

Some Past Trends in Agricultural Production in the Andhra Districts and the Rest of Madras State

By

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Introduction: The Government of India have announced their decision to carve out a separate Andhra State from the existing districts of Madras State which includes a predominantly Telugu speaking population. The new State is expected to start functioning before long. In the present note the trends of acreage and the production of some of the important crops separately in respect of the prospective Andhra districts and the rest of Madras are presented.

The data discussed in the present note relate to a period of 30 years commencing from 1921-'22 and ending with 1950-'51. The area and production statistics dealt with in the note were gathered separately for every year from the "Season and Crop Report" issued by the Madras Government. Separate figures were gathered for each year for the Andhra districts and for the remaining districts in Madras State. Average annual acreage and production figures were then worked out for each of the five-year periods commencing from 1921-'22. These data are presented in a summarised form in the tables included in this note.

General classification of area: The land surface of the prospective Andhra districts is about 38.3 million acres leaving about 41.9 million acres for the rest of Madras. About 10 to 11 percent of the lands in the Andhra districts and 13 to 14 percent of those in the remaining districts are current fallows. Between 41 and 45 percent of the lands in the non-Andhra area are being cropped every year whereas only 32 to 36 percent are cropped in the Andhra districts. This is because the area under forests and the area of lands not available for cultivation are larger in the Andhra districts. Waste lands also occupy a larger percentage of area in the Andhra districts.

Land use: The extent of net cropped area in both the regions have shown fluctuations in the past. The largest area of about 14.7 million acres was cropped in the Andhra districts during the quinquennium ending 1930-'31 and the lowest area of 13.7 million

TABLE I.
Land Use.

		During the five years ending					
		1925—'26	1930—'31	1935—'36	1940—'41	1945—'46	1950—'51
<i>Andhra District</i>							
1. Net cropped area in thousands of acres		13,992	14,753	14,668	13,963	13,729	13,773
2. Area irrigated by { In thousands of acres		4,108	4,051	4,085	4,267	4,489	4,779
As percentage of net cropped area		29	28	28	31	33	35
3. Area cropped { In thousands of acres		1,828	1,883	2,018	2,083	2,230	2,054
more than once { As percentage of net cropped area		13	13	14	15	16	15
4. Area under certain crops expressed as percentage of net cropped area:—							
Paddy		28.8	28.8	29.6	29.0	30.3	31.6
Millets		48.6	45.9	45.7	43.2	45.0	41.6
Sugarcane		0.4	0.4	0.4	0.4	0.4	0.7
Cotton		6.0	4.7	3.8	3.8	3.3	2.5
Groundnuts		4.7	9.5	10.0	14.1	12.9	13.8
Coconuts		0.4	0.5	0.5	0.6	0.6	0.6
Fruits and vegetables		1.7	1.5	1.8	1.8	1.8	2.0
Chillies		1.9	1.3	1.5	1.2	1.3	1.6
Tobacco		1.5	1.3	1.4	1.7	1.8	2.1
Total		94.0	93.9	94.7	95.8	97.4	96.5

TABLE I. (Contd.)

		During the five years ending					
		1925-'26	1930-'31	1935-'36	1940-'41	1945-'46	1950-'51
		<i>Rest of Madras</i>					
1. Net cropped area in thousands of acres		17,537	17,685	17,409	17,725	17,668	17,264
2. Area irrigated by { In thousands of acres		4,665	4,366	4,523	4,464	4,752	4,883
As percentage of cropped area		26	25	26	25	27	28
3. Area cropped { In thousands of acres		2,435	2,496	2,611	2,829	3,000	2,740
more than once { As percentage of net cropped area		14	14	15	16	17	16
4. Area under certain crop expressed as percentage of net cropped area :—							
Paddy		33.6	32.5	34.9	34.0	36.2	35.4
Millets		38.8	35.4	39.0	37.2	36.9	35.4
Sugarcane		0.3	0.3	0.3	0.4	0.4	0.7
Cotton		9.4	8.1	9.7	10.0	9.0	7.2
Groundnuts		6.9	10.5	8.3	10.8	10.7	12.4
Coconuts		2.7	2.8	2.8	2.9	3.0	2.1
Fruits and vegetables		2.2	2.3	2.6	2.6	2.8	3.3
Chillies		0.6	0.6	0.7	0.7	0.5	0.8
Tobacco		0.4	0.4	0.3	0.3	0.3	0.3
Total		94.9	92.9	98.6	98.9	99.8	98.6

