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Development of agriculture in colonial Andhra: A study

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Abstract
The classification of Indian soils into four major types-alluvial, *Regur* (black cotton soil), red and laterite. Soil survey work during pre-1928 period suffered from absence of a co-ordinate all-India approach. General soil studies were made with regard to their contents of plant nutrients and mechanical analysis of their composition which yielded useful agronomic information. The Royal Commission on Agriculture, 1928, recognized the importance of systematic soil survey work. It recommended soil surveys for specific purposes and emphasized the need for "intensive studies of the more important types of soil" and for "collection and publication of all the information is regard to the composition and characteristics of Indian soil which is available. Extensive soil surveys were initiated in the Punjab in 1928. Soil survey work was extended gradually to other areas in the subsequent period. There are four major groups of soils in India in general and Andhra particular.

Keywords: agriculture development, colonial rule, Andhra

Introduction
In agrarian societies, land is the most important means of wealth and source of power and prestige. Rights in land are often hereditary with power and prestige tending to be ascribed attributes.

Soils: Several environmental conditions affect crop production. Attention has been focused here on two of them which are of crucial importance, *viz*., soil and climate. An attempt is made to highlight these features of Andhra soils and climate which have an important bearing on agriculture. Systematic soil surveys and soil testing is a relatively recent development in India general and in Andhra particular. District Gazetteers and revenue Settlement Reports compiled during the British regime contain a good deal of useful information on soils [1]. But most of it is based on personal observations and experience-albeit of very shrewd and perceptive revenue officers.

A good account of traditional classification of Indian soils is to be found in the Report of the Royal commission on agriculture in India, 1928. The traditional classification of Indian soils into four major types-alluvial, *Regur* (black cotton soil), red and laterite. Soil survey work during pre-1928 period suffered from absence of a co-ordinate all-India approach. General soil studies were made with regard to their contents of plant nutrients and mechanical analysis of their composition which yielded useful agronomic information. The Royal Commission on Agriculture, 1928, recognized the importance of systematic soil survey work. It recommended soil surveys for specific purposes and emphasized the need for "intensive studies of the more important types of soil" and for "collection and publication of all the information is regard to the composition and characteristics of Indian soil which is available [2].

Extensive soil surveys were initiated in the Punjab in 1928. Soil survey work was extended gradually to other areas in the subsequent period. There are four major groups of soils in India in general and Andhra particular.

1. Alluvial
2. Black
3. Red
4. Laterite and Lateritic. These soils are spread across the region and useful for the cultivation of various crops. The distribution of soils in various districts of Andhra region as follows.

Table 1: Distribution of soils

Districts	Black Percentage	Red Percentage	Arenaceous Percentage	Alluvial Percentage	Mixed Percentage	Total 000 Acres
Vizagapatnam	25	75	-	-	-	242
E. Godavari	9	33	6	52	-	715
W. Godavari	32	29	4	35	-	702
Kistna	65	6	10	19	-	861
Guntur	91	6	3	-	-	1646
Kurnool	73	-	27	-	-	2124
Bellary	50	30	-	-	20	2220
Anantapur	21	79	-	-	-	2011
Cuddapah	47	53	-	-	-	1490
Nellore	35	46	19	-	-	812
Chittoor	10	90	-	-	-	613

***Source*:** Zacharias, C.W.B: Madras Agriculture, Madras, 1950, P15.

The table discloses that black soils, which are usually considered to be more fertile than red or arenaceous soils, occupy over 70 percent of the occupied area in three districts, Guntur, Kurnool and Ramnad, in Guntur the percentage rising to above 90 percent. In Kistna they occupy 65 percent and in Bellary, Cuddapah and Tanjore near about 50 percent. In seven other districts *viz*. West Godavari, Nellore, Chingleput, South Arcot, Salem, Trichinopoly and Tinnevelly, the percentage is between 32 and 40. In Vizagapatam [3], Anantapur and Coimbatore they cover 20 to 25 percent; while in East Godavari, Chittoor, North Arcot and Madura they form below 20 percent, falling as low as 10 percent in Chittoor.

