

CHAPTER THREE

CROPPING PATTERN OF FOOD GRAINS : CEREALS

3.1 PROMINENCE OF CEREALS IN FOODGRAINS PRODUCTION :

Foodgrains are classified into two main categories viz., cereals and pulses. By and large everywhere in India, cereals are produced over a larger area, normally above 75 percent of the gross cropped area. The share of these two categories depends on the agro-climatic conditions of the region.

Significance of these two categories of crops in the agricultural production of Kolhapur district can be well perceived in the light of the data presented in Table 3.1

Table 3.1

Area under total cereals, total pulses & total foodgrains in Kolhapur dist.

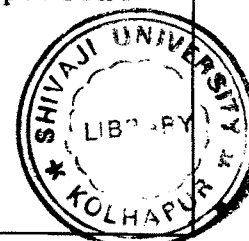
| Particulars | 1960-61 | 1970-71 | 1980-81 | 1986-87 |
|---|----------------------|----------------------|----------------------|----------------------|
| Total Cereals | 2,14,357 (91.25) | 1,91,007 (92.90) | 2,09,262 (87.64) | 1,94,475 (91.81) |
| Total Pulses | 20,567 (8.75) | 14,583 (7.10) | 29,493 (12.36) | 17,327 (8.19) |
| Total Foodgrains | 2,34,924 (100.00) | 2,05,590 (100.00) | 2,38,755 (100.00) | 2,11,802 (100.00) |
| Percentage of area under*foodgrains to total gross cropped area | 55.28 | 50.39 | 53.58 | 48.73 |
| *total | | | | |

Note : Figures in parentheses are percentages to total

Source : Compiled on the basis of data collected from Reports of the respective years.

The term 'total cereals' includes mainly paddy, jowar, wheat, bajra and ragi. While the term 'total pulses' includes mainly gram, tur and moong. Other crops in both the groups are less significant so far as Kolhapur district is concerned.

Table 3.1 makes it clear that out of total gross cropped area in Kolhapur district, upto 1980-81 nearly 50 to 53 percent



of the area was under the production of foodgrains. In 1986-87, the percentage slumped to 48.73. Further, out of the total area under foodgrains nearly 87 to 93 percent was occupied by cereals and the remaining 7 to 13 percent by pulses. In absolute terms, area under cereals varied between 1.94 and 2.14 hectares whereas that of pulses varied between 0.15 and 0.20 lakh hectares over the period. Such variations of large magnitude were caused by overall annual variations in the land under foodgrains. By and large, nearly 91 percent of the land under foodgrains was occupied by cereals and the remaining 8 percent by pulses revealing thereby a clearcut preference for cereal production.

3.2 FOCUS OF ANALYSIS :

The present chapter concentrates only on the area of cereals in the district. The analysis is two-stage. Firstly, taluka area as percentage of district area of cereals is taken into account and the trend of taluka percentages is brought out. Secondly, area under cereals in each taluka is presented as percentage of the gross cropped area of the taluka itself and the trend of these percentages is observed. The former analysis will throw light on the relative position of each taluka in the district production of cereals while the latter analyses will bring out the degree of variation in the production of cereals within each taluka. Furthermore, the former would bring out the regional concentration of cereals production within the district and the latter would reveal vividly the extent of cereals cultivation within each taluka.

(Area in Hectares)

| Triennial Years | Bhudargad | Radhanagari | Gaganbawada | Shahuwadi |
|----------------------------------|-------------------|-------------------|-------------------|-------------------|
| 1 | 12 | 13 | 14 | 15 |
| 1960-61 | 17,784 | 16,813 | 11,071 | 18,500 |
| to | (8.23) | (7.78) | (5.12) | (8.57) |
| 1962-63 | (66.92) | (57.62) | (76.19) | (58.26) |
| 1963-64 | 17,351 | 16,837 | 10,882 | 17,784 |
| to | (8.20) | (7.96) | (5.14) | (8.11) |
| 1965-66 | (65.94) | (56.21) | (74.19) | (54.92) |
| 1966-67 | 15,688 | 15,611 | 10,100 | 16,576 |
| to | (7.76) | (7.73) | (5.00) | (8.20) |
| 1968-69 | (63.27) | (51.91) | (68.53) | (52.79) |
| 1969-70 | 14,771 | 14,513 | 9,796 | 16,269 |
| to | (7.68) | (7.55) | (5.09) | (8.46) |
| 1971-72 | (61.20) | (50.69) | (68.07) | (49.65) |
| 1972-73 | 14,737 | 14,177 | 9,847 | 15,695 |
| to | (7.75) | (7.46) | (5.18) | (8.25) |
| 1974-75 | (59.88) | (49.01) | (67.24) | (47.91) |
| 1975-76 | 14,729 | 14,729 | 9,312 | 15,838 |
| to | (7.36) | (7.36) | (4.65) | (7.91) |
| 1977-78 | (59.02) | (49.22) | (67.63) | (47.08) |
| 1978-79 | 16,006 | 16,006 | 8,865 | 17,888 |
| to | (7.61) | (7.61) | (4.21) | (8.51) |
| 1980-81 | (59.38) | (50.46) | (67.51) | (52.72) |
| 1981-82 | 13,272 | 16,136 | 3,359 | 16,632 |
| to | (9.13) | (8.0) | (1.67) | (9.31) |
| 1983-84 | (64.95) | (51.10) | (56.23) | (51.07) |
| 1984-85 | 13,319 | 16,558 | 3,264 | 20,539 |
| to | (9.24) | (8.35) | (1.64) | (10.36) |
| 1986-87 | (58.45) | (51.91) | (47.15) | (52.45) |
| Average for 60-61 to 86-87 | (8.10) (52.11) | (7.76) (52.01) | (4.18) (65.85) | (8.66) (51.87) |

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3.3 DISTRICT AREA OF CEREALS :

At the outset, it will be worthwhile to observe the district scenario of area under cereals over the time-span in question, that is, 1960-87.

Referring to table 3.2 (column 2), it appears that gross cropped area in the district had a declining trend during the nineteen sixties slashing from 4.30 lakhs during the triennium 1960-61 to 1962-63 to the level of 4.07 lakh hectares during the triennium 1969-70 to 1971-72. But there after rising trend prevailed that in the end triennium of 1984-85 to 1986-87, it touched the height of 4.34 lakh hectares.

Total area under cereals did not show concomitant changes. Column 3 of Table 3.2 establishes that area under cereals had a declining trend absolutely as also in terms of percentage of area under cereals to the gross cropped area in ~~in~~ Kolhapur district. Percentage of area under cereals to the gross cropped area of the district was 50.22 initially during the triennium 1960-61 to 1962-63, which implies that half the GCA of the district was then covered by cereal crops. In later years, this group of crops gradually suffered a setback so that its percentage to the GCA stood at 45.68 during the triennium 1984-85 to 1986-87. Thus, over the period of 27 years spanning 1960 and 1987, cereals cultivation in Kolhapur district has gradually receded to the extent of 9.04 percent. This is the first indication of a major change in the cropping pattern of Kolhapur district that has occurred after 1960.

3.4 TALUKA PROFILE OF CEREALS :

Talukawise study of cultivation of cereals may be treated as micro-level investigation. It pertains to consideration of talukawise trends of the area under cereals. Triennial figures of each taluka are presented in columns 4 to 15 of table 3.2. The analysis is done from two angles = a) taluka area as percentage of the district total area under cereals and (b) taluka area as percentage of the gross cropped area (GCA) of the taluka itself. Results in each respect are

presented with reference to three parameters : (i) average area, (ii) trend of area and (iii) coefficient of variation of area. Table 3.2 provides the reference data.

3.4.1 TALUKA AREA VIS-A-VIS DISTRICT AREA OF CEREALS :

In Table 3.2, all the 12 talukas of Kolhapur district are covered in columns 4 to 15. These columns exhibit firstly the absolute area in hectares for each triennial period, Then follow in upper brackets percentages of taluka area to the district total area under cereals for the respective triennium. Last row in the table gives in upper brackets average share of each taluka in district total over the entire period, 1960-87. This section delves into these details only in order to establish meaningful conclusions. Interpretations follow.

3.4.1.1 Average Area :

A bird's eye-view of the range in which each taluka shared the crop area under cereals is presented in Table 3.3

Table 3.3

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

(Percentage)

| Taluka | Range of share | Range magnitude (percentage points) | Average share for the entire period |
|------------------|----------------|-------------------------------------|-------------------------------------|
| 1. Karvir | 8.94 to 10.57 | 1.63 | 9.51 |
| 2. Panhala | 6.82 to 7.55 | 0.73 | 7.10 |
| 3. Hatkanagale | 8.02 to 10.05 | 2.03 | 9.17 |
| 4. Shirol | 5.10 to 9.63 | 4.53 | 7.98 |
| 5. Kagal | 8.66 to 9.72 | 1.06 | 9.20 |
| 6. Gadhinglaj | 8.12 to 9.19 | 1.07 | 8.75 |
| 7. Chandgad | 10.57 to 12.91 | 2.34 | 11.39 |
| 8. Ajara | 7.69 to 8.58 | 0.89 | 8.15 |
| 9. Bhudargad | 7.36 to 9.24 | 1.88 | 8.10 |
| 10. Radhanagari | 7.36 to 8.30 | 0.94 | 7.76 |
| 11. Gagan Bawada | 1.64 to 5.18 | 3.54 | 4.18 |
| 12. Shahuwadi | 7.91 to 10.36 | 2.45 | 8.66 |

It appears from Table 3.3 that excepting Gagan Bawada, all the other talukas had an average share of cereals area between 8 and 11 percent on average. In fact, Chandgad had the largest share (11.39 percent) and Gagan Bawada the lowest share (4.18 percent). Based on the average share for the entire period, sequence of the talukas in declining order would be Chandgad, Karvir, Kagal, Hatkanagale, Gadhinglaj, Shahuwadi, Ajara, Bhudargad, Shirol, Radhanagari and Gagan Bawada.

If the magnitude of range within which the percentage share had changed is taken into account, the range was largest in case of Shirol (4.53 percentage points) and smallest in case of Panhala (0.73 percentage points).

3.4.1.2 Trends :

The time-series data of each taluka can now be juxtaposed to find out the trend of the percentage of taluka area in the district total. The trend lines for each taluka are shown in the graphical presentation (Chart 1). Observation of this chart reveals that Panhala, Hatkanagale, Chandgad, Bhudargad, Radhanagari and Shahuwadi were the six talukas which recorded a rising trends as regards the percentage of area under cereals. In case of Radhanagari the uptrend is marginal. As against these talukas, five talukas (Karvir, Shirol, Kagal, Ajara, and Gagan Bawada) revealed falling trend. The downtrend was moderate with Karvir, Kagal and Ajara and much pronounced with Gagan Bawada. Finally, Gadhinglaj was the sole taluka which registered constant trend over the time-series.

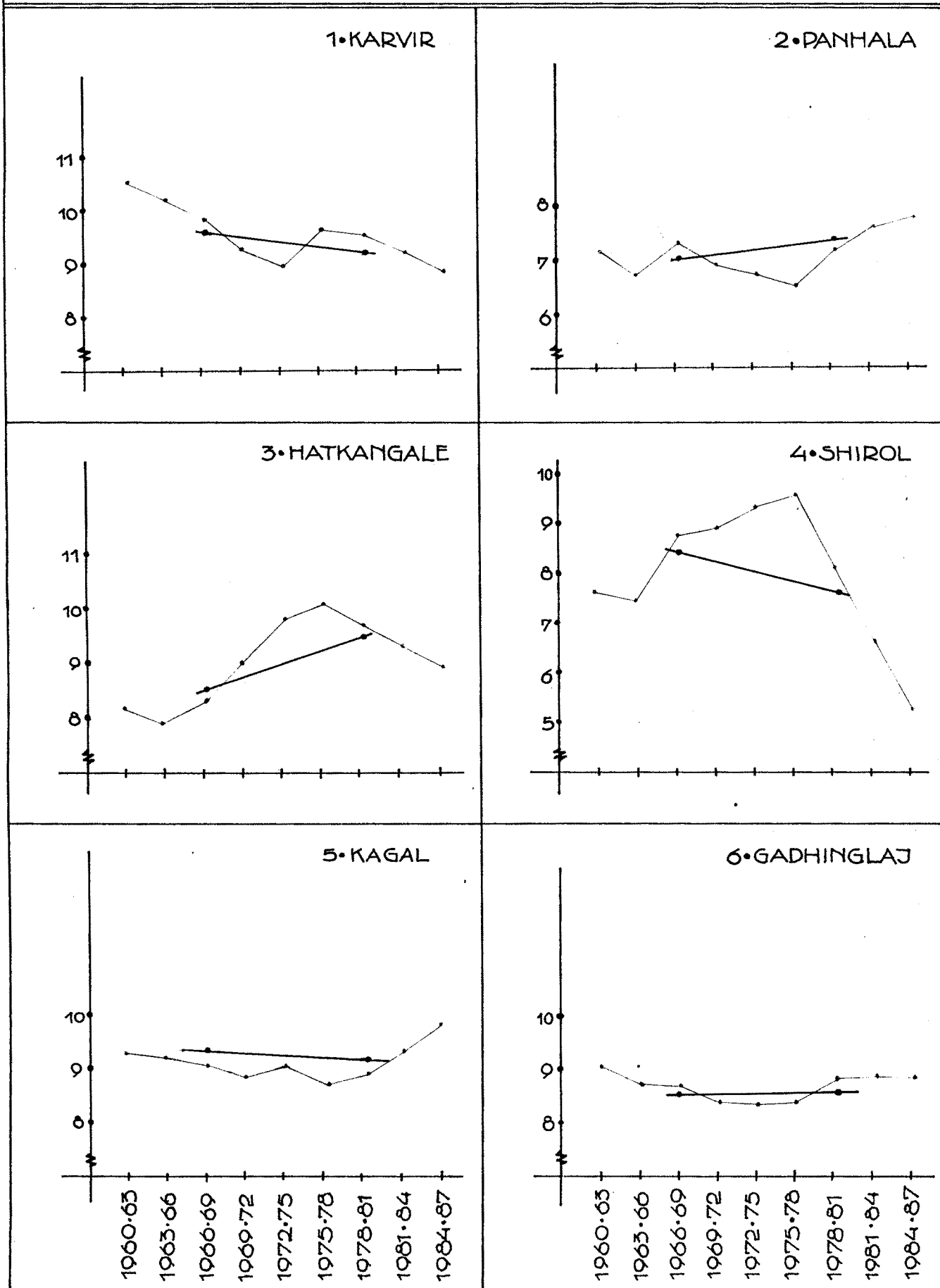
Overall effect on the district trend caused by these uptrends and downtrends has been on the side of a downtrend. It means that the impact of downtrend in five talukas overweighed the impact of uptrend in six talukas.

