CHAPTER – IV*

CROP LAND USE

The crop land use pattern of any area is determined by the interaction between the capabilities and drive of human force and the potentialities and endowments of nature. It varies according to the variation in the relationship between man and the nature But cropping pattern itself is designed by man

Though cropping is the most efficient use of the rural arable land in the light of the agro-climatic and edaphic conditions, the cropping pattern hardly remains uniform through time and space. It varies under the changing physical and non-physical circumstances The cropping pattern, may, therefore, be defined as both "time and space sequence in a given area" (Bishnoi and Singh, 1980 p. 363).

The study areas lie very near to the sprawling urban center and more particularly to Baroda city The pattern of crop land use here depends largely on the decision of the farmers and the demand from the urban markets. However, rainfall is more or less the governing factor here also as in most parts of the state and the country, in the absence of dependable sourcesof irrigation.

The village level crop censuses for Padra and Karjan talukas for the two points of time show that there have been eleven crops respectively, grown in these areas. Variation in the rank order of these crops were quite obvious. Crops are usually taken in both the seasons kharif (the rainy season) and rabi (the winter season) Both types of crops in both the seasons depend on the amount of precipitation received during both the seasons

or the amount of moisture retained by soil for the rabi season when there are meager sources of irrigation

The regional level as well as the village crop censuses for the two points of time show that, of the several crops grown i e cotton, tuer, oilseeds, tobacco and sugarcane have been of overwhelming importance A regional and village wise discussion of the crops are now in order.

JOWAR

Traditionally, it is a kharif season crop Recently its hybrid varieties have been developed to suit the conditions of both the kharif and rabi seasons

The jowar has been enjoying a popularity in Karjan whereas in Padra it is not as popular as there It thrives well in the coarse loamy soils (Goradu) and is attributed to be the poor man's food In Karjan it has invariably enjoyed the largest share of crop land use among all cereals over both the points of time under study.

PARDA :

In Padra it never enjoyed that popularity as in Karjan. In 1960-61, it occupied a meager share of 3 76 per cent of cropped area only In 1990-91, however, its share insignificantly increased by only 0 09 per cent

In the regional context, it is observed that even being insignificant crop of Padra, it has been cultivated in all the three soil based regions in differing percentages. Table below gives the position of jowar at the two points of time in each region

Table No. 4.1

Showing the Position of Jowar in Padra.

Regions	1960-61		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	283.74	1.73	384.57	1.88	100.83	0.15
II	229.10	3.10	280.29	3.79	51.19	0.69
III	959.01	5.85	1022.12	6.40	63.11	0.55

In region I, jowar seems to be an unpopular crop enjoying only 1 73 and 1.80 percent respectively at both the points of time However, it has an edge over the former year insignificantly by 0 15 per cent

Region II shows a little better position of Jowar in the crop land distribution. In 1960-61, it occupied 3 10 percent which improved by 0.69 percent at the other point of time In region III, its share of crop land use was much higher than the other two. Areas of 5 85 and 6.40 per cent were devoted to it at the two points of time, respectively. This indicates a relatively better geographical condition for jowar in this region than the other two.

However, it is notable that jowar is gaining significance in Padra as well that it enjoyed increased share, even though insignificant at the other point of time in each region and the taluka as a whole compared to the base year. Its demand is growing as it has no more remained a poor mans food, even well to do families use it in various preparations for change of taste

Having a view over its village wise pattern of distribution and change, it appears that 51 35 per cent villages of region I, 90 91 per cent of region II and 94 12 per cent of region III cultivated jowar at the first point of time, while in 1990-91, 35 14 percent villages of region I, 45.45 per cent of region II and 82 35 per cent of region III grew jowar. Interestingly, the number of villages at the other point of time have decreased as compared to the first, but relatively greater percentage of area has been devoted to it in the cultivating villages. Table below explains the village wise position of jowar in the three regions

P.T.O.

Table 4.2

Village wise and Region wise Distribution of Jowar in Padra. 1960-61 and 1990-91.

(in Per cent)

Region	Year	Percentage range distribution					Total	
		0 – 5	5 – 10	10 – 15	15–20	20 & above	1960-61	1990-91
		Code Number of villages						
I	1960-61	1,2,4,7,10,17, 18,23,24,25,26, 27,29,30,34,37, 47 =17	-		22 =1	46 =1	19	-
	1990-91	8,12,13,19,21, 28,29,30,35,46, 47 =11	25 =1	-	-	22 =1	-	13
II	1960-61	32,33,39,40.41, 44,45,48,62 =9	50 =1	-	-	-	10	-
	1990-91	33,50 =2	45 =1	44,48 =2	-	-	-	5
III	1960-61	42,52,58,60,63, 65,66,68,71,75, 77,78 =12	49,54, 55,59, 67,69, 74,76, 81 =9	51,56,57, 70,72,73, 79,80,82 =9	53 =1	-	31	-
	1990-91	49,53,54,61,64, 69,72,75,81	51,60, 67,71, 73,74, 78,82 =8	56,58,68, 79,76 =6	57,59,7 9 =3	62,63, 80 =3	-	28
Total	1960-61	38	10	9	2	1	90	-
	1990-91	22	10	7	3	4	-	48

In 1960-61, region I, in its 17 villages grew it in the range of 0-5 per cent, while in the ranges of 15 – 20 and 20 percent and above were one each In these 19 villages its share of GCA ranged between the lowest 1 14 per cent (in Dudhwada) and the highest 24.10 per cent (in Amla)

The same region in 1990-91, in the range of 0 – 5 per cent had 10 villages and 5 – 10 per cent and 20 per cent and above had one each There were none in the rest of the percentage ranges and it varied from the lowest 1 90 per cent (in Mahuvad) to the highest 22 37 per cent (in Vadu)

Region II, in 1960-61, in the range of 0 – 5 per cent had 9 villages, while in the range of 5 – 10 per cent had only one, with its share of GCA between 1 14 and 9 43 per cent respectively in Bhoj and Madapur In 1990-91, in the range of 0 – 5 and 10 – 15 per cent were 1 villages each and 5 – 10 per cent had only one ranging its GCA share between 1 17 and 13 03 per cent in Bhoj and Sareja respectively

In region III, in 1960-61 in the range of 0 – 5 per cent there have been 13 villages, while in the range of 5 – 10 and 10 – 15 percent were 9 villages each and in 15 – 20 per cent only a single village In 1990-91, inthe range of 0 – 5, 5 – 10 and 10 – 15 per cent were 9,8 and 5 villages respectively while 15 – 20 and 20 percent and above were three each. It held 1.36 per cent of GCA in Danoli and 17.47 per cent in Thikariya Mubarak at the first point of time and 1.29 per cent and 21 55 per cent at Chansad and Masar respectively at the second point of time (Fig 4 1)

KARJAN

In contrast to Padra jowar in Karjan invariably enjoyed the largest share of crop land among all the cereals. It has been enjoying a popularity. Its position in 1970-71 was 11.78 per cent to the total GCA of the area Which however, insignificantly decreased by 0 30 per cent in 1990-91 owing to general trend of decrease in all such crops in favour of important cash crops As such the minor increase or decrease in area alloted is a usual

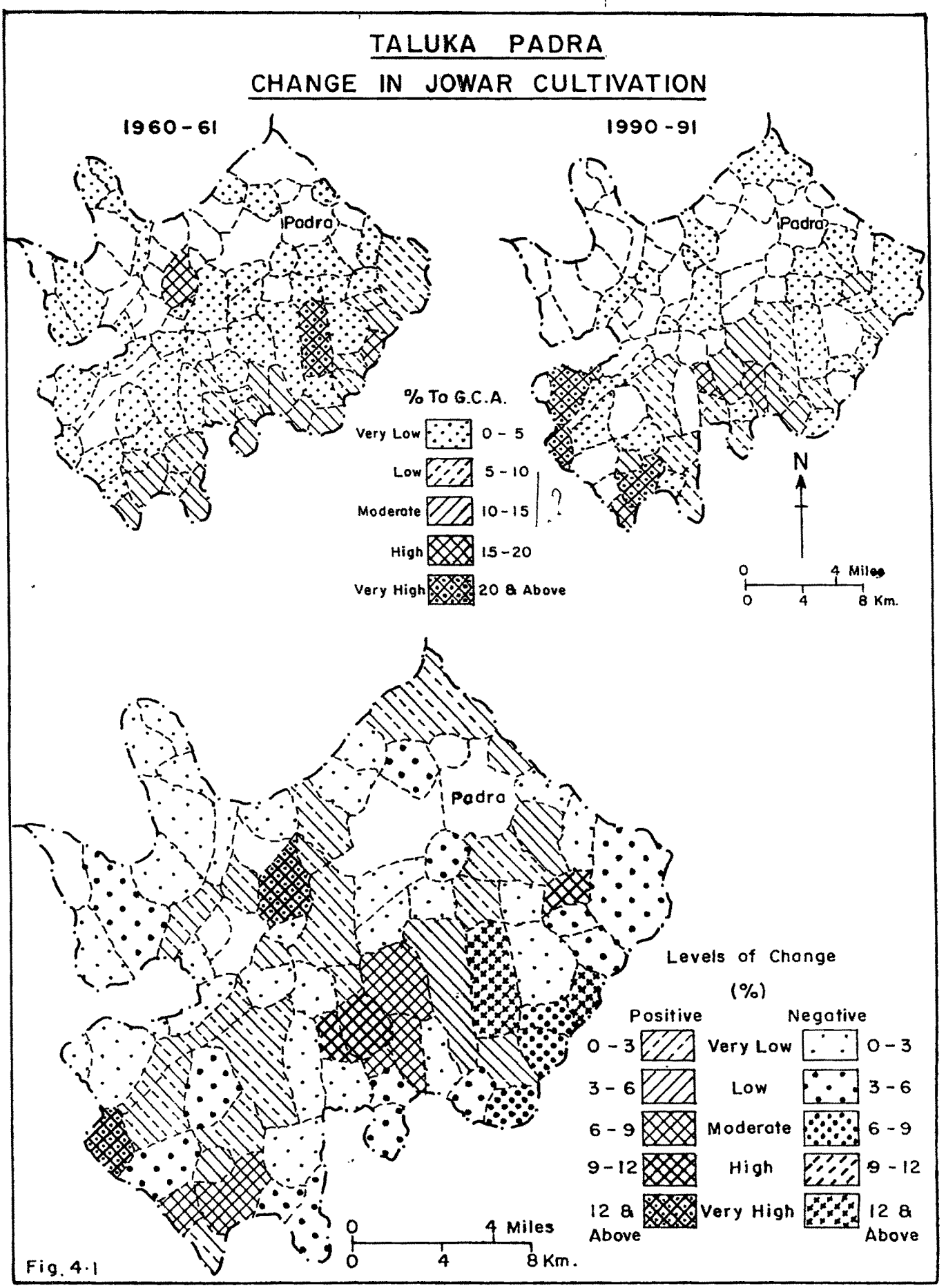

TALUKA PADRA
CHANGE IN JOWAR CULTIVATION
1960-61
1990-91
Padra
Padra
% To G.C.A.
Very Low 0 - 5
Low 5 - 10
Moderate 10 - 15
High 15 - 20
Very High 20 & Above
N
0 4 Miles
0 4 8 Km.
Padra
Levels of Change
(%)
Positive
Negative
0 - 3 Very Low 0 - 3
3 - 6 Low 3 - 6
6 - 9 Moderate 6 - 9
9 - 12 High 9 - 12
12 & Above Very High 12 & Above
0 4 Miles
0 4 8 Km.

Fig. 4·1

practice over the succeeding crop years, which does not affect the significance of the crop

In the regional context, it is observed that it has been cultivated in all the three soil based regions in differing percentages. Table 4 3 gives regional position of Jowar at both the points of time

Table 4.3

Showing the Regional Position of Jowar in Karjan.

Regions	1970-71		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	2530.20	10 82	2270 62	10 10	-259 58	- 72
II	854 65	8 47	1168 41	11 26	313 76	2 79
III	2797 94	14 73	2457 68	13 30	-340.26	-1.43

In region I, jowar occupied 10.82 and 10.10 per cent respectively at the two points of time. However, it had an insignificant decrease by 0.72 per cent at the second point of time, which is a normal variation, invariably noticed in the crop land use generally for the important crops In region II, in 1970-71 it occupied 8.47 per cent which improved by 2.79 per cent at the second point of time In region III its share of crop land was much higher than the other two regions at both the points of time. In respect of percentage hectarage it occupied 14.73 per cent and 13 30 per cent at the two points of time marking a slight decrease of 1 43 per cent, at the second point of time

A view over its village wise pattern of distribution and change reveals that jowar have been grown by all the

93 villages at both the points of time on a substantial share of 40 per cent and more of the GCA Table below gives the village wise allotment of hectarage to jowar at the two points of time

Table 4.4

Village wise & Region wise Distribution of Jowar at Karjan 1970-71 – 1990-91.

(in per cent)

Region	Year	Percentage Range Distribution						
		0 – 10	10–20	20-30	30-40	40 & above	1970-71	1990-91
		Code number of villages						
I	1970-71	5,7,8,10,11,12,13,14,15,16,18,20,21,22,24,27,28,29,32.33,34,37 =22	4,6,9,17,19,23,25,30,3,36 =10	2,3 =2	-	1	35	-
	1990-91	2,4,5,6.7,8.9,10 12,14,17,18,20,22.23,24.25,27,28,30,31,36 =22	1,3,13,19 29,32,33,37 =8	11,15,16,34 =4	21 =1	-	-	35
II	1970-71	26,35,38,39,40,41,42,44,46,48,49 =11	43,45,47 =3	-	-	-	14	-
	1990-91	39,41,42,45,47,48,49 =7	35,40,43,44,46 =5	26,38 =2	-	-	-	14
III	1970-71	51,52,55,59,60,61,62,64,65,68,71,74,75,76,77,82,83,84,85,86,87 =21	50,53,54,56,57.58.63,66,67,72.73,80,89 =13	69,70,81 =3	88,92 =2	78,79,90.91,93 =5	44	-
	1990-91	50,51,52,55,56,57,62,63,64,68,70,71,74,75,78,79,80,82,84,85,86 =21	53,54,58,61,65,66,67,69,72,73,76,77,81,87 =14	83,88,91,92 =4	60,90,93 =3	59,89 =2	-	44
Total	1970-71	54	26	5	2	6	93	-
	1990-91	50	27	10	4	2	-	93

In region I, 22 of the 35 villages in 1970-71 cultivated jowar in the range of 0 - 10 per cent There have been 10 and 2 villages in the range of 10 - 20 and 20 - 30 per cent respectively, while in the range of 40 per cent and above was only one In these villages its share of GCA ranged between the lowest 2 23 per cent (in Khandha) and the highest 47.40 per cent (in Umaj). In 1990-91, in the range of 0 - 10 per cent were 22 villages, in the range of 10 - 20 and 20 - 30 per cent were 8 and 4 villages respectively, while in the range of 30 - 40 per cent was only one Thus all the villages ranged between the lowest 1 21 per cent (in Miyagam) and the highest 35 19 per cent (in Bodka)

In region II, during 1970-71 in the range of 0 - 10 per cent there were 11 villages, while in the range of 10 - 20 per cent were 3 villages There were none in the rest of the percentage ranges and it varied from 3 59 per cent in Kasampur to 19 94 per cent in Kiya. In 1990-91, there were 7 and 5 villages respectively in the range of 0 - 10 and 10 - 20 per cent, while in the range of 20 - 30 percent were 2 villages. Thus jowar occupied its share of G.C A. ranging between the lowest 1 24 per cent (in Kasampur) and the highest 22 77 per cent (in Karali)

In region III, in the range of 0 -10, 10 - 20 and 20 - 30 per cent there were 21, 13 and 3 villages respectively, where as in the range distribution of 30 - 40 per cent and 40 per cent and above were 2 and 5 villages at the first point of time. In 1990-91, in the range of 0 - 10, 10 - 20 and 20 - 30 per cent were 21,14, and 4 villages respectively while in the range of 30 - 40 per cent and 40 per cent and above were 3 and 2 villages It held the lowest 2 98 per cent of GCA in Hirjipur and the highest 51 80 per cent in Delvada at the first point of time and the lowest 1.28 per cent and the highest 52 18 per cent

respectively in Saring and Sagdol at the next point of time (Fig 4 2)

BAJRA

PADRA .

Bajra is one of the major kharif crop used as a food grain by almost all classes of the population It has ever enjoyed notable significance in the cropping pattern of Padra During 1960-61, it occupied a share of 6 25 per cent of the GCA, however,, it went up by 2 47 per cent during 1990-91

Table 4 5 shows the regional distribution and change in Bajra cultivation in Padra at the two points of time

Table 4 5

Region wise Hectarage and Percentage under Bajra in Padra 1960-61 and 1990-91.

Regions	1960-61		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	1854 03	11.31	2439 64	11.91	585 61	0.60
II	356 17	4.82	544 42	7 36	188 25	2 54
III	261 09	1 59	837 80	5 25	576 71	3 66

Region I, has been a significant producer of Bajra It devoted 11.31 per cent and 11.91 per cent of GCA respectively at the two points of time followed by region II with 4 82 per cent at the first point of time and 7 36 per cent at the next. region III devoted small share of GCA i e 1 59 per cent in 1960-61 and an increased share of 5 25 per cent in 1990-91 At the second point of time

TALUKA KARJAN

CHANGE IN JOWAR CULTIVATION

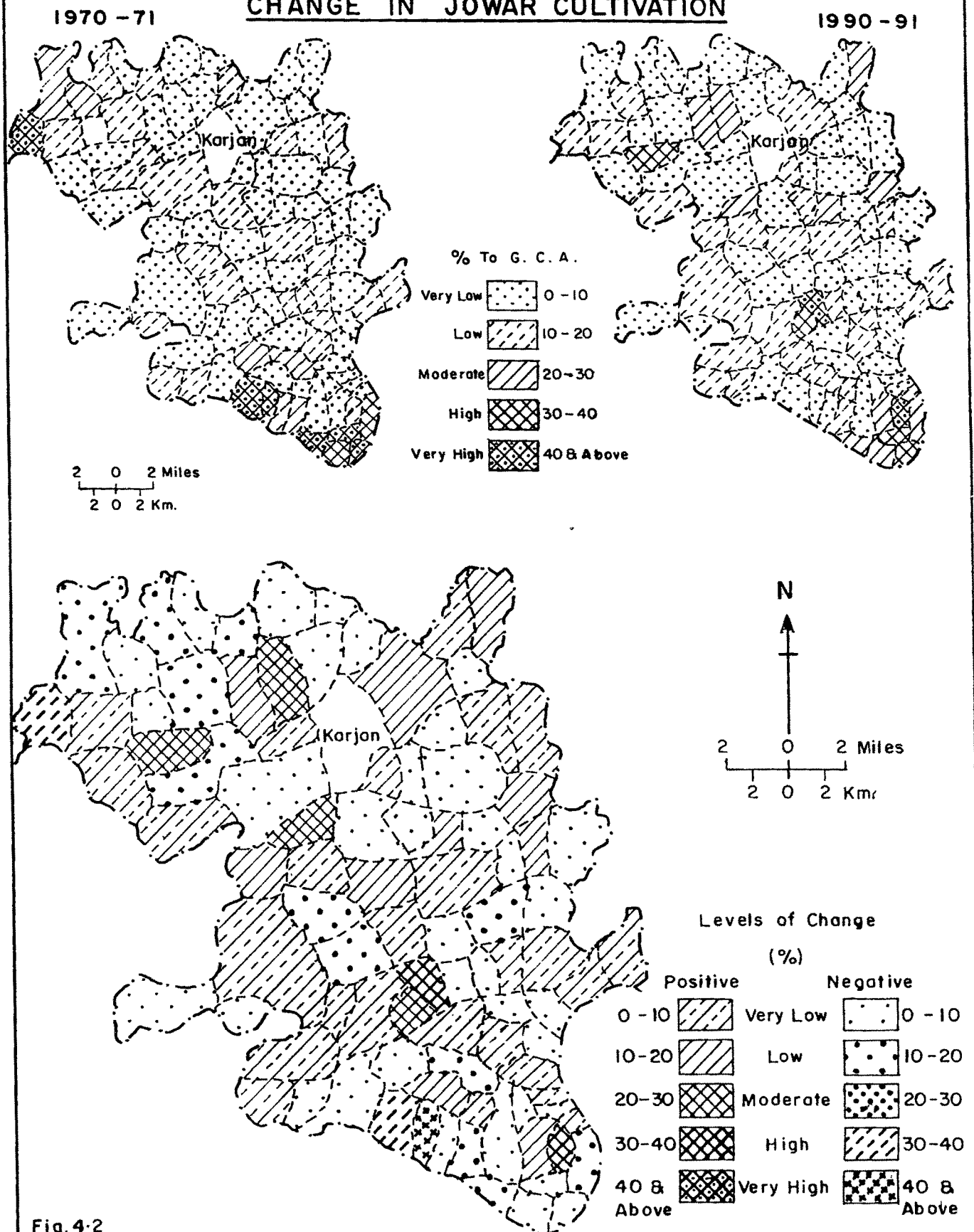


Fig. 4·2

each region showed an increase by 0 60 per cent, 2 54 and 3 66 per cent respectively

The village wise pattern of distribution and change reveals that 91 89 per cent villages of region I, 72 73 per cent of region II and 62.16 per cent of region III grew bajra at the first point of time In 1990-91, 86 89 per cent villages of region I, 81 82 per cent villages of region II and 41 18 per cent villages of region III cultivated bajra.

Although the percentage of cultivating villages in region I and III have decreased by 5 40 and 20 98 per cent respectively and increased in region II by 9 09 per cent The GCA share of bajra has partially increased in each region by 0 60, 2 54 and 3 66 per cent respectively Region II, therefore has given greater significance to bajra cultivation than the other two. Table below explains the village wise position of bajra in the three regions

P.T.O.

Table 4 6

Village wise and Region wise Distribution of Bajra at Padra 1960-61 and 1990-91

(in per cent)

Region	Year	Percentage Range Distribution						
		0 – 10	10–20	20-30	30-40	40 & above	1960-61	1990-91
		Code number of villages						
I	1960-61	8.10.17,18, 22,23,24,26, 27,28,29.30. 31,37 =14	6,7.11. 1219, 20,25, 34,35, 36 =10	1.2,3, 45,13 ,15, 16,21 =9	14 =1	-	34	-
	1990-91	8,10,11.18, 23,24,26,27, 28,29,31,34, 35,37 =14	9,16,17, 19,20, 21,22, 25,36 =9	2,12, 13 =3	1,7 =2	3,5,14 ,15 =4	-	32
II	1960-61	32,33,38,40, 41.44,46,62 =8	39 =1	-	-	-	9	-
	1990-91	32,33,44.62 =4	40 =1	38,39 , 41 =3	-	-	-	8
III	1960-61	55,59,60,61, 62,63,64,65. 66.72.74.76, 79 =13	42 =1	-	-	-	14	-
	1990-91	43,49,51,58, 59,60,62.63, 65,67,69,70, 71,72,73,74, 76,79,80,81 =20	42.61,64 =3	-	66 =1	-	-	24
Total	1960-61	35	12	9	1	0	57	-
	1990-91	38	13	6	3	4	-	64

In 1960-61 fourteen villages of region I cultivated bajra in the range of 0 – 10 per cent, 10 villages in 10 – 20 per cent 9 villages in 20 – 30 per cent and only 1 village in 30 – 40 per cent In 1990-91, in the range distribution of 0 – 10 per cent were 14 villages, 10 – 20 per cent were 9 villages, 20 – 30 per cent were 3 villages

and 30 - 40 per cent and 40 per cent and above were 2 and 4 villages respectively

In region II, 1960-61 in the range of 0 - 10 per cent were 8 villages and in 10 - 20 per cent was only one village There were none in the rest of the percentage ranges At the second point of time, in the range of 0 10 per cent were 4 villages, 10 - 20 per cent was only one and in the range of 20 - 30 per cent were 3 villages The remaining ranges remained empty.

In region III, at the first point of time, in the range of 10 - 20 per cent were 13 villages, 10 - 20 per cent was only one and none in the rest of the percentage ranges In 1990-91, in the range of 0 - 10 per cent and 10 - 20 per cent were 20 and 3 villages respectively, while in the range of 30 - 40 per cent was only a single village, and none in the rest of the ranges (Fig 4 3)

KARJAN

In karjan bajra is not as popular as in Padra It never enjoyed that popularity, which is enjoyed by jowar In 1970-71, it occupied a meager share of 0.42 per cent of the total G.C.A of the taluka At the second point of time its share insignificantly increased by only 0 78 per cent In the regional context it is observed that even being insignificant, it has been grown in all the three soil based regions in varying percentages Table 4 7 gives regional position of bajra at the two points of time.

P T.O.

