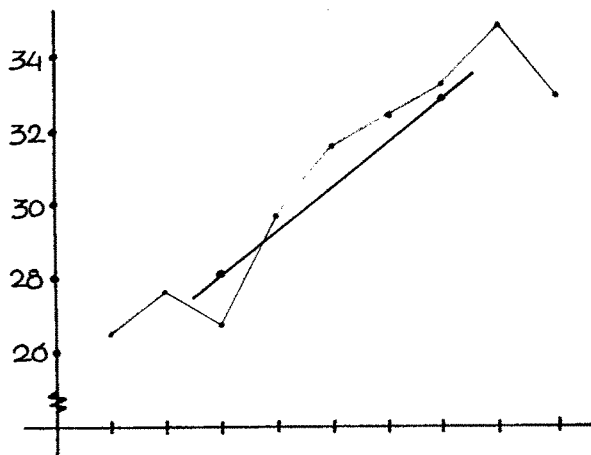
■ CHART 14

TREND OF TALUKA AREA OF NON-FOOD CROPS AS PERCENTAGE OF ITS GCA

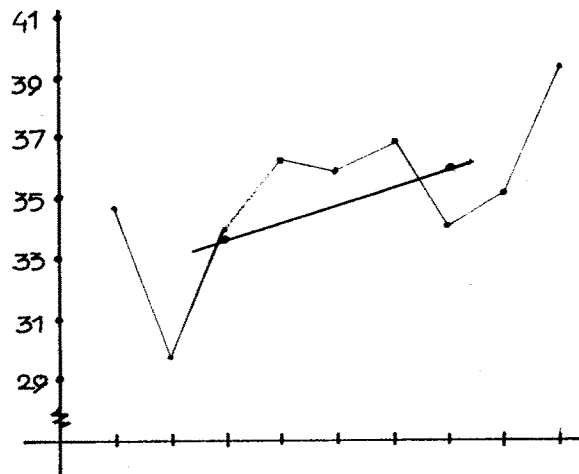


■ CHART 14 [CONTINUED]

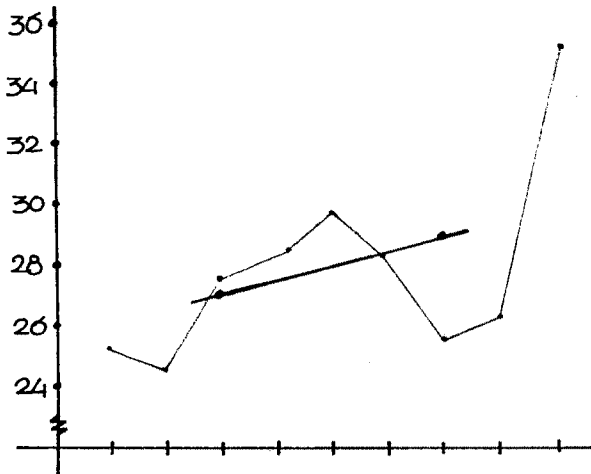
7. CHANDGAD



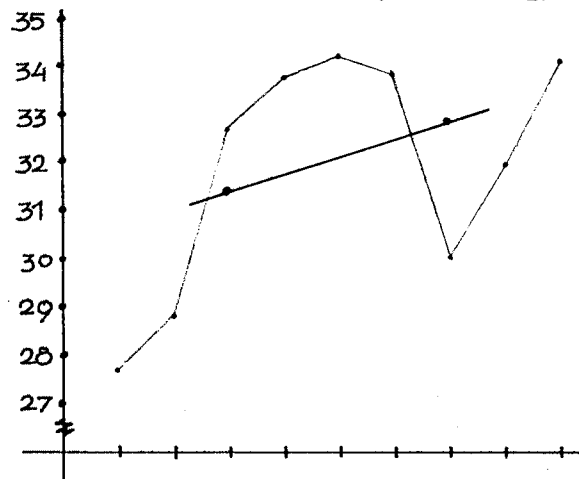
6. AJARA



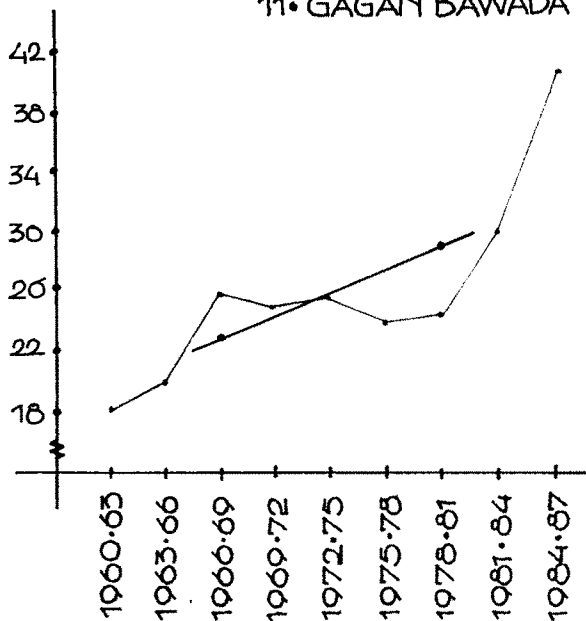
9. BHUDARGAD



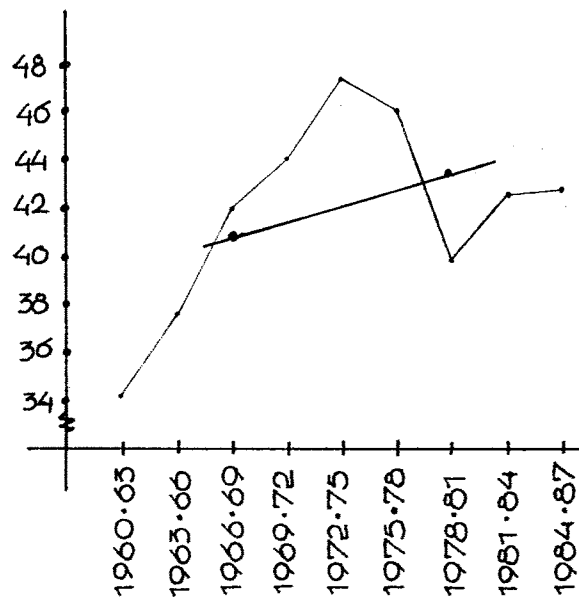
10. RADHANAGARI



11. GAGAN BAWADA



12. SHAHUWADI



trend of the other six talukas, as a result of which the overall trend for the district was falling, though marginally.

5.2.2.3 Coefficient of variation :

The intensity of fluctuations in the area percentage would throw further light on the changing cropping pattern in the talukas of the district. The values of coefficients of variation are given in Table 5.5.

Table 5.5

C.V. Values of taluka shares of non-food crops in their GCA

Taluka	Coefficient of variation (Percentage)
1. Shahuwadi	1.01
2. Gagan Bawada	2.64
3. Panhala	3.62
4. Gadhinglaj	5.75
5. Karvir	5.95
6. Kagal	6.50
7. Ajara	6.98
8. Radhanagari	7.52
9. Chandgad	9.38
10. Bhudargad	11.04
11. Hatkanagale	14.04
12. Shirol	26.80

The values of the coefficient very low for most of the talukas, lowest being of Shahuwadi. This taluka had devoted highest proportion of its GCA for non-food crops. By the meagre coefficient value, it can be inferred that this taluka had more or less maintained this level throughout the 27 years. Gagan Bawada ranked lowest in the hierarchy, but its coefficient value of 2.64 per cent also implies that this taluka also had variations within narrow limits from period to period. Both these talukas had rising trend. Shirol had the highest coefficient value indicating abrupt variations. Hatkanagale and Bhudargad also had coefficient values in double digits. In brief,

the coefficient values for the talukas of Kolhapur district, except Shirol, were within narrow limits.

5.3 DISTRICT AREA OF SUGARCANE :

In the general group of non-food crops, for in-depth study sugarcane and groundnuts are the two crops chosen. Groundnuts remained a traditional crop of the district and is the only oilseed grown extensively as a commercial crop. Sugarcane cultivation has been a perennial activity throughout the year and has been practised in the district for a period over a hundred years. Moreover, since the early sixties, with the establishment of cooperative sugar factories in the district, a new fillip was given to extension of area under sugarcane. Hence a detailed study of these two crops is contemplated here.

As regards sugarcane cultivation, the absolute area covered by this crop in the district was 30,782 hectares during the triennium 1960-63 as shown in column 3 of Table 5.6. Thereafter, the area went on increasing till the triennium 1981-84. As is mentioned in the previous paragraph, during the two decades covered here 10 cooperative sugar factories came up in the district in addition to the sole private sugar factory already in production for more than three decades. Demand for sugarcane spurred by leaps and bound and, therefore, farmers shifted over to cultivation of sugarcane in as much area as feasible. In 1981-84, the gross area moved up to the level of 54,241 registering an increase of 76.21 per cent. The last triennium in the time series, 1984-87, marked a dip in the area to 46,529 hectares due to unfavourable monsoons. But, taking the whole period into account, sugarcane area would indicate an upward trend.

The same picture is reflected in the figures of the percentage of sugarcane area of Kolhapur district to the district's GCA. Except for the last triennium, the percentage figures since the first triennium showed continuous increase., from 7.16 per cent during 1960-63 to 12.69 per cent during 1981-84. The 1984-87 triennium slashed into 10.12

percent. In sum, an uptrend persisted throughout the period.

