

CHAPTER 4	PULSES AND TOTAL FOODGRAINS
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4.1 DISTRICT AREA OF TOTAL PULSES

The focus of this chapter initially is on the component of the sub-group foodgrains namely pulses. The purpose of this chapter is to analyse at the beginning the situation relating to the total area of pulses in Sangli district and taluka profile of pulses area with reference to taluka share in the district area of pulses and also taluka area under pulses as percentage of the GCA of the taluka. Then in the latter part of the chapter the case of total foodgrains will be similarly studied.

Sangli district is known for pulses production. Reference to Table 4.1 reveals that the pulses area varied over the range of 59,180 hectares (1970-73) and 84,078 hectares (1979-82). Average area in other trienniums was in-between these extreme values. However, year to year fluctuations are quite uneven. It could be due to changes in climatic conditions and seasonal variations in cultivation decisions of the growers.

TREND OF THE PERCENTAGE OF THE DISTRICT AREA UNDER TOTAL PULSES

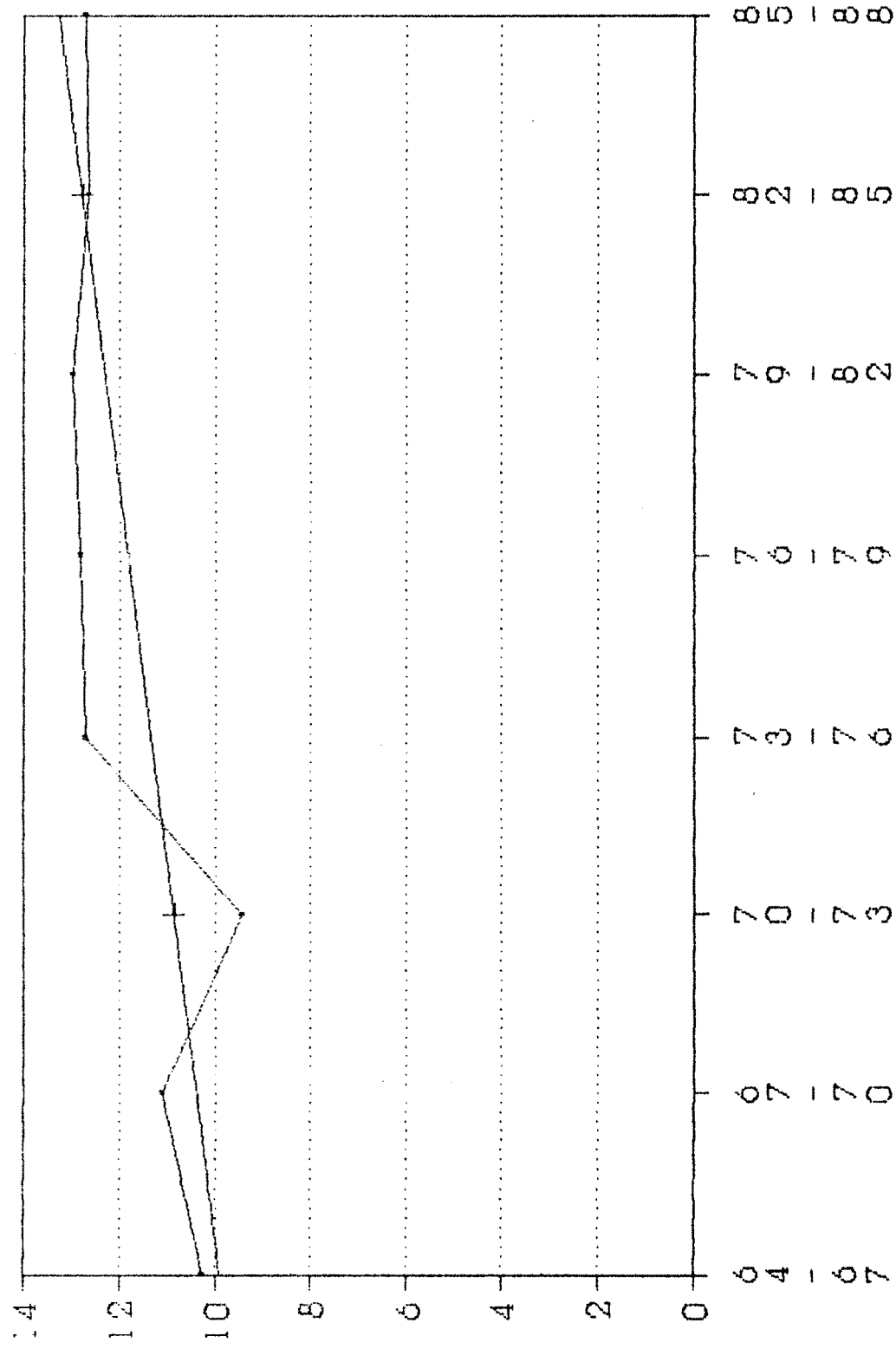


Table 4.1

Talukawise area under total pulses in Sangli district

(Area in heactors)

Triennial Year	District gross cropped area	Area under total cereals	Miraj	Tasgaon	Khanapur	Atpadi	Jat	Kavathe Mahankal	Walva	Shirala
1	2	3	4	5	6	7	8	9	10	11
1964 - 65 to 1966 - 67	6,77,929 (100.00)	69,411 (100.00) (10.24)	8,249 (11.88) (10.15)	11,025 (15.88) (12.29)	16,874 (24.31) (15.11)	8,572 (12.34) (12.20)	12,870 (18.54) (8.09)	4,670 (6.72) (9.02)	6,083 (8.76) (9.12)	1,092 (1.57) (2.30)
1967 - 68 to 1969 - 70	6,54,469 (100.00)	72,683 (100.00) (11.10)	7,583 (10.43) (9.66)	12,187 (16.76) (14.16)	16,858 (23.19) (15.18)	8,996 (12.37) (14.19)	14,844 (20.42) (9.58)	4,543 (6.25) (9.11)	6,644 (9.14) (10.29)	1,025 (1.41) (2.22)
1970 - 71 to 1972 - 73	6,27,792 (100.00)	59,180 (100.00) (9.43)	6,986 (11.80) (9.28)	10,720 (18.11) (12.81)	14,966 (25.28) (14.00)	4,541 (7.67) (7.99)	10,186 (17.21) (6.89)	3,998 (6.75) (8.68)	6,703 (11.32) (10.24)	1,078 (1.82) (2.35)
1973 - 74 to 1975 - 76	6,34,105 (100.00)	80,556 (100.00) (12.70)	8,710 (10.81) (11.74)	13,390 (16.62) (16.50)	17,320 (21.50) (15.82)	6,206 (7.70) (9.18)	21,234 (26.35) (14.84)	4,884 (6.06) (10.49)	7,685 (9.53) (11.92)	1,126 (1.39) (2.42)
1976 - 77 to 1978 - 79	6,45,928 (100.00)	82,829 (100.00) (12.82)	9,233 (11.14) (11.96)	13,821 (16.68) (14.97)	16,349 (19.73) (14.72)	6,589 (7.95) (9.41)	24,099 (29.09) (17.73)	4,890 (5.90) (10.52)	6,226 (7.51) (9.38)	1,620 (1.95) (3.48)
1979 - 80 to 1981 - 82	6,47,887 (100.00)	84,070 (100.00) (12.98)	10,011 (11.90) (13.19)	12,725 (15.13) (14.05)	17,310 (20.58) (15.08)	6,162 (7.25) (9.64)	23,023 (27.38) (16.54)	6,186 (7.35) (12.71)	6,736 (8.01) (9.98)	1,922 (2.28) (4.06)
1982 - 83 to 1984 - 85	6,33,725 (100.00)	80,192 (100.00) (12.65)	11,090 (13.82) (13.26)	9,965 (12.42) (11.24)	18,161 (22.64) (18.58)	5,672 (7.07) (9.19)	21,934 (27.35) (15.58)	6,144 (7.66) (12.52)	5,724 (7.13) (8.77)	1,499 (1.86) (3.20)
1985 - 86 to 1987 - 88	6,41,952 (100.00)	81,584 (100.00) (12.70)	12,201 (14.95) (14.38)	10,683 (13.09) (12.28)	19,903 (24.39) (21.67)	5,582 (6.84) (8.97)	20,827 (25.52) (13.57)	5,257 (6.44) (10.41)	5,190 (6.36) (7.83)	1,391 (1.70) (3.04)
Average 1964-65 1987-88 (24 years)	----	(100.00) (11.82)	(12.09) (11.70)	(15.59) (13.54)	(22.70) (16.27)	(8.65) (10.10)	(23.98) (12.85)	(6.64) (10.43)	(8.47) (9.69)	(1.75) (2.88)

Note : 1. Figures in lower parentheses in column 3 are percentage to column 2

2. Figures in upper parentheses in column 4 to 11 are percentages to column 3

3. Figures in lower parentheses in columns 4 to 11 are percentages to the GCA of the respective talukas

Source:

Compiled on the basis of data collected from the relevant issues of Socio Economic Review and District statistical abstract of Sangli District for the years from 1964-65 to 1987-88, Directorate of Economics & Statistics Government of Maharashtra, Bombay.

The absolute area under pulses in Sangli district fluctuated widely during 1964-88. It went up during 1967-70, but slashed in the succeeding triennium. It improved considerably during 1973-76 and the up ward tendency continued till 1979-82. Thereafter again a fall during 1982-85 followed by a rise during 1985-88. It means that the growers of pulses were not very firm on this crop over the period.