TALUKA PADRA

CHANGE IN BAJRA CULTIVATION

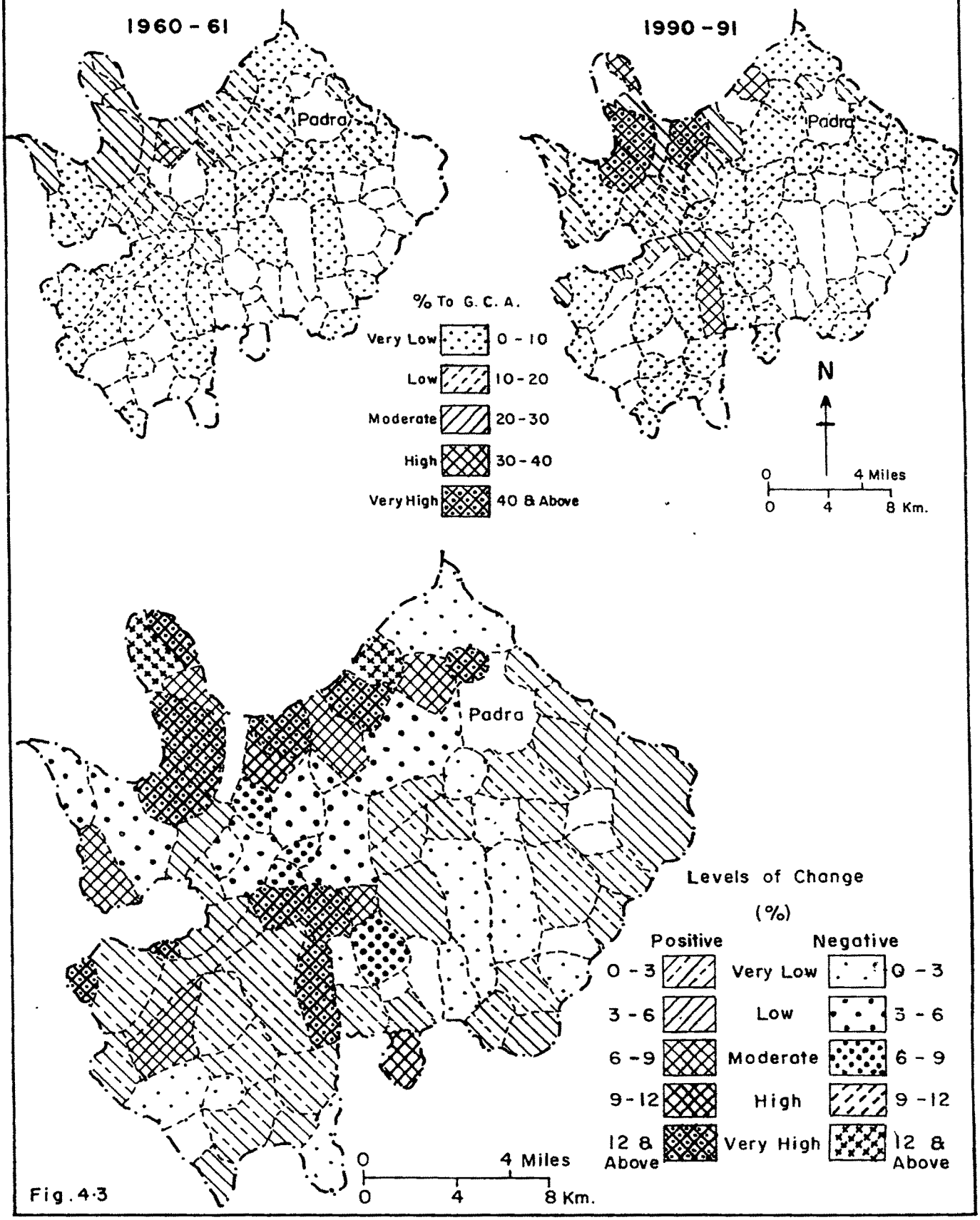


Fig. 4·3

Table 4 7

Showing the Position of Bajra at Karjan.

Regions	1970-71		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	127.73	0.55	268 71	1.19	140 98	0 64
II	-	-	137.83	1 33	131.94	1 33
III	93.97	0.49	210 39	1 14	116 42	0.65

In region I, bajra, like the whole taluka, is an unpopular crop enjoying only 0 55 and 1 19 per cent respectively at the two points of time However, it has shown an insignificant increase by 0 64 per cent at the second point of time. It was totally absent in region II at the first point of time, however, it made an inroad insignificantly by 1.33 per cent at the next point of time In region III also it had insignificant status with 0 49 per cent at the first point of time and only 1 14 per cent at the second, marking an increase of 0.65 per cent It may, therefore, be said that bajra has gained a little significance over a period of two decades in Karjan, where at the first point of it was quite negligible

In its village wise distribution pattern, it is found that 20 percent of the villages of region I, and 13 64 per cent of region III grew it at the first point of time while in region II it was out of the scene. But at the second point of time villages of all three regions with 31.43 per cent in region I, 35.71 per cent in region II, and 34 09 per cent in region III cultivated it in varying percentages of their G C A respectively Table below reveals the village wise position of bajra in the three regions

Table 4 8

Villagewise and Region wise Distribution of Bajra at Karjan 1970-71 and 1990-91

(in per cent)

Region	Year	Percentage Range Distribution						Total	
		0–1.5	1.5–3.0	3.0–4.5	4.5–6.0	6.0–7.5	7.5 & above	1970-	1990-
		Code number of villages							
I	1970-71	8 11 =2	2 4 5 =3	1 =1	-	-	-	7	-
	1990-91	15 =1	10 20, 23 25 31 32 =6	-	14 27 =2	-	-	-	11
II	1970-71	-	-	-	-	-	-	-	-
	1990-91	26,44 =2	43 =1	40 =1	-	41 =1	-	-	5
III	1970-71	79,92 =2	56 88 90 =3	-	-	93 =1	-	6	-
	1990-91	61,69 78,79 84 =5	53 51 55 57 65 66 90 =7	51 =1	76 =1	-	-	-	15
Total	1970-71	4	6	1	0	2	0	13	-
	1990-91	8	14	2	3	4	0	-	31

In 1970-71, region wise distribution of villages allotting the share of their G C A to this crop were only 2 in the range 0 1 50, 3 in 1 50 - 3 00 and one each in the subsequent ranges In 1990-91, one village in the range of 0 1 50 and 6 villages in the range of 1 50 3 00 per cent and two each were in the range of 4 50 6 00 and 6 00 - 7 50

In Region II none of the villages grew bajra at the first point of time, while in 1990-91, 2 villages were in the range of 0 - 1 50 and one each in the ranges of 1 50 - 3 00 and 3.00 - 4.50 per cent and 6 00 - 7.50 per cent

In region III, at the first point of time 2 villages were in the range of 0. - 1.50 per cent and 3 villages in the range of 1.50 - 3.00 per cent and in 6.00 - 7 50 per cent was only one village. At the second point of time there have been 5 and 7 villages in the ranges of 0 - 1,50 and 1.50 - 3.00 per cent respectively and were one each in the ranges of 3 00 - 4.50, 4 50 - 6 00 and 6.00 - 7.50 Thus even in the village wise distribution bajra could not gain any notable significance, mainly because of overwhelming domination of jowar as an important cereal crop of the whole taluka. (Fig 4.4)

RICE

In Padra, at the first point of time, rice seems to have been a significant crop. It enjoyed favourable conditions due to the presence of natural depressions and the better means of irrigational facilities In 1960-61, rice occupied 7 93 per cent of its GCA but at the next point of time it declined to only 1.55 per cent. Table 4.9 shows the regional position of rice at both the points of time.

Table 4.9

Showing the Position of Rice in Padra.

Regions	1960-61		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	1413.70	8.63	1308.89	6.39	-104.81	-2.24
II	707.74	9.58	889.32	12.02	181.58	2.24
III	1009 93	6 11	600 91	3 76	-409.02	-2 35

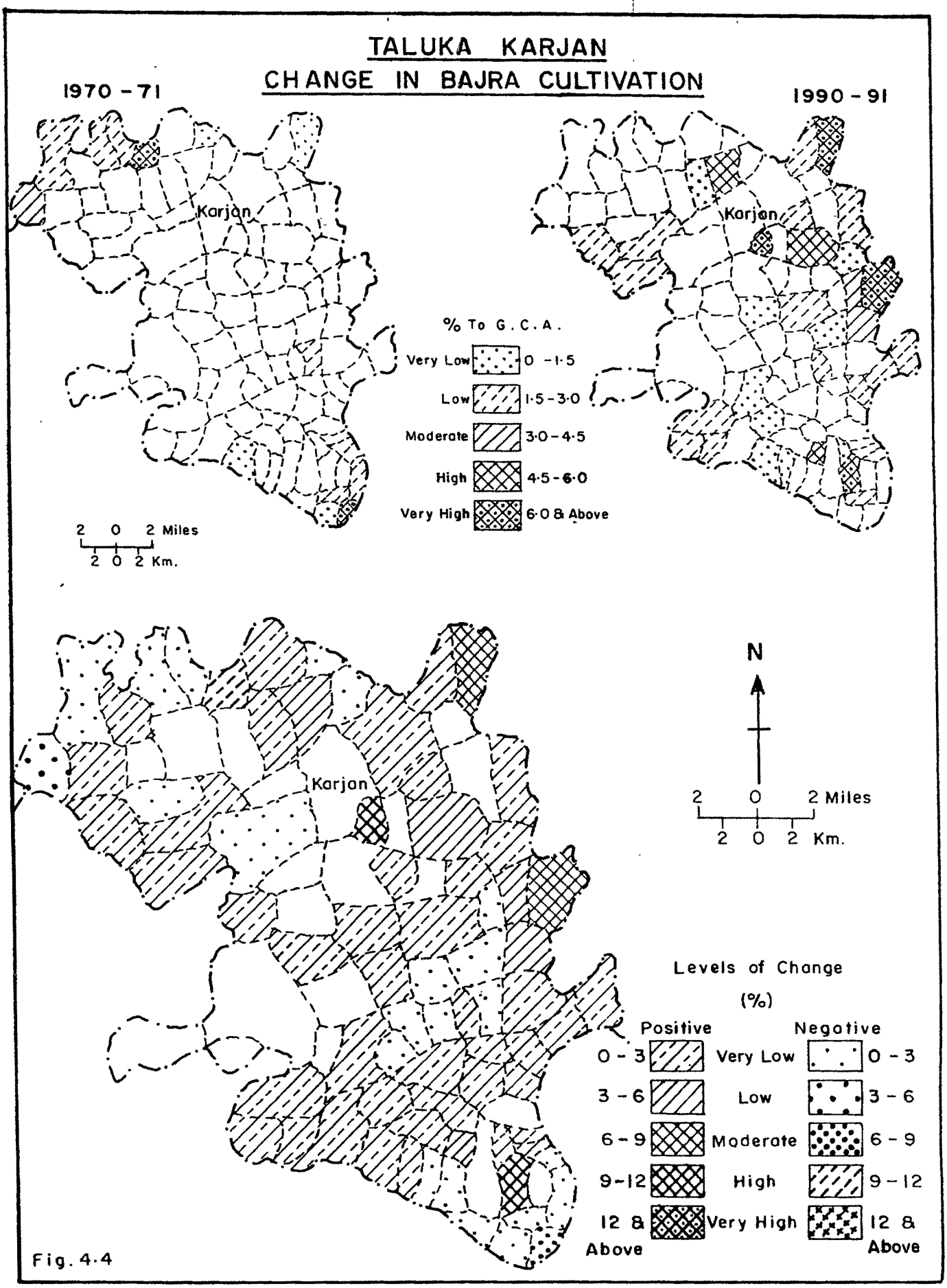

TALUKA KARJAN
CHANGE IN BAJRA CULTIVATION
1970 - 71
1990 - 91
Karjan
Karjan
% To G.C.A.
Very Low 0 - 1·5
Low 1·5 - 3·0
Moderate 3·0 - 4·5
High 4·5 - 6·0
Very High 6·0 & Above
2 0 2 Miles
2 0 2 Km.
Karjan
N
2 0 2 Miles
2 0 2 Km.
Levels of Change
(%)
Positive
Negative
0 - 3 Very Low 0 - 3
3 - 6 Low 3 - 6
6 - 9 Moderate 6 - 9
9 - 12 High 9 - 12
12 & Above Very High 12 & Above

Fig. 4.4

Rice was a popular crop at the first point of time in Region I, 35 of the 37 villages (94 49%) had it at both the points of time. In the range distribution of 0 – 5 and 5 – 10 per cent were 12 and 7 villages and in 10 – 15 per cent and 15 – 20 per cent were 12 and 4 villages respectively The same number of villages cultivated rice at the second point of time in the ranges between 0 – 5, 5 – 10 and 10 – 15 per cent which included 11, 14 and 5 villages respectively In the higher ranges of 15 – 20 and 20 percent and above were only 2 and 3 villages This shows that rice has gained significance as two villages have gone to the highest range as compared to the previous point of time.

In region II, rice was grown by all its 11 villages at both the points of time. In the regional share of GCA rice took 9.58 per cent as against 8 63 per cent of region I and 6.11 per cent of region III It has enjoyed greater popularity in this region than others at both the points of time. In 1990-91 , its share of GCA went up to 12 02 per cent where as its share decreased to 6 39 per cent and 3 76 per cent respectively in Regions I and III

In region III rice occupied 6 11 per cent of G C A but owing to the unfavourable circumstances and neck to neck competition with oilseeds etc it declined to about half of the previous share of the G C A retaining only 3.76 per cent Table below reveals the village wise position of rice in the three regions

P.T.O.

Table 4 10

Villagewise and Regionwise Distribution of Rice at Padra 1960-61 and 1990-91

(in per cent)

Region	Year	Percentage range distribution						
		0 - 5	5 – 10	10 – 15	15–20	20 & above	1960-61	1990-91
		Code Number of villages						
I	1960-61	2,5,6,9,13, 15,16,19,20 21,35,36 = 12	3,4,12,18, 24,25,37 =7	7,8,10, 17,23, 27,29, 30,31, 34,46, 47 =12	1,11, 26,28 =4	-	35	-
	1990-91	1,3,17,19, 23,27,28,29 37,46,47 = 11,	5,9,10,11, 16,18,20, 2224 26, 30,3135, 36 =14	2,6,15, 21,25 =5	3,13 14 =3	12,34 =2	-	35
II	1960-61	45,50 =2	38,39,40, 44,48 =5	32,62 =2	33,41 =2	-	11	-
	1990-91	41,50 =2	38,45,48 =3	44,62 =2	33,40 =2	32,39 =2	-	11
III	1960-61	49,55,71,72 80,82 =6	43,51,52, 5360,63, 66,67,68, 75,76,77, 78 =13	58,59, 61,65 =4	42,64 =2	-	25	-
	1990-91	42,51,53,54 55,59,75,77 =8	43,58,60, 63,65,76 =6	61,64, 66 =3	-	-	-	17
Total	1960-61	20	25	18	8	0	71	-
	1990-91	21	23	10	5	4	-	63

In the village wise scenario of region I at the first point of time, 12 villages each cultivated it in the ranges of 0 – 5 and 10 – 15 per cent In the range of 5 – 10 and 15 – 20 per cent were 7 and 4 villages respectively In 1990-91, 11,14 and 5 villages cultivated it in the ranges of 0 – 5,, 5 – 10 and 10 – 15 per cent In the range of 15

- 20 and 20 percent and above were 3 and 2 villages respectively

In region II, at the first point of time two villages each cultivated it in the range of 0 - 5, 5 - 10 and 15 - 20 per cent In the range of 5 - 10 were 5 villages It has again proved the supremacy over the other regions at the second point of time, when only 3 villages retained it in the range of 5 - 10 per cent and 2 villages each ranged from 0 - 5, 10 - 15, 15 - 20 and 20 per cent and above Two villages went up to the highest range in the region II at the second point of time .Thus inspite of a greater range of diversification at this point of time, rice could maintain itself enjoying a sizeable share of the GCA

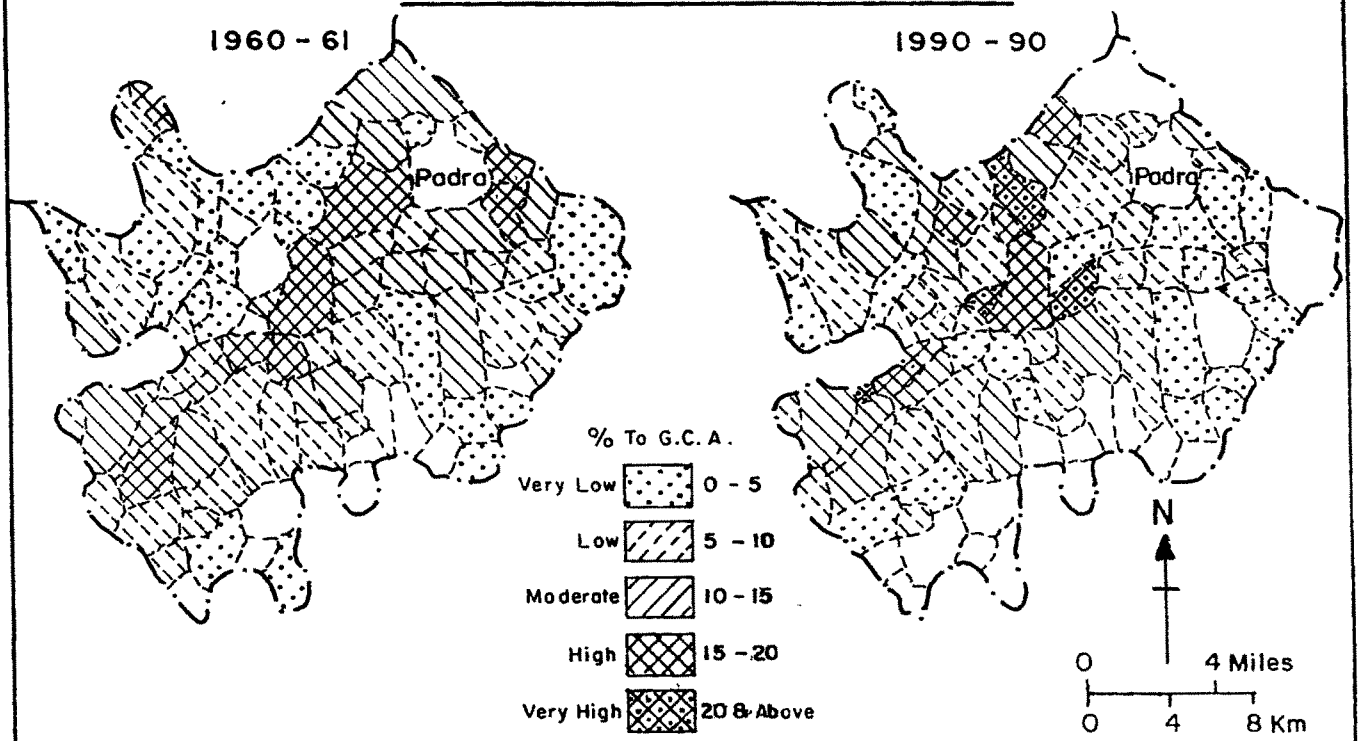
Its notable downfall is observed in region III where only 26 of the 34 villages cultivated it at the first point of time A larger number of villages i e 6 in the range of 0 - 5 per cent and 14 in the range of 5 - 10 per cent grew it at the first point of time In the higher range of 10 - 15 and 15 - 20 were 4 and 2 villages only Similar was the position of rice at the second point of time, where in the lower ranges of 0 - 5, 5 - 10 and 10 - 15 per cent were 8,7 and 3 villages only and none were reported in the higher ranges of 15 - 20 and 20 percent and above So rice has received a great set back in the competition of other newly entering crops of oil seeds and increased allotment of area to traditional cash crop like tobacco (Fig 4 5)

KARJAN

Karjan is a jowar (cereal) and cotton (cash crop) dominated area Thus, the importance of other cereals were dominated by these two crops Rice like wheat, bajra and others faced the unpopularity even though being cultivated at both the points of time

TALUKA PADRA

CHANGE IN RICE CULTIVATION



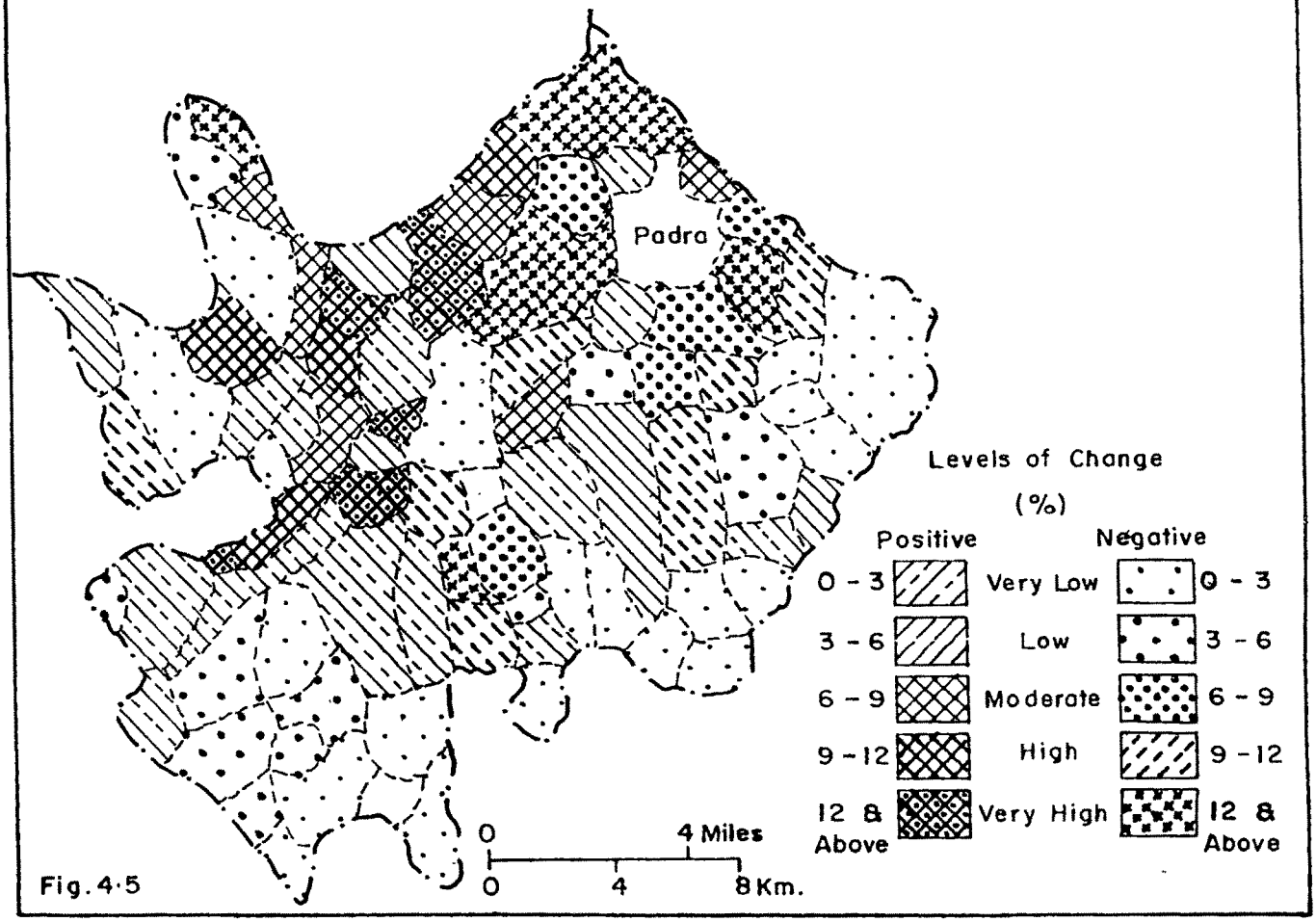


Fig. 4·5

In contrast to Padra, rice in Karjan was devoted a small percentage of area at both the points of time However, as compared to 1 64 per cent of 1970-71, it had a better position holding 3 85 per cent in 1990-91 At the first point of time 86 of the 93 villages (92 47%) cultivated it but at the second point of time its growing villages came down to 47 (50.54%) devoting a meagre area as given above

Looking at the region wise distribution of rice it is found that all three regions cultivated it at both the points of time in varying percentages Table below gives the region wise allotment of hectareage to rice at the two points of time under study

Table 4 11

Hectareage and Percentage G C.A under Rice in Karjan.

1970-71 & 1990-91.

Regions	1970-71		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	814.27	3 48	473.67	2.11	-340 60	-1 37
II	413.38	4.10	160.61	1.55	-252.77	-2 55
III	793.35	4.18	209.56	1 13	-583 79	-3 05

In region I, rice occupied 3 48 per cent of the G.C.A. at the first point of time and only 2.11 per cent at the second. It showed a decrease of 1.37 per cent of area under rice over the former year. Region II was relatively better than the region I with 4 10 per cent of G C A at the first point of time and only 1 55 per cent at the second point of time In region III, it occupied 4 18 per cent at the former year and only 1.13 per cent at the latter

period of time Interestingly a region wise orderly ascent is noted in the three regions at the first point of time and the same manner of descent is noted at the other point of time

The village wise pattern of distribution of rice confirms its taluka and regional pattern During the first point of time it was cultivated by 94,29 per cent of villages of region I, 85.71 per cent villages of region II and 93 18 per cent of villages of region III of Karjan Its general decrease is noteworthy at the other point of time where its cultivation was confined to 57 14 per cent villages of region I, 64 29 per cent of region II and 40 91 per cent of region III, which makes a substantial decrease not only in the devoted areas but also in the unit area (villages) cultivating it (Fig 4 6) The village-wise pattern of distribution and change is well revealed by the given table.

