The Madras Agricultural Journal

Vol. XXXVI MAY 1949 No. 5

CONTENTS.

TO OUR CONTRIBUTORS.

Paper is still in short supply. The cost of printing is high—and the Editorial Board will feel obliged if your articles are brief.

The Madras Agricultural Journal

(ORGAN OF THE M. A. S. UNION)

Vol. XXXVI May 1949 No. 5

Editorial

Organic manure: In the January Issue of 'Indian Farming' the Chief Bio-chemist Ministry of Agriculture, New Delhi, has dwelt at length on the need for building up an effective organisation for the conservation and proper utilisation of the organic matter available in our villages. According to him the chief defects in manure preparation in our villages at present are, "(a) The failure to conserve as much of cattle urine as possible in manure preparation; (b) insufficient methods of storage of manure adopted at present; (c) the failure to collect available refuse from the farm and village surroundings and to utilise the same in the cattle shed for absorption of urine; (d) the present habit of burning cowdung for fuel and (e) absence of any arrangements for conservation of human excreta and urine in villages". There is no doubt that if the above defects are remedied the possibilities of increasing our national resources of organic manures are enormous. But the problem has been how to achieve practical results in our present state of village economy. In our Province, the Agricultural Department has been making sincere and strenuous efforts during the past three decades, to effect improvements in the conservation of manure in our villages and a perusal of the earlier administration reports of the department would show that one of the main activities of the propaganda wing has been the attempt to make the villagers realise the importance of conserving organic matter.

Judging from the results achieved so far, it is evident that mere propaganda is not enough. There are certain practical difficulties which should be first overcome before implementing a full fledged programme of conservation of organic manure in the villages. To shut our eyes to the difficulties or brush aside obstacles as of no consequence is not the way to progress. Take the case of cowdung being burnt as fuel, for example. It is a wasteful practice and if in spite of years of propaganda the villager persists in this practice, it is not out of sheer cussedness, or the failure on his part to

realise that it is a valuable manure, but because no other cheap fuel is available in the villages. To provide him with substitute fuel, tree planting is suggested. This requires organised effort. What with depredation by cattle, long periods of drought and risk of theft of planted material, the task of raising trees in and around villages is not an easy one. We are of opinion that if this work is entrusted to the villagers themselves the scheme will be a failure. We suggest that the State forest departments should enlarge the scope of their activities and by raising large scale plantations of quick growing trees in suitable areas and by encouraging private enterprise the State should ensure an adequate supply of cheap fuel to the villages. This will result in cowdung being released for manure.

With regard to conservation of night soil in the villages, we have our own doubts if the efforts to conserve it will be entirely successful. For in most of our villages the collection of night soil is not feasible, since it is deposited indiscriminately in the fields and *topes* adjoining the villages and a change in the sanitary habits of the village people is necessary before anything could be done in this direction.

Finally much spade work has to be done before our villagers could be induced to take an active interest in their own welfare and accustom themselves to work for a common cause with a co-ordinated effort and a will to succeed in spite of obstacles. In the new set up with sustained interest on the part of the State and the people much could be done and we have no doubt that the difficulties which are not insurmountable will be overcome.

In this connection we are glad that the Government of Madras have taken up this matter seriously on hand and the appointment has been made of a Bio-chemist for the specific purpose of augmenting our organic manure supply.

We appeal to all Municipalities, Unions, Village panchayats and individual cultivators to avail themselves of the technical help offered by this branch of the Agricultural Department in order to increase the supply of organic manure the lack of which in sufficient quantities has seriously affected our food production so far.

The Present Food Crisis and its Solution*

By

N. C. THIRUMALACHARYA, B. Sc (Ag), M. Sc.

Why this "Food Crisis" in India when India is mainly an agricultural country and more than 80% of the population are agriculturists? The causes are not far to seek. Agriculture as such is still in a backward state, in spite of all attempts to improve it and food production is far below consumption. This is especially so in the case of rice, the demand for which has become great while its production is low. The whole problem of food production has thus centred round rice as far as the Madras province is concerned.