The absolute area can be viewed against the GCA of Sangli district. In the initial triennium of 1964-67 the percentage of area under pulses to the GCA of the district was 10.24 percent. With initial increase during 1967-70 it then slashed and reached to the minimum of 9.43 percent during 1970-73. Thereafter it remained moving marginally within the range of 12-65 and 12.98 percent. Overage percentage of the pulses area to the GCA of the district was 11-82 percent.

The total results of the ups and downs in the absolute area of pulses and also its percentage to the GCA of the district was a rising trend. The indication, therefore, is that the cultivators in Sangli district are in favour of growing pulses on an increasing scale.

4.2 TALUKA PROFILE OF PULSES

Now the investigation will concentrate on the micro-level analysis of area under study by exploring the

trend from two dimensions: (a) taluka area vis-a-vis district area and (b) taluka area vis-a-vis GCA of the taluka. Further both the dimension will be presented with reference to the three parameters: (i) average area, (ii) trends of the triennium area, (iii) coefficient of variation of the area. Details follow.

4.2.1 Taluka Area Vis-A-Vis District Area Of Pulses.

Behaviour of the taluka area in the district setting will be studied with reference to the data in Table 4.1. In columns 4 to 11 it initially gives absolute figures of the taluka area under pulses and then come in upper parentheses percentages of the taluka area to the district total. Analysis of this section pertains to these two entries.

4.2.1.1 Average Area

The birds eye-view of the data relating to the percentage share of the taluka area in the district total and the overall average share are presented in Table 4.2.

Perusal of the table reveals that pulses production in the district was concentrated in (at) Khanapur, Tasgoan and Miraj; they together commanded three-fourths of the average area of pulses in the district. Remaining one-fourth area was covered by Atpadi, Walva, Kavathe Mahakal and

Table 4.2

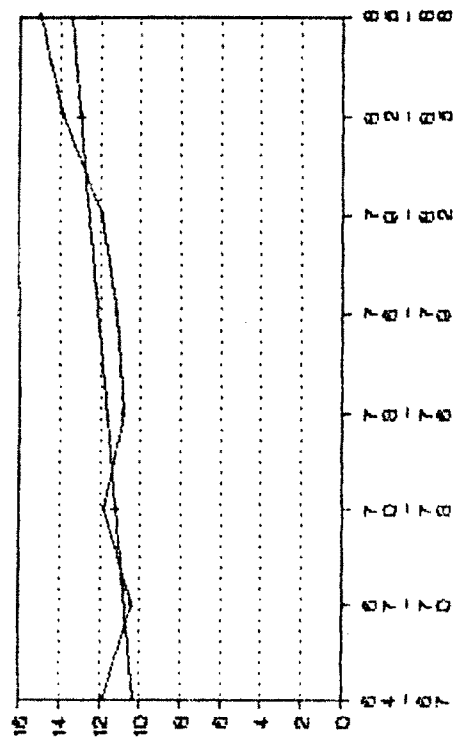
Talukawise range of share of area under pulses (1964-88).

Taluka	Range of Share	Range magnitude (percentage points)	Average share for the entire period
1 Miraj	10.43 to 14.95	4.52	12.09
2 Tasgaon	12.42 to 18.11	5.69	15.59
3 Khanapur	19.73 to 25.28	5.55	22.70
4 Atpadi	6.84 to 12.37	5.53	8.65
5 Jat	17.21 to 29.09	11.88	23.98
6 Kavathe Mahankal	5.90 to 7.66	1.76	6.64
7 Walva	6.36 to 11.32	4.96	8.47
8 Shirala	1.39 to 2.28	0.89	1.75

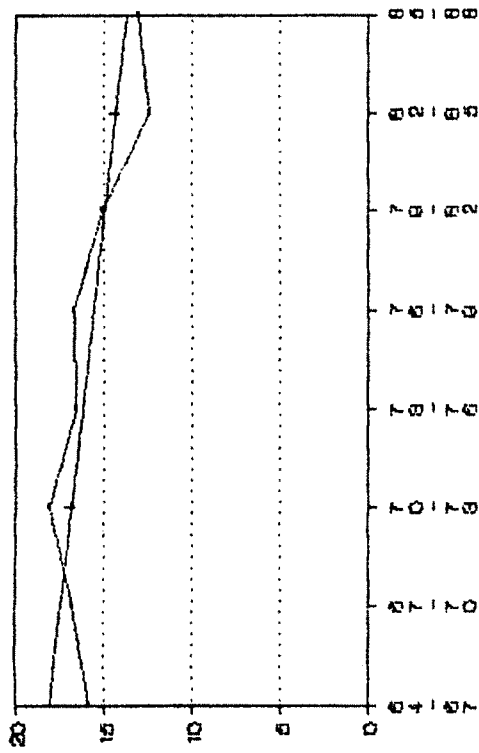
Source: Compiled from Table 4.1

Shirala. Shirala had hardly 2 per cent of the district land under pulses. The range magnitude in which the area shared by each taluka as percentage of area shared by the district under the pulses was quite low for all the talukas excepting Jat Kavathe Mahankal and Shirala had quite negligible range within which the percentage area changed while the remaining talukas had variations within the range of about 5percentage points. Thus, in a way, as percentage to the GCA of the district taluka area of pulses was moderate in making changes.

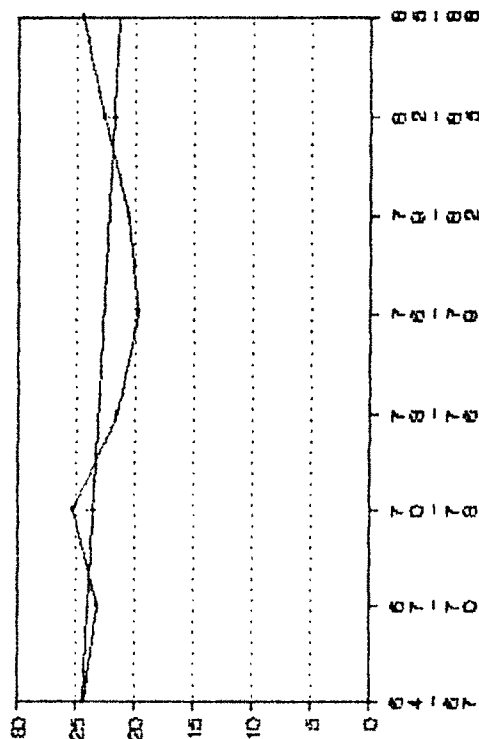
TREND OF THE PERCENTAGE OF TALUKA
AREA IN THE DISTRICT TOTAL PULSES



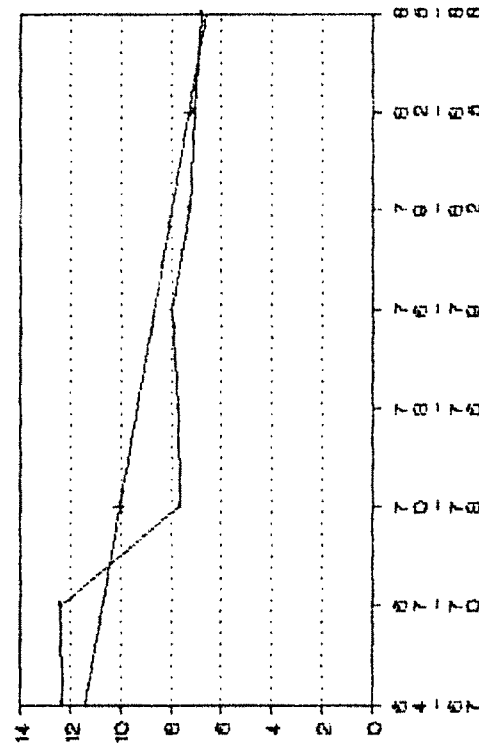
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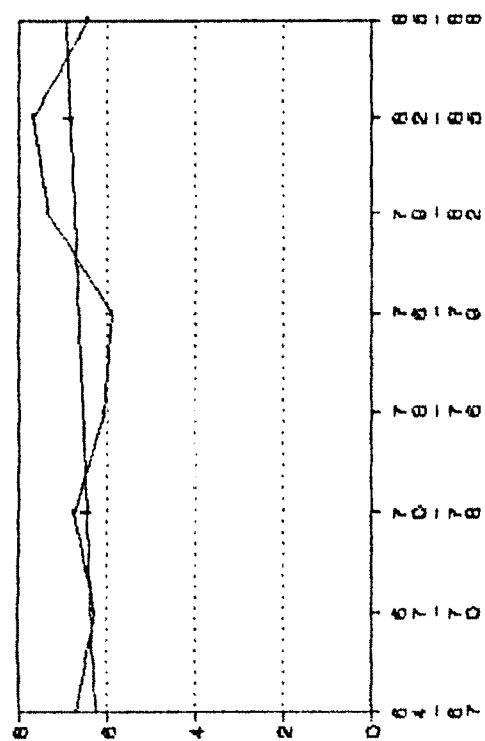
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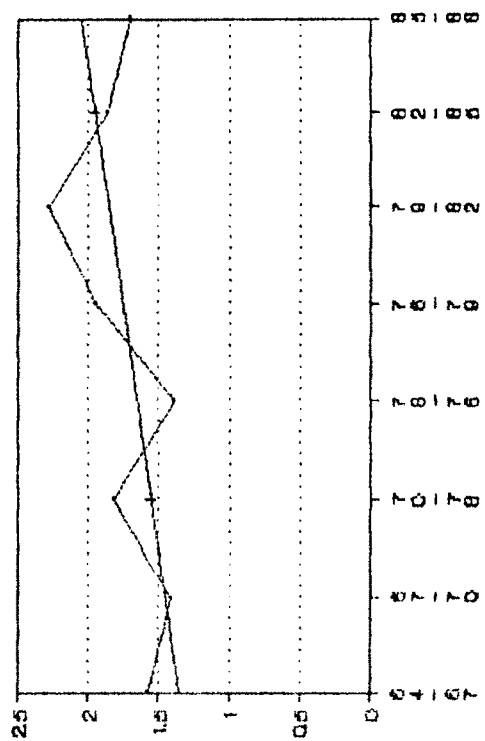
KHANAPUR