P.T.O

TALUKA KARJAN

CHANGE IN RICE CULTIVATION

1970 - 71

1990 - 91

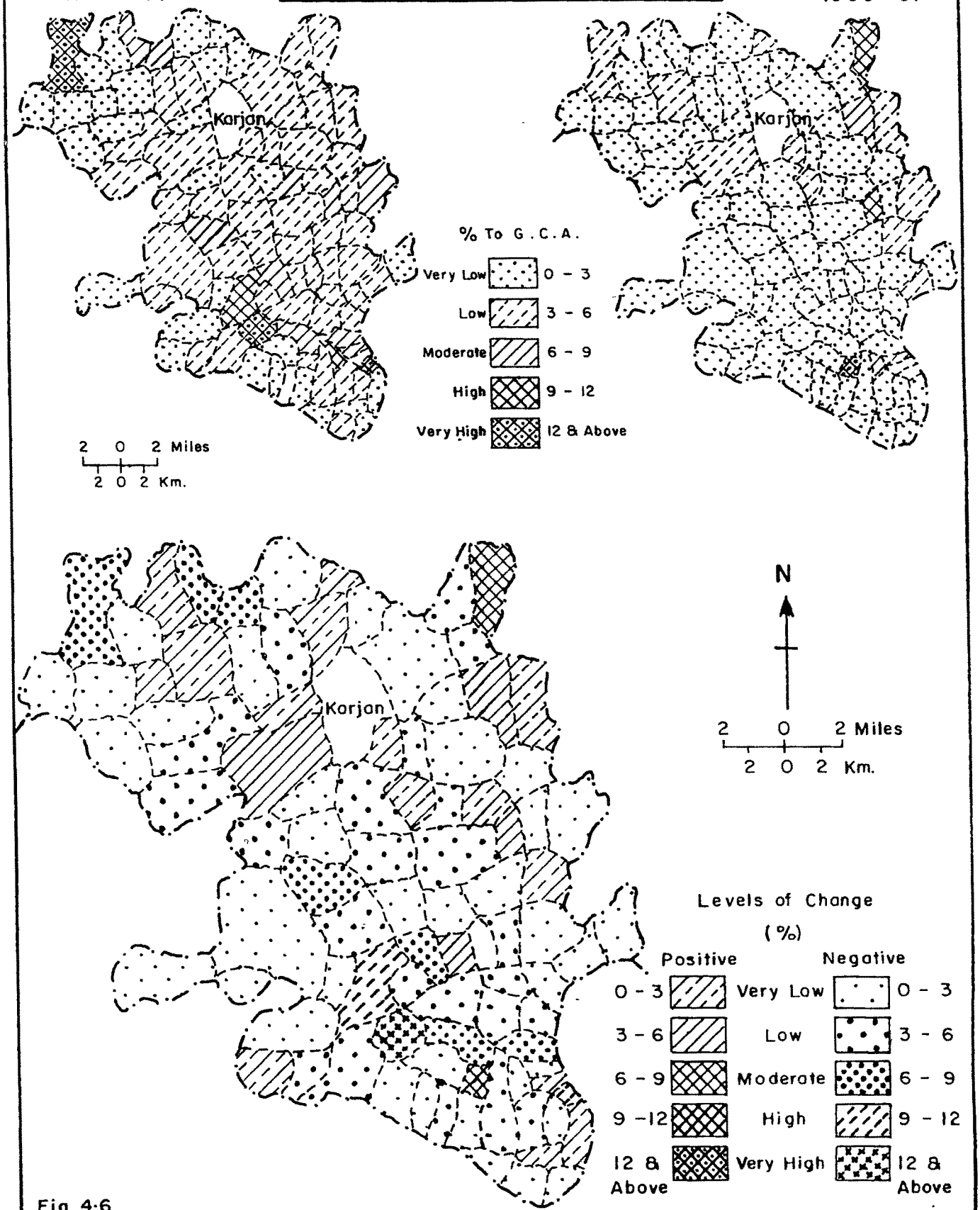


Fig. 4·6

Table 4 12

Village wise and Region wise Distribution of Rice in Karjan 1970-71 and 1990-91

(in percent)

Region	Year	Percentage range distribution						
		0 - 5	5 – 10	10 – 15	15–20	20 & above	1970-71	1990-91
		Code Number of villages						
I	1970-71	1,3,4,7,8,9, 14,17,18,19 ,20,21,22,3 7,37 (15)	10,11,12, 13,15,23, 24,25,27, 28,29,31, 32,33,36 (15)	5,6 (2)	-	2 (1)	33	-
	1990-91	3,4,10,12,1 3,14,18,22, 23,27,32 (11)	2,8,17,25, 29,30,37 (7)	27 (1)	11 (1)	-	-	20
II	1970-71	-	26,35,40, 43,44,47, 48,49 (8)	38,41,4 2,45 (4)	-	-	12	-
	1990-91	26,35,38,40 ,43,48,49 (7)	41 (1)	-	42 (1)	-	-	9
III	1970-71	53,62,64,65 ,66,77,78,7 9,81,88,90, 91,93 (13)	50,51,52, 54,55,56, 57,58,60, 67,68,71, 72,73,74, 76,80,82, 83,92 (20)	59,70,7 5,85 (4)	61,84 ,87 (3)	69 (1)	41	-
	1990-91	50,52,53,55 ,56,57,60,6 2,65,66,83, 87,90 (13)	51,54,85 (3)	84 (1)	-	76 (1)	-	18
Total	1970-71	28	43	10	3	2	86	-
	1990-91	31	11	2	2	1	-	47

WHEAT

Wheat is a rabi season crop cultivated after the end of the rainy season. In such areas as that of Padra and Karjan (under study) recently the facilities of irrigation have supported its cultivation It is the reason why its cultivation in terms of the area devoted to it has increased as compared to the former year During the 1960 - 61 it was mostly a rainfed crop, if the rains have been good throughout the season, the moisture retained by the soil particularly the black cotton soil was enough for its successful cropping Secondly, if the retreating monsoon has been benevolent its cultivation is well assured But overall, it was a crop of domestic use of the farmers because the entire agricultural environment was dominated by cotton at Karjan, tobacco and cotton at Padra These are the possible reasons owing to which the wheat cultivation was just on the bare minimum at the first point of time, but it went up significantly to 4.43 per cent at the next point of time In karjan its position was not very hopeful occupying 2.94 per cent in 1970-71 and a marginal increase of 0.89 per cent giving a total of 3 83 per cent at the next point of time. Table below reveals the position of wheat at two points of time at Padra and Karjan

Table 4 13

Table showing Area under Wheat in Padra and Karjan

Year	PADRA		KARJAN	
	Area(ha.)	%	Area(ha.)	%
1960-61	441.50	1.12	-	-
1970-71	-	-	1544.31	2.94
1990-91	1942 70	4.43	1967.19	3.83

PADRA

In case of the regional distribution of wheat in Padra it is found that though insignificant in terms of area allotment it has been cultivated by all villages in differing percentages During 1960-61, region I and II devoted less that 1 per cent each and region III more than 1 50 per cent, but the position in 1990-91 improved in favour of wheat region I cultivated it over around 4 5 per cent, region II, on more than 6 5 per cent while region III came below 3 percent region II gave greater significance to wheat followed by I and III Table below gives the actual percentage of hectreage under wheat at the two points of time

Table 4 14

Showing the Position of Wheat in Padra 1960-61 & 1990-91

Regions	1960-61		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	109.72	0.67	914.15	4.46	804.43	3.79
II	70.45	0.95	492.00	6.65	421.55	5.70
III	261.33	1.59	536.55	3.36	275.22	1.77

A notable increase is found in the wheat cultivation in all regions of Padra at the second point of time as compared to the base year It may be owing to the dethroning of cotton. Table below gives village wise position of wheat at both the points of time

Table 4 15

Village wise and Region Wise Distribution of Wheat in Padra 1960-61 and 1990-91

(in per cent)

Region	Year	Percentage range distribution						
		0 – 5	5 – 10	10– 15	15-20	20 & above	1960-61	1990-91
		Code Number of Villages						
I	1960-61	1,2,15,17,25, 2628,34,47 =9	-	46 =1	-	22 =1	11	-
	1990-91	2,5,6,7,9,10,1 1,21,25,27,30 ,35,46,47 =14	12,16,17, 18,19,23, 26,28 , =8	14,24, 31 =3	20 =1	34 =1	-	27
II	1960-61	45 =1	-	-	-	-	1	-
	1990-91	38,39.40,50 =4	44,48 =2	-	33 =1	-	-	7
III	1960-61	52,54.57,58.6 0,66,67,68,69 ,71,72,73,75, 75,76,77,79,8 0,82 =19	78 =1	-	-	-	20	-
	1990-91	42,49,53,56,5 7,72,78,79 =8	59,71 =2	64,80 =2	-	70 =1	-	13
Total	1960-61	29	1	1	0	1	32	-
	1990-91	26	12	5	2	2	-	47

The village wise distribution of wheat shows a different picture In the base year 29 73 per cent villages of region I, 9 09 per cent villages of region II and 58 82 per cent villages of region III cultivated wheat in varying percentages of their GCA At the other point of time its distribution hopefully went up to 72 97 per cent of villages in region I, 63.64 per cent villages in region II but decreased from 58 82 per cent to 38 24 per cent of villages in region III. Thus the highest of the base year

was the lowest of the other year But, in all, the significance of wheat has considerably increased by the second point of time

In case of the range distribution of the percentage area alloted to wheat, it is found that only 11 of the 37 villages cultivated it at the first point of time in which 9 villages were at the lowest range of 0 – 5, 1 each were in 10 – 15 and 20 and above. At the second point of time 27 villages cultivated it; of them 14 were in the lowest range, 8 were in 5 – 10 per cent, 3 in 10 – 15 per cent and 1 each in 15 – 20 and 20 and above percentages

Region II. This region at the base year did not have any village in any other range except one in the lowest range of distribution. But at the next point of time it had 4 in the lowest range, 2 villages in the range next to it and one only in that of 15 – 20 per cent but none in the remaining ones

Region III, at the base year had 19 villages in the lowest range and only one in the next higher and none in the others Where as in 1990-91 there were 8 villages in the lowest range, 2 villages each in 5 – 10 and 10 – 15 per cent and only one in the highest range of 20 and above (Fig. 4.7)

KARJAN

In contrast to Padra, Karjan shows a better position of wheat at the first point of time but lesser than that at the second. In the total GCA of the taluka, at the two point of time it had a share of 2.94 per cent and 3 83 per cent respectively

TALUKA PADRA

CHANGE IN WHEAT CULTIVATION

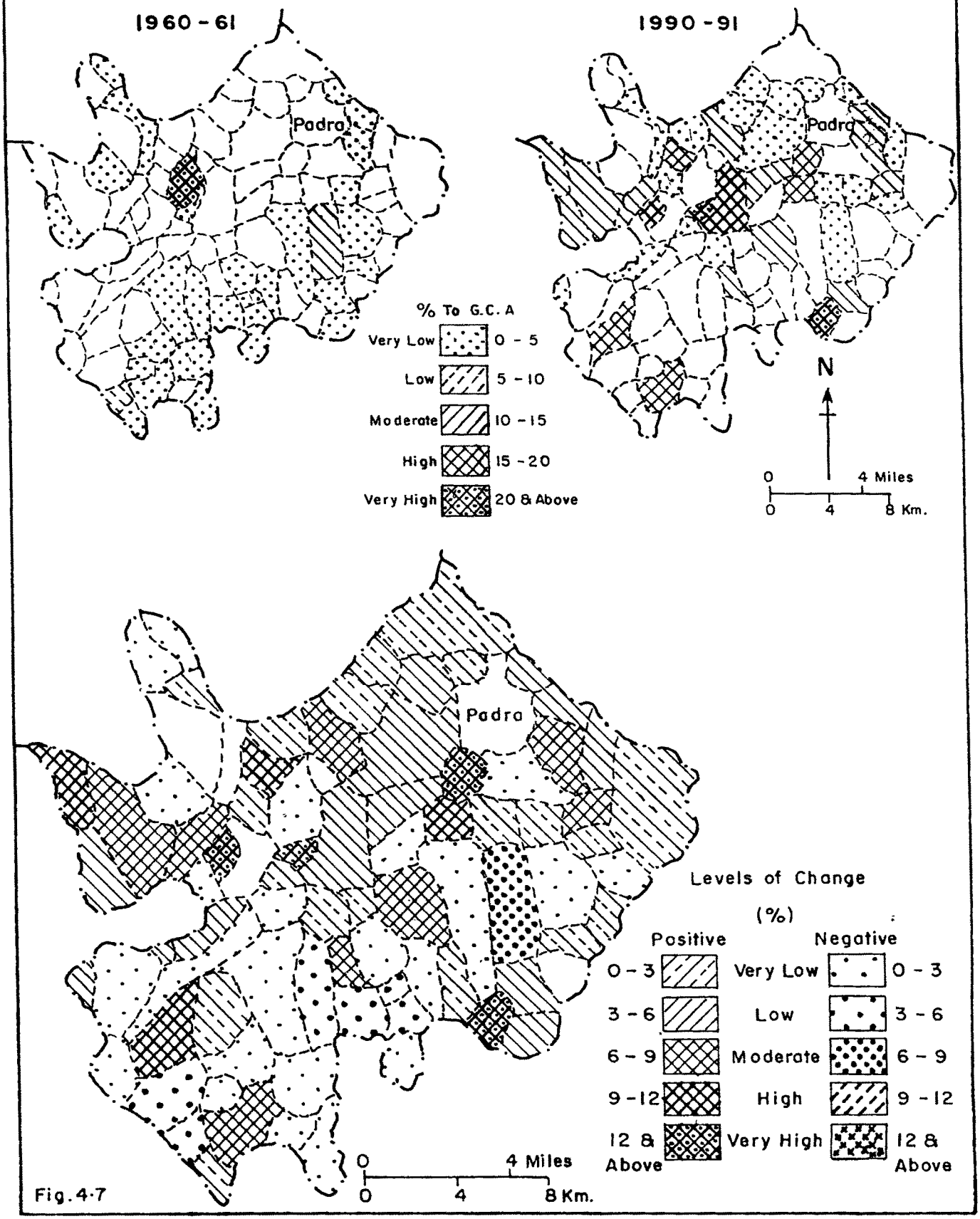


Fig. 4·7

It had been cultivated in all the three soil based regions of Karjan, in differing percentages Table below give the regional position of this crop at both the points of time

Table 4 16

Showing the Position of Wheat in Karjan 1970-71 & 1990-91

Regions	1970-71		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	698.90	2.99	1168.56	5.20	469.66	2.21
II	319.94	3.17	415.63	4.00	95.69	0.83
III	525.47	2.77	365.00	1.98	-160.47	-0.79

At the first point of time owing to the domination of cotton in the entire taluka its regions had also given higher weightage to cotton than any other crop Region I represented the same picture where at the first point of time wheat occupied only 2 99 per cent of the GCA but at the next point of time it went up to 5 20 adding 2 21 per cent more to the former hectareage. Region II at the base year, had the largest percentage of GCA of all the regions devoted to wheat i.e 3.71 per cent followed by the region I and III At the next point of time wheat improved by only 0.83 per cent holding an area of 4 00 per cent of the total GCA Region III lagged behind in wheat cultivation at the first point of time devoting the lowest percentage of GCA of all the regions and also maintained by still decreasing total percentage of area by 0 79 per cent i e holding only 1 98 per cent at the next point of time

Thus, wheat did not improve in region III as compared to the other two, it is more because of sugarcane a new comer in this area than any other factor Table 4.17 reveals the village wise position of wheat at both the points of time.

Table 4.17

Village wise and Region wise Distribution of Wheat at Karjan 1970-71 & 1990-91

(in per cent)

Region	Year	Percentage Range Distribution					Total	
		0-3	3-6	6-9	9-12	12 & above	1970-71	1990-91
		Code Number of Villages						
I	1970-71	3,4,14,16, 18,20,22, 23,24,29, 37 =11	5,6,10,11, 12,13,15, 17,19,21, 254,27,28 31,32,33 =16	1 =1	-	2 =1	29	-
	1990-91	7,8,9,15, 19,20,23, 28,30,31, 32,33,37 =13	1,2,6,14, 25,36, =6	5,27 =2	29 =1	10,11, 12,13, 24 =5	-	27
II	1970-71	39,40,41, 43,46,49 =6	35,38,42, 44 47,48 =6	45,26 =2	-	-	14	-
	1990-91	38,43 44, 48,49 =5	35,40,41, 45,46 =5	47 =1	39,42 =2	-	-	13
III	1970-71	50,54,55, 58,62,63, 64,65,72, 73,74,75, 77,78,80, 82,85,88, 90,91,92 =21	51,52,60, 61,66,68, 71,79,83 =9	59,84, 87 =3	70 =1	69 =1	35	-
	1990-91	52,54,55, 58,59,61, 63,64,65, 69,71,78, 80,81,87, 90 =16	50,53,56, 57,60,66, 67,83,85, 86 =10	62,82 =2	-	-	-	28
Total	1970-71	38	31	6	1	2	78	-
	1990-91	34	21	5	3	5	-	68

Taking the village wise distribution of wheat in view it appear that 85 86 per cent villages of region I, 100 per cent villages of region II and 79 55 per cent villages of region III gave varying shares of their GCA to wheat at the first point of time But the other point of time shows the general decrease in the percentage of wheat cultivating villages in each region. In region I it decended from 85 86 to 77 14 per cent, in region II 100 per cent dipped to 92 86 per cent and in region III 79.55 per cent to 63 64 per cent.

In respect of the range distributions, wheat in region I, at the first point of time, was mostly confined to first two lower ranges of 0 - 3 and 3 - 6 per cent holding 11 and 16 villages respectively In the higher ranges of 6 - 9 and 12 and above were one each In 1990-91, in the lower range of 0 - 3 and 3 - 6 have been 13 and 6 villages respectively In the ranges of 6 - 9, 9 - 12 and 12 percent and above were 2,1 and 5 villages respectively Highest range has relatively higher significance at this point of time in this region than the previous ones

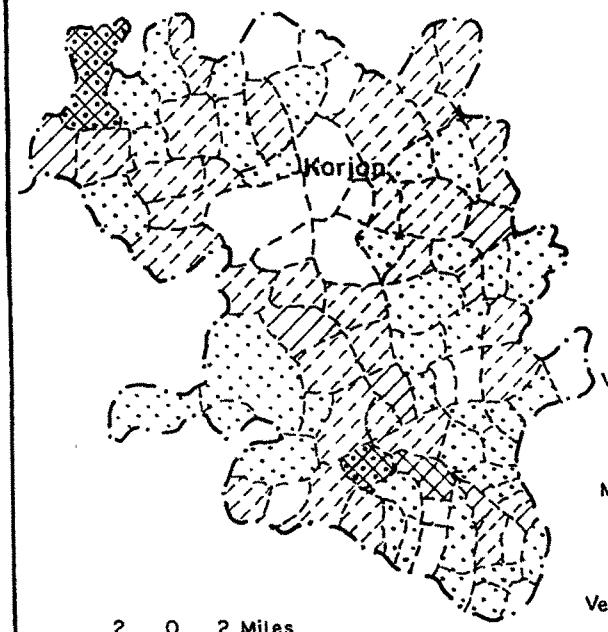
In region II, at the base year, the first two ranges had six each, and in the third range there had been only 2 villages and other ranges were blank. At the other point of time, the first two lower range had 5 each, 01 in 6 - 9 per cent and 2 in 9 - 12 per cent

In the third region, 21 villages cultivated it in the lowest range of 0 - 3 per cent In the next ranges of 3 - 6 and 6 - 9 had been 9 and 3 villages respectively and the two higher ranges had one village each. Thus the position was not very hopeful in 1990-91 also, as in the lowest range of 0 - 3 were 16 villages, in the next higher 10 villages and in the range of 6 - 9 per cent were 2 villages only Rest others were vacant (Fig 4 8)

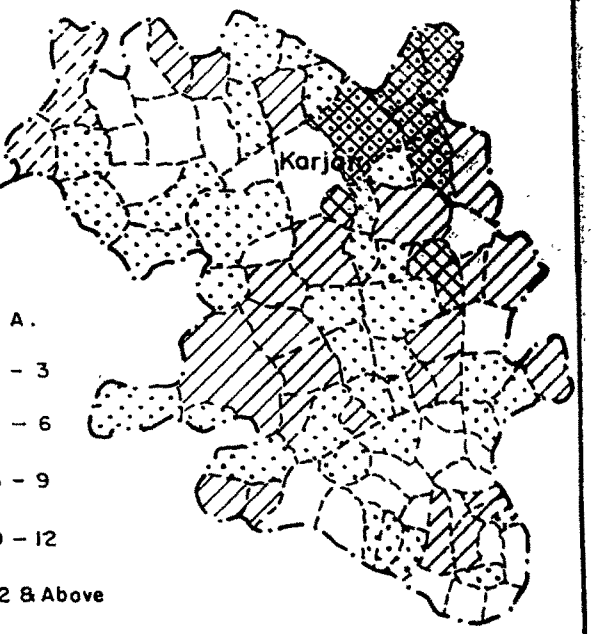
TALUKA KARJAN

CHANGE IN WHEAT CULTIVATION

1970 - 71



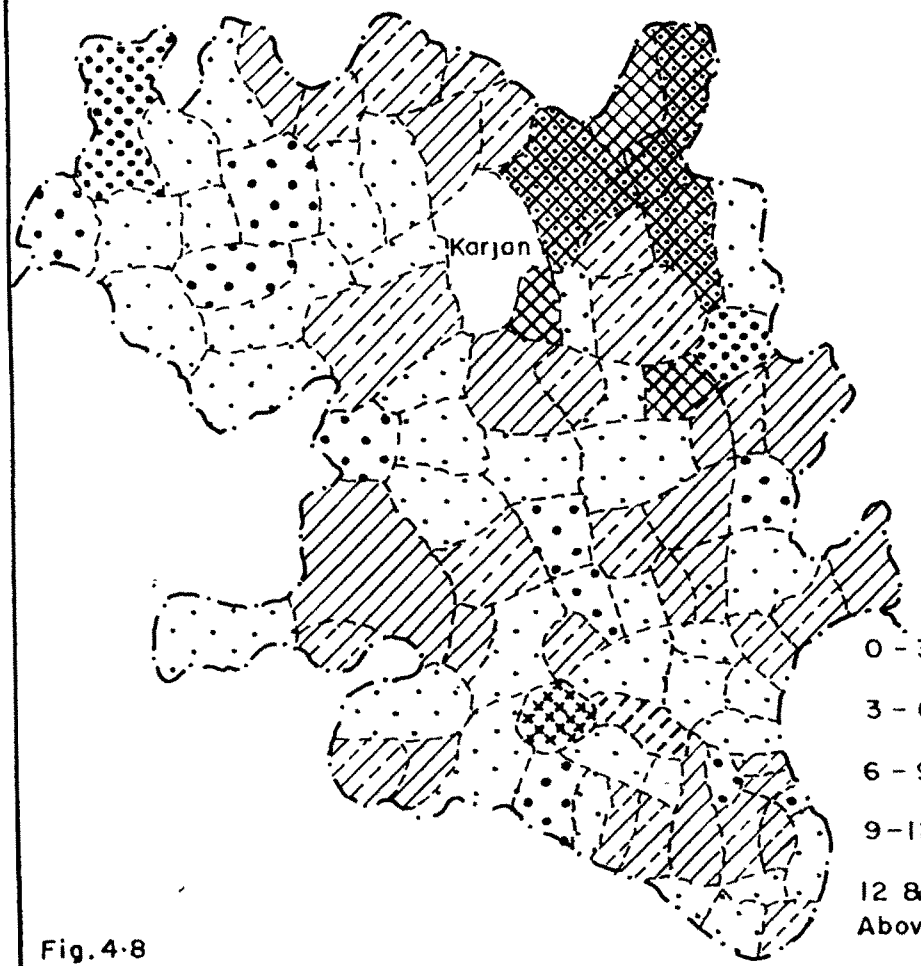
1990 - 91



% To G. C. A.

Very Low	0 - 3
Low	3 - 6
Moderate	6 - 9
High	9 - 12
Very High	12 & Above

2 0 2 Miles
2 0 2 Km.



N

2 0 2 Miles
2 0 2 Km.

Levels of Change
(%)

Positive		Negative
0 - 3	Very Low	0 - 3
3 - 6	Low	3 - 6
6 - 9	Moderate	6 - 9
9 - 12	High	9 - 12
12 & Above	Very High	12 & Above

Fig. 4·8

KODRA

A millet cultivated widely in India, it was a staple food of poor and agricultural labourers It is a kharif crop thriving only under natural rains and the biotic manures The application of chemical fertilizers and irrigation are disastrously unsuitable for this millet Secondly its demand as the food crop also vanished away owing to the raised up standard of living of the agricultural labourers Thus Kodra lost ground because of these two important reasons

In 1960-61, Padra devoted a sizeable area of 6 70 per cent and in regional distribution it occupied 11 76 per cent, 7 00 per cent and 1 29 per cent respectively in regions I, II and III But it totally went off the scene from all regions in 1990-91

Karjan had this crop neither at the first nor at the second points of time.

