

HORTICULTURAL CROP FARMING WITH SPECIAL REFERENCE TO FRUIT CROPS IN KURNOOL DISTRICT

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ABSTRACT

Horticulture is the branch of agriculture, which deals with the cultivation of fruit crops, vegetable crops, flower crops, spices and condiments, plantation crops, Tuber crops, medicinal plants and aromatic plants. India is the largest producer of fruits in the world. The major types of fruits grown in India are Mangoes, Grapes, Apple, Apricots, Orange, Banana, Avacados, Guava, Lichi, Papaya, Sapota, Warer Melons etc, In the united Andhra Pradesh state Horticulture contributes to approximately 4 percent of its GSDP. The united Andhra Pradesh ranks first in the production of Mango, Sweet lime and Papaya in the country. Keeping the importance of fruit crop cultivation in view, both Agriculturerally and economically, an attempt is made here to study the geographical patterns of fruit crops cultivation in Kurnool District, Andhra Pradesh.

KEY WORDS: *Horticulture, Fruit crops, Geographical patterns.*

INTRODUCTION

Andhra Pradesh state is better placed for the production of various horticultural crops due to its high geographical diversity, different agro-climatic zones, varied soil types and good irrigation resources. Horticultural crops cover 12 percent of the grass cropped area accounting for 16 lakh hectares with an annual production of 118 lakh tonnes. Kurnool district is also having an important place in the map of the state's horticultural crops production. It is one of the major production areas of Banana among fruits, Tomato and Bhendi among Vegetable crops, Onion and coriander among Spices, crossandra, Jasmine, Marigold among flower crops. In this context, recognising the growing importance of horticultural crops, an endeavour is made here to study the geographical patterns of fruit crop cultivation in Kurnool district.

OBJECTIVES OF THE STUDY

- To study the spatial patterns of horticultural crops in Kurnool District.
- To study the geographical patterns of fruit crops cultivation in Kurnool District.

METHODOLOGY & TECHNIQUES USED

To fulfil the set objectives, secondary data regarding to horticultural crops in general and fruit crops in particular for the year 2010-11 have been used for the analysis. All the secondary data has been collected from the District Statistical Bureau and Planning office, Kurnool. Simple statistical techniques such as averages, percentages etc have been applied using SPSS package. GIS software is used to map the required data.

Study Area:

Kurnool district is the second largest district of separated Andhra Pradesh state occupying 17,658 sq kms of area, which account for 11.02 percent of the total geographical area of the state. It lies between the northern latitudes of 14° 54' and 16° 18' and eastern longitudes of 76° 58' and 78° 25', the district is bounded on the north by Tungabhadra and Krishna rivers as well as Mahaboob nagar district of Telangana, on south by Kadapa and Anantapur districts, on the west by Karnataka state and on the south by Prakasam district. Kurnool district comprises 3 Revenue divisions (Kurnool, Nandyala and Adoni) consisting of 54 Revenue mandals. The

general altitude of the district varies from 300 mts to 600 mts above mean sea level. Nallamalas and Erramalas are the two important mountain ranges in the district running parallel from north to south.