Rain fall

The State gets its rainfall from the South-West Monsoon, the North-East Monsoon and the hot weather rains. The South-West Monsoon period extends from June to September, the North-East Monsoon from October to January and the Hot Weather from February to June. All the districts of the State get rains during these three periods, but to the greater part of the State the South-West Monsoon *is* the most important from the point of view of precipitation. The West Coast districts or South Kanara and Malabar and the mountainous district of the Nilgiris get the hulk of their rains during this period, while for Salem, N. Arcot, Chittoor, Cuddapah, Anantapur, Bellary, Kurnool, Guntur, Kistna, East and West Godavari and Vizagapatam, this monsoon is comparatively of greater importance [4].

The remaining nine districts, Nellore, Chingleput, South Arcot, Tanjore, Madura, Ramnad, Tinnevelly, Coimbatore and Trichinopoly, get greater perception during the~ North-East monsoon. Malabar, and the Nilgiris usually experience a hot weather fall too of over 10 inches, and S. Kanara, Tinnevelly, Madura, Ramnad, Trichinapally, Coimbatore, Salem and Vizagapatam have a rainfall of 5 to 7 inches during the period. Other districts get less than 5 inches, with Guntur, Kurnool, Cuddapah, Nellore and Chingleput getting below 3 inches [5].

Table 2: Rain fall in Andhra

Districts	S. W. Monsoon 7th June to 26th September	N.E. Monsoon 27th September To 31st January	Hot Weather 1st February to 6th June	Total
Vizagapatnam	25	11.3	5.1	41.4
East Godavari	25	13.4	3.4	41.8
West Godavari	27	10.4	3.3	40.7
Kistna	24.1	9.9	3.0	37.0
Guntur	18.5	11.0	2.9	32.4
Kurnool	15.7	6.0	2.5	24.2
Bellary	13.7	5.5	3.2	22.4
Ananthapur	12.9	6.3	3.2	22.4
Cuddapah	14.6	9.9	2.6	27.1
Nellore	11.2	21.8	2.5	35.5
Chittor	14.9	14.6	4.2	33.7

***Source*:** Zacharia, C.W.B: Madras Agriculture, Madras, 1950, P.4

The annual rainfall is above 100 inches only in two districts, S. Kanara and Malabar, 149.4 and 121.1 respectively. With the exception of the Nilgiris all other districts get below 50 inches. Tanjore, S. Arcot and Chingleput get between 45 and 50 inches and Vizagapatam, East and West Godavari between 40 and 45 inches. Kistna, Nellore and N. Arcot have a fall of 35 to 40 inches, and Guntur, Chittoor, Salem, Trichinopoly, Madura, Ramnad and Tinnevelly between 30 and 35 inches. The Ceded Districts and Coimbatore have below 30 inches and in Bellary and Anantapur it is nearer 20 than 30. Thus it is seen that on an average 21 districts of the State get below 50" of rain, 18 districts below 45", 15 districts below 40", 12 districts below 35", and five districts below 30" of rain. Very nearly half the State has to depend on a rainfall of below 35" during the year [6].

Irrigation facilities

In Andhra region there were Canals, Tanks, wells, projects are provided irrigation facilities to various fields in nook corner of the region. An irrigational facilities are provided under various sources in the Andhra region as given in the following table.

Table 3: Area irrigated in each district from various sources of irrigation in 1946-47. (000 acres)

District	Canals	Tanks	Wells	Other Sources	Total
Vizagapatam	268	488	119	56	931
East Godavari	520	87	-	40	647
West Godavari	506	95	10	8	619
Kistna	576	56	7	43	682
Guntur	407	19	17	6	449
Kurnool	36	52	10	4	102
Bellary	22	16	12	10	60
Anantapur	31	110	65	5	211
Cuddapah	59	68	84	20	231
Nellore	157	284	165	11	617

The above table reveals that the total irrigational facilities, the Vizagapatam, Kistna and East Godavari districts occupied first three places. Bellary, Kurnool and Anantapur occupied last three places respectively in Andhra region during the period. Canals and tanks played an important role in the irrigation of the northern Circars. Tanks and wells occupied prominent place in the Ceded districts during the period.