5.4 TALUKA PROFILE OF SUGARCANE :

Talukawise break-up of the district area under sugarcane is shown in columns 4 to 15 of Table 5.6. This data will be analysed as before with reference to the district total and then with reference to the GCA of the taluka itself. The former would bring out the importance of the taluka in the district profile while the latter would point out the significance of this crop in the taluka's agricultural activity.

5.4.1 TALUKA AREA VIS-A-VIS DISTRICT AREA OF SUGARCANE :

Column 4 to 15 of Table 5.6 show first of all the absolute figures of sugarcane area in each taluka. Then in the upper parentheses are given percentage of taluka's area to the district total. These figures would serve as basis for analysing sverage area and the magnitude of range, trend behaviour and coefficient of variation. Analysis follows.

5.4.1.1. Average area :

A concise presentation of the average share of each taluka over the entire period, range within which the area percentage moved and the range magnitude, is given in Table 5.7.

Table 5.7

Talukawise range of share of area under sugarcane(1960-87)

(Percentages)

Taluka	Range of share	Range magnitude (percentage points)	Average share for the entire period
1. Karvir	14.67 to 26.71	12.04	22.66
2. Panhala	7.58 to 11.28	3.70	9.57
3. Hatkanagale	10.93 to 14.55	3.62	13.57
4. Shirol	7.44 to 19.28	11.84	13.46
5. Kagal	4.44 to 9.33	4.89	6.28
6. Gadhinglaj	5.83 to 7.98	2.15	6.91
7. Chandgad	3.53 to 6.75	3.22	4.69
8. Ajara	1.40 to 2.43	1.03	1.85
9. Bhudargad	2.95 to 5.86	2.91	4.45
10. Radhanagari	8.14 to 10.92	2.78	9.77
11. Gagan Bawada	1.47 to 2.05	0.58	1.66
12. Shahywadi	2.94 to 4.55	1.61	3.51

Figures of average shares of the talukas for the entire period reveal a skewed distribution of the district area among the talukas. Karvir shares a little over one-fifth of the district area and remained in the vanguard. Then followed Hatkanagale and Shirol with nearly equal shares (13.57 and 13.46 per cent respectively). All these three talukas together commanded about half the district area; it was exactly 49.69 per cent. Among other talukas, came next Radhanagari and Panhala with a share of little over 9 per cent. Ajara and Gagan Bawada stood at the lowest ladder. If the five talukas of eastern plains of the district are taken into account, their cumulative share was 63 per cent. Thus, a little less than two-thirds of the district area under sugarcane was found in the talukas of the eastern region and the seven talukas of the western hill region together had a little over one-third of the district area of sugarcane. Agro-climatic conditions of the eastern zone are conducive to sugarcane cultivation. Moreover, 9 out of the 11 cooperative sugar factories of the district are located in these five talukas. Hence, sugarcane became an important crop of the five talukas.

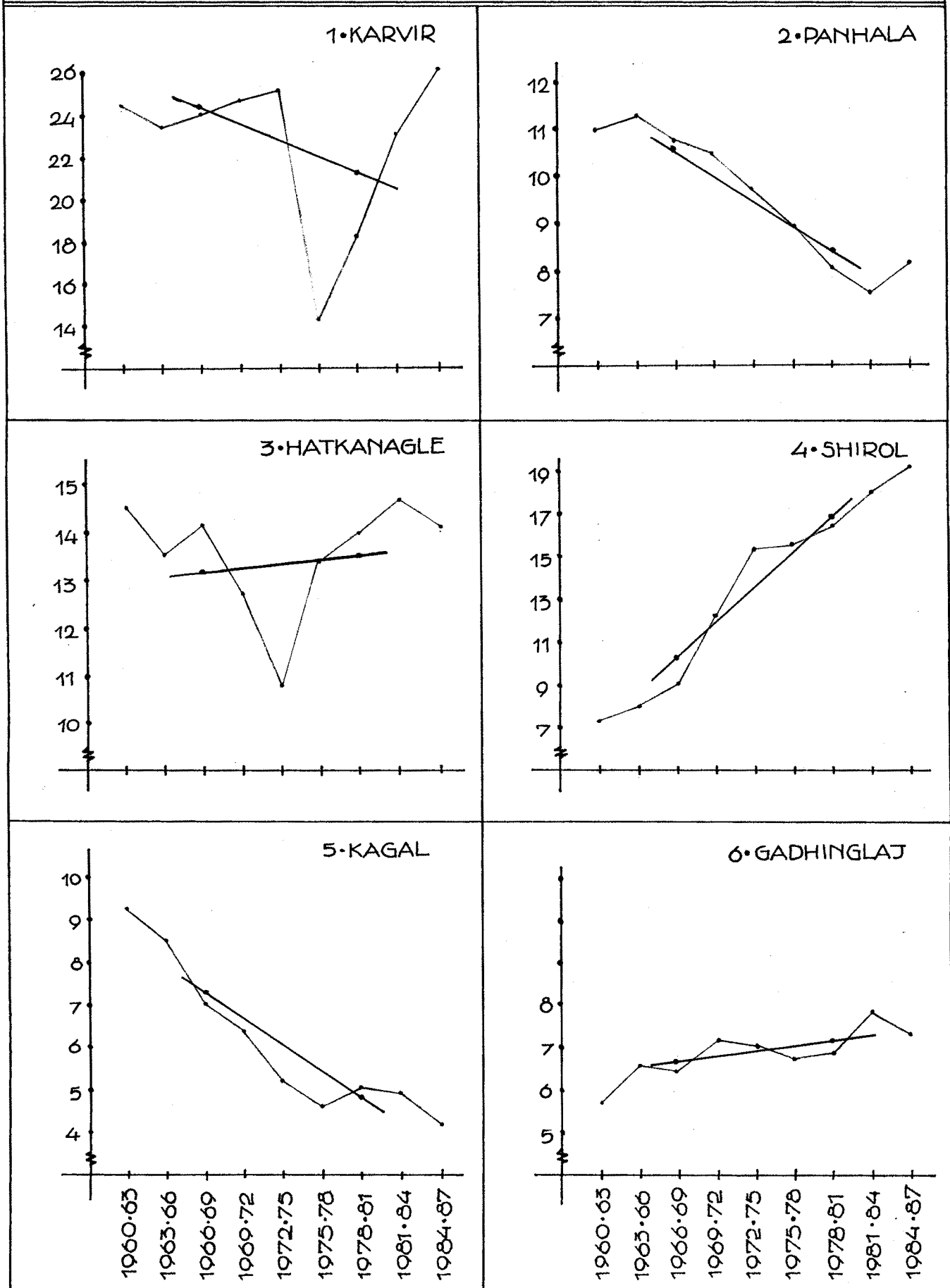
At the same time, the range of variation of sugarcane area percentage in the district total was widest for Karvir and then followed Shirol; in their case, difference between minimum and maximum percentage was in double digits. All other talukas moved within a narrow range of 1 to 4 per cent.

5.4.1.2 Trends :

The long-term changes in the taluka percentages have been smoothed by fitting trend lines. Chart 15 exhibits the trend lines for all the talukas. It is seen therefrom that Hatkanagale, Shirol, Gadhingaj, Chandgad and Ajara talukas had uptrends. They together commanded an average of 50 per cent of the district area. As against this, remaining seven talukas - Karvir, Panhala,

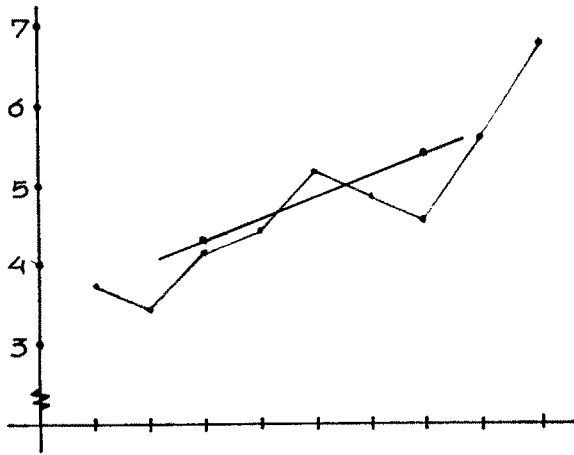
■ CHART · 15

TREND OF TALUKA AREA OF SUGARCANE
VIS-A-VIS DISTRICT AREA.