3.4.1.3 Coefficient of Variation :

The third dimension is comparison of the talukas with reference to the fluctuations in the area under cereals from triennium to triennium. The magnitude of fluctuations

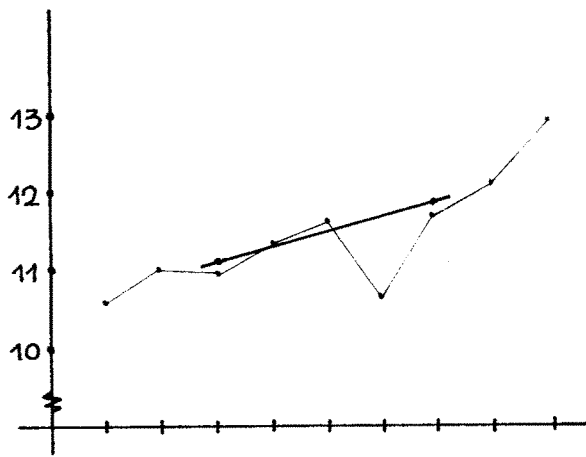
■ CHART • 1

TREND OF THE PERCENTAGE OF TALUKA AREA
IN THE DISTRICT TOTAL : CEREALS

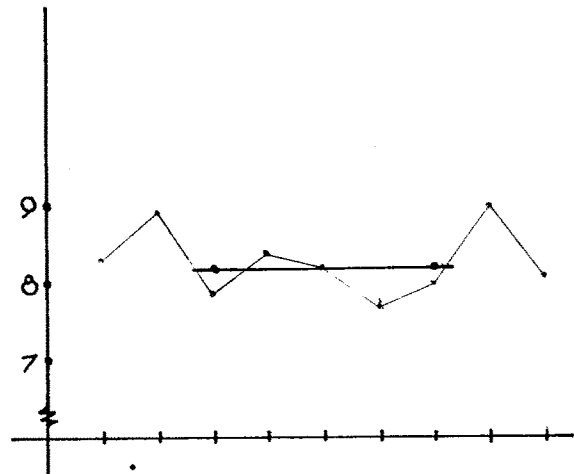


■ CHART • 1 (CONTINUED)

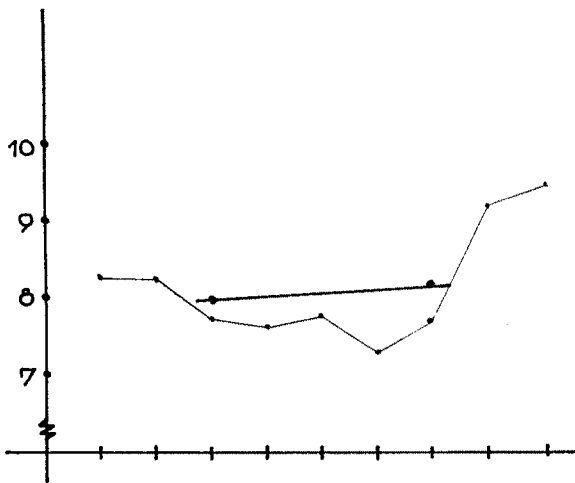
7. CHANDGAD



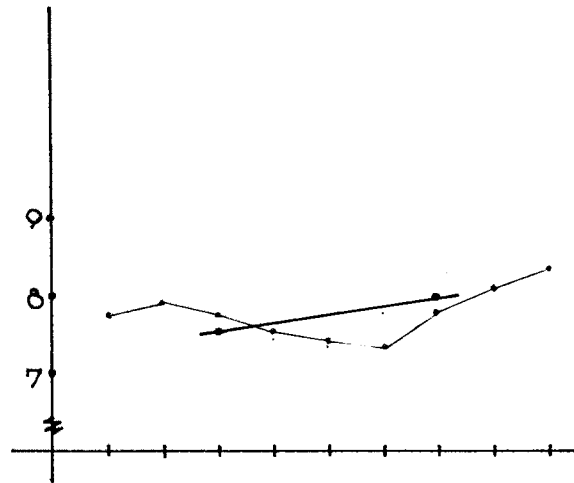
8. AJARA



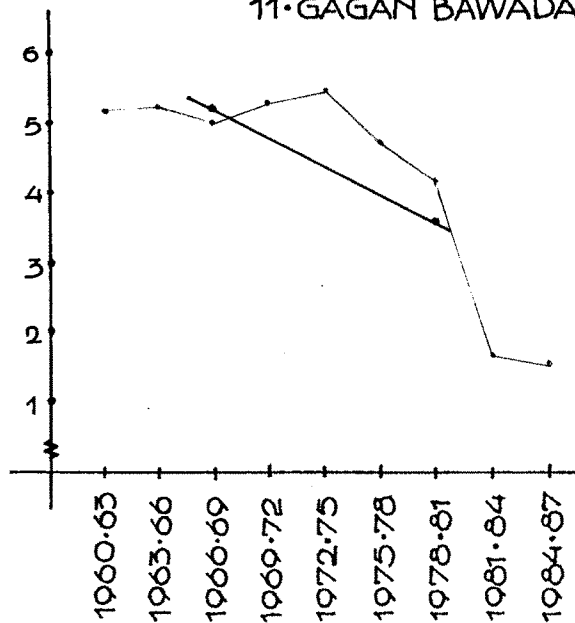
9. BHUDARGAD



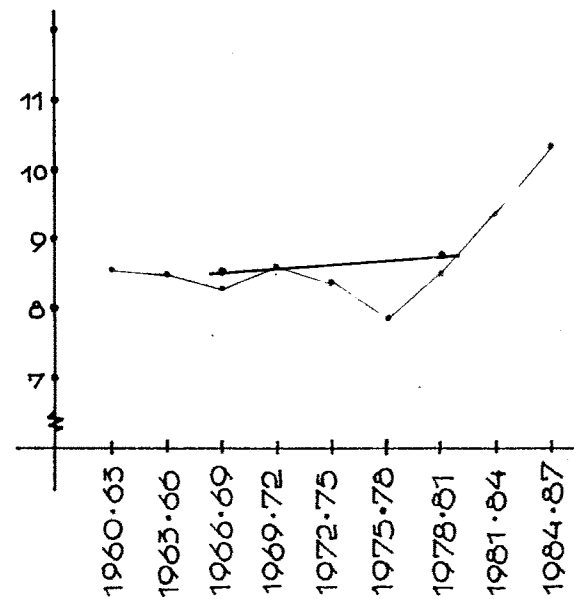
10. RADHANAGARI



11. GAGAN BAWADA



12. SHAHUWADI



over the entire period in question can be judged by computing coefficient of variation (C.V.) in respect of each taluka. Such a coefficient measured in percentage terms would facilitate inter-taluka comparison. Taluka-wise coefficients are shown in Table 3.4.

Table 3.4

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

| Taluka | Coefficient of variation (Percentage) |
|------------------|--|
| 1. Radhanagari | 2.57 |
| 2. Gadhinglaj | 2.85 |
| 3. Ajara | 3.19 |
| 4. Kagal | 3.26 |
| 5. Panhala | 3.66 |
| 6. Karvir | 5.46 |
| 7. Chandgad | 6.05 |
| 8. Hatkanagale | 7.85 |
| 9. Bhudargad | 8.12 |
| 10. Shahuwadi | 8.42 |
| 11. Shirol | 16.66 |
| 12. Gagan Bawada | 33.01 |

Results of C.V. values shown in Table 3.4 very glaringly bring forth conspicuously larger variation (33.01 percent) in the crop area under cereals in Gagan Bawada. Shirol also follows with similar trend, though its C.V. value is nearly half of Gagan Bawada. Thus, these two talukas had many ups and downs. On the other hand, marginal annual fluctuations could be perceived in case of Radhanagari, Gadhinglaj, Ajara, Kagal and Panhala since their C.V. values are within the range of 2 to 4 percent. In between these two extremes fall five talukas - Karvir, Chandgad, Hatkanagale, Bhudargad and Shahuwadi - with C.V. values between 5 and 9 percent, revealing thereby medium rate of fluctuations.

3.4.2 TALUKA AREA OF CEREALS VIS-A-VIS GROSS CROPPED AREA OF THE TALUKA :

This section will consider the taluka area of cereals as a proportion of the gross cropped area of the taluka so as to know the level of importance of cereals for the taluka. For the purpose, in Table 3.2, in column 4 to 15, the lower brackets give the percentage of cereal crops to the gross cropped area of the taluka. Similarly, in the last row of the table, the figures in lower brackets indicate average percentage of cereal crops in each taluka over the entire period 1960-87. Now the interpretations follow.

3.4.2.1 Average Area :

The range within which area under cereals as percentage of the GCA of the taluka moved over the period of 27 years could be noticed at a glance from Table 3.5.

Table 3.5

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

| Taluka | Range | (Percentages) | |
|---------------------|----------------|-----------------|-------------------------------|
| | | Range magnitude | Average for the entire period |
| 1. Karvir | 38.82 to 49.20 | 10.38 | 41.59 |
| 2. Panhala | 43.89 to 48.72 | 4.83 | 46.45 |
| 3. Hatkanagale | 35.95 to 42.10 | 6.15 | 39.49 |
| 4. Shirol | 25.79 to 44.14 | 18.35 | 37.85 |
| 5. Kagal | 40.44 to 45.73 | 5.29 | 43.27 |
| 6. Gadhinglaj | 39.08 to 46.34 | 7.26 | 42.47 |
| 7. Chandgad | 53.15 to 60.56 | 7.41 | 57.32 |
| 8. Ajara | 52.50 to 64.18 | 11.68 | 57.18 |
| 9. Bhudargad | 58.45 to 66.92 | 8.47 | 62.11 |
| 10. Radhanagari | 49.01 to 57.62 | 8.61 | 52.01 |
| 11. Gagan Bawada | 47.15 to 76.19 | 29.04 | 65.85 |
| 12. Shahuwadi | 47.08 to 58.26 | 11.18 | 51.89 |

Perusal of the last column of Table 3.5 brings forth considerable divergence among the talukas in utilising their agricultural land for cereal cultivation. There is a wide gap between the top-ranking Gagan Bawada (65.35 percent) and the lowest Shirol (37.85 percent) if the average percentages over the span of 27 years is taken into account. There appears to be a clearcut division of the talukas in two groups, with equal numbers in each group. The first six talukas in Table 3.5 have the percentages between 39 and 47, that is, well below half the GCA, while the latter six talukas have the percentages between 51 and 66, that is, much above half the GCA of the talukas. Importantly, talukas of the first group are mostly in the eastern region of the district and those of the second group are in the western hilly region. Thus, the talukas of the eastern plains have relatively less emphasis on cereals cultivation than the talukas of the western hilly region.

Overall sequence of the talukas in their declining order based on the average percentages is as follows : Gagan Bawada, Bhudargad, Chandgad, Ajara, Radhanagari, Shahuwadi, Panhala, Kagal, Gadhinglaj, Karvir, Hatkanagale and Shirol.

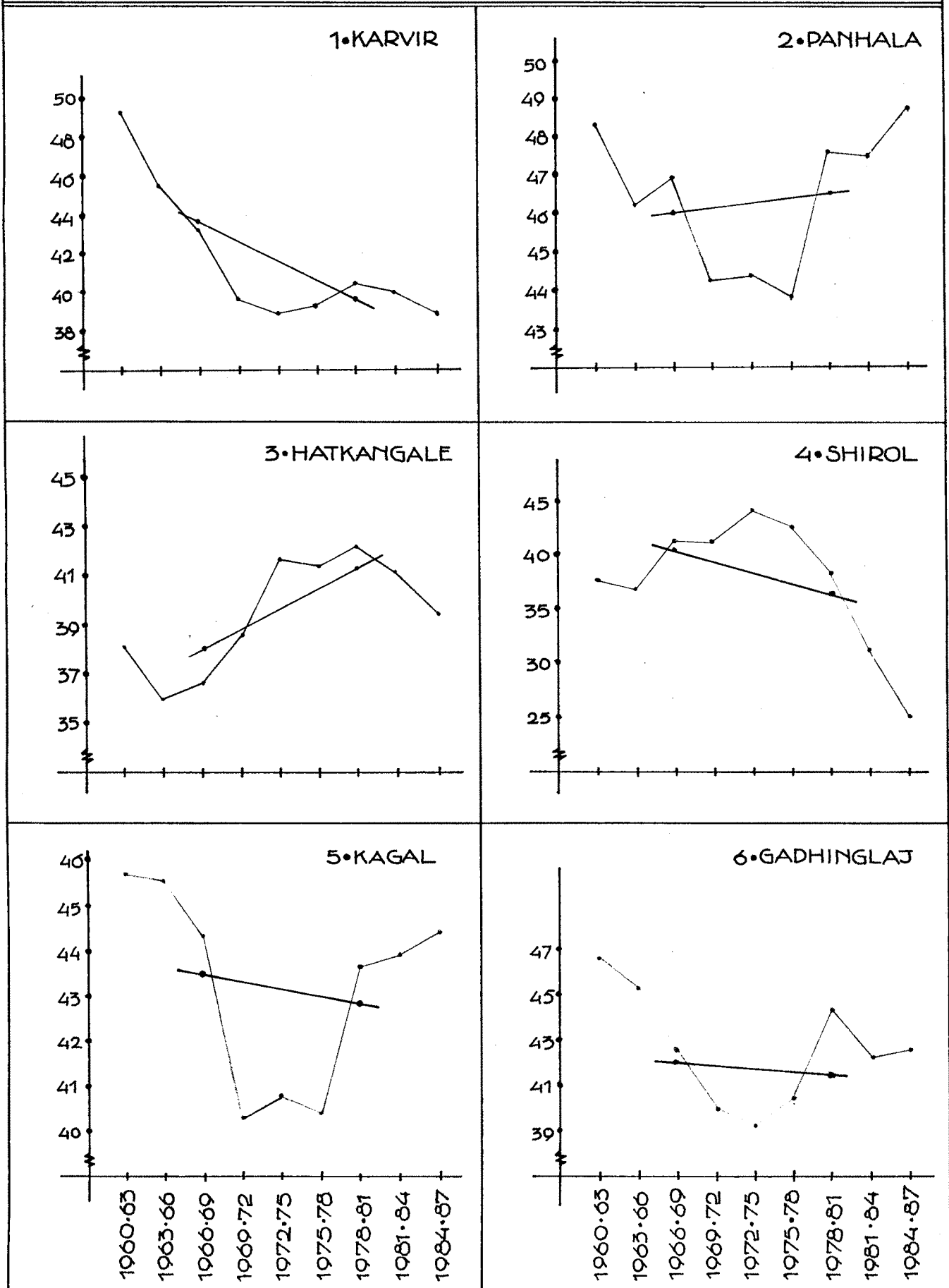
Following the data on range magnitude of the lowest and highest percentages, Gagan Bawada revealed the maximum magnitude followed by Shirol, Ajara, Shahuwadi and Karvir. The magnitude of other talukas was within single digit percentage points. Panhala had the lowest magnitude. Existence of larger magnitude indicates wider fluctuations in the percentages as against marginal fluctuations indicated by a narrow range.