Land holdings in Andhra Region

In Andhra, the dry and wet cultivation are very popular. Most the cultivable lands are classified into these two categories particular. In vivid district have sufficient land holdings in various cultivators to cultivate the lands and increase the production [7]. Land holdings are key factors for growth of production and extension of cultivation. During the colonial land holdings in various districts of Andhra region as follows:

Table 4: Ryot's Holdings and Cultivation in Andhra for 1325 F (1915-16).

District	Ryots' holdings					
	Dry		Wet		Total	
	Extent	Assessment	Extent	Assessment	Extent	Assessment
Ganjam	244, 314	2, 76, 091	204, 889	7, 81, 870	449, 203	10, 57, 961
Vizagapatnam	118, 609	1, 18, 391	62, 827	3, 68, 215	181, 436	4, 86, 606
Godavari	391, 895	5, 72, 286	181, 778	13, 53, 532	573, 673	19, 25, 818
Kistna	628, 616	8, 47, 434	370, 536	24, 38, 041	999, 152	32, 85, 475
Guntur	1,617, 401	28, 76, 619	288, 388	18, 37,177	1, 850, 789	47, 13, 196
Nellore	682, 355	7, 27, 182	215, 158	13, 72, 807	897, 553	20, 99, 989
Cuddapah	797, 167	7, 68, 292	70, 762	4, 33, 416	867, 924	12, 01, 708
Anathapur	1, 366, 054	6, 27, 597	113, 573	4, 87, 090	1, 479, 527	11, 14, 687
Bellary	1, 909, 517	13, 44,119	40, 075	2, 33, 654	1, 949, 592	15, 77, 773
Kurnool	1, 428, 600	12, 67, 055	38, 850	2, 64, 955	1, 467, 45	15, 31, 990

***Source*:** Reports on the Settlement of the Land Revenue of the Districts in the Madras Presidency for Fasli 1325 (1915-16), Government Press, Madras, 1917, P.21.

The above table reveals that the land holdings in Andhra region during the British rule in Madras Presidency. The details of the dry land holding acres and assessment and wet acres and assessment are in Andhra districts during 1915-16 given in detailed. In this, Bellary, Guntur, Kurnool and Anantapur more acres of land under the cultivators hand and assessment conducted amount collected respective districts during the period. Vizagapatam, Ganjam and Godavari districts have less holdings in the Andhra Region. However, they have lands for cultivation in respective region. The highest land holdings of the cultivators in Bellary District i.e. 1, 909, 517 acres and assessment 13, 44, 119 rupees [8]. the second position occupied by the Guntur district, the total land holdings are 1, 617, 401 acres and assessment amount Rs. 28, 76, 619 and the third place occupied by the Kurnool district an area of 1, 428, 600 acres and assessment Rs. 12, 67, 055 respectively.

Agricultural stations

Agricultural stations were maintained at Samalkota, Hagari, Bellary, Nandyal and Bezwada. The soil of the Bezwada station was found unsuitable for experimental purposes and the abandonment of this station was decided on as well as of the agave plantation at Hindupur, where conditions also proved unfavourable. Selected cotton seed to the extent of 25, 000 lb. was sold during the year to ryots, chiefly at Nandyal. The demand for sugarcane at Samalkota was not great, but ryots were induced to plant experimentally 118 acres on the sett system. Fourteen demonstrations were given in jaggery manufacture [9]. The advantages of transplanting paddy seedlings singly were advocated with some measure of success, and ryots resorted to farms with increasing freedom.