In Madras province the production of rice is estimated at 50 lakhs of tons every year, while the consumption has been yearly 56½ lakhs of tons. This deficit was not felt during the pre-war years due to imports from Burma, Siam and Indo-China. The Second World War put a stop to these imports and to this was added the increased demand by the army. The situation was further aggravated by the appalling increase in the population of India As the Food and Agricultural Council of the United Nations has pointed "In Asia the rice-eating population is increasing twice as fast as the rice output.

Attempts were made in all directions to meet this deficit. A vigorous grow more food campaign was started. A number of concessions were granted to bring in more area under cultivation; to increase the area under irrigation, and intensify cultivation by manuring and good seeding. An all-out drive for extensive green manuring was launched A five-year programme was drawn up under which small irrigation projects were contemplated. Imports from abroad were arranged and rice, maize, wheat and milo were obtained. Rationing was introduced and the movement of food grains were controlled. But all these attempts were only partially successful so much so that the situation has not materially improved and the province is still in great deficit in regard to rice.

It cannot be denied that a very sincere attempt was made by the Agricultural Department of this province to improve food production. But their efforts were thwarted by factors which were

*This paper was presented as part of at Symposium on the Food Crisis — at the College Day Conference in July 1948.

beyond their control. The cost of manures like groundnut cake was controlled and they were distributed at controlled rates. But production of cakes was low and demand was high. Chemical manures like ammonium sulphate and ammonium phosphate were arranged to be got from foreign countries and supplied. But the imports did not reach 1/5th of the requirements. Tractors were taken from the army and supplied one or two to each district to break up new lands for cultivation.

But these tractors were already "army-beaten" and no sooner were they put into the field than they went into repairs. There were no trained mechanics or spare parts to repair them. The Public Works Department were anxious to construct a number of new irrigation projects. But as one would expect, the process was slow due to want of technicians and funds. It is not surprising therefore that no immediate effect of the Grow More Food programme was felt as at best they can be only long-range schemes and the result will be seen only after some years.

What then is the immediate remedy? The only solution which would produce quick results is the "adjustment of cropping". By this I mean a regulation of the areas under each crop according to needs. In the Madras presidency the deficit in rice production works out to 10 lakhs of tons of paddy. These 10 lakhs of tons of paddy should be made good in one year. The area required to produce 10 lakhs of tons of paddy will be 13 lakhs of acres. Thus the paddy area should be increased by 13 lakhs of acres. This should be achieved by diversion of the lands not only under commercial crops but also under certain millets to paddy. Any deficit in millets and other crops can be made good by increasing its area in the dry lands. There are extensive areas of current fallows, out of which a portion can be cultivated for such purposes.

It may seem paradoxical to suggest a reduction in area under important commercial crops like cotton, groundnut, sugarcane and tobacco, when special committees for each of these crops are working with zeal to increase their production. The Indian Central Cotton Committee, the Tobacco Committee, the Oilseeds Committee and the Sugarcane Committee can all concentrate on the improvement of cultivation of these crops by improved seeds, manures etc. but not by extending the areas to the detriment of foodcrops like paddy or millets.

How is this policy to be enforced? In these days of freedom and democracy it is not possible to do it by mere propaganda. Enforcement by legislation is the only practical solution. It may be argued that during the War, in order to increase the area under pulses, an act was passed that cotton and groundnut should never be grown as pure crops but always as mixtures with a pulse-crop like blackgram, horsegram and redgram. But the return for 1945–46 showed a decrease in the area under each crop instead of an increase and thus the act was a failure. The main reason was that there was no organisation to enforce it.