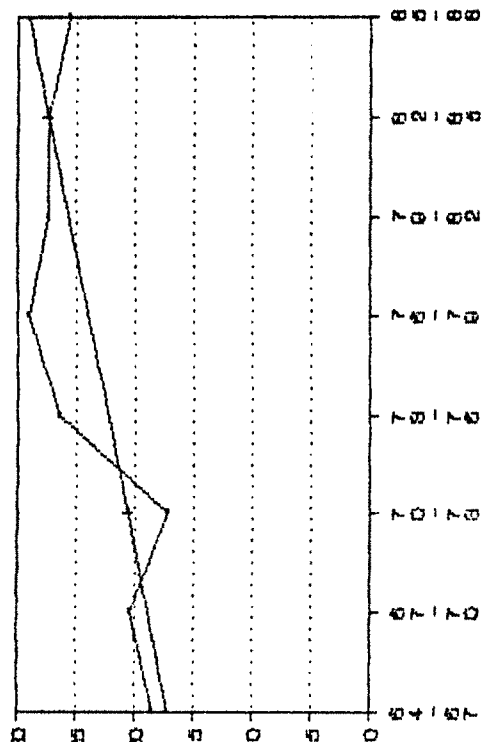
ATRAPADI



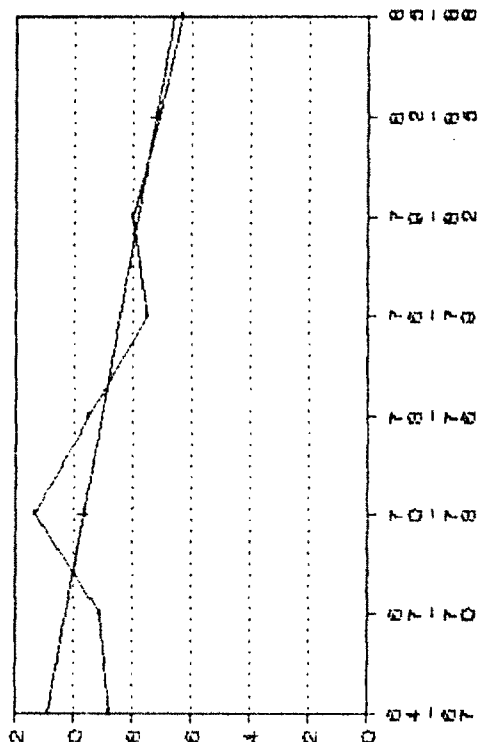
KAVATHE MAHANKAL



SHRALA



JAT



WALVA

4.2.1.2 Trends

Range of variations could be analysed by the method of fitting of a trend line for the triennium percentages of area to the district area of each taluka. Fig. 4.2 gives the graphical presentation. The tendency of pulses grown from 1964 to 1976 in case of Miraj taluka had mixed pattern but afterwards it improved conspicuously so that there was overall upward trend. The overall trend in case of Tasgaon was downward. A peculiar behaviour could be noticed in case of trend of Khanapur taluka. The overage area had gone down to minimum in the triennium 1976-79 and then again it increased constantly, even then the overall trend line downward sloping. Atpadi had a sharp downward trend. Jat had shared maximum percentage area for pulses production. This area was conspicuously increasing particularly after the triennium 1970-73. On the whole, the taluka had a sharply upward sloping trend line. Observation reveals that Kavathe Mahankal had an upward trend while Walva had the downward one. Shirala showed upward trend even though the area shared was very much less. To summarise, upward trends were observed in case of Miraj, Jat Kavathe Mahankal and Shirala and the opposite in case of Tasgaon, Khanapur, Atpadi and Walva. On the district level, the overall trend was upward. It means that the talukas having upward trends overweighed the talukas having downward trends.

4.2.1.3 Coefficient Of Variation

It is but natural that there will be annual variations in the area grown of pulses. The tool of coefficient of variation is used to measure the degree of variation in the area. Higher the C.V. value, higher the variation and vice versa. Table 4.3 gives the taluka results in this context.

Table 4.3

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

Taluka	Coefficient of variation (percentage)
1 Khanapur	8.11
2 Kavathe Mahankal	8.64
3 Tasgaon	11.69
4 Miraj	11.93
5 Shirala	15.88
6 Walva	17.29
7 Jat	17.76
8 Atpadi	25.04

Source : Calculated on the basis of data in Table 4.1

The table reveals that except for Khanapur and Kavathe Mahankal, all other talukas had C.V. values more than 10 per cent. It is an indication of wider fluctuations from triennium to triennium. Surprisingly, Jat, with the

highest percentage area under pulses, had maximum tendency of fluctuations only next to Atpadi. It appears, therefore that growers of Sangli district had gone for frequent changes in deciding the land area under pulses. Perhaps this decision might be depending on the decision regarding alternative crops and may be the residual decision. This can be positively stated only after studying the behaviour of alternative crops.

4.2.2 Taluka Area Of Pulses Vis-A-Vis GCA Of The Taluka

As a second dimension the taluka area will be viewed against the GCA of the taluka itself. For the purpose, Agures in lower parentheses of columns 4 to 11 in Table 4.1 will be used. Average area trends and coefficient of variation will be the three parameters as usual.

4.2.2.1 Average area

The data on average percentage area under pulses in each triennium are briefly presented in Table 4.4.

The pictures of taluka area as percentage of GCA of the taluka appear to be different from the one revealed by the taluka percentages to the district area. As per Table 4.4 Jat devoted 12.85 percent of its cultivated land for pulses. This taluka had the largest share in the district total. In fact Khanapur was leading all the talukas in

Table 4.4

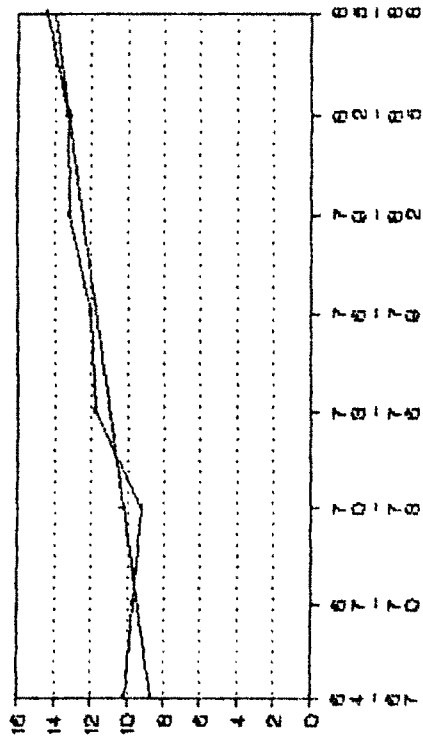
Talukawise range of area under pulses as percentage of the GCA (1964-88)

Taluka	Range of share	Range magnitude (percentage points)	Average for the entire period
1 Miraj	9.28 to 14.38	5.10	11.70
2 Tasgaon	11.24 to 16.50	5.26	13.54
3 Khanapur	14.00 to 21.67	7.67	16.27
4 Atpadi	7.99 to 14.19	6.20	10.10
5 Jat	6.89 to 17.73	10.84	12.85
6 Kavathe Mahankal	8.68 to 12.71	4.03	10.43
7 Walva	7.83 to 11.92	4.09	9.69
8 Shirala	2.22 to 4.06	1.84	2.88

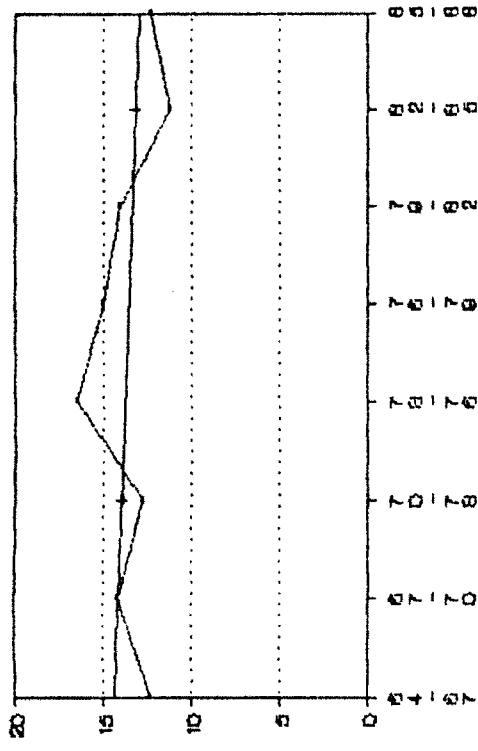
Source: Compiled from Table 4.1

devoting its land to pulses. The hierarchy of the talukas in decreasing order was Tasgaon, Jat, Miraj, Kavathe Mahankal, Atpadi, Walva and Shirala. Excepting Khanapur and Shirala, all the other talukas had between 10 to 13 per cent of their land for pulses. Shirala had negligible proportion. Magnitude of variation was observed to be the largest one (10.84) in case of Jat. Whereas in case of Shirala it was minimum (1.84). For all other talukas the variations remained within the narrow range of 4 to 8 percentage points. Thus, the range of movement was, on the whole, narrow as indicated by