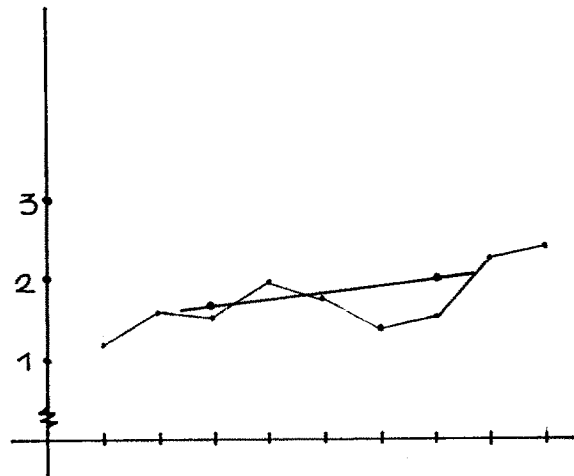


■ CHART • 15 [CONTINUED]

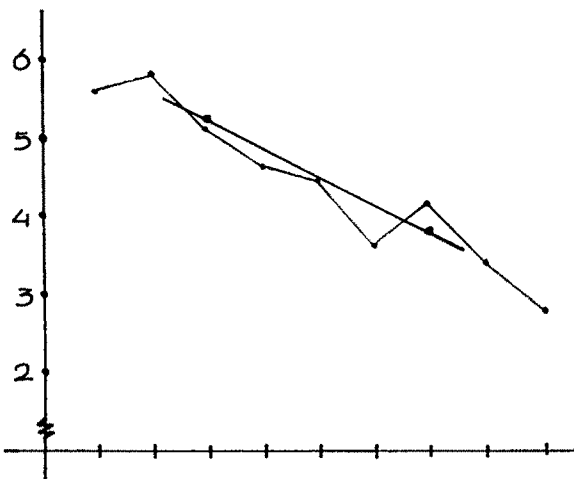
7•CHANDGAD



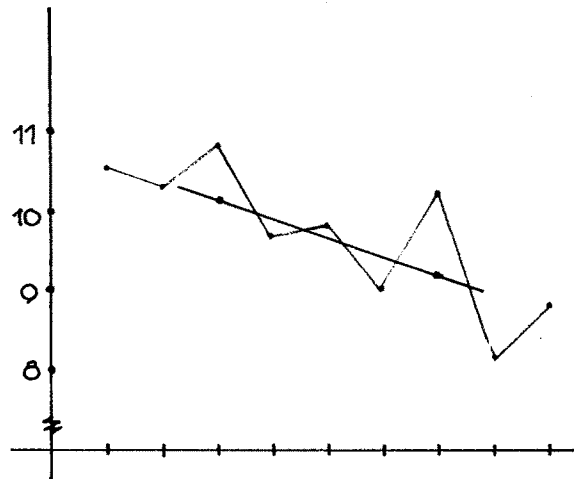
8•AJARA



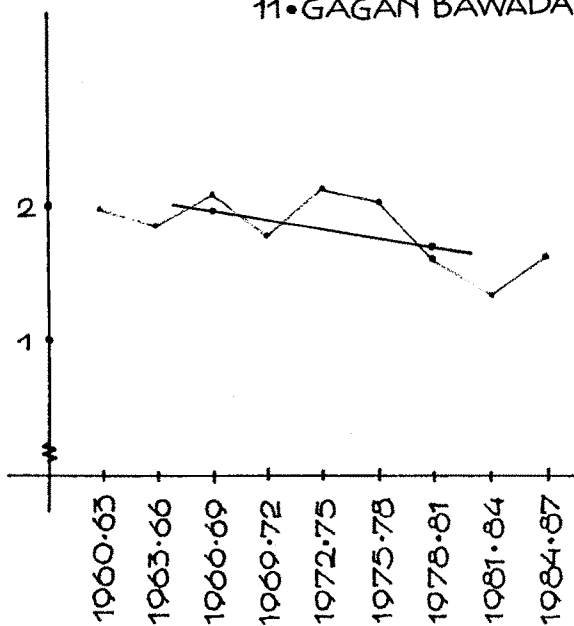
9•BHUDARGAD



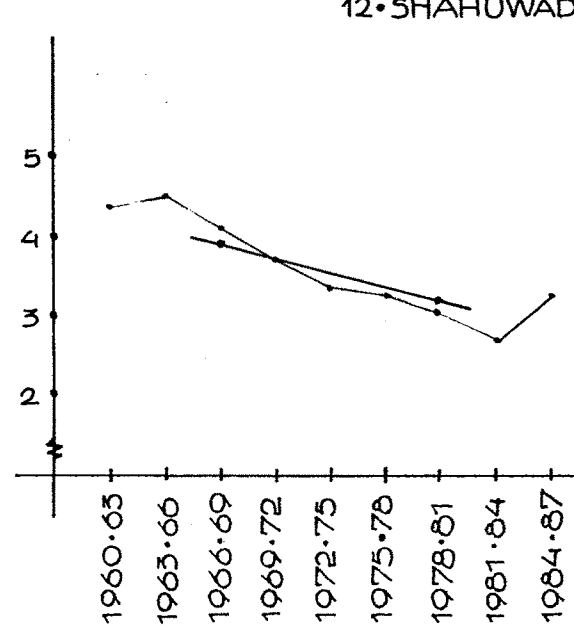
10•RADHANAGARI



11•GAGAN BAWADA



12•SHAHUWADI



Kagal, Bhudargad, Radhanagari, Gagan Bawada and Shahuwadi revealed downtrends ; they covered cumulatively an average of sixty per cent of the district land under sugarcane. In spite of this, overall trend for the district as a whole remained rising, because the cumulative result of the former group with rising trends was more than that of the latter group with following trends.

5.4.1.3 Coefficient of variation :

The intensity of period to period changes in the percentage shares is made known through calculations of the coefficients of variation for ^{all} the talukas. These values are given in Table 5.8.

Table 5.8

C.V. values of taluka shares in the district area under sugarcane

Taluka	Coefficient of variation (percentage)
1. Hatkanagale	7.81
2. Gadhinglaj	7.81
3. Radhanagari	9.00
4. Panhala	14.00
5. Karvir	15.44
6. Ajara	16.21
7. Shahuwadi	16.71
8. Chandgad	19.40
9. Bhudargad	20.89
10. Kagal	26.59
11. Shirol	30.90
12. Gagan Bawada	50.42

Table 5.7 had revealed a very narrow range magnitude within which taluka percentages moved. But it appears from Table 5.8 that even within the narrow range, variation from year to year were of higher intensity since the coefficients have been high for 9 talukas. Gagan Bawada

with the least possible share in the district area had the maximum degree of variations. Hatkanagale, Gadhinglaj and Radhanagari had the percentage range between 2 to 4 per cent; they two had single digit value of coefficient of correlation.

5.4.2 TALUKA AREA OF SUGARCANE VIS-A-VIS GCA OF THE TALUKA :

The absolute figures of sugarcane area of each taluka during each triennium would now be considered in the district context of the GCA of each taluka during the respective triennium. Percentage figures relevant to this are given in lower percentages of columns 4 to 15 in Table 5.6. Average area, trends and coefficients of variation are the usual three parameters.

5.4.2.1 Average area :

Summary details of the average area over the 27 year period, range of movement of the percentage and the range magnitude, are given in Table 5.9.

Table 5.9

Talukawise range of area under sugarcane as percentage of the GCA (1960-87)

Taluka	Range of share	(Percentages)	
		Range magnitude (percentage for the points)	Average share for the entire period
1. Karvir	16.07 to 27.52	11.45	20.82
2. Panhala	10.66 to 14.96	4.30	12.97
3. Hatkanagale	9.43 to 17.12	7.69	12.36
4. Shirol	5.31 to 23.65	18.34	14.34
5. Kagal	4.76 to 7.04	2.28	5.98
6. Gadhinglaj	4.19 to 10.35	6.16	7.18
7. Chandgad	3.10 to 6.65	3.55	4.95
8. Ajara	1.45 to 4.10	2.65	2.71
9. Bhudargad	4.38 to 8.52	4.14	7.07
10. Radhanagari	11.12 to 16.71	5.59	13.86
11. Gagan Bawada	4.21 to 13.39	9.18	7.17
12. Shahuwadi	3.69 to 4.91	1.12	4.44

The last column of Table 5.9 brings forth Karvir, Shirol, Radhanagari, Panhala and Hatkanagale talukas as important producers of sugarcane in the district. Karvir used average one-fifth of its GCA while Shirol, Radhanagari, Panhala and Hatkanagale covered about one-seventh of their GCA for sugarcane cultivation. Ajara had the least area coverage. Remaining 6 talukas - Kagal, Gadhinglaj, Gagan Bawada, Shahuwadi and Bhudargad - had smaller proportion of 4 to 7 per cent of their GCA spared for sugarcane. Of these 6 talukas, former three had the privilege of sugar factories; Kagal taluka had two and others one each. Notwithstanding this, their coverage was very much low. If tallied with Table 5.7, it is noticed that the talukas which were prominent cane producers in the district (Karvir, Hatkanagale, Shirol, Radhanagari and Panhala) were the talukas which used sizeable portion of their GCA for cane cultivation.