If an Act called the "Agricultural Crop Adjustment Act" is passed and enforced with all earnestness it will produce amazing results in the shortest time possible. By this act every ryot who grows a commercial or cash crop out of proportion to a paddy crop should be compelled to divert a portion of this area to paddy. The details should be worked out taking a district as the unit and trying to make each district self sufficient as far as possible such that the target aimed at is reached. I may point out here that this is not a new original suggestion. Such acts have been passed in countries like America with very good results and hence it is worth a trial in our province as well.

It should be emphasised that unless the enforcement of the Act is done with zeal and enthusiasm the whole scheme will fail. To achieve this end the check and supervision should be entrusted not to the Revenue Department, but to the Agricultural Department only. Even the working details of how much each ryot should grow each crop should be left to the Agricultural Department who are better judges of the ryots' conditions than the Revenue Department. This will of course mean additional work to the Agricultural Department and additional establishment and expenses. But that cannot be helped. Food and Agriculture go together and anything concerning food can best be tackled only by the Agricultural Department.

The above programme is for immediate increase in the total production and to relieve the suffering millions from food scarcity within a year or two at the most. But side by side with this a long-term scheme should also be launched to meet the growing menace of the increase in population every year. The programme is nothing but the one already started viz., to increase the production by the increased use of water, better manures, and better seeds and by bringing in more area

under cultivation in a period of 5 years. The foodgrains Policy Committee has rightly come to the conclusion after reviewing the work from 1943–47 that "The measures which were undertaken were doubtless in the right direction but the objectives were far diversified, the efforts were inadequate and in most areas necessary vigour and drive were lacking. If definite results are to be achieved a radical revision of approach is necessary and a new production policy and machinery has to be devised ".

In short, diversion of commercial and other nonimportant food crops to paddy in the irrigated areas and enforcing the same by legislation and introducing a Crop Adjustment Act as the immediate short term policy; and increasing the production gradually by the distribution of good seeds and large quantity of manures, by green manuring and by bringing in more of waste lands under cultivation by mechanised cultivation as a long range policy is the only solution to solve the present food crisis.

ERRATA

The Madras Agricultural Journal.

Vol. XXXVI.	No. 3.	Page 147, 8th line—read 40 feet instead of 40'.
"	"	Page 147, 9th line—read square instead of squire.
"	No. 4.	Page 188, line 33, read 100 H. P. instead of a 10 H. P.
	"	Page 190, in the heading of the appendix third column read "ploughing by a 40 H. P. tractor instead of ploughing by a H. P. tractor".
	"	Page 191, column three, read "ploughing by a 40 H. P." instead of "ploughing by a H. P. tractor.
	"	Page 162 para 2 line 14 read "offset" instead of "affect".

Cardamom Thrips—and Its Control

By

M. S. SUBBIAH, B.A., B.Sc., (Ag.)

Assistant Entomologist.

Cardamom—*Elettaria cardamom*—is a spice crop, the produce of which is of late commanding very attractive prices in the market. The cultivation of this crop is, therefore being extended wherever possible. One of the main factors that has discouraged the large-scale extension of this crop is its susceptibility to a few insect pests of which the cardamom thrips—*Taeniothrips cardamomi* is the most important. The damage caused by these insects is so severe that the entire crop is ruined during certain years. The author has known a few cases where some of the plantations were abandoned, as the cultivation was not worth the trouble, in such badly infested localities; nor were the planters uniformly enthusiastic about starting new areas due to their utter helplessness against these tiny insects. As the situation was very alarming a scheme of research for the control of this pest was instituted during October 1944 under the aegis of the Indian Council of Agricultural Research. The scheme has been running now for the past four years and some very useful information has been gathered regarding the control of these thrips. It is therefore thought that the publication of this short note on the results obtained may be helpful to the cardamom planters.