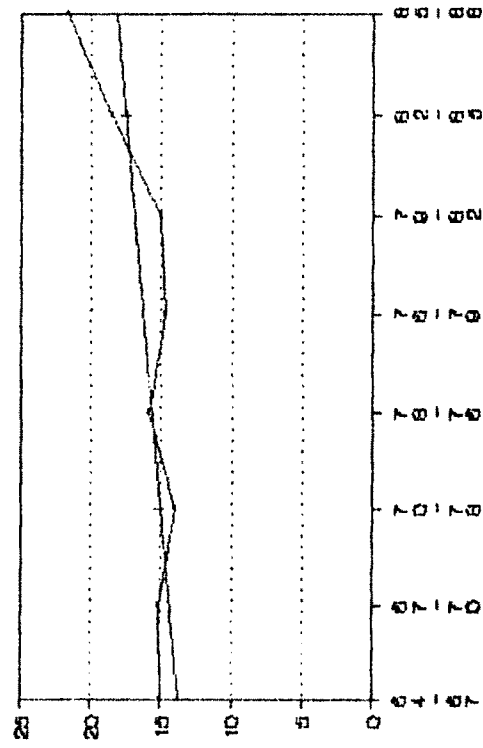
TREND OF THE PERCENTAGE OF
TALUKA AREA IN ITS GCA
TOTAL PULSES



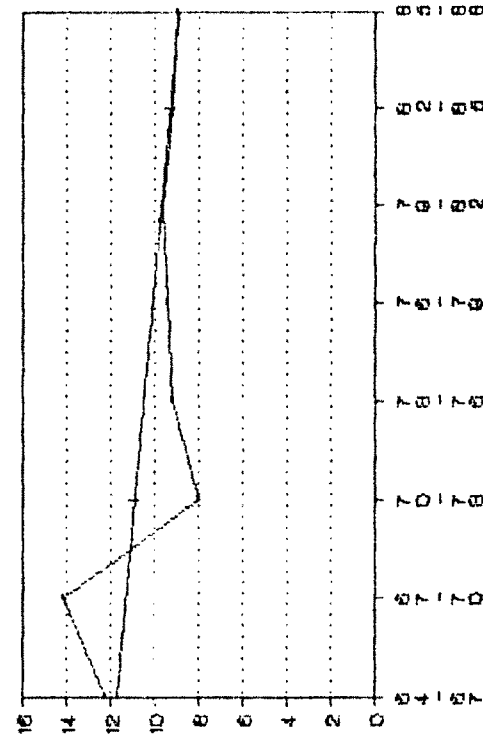
MIRAJ



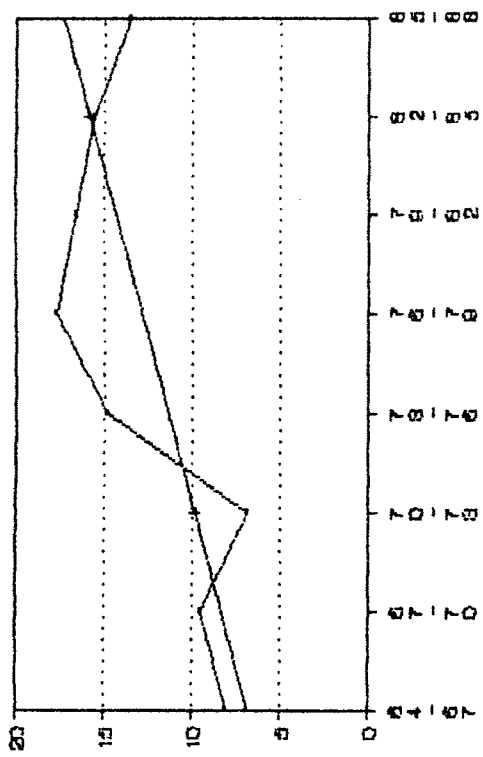
TASGAON



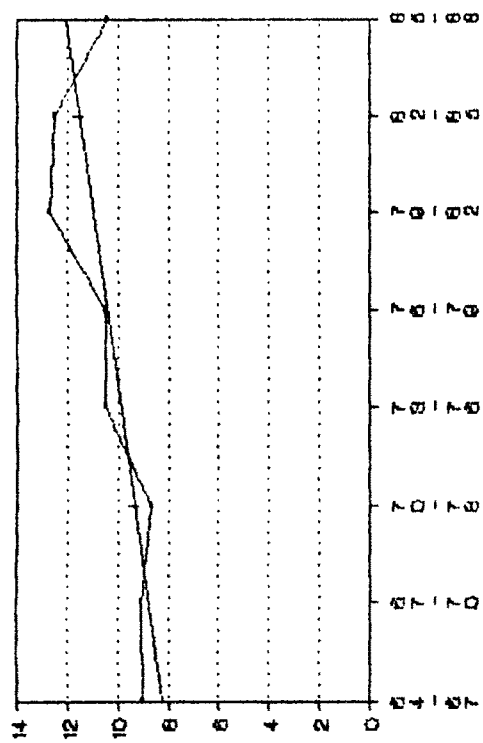
KHANAPUR



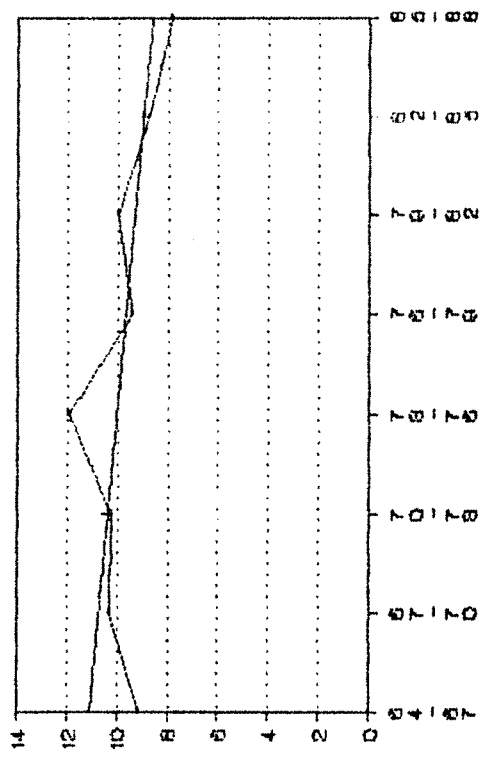
ATRAPADI



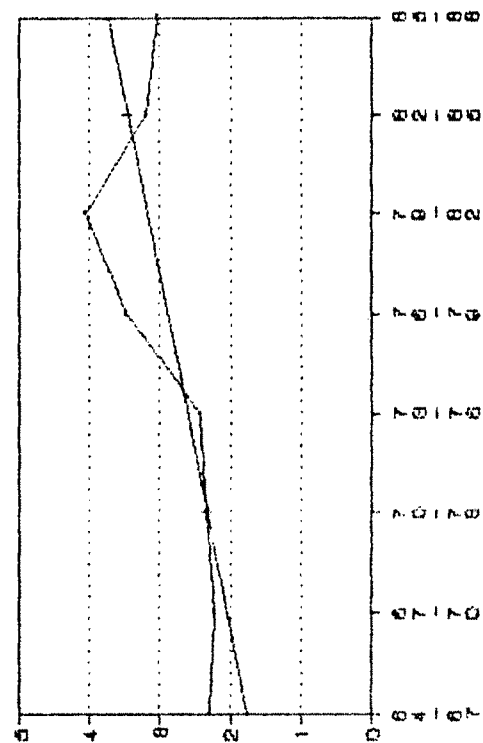
JAT



KAWATHE MAHANKAL



WALWA



SHIRALA

the minimum and maximum percentages.

4.2.2.2 Trends

The ups and downs from ^{C/N} triemium to triennium can now be utilised to findout the trend of change during 1964-88. Talukawise trend lines are shown in Fig. 4.3. It is clear that Miraj, Khanapur, Jat, Kavathe Mahankal and Shirala showed rising trend and the other talukas (Tasgaon, Atpadi and Walva) had the opposite trend. The overall scenario, of the district, over the time span under consideration showed rising trend.

4.2.2.3 Coefficient Of Variations

The degree of variation in the year to year percentage of area under pulses to the GCA of the taluka is measured with the help of coefficient of variation. Coefficient values of the taluka are given in Table 4.5.

Examination of the table indicates fairly high values of the coefficient for all the talukas, ~~the~~ the lowest value being 11.79 per cent for walva and the highest being in case of Jat (29.91) per cent. The higher values of cv implies that pulses cultivation in the taluka had higher degree of annual fluctuations in the area and instability of cultivation.

Table 4.5

C V. values Of Taluka Shares Of Pulses In Their G.C.A.