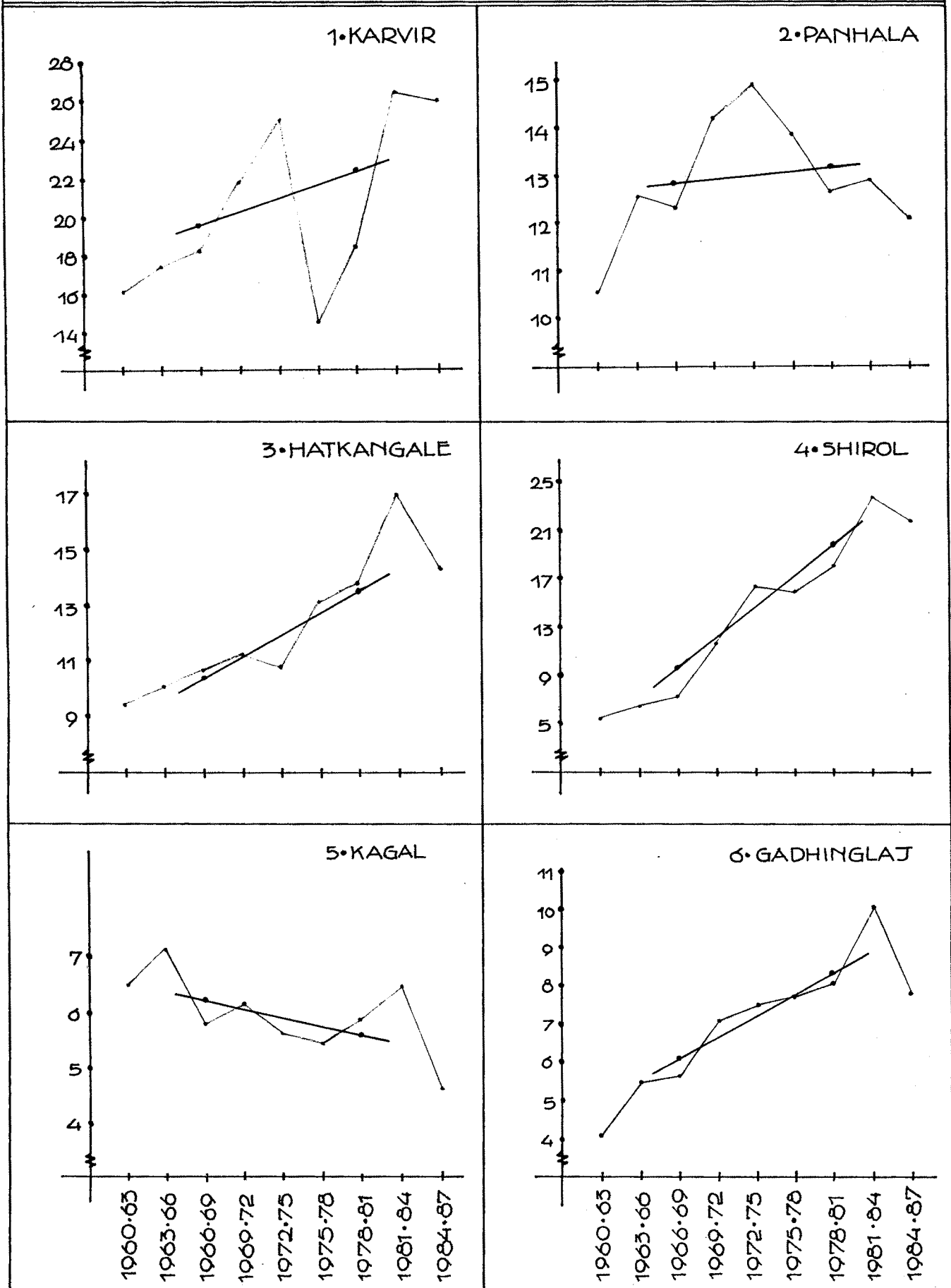
With reference to the range magnitude, of the five prominent talukas, Karvir and Shirol indicated quite a wide margin between minimum and maximum percentages. The least, was that of Gagan Bawada, Other had a narrow range between 3 and 8 percentage points.

5.4.2.2 Trends :

The time-series changes in the triennium percentages of sugarcane area in the GCA of the taluka are juxtaposed to find out the undercurrent. The tendency is graphically represented by a trend line in chart 16. Immediate observation is that except Kagal, Bhudargad, and Shahuwadi all the remaining 9 talukas exhibited rising trend. The three talukas mentioned here had a downtrend. Here, some association between trend line in taluka context and the same in district context had conwrence. Hatkanagale, Shirol, Gadhinglaj, Chandgad and Ajara showed rising trends both regarding their share in the district area as also share in their own GCA. Similarly, Kagal, Bhudargad and Shahuwadi talukas had falling trends on both these accounts. Both these changes indicate in their way changes in the cropping pattern taking place in the respective talukas.

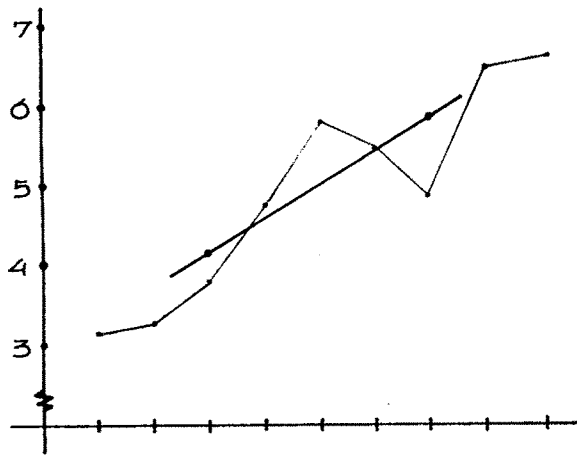
■ CHART 10

TREND OF TALUKA AREA OF SUGARCANE AS PERCENTAGE OF ITS GCA

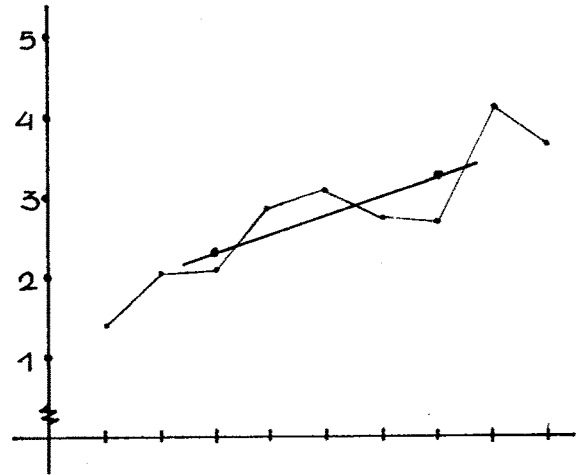


■ CHART • 16 [CONTINUED]

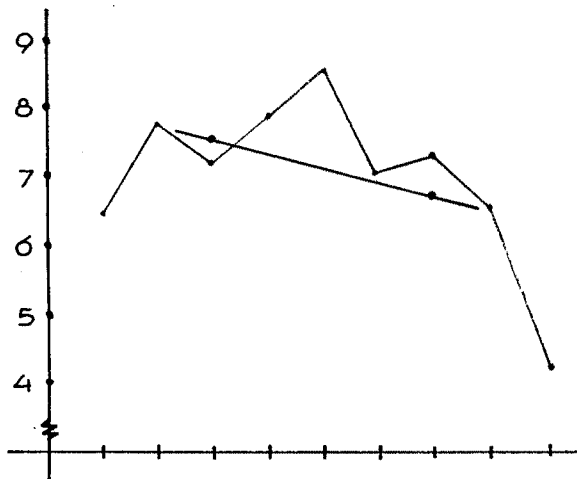
7. CHANDGAD



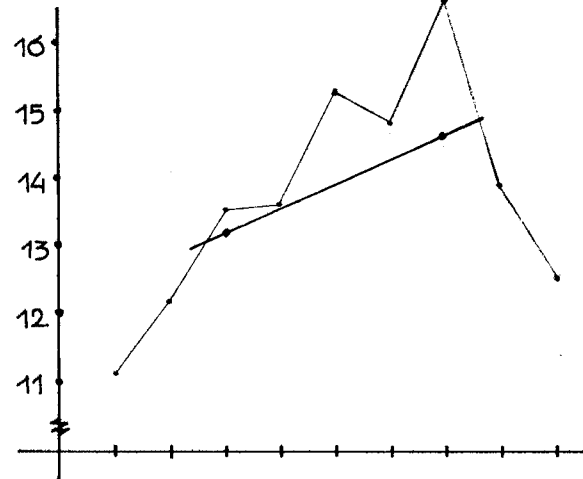
8. AJARA



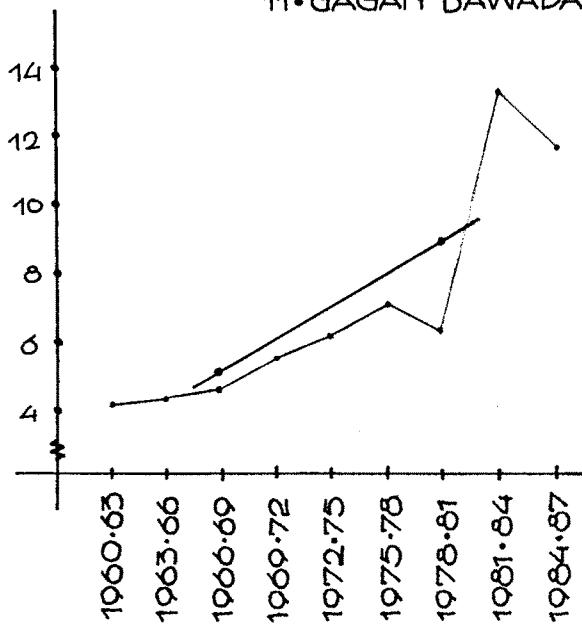
9. BHUDARGAD



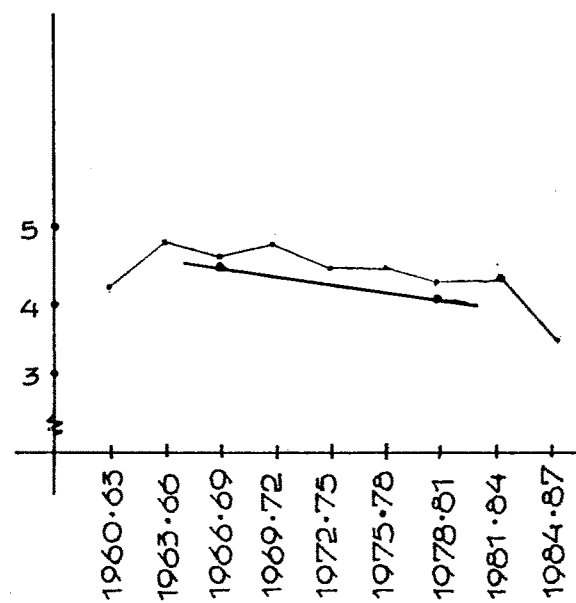
10. RADHANAGARI



11. GAGAN BAWADA



12. SHAHUWADI



5.4.2.3 Coefficient of variation :

The degree of variations in the percentage area of each taluka is gauged by calculating the coefficients of correlation. Talukawise values in increasing order are given in Table 5.10.