Agricultural stations were maintained at Palur, Koilpatti and Taliparamba. In all, 119, 600 lb. of pure Karunganni cotton seed were sold from 43 depots and there are signs that the distribution of the last two years has materially improved the quality of cotton. Cambodia cotton was encouraged as a garden crop by the sale of 3,543 lb. of seed. The sugarcane area round Palur increased from 467 to 923 acres, of which 96 per cent, was planted with the red Mauritius cane introduced by the department. A beginning was made in the introduction of this caen on the West Coast. A special effort was made to introduce the single transplantation of paddy into the Cauvery delta, and the experiment was successfully taken up in practically every village. The mamul seed rate of 42 measures per acre has in some cases been reduced to 3. Green manure seeds were sold to the extent of 77,150 lb. and arrangements made for experimental plots of sun hemp in 25 villages under Periyar irrigation where the problem of

manuring the new wet lands is becoming acute [10]. There was a growing demand for the triangular harrow, the Egyptian plough, and the Archimedian screw water-lift.

Crops in Andhra

During the period 1940-45 the average acreage under paddy was 10·7 million acres. In 1945-46 there was a decline to 10·2 million, but subsequently in the next year, it increased to 10.98 million acres. In 1947-48 there was a further decline and.1948~49 witnessed no improvement. Vizagapatam with ·73 million acres and West Godavari with .70 million acres. In the year 1948-49 the acreages were slightly higher in Tanjore, Vizagapatam and West Godavari (1, 4 million, .79 million and ·75 million respectively) but in Malabar there was a decline. In the Ceded Districts generally, as also in the districts of Coimbatore, Salem and the Nilgiris, paddy is not prominent. In Bellary the acreage under it is as low as 31,000 and in Kurnool 90,000 [11].

The total area sown to cholam during the quinquennium 1940-45 was on the average 4,812,000 acres and the total yield l.2 million tons. In 1945-46 there was heavy decline in the acreage under it to 4,150,000 acres, and though in the next year there was a recovery, the acreage did not get back to the old figure. In 1947-48 there was a further decline, but in 1948-49 again the acreage improved to 4·7 million. The yield also declined with the acreage, having been only 904,000 tons in 1945-46, 881,000 tons in 1946-47 and 946,000 tons *in* 1947-48. In 1948-49 however there was a large increase to 1,137,000 tons. Kurnool and Bellary among the districts have the largest acreage sown to the crop, closely followed by Coimbatore. Two other districts where this cultivation covers nearly 400,000 areas are Guntur and Nellore. In Nellore however there was a diminution in the post-war years. Tanjore, Malabar, S. Kanara, the Nilgiris and Chingleput have negligible acreages under it, and six: other districts, *viz*. Vizagapatam, West Godavari, South Arcot, Chittoor, North Arcot and Ramnad have negligible yields [12].

The total acreage under cumbu is about 2· 6 million acres. From this average figure in the five-year period1940.-45 it declined to about 2'3 million in the years 1945-49. Total yield too has gone down from 640,000 tons in the above mentioned quinquennium to about 500,000· tons in the three years following. The districts which have large acreages under it are Salem, Coimbatore, Trichinopoly, Bellary, Anantapur, Guntur and Vizagapatam [13].

The average total acreage for the quinquennium 1940-45 under ragi was 1·8 million acres. In the next two years it declined to 1·5 million acres and in 1947-48 to 1·4 million acres. In 1948-49 it again increased to 1·6 million. Among the districts largest acreages were in Salem, Vizagapatam and Coimbatore. Total yield in the above mentioned quinquennium was 800,000 tons, but in the years following declined to about 600,000 tons. In 1948-49 there was a slight improvement to 650,000 tons. The total food crops details given in the following table.