Taluka	Coefficient of variation (percentage)
1 Walva	11.79
2 Tasgaon	11.80
3 Kavathe Mahankal	13.71
4 Khanapur	14.77
5 Miraj	14.90
6 Atpadi	18.92
7 Shirala	21.77
8 Jat	29.91

Source : Compiled from Table 4.1

4.3 DISTRICT AREA OF FOODGRAINS

Foodgrains is one of the ^{sp} necessitate of human kind. Hence ~~the~~ percentage area shared by this class is quite large. Referring to Sangli district it is observed from the Table 4.6 that the area shared by total foodgrains was almost equal to or more than 70 per cent of the total GCA of the district. The overall tendency for cultivation of foodgrains was consistently increasing but for few exceptions. It touched the highest point of 76 per cent for the last triennium (1985-88) from the lowest value of 69.70 per cent for the triennium 1970-73. Hence it could be said that the cultivators ~~were~~ preferring foodgrains production. This is one of the significant features of the cropping pattern in Sangli district. ¹⁰ ^{were}

TREND OF THE PERCENTAGE OF THE DISTRICT AREA UNDER TOTAL FOODGRAINS

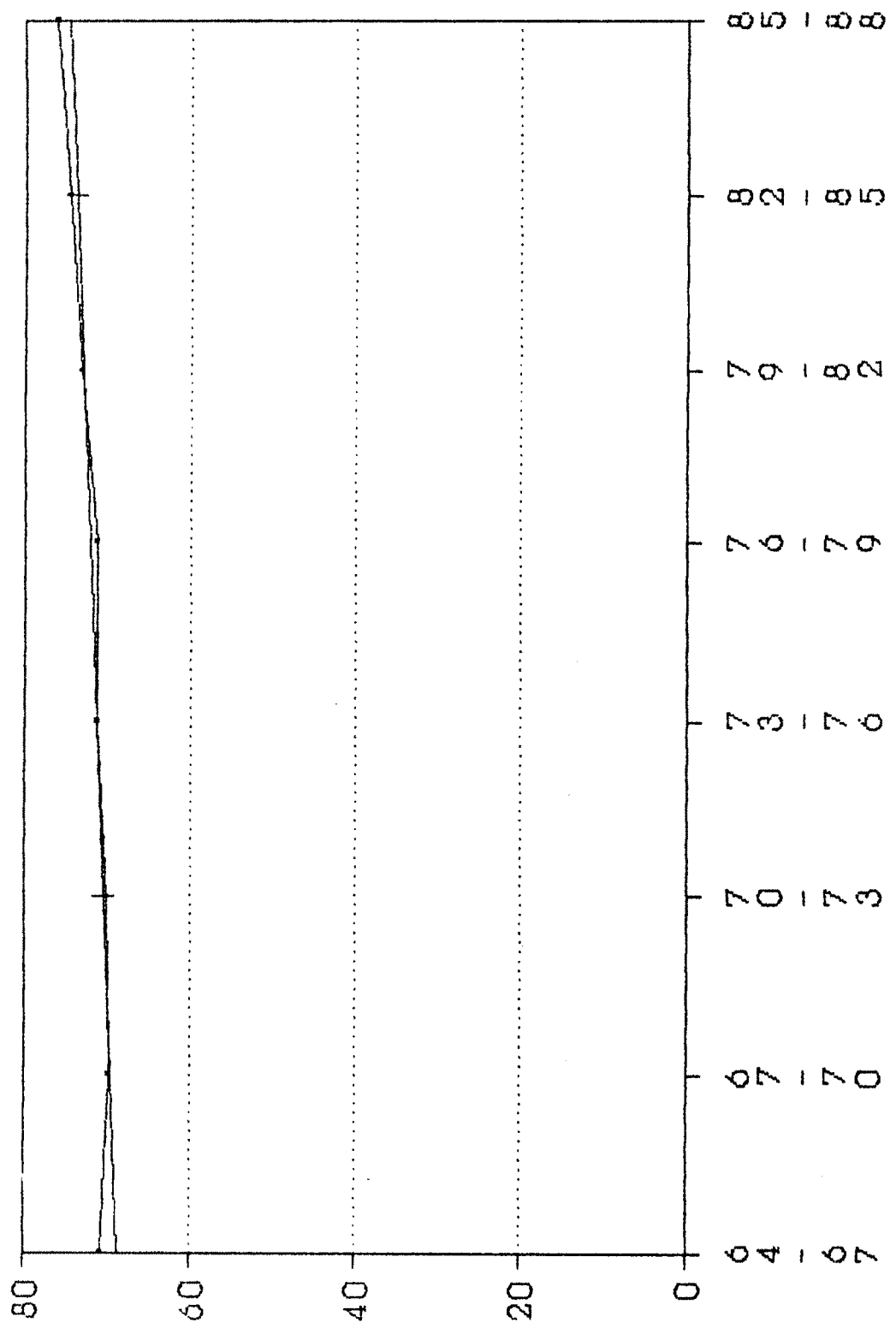


Table 4.6

Talukawisee area under total foodgrains in Sangli district

(Area in heactors)

Triennial Year	District Total		Miraj	Tasgaon	Khanapur	Atpadi	Jat	Kavathe Mahankal	Walva	Shirala
	Gross Cropped Area	Area under jowar								
1	2	3	4	5	6	7	8	9	10	11
1964 - 65 to 1966 - 67	6,77,929 (100.00)	4,79,607 (100.00) (70.75)	47,623 (9.93) (58.60)	58,582 (12.21) (65.30)	80,342 (16.75) (71.93)	61,069 (12.73) (86.90)	1,37,627 (28.70) (86.50)	40,083 (8.35) (77.42)	36,676 (7.64) (55.04)	19,418 (4.05) (40.87)
1967 - 68 to 1969 - 70	6,54,469 (100.00)	4,56,201 (100.00) (69.70)	44,244 (9.69) (56.36)	51,970 (11.39) (60.40)	75,348 (16.51) (67.85)	61,078 (13.38) (96.32)	1,34,454 (20.47) (86.78)	39,008 (8.55) (78.21)	34,362 (7.53) (53.23)	17,244 (3.77) (37.40)
1970 - 71 to 1972 - 73	6,27,792 (100.00)	4,39,812 (100.00) (70.06)	45,989 (10.46) (61.09)	55,804 (12.69) (66.66)	71,449 (16.25) (66.86)	50,765 (11.54) (89.30)	1,29,917 (29.54) (87.96)	35,924 (8.17) (78.04)	34,300 (7.80) (52.39)	17,052 (3.88) (37.15)
1973 - 74 to 1975 - 76	6,34,105 (100.00)	4,52,358 (100.00) (71.34)	49,952 (11.04) (67.31)	60,462 (13.37) (74.30)	72,996 (16.14) (66.68)	51,578 (11.40) (76.31)	1,26,151 (27.89) (88.13)	40,098 (8.86) (86.13)	36,143 (7.99) (56.05)	16,398 (3.63) (35.35)
1976 - 77 to 1978 - 79	6,45,928 (100.00)	4,60,641 (100.00) (71.31)	51,358 (11.15) (66.53)	66,285 (14.39) (71.78)	78,026 (16.94) (70.26)	46,985 (10.20) (67.06)	1,23,112 (26.73) (90.56)	40,377 (8.77) (86.84)	37,930 (8.23) (57.14)	17,880 (3.88) (38.50)
1979 - 80 to 1981 - 82	6,47,887 (100.00)	4,74,063 (100.00) (73.17)	50,377 (10.63) (66.39)	66,538 (14.04) (73.49)	78,444 (16.55) (68.34)	48,365 (10.20) (75.64)	1,27,802 (26.96) (91.79)	43,531 (9.18) (89.43)	40,331 (8.51) (59.80)	20,041 (4.23) (42.27)
1982 - 83 to 1984 - 85	6,33,725 (100.00)	4,72,787 (100.00) (74.60)	58,735 (12.42) (70.20)	65,370 (13.83) (73.73)	78,303 (16.56) (80.12)	44,169 (9.34) (71.54)	1,29,329 (27.36) (91.90)	44,033 (9.31) (89.73)	35,625 (9.31) (54.61)	19,238 (4.07) (41.09)
1985 - 86 to 1987 - 88	6,41,952 (100.00)	4,89,323 (100.00) (76.22)	58,576 (11.97) (69.05)	61,494 (12.56) (70.67)	81,489 (16.65) (88.73)	46,055 (9.41) (74.82)	1,36,239 (27.84) (88.75)	46,730 (9.54) (92.53)	38,039 (7.77) (57.36)	19,151 (3.91) (41.88)
Average 1964-65 1987-88 (24 years)	----	(100.00) (72.14)	(10.91) (64.44)	(13.06) (69.54)	(16.54) (72.60)	(11.02) (79.73)	(28.06) (89.05)	(8.84) (84.79)	(8.09) (55.74)	(3.92) (39.31)

Note : 1. Figures in lower parentheses in column 3 are percentage to column 2

2. Figures in upper parentheses in column 4 to 11 are percentages to column 3

3. Figures in lower parentheses in columns 4 to 11 are percentages to the GCA of the respective talukas

Source: Compiled on the basis of data collected from the relevant issues of Socio Economic Review and District statistical abstract of Sangli District for the years from 1964-65 to 1987-88, Directorate of Economics & Statistics Government of Maharashtra, Bombay.

4.4 TALUKA PROFILE OF FOODGRAINS

Talukawise study of cultivation of foodgrains may be treated as microlevel investigation. For the purpose triennial figures of each taluka are presented in columns 4 to 11 of Table 4.6. The analysis is done as usual from two angles: (a) Taluka area as percentage of the district total area under foodgrains; (b) Taluka area as percentage of the GCA of the taluka itself. Results in each respect are presented with reference to the three parameters: (i) average area, (ii) trend of area, (iii) Coefficient of variation of area. The same Table 4.6 provides the reference data.

4.4.1 Taluka Area Vis-A-Vis District Area Of Foodgrains

In Table 4.6 all the 8 talukas of the district are covered in columns 4 to 11. These columns exhibit first the absolute area in ^{sq. km} hectors for each triennial period. Then follow in upper brackets percentage of taluka area to the district total area under foodgrain for the respective triennium. Last row in the table gives in upper brackets average share of each taluka in district total for the entire period, 1964-88. The analysis follows

4.4.1.1 Average area

The summary account of the range in which each taluka shared area under foodgrains is presented in Table 4.7

Table 4.7

Talukawise range of share of area under total foodgrains
(1964-88).