Table 5.10

C.V. values of taluka shares of sugarcane in their GCA

Taluka	Coefficient of variation (Percentage)
1. Shahuwadi	7.20
2. Panhala	9.25
3. Kagal	10.03
4. Radhanagari	10.82
5. Bhudargad	15.70
6. Hatkanagale	19.09
7. Karvir	21.95
8. Gadhinglaj	23.65
9. Chandgad	25.05
10. Ajara	27.59
11. Gagan Bawada	42.67
12. Shirol	45.18

The values of coefficient were quite high for most the talukas. Shahuwadi had the lowest and Shirol had the highest values. Shirol's case, if considered alongwith its trend, indicates phenomenal increase in the percentage area year after year. So also with Gagan Bawada. Coefficient of variations were conspicuously high in case of these two talukas. Among all the talukas, Shahuwadi and Panhala exhibited relatively better stable position due to low coefficient value.

5.5 DISTRICT AREA OF GROUNDNUT :

As is said in the previous section, Kolhapur district has been traditionally a producer of groundnut. Other oilseeds are sparsely cultivated in the district. In the category of

oilseeds under non-food crops, groundnut predominates. Table 5.11 brings out this fact, The share of groundnuts in

Table 5.11

Oilseeds cultivation in Kolhapur district

Year	Area under oilseeds (Hectares)	Area under groundnut (Hectares)
1960-61	53,288	51,595 (96.82)
1970-71	59,704	54,419 (91.15)
1980-81	50,105	48,056 (95.91)
1986-87	57,192	54,039 (94.48)

Note : Figures in parentheses are percentages to the totals.

Source :

the total oilseeds grown in the district has moved above 90 per cent all the while, Consequently, the share of all other kinds of oilseeds remains insignificant.

Regarding the absolute area under groundnut during the 27 years of 1960-87, column 2 of Table 5.12 throws light on the triennium changes. During the triennium 1960-63, the aggregate area was 53,870 hectares. It increased during the sixties, and since early seventies a continuous process of deceleration began. Last triennium, 1984-87, halted this tendency and recorded an upturn. It will have to be seen whether this was a temporary phase or the tendency was sustained in later years. For the present, for want of further data, nothing can be said.

In percentage terms also, the percentage of aggregate area to the GCA followed a similar course. It picked up from 12.53 per cent in 1960-63 to 14.14 per cent in the following triennium. The deceleration set in immediately in 1966-69 and continued all through upto 1981-84.

On both the counts, area under groundnut in Kolhapur district declined so that there was a downtrend over the period in question. The land under groundnut has been gradually transferred to other crops, preferably sugarcane. This point will be further explored in the concluding chapter.

5.6 TALUKA PROFILE OF GROUNDNUT :

Talukawise break-up of the district total of area under groundnut is given in columns 4 to 15 of Table 5.12. The total area will be now viewed from two dimensions as before : (a) taluka area as a percentage to the district area of groundnut and (b) taluka area as a percentage to its own GCA. Details follow.

5.6.1 TALUKA AREA VIS-A-VIS DISTRICT AREA OF GROUNDNUT :

In Table 5.12, Columns 4 to 15 exhibit initially the absolute figures of the taluka area and then in appear parentheses taluka area as percentage to the district area groundnut. This information will be analysed in this section with reference to the usual three parameters : average area, trends and coefficients of variation.

5.6.1.1 Average area :

A bird's eye-view information about talukawise overall average area as percentage of district area, the range within which the area percentage fluctuated and the range magnitude, is displayed in Table 5.13

Table 5.13

Talukawise range of share of area under groundnut (1960-87)
(Percentages)

Taluka	Range of share	Range magnitude (percentage points)	Average share for the entire period
1. Karvir	7.88 to 10.37	2.49	8.98
2. Panhala	5.33 to 6.27	0.94	5.86
3. Hatkanagale	18.79 to 23.94	5.15	21.44
4. Shirol	10.17 to 21.57	11.40	15.14
5. Kagal	14.33 to 18.19	3.86	16.65
6. Gadhinglaj	14.86 to 18.36	3.50	16.45
7. Chandgad	0.42 to 3.41	2.99	1.70
8. Ajara	3.57 to 5.97	2.40	4.91
9. Bhudargad	2.63 to 4.74	2.11	3.40
10. Radhanagari	1.81 to 2.88	1.07	2.17
11. Gagan Bawada	0.01 to 0.29	0.28	0.04
12. Shahuwadi	2.89 to 3.84	0.95	3.24

The long-term average shares of the talukas reflect

uneven distribution of area over the district and concentration in principally 4 talukas, viz. Hatkanagale, Shirol, Kagal and Gadhinglaj talukas. These four talukas together commanded nearly 70 per cent of the district area under groundnut. They are located in eastern plains of the district. If the share of Karvir is added, the five talukas covered aggregate 80 per cent of the district land so that the remaining 7 hilly talukas together shared just about 20 per cent of the district area of groundnut. Gagan Bawada and Chandgad had very negligible share. Hatkanagale had the upper hand.

Further, the percentage area in all the talukas had a very narrow margin upto 5 percentage points between minimum and maximum percentage shares, except Shirol. Shirol had a wide margin of 11.40 percentage points indicating sharp movements.

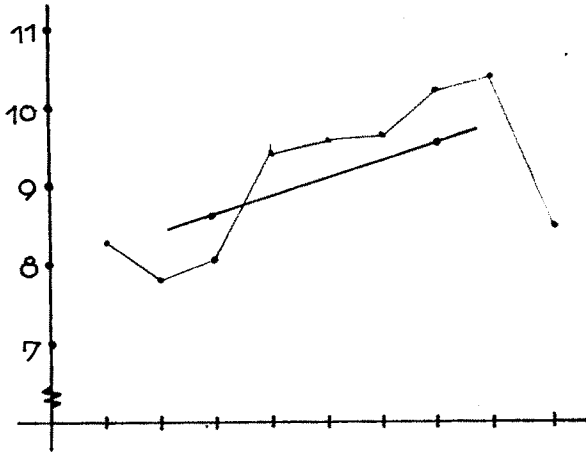
5.6.1.2 Trends :

The underlying behaviour of the percentage changes during trienniums in question is unearthed by fitting trend lines talukawise. Graphical presentation is given in Chart 17. On the face of the trend lines it is noticed that only Hatkanagale, Shirol and Gagan Bawada recorded falling trend whereas all the remaining 9 talukas exhibited rising trend. All the same, for the district as a whole the trend was falling. How could this happen? Among the talukas showing uptrend, only Kagal and Karvir were worth noting due to their sizeable percentage in the district total. However, Kagal, the larger between the two, had only a marginal uptrend. For all other talukas of this category the uptrend was relatively moderate. On the other hand, of the three talukas with downtrend, Hatkanagale and Shirol were major producers and decline in their area was substantial. This phenomenon worked to pull down the percentage area of the district total of groundnut area to the district's GCA. It is worth noting here that especially in Hatkanagale and Shirol talukas groundnut is being replaced by other crop. What that other crop is deferred to the concluding chapter.