Table 5: Food Crops

District	Total food crops (In thousand acres)			
	Average for 1940-45	1945-46	1946-47	1947-48
Vizagapatam	1767	1689	1703	1644
East Godavari	1169	1130	1114	1106
West Godavari	909	961	970	980
Kistna	1029	1056	1062	1059
Guntur	1689	1672	1655	1852
Kurnool	1488	1318	1349	1392
Bellary	1579	1545	1731	1690
Anantapur	1457	1299	1524	1475
Cuddapah	865	759	837	782
Nellore	1354	1230	1332	1197
Chittoor	735	563	680	597

***Source*:** Zacharias, C.W.B: *Madras Agriculture*, Madras, 1950, P.381

The above table reveals that the food crop production was more in the district of Bellary, Vizagapatam and Guntur in Andhra region. The last three positions were occupied by the districts of Chittoor, Cuddapah and West Godavari in the respective region from 1945 to 1948 in colonial rule. Andhra region supplied food crops to various parts of the country and abroad. Food crops cultivation encouraged by the colonial Government and zamindars in various places of Andhra. Cultivators also very interest on the cultivation of the food crops in their land.

Other millets and cereals cover an acreage of about 3· 8 million acres, but among these the more prominent ones are Korra, Varagu and Samai. They had acreages of 1·6 million, I·8 million and 0.4 million acres respectively in 1948-49 and yields of 249, 000, 263, 000 and 65, 000 tons respectively in the same year. Korra is largely cultivated in the Ceded Districts, Guntur, Nellore, Salem and Coimbatore, Varugu in Kurnool, Nellore and all the Tamil districts except Coimbatore and Tinnevelly, and Samai in Anantapur, Salem, Coimbatore and Madura.

The total area under pulses in the quinquennium 1940-45 was on the average 2·9 million acres. In 1946-47 also the acreage was the same, but in 1945-46 and in 1947-48 it was lower by nearly 200, 000 acres. In 1948-49 the old level was reached. Pulse cultivation comprises the cultivation of Bengal gram, green gram, black gram, horse gram, red gram and other pulses. In each of these grams the acres in 1948-49 were 0·1 million, ·45 million, ·29 million, 1·4 million and ·36 million respectively, Pulse cultivation abounds in Vizagapatam, Coimbatore, Anantapur and Salem. The total yield of these crops in 1948-49 was 245,370 tons made up of 104, 560 tons of horse gram, 45, 610 tons of red gram, 39, 610 tons of green gram, 36, 000 tons of black gram and 21,000 tons of Bengal gram. Other pulses may have contributed about 2, 000 tons, bringing the total yield of pulses to 247,000 tons [14].

The average area under sugarcane during the period 1940-45 was 141,000 acres but in the three subsequent years it increased to 161,000, 203,000 and 272,000 acres respectively. In 1948-49 it again declined to 176,000 acres. The total area under sugar crops including sugarcane was in 1948-49 only 251,000 acres. Sugarcane cultivation is prominent in Vizagapatam, South Arcot, North Arcot and Chittoor. Vizagapatam has quite a large area under other sugar crops too, as also Tinnevelly. The total production of the cereals details as follows:

Table 6: Cereals production

District	Total Cereals (In thousand acres)			
	Average for 1940-45	1945-46	1946-47	1947-48
Vizagapatam	1329	1246	1274	1252
East Godavari	892	867	822	848
West Godavari	800	834	838	846
Kistna	878	902	896	891
Guntur	1452	1431	1348	1519
Kurnool	1311	1147	1133	1202
Bellary	1369	1340	1497	1441
Anantapur	1104	1021	1165	1094
Cuddapah	752	645	709	670
Nellore	1197	1080	1193	1058
Chittoor	621	488	571	496

***Source*:** Zacharias, C.W.B: Madras Agriculture, Madras, 1950, P..379.

The above table reveals that the cereals production in Andhra region from 1945 to 1948. Cereals were cultivated in large amount in Bellary, Guntur and Vizagapatam districts. These are occupied an important place in the production. Chittoor district occupied last position in the production. Cuddapah also very back in the production of the cereal compare with other district during the period.