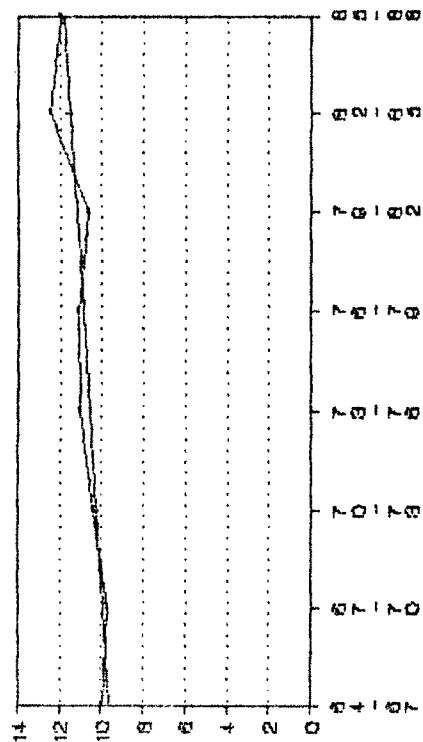
(percentage)

Taluka	Range of share	Range magnitude (percentage points)	Average for the entire period
1 Miraj	9.69 to 12.85	3.16	10.91
2 Tasgaon	11.39 to 14.39	3.00	13.06
3 Khanapur	16.14 to 17.87	1.73	16.54
4 Atpadi	9.34 to 13.38	4.04	11.02
5 Jat	26.73 to 29.88	3.15	28.06
6 Kavathe Mahankal	8.17 to 9.54	1.37	8.84
7 Walva	7.53 to 9.31	1.78	8.09
8 Shirala	3.63 to 4.23	0.60	3.92

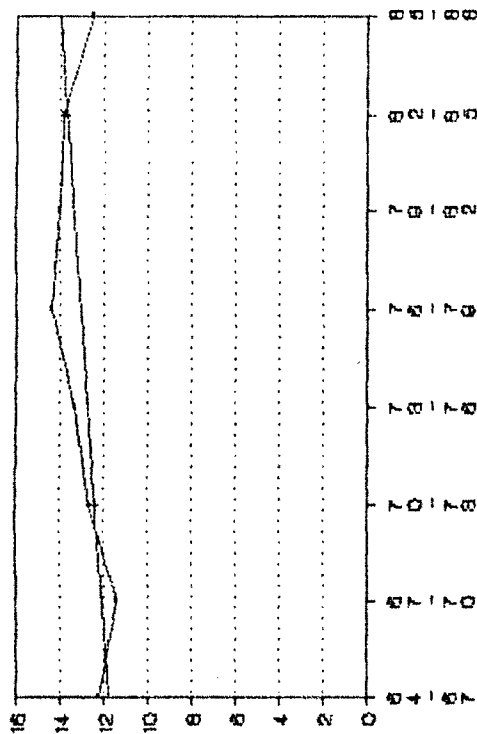
Source: Compiled from Table 4.6

It could be seen from the table that average area shared by Jat taluka for the entire period for foodgrains was maximum of 28.06 per cent of total area in the district under foodgrains. Khanapur was second in order but at much lower level with 16.54 per cent of the district land under foodgrains. Atpadi and Miraj were around 10 per cent while Kavathe Mahankal and Walva had about 8 per cent district land. Shiral was having the lowest proportion indication there by that foodgrains cultivation was not its main interest. Further, the range magnitude in which the average

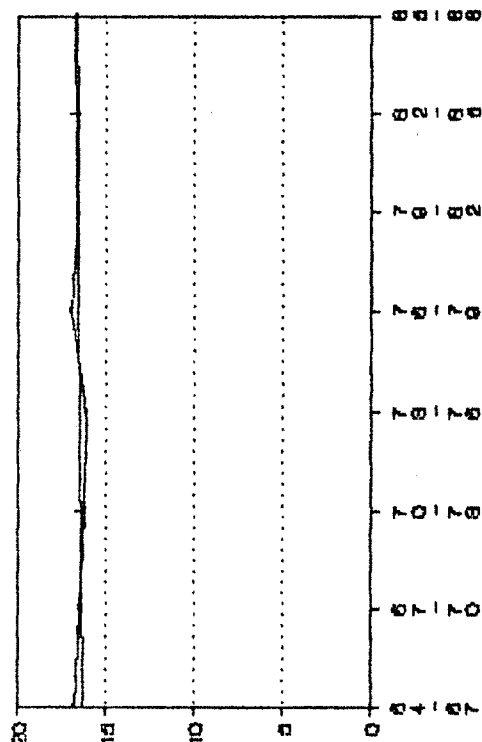
TREND OF THE PERCENTAGE OF
TALUKA AREA IN THE DISTRICT
TOTAL FOOD GRAINS



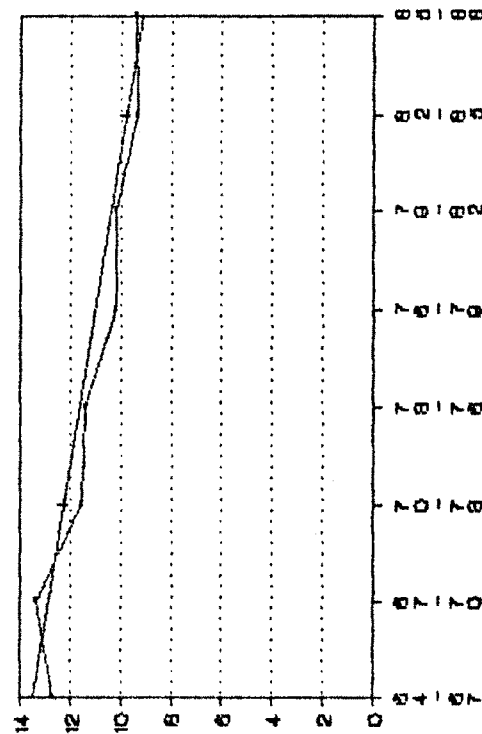
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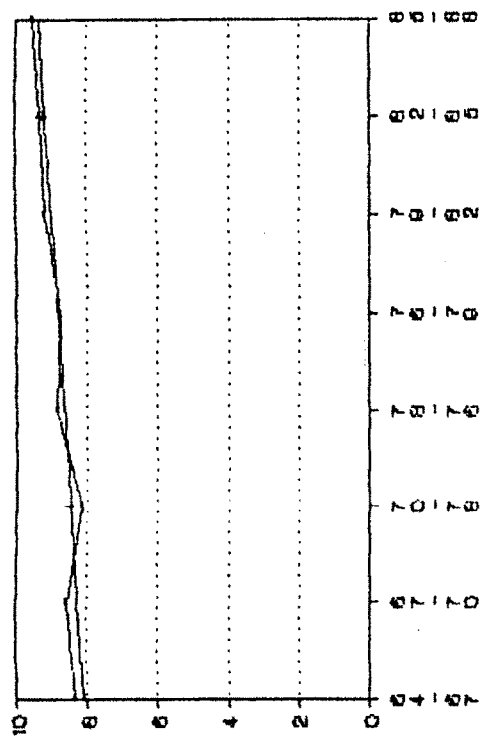
TASGAON



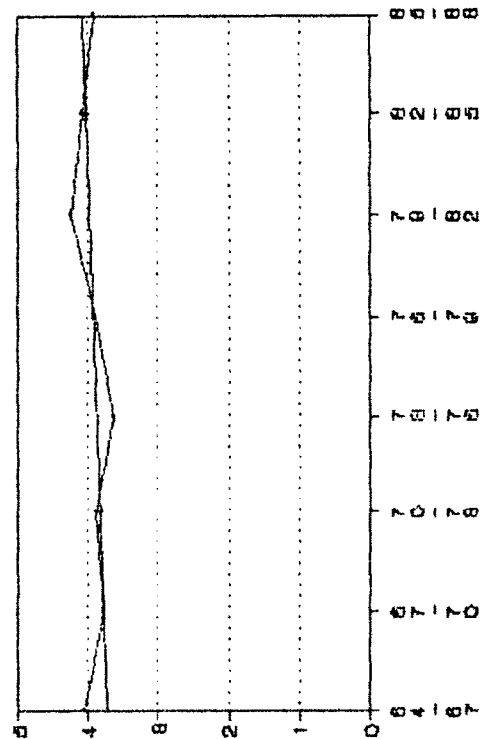
KHANAPUR



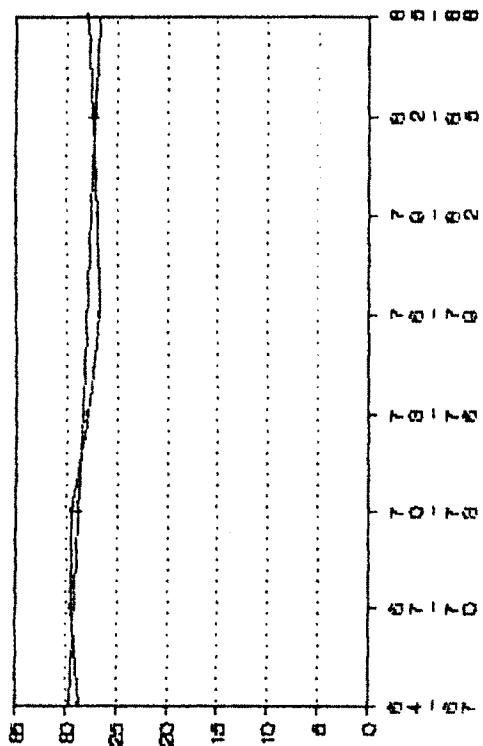
ATRADI



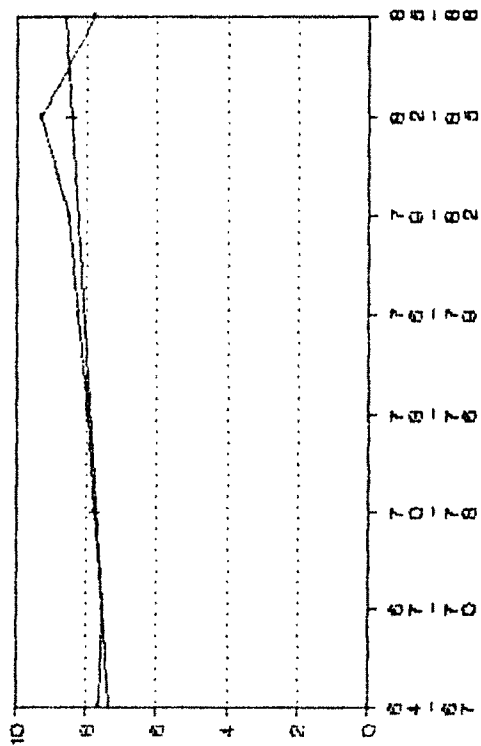
KAVATHE MAHANIKAL



SHRALA



JAT



WALWA

area share had varied uses very low with all the talukas and had maximum and minimum of 4.04 percentage points and 0.60 percentage points respectively.