TUER

The famous pulse for Indian dal is the tuer, a tropical kharif season crop In India it is invariably, more or less, cultivated in all its agricultural regions Gujarat is also a significant producer of tuer and it constitutes a significant item of Gujarati dietatic system

Tuer is cultivated in all the talukas of Gujarat but recently its importance has tremendously increased making a popular crop of each taluka but specifically the talukas constituting the 'Kanam' region i.e. the region of the black cotton soil. The study areas Padra and Karjan have also been found placing higher significance to this crop in recent years because it has served as an economic substitute to the vanishing cotton crop, supported by its rising prices specially in the urban markets

PADRA

In Padra where the cotton reigned for a long time and tobacco and tuer were almost at equal footing in the southern segment in the northern segment The present environment has reduced the significance of cotton and supported these two crops In 1960-61, where tuer had occupied only 6.90 per cent of the GCA at Padra, in 1990-91, it went up to 13 80 per cent This is now serving not only as a product for domestic use, but its commercial importance has significantly increased in the sprawling urban areas Padra had been a centre of tuer dal distribution since the pre-bifurcation days and now due to the decrease in the cotton cultivation, it is emerging as an important grower of tuer

Tuer is cultivated in all the three soil based regions, of course, in varying percentages Table 4 16 explains its regional position at both the points of time

Table 4 18

Showing Regional Position of Tuer in Padra

Regions	1970-71		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	1584.07	10.07	1724.42	8.42	140.35	1.65
II	499.03	6.76	1814.43	24.52	1315.50	17.76
III	654.49	3.99	5539.19	34.70	4884.70	30.71

According to the distribution pattern of crops in region I of Padra, at the first point of time tuer occupied 10 07 percent of GCA. In 1990-91, it occupied 8 42 per cent of GCA showing a decrease of 1 65 percent However, the hectreage under tuer has increased by 140 35, but because of the increased GCA in this year the

percentage has decreased in relation to the previous point of time This decrease is owing to the disproportionate increase in the GCA which is 130 16 per cent greater than the GCA of the base year

Position of tuer in region II is found relatively better than the region I Where in 1960-61, only 6 76 percent area was devoted to it In 1990-91 it has sprung to 17.76 per cent showing a substantial increase in percentage area devoted to it

Region III shows a still better position of tuer where it was occupying the lowest percentage of all the regions (3 99%) went upto 34.70 per cent of the GCA at the second point of time

The notable phenomenon is that tuer has been a significant crop of Padra at both the points of time since Padra town was also a famous dealer in fine quality of tuer dal demanded by a larger section of urban society Its hectreage during the base year was low owing to greater area coverage by cotton Once cotton met its downfall tuer and tobacco remained the first preferred crops of the cropping pattern

From the village wise distribution pattern and change it appears that tuer had its place in the selected crops cultivated by the villages of each region At the first point of time all villages of region I (100%), 90 91 per cent villages of region II and 88 24 per cent villages of region III cultivated this crop This descending order of the first point of time is found to be changed as in region I. 91.89 per cent villages instead of 100 per cent of base year cultivated it, while the region II and III raised their respective percentages to 100 each Table 4 19 explains this change

Table 4 19

Village wise and Region wise Distribution of Tuer in Padra 1960-61 & 1990-91

(in per cent)

Region	Year	Percentage Range Distribution						
		0 – 15	15 – 30	30- 45	45–60	60 & above	1960-61	1990-91
		Code Number of Villages						
I	1960-61	1,2,3,4,6,7,8,9,10,11,13,14,15,16,17,18,20,21,22,23,24,26,27,28,29,30,31,34,35,36,37,46,47 =33	5,12,19,25 =4	-	-	-	37	-
	1990-91	1,2,3,5,6,7,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,28,29,30,34,35,47 =30	27,36 =2	37 =1	-	46 =1	-	34
II	1960-61	33,38,39,40,41,44,45,48,62 =9	32 =1	-	-	-	10	-
	1990-91	32 33,39,41,44 =5	38,40,45,48,62 =5	-	-	-	-	10
III	1960-61	42,43,49,51,53,54,55,58,59,60,61,63,64,65,66,67,68,70,71,72,73,76,75,76,77,78,79,80,81 =29	-	-	-	-	29	-
	1990-91	43,70 =2	42,49,55,59,60,61,63,64,75,78,80 =11	58,65,66,68,69,73,76,79,81 =9	53,54,67,71,74,77,82 =7	51,52,56,57,72 =5	-	34
Total	1960-61	71	5	0	0	0	76	-
	1990-91	37	18	10	7	6	-	78

The significance of tuer can well be understood from the given table that at the first point of time its maximum cultivation in all the regions was from very low to low

ranges of distribution in which in the range of 0 - 15 were 33 and in the range of 15 - 30 were only 4 villages in region I Rest all the ranges were empty At the second point of time the range increased from very low and low to very high, in which 30 villages retained the very low range but 2 villages went to low and 1 each went up to moderate and very high. Thus, the number of villages decreased by 3but the level of its cultivation increased in the first region at the second point of time

Second region also follows the same pattern At the first point of time only 10 villages cultivated tuer, 9 in the very low range and 1 in the low range At the second point of time all the 11 villages cultivated it 5 each in very low and low ranges and 1 in the very high range

Tuer seems to have made its very conspicuous place in region III where at the first point of time 29 of the 34 villages cultivated it but all in very low range While at the second point of time only 2 villages remained in that range, 11 went to next range (15-30%), 9 went up to moderate, 7 to high and 5 to very high ranges of percentage hectrage devoted to it.

Thus, in all three regions, region III has given greater significance to tuer because of the greatest percentage decrease in cotton hectarage As such, cotton, in varying percentages, has decreased in all regions and its substitute tuer is found to have increased proportionately in all of them (Fig 4 9)

KARJAN

According to the general trend of lower significance of tuer in the cropping pattern of the first point of time, it was at a very low ebb in Karjan also, as this period was the period of supremacy of cotton By the next point of time cotton slided away giving higher place to tuer as it

TALUKA PADRA

CHANGE IN TUER CULTIVATION

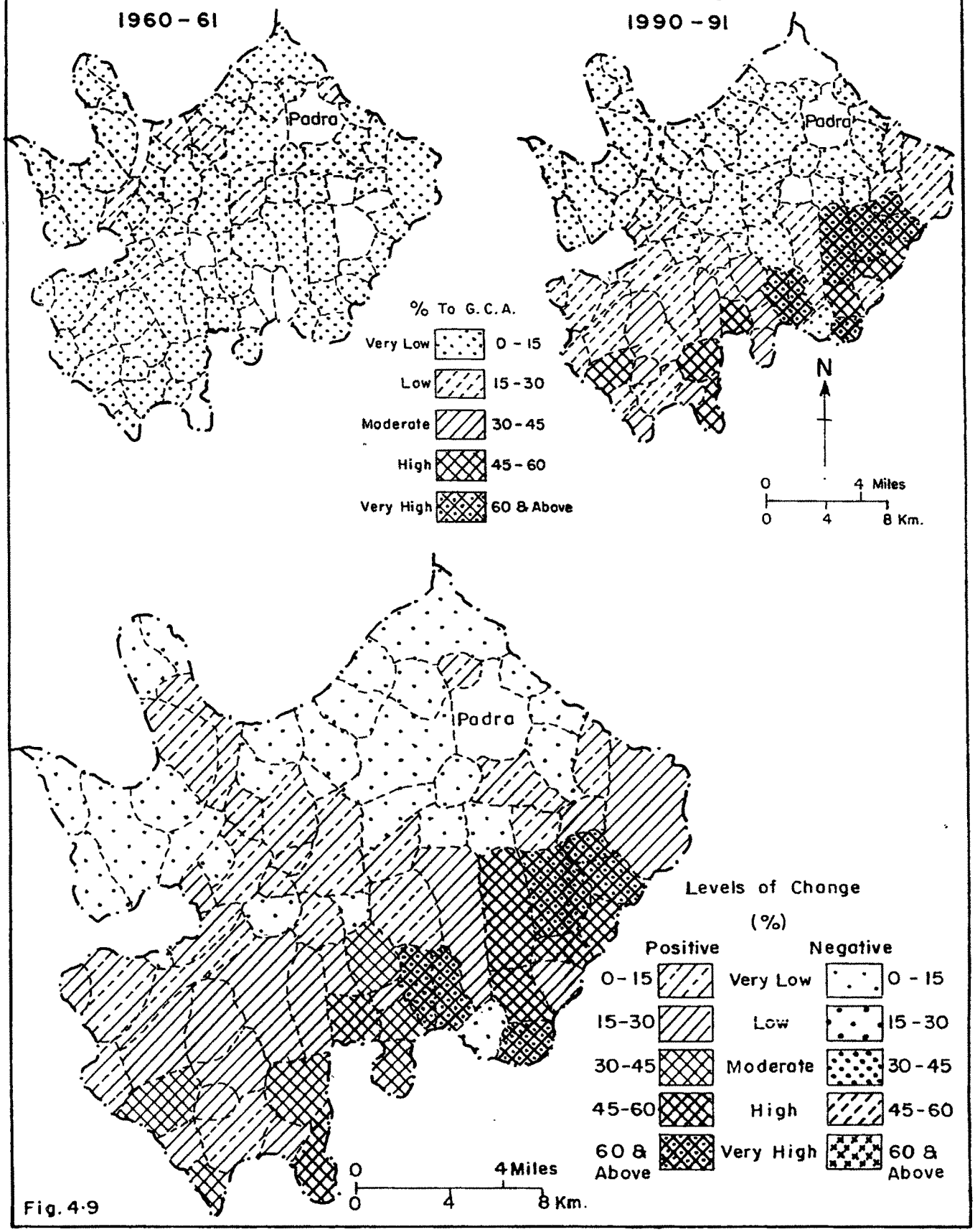


Fig. 4·9

happened all over Gujarat, but particularly in the cropping pattern of Kanam region (cotton belt of main land Gujarat)

In 1970-71, tuer in Karjan was so value less that only 1 51 per cent of the share of GCA of the whole taluka was alloted to it. In 1990-91, a significant increase is discerned in its cultivation that 48 87 per cent of the total GCA of the taluka was occupied by it In other words it may be said that at the second point of time 50 per cent of the GCA was under tuer alone and rest 50 per cent was shared by several other crops It shows that after the downfall of cotton the only alternative remained with the farmers was to shift the direction of cultivation, with the objectives of, substantive economic gains, towards tuer Its regional position can be viewed from table 4 20 which depicts variable percentage areas devoted to it at both the points of time

Table 4.20

Showing Regional Position of Tuer in Karjan

Regions	1970-71		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	314.76	1.35	11113.96	49.42	10799.20	48 07
II	167.04	1.66	5248.22	52.30	5081.18	50.64
III	309.34	1.63	9241.62	50.03	8932.28	48.40

In region I, its former position was confined to only 1 35 per cent of the G.C.A But it substantially went up by 49 times to occupy 49.42 per cent marking an increase of 48 07 per cent over the former year at the second point of time

Similar was the case of region II, where it occupied a meagre area of 1 66 per cent at the base year which went up to around 50 times marking an addition of 50 64 per cent at the second point of time

Region III devoted only 1 63 per cent at the first point of time and increased to more than half of its total GCA (50 03%) adding 48 40 per cent more to its share at the second point of time It shows that it has been given very high significance that it occupied more or less 50 per cent of the total GCA of all the 3 regions over the second point of time It may, therefore, be hypothesized that greater the descent of cotton the greater the ascent of tuer

A view over the village wise pattern of distribution of tuer during the base year reveals that in none of the three regions it was cultivated by 100 per cent villages as only 57 14% villages of Region I, 78 57 per cent villages of region II, and 72 73 per cent villages of region III gave place to this crop in their GCA. But scenario is found to have totally changed at the second point of time where 100 per cent villages of all the regions cultivated it on a substantial percentage of their GCA However, region II and III had above 70 per cent villages cultivating this crop even during the first point of time though the principal crop of that time was cotton prevailing over the greatest percentage of the GCA The decline in the largest occupied hectarage of cotton made tuer to take over a major share of the G.C.A. and became the principal crop of the taluka Table 4.19 gives the comparative picture of the village wise distribution of tuer at both the points of time

Table No 4 21

Village wise Distribution of Tuer in Each Region, Karjan 1970-71 & 1990-91

(in per cent)

Region	Year	Percentage Range Distribution						Total	
		0 - 15	15-30	30-45	45-60	60-75	75 & above	1970-71	1990-91
		Code Number of Villages							
I	1970-71	1,2,3,4,57,8,9, 10,12,14,15,16, 18,23,24,25,27, 32,33 =20	-	-	-	-	-	20	-
	1990-91	11 =1	17,24,27 .28,29,3 7 =6	9,12, 13,25, 31 =5	1,5,8, 10,14, 15,16, 21,23, 30,32, 33,34. 36 =14	2,3.4, 7,18,1 9,20 =7	6 22 =2	-	35
II	1970-71	26,35,40,41,42, 43,44,45,47,48, 49 =11	-	-	-	-	-	11	-
	1990-91	-	38,89 =2	26,35, 41,42, 44 =5	40,43, 45,46, 48 =5	-	47,49 =2	-	14
III	1970-71	50.51.52,54,55, 56,57,58,59,60, 61.64,65,68,69, 70,71,72,73,74, 75,76,78,79,80, 81,82,83.84.86, 87,88 =32	-	-		-	-	32	-
	1990-91	88,91 =2	53,55,60 ,83,89,9 0,93 =7	54,59, 65,74, 76,86, 87,92 =8		57,58, 62,70, 73,75, 78,79, 80,81, 84 =11	63,647 2 =3	-	44
Total	1970-71	63	0	0	0	0	0	63	-
	1990-91	3	15	18	32	18	7	-	93

During 1970-71, 20 of the 35 villages of the first region cultivated tuer only in the lowest range of 0-15 per cent whereas in 1990-91 all the 35 villages cultivated it in the varying ranges from 0 -15 to 75 per cent and above of them 14 villages cultivated it in the moderate range of 45 - 60 while in high and very high range were 7 and 2 villages respectively.

In the second region out of 14 ,11 villages cultivated only in the very low range of 0 – 15 per cent at the first point of time. At the second point of time there were 2 villages in the low range, 5 in the sub moderate, same number in the moderate and 2 villages in the very high range. Very low and high ranges remained vacant Thus, all the 14 villages gave significant place to this crop at the second point of time.

In the third region only 32 of the 44 villages cultivated it, but all in the same very low range. At the next point of time its importance increased from very low to very high range of distribution. Of them 2 villages were placed in the very low, 7 in low, 8 in sub moderate, 13 in moderate, 11 in high and 3 in very high range of percentage of the GCA.

This pattern of distribution itself is the indicator of the rising significance of tuer in all those villages formerly sticking to the cultivation of cotton on a larger share of their GCA. (Fig. 4.10).

OTHER PULSES :

Other pulses include mug, urad and gram. The first two are of kharif season crop and the last is of the rabi season Since they occupied very insignificant share of

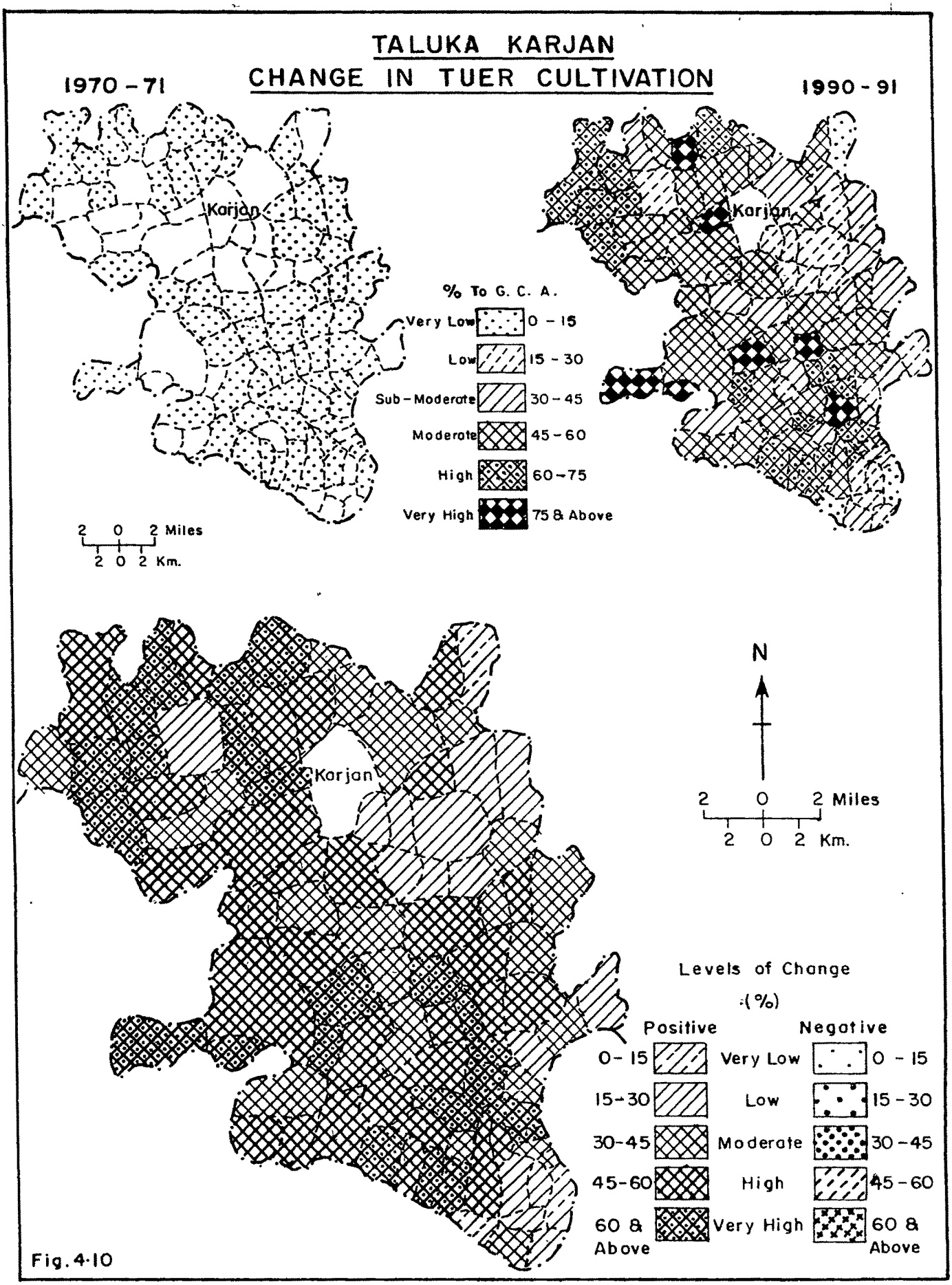

TALUKA KARJAN
CHANGE IN TUER CULTIVATION
1970 - 71
1990 - 91
Karjan
Karjan
% To G. C. A.
Very Low 0 - 15
Low 15 - 30
Sub - Moderate 30 - 45
Moderate 45 - 60
High 60 - 75
Very High 75 & Above
2 0 2 Miles
2 0 2 Km.
Karjan
N
2 0 2 Miles
2 0 2 Km.
Levels of Change
(%)
Positive
Negative
0 - 15 Very Low 0 - 15
15 - 30 Low 15 - 30
30 - 45 Moderate 30 - 45
45 - 60 High 45 - 60
60 & Above Very High 60 & Above

Fig. 4-10

GCA they all are clubbed under broad head of 'other pulses'.

These pulses do not have much commercial value in these talukas and therefore, mostly grown for domestic consumption At the first point of time only 2 55 per cent of total GCA of taluka Padra was devoted to other pulses which further declined to 1.94 per cent at the next point of time Same was the condition at Karjan where their share of the total taluka's GCA was 1.21 per cent which dropped to, too insignificant share of 0.50 per cent at the second point of time.

This indicates that the cultivation in these two talukas is largely of value based crops having greater demand around and assuring better out turn and profit

VEGETABLES

Vegetables are grown in both kharif and rabi seasons A wide range of varieties of vegetables including the leafy vegetables, climbers, roots and many others including the chilles and condiments are cultivated. Padra has enjoyed once the position of an entrepot centre for vegetables of its whole taluka and adjoining areas. Its importance in Baroda District in respect of vegetables had been very high as the vegetables were transported to big centers of India from Padra. Later with the development of several roads and a big market at Baroda its former position is lost, but as the cultivator of vegetables, this taluka still holds high position in Baroda District. It was a significant cultivator at the first point of time with greater share of its G.C.A. under vegetables Vegetable cultivation has always been demand based and its share of G C.A. has varied according to low or high demand and also the availability of reliable means of transportation.

Karjan has also given due weightage to cultivation of vegetables at both the points of time, owing to its increasing consumption with in the taluka and also in its surroundings.

PADRA :

Vegetables occupied 3 08 per cent of the G.C A. of Padra at the first point of time (1960-61). But it went up to more than 2 times by the second point of time During the first point of time the hectrage under vegetables in Padra had a ratio of 1·32 but with the substantial increase of hectrage under vegetables at the second point of time the ratio decreased to only 1 10 (Where 1 is the unit under vegetables, 32 is the unit of G C.A and where 1 is the unit under vegetables, 10 is the unit f the G C A at the two points of time respectively).

Vegetables being the daily marketable crop were cultivated in all the three regions over both the points of time, however, their percentage share in the G.C A. had been variable probably because of the varying needs of the consumers. Table 4.22 below reveals its position at both the points of time.

Table : 4 22

Showing Regional Position of Vegetables in Padra

Regions	1960-61		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	736.33	4.49	1943.05	9.49	1206.72	5.00
II	151.82	2.06	972.69	13.14	820.87	11.08
III	330.39	2.02	1198.55	7.51	868.16	5.49

In region I, it occupied 4 49 per cent of the G.C.A. at the first point of time, which went up to almost double of it i e 9 49 at the second point of time marking a substantial increase of 5 per cent Region II, devoted a meagere area of 2 06 per cent at the first point of time but topped the list with 13 14 per cent marking a net increase of 11.08 per cent at the second point of time.

Region III was the lowest in respect of area devoted to it (i.e. 2.02%) but at the second point of time it went up to 7.51 per cent The increased share of G C A under vegetables in all three regions is more likely due to the increasing demand of vegetables in the sprawling adjoining urban areas as well as the consciousness of the people for the calory rich food The, vegetables enjoy the demands in local as well as the out side urban markets One more factor should not be ignored that over the years Padra has increased the facility of irrigation substantially which facilitated the successful growth of vegetables in almost all the villages of the taluka as well as its regions.

It's village wise distribution proves the fact of increasing significance of vegetables that in 1960-61, 72.97 per cent of villages of region I, 63 64 per cent villages of region II and 65 per cent villages of region III cultivated it. But scenario is found totally changed where 100 per cent of region I, 73 per cent of region II and 68 per cent of region III gave place to this crop in their G C A. at the second point of time.

P.T.O.

Table No.: 4 23

Village wise and Region wise Distribution of vegetable in Padra 1960-61 and 1990-91

(in per cent)

Region	Year	Percentage Range Distribution					Total	
		0 – 15	15–30	30–45	45–60	60 & above	1960-61	1990-91
		Code Number of Villages						
I	1960-61	1,3,5,9,10,11,13,15,20,21,22,23,27,29,34,36,37,47 (18)	12,16,18,25,28,35 (6)	17 (1)	-	24,26 (2)	27	-
	1990-91	2,3,5,8,15,16,22,29,30,37,46 (11)	1,6,7,11,14,17,18,27,28,34,35,47 (12)	4,9,19,20,21,24,25,31,36 (9)	10,12,26 (3)	13,23 (2)	-	37
II	1960-61	32,33,39,40,45,48 (6)	41 (1)	-	-	-	7	-
	1990-91	33,44,48 (3)	32 (1)	39,45,62 (3)	-	40 (1)	-	8
III	1960-61	43,52,57,60,61,63,64,66,68,70,71,72,73,76,77,79,82 (17)	42,58 (2)	67 (1)	59 (1)	-	21	-
	1990-91	51,54,58,66,69,71,72,80 (8)	55,59,64,67,73 (5)	42,53,65 (3)	76,77 (2)	43,60,61,68,75 (5)	-	23
Total	1960-61	41	9	2	1	2	55	-
	1990-91	22	18	15	5	8	-	68

Region I cultivated vegetable in the range of 0 – 5 to 20 and above, where as maximum 18 villages reported its cultivation in the very low range of 0 – 5, 6, 1 and 2

villages reported it in the subsequent ranges of 5 – 10 and 20 & above keeping the last but one vacant In all 27 out of 37 villages cultivated it at the first point of time Whereas at the second point of time its traditional pattern substantially changed with 11, 12 and 9 villages devoting 0 – 5 to 10 – 15 per cent of their G.C.A. respectively under this crop. 3 and 2 villages went upto the higher range of 15 – 20 and 20 and above respectively This shows that ready cash earner crop as the vegetable is, has found its place in the G.C.A. of all the 37 villages of region I, of course in varying percentages of their G.C.A This is well explained by the Table 4.23 given above

In region II, 6 of the 11 villages cultivated it in the range of 0 – 5 and one in 5 – 10 at the base year Other did not grow it at all. At the second point of time 8 out of 11 villages cultivated it in all the ranges except the last but one It is mainly due the lack of irrigation facilities in all these villages of this region

Region III grew it in 22 of its 34 villages of which 18 remained in the range of 0 – 5, 2 in 5 – 10 and 1 each in 10 – 15 and 15 – 20 per cent of the G.C.A. at the first point of time. At the second point of time 23 out of 34 villages cultivated vegetables of which 8 were at the very low level in respect of range distribution, 5 in the low range, 3 in the moderate range, 2 in the high range of 15 – 20 and 5 in very high range of 20 and above.