acres during the five years ending 1945-'46. During the next five year period there has been an improvement in the extent of area cultivated. But in the non-Andhra region the largest and the smallest cropped areas have occurred during the five years ending 1935-'36 and 1950-'51 respectively. Though these fluctuations in the net cropped area have existed, the extent of areas cropped more than once has shown a steady increase in both regions during the thirty years under review except for the last quinquennium ending 1950-'51 in the non-Andhra districts where a decline of about one percent in the area cropped more than once has happened. This shows that lands are being more and more intensively cultivated which results in exhausting the soil quickly. Farmers should carefully replenish soil fertility by application of manures and fertilisers in adequate quantities. Indications are available that a diminution in acre yields is happening.

Irrigated lands are more extensively met with in the Andhra districts. Their extent has increased from 29 to 35 percent of the net cropped area in the Andhra districts and 25 to 28 percent in the rest of Madras during the thirty years under review. The percentage of area allotted to the more important crops is given in Table I. The extent of paddy lands has increased in both regions. In the Andhra districts, paddy areas occupy 29 to 32 percent of the lands under cultivation but in the rest of Madras they cover 33 to 36 percent. But larger millet areas (41 to 48 percent) are situated in Andhra districts than in the remaining portion of Madras State (35 to 39 percent). A general loss of areas under millets has occurred in both regions. This amounts to 7 percent in the Andhra districts but only to 3.4 percent in the rest of the State. Similarly cotton is fast losing acreages in the Andhra districts but less slowly in the non-Andhra area. The increase in the acreage under groundnuts from 4.7 to 13.8 percent of the net cropped area in the Andhra districts and from 6.9 to 12.4 percent in the rest of Madras shows how this money crop has quickly caught the imagination of the ryots. Tobacco which was losing ground in the Andhra area during the thirties again pulled up but in the rest of Madras this crop has shown no recovery. There is a slow increase in the area under fruits and vegetables in both regions. Sugarcane too is improving in acreage but its spread is faster in the non-Andhra area. The crops given in Table I account for over 90 percent of the cropped area in both regions. Generally speaking the pattern of land use is similar in both regions.

TABLE II.
Area Under Irrigation.

During the five years ending	From Government Canals			From Other Sources			Irrigated Area Under Paddy			Difference of columns 8 and 2 as a percentage of col. 2
	In acres	As percentage of total irrigated area	As percentage of net cropped area	In acres	As percentage of total irrigated area	As percentage of net cropped area	In acres	As percentage of total irrigated area		
1	2	3	4	5	6	7	8	9	10	
<i>Andhra Districts</i>										
1925-'26	2,008,984	49	14	2,099,455	51	15	3,561,913	87	77	
1930-'31	2,070,953	51	14	1,980,300	49	13	3,419,874	84	65	
1935-'36	2,096,998	52	14	1,937,671	48	13	3,548,329	88	70	
1940-'41	2,185,320	51	16	2,081,524	49	15	3,814,936	89	75	
1945-'46	2,410,666	54	18	2,078,584	46	15	3,912,506	87	62	
1950-'51	2,612,040	55	19	2,167,014	45	16	4,073,499	85	56	
<i>Rest of Madras</i>										
1925-'26	1,425,459	31	8	3,239,154	69	18	3,894,258	83	186	
1930-'31	1,481,400	34	8	2,884,684	66	16	3,791,189	87	156	
1935-'36	1,526,496	34	9	2,996,419	66	17	4,045,374	89	166	
1940-'41	1,609,085	36	9	2,854,952	64	16	4,033,699	90	151	
1945-'46	1,725,219	36	10	3,026,398	64	17	4,412,373	93	156	
1950-'51	1,888,522	39	11	2,993,993	61	17	4,252,989	87	125	