4.4.1.2 Trends

The time-series data of each taluka from Table 4.6 will now be considered to find out the behavioral pattern of the fluctuations in the taluka of foodgrains area within the district area. This is an attempt to fit trend line. Fig. 4.5 exhibits talukawise trends. The upward trend was observed in case of Miraj, Tasgaon, Khanapur, Kavathe Mahankal, Walva and Shirala whereas the opposite one was seen in case of Atpadi and Jat.

The upward trends of the 6 talukas more than compensated the downward trends of the 2 talukas and hence there was overall up trend of foodgrains area in Sangli district as observed initially.

4.4.1.3 Coefficient Of Variation

For comparing the long-term fluctuations of taluka shares in the district total of the area under foodgrains the technique of coefficient of variation has been employed. Estimated values of C.V. of each taluka are presented in Table 4.8.

Table 4.8

C.V. value of taluka shares in the district area of under total foodgrains.

Taluka	Coefficient of variation (percentage)
1 Khanapur	1.45
2 Jat	3.59
3 Shirala	4.46
4 Kavathe Mahanhal	5.06
5 Walva	6.76
6 Tasgaon	7.32
7 Miraj	8.07
8 Atpadi	12.69

Source : Compiled from Table 3.6

Value of the C.V. indicates the degree of year-to-year variation in the taluka area of the land as percentage of the district total lower the value, less the magnitude of change and vice versa. Table 4.8 gives the impression that except for Atpadi all the other talukas had C.V. values less than 10 per cent. Therefore, annual variations in the crops area were rather marginal since foodgrains are a necessity to the people of this area, growing of foodgrains under any circumstances is almost a compulsion for them. Hence, moderate fluctuations in the area.

4.4.2 TALUKA AREA OF FOODGRAINS VIS-A-VIS GROSS CROPPED AREA OF TALUKA

This sub-section will throw light on the behaviour of taluka area under foodgrains with reference to the GCA of the taluka and will thus introduce the second dimension of the investigation. For this purpose, data in the lower parentheses of columns 4 to 11 in Table 4.6 will be used and the same three dimensional analysis would be presented.

4.4.2.1 Average area

The share of area under foodgrains in the GCA of every taluka had changed from year to year. Triennial average of these shares are averaged for the entire time span. It would be worth while to know the range within which the area under foodgrains in taluka as percentage of the talukas GCA has moved from one triennium to the other. Table 4.9 gives the necessary details.

A glance at the table reveals that average area under total foodgrains shared by each taluka was quite high in all the talukas except Shirala. It is necessary to take note of Jat as the taluka depending largely on the production of foodgrains. Average area shared by the taluka was 89.05 per cent of its GCA. The next in order was Kavathe Mahankal with the share of 84.79 per cent of GCA. Atpadi, Khanapur, Tasgaon, Miraj, Walva and Shirala followed in declining

order. Walva and Shirala could be well distinguished from other talukas due to their relatively lower land proportions. For other talukas foodgrains cultivation was their principal agricultural activity. The value of range magnitudes was the lowest in case of Jat. This means that the foodgrains growers were mostly consistent in their production decisions. Walva and Shirala too had a narrow range. Atpadi, Khanapur and Kavathe Mahankal could be pointed out as talukas in which the gap between the maximum and minimum percentages was quite large.

Table 4.9

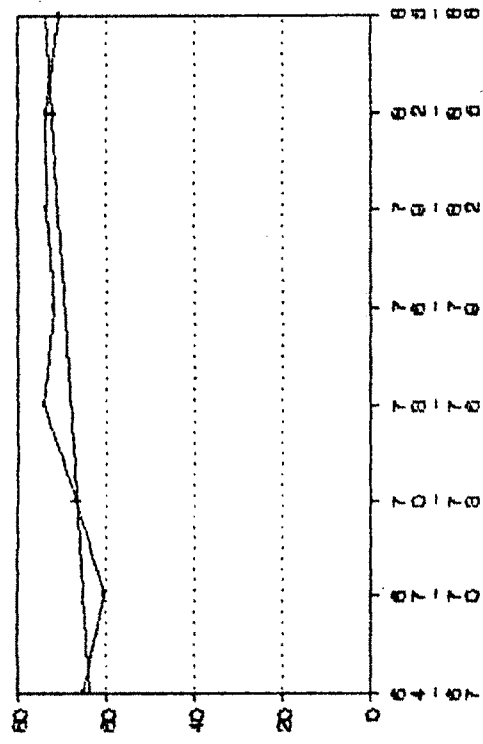
Talukawise range of area under total foodgrains as percentage of the GCA of the taluka (1964-88)

(percentage)

Taluka	Range of share	Range magnitude (percentage points)	Average for the entire period
1 Miraj	56.36 to 70.20	13.84	64.44
2 Tasgaon	60.40 to 74.30	13.90	69.54
3 Khanapur	66.68 to 88.73	22.05	72.60
4 Atpadi	67.06 to 96.32	29.26	79.73
5 Jat	86.50 to 91.90	05.40	89.05
6 Kavathe Mahankal	77.42 to 92.53	15.11	84.79
7 Walva	52.39 to 59.80	7.41	55.74
8 Shirala	35.35 to 42.27	6.92	39.31