This indicates that the position of vegetable cultivation has highly improved in comparison to the base year. The number of villages in the range distribution has significantly changed. Each village has attempted to devote relatively larger area to this crop In comparison to the base year the number of villages in the very low range has decreased by more than half and in low range has increased by 2 5 times. In the moderate range it has

increased 3 times and in the high range gone up by 2 times while in the very high range 5 villages have appeared where there were none in the base year (Fig 4 11)

KARJAN

Vegetables had their place in the cropping pattern of Karjan taluka at both the points of time The base year statistics shows that only 2 57 per cent of the G C A was occupied by them, but the demand of vegetables seems to have increased many fold both in the domestic markets and outside that by the second point of time the area under vegetables went up to 6 09 per cent of the G C A

The cultivation of vegetables has made its significance felt in all the three soil based regions of the taluka. Table 4 24 gives the varying hectarage devoted to vegetables at the two points of time

Table : 4.24

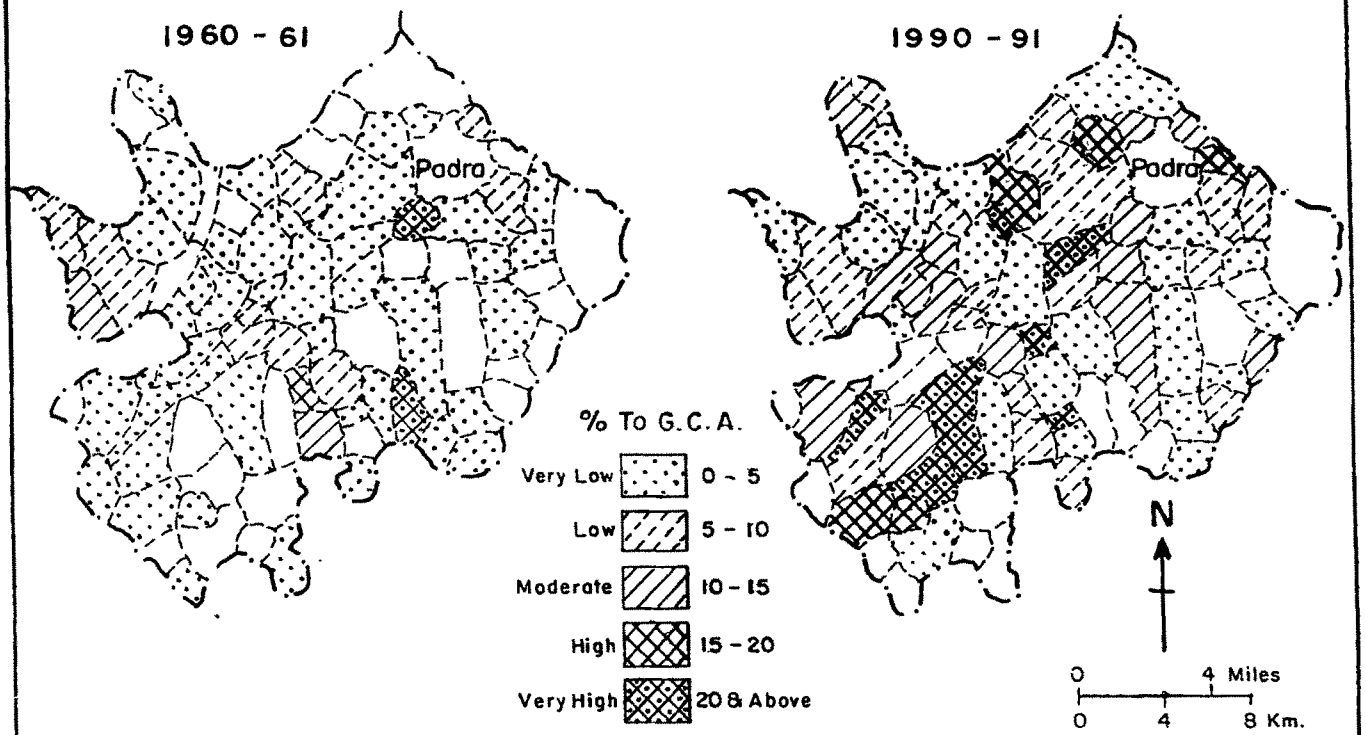
The Regional Position of Vegetables in Karjan. 1970-71 & 1990-91

Regions	1970-71		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	553.37	2.37	704.68	3.13	151.31	0.76
II	164.50	1.63	985.25	9.49	820.75	7.86
III	651.76	3.43	1438.47	7.79	786.71	4.36

In region I during the base year 2 37 per cent of its G C A was under cultivation of vegetables By the second point of time an increased area of 3 13 per cent

TALUKA PADRA

CHANGE IN VEGETABLE CULTIVATION



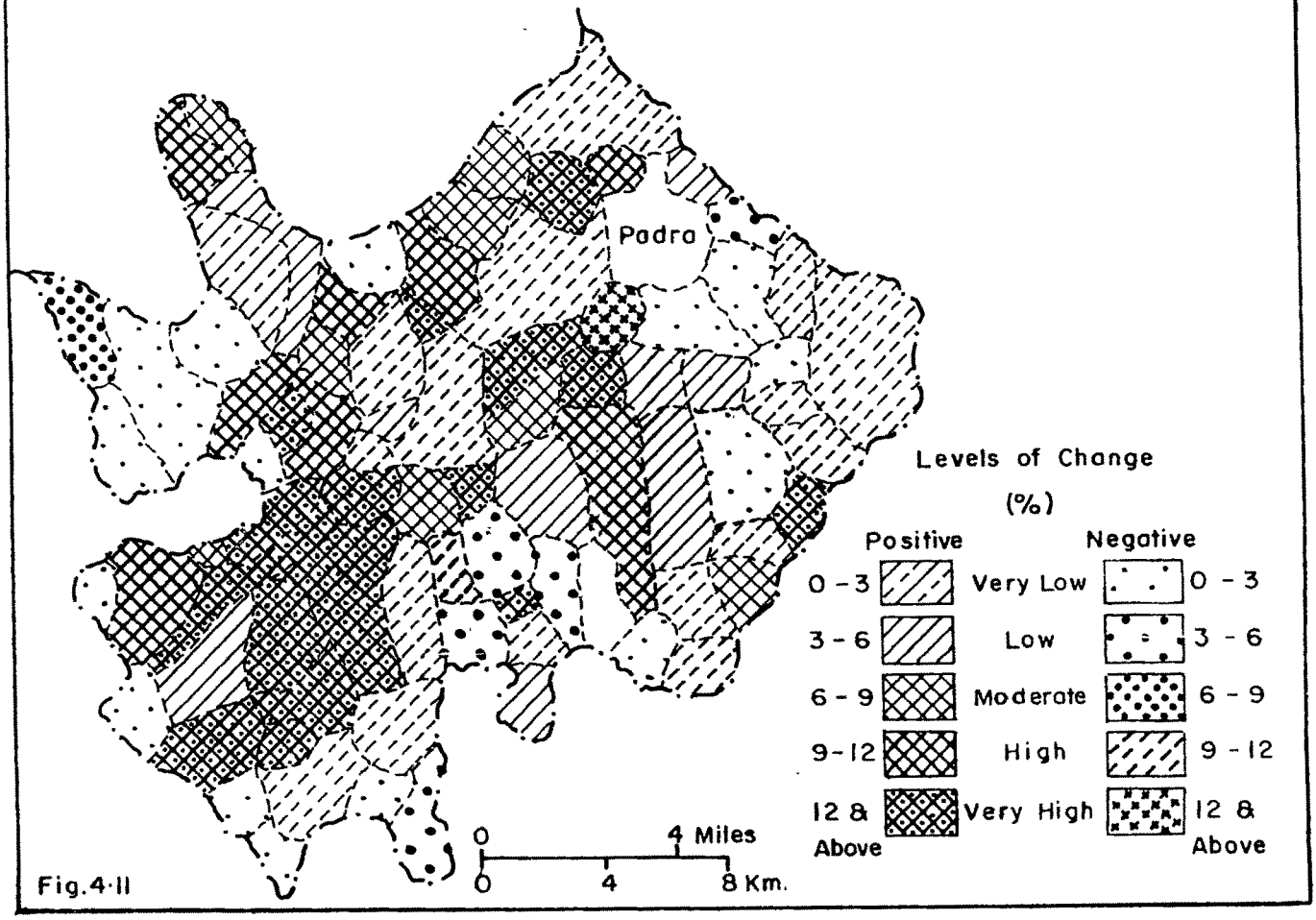


Fig.4·11

was devoted under its cultivation making a net increase of 0 76 per cent only

Region II, gave a substantial significance to vegetables by increasing their share to 9 49 per cent in its G C A at the second point of time against 1 63 per cent of the base year A big area of 7 86 per cent more was devoted to it

Region III, at the base year, devoted 3 43 per cent but increased to 7 79 per cent at the second point of time adding 4 36 per cent more to the former year's percentage This shows the ever increasing significance of vegetables in the cropping pattern of Karjan and its regions One thing should be expressed that the increasing share of vegetables in the cropping pattern is the effect of human and economic influences on it, as on the one hand its demand increases due to increasing urban and industrial activities, and on the other hand by the relative improvement in the standard of living, not only in the urban, but also in the rural localities.

The village wise distribution of vegetables also proves their increasing significance in the study area At the first point of time vegetables were grown by 54 29 per cent of villages in region I, 50 percent of villages in region II and 81 82 per cent villages of region III At the second point of time the percentage of growing villages decreased to 42 86 per cent in region I, increased to 71.43 per cent villages in region II and decreased to 68.18 per cent in region III A glance at table 4 25 shows the position of vegetables in the villages of each region

P.T.O.

Table 4 25

Village wise and Region wise Distribution of Vegetable in Karjan 1970-71 and 1990-91

(in per cent)

Region	Year	Percentage Range Distribution					Total	
		0 – 15	15–30	30–45	45–60	60 & above	1970-71	1990-91
		Code Number of Villages						
I	1970-71	1,6,8,10,12,13, 14,15,16,23,24, 27,29,31,32,33 (16)	2 (1)	4,3 (2)	-	*	19	-
	1990-91	1,2,6,7,8,14,20 ,21,23,24,27,29 ,32 (13)	5,28 (2)	-	-	-	-	15
II	1970-71	35,40,42,43,47 (5)	26,39 (2)	-	-	-	7	-
	1990-91	43,44,46,48 (4)	38,39,40 (3)	41 (1)	-	35,45 (2)	-	10
III	1970-71	51,52,53,55,56, 61..64.65.66,67 ,68,71,72,73,74 .75,76.79.80,81 .82,84,85,87,89 ,91,,92,93.95 (29)	77,78,83, 90 (4)	69,88 (2)	-	70 (1)	36	-
	1990-91	50,57,58,65,67, 69,71,73,78,80, 83,85,89.90,93 (16)	51,52,56,7 7,87 (5)	53,54,75 (3)	-	55,74.86. 88,91.92 (6)	-	30
Total	1970-71	50	7	4	-	1	62	-
	1990-91	33	10	4	-	8	-	55

At the first point of time, 19 of the 35 villages of region I cultivated vegetables of them 16 villages cultivated it in the very low range of 0 – 5, 1 village in 5 – 10 and 2 villages in the range of 10 – 15 per cent In 1990-91, the cultivating villages in the very low range of 0 – 5 came down to 13 and in the low range went up to 2 from 1 of the former year

In region II the former position was that 50 per cent of villages cultivated vegetables, of which 5 villages remained at the very low level of 0 - 5 and only 2 were in the low range of 5 - 10 per cent But at the second point of time 4 villages in the low range of 0 - 5, 3 villages at the subsequent range of 5 - 10, 1 in 10 - 15 and 2 in 20 and above placed vegetables in their cropping pattern At the second point of time region II has increased both number of villages and hectarage under vegetables

Region III also reported 36 villages of 44 cultivating vegetables at the first point of time Of them 29 villages devoted 0 - 5 per cent, 4 villages 5 - 10 per cent, 2 villages 10 - 15 per cent only 1 village went up to 20 and above At the second point of time, number of villages decreased from 36 to 30 and in the very low range from 29 to 16, in low range it increased from 4 to 5 and in the moderate range it went up to 3 from 2 The range of 15 - 20 remained blank at both the points of time, but the highest range of 20 and above shows 6 villages in place of only one of the former year As such the cultivating villages decreased in the first and last region and increased only in the second But relatively the percentage share of crop land devoted to this crop seems to have increased to higher ranges in relation to the ranges allotted to it at the first point of time in all the regions (Fig 4 12)

FODDER

In the rural areas with the agro-based environment cattle have always been associated with the rural folk They have been a right-full sharer of the G.C A almost in each individual case of farming The responsibility of feeding has solely remained on the care takers and therefore, when cereals and pulses etc have been

TALUKA KARJAN

CHANGE IN VEGETABLE CULTIVATION

1970 - 71

1990 - 91

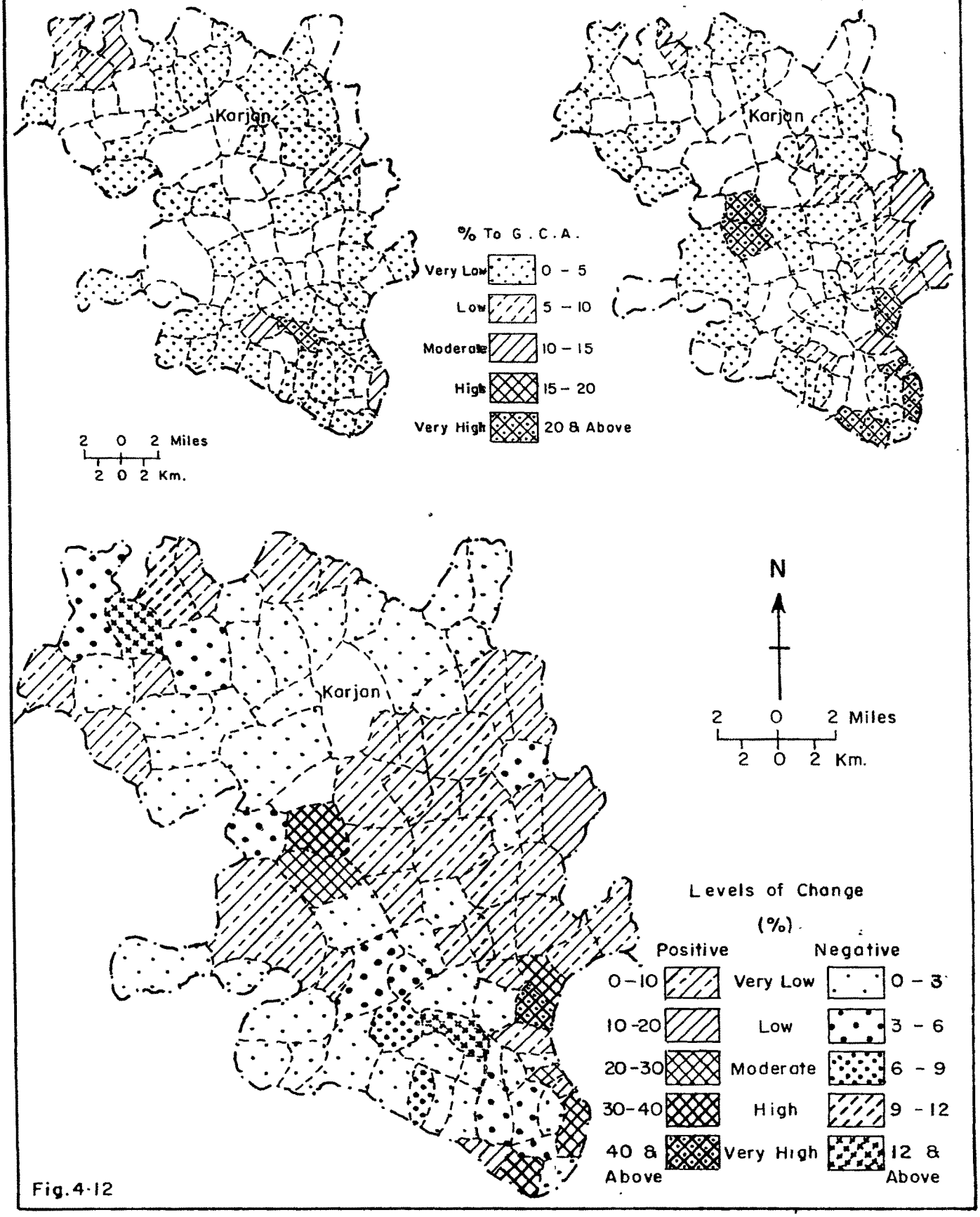


Fig. 4-12

cultivated for human subsistence, the fodder had been cultivated for the cattle subsistence This pattern of cultivation is the age old in India and has been found being practiced in each individual unit area of her states

A sizeable area of the G.C.A in both the seasons i e. rabi and kharif are being devoted to cultivation of fodder of different varieties. In Gujarat very commonly grown fodder varieties are 'Sundhiyun', 'Rajko' and 'Jowar-bantu' The recent hybridisation processes have improved their potentials and their per unit area yield and also added some new varieties like burshane and others Since the practice has been to feed them with the addition of some green fodder, the cultivation of both kharif and rabi varieties are made to fulfill this requirement

In Gujarat the mechanisation of agriculture has been adopted at a faster speed, as a result, the dependence on animate energy (bullocks etc) has largely diminished But the speedy dairy development on a large scale encompassing almost all the rural units has largely compensated the decreasing number of draught cattles by bovine cattle of high breed giving milk. This has become daily cash earner and a source of additional income to the farmers. For this reason the animal feed has gained significance in the cropping pattern of almost each and every village.

PADRA

In Padra during the first point of time the fodder cultivation took a share of 6.06 per cent of the G.C.A. as the dairying activities had not been progressed because of the very initial days of the formation of the Gujarat state But with the passage of time dairying activities progressed to the status of a large scale industry and in each District dairy units have been opened This led to

the devotion of larger percentage of G C A to the fodder cultivation Thus, by 1990-91 the share of the fodder in the total taluka G C A went up to 10 34 per cent This increase is also reflected in the regional distribution of fodder cropping which is shown by table 4 26

Table 4 26

Hecterage and Percentage G C A. under Fodder in Padra 1960-61 & 1990-91

Regions	1960-61		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	934.26	5.94	2648.79	12.93	1714.53	6.99
II	473.85	6.42	534.29	7.22	60.44	0.80
III	986.10	6.02	1351.09	8.46	364.99	2.44

As such region I was the lowest of all the regions devoting only 5 94 per cent for fodder cultivation at the first point of time but the figure at the other point of time went up to the greatest of all the regions being 12.93 per cent. This increase in the fodder cultivation is relative to the development of dairy centre at Jaspur village of this region and its area of influence encompassed all the three regions of the taluka. Where in 1960-61 the region II devoted 6 42 per cent and at the second point of time it went up to 7 22 per cent Region III showing 6 02 per cent raised its share to 8.46 per cent at the second point of time. This increase in the fodder's share in G.C A. may also be linked with the influence of the programme of integrated rural development of the taluka. Table -4.27 gives the village wise distribution of the percentage share under fodder at the two points of time

Table 4 27

Village wise and Region wise Distribution of Fodder in Padra 1960-61 & 1990-91

(in per cent)

Region	Year	Percentage Range Distribution					Total	
		0 – 4	4 – 8	8 – 12	12 – 16	16 & above	1960-61	1990-91
		Code Number of Villages						
I	1960-61	1,5,7,8,9,12,13 18,19,20,22,27, 28,30,51 (15)	6,17,23,24 26,34,36, 37,46,47 (10)	3,15, 25,35 (4)	4,11, 16,21 (4)	2 (1)	34	-
	1990-91	1,3,4,5,6,7,8,9, 11,25,26,30,46, 47 (13)	15,18,21, 22,23,24, 27,28,31, 34 (10)	10,16 17 (3)	19,20 (2)	2,4,35 (3)	-	31
II	1960-61	32,38,45,48 (4)	33,39,41, 44,56,62 (5)	-	-	40 (1)	10	-
	1990-91	32,38,39,41,50, 62(6)	45 (1)	44 (1)	33 (1)	-	-	9
III	1960-61	56,57,60,64,68, 69,73,77,80 (9)	42,43,51, 52,53,54, 58,59,61, 63,65,70, 74,75,76, 78,79,81, 82(19)	49,55 66,67 (4)	60,71 72 (3)	-	35	
	1990-91	42,56,57,58,61, 63,66,68,74,75, 76,78,79,80 (14)	51,52,67, 72,73 (5)	43,59 64,69 81 (5)	49,54 70,71 82 (5)	55,65,77 (3)	-	32
Total	1960-61	28	34	8	7	2	79	-
	1990-91	33	16	9	8	6	-	72

The fodder cultivation at the village level in region I reveals that only 34 of the 37 villages of this region cultivated it in varying ranges of percentage keeping 15 villages in lowest range of 0 – 4, 10 in the next higher range of 4 – 8, 4 each in the ranges of 8 – 12 and 12 – 16 at the first point of time Not much difference is found in the pattern of distribution at the second point of time

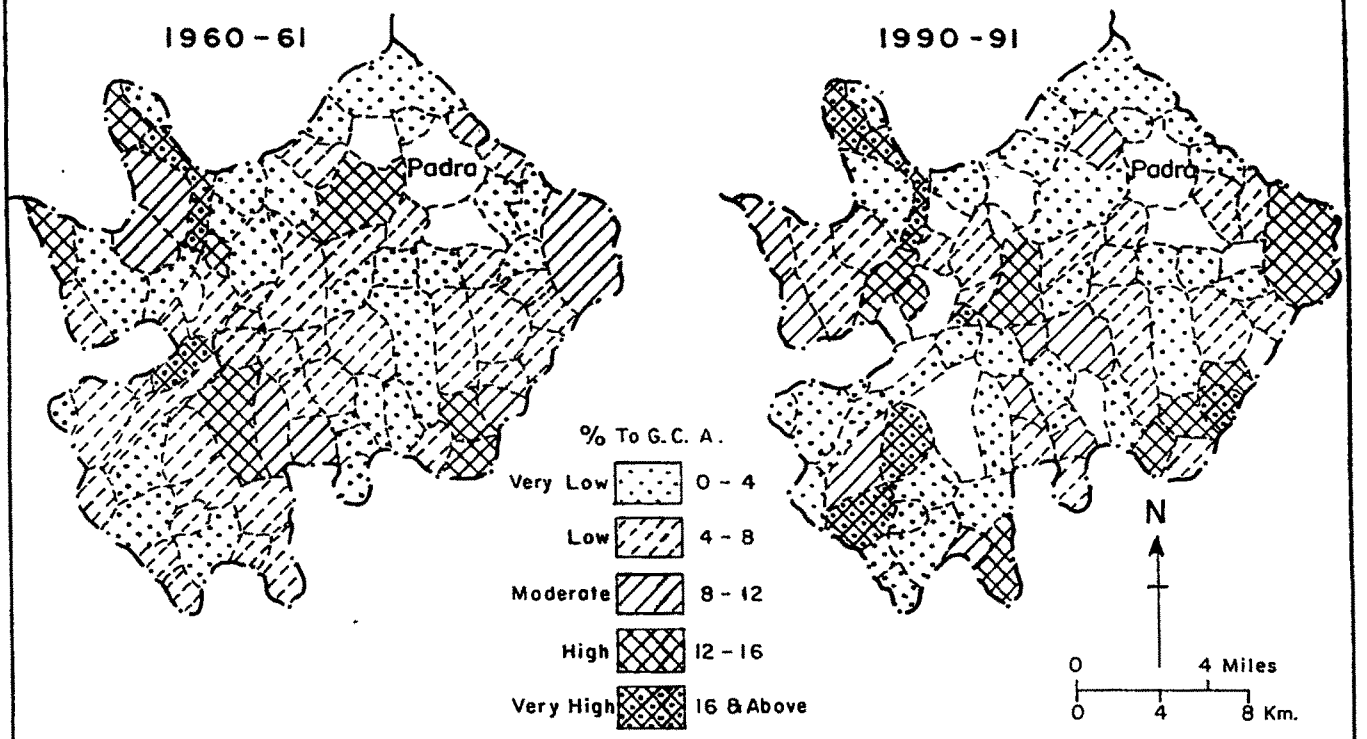
where 31 of the 37 villages devoted their varying percentage of shares of G.C A to this crop In lowest range of 0 - 4 were 13 villages, in the next higher of 4 - 8 were 10 villages equal to the previous point of time In the other subsequent higher ranges were 3 and 2 against 4 and 4 of the previous point of time but only in the highest range of 16 and above are recorded 3 villages against only one of the base year. However, with the decreased number of villages, increased share of their G C A. has effectively increased total share of fodder in the G C A of the region I

Region II had a discrete picture of the distribution where 4 villages are recorded in 0 - 4 per cent and 6 in the next higher and only one in the highest range of 16 and above The intermediate ranges of 8 - 12 and 12 - 16 remained totally blank A bit more regular picture seems to have emerged at the second point of time where only 9 of the 11 villages cultivated fodder with 6 villages in the lowest range of 0 - 4 per cent, 1 each in the subsequent ranges keeping the highest range blank