Irrigation: Table I shows that there is a steady increase in the net cropped area receiving irrigation. Columns 2 and 6 of Table II contain the actual areas in each region receiving water from Government canals and from other sources separately. It will be seen from column 3 that a larger percentage of the lands in the Andhra districts receive supplies of water from Government canals. During the thirty years under review an extra area of 5 lakhs of acres in the Andhra area has received the benefit of irrigation through Government canals as against 4.6 lakhs in the rest of Madras. Expressed as percentage of the total cropped area in each zone, the addition is over 5 percent in the Telugu districts and 3 percent in the remaining area. What seems to have happened in the non-Andhra area is that lands which were previously fed by other water sources such as wells, tanks etc., are now being fed by Government canals. In the Telugu districts, however, shifts from other sources of irrigation are not perceptible. Between 83 and 90 percent of all the irrigated areas in the Andhra districts as well as the rest of Madras grow paddy (vide column 9 of Table II). There is thus a general increase in the total extent of paddy lands under irrigation in both areas. Reading together the figures in columns 5 and 8 to 10 of Table II, it may be inferred that the increase in the irrigated areas under paddy has been achieved by growing this crop only in the areas newly brought under irrigation by Government canals and that such new areas have not been used to any appreciable extent for growing other crops. Extension of the irrigated area under paddy has not however happened to any perceivable extent in areas commanded by other sources of irrigation such as wells, tanks etc.

TABLE III.
Area Under and Production of Paddy.

During the five years ending	Average annual area under paddy	Percentage of area under irrigation	Average annual production of paddy	Area required to produce one ton of paddy
	Acres		Tons	Acres
	<i>Andhra Districts</i>			
1925-'26	4,036,523	88	Not worked	
1930-'31	4,254,010	80	3,050,272	1.395
1935-'36	4,344,288	82	3,095,864	1.403
1940-'41	4,055,498	94	2,871,890	1.415
1945-'46	4,157,274	92	2,821,246	1.473
1950-'51	4,355,225	94	2,833,904	1.537

	Acres	Rest of Madras	Tons	Acres
1925-'26	5,896,458	68	Not worked	
1930-'31	5,751,876	66	3,996,074	1'518
1935-'36	6,076,486	67	4,243,996	1'432
1940-'41	6,025,194	67	4,101,788	1'469
1945-'46	6,391,944	74	4,282,184	1'493
1950-'51	6,110,618	70	3,625,496	1'686

Paddy Production: Table III contains the figures of the area under and production of paddy in the Andhra districts and the rest of Madras. The paddy acreage have shown a steady increase in both regions. The percentage of these areas receiving irrigation too has steadily increased from 88 to 94 percent in the Andhra area and 68 to 74 percent in the rest of Madras. Substantial areas under paddy in the non-Andhra area do not receive irrigation and are grown under rainfed conditions. For this reason the average acre yield for the non-Andhra area taken as a whole is less than in the Andhra Districts. But the most disquieting part of the extension of the paddy area is that the acre yields in both regions have shown a downward trend. While one ton of paddy was produced from 1'395 acres in the Andhra area during the five years ending 1930 - '31 as much as 1'537 acres were required during the last quinquennium. The area required to produce one ton of paddy in the non-Andhra area was 1'432 acres during the five years ending 1935 - '36 and 1'686 acres during the last quinquennium. Thus during the period under review about 10'2 percent more land in the Andhra area and about 13'6 percent in the rest of Madras are required to produce one ton of paddy than what was required two decades ago. Having regard to the fact that during this period the total extent of net cropped area has not substantially increased and more irrigation facilities have been provided, it would appear that the area cropped with paddy more than once has accounted for the increased acreages under paddy. This is also confirmed from the general increase in the area cropped more than once shown in Table I. This intensive cultivation seems to have depleted soil fertility over the last three decades and has completely set off the increase in acre yields sought to be obtained by distribution of improved seeds. It would have been something at least if the lower yields resulting from depletion in soil fertility had been balanced by the increased yields obtainable from improved seeds so that extra total production proportional to the extended acreages

could be realised. Even this has not occurred. Taking the quinquennium ending 1930 - '31 as the base, the index numbers during the quinquennium ending 1950 - '51 (a period of 25 years) is 102·3 percent for acreage and 92·9 for production in the Andhra districts. In the non-Andhra area the corresponding index numbers for the same period are 108·6 for area and 90·7 for production. This fall in acre yields cannot be viewed with equanimity and has to be arrested.