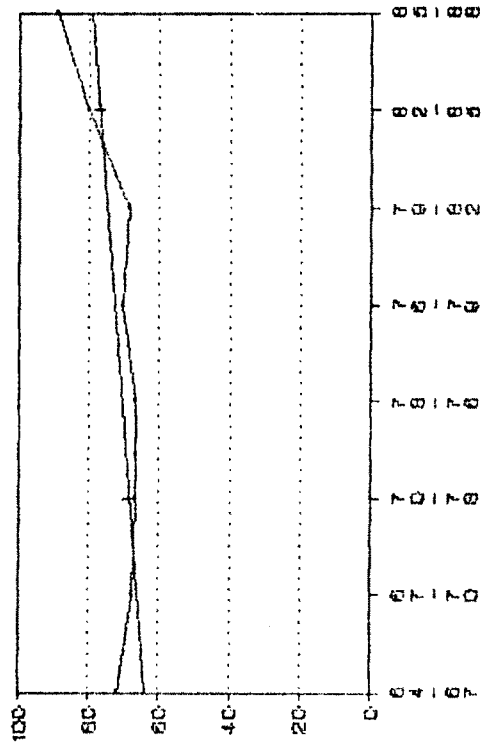
Source: Compiled from Table 4.6

TREND OF THE PERCENTAGE OF
TALUKA AREA IN ITS GCA
TOTAL FOODGRAINS



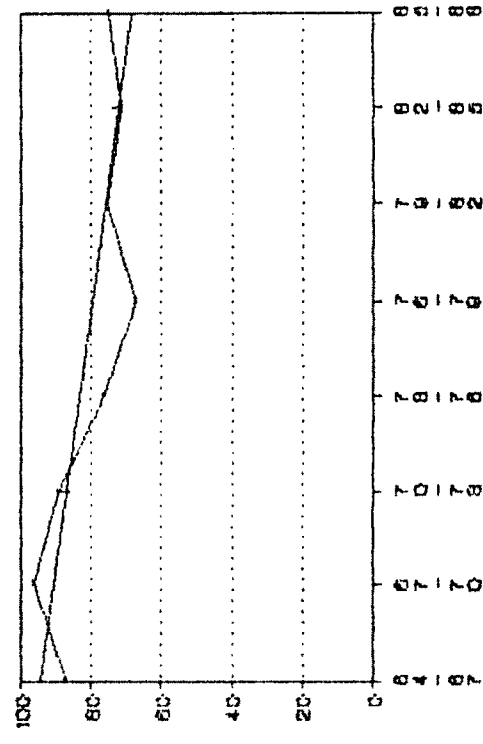
MIRAJ

TASGAON

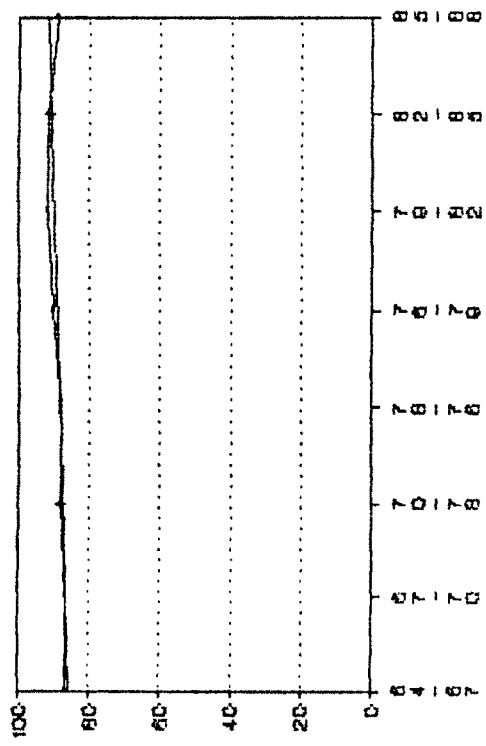


KHANAPUR

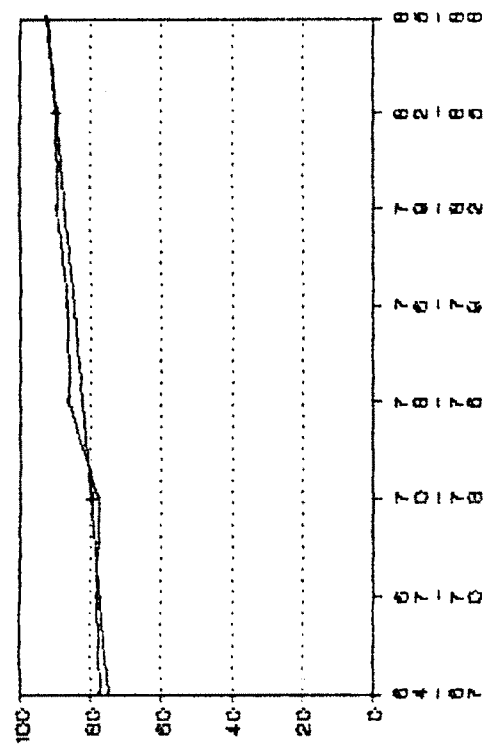
ATRAJI



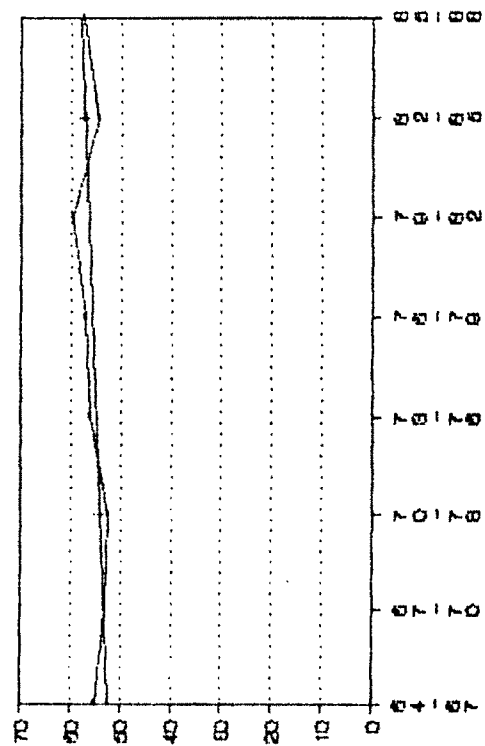
ATRAJI



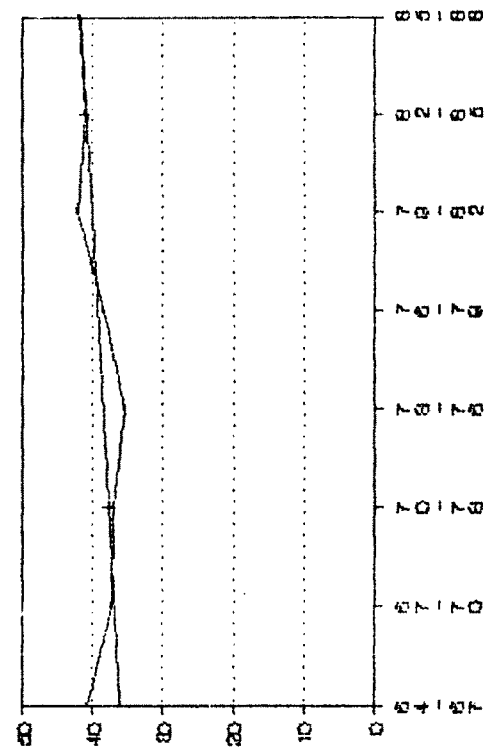
JAT



KAWATHE MAHANIKAL



WALVA



SHRALA

4.4.2.2 Trends

There are ups and downs in land utilisation for cultivation of foodgrains in every taluka. Long run behaviour of these fluctuations become visible through fitting of a trend line for the entire time-serise data. This is done in Fig. 4.6. Observation of the Fig. reveals that Miraj, Tasgaon, Khanapur, Jat, Kavathe Mahankal, Walva and Shirala had an increasing trend in foodgrains cultivation. Out of (it) eight talukas only Atpadi depicted decreasing trend for the same. It is worthwhile to note that 96 per cent of the GCA of the taluka was under foodgrains in the trennium 1967-70. After this triennium, the average area shared by total food-crops decreased to the minimum of average 67 per cent for the triennium 1976-79. In case of Miraj, Khanapur and Kavathe Mahankal the share of area under this class of crops was increasing from triennium to triennium. The resultant of these taluka trends was obviously that the overall trend for the entire district was upward.

4.4.2.3 Coefficient Of Variation

The degree of variations between maxima and minima could be judged properly by using the method of coefficient of variation. Table 4.10 gives the necessary values.

Table 4.10

C.V. values of taluka shares of total foodgrains in their GCA

Taluka	Coefficient of variation (percentage)
1 Jat	2.23
2 Walva	4.03
3 Shirala	6.07
4 Kavathe Mahankal	6.65
5 Tasgaon	6.66
6 Miraj	7.39
7 Atpadi	10.11
8 Khanapur	11.71

Source : Compiled from Table 4.6.

Higher the c.v.. Higher the variations and vice versa. It ~~pointed out by~~ ^{is noted from} the table that the c.v. values were low in case of almost all the talukas. It be noted that 2.23 C.V. value was shown by Jat in which foodgrains were cultivated predominantly. The average share of this taluka for the entire period was the highest. Hence foodgrains growers were almost consistent in their production decisions in Jat. Atpadi's C.V. value was 10.11 per cent. It is already noticed from the Fig. showing trends cultivation in this class of crops was decreasing in this taluka from triennium to triennium and the difference between the highest and the lowest values of share of total foodgrains

in the GCA was quite high, around 30 per cent. In case of Khanapur taluka the C.V. value is the highest (11.71 per cent). The difference between maximum and minimum average area shared by this class of crops in the taluka was quite high (around 30 per cent) however the trend was conspicuously upward after the triennium 1979-82.

4.5 CONCLUSION

Interpretations for the data on trends processed for cereals (in the preceding chapter), pulses and total foodgrains (in the chapter) are given at a glance in Table 4.11. Talukawise trends for cereals, pulses and total foodgrains with reference to total area in the district under the particular class of crops and gross cropped area of the taluka are given.

Total foodgrains dominated the agricultural production activities since their proportion in area shared for their cultivation activity was at considerably high level for most of the talukas. In this crop group cereals obviously had much larger share than the pulses.

Perusal of data over 1964-88 reveals that the share of foodgrains in the GCA of the district had an upward trend. When it comes to components of cereals and pulses, both had noticeable upward trend.

With reference to individual talukas, the change

in cropping pattern presented a mixed situation. Restarting to total foodgrains it could be noticed that Miraj, Tasgaon, Khanapur, Kavathe Mahankal, Walva and Shirala registered upward trend within district as well as taluka settings. Downward trend was observed in case of Atpadi within district as well as taluka setting. However, Jat presented downward trend within district setting but upward trend in the taluka setting.

Considering the sub-classes cereals and pulses within district setting it was noticed that Miraj, Kavathe Mahankal and Shirala showed upward trend. Tasgaon, Khanapur and Walva presented upward trend for cereals and downward trend for pulses. As against this Jat presented downward trend for cereals and upward trend for pulses. Atpadi showed downward trend in case of both the sub-classes.

The other dimension was looking at the two sub-classes as share of the GCA of the talukas. Miraj, Khanapur, Kavathe Mahankal and Shirala presented upward trend within taluka setting for both cereals and pulses. Tasgaon and Walva realised upward trend downward trend for pulses. Jat showed exactly opposite situation. Atpadi had downward trend for both cereals and pulses.

It is further observed from the Table 4.11 that Tasgaon and Walva had shown upward trend in case of cereals

Table 4.11

Summary of trends in area

Taluka	Cereals		Jowar		Bajra	
	(A) District	(B) GCA	(A) District	(B) GCA	(A) District	(B) GCA
1 Miraj	up	up	up	up	up	up
2 Tasgaon	up	up	up	up	down	down
3 Khanapur	up	up	up	up	down	up
4 Atpadi	down	down	down	down	down	down
5 Jat	down	up	down	down	up	up
6 Kavathe Mahankal	up	up	up	up	up	up
7 Walva	up	up	up	up	down	down
8 Shirala	up	up	up	up	up	up
District resultant	uptrend		uptrend		uptrend	

Note: (1) 'A' : Trend with respect to taluka to area as percentage of the district area.

(2) 'B' : Trend with respect to taluka area as percentage of its GCA

and downward trend in case of pulses within district and taluka settings. But upward trend existed for total foodgrains within district as well as GCA settings. This could mean that some area under pulses was shifted to cereals. Khanapur showed upward trend for cereals and downward trend for pulses within district setting, but upward trend for total foodgrains. Within a district setting this could mean that some land under pulses had gone to cereals. In case of Jat taluka, within district setting cereals showed downward trend pulses showed upward trend but the resultant trend for total foodgrains was downward. Similar situation of trends was observed within taluka setting for cereals and pulses, but exactly opposite resultant situation was observed for total foodgrains.

Thus readjustment in cropping pattern of the district has been taking place so far as total foodgrains cultivation was concerned.