In the region III all 34 villages cultivated fodder in varying ranges from very low to high with 9 in the very low range of 0 - 4, 19 villages in the low range of 4 - 8 and 3 in the high range of 12 - 16 per cent at the first point of time but kept the highest range blank The importance for fodder cultivation seems to have increased at the second point of time where the distribution pattern has become regular covering all the ranges of percentage of G C.A. devoted to it. Though only 32 villages against 34 of the previous point of time had cultivated it In the lowest range had been 14 villages, in the low range to high ranges were 5 each (Low, Moderate and High) and significantly in the highest range were 3 as against none in the previous point of time. (Fig 4 13)

TALUKA PADRA

CHANGE IN FODDER CULTIVATION



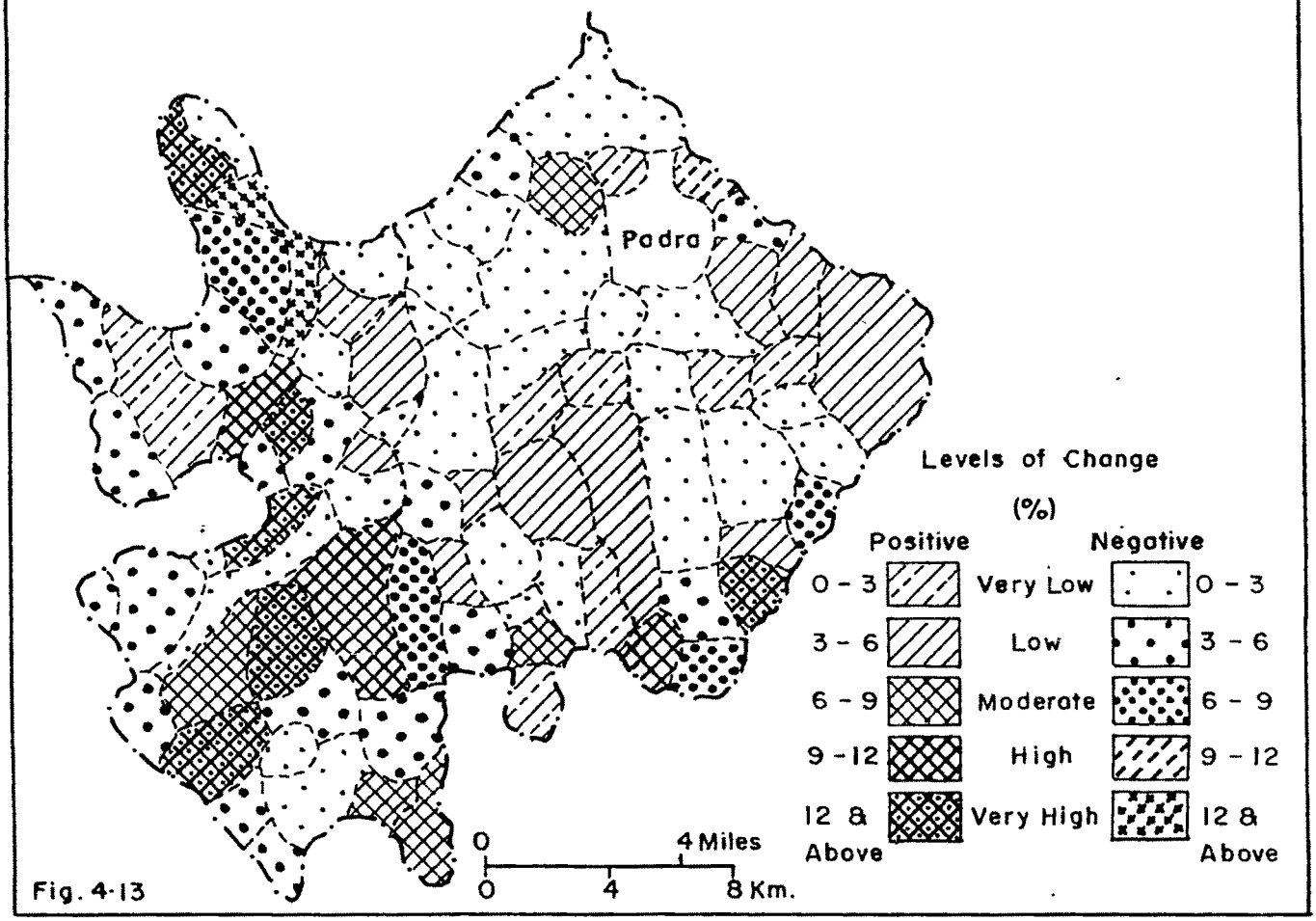


Fig. 4-13

KARJAN

Fodder is as essential as cereals Its cultivation is found in each agricultural system in different forms In Gujarat, as stated in the preceeding lines, chief varieties of fodder crop are sundhiyn, Jowar bantu and rajko They are nutritious grasses mainly fed to bovine cattle and draught cattle. In Karjan at the first point of time it occupied 6 14 per cent of the total taluka G C A. and increased by 1.02 per cent i.e. it occupied 7 16 per cent at the second point of time.

In comparison to Padra taluka, the percentage increase is meagre. As such dairy development programmes are at satisfactory swing and the integrated rural development programmes have also been seriously taken up The co-operative milk society of Karjan is chief supplier of milk to Baroda dairy as well as Amul Dairy at Anand So, the share of the fodder in the crop land of 1990-91 being smaller than what expected reflects that the other cattle feed viz. Jowar stalks, wheat chaf and others pulses the prepared cattle food would be compensating the requirements. The regional diversity in the fodder cultivation is ostensible from table 4.28

Table 4 28

Hectrage and percentage G C A under fodder in Karjan 1970-71 and 1990-91.

Regions	1970-71		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	1114.40	4.75	1766.60	7.85	655.20	3.10
II	537.99	5.33	371.94	3.58	-202.05	-1 75
III	1570.84	8.27	1538.45	8.33	-32.39	0.06

Region I, at the first point of time, devoted 4 75 per cent of its G C A which went up to 7 85 per cent at the next point of time Region II giving a share of 5 33 per cent at the first point of time, decreased to 3 58 per cent at the second point of time where as region III giving 8 27 per cent of its GC A. at the first point of time gave a share with nominal increase by 0 06 per cent at the second point of time The village wise distribution of fodder can well be seen from the table 4 29

P.T.O.

Table 4.29

Village wise Percentage Range Distribution of Fodder at Karjan 1970-71 and 1990-91

(in per cent)

Region	Year	Percentage Range Distribution					Total	
		0 – 3	3 – 6	6 – 9	9 – 12	12 & above	1970-71	1990-91
		Code Number of Villages						
I	1970-71	17,18,19,21,24,30,31 (7)	2,6,12,14,15,16,20,23,25,27,28,29,32,34,36 (15)	4,7,9,11,22,33,37 (7)	3,5,10,12 (4)	8 (1)	34	-
	1990-91	1,2,4 7,11,12,16,18,28,36 (10)	14,15,19,20,21,22,23,32 (8)	27,29,30,31,33,37 (6)	9,24 (2)	8,17,25 (3)	-	29
II	1970-71	-	40,41,43,45,46 47,49 (7)	26,35,38,42,44,48 (6)	-	-	13	-
	1990-91	41,45 (2)	50,56,58,63,64,65,66,70,72,74,90,91 (12)	38,44 (2)	-	-	-	11
III	1970-71	92 (1)	51,52,55,57,58,59,61,62,64,70,72,88,91 (13)	51,52,55,57,59,60,61,67,68,69,71,76,77,78,80,82,83,84,87 (19)	53,75,87,88,89 (5)	73,79,85,86 (4)	41	-
	1990-91	74,75,77,92 (4)	51 52 55 57 58 59 61 62 64 70 72 88 91 (13)	54,56,66,67,69,71,83,84,87 (9)	60,68,73,80,81,89,90 (7)	50,53,78,78,82,86,93 (7)	-	40
Total	1970-71	8	34	32	9	5	88	-
	1990-91	16	28	17	9	10	-	80

The village wise pattern of distribution of fodder reflects a negative change in terms of cultivating villages Where as in Region I at the first point of time one village cultivated in the highest percentage range of 12 per cent and above, 4 in the high range of 9 – 12, 7

villages in the moderate range of 6 - 9, 15 in the low range of 3 – 6 and only 7 in the very low range of 0 – 3 per cent In all 34(97 14%) out of 35 villages cultivated fodder At the second point of time both increase and decrease is notable in the percentage range distribution that in the very high range the number of villages increased from 1 to 3, in the high range decreased from 4 to 2, in the moderate range decreased from 7 to 6, in the low range slashed from 15 to 8 but in the very low range went up from 7 to 10. In all 29 villages (82.86%) did it at the second point of time

In Region II, 13 of the 14 villages (92.86%) cultivated it confining only to-moderate and low ranges with 6 and 7 villages respectively at the first point of time The diminishing trend is noted in respect of the villages cultivating it at the second point of time, where only 11 of the 14 villages (78 57%) cultiated in the moderate, low and very low ranges with 2,7 and 2 villages respectiely The second region does not seem to have favourable environment for the fodder cultivation

In contrast to the first two regions, region III has very highly favourable circumstances for tis cultivation at both the points of time. At the first point of time 41 of the 44 villages i e (93.18%) cultivated it in varying percentage ranges 4 villages cultivated in the very high range of 12 and above, 5 in the high range, 19 in the moderate ranges, 12 in the low range and only 1 in the very low range At the second point of time the ostensible changes are both in the number of cultivating villages and in the number of villages in the percentage range distributions. At the second point of time 7 villages against 4 of the former have cultivated it in the highest range of 12 and above and the same number against 5 of the former did it in the high range of 9 – 12, in the

moderate range the numbers slashed down from 19 of the former to 9, and in t he low and very low ranges it went up to 13 and 4 from 12 and 1 respectively In all the size of the cultivation seem to have increased with the decreased number of villages from 41 of the former to 40 i e from 93.18 to 90 91 per cent (Fig 4 14)

OILSEEDS

Oilseeds are a necessary crop cultivated along with cereals and pulses Their cultivation is subject to both internal or local demand and also the demand in the market. Sometimes they are cultivated as a cash crop by all the farmers and sometimes just for domestic consumption. Oilseeds were claiming a very meagre percentage of the G C A during the period of sovereignty of cotton at Karjan, cotton and tobacco at Padra, but with the down fall of cotton in both of these talukas more significance has been attached to oilseeds also as a cash crop.

Among the oilseeds cultivated in these two talukas greater significance has always remained with til (Seasamum) followed by castor (divelia) Groundnut has also been cultivated in these two talukas but is much less significant In all, these three type of oilseeds together have been claiming a sizeable share of the G C A from the total area allotted of all types of oil seeds in both the talukas at both the points of time

PADRA :

The oilseeds have always been a significant crop of Padra taluka owing to its domestic demands In 1960-61, when the local demand was relatively less than the present time, the population was also much smaller than today, the demand was accordingly low and thus was their

TALUKA KARJAN

CHANGE IN FODDER CULTIVATION

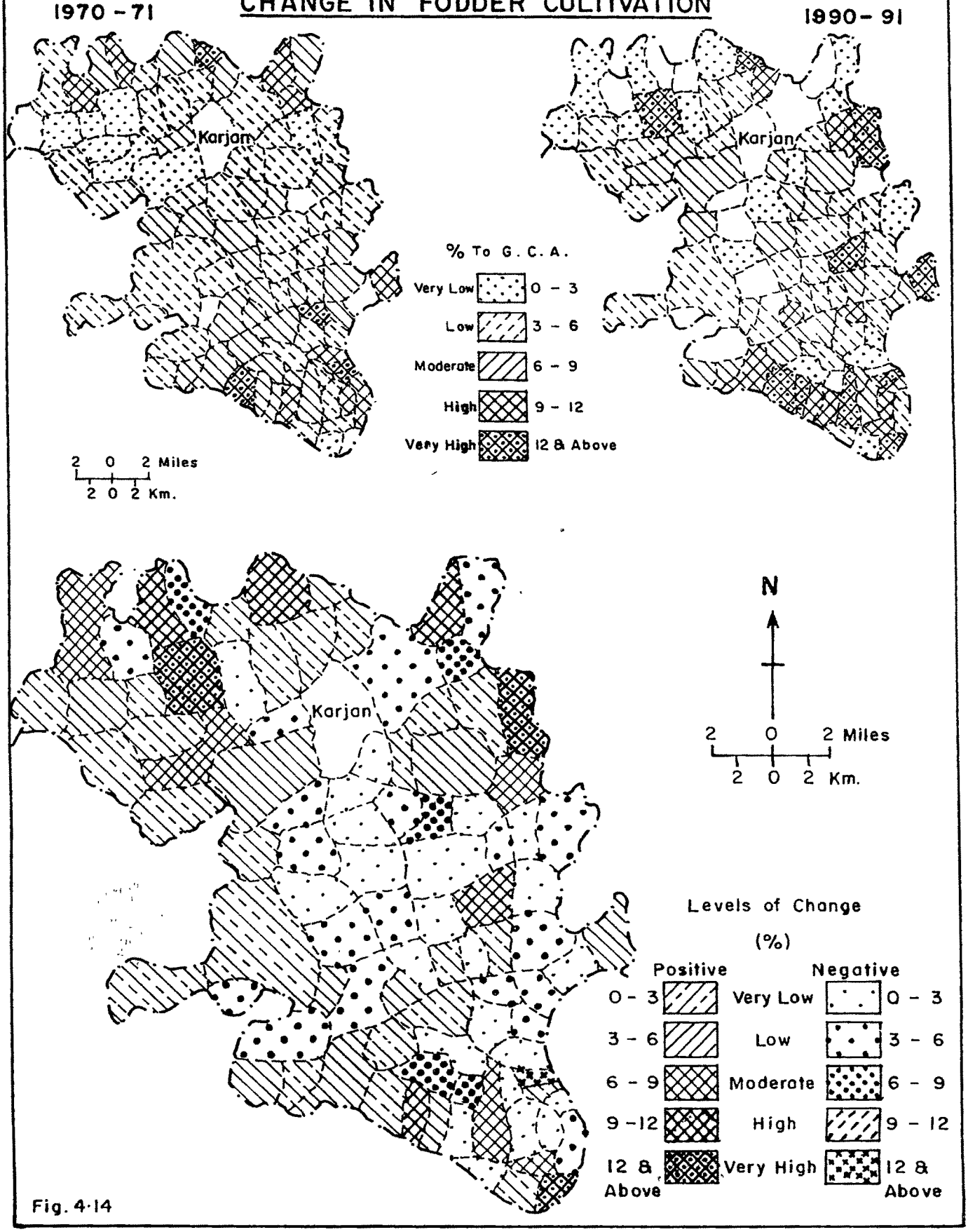


Fig. 4·14

share in the G C A By 1990-91, the size of population increased the significance of cotton as the chief occupier of the G C A decreased, oilseeds emerged as one of the important cash crops partly fulfilling the gap caused by downfall of cotton This is conspicuous from their respective share of the G C A. at the two points of time, that they had 3 31 per cent of the G C.A. at the base year which jumped up to 7 16 per cent at the second point of time, which is more than the double of the former percentage share Region wise distribution of oilseeds explain that oilseeds had been a significant crop in region I and II at the base year also Table 4 30 gives the shares of G C.A occupied by oilseeds in the three regions of Padra

Table 4 30

Hectrage and Percentage G C A under Oilseeds in Padra 1960-61 and 1990-91.

Regions	1960-61		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	835.96	5.10	1461.99	7.14	626.03	2.04
II	238.84	3.23	561.97	7.59	323.13	4.36
III	231.68	1.41	1115.84	6.99	884.16	5.58

At the first point of time in region I, oilseeds together occupied 5.10 per cent of the G C.A. which went up to 7.14 per cent at the next point of time giving an increase of 2 04 per cent.

In region II, at the first point of time, oilseeds occupied 3 23 per cent of G C A which shows its importance in this region At the second point of time it

occupied 7.59 per cent of the G C A which is more than the double of the former area It reflects greater inclination of the farmers towards such paying crops

Region III was third in order, devoting only 1 41 per cent at the first point of time and it remained third at the second point of time also devoting 6 99 per cent of its total G.C A. However, in the respect of the total increase in percentage area devoted to it, is found that region III is the first with 5 58 per cent, region II is the second with 4 36 per cent and region I is the third with 2 04 per cent (Table 4 26)

The region wise figures in the table 4 26 indicate the position of oilseeds not only in the region as a whole but also a presumption of the distribution in the component villages of the regions. In 1960-61, region I shows that 91 89 per cent of its total villages have devoted their shares of G C A to oilseeds, 54 55 per cent of the villages of region II were next in order of significance in the oilseeds cultivation In region III, oilseeds were not as significant as in the other two, where only 41 81 per cent of the villages cultivated it But the position of oilseeds has improved so much so that the first region maintained its former percentage of the villages Second region went up to 81 82 as against 54 55 per cent and region III went up to more than the double percentage of the former year i e. 88 24 per cent as against 41 81 per cent Table 4.31 gives the village wise distribution of the percentage share under oilseeds at the two points of time.

P.T.O.

Table 4 31

Village wise and Region wise Distribution of Oilseeds in Padra 1960-61 and 1990-91

(in per cent)

Region	Year	Percentage Range Distribution					Total	
		0 –5	5 – 10	10 – 15	15 – 20	20 & above	1960-61	1990-91
		Code Number of Villages						
I	1960-61	1,5,9,10,14,16, 24,26,27,28,29, 30,34,35,46, (15)	2,3,4,6,7 ,11,12,13 ,15,1718, 19,20,21, 25,36 (16)	23,31 (2)	37 (1)	-	34	-
	1990-91	4,5,6,7,8,10,14 19,23,24,26,30, 36,37,46,47 (16)	11,12,15, 16,20,21 (6)	3,13,22,27 ,28,29,35 (7)	1,2,17,25 (4)	18 (1)	-	34
II	1960-61	32,33,62 (3)	-	38 (1)	39,48 (2)	-	6	-
	1990-91	44 (1)	39,45,48, 50 (4)	32,40 (2)	-	38,62 (2)	-	9
III	1960-61	43,52,55,59,60, 61,64,65,66,75, 77,78,81 (13)	42 (1)	-	-	-	14	-
	1990-91	51,53,55,56,57, 64,65,72,74,77, 79,80,82 (13)	42,43,58, 61,63,66, 67,69,70, 71,81 (11)	52,54,60 (3)	49 (1)	59 (1)	-	29
Total	1960-61	31	17	3	3	0	54	-
	1990-91	30	21	12	5	4	-	72

It is found that in region I, 34 of the 37 villages cultivated it in varying ranges at the two points of time The only difference noted is that 15 and 16 villages

respectively at the first point of time ranged in low and very low, where as at the second point of time the villages in very low increased by 1 and in low range decreased by 10 In the moderate range it went up from 2 to 7, in the high range it went up from 1 to 14 and in the very high 1 village appeared against none of the first point of time.

Second region has shown increased number of villages i.e. 9 against 6 at the second point of time and its range distribution was 2 in the very high against nil, nil in the high against 2, 2 in the moderate against 1, 4 in the low against nil and 1 in the very low against 3 villages

Position of region III in respect of oilseeds cultivation is found improved on the lines of previous two regions At the second point of time 29 out of 34 villages devoted their substantive share of G C A. to oilseeds Its range distribution position was 1 against nil in the very high range, 1 against nil in the high range, 3 against nil in the moderate range, 11 against 1 in the low range and status quo at the very low range (i e. 13) (Fig. 4 15)

KARJAN :

In the Kanam region of which, Karjan is also a segment the most dominating crop had been cotton for a fairly long time It is only owing to the uncontrollable biotic menace that cotton started dwindling away giving way to all those insignificant crops which had very little value during and around the first point of time (1970-71). Karjan had also shown the same behaviour, the oilseeds which are definitely an important item of daily food of the society had a very little place in the G C A of the taluka At the first point of time only 0 12 per cent of G C A was under oilseeds which rose to 4.89 per cent at

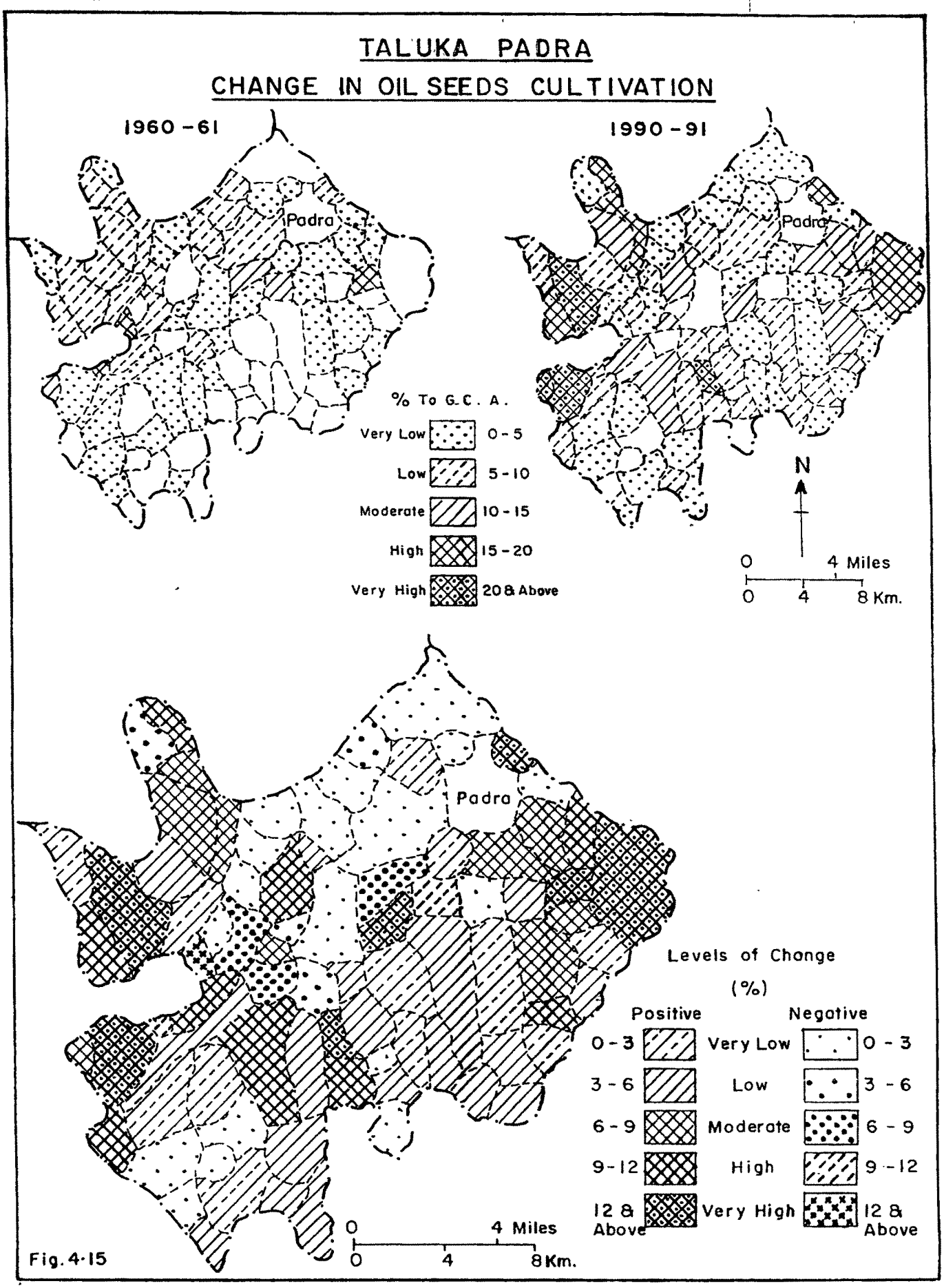

TALUKA PADRA
CHANGE IN OIL SEEDS CULTIVATION
1960 - 61
1990 - 91
Padra
Padra
% To G.C. A.
Very Low 0 - 5
Low 5 - 10
Moderate 10 - 15
High 15 - 20
Very High 20 & Above
N
0 4 Miles
0 4 8 Km.
Padra
Levels of Change
(%)
Positive
Negative
0 - 3 Very Low 0 - 3
3 - 6 Low 3 - 6
6 - 9 Moderate 6 - 9
9 - 12 High 9 - 12
12 & Above Very High 12 & Above
0 4 Miles
0 4 8 Km.

Fig. 4-15

the next period of time, which is a sizeable share looking to its former position If seen in the regional context it had been cultivated in all the regions of the Taluka at both the points of time Table 4 32 gives the regional distribution of oilseeds in Karjan Taluka

Table 4 32

Hectare and Percentage G C.A under Oilseeds in Karjan 1970-71 and 1990-91

Regions	1970-71		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	26.87	0.11	975.97	4.34	949.10	4.23
II	1.49	0.01	411.37	3.96	409.88	3.95
III	35.28	0 18	1123.95	6.08	1088.67	5.90

As said in the preceding lines that oilseeds had been quite insignificant occupying only 0 11 per cent in region I, 0 01 per cent in region II and 0 18 per cent in region III in 1970-71 But their condition highly improved against that of the previous position that in 1990-91, they grabbed 4 34 per cent against 0 11 of the former year in region I, 3 96 per cent against 0.01 in region II and 6.08 per cent against 0 18 per cent in region III which shows the increasing significance of these crops in these areas because their earlier uses have been changed i e they are now considered in the category of commercial crops as against the local and domestic uses during and preceding the former period of time.

Mathematically it may be represented that in the rank and order of oilseeds growing regions of the taluka, region II acquires the first position by devoting 396 times more area than the previous period Second in order

comes the region I where 39 times more area was devoted to them than their previous percentage share of G C A and the third region remained third by devoting 34 times more to them than their previous share of G C A

The village wise pattern of distribution and change is very well revealed by the given table 4 33

P.T.O.