3.4.2.2 Trends :

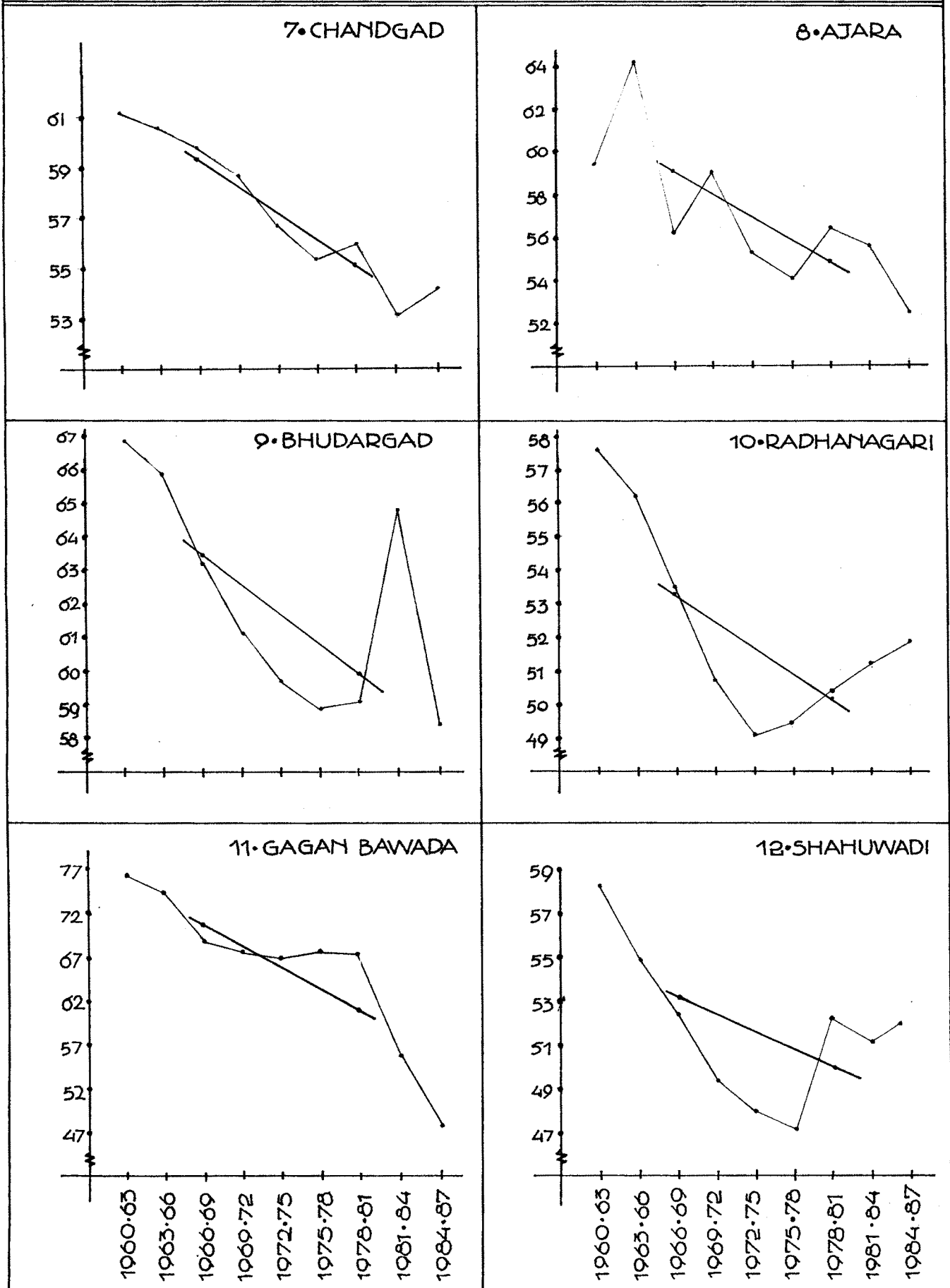
The time-series data of each taluka, when considered at a stretch, will bring out the trend of the share of cereal crops in the GCA of the talukas. The trend lines of the talukas are exhibited in Chart 2. A cursory

■ CHART-2

TREND OF PERCENTAGE OF TALUKA AREA IN ITS GCA : CEREALS



■ CHART • 2 (CONTINUED)



glance at the graphs points out conspicuously that 10 out of the 12 talukas registered a declining trend of the percentage of area under cereals in the GCA of the taluka. These ten talukas are karvir, Shirol, Kagal, Gadhinglaj, Chandgad, Ajara, Bhudargad, Radhanagari, Gagan Bawada and Shahuwadi. Remaining two talukas - Panhala and Hatkanagale - had the uptrend. These observations lead to the conclusion that, by and, large, Kolhapur district had moved in the direction of reducing the share of cereals in the GCA. This was the conclusion established in the earlier section, and is now reinforced by the observed talukawise trends.

3.4.2.3 Coefficient of Variation :

Now the magnitude of variations from one triennium to another will be measured by using the technique of coefficient of variation. Talukawise coefficient are shown in Table 3.6.

Table 3.6

| Taluka | Coefficient of variation (Percentage) |
|-----------------|--|
| 1. Gadhinglaj | 2.43 |
| 2. Shahuwadi | 3.26 |
| 3. Panhala | 3.78 |
| 4. Kagal | 4.57 |
| 5. Chandgad | 4.69 |
| 6. Hatkanagale | 5.36 |
| 7. Ajara | 6.11 |
| 8. Radhanagari | 6.27 |
| 9. Gagan Bawada | 12.78 |
| 10. Shirol | 14.48 |
| 11. Karvir | 46.93 |
| 12. Bhudargad | 50.73 |

From Table 3.6 it can be noticed that Bhudargad and Karvir talukas had sharp fluctuations as could be noted from considerably high percentage of the coefficients of variation. Gagan Bawada and Shirol follow these two

talukas, though with a great margin, suggesting frequent upheavals in the percentages. Remaining 8 talukas experienced fluctuations within moderate limits as their C.V. values remained below 7 percent. Gadhinglaj had marginal fluctuations so that its C.V. value remained the lowest

3.5 DISTRICT AREA OF PADDY :

Of the total area under cereals in Kolhapur district, nearly 72 per cent is covered by only two crops, viz. Paddy and jowar, the former occupying nearly double the area of the latter. Hence a detailed account of these two cereal crops is taken.

Paddy is the principal cereal crop of Kolhapur district. Over the long span of 1960-61 to 1986-87, paddy covered nearly 20 to 25 percent of the gross cropped area of the district giving time series average of 23.26 percent (Table 3.7, column 3). Western region of the district is largely a hilly tract so that annual rainfall is more relative to the eastern region. As such, talukas of this region have favourable agro-climatic conditions for growing of paddy.

On the basis of triennial averages, the absolute area under paddy varied within the range of 0.85 to 1.12 lakh hectares. Actually, the area declined during nineteen sixties and first half of the seventies, the decline being from 1.02 lakh hectares in 1960-63 to 0.85 lakh hectares in 1972-75. The trend was reversed from 1975 and the uptrend prevailed till 1987 pushing up the area to 1.12 lakh hectares in 1984-87. This level was 9.28 percent above the level of area in 1960-63.

Percentage of paddy are in the district to the GCA of the district also reveals a rising trend over the entire period. True, that this percentage declined till mid-seventies, but again picked up thereafter and surpassed the initial percentage since the beginning of the nineteen eighties.

Thus, paddy cultivation in the district is on the increase since mid-seventies.

(Area in Hectares)

| Triennial Years | Bhudargad | Radhanagari | Gaganbawada | Shahuwadi |
|--------------------------------------|-------------------|--------------------|-------------------|--------------------|
| 1 | 12 | 13 | 14 | 15 |
| 1960-61 | 10,059 | 10,598 | 5,434 | 10,180 |
| to | (9.90) | (10.43) | (5.34) | (10.02) |
| 1962-63 | (37.85) | (36.32) | (37.39) | (32.05) |
| 1963-64 | 10,417 | 10,779 | 5,552 | 10,397 |
| to | (10.34) | (10.34) | (5.32) | (9.97) |
| 1965-66 | (39.59) | (35.99) | (37.85) | (32.10) |
| 1966-67 | 9,419 | 8,886 | 5,425 | 9,624 |
| to | (9.57) | (9.03) | (5.51) | (9.78) |
| 1968-69 | (37.99) | (30.43) | (36.81) | (30.65) |
| 1969-70 | 8,611 | 9,255 | 5,323 | 8,509 |
| to | (9.55) | (10.26) | (5.90) | (9.44) |
| 1971-72 | (35.68) | (32.32) | (36.98) | (25.97) |
| 1972-73 | 8,139 | 8,602 | 5,435 | 8,552 |
| to | (9.56) | (10.11) | (6.38) | (10.05) |
| 1974-75 | (33.07) | (29.74) | (37.11) | (26.10) |
| 1975-76 | 8,898 | 9,133 | 5,469 | 8,537 |
| to | (9.80) | (10.05) | (6.02) | (9.40) |
| 1977-78 | (35.65) | (30.52) | (39.72) | (25.38) |
| 1978-79 | 10,151 | 10,467 | 5,328 | 10,087 |
| to | (9.92) | (10.23) | (5.21) | (9.86) |
| 1980-81 | (37.66) | (33.00) | (40.58) | (29.73) |
| 1981-82 | 10,407 | 10,979 | 1,700 | 11,517 |
| to | (9.93) | (10.47) | (1.62) | (10.99) |
| 1983-84 | (37.00) | (34.75) | (28.46) | (31.50) |
| 1984-85 | 11,487 | 11,308 | 1,712 | 13,163 |
| to | (10.25) | (10.09) | (1.52) | (11.75) |
| 1986-87 | (36.65) | (35.45) | (24.72) | (33.61) |
| Average for 1960-61 to 1986-87 | (9.86) (36.79) | (10.11) (33.16) | (4.75) (35.51) | (10.14) (29.68) |

3.6 TALUKA PROFILE OF PADDY :

Talukawise details of paddy cultivation in the district are listed in columns 4 to 15 of Table 3.7. For the purpose of analysis of data, similar to cereals, two-stage method is adopted : (a) taluka area as percentage of the district total area under paddy and (b) taluka area as percentage of GCA of the taluka itself. Again, results in each respect are presented with reference to three parameters : (i) average area, (ii) trend of area and (iii) coefficient of variation of area.

3.6.1 TALUKA AREA VIS-A-VIS DISTRICT AREA OF PADDY :

In Table 3.7, all the, 12 talukas of Kolhapur district are covered in columns 4 to 15. These columns exhibit firstly the absolute area in hectares for each triennial period. Then follow in upper brackets percentages of taluka area to the district total area under paddy for the respective triennium. Last row in the table gives in upper brackets average share of each taluka in district total over the entire period, 1960-87. This section delves into these details. Analysis follows.

3.6.1.1 Average Area :

A summary account of the range in which each taluka shared the crop area under paddy is presented in Table 3.8.

Table 3.8
Talukawise range of share of area under paddy
(1960-87)
(Percentage)

| Taluka | Range of share | Range magnitude (Percentage points) | Average share for the entire period |
|------------------|----------------|-------------------------------------|-------------------------------------|
| 1. Karvir | 11.33 to 13.69 | 2.36 | 12.36 |
| 2. Panhala | 8.90 to 9.76 | 0.86 | 9.16 |
| 3. Matkanagale | 2.55 to 5.25 | 2.70 | 4.33 |
| 4. Shirol | 0.77 to 14.27 | 3.50 | 2.27 |
| 5. Kagal | 8.78 to 10.94 | 2.16 | 9.94 |
| 6. Gadhinglaj | 6.98 to 8.96 | 1.98 | 7.83 |
| 7. Chandgad | 10.32 to 13.67 | 3.35 | 11.07 |
| 8. Ajara | 7.49 to 8.82 | 1.33 | 8.05 |
| 9. Bhudargad | 9.55 to 10.34 | 0.79 | 9.86 |
| 10. Radhanagari | 9.03 to 10.47 | 1.44 | 10.11 |
| 11. Gagan Bawada | 1.52 to 6.38 | 4.86 | 4.75 |
| 12. Shahuwadi | 9.40 to 11.75 | 2.35 | 10.14 |

In the light of the Table 3.8, it can be seen that average share of paddy cultivation through the time-series in question remained maximum (12.36 percent) in Karvir, Chandgad, Shahuwadi and Radhanagari followed in declining order. Kagal, Bhudargad and Panhala also had conspicuous cultivation of paddy. Ajara followed this trio. Importantly, Shirol, Hatkanagale and Gagan Bawada were not recognised talukas for cultivation of paddy. Shirol remained last in order.