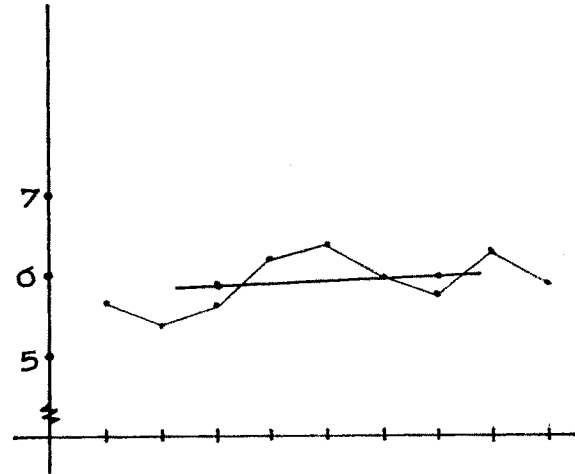
■ CHART-17

TREND OF TALUKA AREA OF GROUNDNUT VIS-A-VIS DISTRICT AREA

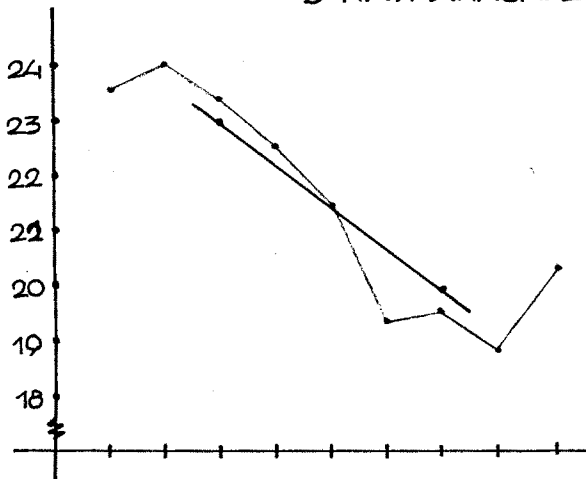
1•KARVIR



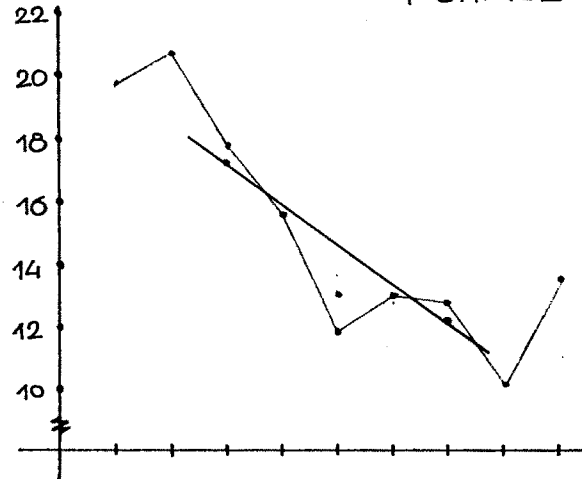
2•PANHALA



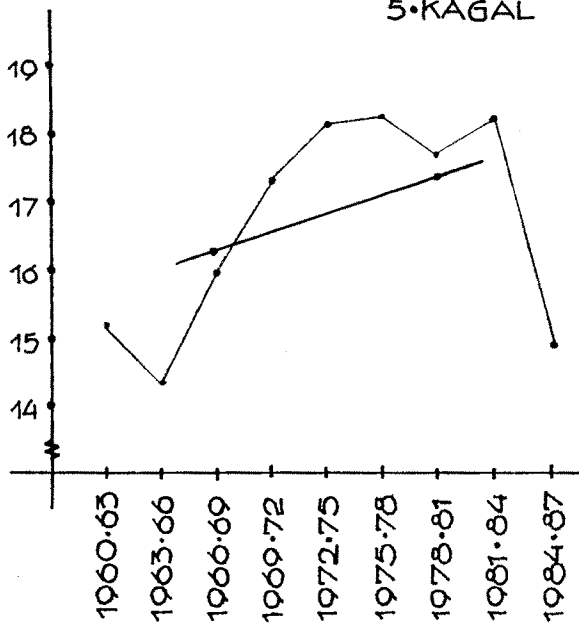
3•HATKANAGALE



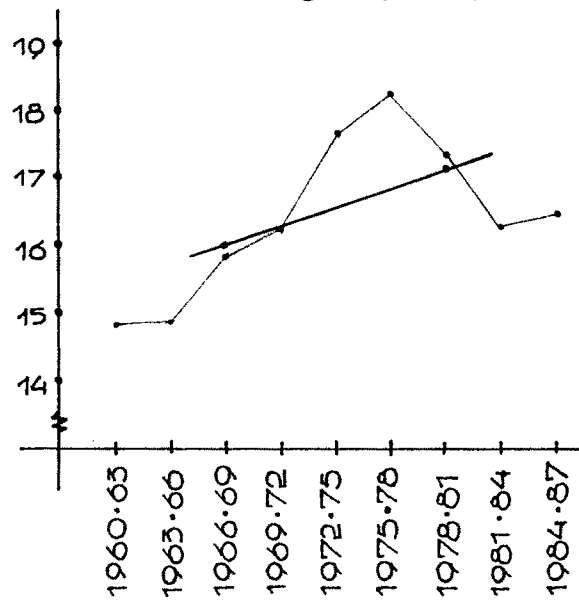
4•SHIROL



5•KAGAL

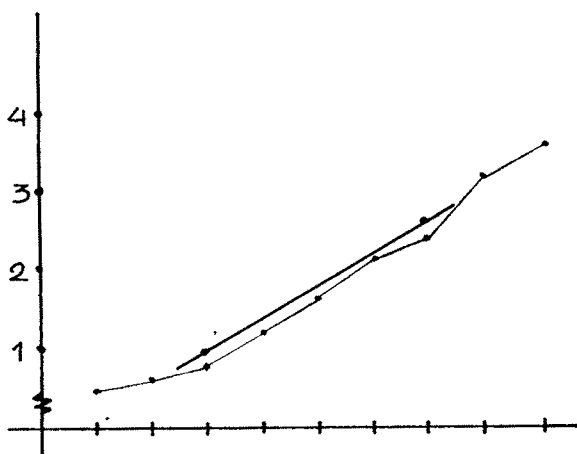


6•GADHINGLAJ

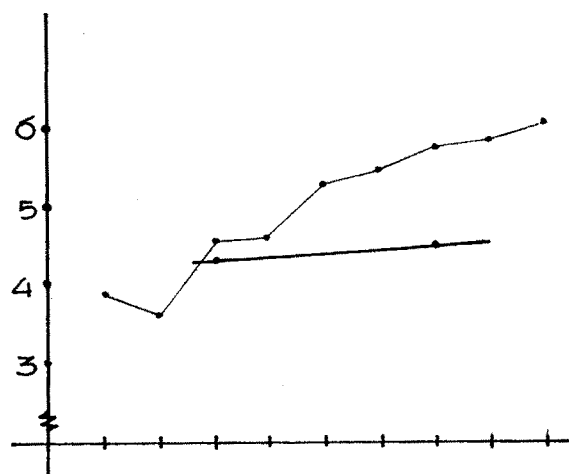


■ CHART • 17 [CONTINUED]

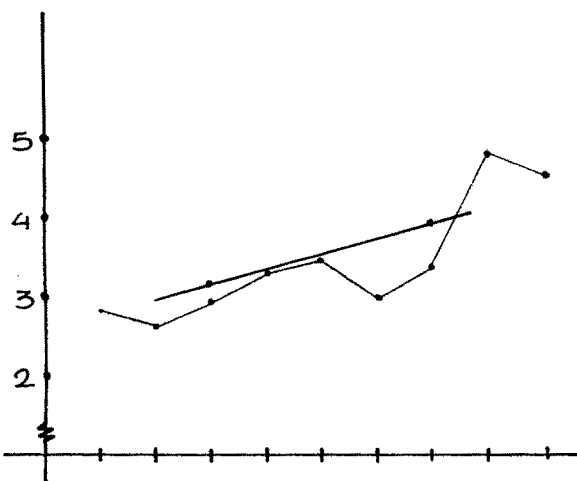
7. CHANDGAD



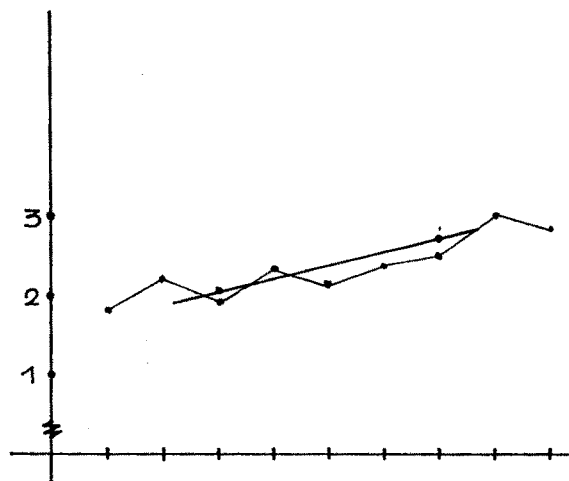
8. AJARA



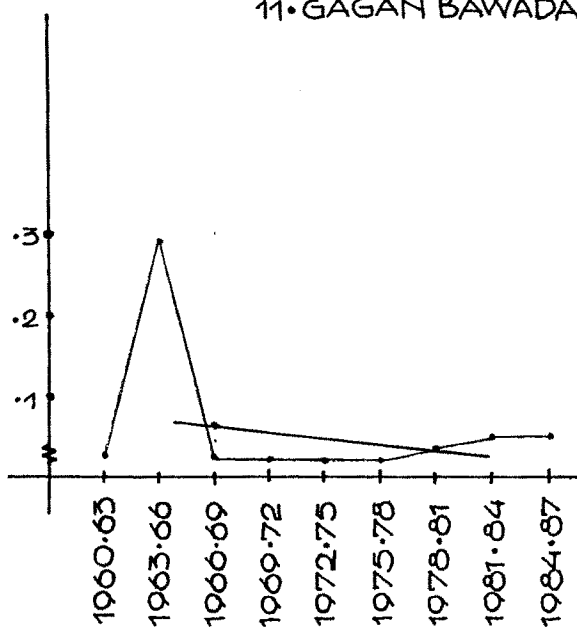
9. BHUDARGAD



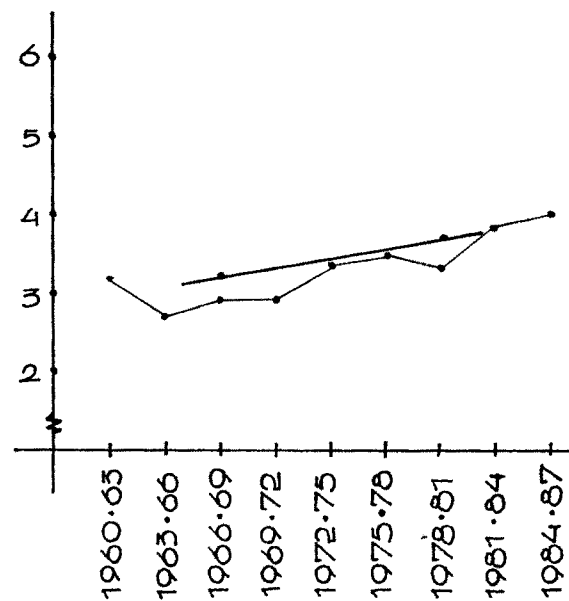
10. RADHANAGARI



11. GAGAN BAWADA



12. SHAHUWADI



5.6.1.3 Coefficient of variation :

The degree of variation in percentage area in the course of the various trienniums is represented through the values of the coefficient of variation. Talukawise values are given in Table 5.14

Table 5.14

C.V. values of taluka shares in the district area of groundnut

Taluka	Coefficient of variation (percentage)
1. Panhala	4.77
2. Gadhinglaj	6.68
3. Hatkanagale	8.53
4. Kagal	8.70
5. Shahuwadi	8.95
6. Radhanagari	13.82
7. Ajara	16.08
8. Gagan Bawada	18.98
9. Bhudargad	20.29
10. Shirol	24.04
11. Chandgad	59.41
12. Karvir	79.51

Period to period variation of the taluka shares in the district area were quite high in Karvir and Chandgad, eventhough the magnitude of the range between minimum and maximum percentage was very much low (less than 3 percent). A little less than these talukas, yet still substantially high degree of variation could be noted with Gagan Bawada, Bhudargad, Shirol and Radhanagari. Rest of the talukas recorded relatively low values of the coefficient and therefore were indicative of general stability of the percentage area of those talukas.