Table 4.33

Village wise and Region wise Distribution of Oilseeds in Karjan 1970-71 and 1990-91

(in per cent)

Region	Year	Percentage Range Distribution					Total	
		0 – 4	4 – 8	8 – 12	12 – 16	16 & above	1970-71	1990-91
		Code Number of Villages						
I	1970-71	1,2 (2)	-	-	-	-	2	-
	1990-91	2,3,9,15,18, 22,29,31,32 (9)	10,11,12,13, 14,17,19,20, 21,25,28,37 (12)	8,23., 27 (3)	24 (1)	1 (1)	-	26
II	1970-71	-	-	-	-	-	-	-
	1990-91	41,43,44,45, 46,47,49 (7)	40,42,48 (3)	38,39 (2)	26 (1)	-	-	13
III	1970-71	76,79,83,88, 92 (5)	-	-	-	-	5	-
	1990-91	61,69,82,88, 92 (5)	54,55,56,71, 74,75,77,80, 81,82,86,89 (12)	52,53, 84,85, 87,90 (6)	65,91 (2)	60,68,70, 76 (4)	-	29
Total	1970-71	7	0	0	0	0	7	-
	1990-91	21	27	11	4	5	-	68

From the range wise arrangement of cultivating villages it is found that only 2 villages i e 5 71 perc ent cultivated them in the very low range of 0 – 4 per cent at the first

point of time. At the second point of time it is seen that out of 35, 26 villages (74.29%) cultivated them in all the five ranges in varying numbers In the very high range of 16 and above is reported only one village and in the subsequent ranges from high to low i e (12-16 to 0-4) had been 1,3,12 and 9 villages respectively.

In region II only one village (7 14%) cultivated them in the very low range of 0 – 4, While at the second point of time all the ranges from high to very low reported 1,2,3 and 7 villages respectively In all 13 of the 14 villages gave their share of G.C.A to oilseeds

Region III had 5 villages (11.36%) of 44 cultivating oilseeds in the very low range of 0 – 4 It retained the same number in the same range at the second point of time also but covered all the other ranges upto very high with 12 villages in the low range, 6 in the moderate, 2 in the high and 4 in the very high i e above 16 per cent This indicates overall increasing significance of oilseeds in taluka and its regions and also in central and south central regions of the mainland Gujarat. (Fig 4 16)

COTTON

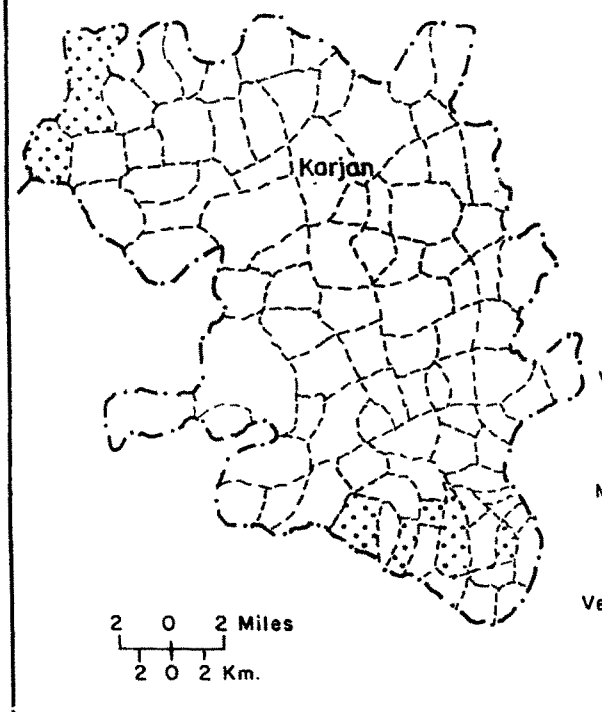
PADRA

Padra taluka is also accounted among the cotton growing regions of cotton belt of Gujarat From the statistics of the cultivating villages available it is found that cotton was the principal crop of this taluka during and around the base year of the study. From the record of the cotton cultivating villages it is found that 77 out of 82 villages in the taluka had devoted a pretty substantial area of 17,910 58 hectares (i e 45 33%) for cotton in 1960-61 On this basis it may be asserted that cotton has been the principal crop of this area enjoying the largest

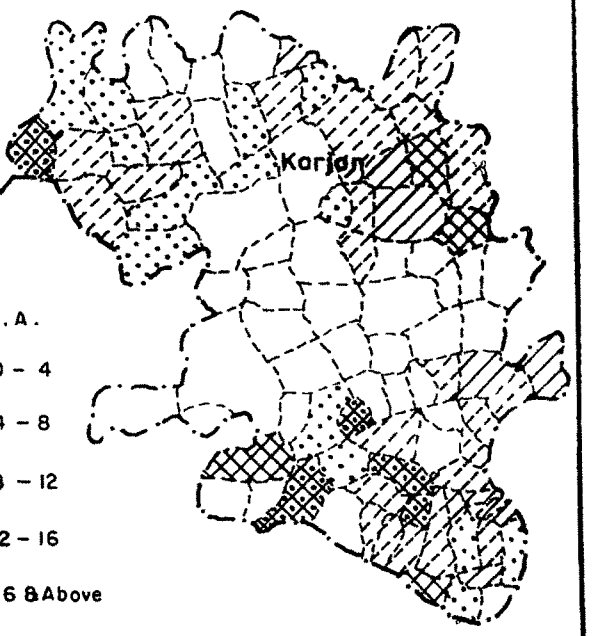
TALUKA KARJAN

CHANGE IN OIL SEEDS CULTIVATION

1970 - 71



1990 - 91

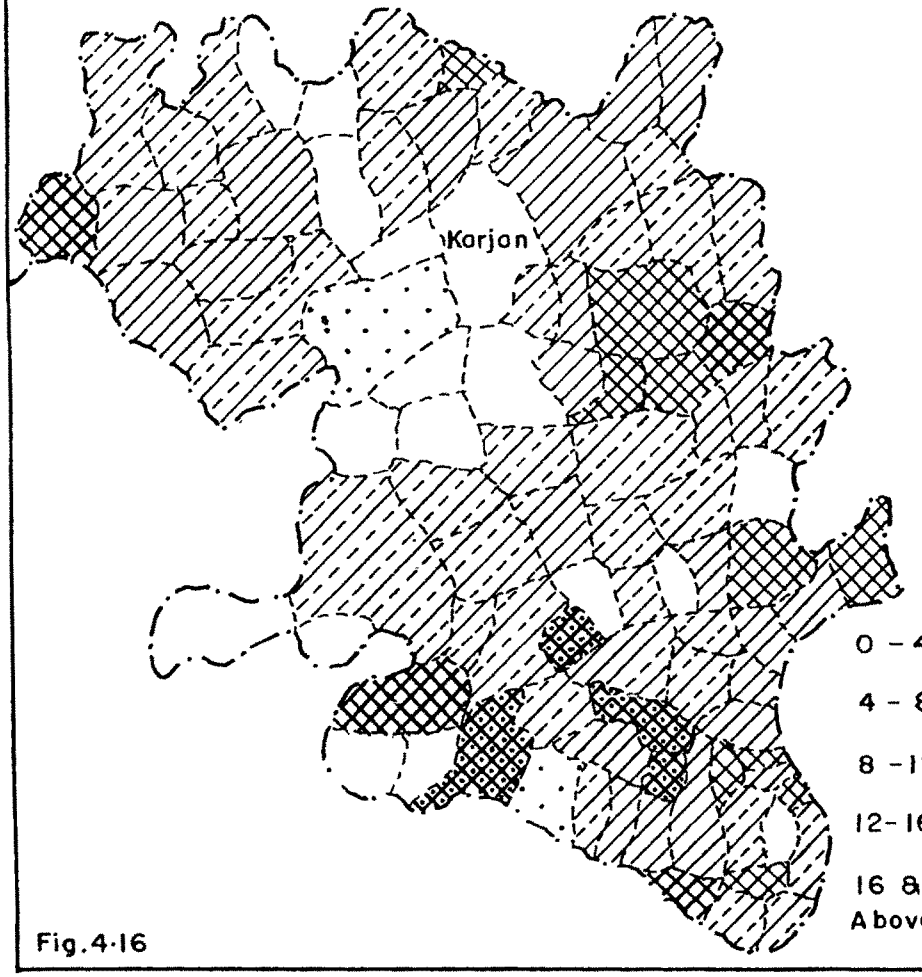


% To G.C.A.

Very Low	0 - 4
Low	4 - 8
Moderate	8 - 12
High	12 - 16
Very High	16 & Above

2 0 2 Miles

2 0 2 Km.



N

2 0 2 Miles

2 0 2 Km.

Levels of Change

(%)

Positive		Negative
0 - 4	Very Low	0 - 4
4 - 8	Low	4 - 8
8 - 12	Moderate	8 - 12
12 - 16	High	12 - 16
16 & Above	Very High	16 & Above

Fig.4.16

share of the G C A during the base year This is because the Padra is placed in south of Baroda near the Kanam region or the region of the black cotton soil Its northern part are built up of mostly alluvial and black cotton mixed soil So, they have devoted little area to cotton but its southern and western parts are nearer the Kanam region with dominating black cotton soil and dominating cotton crop

In 1990-91, the period of general downfallof cotton, has affected cotton cultivation in this taluka not very seriously in respect of the cultivating villages that it decreased by one only (76 from 77 villages) But in respect of the area devoted to cotton has substantially decreased by 11,129 84 hectares i e 29 87 per cent So its cultivation shrunk to 15 46 per cent only The common cause for this downfall is the biotic menace severely damaging the crop and along with that is the increasing cost of cultivation with decreasing output. Increasing inputs and decreasing output caused an imbalanced ratio between the two

In the regional context the basic factors of decline remained the same as that for the whole taluka but the variability in the distribution and the size of area devoted to it in each region is very clearly discernable giving the indication of changing soils from one region to the other As stated in the preceding lines of discussion of taluka in the year 1960-61, a regular increase according to changing soil is notable from 3,305 44 hectares in region I and 3,607.48 hectares in region II while 10,997.66 hectares in region III. As region I has less hectarage of black soils, region II has a bit greater than it, but region III has the largest hecterage of this soils In 1990-91, decreasing trend is a bit changed even though all regions have shown general and substantive decrease Region I

had 2,409 36 hectares under cotton, region II had devoted only 1,112 73 and region III had slashed down to 3,258 65 hectares making the highest decrease of 46 69 per cent This general downfall of cotton has drastically changed the cropping pattern of all regions and the taluka as a whole

A detailed survey of the village wise distribution of cotton in the regions of Padra taluka explains almost the same plight of cotton over the two points of time 1960-61, 33 out of 37 villages i e (89 90%) cultivated cotton in varying range of distribution In the very low range of 0 – 15 per cent there had been 13 villages followed by 8 villages in the next higher and 10 villages in the further next higher One each were in the moderate and high ranges and none in the very high range

At the next point of time the number in the lowest went up to 18 followed by 10 in the next higher range and 5 in the further next higher of 30 – 45 per cent Even though the number of cultivating villages remained the same in this year, the size of the share of G.C A. devoted to it has drastically slashed down

In region II all 11 villages cultivated cotton in the varying ranges between 0 – 15 and 60 – 75 per cent in which at the base year 4 were in the high range, 3 and 3 in the subsequent lower ranges and only 2 in the low range and none in the very low range Where as the picture in 1990-91 changed, 5 villages each appeared in the very low and low range of 0 – 15 and 15 – 30 and only one in the subsequent range of 30 –45. The rest remained vacant

Region III considered to be the most suitable area for cotton in Padra taluka, had shown a better position of village wise distribution of cotton in different ranges from low to very high There were 2, 2and 4 villages in

the low, sub-moderate and moderate ranges, 17 villages in the high, and 9 villages in the very high range

Table 4 34

Villagewise and Region wise Distribution of Cotton in Padra 1960-61 and 1990-91

(in per cent)

Region	Year	Percentage Range Distribution						Total	
		0 – 15	15–30	30–45	45–60	60-75	75 & above	1960-61	1990-91
		Code Number of Villages							
I	1960-61	3,4,5,6,7,8, 11,12,13,15, 16,24,35 (13)	14,19,20, 21,25,29, 30,46 (8)	17,18,22 25,26,28 31,34,36 ,37 (10)	27 (1)	47 (1)	-	33	-
	1990-91	2,3,9,10,12, 13,14,15,19, 20,22,23,26, 29,31,34,46, 47 (18)	4,6,11,16 17,18,21, 25,28,35 (10)	24,27,28 36,37 (5)	-	-	-	-	33
II	1960-61	-	33,39 (2)	32,38,41 (3)	40, 62 (2)	44,45,48 ,50 (5)	-	11	-
	1990-91	33,38,39,40, 50 (5)	32,41,44, 45,62 (5)	48 (1)	-	-	-	-	11
III	1960-61	-	42,43 (2)	59,61 (2)	58, 64, 66, 67 (4)	51,53,55 60,63,65 67,70,71 72,75,76 77,78,79 80,81,82 (17)	49,52 54,56 57,68 69,73 ,74 (9)	34	-
	1990-91	42,43,51,56, 57,59,60,63, 66,70,71,72, 77 (13)	52,53,54, 58,61,64, 65,67,68, 73,75,76, 79,82 (14)	49,55,69 74,80,81 (6)	78 (1)	-	-	-	34
Total	1960-61	13	12	15	7	22	9	78	-
	1990-91	36	29	12	1	-	-	-	78

The year 1990-91 has changed the face with 13 villages appearing in the lowest range of 0 – 15 against none in 1960-61 and 14 villages in the low range against 2 of the previous year (i e 1960-61), 6 villages had cotton in the range of 30 – 45 and 1 in the next higher range and none in the high and very high ranges . Table 4.30 is showing the levels of change in cotton cultivation over the two point of time in Padra (Fig. 4 17).

KARJAN

Karjan being one of the important cotton growing area of the cotton belt of main land Gujrat and the very important cotton growing taluka of Vadodara District, devoted 70 73 per cent of its total G C.A to this crop at the first point of time. But the 1990-91 has given a very severe blow to the cultivation of this crop which has descended to 11 09 per cent making a sharp slash of 59.66 per cent. This is mainly because of the wave of the down fall of cotton in the entire cotton growing belt of mainland Gujarat . The fall of cotton gave a chance for the tuer to rise, oilseeds, fodder and a new addition of sugarcane to the crop catalogue of the area which were least noticeable at the first point of time. The three soil based regions of the taluka have shown different percentages of the G.C.A devoted to its cultivation Table 4 35 clearly explains the variable cotton culture

P.T O.

TALUKA PADRA

CHANGE IN COTTON CULTIVATION

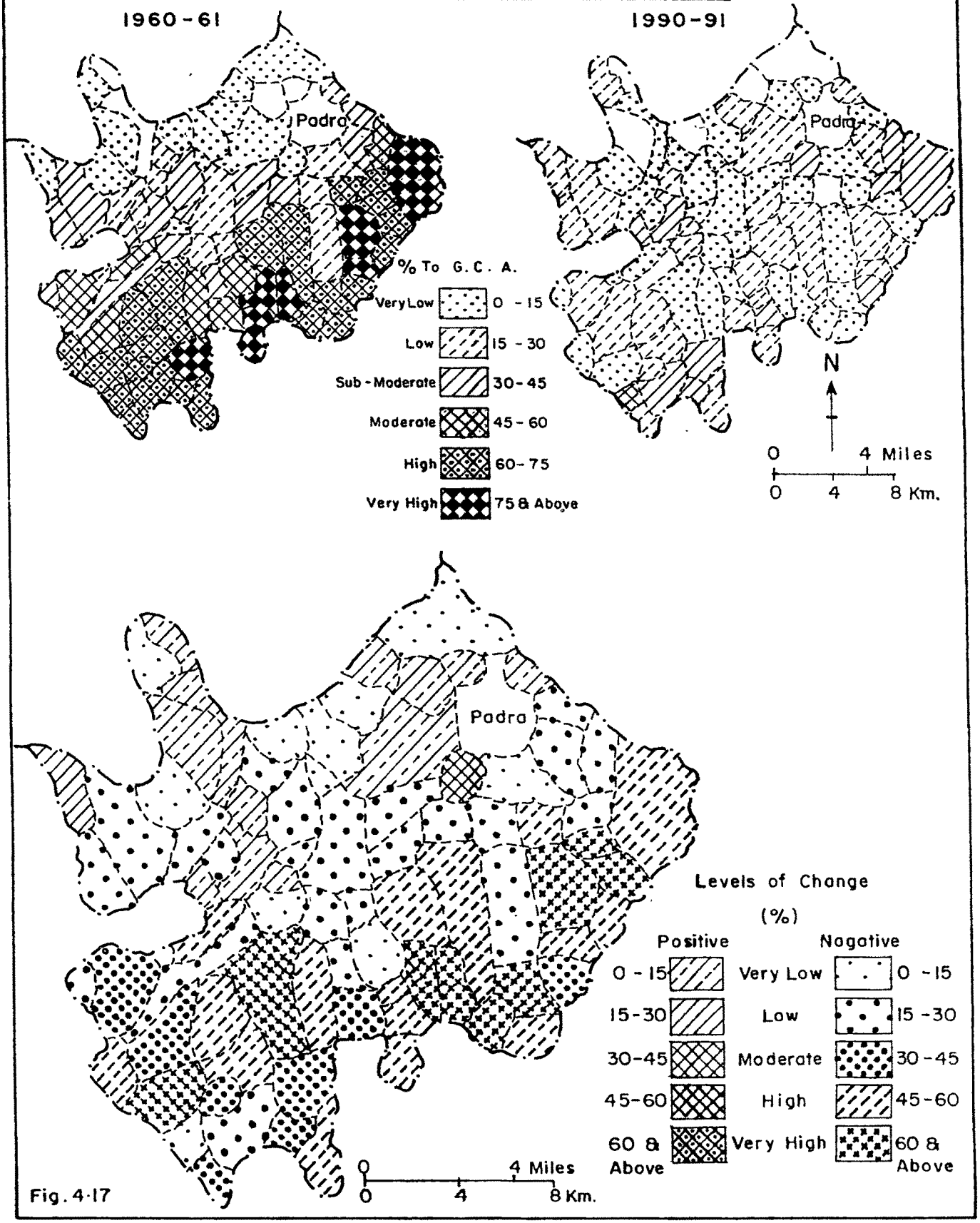


Fig. 4·17

Table 4 35

Region wise Hecterage and Percentage G C A under Cotton in Regions of Karjan

1970-71 & 1990-91

Regions	1970-71		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	17374.81	74.33	3128.05	13.91	-14246.76	-60.42
II	7443.17	73.79	1017.16	9.80	-6426.01	-63.99
III	12282.89	64.67	1540.87	8.34	-10742.02	-56.33

Region I, built up of the black cotton soil had the largest area of 74 33 per cent under this crop Region II, though small in size has preferably culivated cotton on 73 79 per cent of its G C A and was placed second In order of the hierarchy of cotton growing areas the third region maintained its place with 64.67 per cent of G C A devoted to this crop at the first point of time (1970-71)

Again the same order of descent of the regions is discerned at the second point of time Region I devoted 13.91 per cent, region II, 9 80 per cent and region III 8 34 per cent of the G C A to this crop. If seen from the level of decrease region II is placed first by decreasing 63 99 per cent, region I placed second by decreasing 60.42 per cent and region III remains in the same position by decreasing 56.33 per cent at the second point of time.

The village wise distribution at both the point of time reflects that cotton has been cultivated by majority of villages in each region In the region I, 31 out of 35 villages, in region II, 12 out of 14 villages and in region III, 37 out of 44 villages cultivated cotton at the second point of time against 100 per cent villages of each region

at the first point of time. However the allotment of hectareage to this crop at the two points of time are far different from each other

At the first point of time 18 villages of the region I, 6 villages of region II and 8 villages of the region III had been in the highest range of percentage distribution of G.C.A i.e. 75 per cent and above In the next higher order of 60 – 75 were placed 12 villages of region I, 6 villages of region II and 24 villages of region III. In the moderate and the subsequent lower orders were 3, 1 and 1 respectively with none in the very low i e. in 0 – 15 per cent in region I In the second region, 2 villages only were in the moderate range of 45 – 60 per cent and none in other subsequent ranges. In region III, 4, 4 and 4 were in the moderate and subsequent ranges respectively with none in the lowest range of 0 – 15 per cent The scenario drastically changed at the next point of time where the order shifted from upper to lower as against the lower to upper in the range distribution Table 4.36 gives the clear pattern at the two points of time

P.T.O.

Table : 4 32

Village wise and Region wise Distribution of Cotton in Karjan 1970-71 & 1990-91

(in per cent)

Region	Year	Percentage Range Distribution						Total	
		0 – 15	15–30	30–45	45–60	60-75	75 & above	1970-71	1990-91
		Code Number of Villages							
I	1970-71	-	1 (1)	2 (1)	3,4,6 (3)	5,8,9,10, 11,12,17, 21,23,31, 32,33 (12)	7,13,14, 15,18,19, 20,22,24, 25,27,28, 29,30,34, 36,37 (18)	35	-
	1990-91	1,2,3,4,6,7, 8,11,15,16, 20,21,22,32, 24,28,29,32 (18)	5,10,13,1 4,18,27,3 0,36,37 (9)	9,12,1 7,31 (4)	-	-	-	-	31
II	1970-71	-	-	-	45,47 (2)	26,35,42, 43,44,48 (6)	38,39,40, 41,46,49 (6)	14	-
	1990-91	26,43,45,46, 47,48,49 (7)	38,39,41, 42,44 (5)	-	-	-	-	-	12
III	1970-71	-	69,70,78, 79 (4)	88,90, 91,93 (4)	73,81 87,92 (4)	50,51,53, 54,55,57, 58,59,60, 61,67,68, 71,72,74, 75,76,77, 80,82,83, 84,85,89 (24)	52,56,62, 63,64,65, 66,86 (8)	44	-
	1990-91	50,52,53,54, 55,56,57,60, 62,63,64,65, 67,68,69,73, 76,77,78,79, 80,82,83,84, 85,87,88,89, 90,91,93 (31)	51,58,59, 61,66,71 (6)	-	-	-	-	-	37
Total	1970-71	0	5	5	9	42	32	93	-
	1990-91	56	20	1	-	-	-	-	80

In region I, 18 of the 31 cultivating villages confined themselves to the very low range f 0 – 15 per cent, 9 n the low range and only 4 in the subsequent higher range of 30 – 45 per cent In region II, 7 villages devoted he lowest range of 0 – 15 per cent to cotton and 5 went slightly up to the low range of 15 – 30 per cent and in region III, of the total 37 cultivating villages 31 had allotted the lowest range of 0 – 15 per cent i e very low range and only 6 went a step ahead to the low range of 15 – 30 per cent. These are the scenarios of ups and downs in the cotton dominated agricultural landscape locally known as Kanam region of the mainland Gujarat. (Fig 4 18)

TOBACCO

Tobacco like cotton has been a traditional cash crop characteristically grown in the alluvial soil based tobacco region in the central and south central Gujarat It is the special crop of the Mahi river valley. This area in the local regional divisions falls in 'Wakad' region which encloses a vast area of Kheda and Baroda Districts In the north of the black cotton soil (Kanam) region of southern Gujarat Tobacco is the principal crop of Kheda District. But as a principal cash crop along with several other crops as cereals, pulses etc, it is cultivated in Baroda District also but some of the talukas of Baroda adjoining 'Kanam' region do not find favourable conditions for its cultivation such as Karjan, while adjacent to it. Padra has hopeful circumstances for it to flourish It is cultivated more for commercial than the domestic uses It is supplied to most of the big bidi and tobacco processing centres of India Its main markets

TALUKA KARJAN

CHANGE IN COTTON CULTIVATION

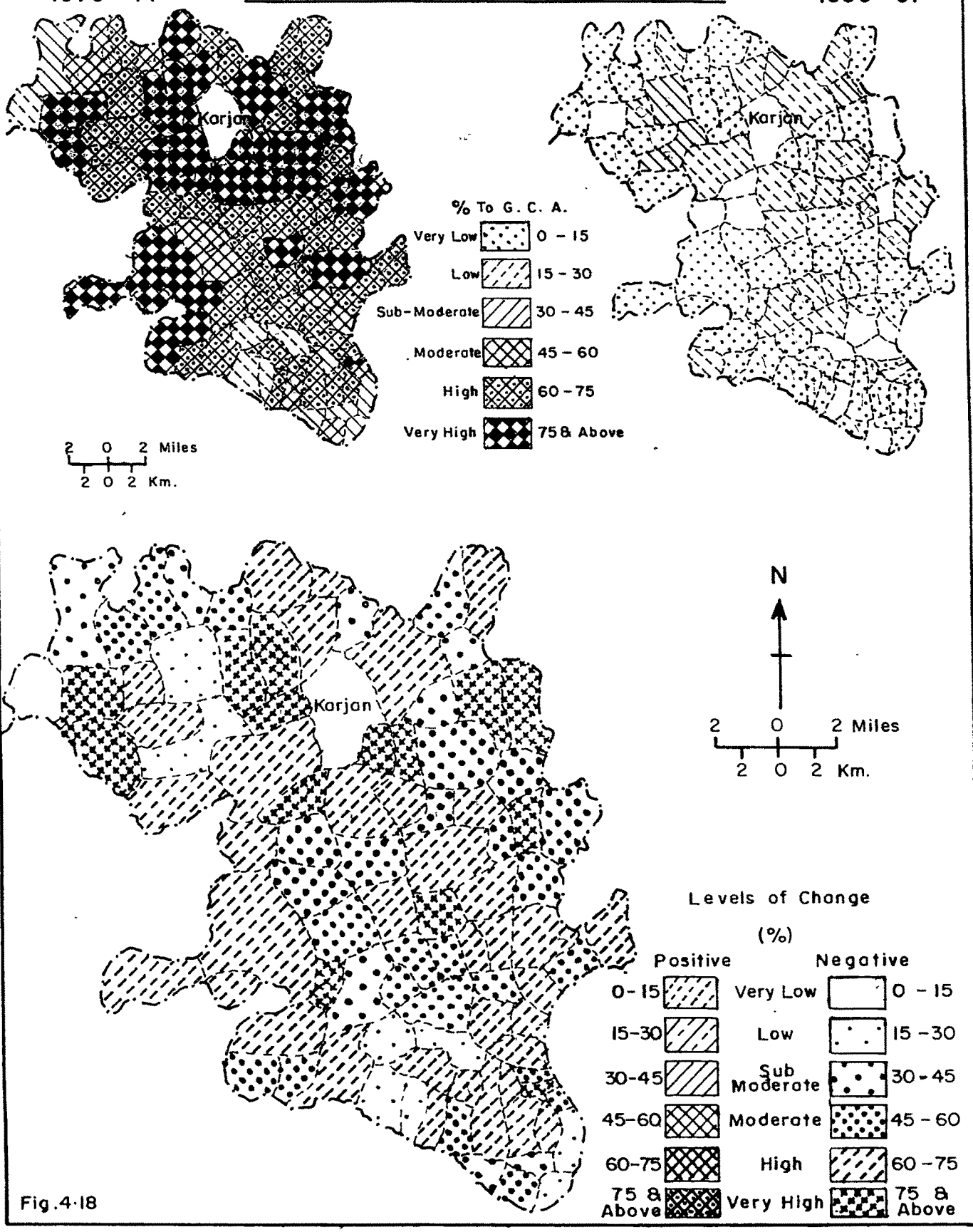


Fig. 4·18

are spread over Madhya Pradesh, Uttar Pradesh, Delhi region and Bihar

In the two talukas under study Padra is a taluka which had partly favouring conditions for tobacco in the north and north east areas, in its south and south-west areas, it had favourable conditions for cotton While Karjan being the part of Kanam region had no tobacco at all at any point of time of the study

PADRA :

Padra is characterised for its mixed cropping or multi-cropping; most of them for commercial objectives It had never practiced mono-cropping This is reflected from the percentage area 6 17 per cent devoted to tobacco at the first point of time (1960-61) in the taluka G C A Other crops are cereals, pulses vegetables, cotton etc taking their share in the taluka G C A In 1990-91 owing to the downfall of cotton all over the cotton region and vanishing away of the millets like Kodra, the size of area devoted to tobacco, acquiring almost the most important place among the existing cash crops, went up to 13.42 per cent of the taluka G.C.A. which is more than double of the former year's percentage. Table 4.37 gives the regional distribution over the two point of time

P.T.O.