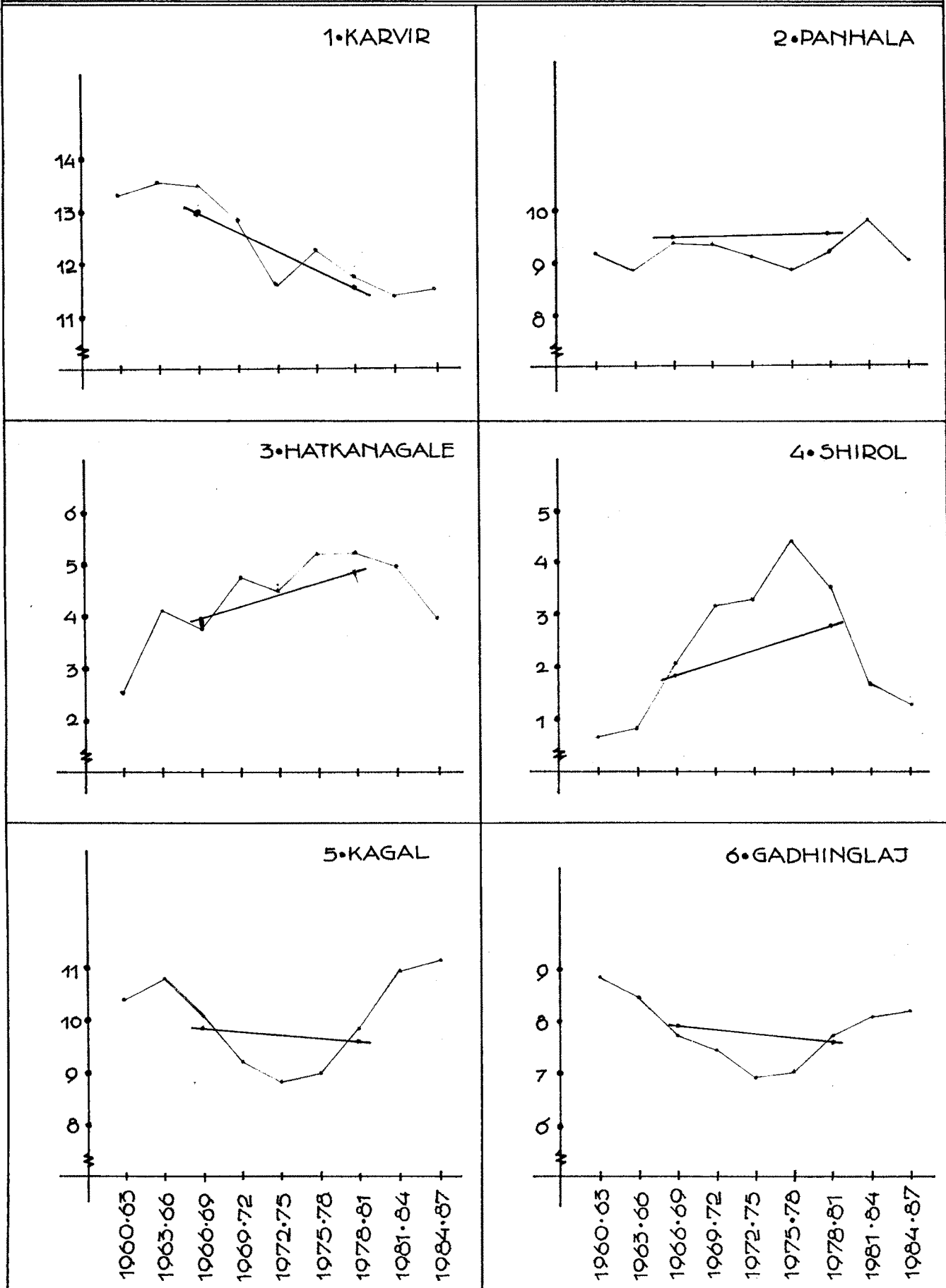
Coming to the range in which percentage share of each taluka varied, the magnitude was narrow for all talukas except Gagan Bawada, Shirol and Chandgad. Bhudargad and Panhala talukas had the magnitude less than unity and hence had fair degree of stability of the share of area under paddy in the district area.

3.6.1.2 Trends :

The time-series data of each taluka from Table 3.7

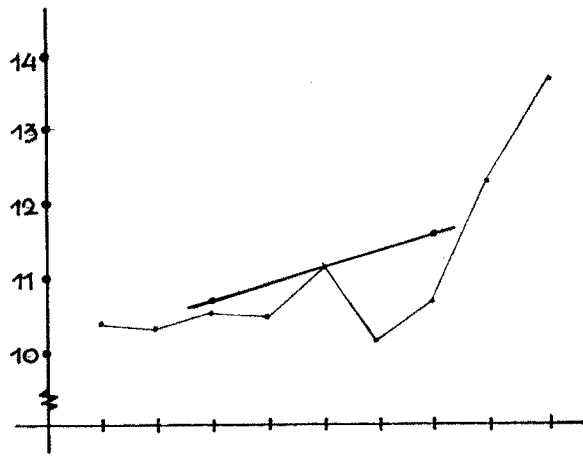
■ CHART • 3

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

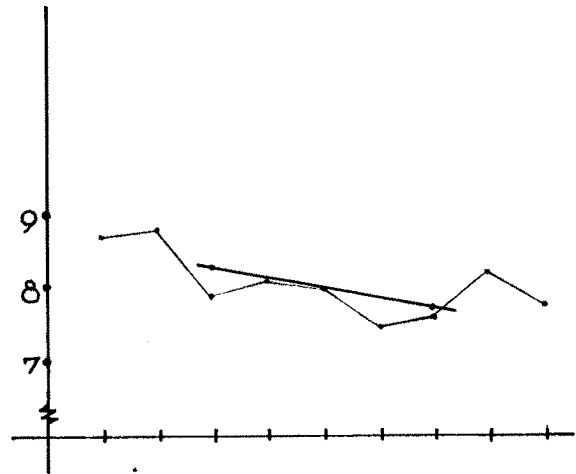


■ CHART • 3 (CONTINUED)

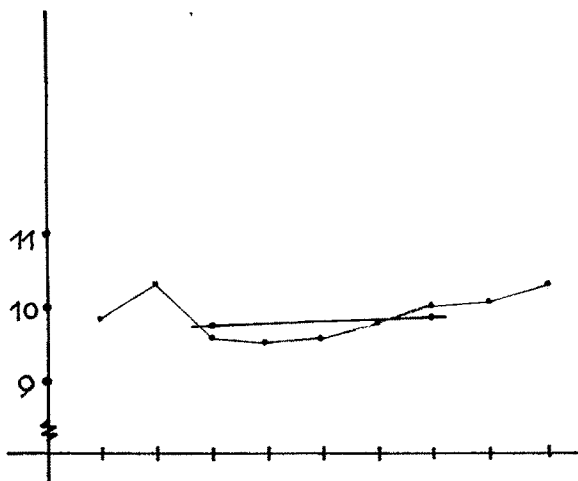
7. CHANDGAD



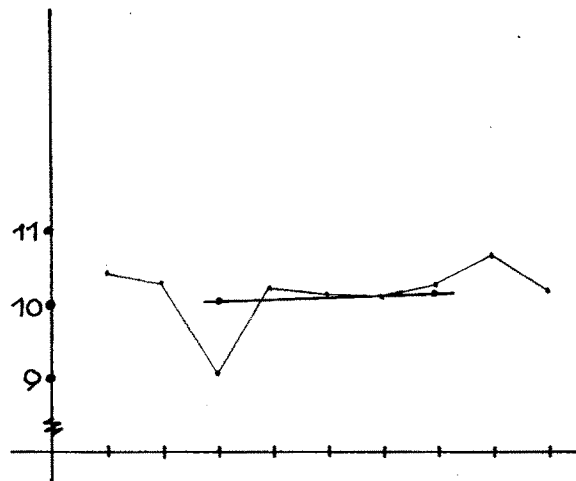
8. AJARA



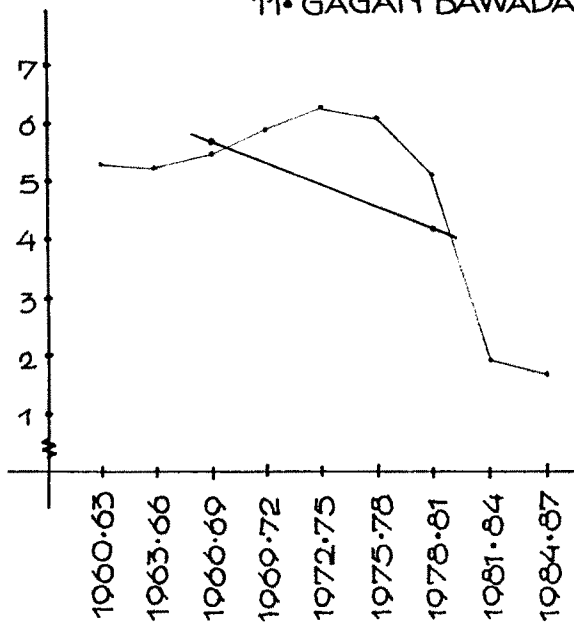
9. BHUDARGAD



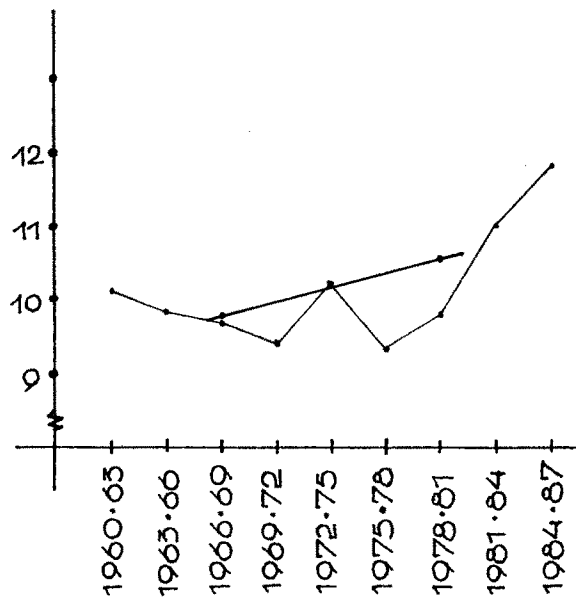
10. RADHANAGARI



11. GAGAN BAWADA



12. SHAHUWADI



will now be taken into account so as to find out the behavioural pattern of the fluctuations in the taluka area of paddy within the district area. This is an attempt to fit the trend line. Chart 3 exhibits taluka-wise trends. The graphs indicate a mixed situation. Panhala, Hatkanagale, Shirol, Chandgad, Bhudargad, Radhanagari and Shahuwadi talukas revealed a rising trend of the proportion of paddy within district total. Panhala taluka, however, had only a marginal lift up. On the other hand, five talukas - Karvir, Kagal, Gadhinglaj, Ajara and Gagan Bawada - recorded downtrend over the entire period. Falling tendency of Kagal was, however, much less pronounced. If it is noted that the overall area of paddy in Kolhapur district had swollen, then it can be attributed to the fact that the area of the seven talukas with rising trend more than offset the decline in area of the five talukas with falling trend.

3.6.1.3 Coefficient of variation :

For comparing the long-term fluctuations of taluka shares in the district total of the area under paddy, the technique of coefficient of variation (C.V.) has been employed. Estimated values of the C.V. of each taluka are presented in Table 3.9. Here

Table 3.9

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

| Taluka | Coefficient of variation (Percentage) |
|------------------|--|
| 1. Panhala | 2.40 |
| 2. Radhanagari | 4.35 |
| 3. Ajara | 5.22 |
| 4. Karvir | 7.34 |
| 5. Gadhinglaj | 7.92 |
| 6. Kagal | 8.14 |
| 7. Bhudargad | 8.21 |
| 8. Chandgad | 9.21 |
| 9. Hatkanagale | 18.24 |
| 10. Shahuwadi | 21.15 |
| 11. Gagan Bawada | 50.20 |
| 12. Shirol | 50.20 |

Value of the coefficient is a pointer to the degree of year-to-year variations in the taluka area of the land as percentage of the district total-lower the value, lesser the magnitude of change and higher the value, greater the magnitude of change. As is revealed by Table 3.9, Panhala taluka had the greatest stability, while Shirol taluka had the greatest instability. Panhala, Radhanagari, Ajara, Karvir, Gadhinglaj, Kagal, Bhudargad and Chandgad talukas had lesser magnitude of variation as against conspicuously greater magnitude of Hatkanagale, Shahuwadi, Gagan Bawada and Shirol Talukas.

3.6.2 TALUKA AREA OF PADDY VIS-A-VIS GROSS CROPPED AREA OF THE TALUKA :

This sub-section will throw light on the behaviour of taluka area under paddy with reference to the gross cropped area (GCA) of the taluka, and will thus introduce the second dimension of the investigation. For this purpose, data in the lower brackets of columns 4 to 15 in Table 3.7 will be used, and the same three-dimensional analysis would be presented.

3.6.2.1 Average Area :

In the natural course, share of area under paddy in the gross cropped area (GCA) has changed from year to year. Triennial averages of these shares are averaged for the entire time span. It will be worthwhile to know the range within which the area under paddy in each taluka as percentage of the taluka's GCA has moved from one triennium to the other. Table 3.10 gives the necessary details.