The cultivation of cardamom is at present restricted to the sub-montane regions of the Western Ghats on elevations ranging from 2,500–4,000 feet with an average annual rainfall of 100–200 inches. The crop thrives best in areas where the rainfall is evenly distributed throughout the year. Apart from the proper elevation and rainfall, this crop also requires adequate natural shade. No special arrangements are, however, made to grow these shade trees as in the case of coffee but the crop itself is planted in evergreen sholas well protected from high winds, after thinning out the superfluous trees. The crop is propagated either by bulbs themselves or by planting two to three years—old seedlings raised in carefully prepared nurseries. The planting is done during May—June just before the monsoon rains. The crop needs very little after-care, except for the filling up of gaps wherever necessary and an occasional weeding. The clumps grow and begin to flower from the third year onwards. The flower stalks spring out from the ground level and either shoot up to a height of two to peculiar feature of the variety. These bushes flower practically

throughout the year. But the peak occurs from May to August and corresponding to the flowering the main harvest extends from September to December. There may be eight pickings in a year. Normal bearing commences from the fifth year onwards and continues up to the fifteenth year, the average yield being about 120 lb. per acre

The pest—*Taeniothrips cardamomi*—is a small dark-brown insect, provided with lacerating and sucking mouth parts. The eggs are thrust singly, partly embedded in the tender tissues of the leaf-sheaths, spindles, flower bracts, etc. The nymphs hatch out in about a week and these are wingless but resemble the adults in general features and in their mode of feeding. They moult thrice in the course of 15—21 days and then pupate. The adults emerge in 10—15 days after pupation. The whole life-cycle is completed in 32—46 days.

The insects hide under the green leaf-sheaths, spindles, floral bracts, flowers and on tender fruits and feed on the plant sap. They breed in enormous numbers from May to August, which synchronises with the main flush when the oviposition and feeding is more concentrated on the racemes, which then literally teem with insect population. On account of the heavy drain of the cell sap in the infested racemes, the flowers and tender fruits wither away and drop off. The few fruits that survive the damage develop characteristic scabs or pustules on the surface due to the irritation caused by the scraping of the insects. The degree of such scabbing varies with the intensity of the damage. The infested pods are undersized with only a few chaffy seeds without the fine aroma and taste and as such do not fetch a good price in the market The damage therefore, consists in the appreciable reduction of the produce both in quantity and quality. As an outstanding example of the potentialities of this pest, the yield in one particular estate was reduced to 16 lb. per acre, while during normal years it was 120 lb.

Control Measures: The line of work in this direction lay in finding a cheap and efficient insecticide which has necessarily to be applied at frequent intervals to protect the flushes that come out almost throughout the year. A number of insecticides such as Paris green, sulphur, tobacco, Acorus, Tartar emetic, Lobelia, Nicotine sulphate, D. D. T., Dedetane and Gammexane were tried either as dusts or sprays, the treatments being restricted to the floral parts only. During the initial trials Nicotine sulphate spray at 0·05% gave some encouraging results. But the recent advent of the

insecticide Benzene hexachloride (Gammexane) has practically revolutionised the method of control. This dust (Gammexane D. 025) when applied at the rate of 4 lb. per acre per application was found to have a remarkable effect against the pest. It was however necessary to repeat the treatments at monthly intervals or whenever there was an indication of either re-infestation or increase of pest population. A perusal of the statement showing the details of the insecticides tried at different intervals, would indicate that this pest can be very effectively checked and the yields increased by applying Gammexane at monthly intervals at 4 lb. per acre costing only Rs. 2—15—0 per dusting. The calculated net profit per acre from the plots treated with Gammexane is computed to be Rs. 243/0. In actual practice, however, the dustings need not be taken up during the rainy months and it is therefore suggested that eight applications judiciously regulated according to the incidence of the pest would effectively solve the problem of thrip damage in the cardamoms.

Statement Showing the Economics of the Differrent Treatments.