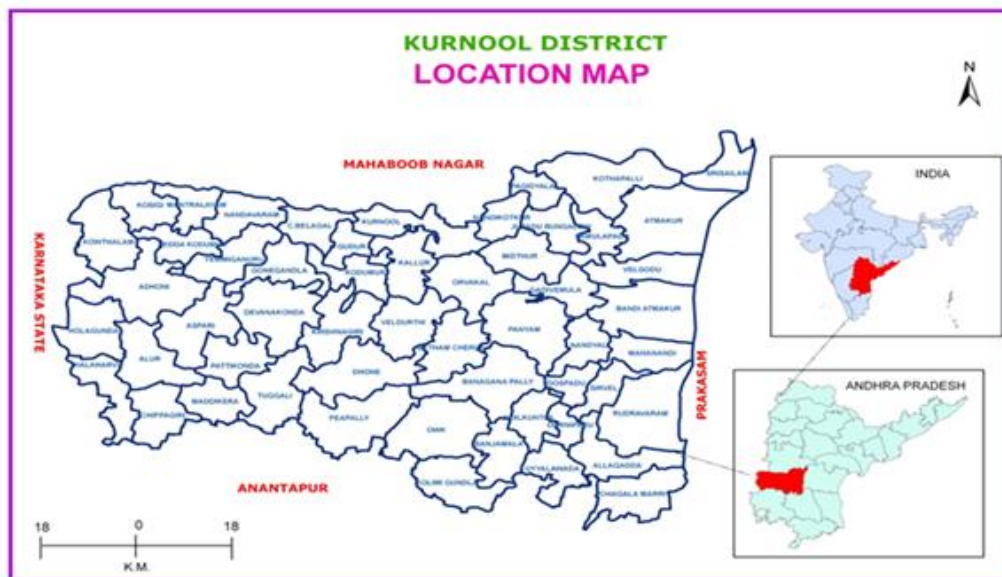


Fig:1

The major rivers flowing in the district are Tungabhadra, Hundri, Krishna and Kunderu. The total area under forests is 7,86,412 acres accounting for about 18% of total geographical area of the district. The major soils of the Kurnool district are hilly soils, deep red sandy soils, shallow red sandy soils. The net area sown is 8.69 lakh hectares which forms 49.26% to the total geographical area. The total cropped area is 10.04 lakh hectares. According to 2011 census, Kurnool district has a total population of 40.47 lakhs. Predominantly Kurnool district is rural in character with 75 percent of population living in rural areas.

RESULTS & DISCUSSIONS

Spatial Patterns of Horticultural Crops

The area under total horticultural crops in Kurnool district amounts to 8.75 percent to the total cropped area

with an hectarage of 89,366 hectares occupying fourth place after Bengal gram (21.2%), Groundnut (17.52%) and Paddy (13.42%). The major heads which are grouped together as horticultural crops for the study are Spices & condiments, vegetable crops and fruit crops. With regard to total horticultural crops, very high concentration (>20%) is found in C.Belagal (27.34%) and Mahanandi (24.34%) followed by high concentration (15-20%) in Orvakal (19.57%), Kodumur (18.88%) and Kurnool (15.86%) mandals. In about 12 mandals, moderate concentration (10-15%), in 16 mandals, low concentration (5-10%) and in 20 mandals very low (<5%) concentration of Horticultural crops to the total cropped area is registered. As Srisailam mandal is composed of hilly terrain and natural vegetation, cultivation of crops is absent here (Fig -2).

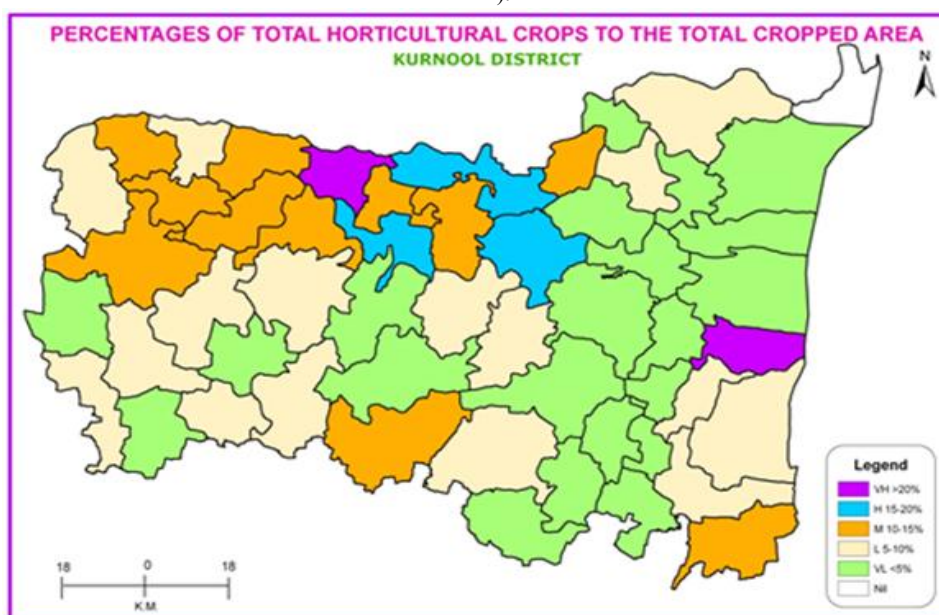


Fig: 2

Percentages of Total spices & condiments, Total vegetables and Total fruit cropped area to the total horticultural cropped area-Kurnool District,2010-11