Table 3.10

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

(Percentages)

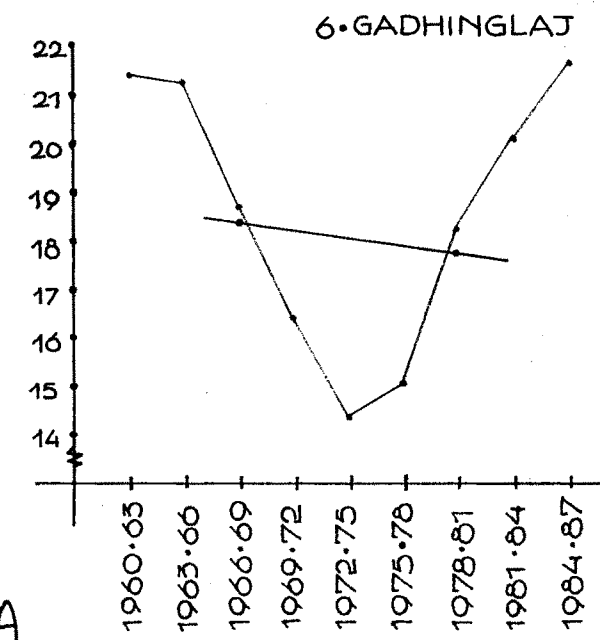
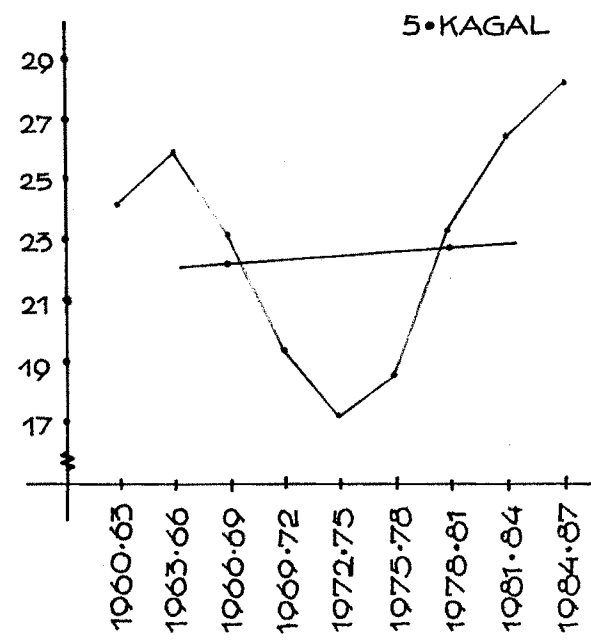
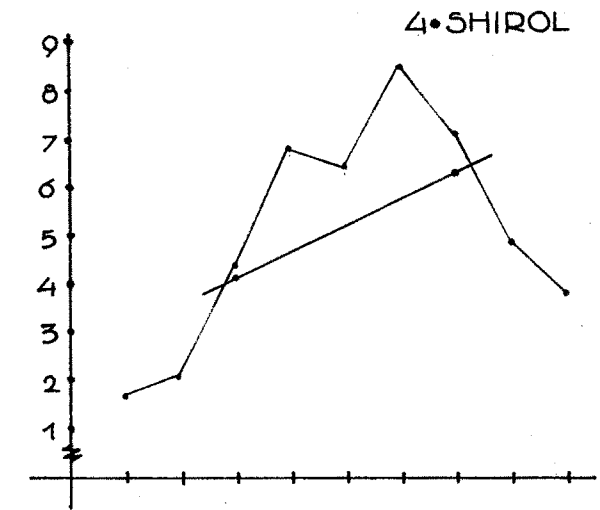
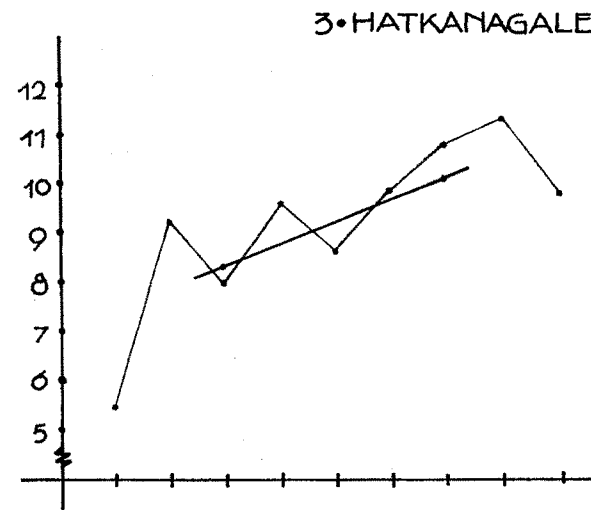
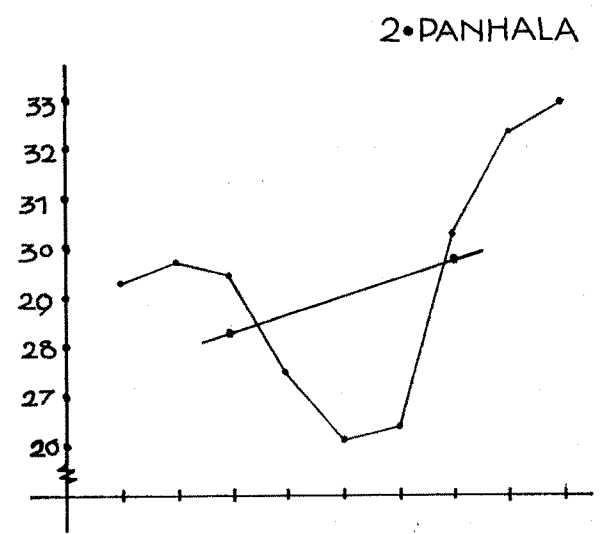
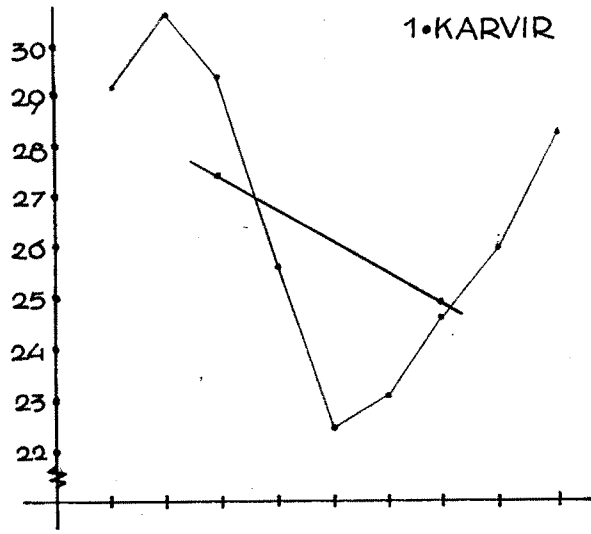
| Taluka | Range of share | Range magnitude (percentage points) | Average share for the entire period |
|------------------|----------------|-------------------------------------|-------------------------------------|
| 1. Karvir | 22.39 to 30.31 | 7.92 | 26.42 |
| 2. Panhala | 26.02 to 32.92 | 6.90 | 29.26 |
| 3. Hatkanagale | 5.48 to 11.04 | 5.56 | 9.07 |
| 4. Shirol | 1.82 to 8.58 | 6.76 | 5.11 |
| 5. Kagal | 17.75 to 28.28 | 10.53 | 22.94 |
| 6. Gadhinglaj | 14.53 to 21.71 | 7.18 | 18.62 |
| 7. Chandgad | 23.23 to 32.43 | 9.20 | 27.02 |
| 8. Ajara | 24.11 to 32.52 | 8.41 | 27.57 |
| 9. Bhudargad | 33.07 to 39.59 | 6.52 | 36.79 |
| 10. Radhanagari | 29.74 to 36.32 | 6.78 | 33.16 |
| 11. Gagan Bawada | 24.72 to 40.58 | 15.86 | 35.51 |
| 12. Shahuwadi | 25.38 to 33.60 | 8.22 | 29.68 |

A close examination of Table 3.10 reveals that except Hatkanagale and Shirol rest of the talukas in Kolhapur district devoted a sizeable proportion of the GCA to the use of paddy cultivation, the proportion varying between 22 to 36 percent excluding Gadhinglaj which utilised about 19 percent of its GCA. Thus, the two talukas lying to the east in the plains had a meagre proportion of their land put to paddy cultivation mainly for the reason that they receive only moderate rainfall. Bhudargad, Gagan Bawada and Radhanagari lying in the western hilly region receive heavy rainfall and, therefore, are suitable for paddy cultivation.

As regards the range of variation as shown by the minimum and maximum percentage shares, Gagan Bawada showed the maximum range (15.86 percentage points) and Kagal next to it (10.53 percentage points). Rest of the talukas had a range between 6 and 9 percentage points. To that extent, in Kolhapur district, the agriculturists were consistent in

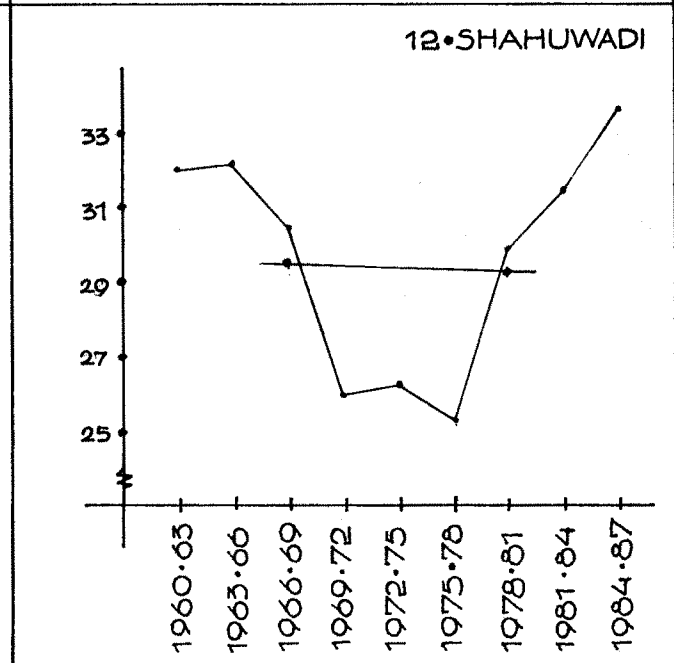
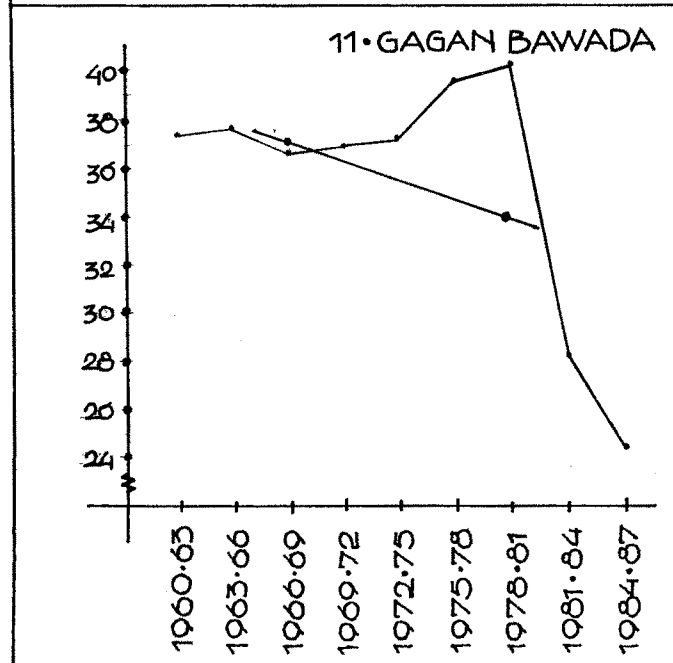
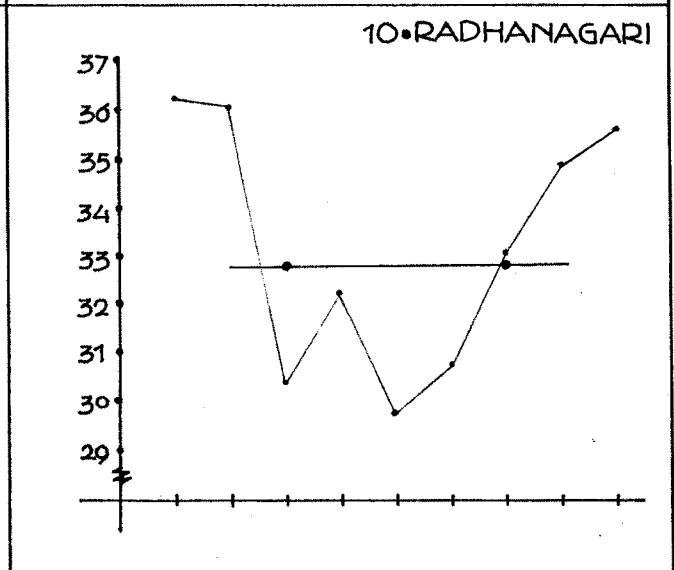
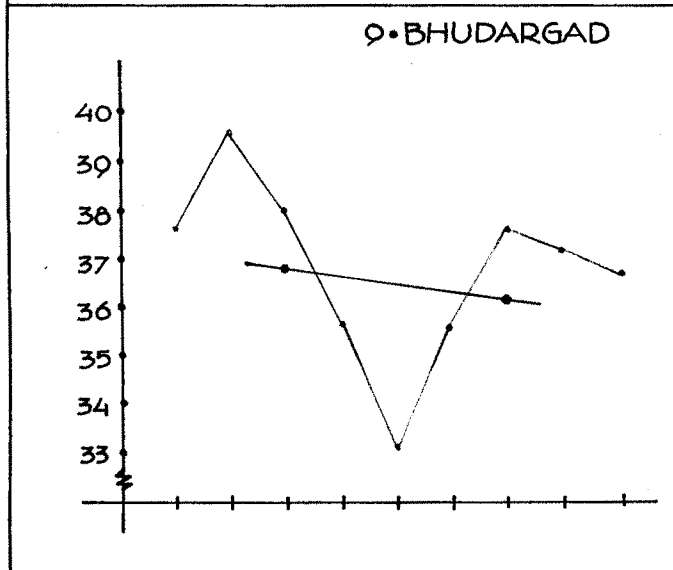
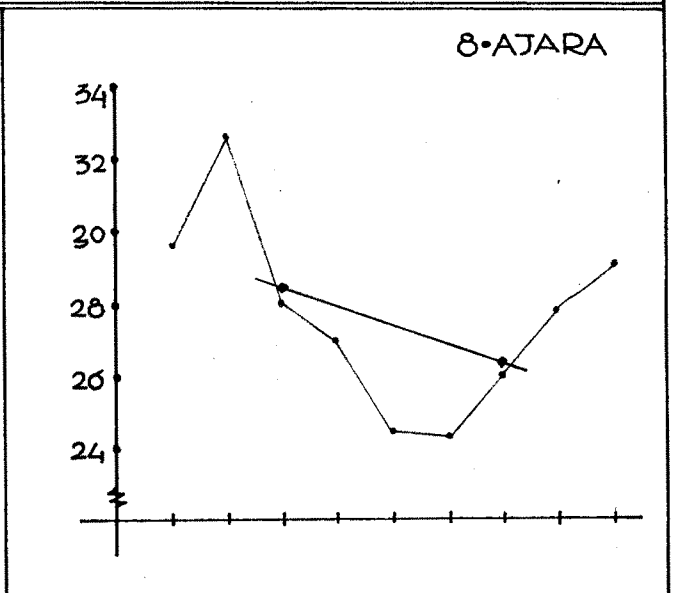
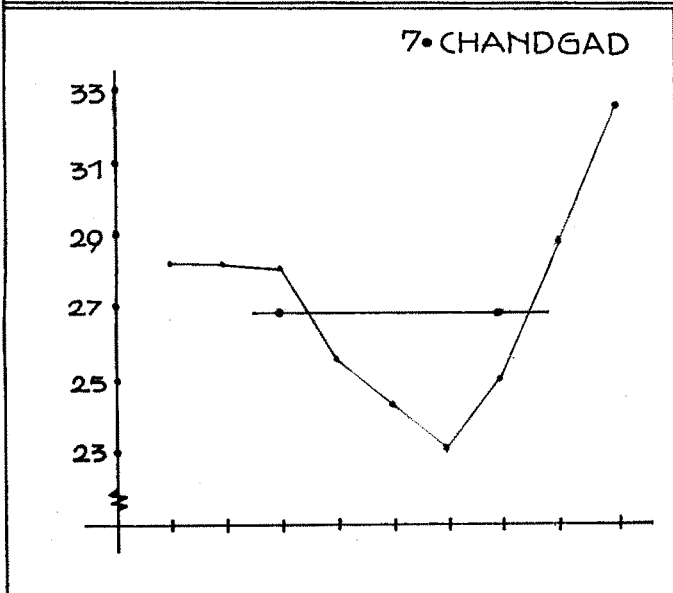
■ CHART • 4