Of the 8·7 million acres under non-food crops during the war period, 5·3 million were under oilseeds, 2·4 million under fibers, 6 million under drugs and narcotics and ·4 million under fodder crops. The oilseeds include groundnut which covers the large acreage of 3·7 million acres and gingelly, castor seed and cocoanut these three latter have ·6 million, ·23 million and .6 million acres respectively. Groundnut is grown in all the districts except South Kanara and the Nilgiris, but South Arcot, North Arcot, Kurnool, Bellary. Anantapur, Vizagapatam and Guntur have taken to it easily [15]. Gingelly cultivation is most prominent in the northern districts of Vizagapatam, East Godavari and West Godavari, in the central districts of Salem, Coimbatore and Trichinopoly and the east coastal districts of South Arcot and Tinnevelly. In the other districts with the exception of Anantapur, Ramnad and Madura, its cultivation is insignificant [16] the details of the total non-food crops in Andhra region details as follows:

Table 7: Non Food Crops

District	Total non-food crops (In thousand acres)			
	Average for 1940-45	1945-46	1946-47	1947-48
Vizagapatam	462	465	429	415
East Godavari	215	217	210	198
West Godavari	142	155	159	161
Kistna	278	307	291	241
Guntur	725	735	718	550
Kurnool	632	712	694	623
Bellary	884	881	835	834
Anantapur	572	628	592	646
Cuddapah	263	286	262	270
Nellore	148	148	157	130
Chittoor	180	203	205	207

***Source*:** Zacharias, C.W.B: Madras Agriculture, Madras, 1950, P.386

The above table reveals that the total nonfood crops cultivated in several district of Andhra region. The first three places were occupied by the districts of Bellary, Guntur and Kurnool. Nellore, West Godavari and East Godavari districts occupied last three places in the production of the Nonfood crops in Andhra region during from 1945 to 1948. Most of the cultivators cultivated and supplied the non food crops to the internal consumption and aboard through the several ports. the colonial Government encouraged non food crops in Andhra region.

The acreage under castor seed is low in the State as a whole and does not stand comparison with the acreage under the other oilseeds. Its cultivation is concentrated in a few districts, such as the Ceded Districts except Cuddapah, Guntur and Nellore and Salem.

The average area occupied by fibers in the quinquennittm 1940-45 was 2·4 million acres of which 2·2 million were under cotton. The acreage under cotton has been steadily diminishing from 1942-43 onwards and by 1944-45 the reduction amounted to 800,000 acres. By 1947-48 there was a further reduction by 400,000 acres but this was entirely made up in 1948-49. The Ceded Districts, Coimbatore, Madura, Ramnad, and Tinnevelly and with slightly smaller acreages, Guntur, Salem and Trichinopoly are the districts where cotton cultivation assumes any prominence. Many varieties of cotton are grown, each area more or less

specializing in a particular variety. The principal varieties are Cambodias, Tinnevellies including Karunganni, Northern, Westerns and Cocanadas [17]. The details of the oil seeds production in the Andhra region as follows.

Table 8: Oil Seeds

District	Total Oil Seeds (In thousand acres)			
	Average for 1940-45	1945-46	1946-47	1947-48
Vizagapatam	402	411	388	364
East Godavari	136	136	142	141
West Godavari	105	109	110	116
Kistna	150	174	163	168
Guntur	282	292	259	210
Kurnool	435	583	586	585
Bellary	361	485	430	407
Anantapur	425	530	497	553
Cuddapah	182	234	222	239
Nellore	64	58	74	65
Chittoor	171	197	199	201

***Source*:** Zacharias, C.W.B: Madras Agriculture, Madras, 1950, P.383.

The above table reveals that the oil seeds cultivation in different parts of the Andhra region. Oil Seeds cultivation was more in the district of Kurnool, Anantapur and Vizagapatam during the period from 1945 to 1948. Last three positions were occupied by Chittoor, East Godavari and West Godavari districts respectively.

Conclusion

During the colonial rule several factors are impact the agrarian conditions. The cultivators actively participated and cultivated several food and commercial crops in all over the region. The irrigation and technological facilities provided by the colonial government to increase the production in the region. Also land holdings are very much useful the cultivation of various crops in the region. Several other factors also useful for the growth of crops and development of agriculture in the particular region during colonial rule.

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