S.NO	NAME OF THE MANDAL	PERCENTAGE TO THE TOTAL HORTICULTURAL CROPPED AREA		
		SPICES & CONDIMENTS	VEGETABLES	FRUITS
1	MANTRALAYAM	47.03	48.60	4.35
2	KOSIGI	64.20	34.51	1.27
3	KOWTHALAM	89.40	8.68	1.91
4	PEDDA KADUBUR	67.76	31.30	0.93
5	YEMMIGANUR	65.37	31.10	3.53
6	NANDAVARAM	85.87	13.48	6.29
7	C.BELAGAL	49.98	45.52	4.49
8	GUDUR	48.03	39.98	11.97
9	KALLUR	36.70	45.52	11.92
10	KURNOOL	42.91	53.19	3.89
11	NANDIKOTKUR	36.18	40.95	22.86
12	PAGIDYALA	54.90	19.60	25.49
13	JUPADU BUNGALOW	23.24	67.40	9.35
14	KOTHAPALLE	25.16	61.14	13.69
15	SRISAILAM	0	0	0
16	ATMAKUR	14.62	12.86	72.51
17	PAMULAPADU	74.56	17.55	7.88
18	MIDTHUR	63.54	25.13	11.32
19	ORVAKAL	21.67	47.14	31.17
20	KODUMUR	49.35	42.88	7.76
21	GONEGANDLA	49.18	47.65	3.16
22	ADONI	56.80	41.55	1.64
23	HOLAGUNDA	76.19	8.60	15.20
24	HALAHARVI	92.48	6.15	1.36
25	ALUR	73.49	25.66	0.85
26	ASPARI	46.76	52.90	0.33
27	DEVANAKONDA	67.46	81.06	11.89
28	KRISHNAGIRI	42.04	26.53	31.42
29	VELDURTHI	24.21	39.66	36.11
30	BETHAMCHERLA	20.19	51.57	28.23
31	PANYAM	39.97	15.47	44.54
32	GADIVEMULA	67.05	17.21	15.72
33	VELGODE	61.15	17.74	21.10
34	BANDI ATMAKUR	9.94	8.38	81.67
35	NANDYAL	65.12	13.35	21.52
36	MAHANANDI	19.15	1.40	79.72
37	SIRVEL	41.86	49.90	8.22
38	GOSPADU	37.93	58.27	0.37
39	BANAGANAPALLE	38.11	16.98	44.90
40	DHONE	4.27	25.86	69.85
41	PATTIKONDA	6.88	90.47	2.64
42	CHIPPAGIRI	83.01	13.04	3.94
43	MADDIKERA (EAST)	60.87	34.41	4.70
44	TUGGALI	24.93	63.23	11.82
45	PEAPALLY	3.41	48.03	48.54
46	OWK	81.87	15.86	2.26
47	KOILKUNTLA	28.97	38.78	32.24
48	RUDRAVARAM	43.89	29.45	26.64
49	ALLAGADDA	22.51	53.35	24.13
50	DORNIPADU	7.40	88.14	4.44
51	SANJAMALA	57.02	29.82	13.15
52	KOLIMIGUNDLA	64.44	9.87	25.67
53	UYYALAWADA	39.73	8.48	51.78
54	CHAGALAMARRI	22.36	40.84	36.79
Total District		47.38	36.49	16.13