TREND OF TALUKA AREA OF PADDY AS PERCENTAGE OF ITS GCA



A

■ CHART • 4 (CONTINUED)



paddy cultivation.

3.6.2.2 Trends :

There were ups and downs in the land-use for cultivation of paddy in every taluka. Long-run behaviour of these cluctuations become visible through fitting of a trend line for the entire time series data. This is done in Chart 4. Observation of this chart reveals that Panhala, Kagal, Shirol and Hatkanagale were the only four talukas which had an increasing trend in paddy cultivation; of these Kagal's uptrend was just marginal while that of Shirol was pronounced. Kagal, Shirol and Hatkanagale are the talukas in the plans. Paddy cultivation in these talukas had gradually picked up due to availability of irrigation facilities. On the other side, remaining 8 talukas - Karvir, Gadhinglaj, Chandgad, Ajara, Bhudargad, Radhanagari, Gagan Bawada - exhibited falling trend, though falling tendency was marginal in case these talukas excepting Karvir, Ajara and Gagan Bawada. It is mainly because of this, extension of area in the four talukas uptrend could overcompensate the fall in area in other talukas of the district. The result was that, for the district as whole, the absolute area under paddy and its proportion to the GCA of the district recorded phenomenal increase and moderate upward slant.

3.6.2.3 Coefficient of variation :

The earlier section has brought out relatively smaller range within which paddy cultivation in the talukas of Kolhapur district had changed. However, it is more enlightening when the degree of variations within the minima and maxima is noticed. Coefficient of variation is a tool employed for the purpose. Table 3.11 gives the necessary values.

Table 3.11

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

| Taluka | Coefficient of variation (Percentages) |
|-----------------|---|
| 1. Bhudargad | 4.75 |
| 2. Radhanagari | 7.26 |
| 3. Panhala | 7.50 |
| 4. Ajara | 9.03 |
| 5. Shahuwadi | 9.80 |
| 6. Chandgad | 9.80 |
| 7. Karvir | 10.14 |
| 8. Gadhinglaj | 13.74 |
| 9. Gagan Bawada | 14.82 |
| 10. Kagal | 14.86 |
| 11. Hatkanagale | 17.19 |
| 12. Shirol | 42.46 |

The degree of variation was significantly high in case of Shirol (42.46 percent). Hatkanagale was second best in this context but with degree of variations was less than half of Shirol. Gadhinglaj, Gagan Bawada and Kagal represented variations within 13 to 14 percent. Ajara, Shahuwadi and Chandgad had the coefficient between 9 and 10 percent. Radhanagari and Panhala had it between 7 and 8 percent. Bhudargad had the least degree of variation. These observations correspond more or less with those noticed in the context of trends.

3.7 DISTRICT AREA OF JOWAR :

Kolhapur district has substantially large area under jowar production. In the triennium 1960-63, it covered 52,628 hectares of land. However, through the later years till 1987, the cultivators appear to have withdrawn their land from jowar for being used to grow other crops, as the area of land dropped to reach the mark of 43,968

(Area in Hectares)

| Triennial Years | Bhudargad | Radhanagari | Gaganbawate | Shahuwadi |
|--------------------|-----------|-------------|-------------|-----------|
| | 12 | 13 | 14 | 15 |
| 1960-61 | 808 | 201 | 1 | 1152 |
| to | (1.53) | (0.38) | (0.001) | (2.18) |
| 1962-63 | (3.04) | (0.68) | (0.01) | (3.62) |
| 1963-64 | 686 | 163 | | 889 |
| to | (1.41) | (0.33) | (0.001) | (1.83) |
| 1965-66 | (2.60) | (0.54) | (0.002) | (2.74) |
| 1966-67 | 674 | 99 | | 586 |
| to | (1.43) | (0.21) | | (1.29) |
| 1968-69 | (2.71) | (0.33) | | (0.88) |
| 1969-70 | 655 | 409 | 2 | 449 |
| to | (1.43) | (0.89) | (0.004) | (0.98) |
| 1971-72 | (2.71) | (1.42) | (0.01) | (1.37) |
| 1972-73 | 1,553 | 1,154 | 33 | 1,005 |
| to | (2.86) | (2.12) | (0.06) | (1.85) |
| 1974-75 | (6.31) | (3.99) | (0.22) | (3.06) |
| 1975-76 | 673 | 707 | 18 | 711 |
| to | (1.41) | 1.49) | (0.03) | (1.50) |
| 1977-78 | (2.69) | 2.36) | (0.13) | (2.11) |
| 1978-79 | 1,142 | 279 | 2 | 543 |
| to | (2.61) | (0.63) | (0.004) | (1.24) |
| 1980-81 | (4.23) | (0.87) | (0.01) | (1.59) |
| 1981-82 | 1,241 | 216 | 14 | 653 |
| to | (2.81) | (0.49) | (0.03) | (1.51) |
| 1983-84 | (4.41) | (0.68) | (0.23) | (1.78) |
| 1984-85 | 856 | 763 | 21 | 711 |
| to | (1.94) | 1.73) | (0.04) | (1.61) |
| 1986-87 | (2.73) | 2.39) | (0.30) | (1.81) |
| Average for | (1.94) | (0.91) | (10.02) | (1.55) |
| 1960-61 to | (3.49) | (1.47) | (0.10) | (2.00) |
| 1966-87 | | | | |

taluka

district



hectares in the triennium 1984-87. The decrease was to the tune of 16.46 percent. This decline in jowar area is another significant aspect of change in the cropping pattern of Kolhapur district.

The decline in absolute area under jowar is reflected in the decline in the proportion of jowar area to the GCA of the district. The proportion slashed from 12.24 percent in 1960-63 to 10-13 percent in 1984-87. The percentage fall has been aggravated by increase in the GCA of the district on the one hand and decrease in jowar area on the other. For the entire period, average percentage of jowar area in the district to its GCA was 11.12 percent.

Fall in the district area under jowar continued all through nineteen sixties. There was a sudden upsurge during the triennium 1972-75, which, however, was not maintained thereafter. From 1975, again decline set in and then between 1978-87, the area remained fairly stable, though at a lower level.

3.8 TALUKA PROFILE OF JOWAR :

Talukawise details of jowar cultivation in the district are presented in columns 4 to 15 of Table 3.12. For the purpose of analysis of this data, like paddy, here also two-stage method is adopted : (a) taluka area as percentage of the district total area under jowar and (b) taluka area as percentage of the GCA of the taluka itself. Results in both the respects are presented with reference to three parameters : (i) average area, (ii) trend of area and (iii) coefficient of variation of area.

3.8.1 TALUKA AREA VIS-A-VIS DISTRICT AREA OF JOWAR :

In Table 3.12, all the 12 talukas of Kolhapur district are covered in columns 4 to 15. These columns exhibit firstly the absolute area in hectares for each triennial period. Then follow in upper brackets percentages of taluka area to the district total area under jowar



for the respective triennium. Last row in the table gives in upper brackets average share of each taluka in district total over the entire period 1960-87. This section examines these details. Interpretation follows.

3.8.1.1 Average area :

A bird's eye-view of the range in which each taluka shared the crop area under jowar in the district can be had from Table 3.13.

Table 3.13

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

| Taluka | Range of share | Range magnitude (percentage points) | Average share for the entire period |
|------------------|----------------|-------------------------------------|-------------------------------------|
| 1. Karvir | 8.29 to 10.14 | 1.85 | 9.09 |
| 2. Panhala | 5.08 to 6.28 | 1.20 | 5.53 |
| 3. Hatkanagale | 24.57 to 28.81 | 4.24 | 26.71 |
| 4. Shirol | 17.51 to 29.80 | 12.65 | 25.02 |
| 5. Kagal | 11.43 to 13.62 | 2.19 | 12.64 |
| 6. Gadhinglaj | 11.20 to 14.84 | 3.64 | 12.40 |
| 7. Chandgad | 0.37 to 1.27 | 0.90 | 0.81 |
| 8. Ajara | 1.70 to 4.27 | 2.57 | 2.80 |
| 9. Bhudargad | 1.41 to 2.84 | 1.43 | 1.94 |
| 10. Radhanagari | 0.21 to 2.12 | 1.91 | 0.91 |
| 11. Gagan Bawada | 0 to 0.04 | 0.04 | 0.02 |
| 12. Shahuwadi | 0.98 to 2.18 | 1.20 | 1.55 |

Scrutiny of Table 3.13 reveals skewed distribution of jowar production in the district. Hatkanagale and Shirol talukas each shared about one-quarter of the district area under jowar. These two talukas along with Kagal, Gadhinglaj and Karvir together commanded nearly 85 per cent of the land area under jowar. As these five talukas are from the plains and are located in the eastern region of the district, it may be said that jowar cultivation is largely specific to eastern talukas due to less rainfall. Other talukas are in the

western hilly section with heavy rainfall and hence are agro-climatically not suitable for jowar cultivation. Hence, in the real sense, jowar is not a crop of this region. Gagan Bawada taluka which is the heaviest rainfall taluka in the district had, therefore, very sparse cultivation of jowar.