TABLE IV.
Area Under and Production of Sugarcane.

During the five years ending	Average annual area	Average annual production in terms of jaggery	Outturn of jaggery per acre
	Acres	Tons	Tons
<i>Andhra Districts</i>			
1925-'26	61,963	1,80,220	3·662
1930-'31	52,807	1,59,842	3·025
1935-'36	59,702	1,81,800	3·045
1940-'41	60,013	1,77,640	2·954
1945-'46	62,337	1,67,732	2·733
1950-'51	96,706	2,41,700	2·500
<i>Rest of Madras</i>			
1925-'26	51,865	1,35,400	2·610
1930-'31	48,821	1,24,265	2·546
1935-'36	56,923	1,52,812	2·684
1940-'41	63,033	1,73,446	2·752
1945-'46	79,096	2,23,546	2·826
1950-'51	1,23,157	3,26,340	2·649

Sugarcane: The increase in the area under sugarcane during the thirty years ending 1950 - '51 has been phenomenal in the non-Andhra area. Starting from a mere 52,000 acres in the first quinquennium the area has multiplied by over $2\frac{1}{4}$ times. In the Andhra districts the sugarcane area during the first quinquennium was more than in the rest of Madras by about 10,000 acres. Since then the acreage in the Andhra area seems to have declined slightly during the next 20 years. However during the last quinquennium there has been an increase by 57 percent. The area under sugarcane in the non-Andhra districts is now 33 percent more than in the Telugu districts. The outturn of jaggery (gur) per acre has shown some remarkable differences in the two regions. In the Andhra districts the yield of jaggery has steadily fallen from 3·7 tons to

2.5 tons per acre during the thirty years under review, — a fall of 31.7 percent or a little more than one percent per annum. But in the rest of Madras the acre yields show an improvement from 2.6 tons to 2.8 tons per acre during the 25 years ending 1945 — '46 or about 0.3 percent per annum. But in the next quinquennium it has again shown a drop though the acre yield is still higher than it was in the first quinquennium. Despite the fact that the acre yields were higher in the Andhra districts during the twenties as compared with the rest of Madras the acre yields of the latter region seem to have overtaken and even surpassed the yields in Andhra during the quinquennium ending 1945 — '46 and still retain that advantageous position. One of the reasons for these variations may be that the sugarcane lands of the Andhra area are getting depleted of their soil fertility by repeated cultivation of this crop in the same area without adequate manuring whereas in the rest of Madras the extension of cultivation of sugarcane has occurred in new lands found suitable for raising this crop. The drop in the acre yields in the non-Andhra area during the last quinquennium may perhaps be indicative of the fact that the old lands are showing signs of exhaustion and further extension of acreage is taking place in poor lands.

TABLE V.
Area Under and Production of Groundnuts.

During the five years ending	Average annual area	Average annual production	Area required to produce one ton
	Acres	Tons	Acres
<i>Andhras Districts</i>			
1925—'26	6,58,427	3,17,972	2.070
1930—'31	1,397,048	7,07,712	1.974
1935—'36	1,478,569	6,98,058	2.117
1940—'41	1,970,688	9,48,052	2.079
1945—'46	1,767,202	7,15,644	2.469
1950—'51	1,901,399	7,64,858	2.485
<i>Rest of Madras</i>			
1925—'26	1,216,760	5,59,948	2.175
1930—'31	1,852,063	8,57,354	2.160
1935—'36	1,443,512	6,52,484	2.214
1940—'41	1,920,173	8,46,976	2.267
1945—'46	1,889,110	8,05,388	2.346
1950—'51	2,142,740	8,50,764	2.519

Groundnuts: The phenomenal increase in the acreage under groundnuts in the Andhra districts as well as the rest of Madras has been achieved by diverting millet and cotton areas to groundnuts.