Spatial Distribution of Total Fruits

The total fruit crops occupy about 14,409 hectares of land accounting for 1.41 percent to the total cropped area and 16.13 percent to the total horticultural crops. The major fruit crops commonly cultivated in the district are Mango, Banana, Sweet orange, Sapota, Acid lime, Guava, Papaya, Berries and Pomegranate. Fruit crops occupying third place among the horticultural crops after spices & condiments and vegetable crops. Very high (>80%) concentration of fruit crops is reported in Bandi Atmakur (81.68%) followed by high concentration (60-80%) in Mahanandi (79.73%), Atmakur (72.51%) and Dhone (69.86%) mandals. Moderate concentration (40-60%) of fruit crops in registered in Uyyalawada (51.78%), Peapully (48.55%), Banaganapalle (44.9%) and Panyam (44.55%) mandals. Low concentration is noticed in 13 mandals and more than half of the mandals (32 mandals) are with very low concentration of fruit crops. As usual Srisailam mandal is not having any cropped area in the district as it generally covered with hilly terrain and natural vegetation (Fig - 1).

Mango

Mango is most important fruit crop cultivated in the Kurnool district. It is having about 7,445 hectares of area accounting for 8.75 percent to the total horticultural crops and 51.67 percent to the total fruit cropped area. Major areas cultivating Mango are, Dhone (52.09%), Banaganapalle

(50.26%), Bandi Atmakur (35.06%), Atmakur (29.08%), Veldurthi (28.91%), Peapully ((25.77%), Bethamcherla (22.39%) and Panyam (20.67%) mandals. In about 44 mandals, the mango crop is less than 20 percent to their total horticultural cropped area. Srisailam and Dornipadu are completely absent with mango cropped area (Table - 2).

Banana

It is the second major crop among the fruit crops in the study region. Banana crop occupying about 3,586 hectares of area accounting for 4.21 percent to the total horticultural cropped area and 24.89 percent to the total fruit cropped area. Maximum of Banana crop is noticed in Mahanandi (62.29%), Chagalamarri (22.07%), Gadivemula (20.75%), Orvakal (16.33%) and Peapully (10.27%) mandals. About half of the mandals are having less than 10 percent of area to their total horticultural cropped area. In 22 mandals, Banana crop has not gained ground during the study period (Table - 2).

Sweet Orange

In the hierarchy of fruit crops, sweet orange occupied 3rd place with an hectareage of 1,474 hectares accounting to 1.73 percent to the total horticultural cropped area and 10.23 percent to the total fruit cropped area of Kurnool district. Maximum concentration of sweet orange is found in Krishnagiri (25.84%) and Koilakuntla (10.28%) mandals. In 42 mandals the cultivated area under sweet orange is less than 10 percent to their horticultural cropped and in 10 mandals the crop is completely absent (Table - 2).

Table-2
Percentages of individual Fruit crops to the total horticultural cropped area- Kurnool District, 2010-11