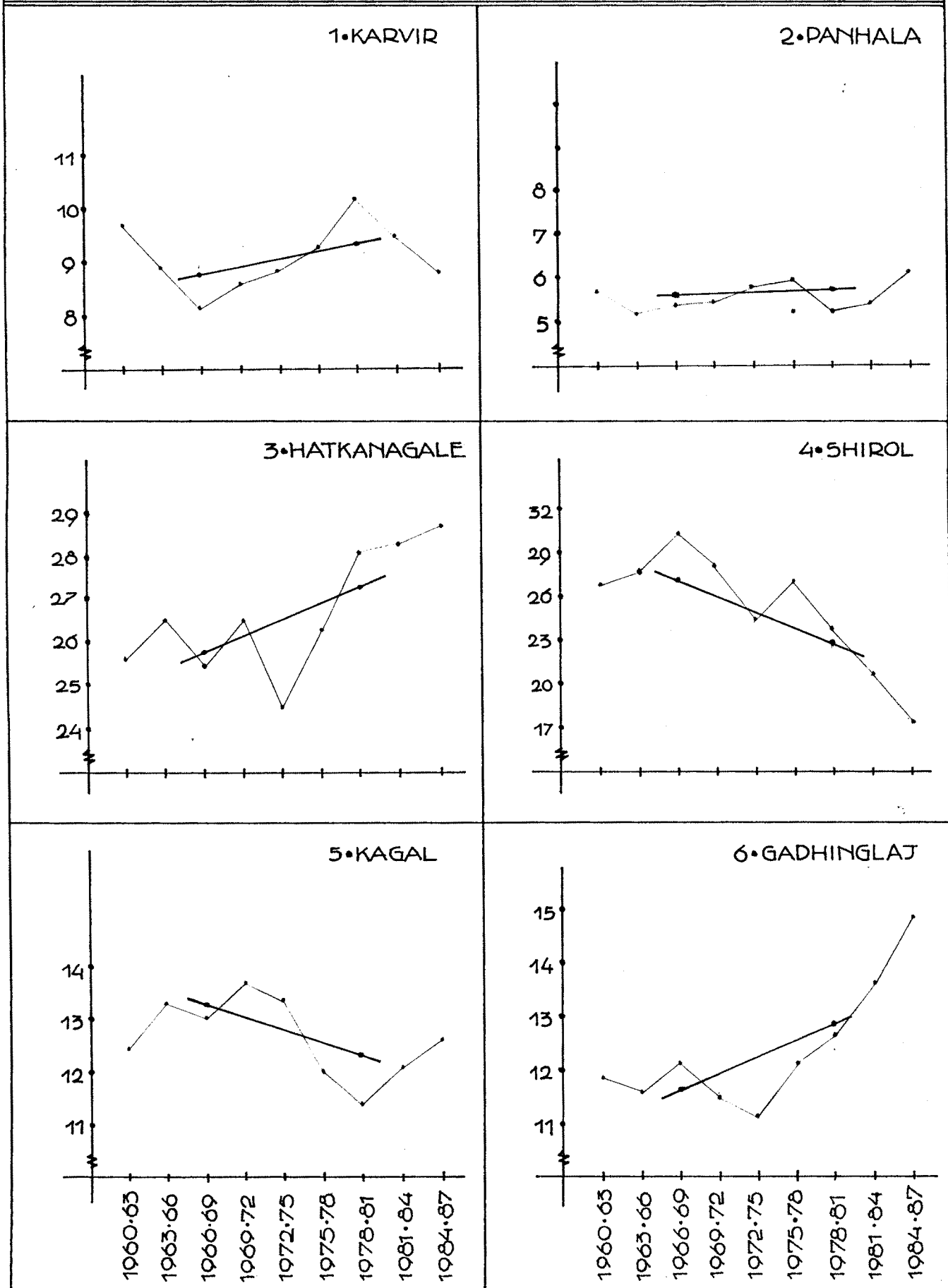
So far as the range of variation in the percentage of taluka land in the district total is concerned, only Shirol had the largest magnitude of 12.65 percentage points. All the other talukas had a narrow span of 1 to 4 percentage points.

3.8.1.2 Trends :

By taking the triennial figures of the percentages of area under jowar for the entire period, it would be possible to fit the trend lines in order to know the nature of variations in the area of land in each taluka. Talukewise graphical presentations are given in chart 5. It is noticed that eight talukas (Karvir, Panhala, Hatkanagale, Ajara, Gadhinglaj, Bhudargad, Radhanagari and Gagan Bawada) registered uptrend whereas remaining 4 talukas (Shirol, Kagal, Chandgad and Shahuwadi) registered a downtrend. Though the number of talukas in the two groups is uneven, ultimate effect of these upward and downward trends was a downtrend, which means that the four talukas exhibiting a downtrend had greater influence on the district scene. Worth noting is the phenomenal fall in the absolute area of jowar in Shirol taluka; over the years, it slashed by nearly 50 per cent from 13,825 hectares during 1960-63 to 7,542 hectares during 1984-87. Change of such magnitude, either plus or minus, was not experienced in any other taluka. Kolhapur district as a whole experienced falling trend in the jowar area out of the GCA of the district. Shirol taluka contributed mainly to this development.

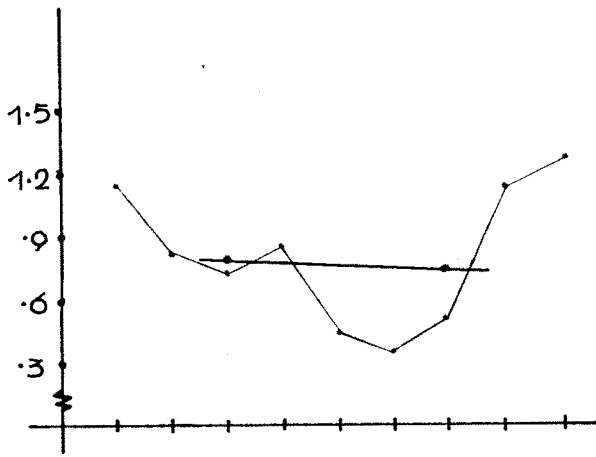
■ CHART-5

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

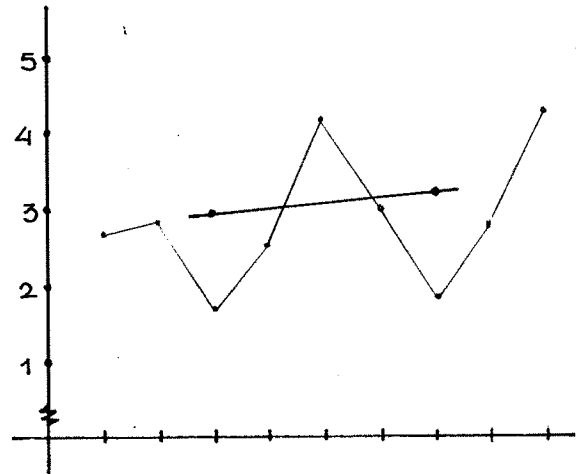


■ CHART • 5 (CONTINUED)

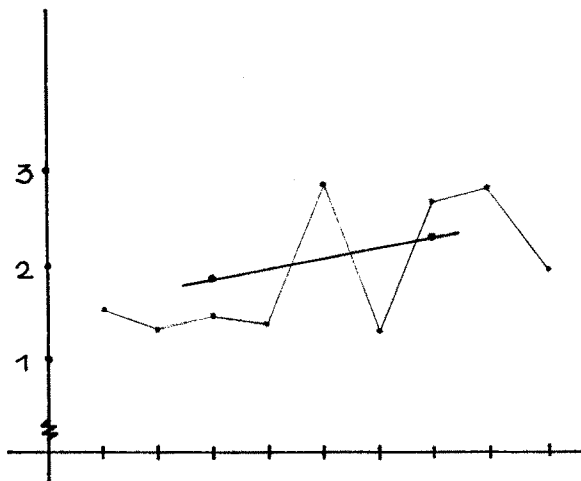
7. CHANDGAD



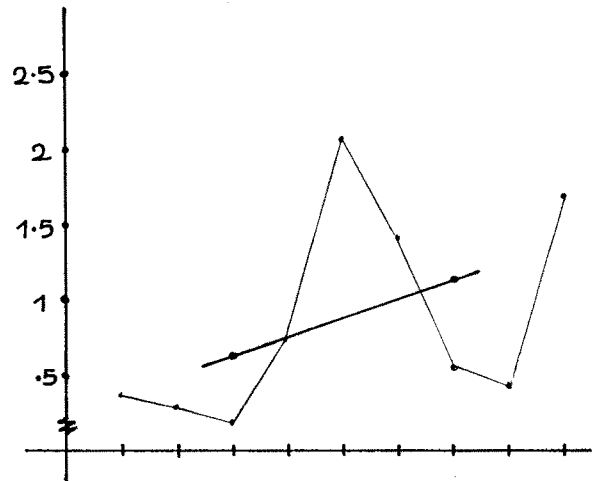
8. AJARA



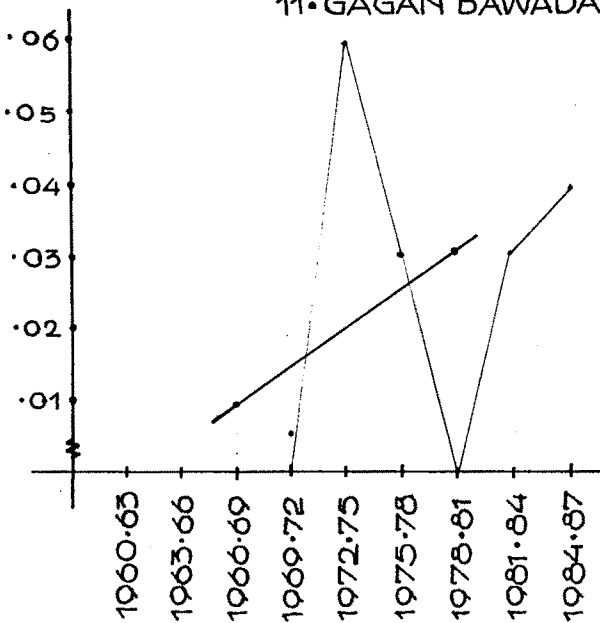
9. BHUDARGAD



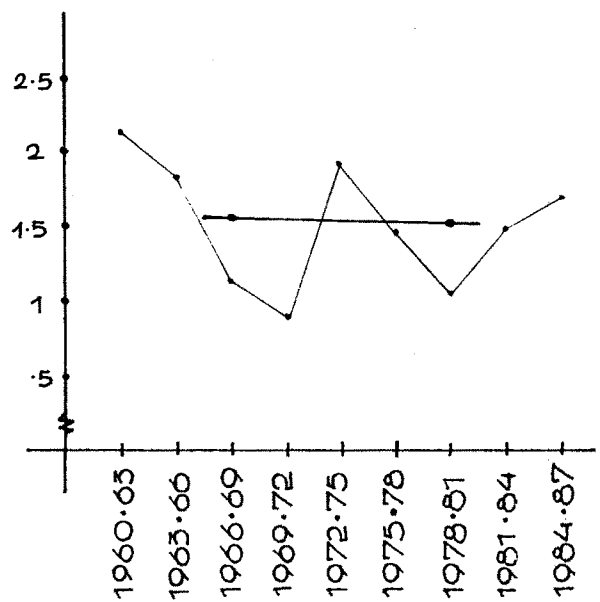
10. RADHANAGARI



11. GAGAN BAWADA



12. SHAHUWADI



3.8.1.3 Coefficient of variation :

Fluctuations in the taluka area under jowar from triennium to triennium have different intensities. The degree of variability is measured by using the tool of coefficient of variation. Talukawise results are shown in Table 3.14

Table 3.14

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

| Taluka | Coefficient of variation (Percentage) |
|-----------------|--|
| 1. Hatkanagale | 5.40 |
| 2. Gadhinglaj | 5.54 |
| 3. Karvir | 10.04 |
| 4. Panhala | 13.23 |
| 5. Kagal | 14.39 |
| 6. Shirol | 16.66 |
| 7. Gagan Bawada | 30.61 |
| 8. Shahuwadi | 31.08 |
| 9. Bhudargad | 33.81 |
| 10. Chandgad | 36.71 |
| 11. Ajara | 41.50 |
| 12. Radhanagari | 76.87 |

Variability in land area was very intense (more than 30 per cent) in the six talukas - Gagan Bawada, Shahuwadi, Bhudargad, Chandgad, Ajara and Radhanagari - which had individually a negligible share in jowar cultivation in the district. Herein, Radhanagari was the most volatile, having coefficient value of 76.87 per cent. On the contrary, among the principal jowar producing talukas, Shirol revealed the greatest variability (16.66 per cent) and Hatkanagale the least variability (5.40 per cent). Gadhinglaj was closer to Hatkanagale while Kagal was closer to Shirol.

3.8.2 TALUKA AREA OF JOWAR VIS-A-VIS GROSSED CROPPED AREA OF THE TALUKA :

This sub-section will bring to the limelight the behaviour of taluka area under jowar with reference to the GCA of the taluka, and will thus introduce a second dimension of the study. For this purpose, data in the lower brackets of columns 4 to 15 in Table 3.12 will be used and the same three-dimensional analysis would be presented.

3.8.2.1 Average Area :

Table 3.15 presents the range within which the area under jowar in each taluka as percentage of the taluka's GCA has moved from one triennium to the other.

Table 3.15
Talukawise range of area under jowar as percentage of GCA (1960-87)

(Percentages)

| Taluka | Range of share | Range magnitude (percentage points) | Average share of the entire period |
|------------------|----------------|-------------------------------------|------------------------------------|
| 1. Karvir | 8.14 to 11.12 | 2.98 | 9.26 |
| 2. Panhala | 7.31 to 10.65 | 3.34 | 8.96 |
| 3. Hatkanagale | 24.87 to 29.22 | 4.35 | 26.82 |
| 4. Shirol | 19.23 to 33.30 | 14.07 | 27.91 |
| 5. Kagal | 11.62 to 17.36 | 5.74 | 13.89 |
| 6. Gadhinglaj | 13.15 to 15.53 | 2.38 | 14.06 |
| 7. Chandgad | 0.42 to 1.64 | 1.22 | 0.94 |
| 8. Ajara | 2.76 to 8.30 | 5.54 | 4.77 |
| 9. Bhudargad | 2.60 to 6.31 | 3.71 | 3.49 |
| 10. Radhanagari | 0.33 to 3.99 | 3.66 | 1.47 |
| 11. Gagan Bawada | 0 to 0.30 | 0.30 | 0.10 |
| 12. Shahuwadi | 1.37 to 3.62 | 2.25 | 2.22 |

Shirol and Hatkanagale talukas were in the

forefront in using a little over a quarter of their GCA for jowar cultivation. Kagal and Gadhinglaj utilised 14 percent while Karvir and Panhala used 9 percent of their GCA. For rest of the 6 talukas, jowar cultivation was a casual activity as they brought under jowar cultivation insignificant proportion of their GCA.