Three times the area is now under groundnuts in the Andhra districts as compared with what it was 30 years ago. In the rest of Madras only a seventy-seven percent increase in acreage has been registered. But the area required to produce one ton of groundnuts has been steadily increasing in both areas indicating soil exhaustion in the fields growing this crop as well. Taking the first quinquennium in table V as the base the index number of acreage in the Andhra districts in the last quinquennium is 288.7 and of total production 240.5. The corresponding figures for the rest of Madras are 176.2 and 153.0. These figures bring out the fact that the decreased acre yields have not brought the total production below that of the first quinquennium only because the expansion in area has been very rapid. It seems reasonable to assume that the extension of cultivation cannot go on without limit. When that limit is reached the overall production will register a fall as in the case of paddy. The decreasing acre yields should cause concern to all persons concerned.

TABLE VI.
Area Under and Production of Cotton.

During the five years ending	Average annual area	Average annual production of cotton lint	Area required to produce one bale of cotton lint
	Acres	Bales (392 lb.)	Acres
<i>Andhra Districts</i>			
1925-'29	8,38,649	Not worked	
1930-'31	6,93,853	86,676	8.005
1935-'36	5,53,062	67,778	8.158
1940-'41	5,39,625	68,834	7.840
1945-'46	4,44,869	50,324	8.841
1950-'51	3,38,880	42,464	7.982
<i>Rest of Madras</i>			
1925-'26	1,657,217	Not worked	
1925-'31	1,437,828	3,61,264	3.980
1935-'36	1,689,761	3,87,250	4.364
1940-'41	1,774,018	4,00,674	4.428
1945-'46	1,599,060	4,02,090	3.968
1950-'51	1,244,667	3,05,880	4.396

Cotton: During the quinquennium ending 1925-'26, Andhra districts accounted for roughly a third of the area under cotton in the entire Madras State. But now, they account for only a fifth of the area. Since the southern districts are eminently suited for cotton cultivation, improved Karunganni and Cambodia strains are being grown there. As a result of the area required to produce one

bale of 393 lbs. of cotton lint is between 4 and 4.5 acres in the non-Andhra area whereas inferior desi types grown in the Andhra districts require as much as 8 acres to produce one bale of cotton. The increased profits accruing from groundnut cultivation has resulted in the reduction in the extent of area under cotton. The production of cotton now is only about 70 to 80 percent of the total production 30 years ago. The variation in yields shown in the last column of table VI does not seem to warrant any definite conclusions as regards the existence of any specific trends in acre yields.

Manure Problem: The decreasing acre yields of paddy and groundnuts over the entire State and of jaggery in the Andhra districts referred to in the previous paragraphs raises the question why this has not been arrested in the past. As in almost every tropical country, the manurial problem of this State is to replenish the Nitrogen removed from the soils by the crops every year. The annual off-take of Nitrogen amounts to over a lakh of tons in the Andhra districts and 1.8 lakhs of tons in the rest of Madras by paddy, sugarcane, and cotton alone, leaving out of account such crops as millets, tobacco, oilseeds etc. The bovine population of the Andhra districts may supply 96 lakhs of tons of Nitrogen per annum and that in the rest of Madras 121 lakhs tons. All the available manures such as farm-yard manure, green leaf and green manures, compost, oilcake etc., put together will be just enough to supply Nitrogen to paddy alone at about 45 lbs. of Nitrogen per acre. Besides this, there will be other crops requiring heavy manuring. The Economic and Statistical Adviser to the Government of Madras, who conducted a pilot survey in 150 villages of Chingleput district has pointed out that farm-yard manure which supplies by far the largest quantity of manures provide only 26 percent of the manure requirements of the district. He considers that this is true of other districts as well. It is therefore small wonder that our acre yields are falling at a rate which should cause concern to all in view of the general paucity in manure supplies. India used to import from abroad an average of about 440,000 tons of Ammonium sulphate every year. During the year 1950-'51 a quantity of 78,638 tons of this fertiliser was distributed in this State. The manure dosage for paddy recommended by the Madras Agricultural Department is the use of about 5,000 lbs. of green manures per acre to produce 30 lbs. of Nitrogen plus 75 lbs. of ammonium sulphate to supply 15 lbs. of Nitrogen. On this basis the 4.4 million acres of paddy in the Andhra area can absorb nearly 1.5 lakhs of tons of