S.NO	NAME OF THE MANDAL	PERCENTAGE TO THE TOTAL HORTICULTURAL CROPPED AREA								
		MANGO	BANANA	SWEET ORANGE	SAPOTA	ACID LIME	GUAVA	PAPAYA	BERRY	POMA GRANATE
1	MANTRALAYAM	0.16	0.16	0.13	0.00	0.08	0.00	0.00	0.00	0.00
2	KOSIGI	0.23	0.15	0.31	0.00	0.00	0.00	0.23	0.00	0.00
3	KOWTHALAM	0.97	0.00	0.27	0.16	0.16	0.16	0.81	0.00	0.05
4	PEDDA KADUBUR	0.73	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.05
5	YEMMIGANUR	0.49	0.08	3.24	0.74	0.00	0.00	0.12	0.00	0.12
6	NANDAVARAM	0.12	0.17	0.08	0.08	0.00	0.00	0.21	0.00	0.00
7	C.BELAGAL	4.87	0.00	0.99	0.09	0.00	0.06	0.06	0.00	0.00
8	GUDUR	7.36	0.00	4	0.69	0.00	0.50	0.38	0.00	0.00
9	KALLUR	8.30	0.32	1.55	3.31	0.08	5.97	0.08	0.73	0.73
10	KURNOOL	0.93	0.00	2.59	0.21	0.79	0.46	0.00	0.00	0.07
11	NANDIKOTKUR	15.92	1.04	1.60	0.97	0.00	0.13	0.83	0.27	0.27
12	PAGIDYALA	10.68	0.00	4.58	0.00	0.00	2.29	2.29	0.00	0.00
13	JUPADU BUNGALOW	6.80	1.27	1.17	0.31	0.00	0.21	0.00	0.00	0.10
14	KOTHAPALLE	11.96	0.00	1.80	0.32	0.00	0.00	0.00	0.00	0.00
15	SRISAILAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	ATMAKUR	29.08	2.37	3.85	0.59	0.00	0.29	0.00	0.00	0.59
17	PAMULAPADU	4.61	0.27	0.00	0.54	0.00	0.00	0.00	0.00	0.00
18	MIDTHUR	6.75	0.00	0.24	0.00	0.00	0.16	0.00	0.16	0.00
19	ORVAKAL	13.79	16.33	3.07	0.87	0.12	0.72	0.50	0.18	0.43
20	KODUMUR	4.11	1.29	1.10	0.96	0.00	0.55	0.06	0.15	0.09
21	GONEGANDLA	0.47	0.00	0.87	0.23	0.03	0.00	2.22	0.00	0.00
22	ADONI	0.96	0.00	1.31	0.00	0.10	0.00	0.00	0.00	0.00
23	HOLAGUNDA	2.29	0.00	1.72	0.52	0.00	0.00	0.00	0.00	0.19
24	HALAHARVI	0.07	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00
25	ALUR	0.69	0.00	0.17	0.11	0.05	0.00	0.00	0.00	0.05
26	ASPARI	0.33	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00

27	DEVANAKONDA	4.22	0.36	4.49	1.14	0.04	0.91	0.18	0.00	0.09
28	KRISHNAGIRI	7.19	1.30	25.84	0.52	1.21	0.17	2.42	0.08	1.30
29	VELDURTHI	28.91	1.80	2.44	5.85	0.00	0.96	0.19	0.32	0.12
30	BETHAMCHERLA	22.39	2.46	4.13	1.42	0.00	0.23	0.87	0.23	0.31
31	PANYAM	20.67	1.68	2.32	5.90	0.84	3.48	0.00	0.00	0.00
32	GADIVEMULA	15.56	20.75	0.00	7.07	0	0	0	0	1.41
33	VELGODE	9.41	0.51	1.29	0.12	0.00	0.00	0.00	0.00	0.00
34	BANDI ATMAKUR	35.06	8.09	0.38	3.46	0.00	3.08	0.57	0.00	0.00
35	NANDYAL	6.49	5.17	0.88	0.22	0.00	0.00	0.00	0.00	0.00
36	MAHANANDI	3.24	69.29	0.00	0.00	0.34	0.00	0.00	0.00	0.00
37	SIRVEL	4.75	2.80	0.97	0.00	2.19	0.48	0.00	0.00	0.00
38	GOSPADU	2.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	BANAGANAPALLE	50.26	3.14	6.80	1.04	0.00	0.00	0.00	0.00	1.04
40	DHONE	52.09	1.10	1.13	1.45	0.00	0.18	0.64	0.00	0.06
41	PATTIKONDA	1.68	0.05	0.81	0.23	0.00	0.00	0.23	0.00	0.00
42	CHIPPAGIRI	0.61	0.00	0.00	1.05	0.00	0.00	0.00	0.00	0.04
43	MADDIKERA	0.54	0	0.54	3.36	0.00	0.32	0.75	0.00	0.21
44	TUGGALI	11.59	1.08	2.50	0.16	0.00	0.00	0.00	0.00	0.00
45	PEAPALLY	25.77	10.27	1.21	0.60	0.05	0.00	0.51	0.05	0.00
46	OWK	1.08	0.00	1.44	0.00	0.00	0.00	0.00	0.36	0.00
47	KOILKUNTLA	8.41	0.00	10.28	3.73	0.00	3.73	0.46	5.60	0.00
48	RUDRAVARAM	18.56	3.91	1.79	0.00	0.64	0.00	1.79	0.00	0.00
49	ALLAGADDA	9.13	0.64	2.82	0.00	14.9	0.35	0.00	0.00	0.11
50	DORNIPADU	0	0.00	0.00	0.00	0.00	0.00	0.00	3.77	0.00
51	SANJAMALA	5.15	0.00	2.46	1.34	0.00	0.44	0.00	0.67	0.00
52	KOLIMIGUNDLA	2.92	8.77	5.66	0.36	0.73	0.54	0.00	4.75	0.00
53	UYVALAWADA	3.51	8.91	0.00	4.05	6.21	1.62	0.00	0.00	0.00
54	CHAGALAMARRI	3.73	22.07	1.09	0.04	2.18	0.00	1.55	0.00	0.00
Kurnool District		8.75	4.21	1.73	0.76	0.50	0.41	0.33	0.10	0.10