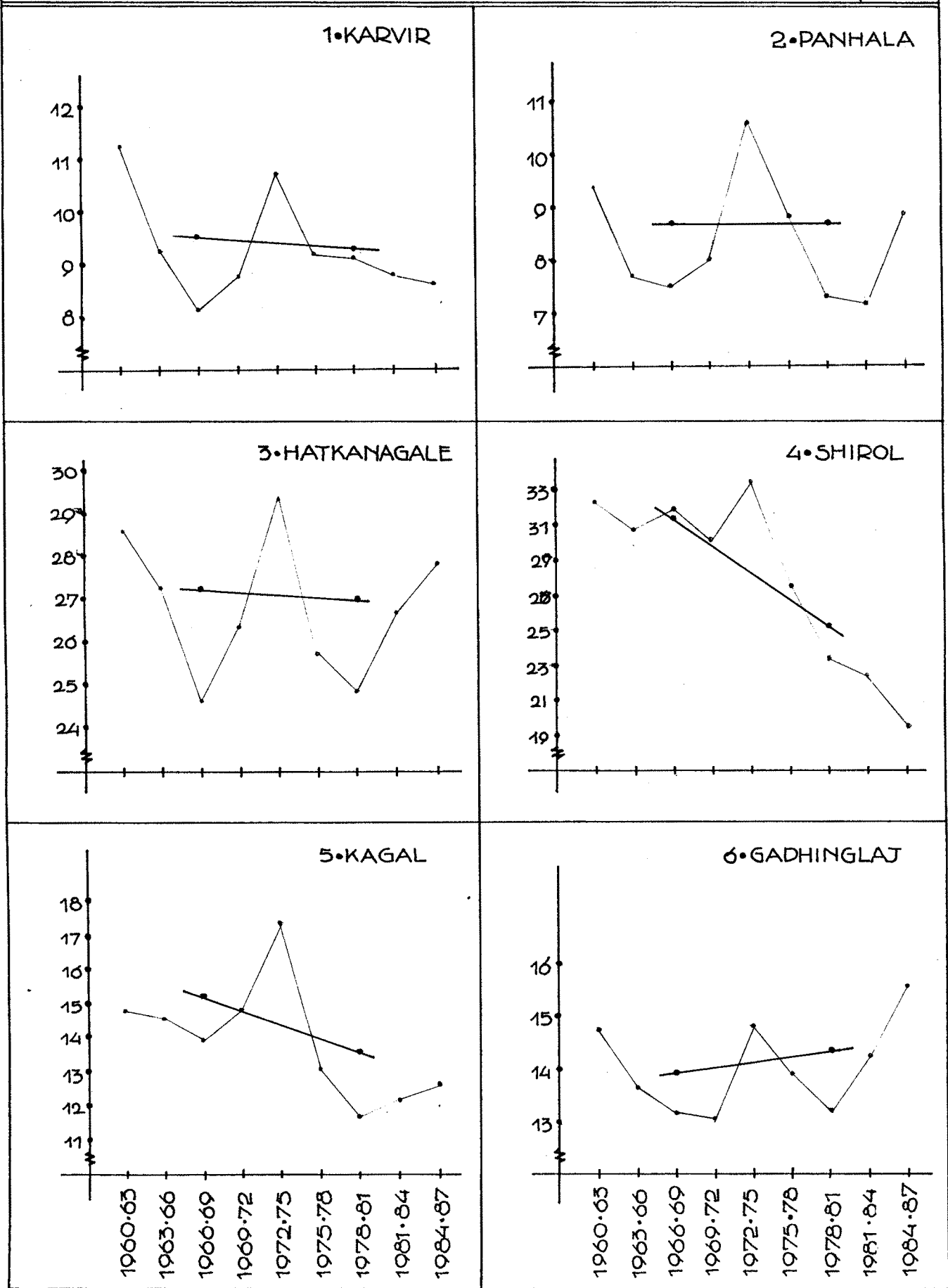
When it comes to the range within which percentage of area to the GCA had moved, Shirol was the sole taluka which gave a range magnitude in two digits (14.07 percentage points). For all other talukas, the range magnitude was quite narrow.

3.8.2.2 Trends :

The underlying tendency in the ups and downs of the proportion of area under jowar in the GCA of the taluka is given by the trend line. Talukawise picture of trend lines is exhibited in Chart 6. A careful examination of the diagrammatic presentation reveals that Gadhinglaj, Ajara, Bhudargad, Radhanagari and Gagan Bawada had rising trend. The uptrend of Ajara was marginal. On the other hand, falling trend was experienced by Karvir, Panhala, Shirol, Hatkanagale, Kagal, Chandgad and Shahuwadi. Here, the downward tendency was marginal in case of Karvir, Panhala and Hatkanagale. It should be recalled at this juncture that four talukas registering downtrend here (Shirol, Kagal, Chandgad and Shahuwadi) were the ones exhibited downtrend in the context of area of jowar as percentage of the GCA of the district. It means that these talukas were gradually substituting other crops for jowar. But the overall experience is that the impact of downward trend of the concerned group of talukas had overweighed the impact of upward trend of the other group, so that on the whole jowar area had a declining trend in the context of its proportion to the GCA of the district.

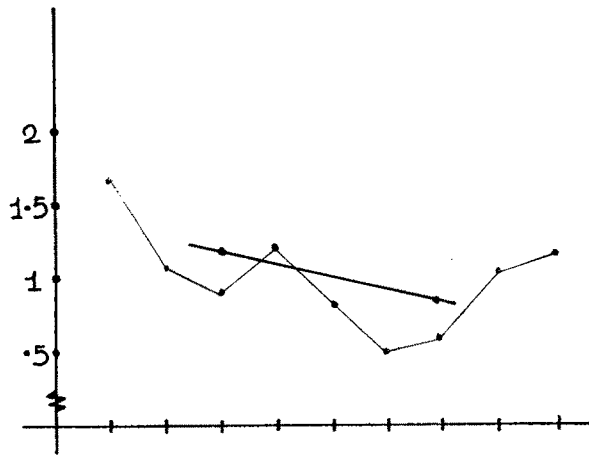
■ CHART 6

TREND OF TALUKA AREA OF JOWAR AS PERCENTAGE OF ITS GCA

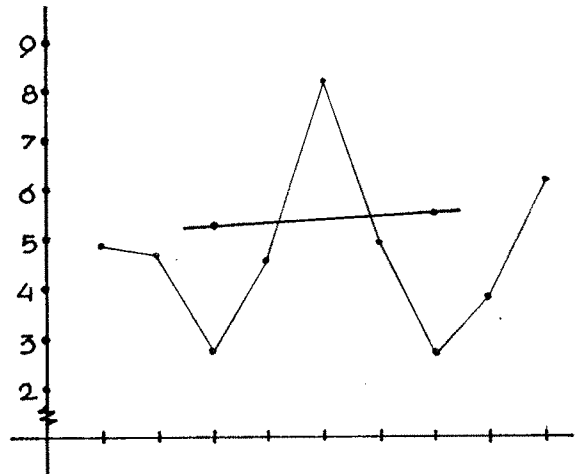


■ CHART 6 (CONTINUED)

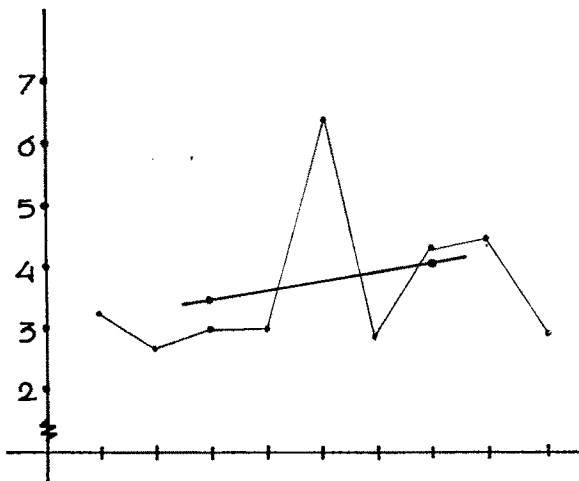
7. CHANDGAD



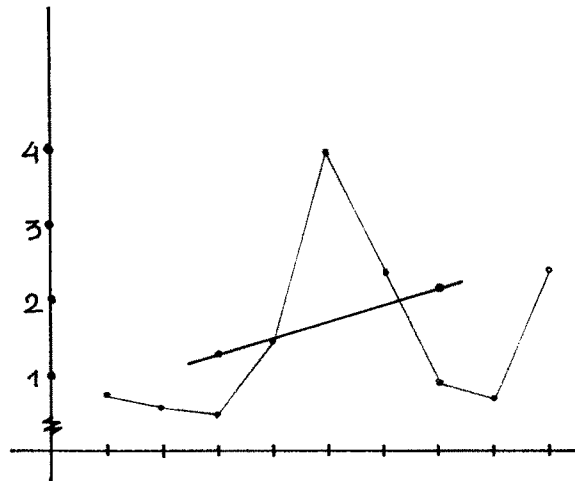
8. AJARA



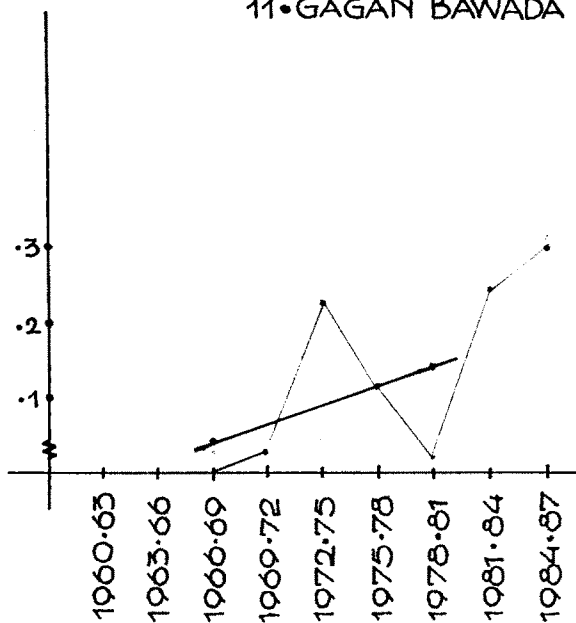
9. BHUDARGAD



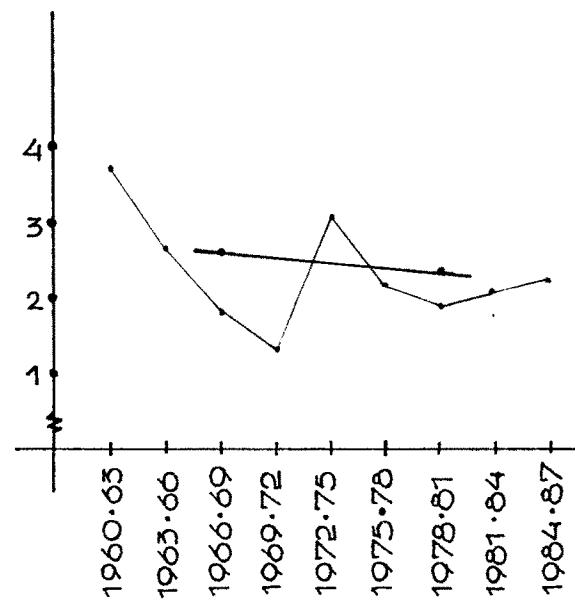
10. RADHANAGARI



11. GAGAN BAWADA



12. SHAHUWADI



3.8.2.3 Coefficient of Variation :

Taluka area as percentage of GCA has varied from time to time. The intensity of this variation is measured with the help of coefficient of variation. Talukawise results are given in Table 3.16.

Table 3.16

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

| Taluka | Coefficient of variation (Percentage) |
|------------------|--|
| 1. Hatkanagale | 5.40 |
| 2. Gadhinglaj | 5.54 |
| 3. Karvir | 10.33 |
| 4. Kagal | 11.73 |
| 5. Panhala | 12.05 |
| 6. Shirol | 16.66 |
| 7. Bhudargad | 27.79 |
| 8. Ajara | 32.91 |
| 9. Shahuwadi | 40.99 |
| 10. Radhanagari | 77.55 |
| 11. Gagan Bawada | 110.00 |

Talukawise shares in the GCA of the taluka moved extensively in case of Bhudargad, Shahuwadi, Ajara, Chandgad, Radhanagari and Gagan Bawada in which case the value of coefficient exceeded 30 percent. Thus, the magnitude of year to year fluctuations in the jowar area within the taluka was greater in the regions of western hills of the district. Relative to this phenomenon, talukas of eastern region of the district were showing fluctuations within narrow margin, Especially Gadhinglaj and Hatkanagale showed fluctuations simply as a matter of natural changes rather than unbridled variations.

3.9 CONCLUSIONS :

Production of cereals dominates the agricultural production activity in Kolhapur district, among the cereals,

paddy and jowar have remained the principal crop. In between these crops also, paddy had a major share in the GCA of the district, almost double the share of jowar.

Perusal of data over 1960-87 reveals that the share of cereals in the GCA of the district had a downward trend. When it comes to the component crops, paddy had a marginal uptrend whereas jowar had a noticeable downtrend. Since the cereals production as a whole exhibited a downtrend, this could be considered a result of the downtrend of jowar area surpassing the uptrend of paddy area. Consequently, the cereals area released was being used for other crops. The alternative pursued by the cultivators could be known only when analysis of other crop groups - pulses and non-food crops - is done.

With reference to individual talukas, the change in the cropping pattern represented a mixed situation. Restricting to paddy and jowar crops, it could be noticed that Panhala, Hatkanagale, Bhudargad and Radhanagari registered uptrend in both paddy and jowar. Kagal had downtrends in case of both the crops. Shirol, Chandgad and Shahuwadi depicted uptrend in paddy and downtrend in jowar. As against this, Karvir, Gadhinglaj, Ajara and Gagan Bawada had downtrend in paddy but uptrend in jowar. This was the experience of the talukas within the district setting.

The other dimension was looking the two crops as share of the talukas's GCA. From this angle, Karvir, Chandgad and Shahuwadi presented downtrend in both the crops. Panhala, Kagal, Shirol and Hatkanagale had uptrend in paddy and downtrend in jowar. Gadhinglaj, Ajara, Bhudargad, Radhanagari and Gagan Bawada had down-trend in paddy but uptrend in jowar.

If both the dimensions, viz. percentage area of taluka in district total and in the GCA of the taluka, are considered together, Panhala and Shirol had uptrend on both

the fronts in paddy cultivation. Similarly, Ajara, Gadhinglaj, Bhudargad, Radhanagari and Gagan Bawada had uptrend in jowar on both the fronts. On the other hand, downtrend on both the accounts in paddy was revealed by Karvir, Gadhinglaj, Ajara and Gagan Bawada while that in jowar was exhibited by Shirol, Kagal, Chandgad, and Shahuwadi.

Thus, a readjustment in cropping pattern of the district has been taking place so far as cereals cultivation is concerned.