5.6.2 TALUKA AREA OF GROUNDNUT VIS-A-VIS GCA OF THE TALUKA :

The absolute figures of the talukas will now be examined in the context of their GCA. They are converted into

percentage figures and presented in lower parentheses in columns 4 to 15 of Table 5.12. As usual these percentage figures would be analysed with reference to the three parameters : average area, trends and coefficient of variation.

5.6.2.1 Average area :

Important details about overall average area under groundnut as per cent of taluka GCA, range of variation of these percentages and range magnitude, are given in Table 5.15.

Table 5.15

Talukawise range of area under paddy as percentage of the GCA (1960-87)

(Percentages)

Taluka	Range of share	Range magnitude (percentage points)	Average share for the entire period
1. Karvir	9.32 to 11.50	2.18	10.13
2. Panhala	8.31 to 11.43	3.12	8.74
3. Hatkanagale	17.44 to 30.42	12.98	24.23
4. Shirol	10.68 to 30.01	19.33	19.08
5. Kagal	17.40 to 22.80	5.40	20.25
6. Gadhinglaj	16.75 to 22.50	5.75	20.70
7. Chandgad	0.61 to 3.64	3.03	2.02
8. Ajara	6.99 to 9.87	2.88	8.85
9. Bhudargad	5.87 to 7.54	1.67	6.67
10. Radhanagari	3.34 to 4.19	0.85	3.76
11. Gagan Bawada	0.04 to 1.22	1.18	0.24
12. Shahuwadi	4.12 to 5.53	1.41	5.01

Referring to the average share for the entire period, four talukas come in the forefront : Hatkanagale, Gadhinglaj, Kagal and Shirol. Hatkanagale used nearly one-fourth of its GCA for groundnut cultivation, while Gadhinglaj, Kagal and Shirol spared about one fifth of

its GCA for groundnut cultivation, while Gadhinglaj, Kagal and Shirol spared about one fifth of their GCA. These talukas were the ones that were conspicuous in district total area. Besides, Karvir, also spared 10 per cent of its GCA for groundnut. Ajara and Panhala followed Karvir with about 9 per cent of the area. Chandgad, Bhudargad, Radhanagari, Gagan Bawada and Shahuwadi utilised very small portion of their GCA for groundnut cultivation due to unsuitable agro-climatic conditions.

5.6.2.2 Trends :

Overall behaviour of the percentage area to the GCA over the 27 year period is presented by way of fitting trend lines for each taluka in chart 18. A glance at the various trend lines brings out that only three talukas - Chandgad, Bhudargad and Ajara had rising trend line, indicating thereby increasing proportion of land under groundnut from the GCA of these talukas. Remaining 9 talukas - Karvir, Panhala, Hatkanagale, Shirol, Kagal, Gadhinglaj, Radhanagari, Gagan Bawada and Shahuwadi - revealed downtrends. This list covers the four major producers of groundnut and also the fifth ranker Karvir. Obviously, trends of these 9 talukas had influenced the district picture and led to a downtrend even for the district. Therefore, once again the fact is confirmed that groundnut cultivation almost everywhere in the district was fast receding.

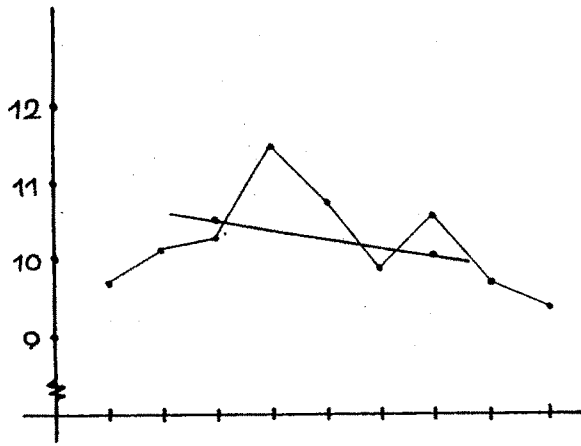
5.6.2.3 Coefficient of variation :

The extent of variation can be well judged by using the talukawise values of coefficients of variation. That would facilitate even inter-taluka comparison. The coefficient values are given in Table 5.16.