Other Fruits

The other fruits such as Sapota, Acid lime, Guava, Papaya, Berries, and Pomegranate are occupying less than 1 percent of area to the total horticultural cropped area in the Kurnool district.

Sapota crop spread over an area of 652 hectares occupying 0.76 percent to the total horticultural cropped area and 4.52 percent to the total fruit cropped area. The maximum area under Sapota is found in Gadivemula (7.07%), Panyam (5.9%) and Veldurthi (5.85%) mandals. In 37 mandals it is less than 5 percent of area to their total horticultural cropped area and in 14 mandals the crop is absent (Table - 2).

Acid lime is diffused over an area of 428 hectares accounting for 0.5 percent of area to the total horticultural cropped area and 2.97 percent to the total fruit cropped area, with a maximum of area in Allagadda (14.9%) followed by Uyyalawada (6.21%), Sirvel (2.19%), Chagalamarri (2.18%) and Krishnagiri (1.21%). In 14 mandals, Acid lime is less than 1 percent of area to their total horticultural cropped area and in 35 mandals, it has not gained ground during the study period (Table - 2).

Guava has spread over an area of 352 hectares with a percentage of 0.41 to the total horticultural cropped area and 2.41 percent to the fruit cropped area. Kallur mandal is having the maximum area (5.97%) followed by Koilakuntla (3.73%), Panyam (3.48%), Bandi Atmakur (3.08%), Pagidyala (2.29%) and Uyyalawada (1.62%). In about 20 mandals Guava is less than 1 percent to the total horticultural crop area and in 28 mandals it is absent (Table - 2).

Papaya occupied about 289 hectares accounting for 0.33 percent of area to the total cropped area and 2 percent to the total fruit crops. Krishnagiri having highest percentage of 2.42 followed by Pagidyala (2.29%), Gonedandla (2.22%),

Rudravaram (1.79%) and Chagalamarri (1.55%). Less than 1 percent of area to the respective mandal's total horticultural cropped area is noticed in 19 mandals and zero area in 30 mandals of the district (Table - 2).

Berries and Pomegranate spread over an area of 93 and 90 hectares respectively with a percentage of 0.1 each to the total horticultural cropped area and 0.645 percent (Berries) and 0.62 percent (Pomegranate) to the total fruit cropped area. In the 14 mandals Berries have been cultivated with a maximum of area in Koilakuntla (5.6%), Kolimigundla (4.75%) and Dornipadu (3.77%) to their total horticultural cropped area and in the rest of the mandals the crop is completely absent (Table - 5.4). Pomegranate is cultivated in only 22 mandals of the district in a very limited area with a highest in Gadivemula (1.41%), Krishnagiri (1.30%), Banaganapalle (1.04%) and the other 19 mandals have less than 1 percent of area to their respective total horticultural cropped areas. In rest of the 32 mandals, Pomegranate has not gained ground (Table - 2).

CONCLUSION

The spatial analysis of fruit crops cultivation in Kurnool District provides first hand information to the agricultural planners and policy matters with the irrigation and improvement of agricultural technology, improvement of soil quality, Awareness programmes on Horticultural programs, Marketing facilities, storage facilities, the area and production of fruit crops in Kurnool district can be further expanded in order to enhance agricultural economy and to improve farmers situation.

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