Ammonium sulphate and the 6.1 millions acres of the rest of Madras another 2 lakhs of tons. The factory at Sindri is targetted to produce 1,000 tons per day, so that all our requirements of this fertiliser can be easily obtained. But Ammonium sulphate has to be used in combination with green manure in order to secure best results. It would therefore seem imperative to accelerate the spread of the green manure plants *Sesbania speciosa* and *Glyricidia maculata* recommended by the Madras Agricultural Department. Their cultivation is very simple. The latter is a quick growing tree which can be grown in paddy field bunds and all other vacant spaces at intervals of about $1\frac{1}{2}$ feet. It grows luxuriantly and the leaves can be lopped off several times and used to manure the adjoining paddy fields, thus saving the cost and labour on transport. The growing of *Sesbania* in the ridges of paddy fields along with the first paddy crop (*kuruvai*) and ploughing them in for the second crop (*thaladi*) has been proved to yield 4,000 lbs. to 6,000 lbs. of green manure from an acre, which would supply the requirements of one acre of paddy. The Agricultural Research Station, Aduturai (Tanjore district) has evolved the following very simple and inexpensive solution to the manure problem in paddy lands which had defied paddy growers all these centuries. The Tanjore paddy grower used all the manures available with him for the first crop of paddy (*kuruvai*) with the result that the second crop (*thaladi*) was allowed to shift for itself and yielded less than 1,200 lbs. of paddy per acre. The cropping system evolved at Aduthurai is to use the margins of the first crop lands to grow *Sesbania speciosa*. For the second crop this green manure is used and some plants are left to seed. Those plants produce the seeds required for next sowings. A short duration cotton followed *thaladi* (the second crop paddy) and it received a dressing of one hundred weight of Ammonium sulphate per acre. The green matter left by the cotton plants supplemented, if necessary, by locally available green leaves provided the necessary manure for the first crop of paddy. Thus every field produced its requirements of green manure seeds without affecting the use of the land itself for growing a food or a commercial crop. Lack of adequate soil moisture in single crop wet lands has been usually adduced as one of the arguments against the growing of green manure crop during the off-season. The method of growing *Sesbania speciosa* recommended by the Agricultural Department has given a solution to this problem. Seeds are broadcast in the fields just before harvest of paddy. They grow with the available moisture supplemented by summer showers. An acre of *Sesbania speciosa* so grown would

provide the green manure requirements of 3 to 4 acres. Indeed the adaptability of this green manure to a wide range of conditions is so remarkable that it has caught the imagination of ryots, and with sustained propaganda by the Department, it is fast spreading. The manure problem of both the Andhra districts and the rest of Madras is so acute and so urgent that the spread of these green manure plants over the entire paddy lands in these areas seem to offer the only quick and lasting solution to arrest further soil exhaustion, which has been going on without interruption for the last many centuries and which, if allowed to continue further, might entail disastrous consequences for the economic well being of the population in the above regions.

Summary and Conclusion: Trends in acreage and production of some crops during the thirty years ending 1950 - '51 in the Andhra districts and the rest of Madras show that :-

1. The average net area cropped intensively in Andhra districts is 34 percent against 43 percent in the the rest of Madras.
 2. Intensive cultivation without adequate manuring has resulted in acre yields of paddy and groundnuts in both regions and of sugarcane in the Andhra area alone declining resulting in an overall acreage reduction in yield in spite of the increase in the total area.
 3. The phenomenal increase under groundnuts has been achieved at the cost of the acreage under cotton and millets.
 4. The manurial asset for both the areas from the bovine population is limited. So also green leaf and oil cake which are just sufficient for the paddy crop or hardly enough to meet the requirements of 30 percent of all crops put together.
 5. The quantity of Ammonium sulphate available from Sindri should therefore be fully utilised by using it in combination with green manures.
 6. The spread of green manure plants like *Gliricidia maculata* and *Sesbania speciosa* is the only quick and lasting solution for the manure problem in the Andhra districts as well as the rest of the Madras State.
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