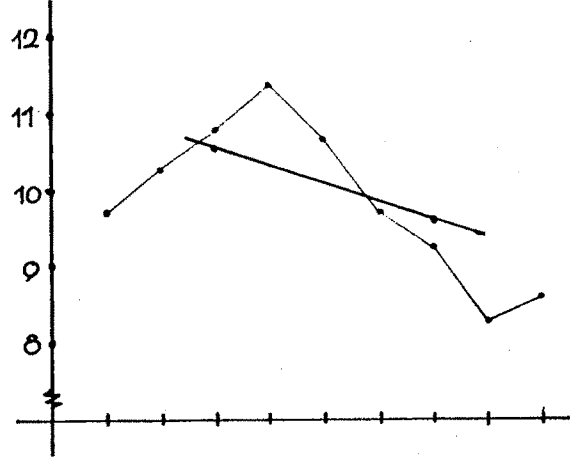
■ CHART-18

TREND OF TALUKA AREA OF GROUNDNUT AS PERCENTAG OF ITS GCA

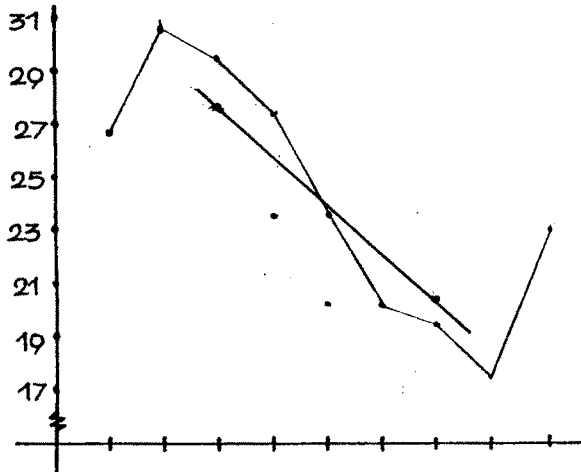
1. KARVIR



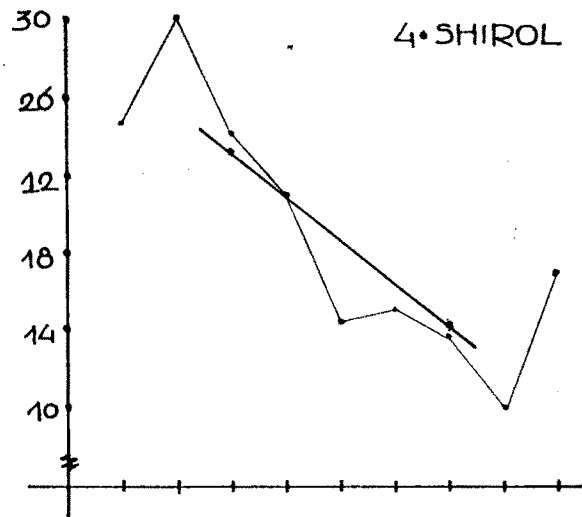
2. PANHALA



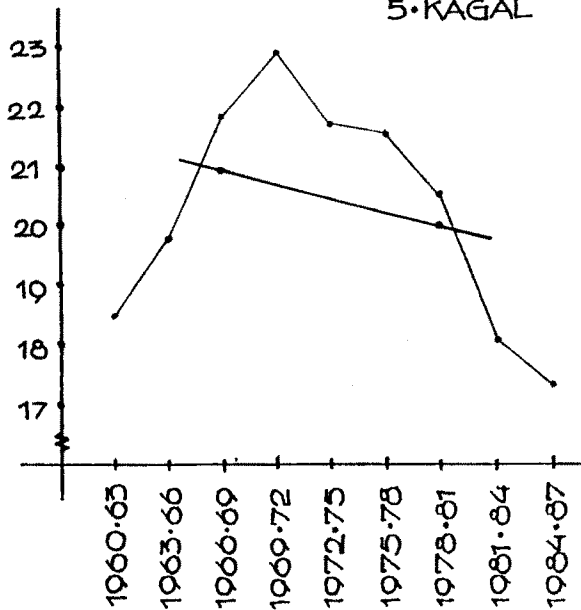
3. HATKANAGALE



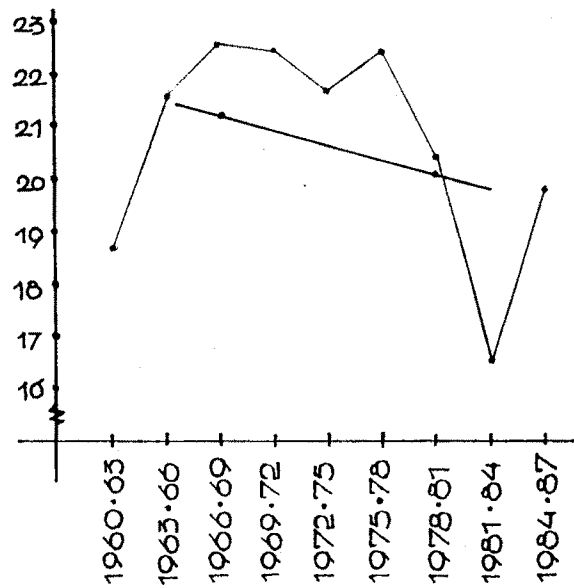
4. SHIROL



5. KAGAL

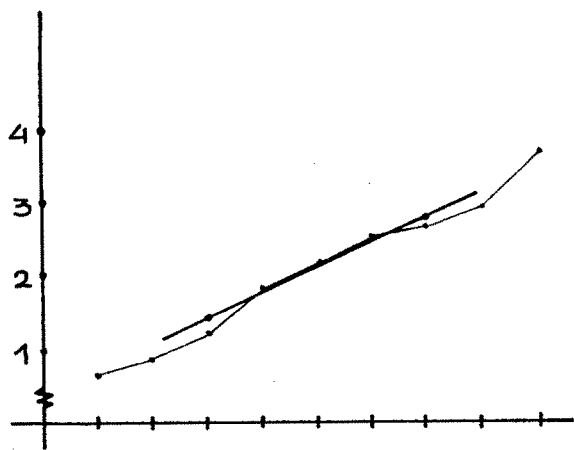


6. GADHINGLAI

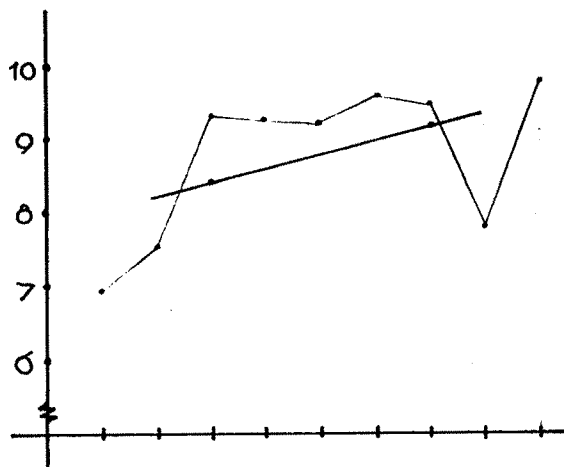


■ CHART • 10 [CONTINUED]

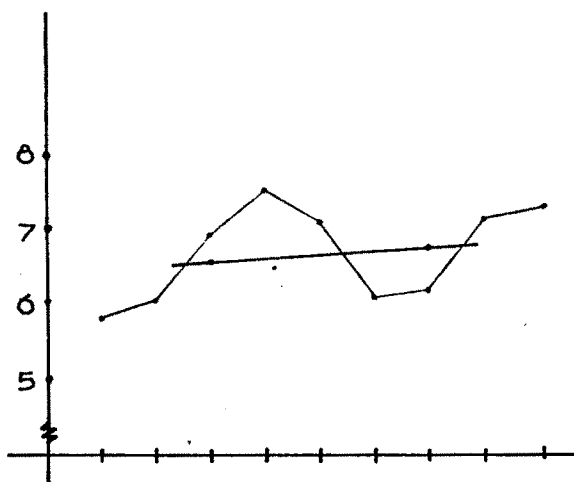
7. CHANDGAD



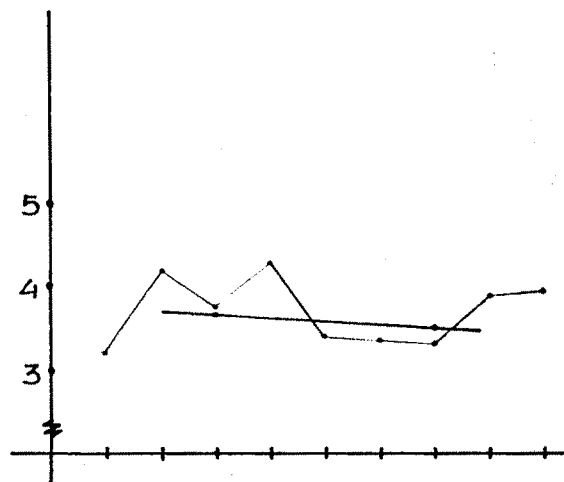
8. AJARA



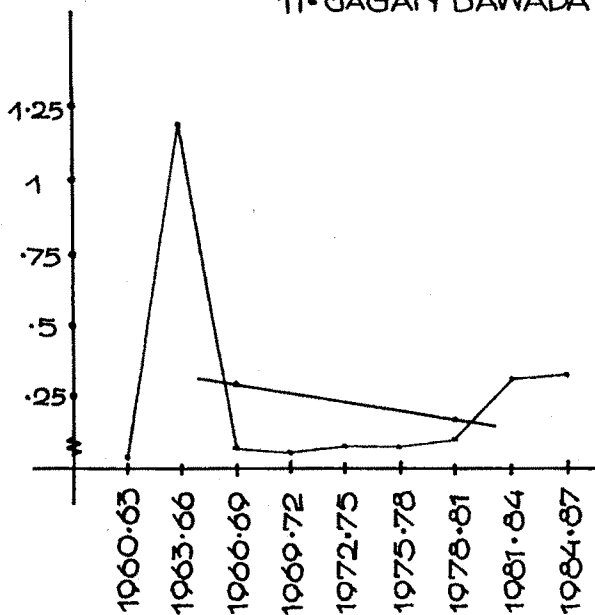
9. BHUDARGAD



10. RADHANAGARI



11. GAGAN BAWADA



12. SHAHUWADI

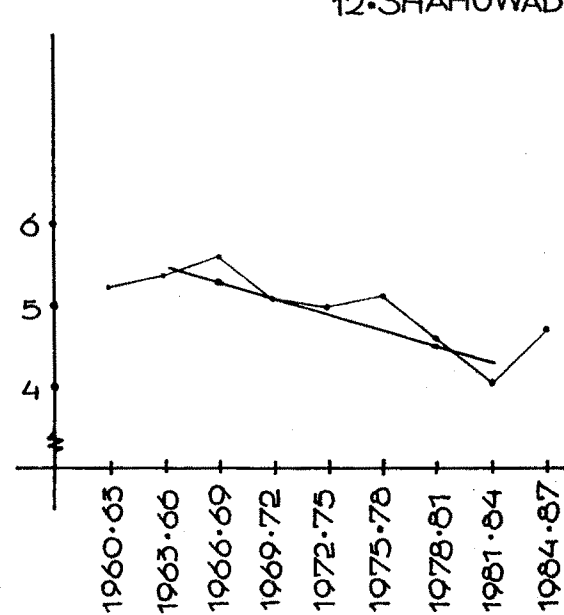


Table 5.16

C.V. values of taluka shares of groundnut in their GCA

Taluka	Coefficient of variation (Percentage)
1. Karvir	6.02
2. Shahuwadi	7.38
3. Radhanagari	7.44
4. Panhala	8.74
5. Kagal	8.93
6. Bhudargad	8.99
7. Gadhinglaj	9.03
8. Ajara	11.18
9. Hatkanagale	17.87
10. Shirol	31.44
11. Chandgad	46.03
12. Gagan Bawada	145.83

The Table brings forth conspicuously high value of the coefficient, but considering very negligible share if devoted for groundnut cultivation, coefficient value of this magnitude need not be alarming. Chandgad's case also would fall in the same line. Real attention needs to be given to the five prominent talukas. One of them was Shirol. It had high degree of variability (31.44 per cent) and next lined up Hatkanagale (17.87 per cent). Gadhinglaj and Kagal were relatively more stable. Karvir had the greatest stability among all the talukas. If read in concurrence with Table 5.15 the range magnitude of Shirol and Hatkanagale was, relative to other talukas, much higher. And they were the talukas which faced quite high values of coefficient of variation.

5.7 CONCLUSION :

Interpretations of data pertaining to the non-food crops in Kolhapur district have brought to the limelight important developments of the district level. Area under non-food crops

percentage of the districts GCA revealed a downtrend, though the declining tendency was moderate. At the same time, two important crops within this category had opposite trends. Sugarcane had a sharp uptrend at the district level, but groundnut revealed a downtrend. It implies that the downtrend of groundnut was more effective than the uptrend of sugarcane, so much so that the district picture of non-food crops resulted into a downtrend. This must be because, overall area covered by groundnut was more than sugarcane. But when a reshuffling of the land use is vividly visible, sugarcane was cultivated by withdrawing at least some crop from groundnut. Crop substitution process largely in favour was taking place during the period of more than two decades. This can be attributed to the emergence of cooperative sugar factories within the district.