Table 4 37

Hectrage and Percentage G C A under Tobacco in Padra 1960-61 and 1990-91

Regions	1960-61		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	1933.32	11.80	4758.99	23.23	2824.87	11.43
II	202.77	2.75	788.27	10.65	585.50	7.90
III	300.34	1.83	337.55	2.11	37.21	0.23

In the regional pattern of distribution of tobacco in Padra, it is found that the Mahi flood plain area covering the upper half of the taluka has a very promising condition, in relation to both soil and climate for tobacco cultivation In the regional division of the taluka for the purpose of the study, this area constitutes region I This region had devoted a sizeable area of 11 80 per cent for tobacco at the first point of time, and almost more than double to that 23.23 per cent at the second point of time This shows that it is a demand based increase and tobacco like cotton is not yet giving the disappointing return to the farmers. Further, the improving irrigation facilities have also encouraged irrigated tobacco cultivation along with the rainfed There is no doubt that in case of the quality of tobacco, the rainfed is superior to all but for catering the increasing demand the irrigated tobacco gives a better yield than the former. Thus under the favouring conditions, tobacco area has been increased to a pretty sizeable share of the G C.A of Region I

The tobacco seems to have been not a very desired crop of region II and III where it could occupy 2 75 and 1 83 per cent of their G C A respectively at the first

point of time The bigger area was devoted to cotton cultivation being the main cash crop at the first point of time By the second point of time tobacco gained a desired significance in the second region with 10 65 per cent of the G C A under it which shows that the decrease of cotton became the incentive for increase in tobacco

Region III having more suitable condition for cotton and less for tobacco had only 1 83 per cent at the base year and showed not much concern for rising status of tobacco, as in the other regions It insignificantly increased tobacco area to 2 11 per cent against 1 83 per cent of the former year Thus, the difference of the two years in region I was 11 43 per cent and in region II, 7 90 per cent but in region III it was too insignificant to 0 23 per cent only The village wise distribution pattern is shown by table 4 38

P.T.O.

Table . 4 38

Village wise and Region wise Distribution of Tobacco in Padra 1960-61 and 1990-91

(in per cent)

Region	Year	Percentage Range Distribution					Total	
		0 – 15	15–30	30–45	45–60	60 & above	1960-61	1990-91
		Code Number of Villages						
I	1960-61	1,2,3,4,5,11, 12,13,14,17, 22,23,25,26, 27,28,31,34, 35,46,47 (21)	6,24,30 (3)	7,29 (2)	8 (1)	9,10 (2)	29	-
	1990-91	1,2,3,12,14, 16,20,21,22, 23,24,25,27, 34,46 (15)	7,15,17, 18,19,28 (6)	5,10,11, 26,31 (5)	6,9,47 (3)	8,29,30 (3)	-	32
II	1960-61	33,45 (2)	-	-	-	-	2	-
	1990-91	39,40,45,48, 62 (5)	33,34 (2)	-	-	-	-	7
III	1960-61	52,58,59 (3)	42 (1)	-	43 (1)	-	5	-
	1990-91	59 (1)	63 (1)	42,43 (2)	-	-	-	4
Total	1960-61	26	4	2	2	2	36	-
	1990-91	21	9	7	3	3	-	43

The detailed village wise distribution of tobacco in region I of Padra is revealed by Table 4 38 that only 29 of the 37 villages (78 38%) cultivated it in all the percentage ranges with maximum 21 in the very low of 0 – 15 and 2 only in the very high of 60 and above percentages. In the ranges in between the two were 3,2 and 1 respectively in the low to high ranges at the first point of time At the second point of time the cultivating

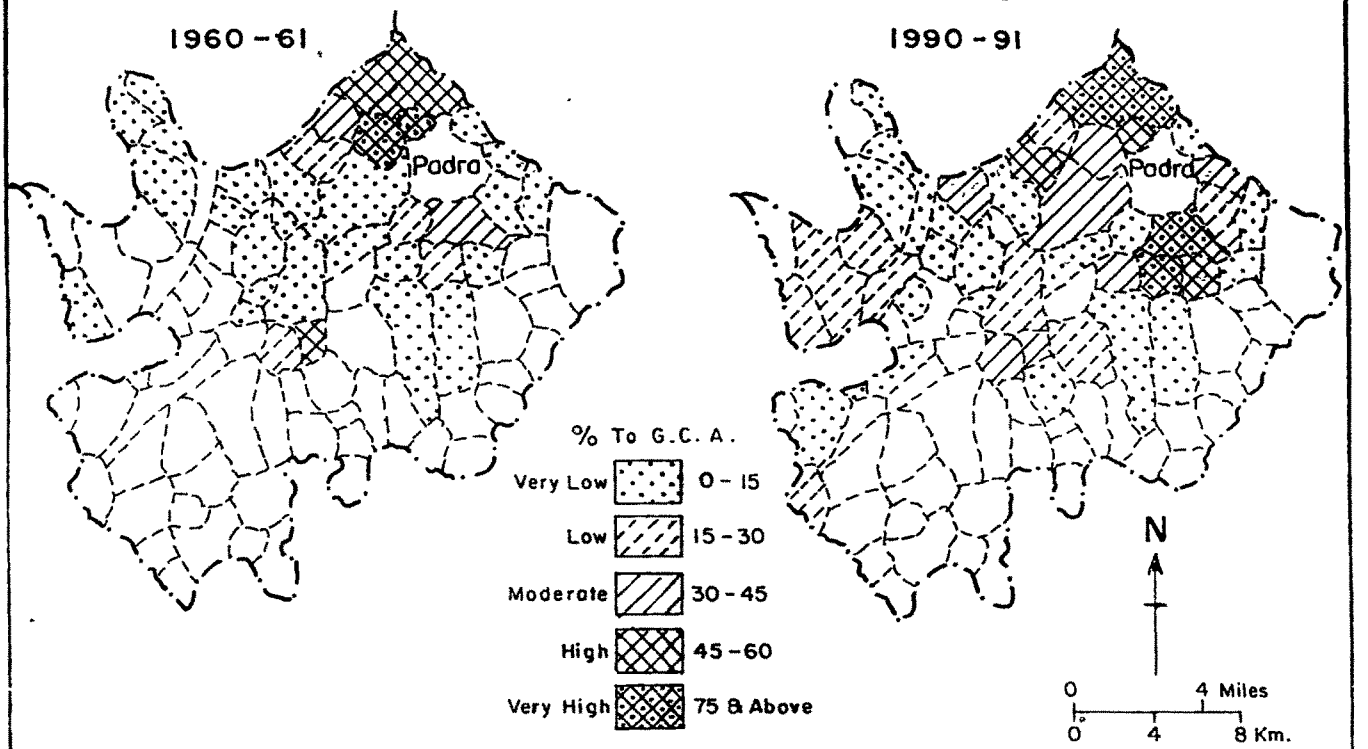
villages rose up to 32 of the 37 villages (86.49%) and the percentage range of distribution also reflects improvement that in the very low range number of villages decreased from 21 to 15, in the low range the number doubled from 3 to 6, in the moderate range it went up to 2.5 times to 5, in the high range it went up to 3 times to 3 villages and in the very high range of 60 and above the number went upto 1.5 times to 3

In region II as shown in the table, only 2 of the 11 villages entertained it insignificantly in the range of 0 – 15 (very low) only. Its position improved significantly that 7 of the 11 villages cultivated it and also found improvement in the percentage range of distribution that 5 villages were in the very low and 2 were in the low range, at the second point of time

In region III it faced the pitiable condition at both the points of time The 5 of the 34 villages at the first point of time and 4 at the second point of time grew it The percentage range of distribution had been confined to low and very low with 3 and 1 respectively and 1 in the high range of 45 to 60 per cent at the first point of time At the second point of time the only change noted is that in the very low range the number of villages decreased to 1 from 3, in the low range it remained the same while 1 village that was in the high range disappeared. instead 2 village appeared in moderate range of 30 – 45 per cent So over all, it may be said on the evidence of the table that region II and III are less favouring than region I for tobacco cultivation in Padra. (Fig. 4.19).

TALUKA PADRA

CHANGE IN TOBACCO CULTIVATION



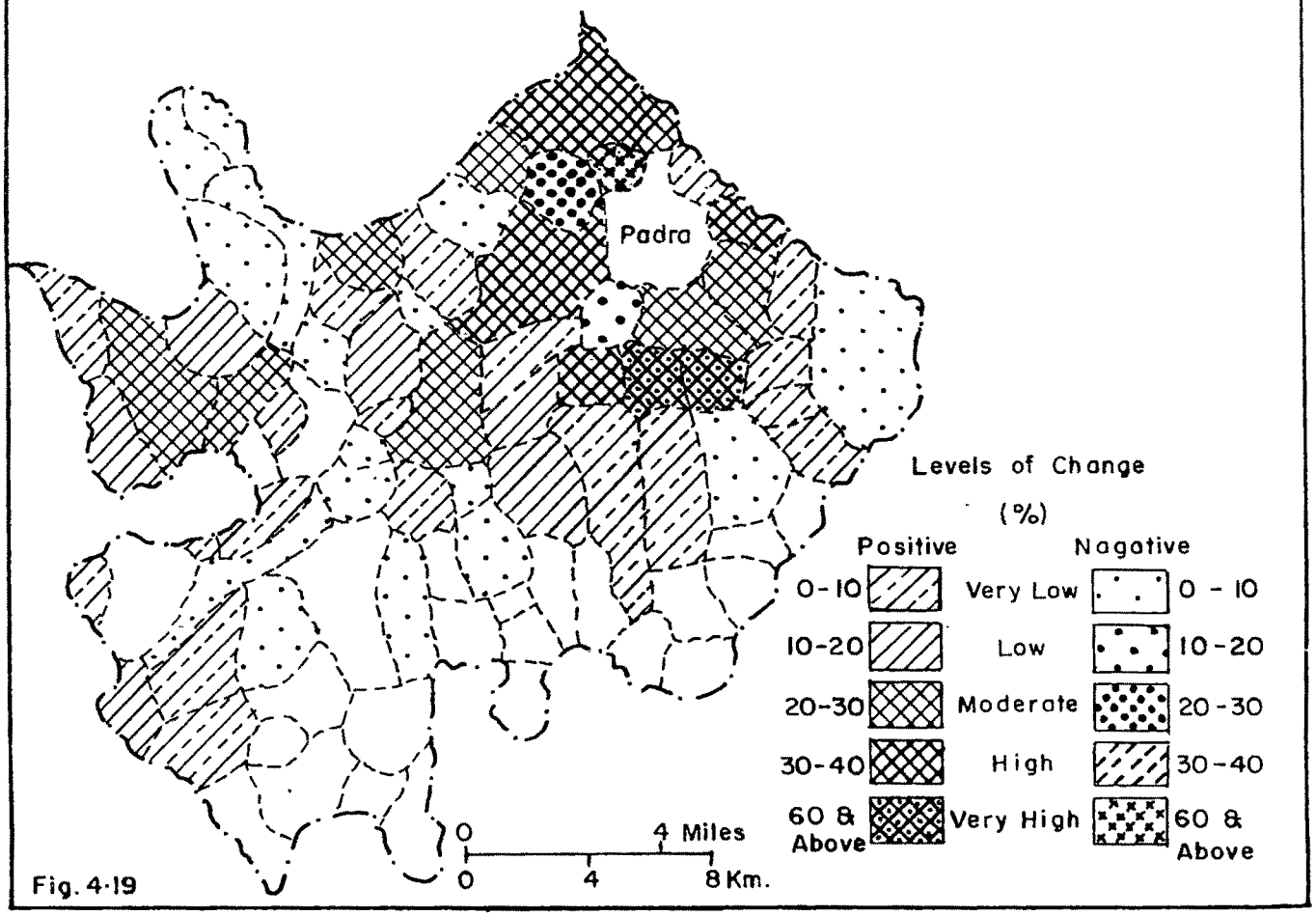


Fig. 4-19

SUGARCANE

Sugarcane is the non traditional crop of this area It has registered its entry just recently in Karjan because of its wide spread cultivation in the southern part of the cotton belt i e Surat District and the adjacent areas Over recent years irrigation facilities by mechanised means have well improved in all the three regions, more-so-over the Bharthana village of region II has been selected for the establishment of medium size sugar mill and another site Bharthali is proposed for the another plant These incentives encouraged the sugarcane cultivation because the market is developing at hand and facilities for cultivation are also improving It may be predicted on the basis of the improving facilities for cultivation that in near future Karjan may become a substantial producer of sugarcane and sugarcane may become a compensatory crop for the loss of cotton

In respect of the area devoted to sugarcane in Karjan at the first point of time, it is found that at first it appeared in villages of region I occupying only 0 01 per cent area of the region's G C A Thus, it was too insignificant to be reckond with, but by the second point of time it seems to have become a popular crop of the taluka occupying 3.23 per cent of the total G C A as against much less than 0.01 per cent of the former point of time It shows good signs for its further prevailing over the taluka crop land. Table 4 39 gives the regional distribution over the two points of time.

P.T.O.

Table · 4 39

Hectrage and Percentage G C A under Sugarcane in Karjan

1970-71 & 1990-91.

Regions	1970-71		1990-91		Difference	
	Area (ha.)	%	Area (ha.)	%	Area (ha.)	%
I	2.78	0.01	733.10	3.26	730.32	3.25
II	-	-	447.37	4.31	447.37	4.31
III	-	-	478.11	2.59	478.11	2.59

Starting with a very insignificant share of cropland in region I, sugarcane with a span of two decades has conquered a sizeable area of all the three regions In 1990-91, it occupied 2 26 per cent of the total G C A of region I against 0 01 of the former point of time, 4 31 per cent of region II against nothing at the base year and 2 59 per cent of region III against nothing at the former point of time. ´So a good area of each region has come under its sway at the second point of time

Its village wise distribution pattern is shown by Table 4 40 below. It reveals that sugarcane was cultivated in 1 of the 35 villages in the level of 0 – 3 per cent in the region I of Karjan in 1970-71 By 1990-91 it shows a sizeable diffusion in all the percentage ranges except the moderate 6 – 9 per cent In region I, 9 villages of the 35 cultivated it with 4 in the very high range of 12 per cent and above, 3 in the high range of 9 – 12 and one each in low and very low ranges of 3 – 6 and 0 – 3 per cent

Region II had no trace of sugarcane at all at the first point of time, but its existence is very much felt at the second point of time with 3 out of 14 villages in the very

high range of 12 and above, none in the high range, 1 in the moderate range of 6 - 9 per cent, 4 and 1 respectively in the low and very low ranges of 3 - 6 and 0 - 3 per cent

In the region III like region II, sugarcane was totally absent at the first point of time. But by the second point of time its distinct appearance is felt, 13 of the 44 villages have cultivated it inall the percentage ranges from very low of 0 - 3 to very high of 12 per cent and above In the very high range it was cultivated in 2 villages and in the subsequent ranges one each in high and moderate, 6 in the low and only 3 in the very low range

P.T.O.

Table 4 40

Village wise Percentage Range Distribution of Sugarcane in Karjan 1970-71 and 1990-91

(in per cent)

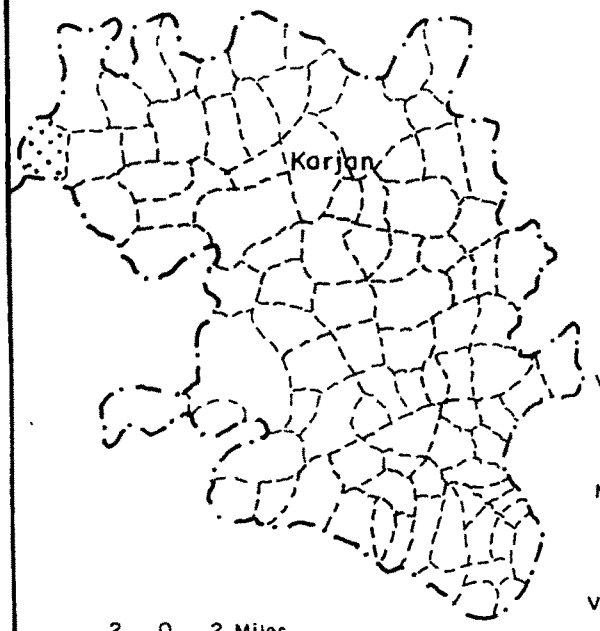
Region	Year	Percentage Range Distribution					Total	
		0 – 3	3 – 6	6 – 9	9 – 12	12 & above	1970-71	1990-91
		Code Number of Villages						
I	1970-71	1,2 (2)	-	-	-	-	1	-
	1990-91	2,3,9,15, 18,22,29, 31,32 (9)	10,11,12,13,14, 17,19,20,21,25, 28,37 (12)	8,23,27 (3)	24 (1)	1 (1)	-	26
II	1970-71	-	-	-	-	-	-	-
	1990-91	46 (1)	26,41,43,44 (4)	38 (1)	-	39,42,48 (3)	-	9
III	1970-71	-	-	-	-	-	-	-
	1990-91	75,82,92 (3)	52,54,55,77,86, 87 (6)	56 (1)	65 (1)	50,91 (1)		13
Total	1970-71	1	-	-	-	-	1	-
	1990-91	13	22	5	2	6	-	48

With this progress of sugarcane it is presumed that with further development of irrigation facilities as well as full fleged commissioning of proposed sugarcane plant at Bharthali The sugarcane may become conspicuous in all the three regions by a wide occupancy of sizeable share of the G.C A. and may become the principal cash crop of this area in future. (Fig. 4 20)

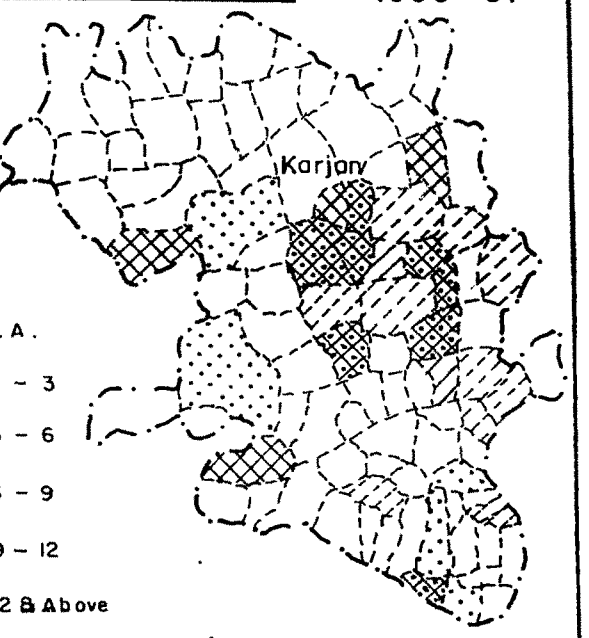
TALUKA KARJAN

CHANGE IN SUGARCANE CULTIVATION

1970 - 71



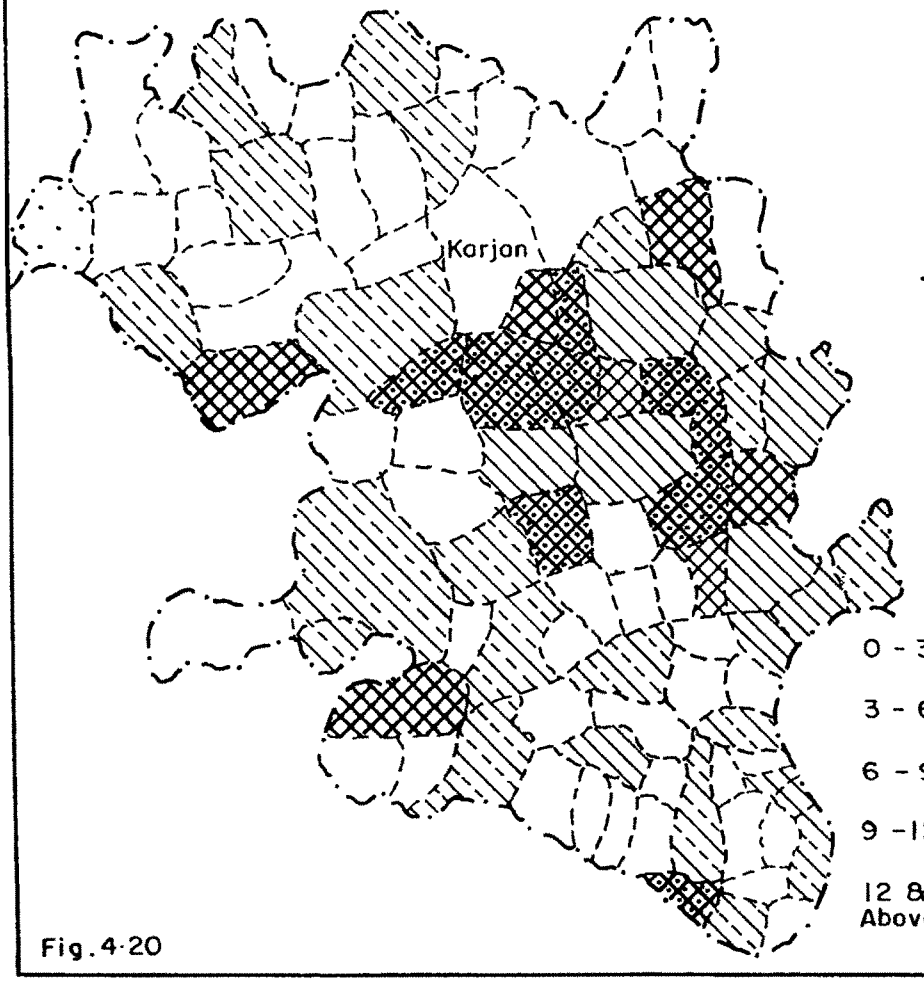
1990 - 91



% To G.C.A.

Very Low	0 - 3
Low	3 - 6
Moderate	6 - 9
High	9 - 12
Very High	12 & Above

2 0 2 Miles
2 0 2 Km.



N

2 0 2 Miles
2 0 2 Km.

Levels of Change
(%)

Positive		Negative
0 - 3	Very Low	0 - 3
3 - 6	Low	3 - 6
6 - 9	Moderate	6 - 9
9 - 12	High	9 - 12
12 & Above	Very High	12 & Above

Fig. 4·20