No.	Treatments	Interval	Yield per acre in dry weight	Percentage of scab free pods	Increase over controls	Cross value of Produce	Cost of treatment	Net value	Increas overe control
1	2	3	4	5	6	7	8	9	10
						Rs. A.	Rs. A.	Rs. A.	Rs. A.
1	Garmmexane @ 4 lbs. per acre.	Monthly	123.3 lb.	67	92. 6 lb.	411 13	33 12	378 1	310 7
2	Do.	Once in two months	52.8 lb.	42	22. 1 lb.	154 2	16 14	137 4	69 10
3	Nicotine sulphate 0 5%; 20 gallons per acre.	Monthly	110. 8 lb.	49	80. 1 lb.	340 1	81 0	259 1	191 7
4	Do.	Once in two months	82. 6 lb.	29	51. 9 lb.	218 6	40 8	178 14	111 4
5	Controls— no treatment.	...	30. 7 lb.	12	...	67 10	...	67 10	...

Agriculture in our New India

By

SRI. P. G. KARUTHIRUMAN, B. Sc.*

An address delivered at the Hope Polytechnic to the students of automobile engineering.

I should first of all thank my friend Mr. G. D. Naidu for giving me this opportunity of addressing you, the students of automobile engineering and allied sciences, on the importance of agriculture and my experiences as a practical agriculturist.

Our country as you all know, is a very large one. Nearly 87% of our population live in villages and are mainly dependent upon agriculture for their livelihood. In spite of this, it is sad to note that our country is not self-sufficient in regard to food and has to be importing food from foreign countries at enormous cost. To meet the food crisis it is the duty of all of us, as true sons of India, to so fashion the work of agricultural production that our country men could be fed without the help of any alien country. For achieving this end, we should concentrate upon the work of increasing the yield of food grains with sincerity of purpose and on a scientific well-planned basis. The Agricultural Department has issued a number of improved varieties, but the ryot is not always able to obtain the maximum yields that these improved varieties are capable of. If the ryot is to secure thus, it essential that sufficient care and attention are devoted to prepare the land in the proper way and maintain their fertility by adding sufficient manure to the soil All manures can be grouped into two main classes, natural and artificial. Natural manures which are also known as organic or bulky manures, are to be found in cattle manure, composts and green manures. If we apply natural manure to the soil only apart of it becomes available to the crop in the first year, the rest is all left in the soil and is utilised by subsequent crops. By applying natural manures every year in sufficient quantities, it is possible to keep up the fertility of the land without deterioration. In applying artifical manures like ammonium sulphate, superphosphate, there is the advantage that the manures are immediately available to the plants, so that the plants grow very vigorously. But greater care and a better judgement is necessary in using artificial manures — if the fertility of the land is to be maintained at a high level.

*Mr. P. G. Karuthiraman is a progressive agriculturist of the Coimbatore District.

Mere application of manures will not by itself give a high yield, but it is also essential to give constant attention to the field — i. e., by way of proper preparation, tillage, drainage and irrigation at suitable intervals etc. Coming to my experiences as an agriculturist, I propose to deal on this occasion with only paddy cultivation. For success in paddy cultivation, the use of good seed is a vital factor. Paddy that is intended to be used as seed should be harvested when the grain is fully ripe, dried carefully and preserved free from attack of insect pests or fungus diseases. The seeds should be taken out and dried in the sun at least once in every two months. Before sowing the seed in the nurseries it should be treated with Agrosan or Ceresan, so that any fungus spores that may be present may be destroyed. Paddy seed should be steeped in water for twenty-four hours and then sown in the nursery. The nursery bed should be well prepared and carefully levelled, so as to allow quick drainage. In the beginning, for four days, water should be let into the nursery in the evening and drained off the next morning. On the fifth day the nursery is kept without water for 24 hours. Then every alternate day water is allowed. From the fifteenth day onwards a continuous flow of water is maintained. Then comes the transplanting of these seedlings. The fields are previously prepared, giving two ploughings after manuring, and then water is let in and the fields well puddled and levelled. It will be very beneficial if concentrated manures are applied to the fields just before transplanting the seedlings. At this juncture no water should be allowed to drain out of the fields. The age of the seedlings for a crop of six months duration should not be more than 45 days at planting time. The seedlings are planted six inches apart and not more than three seedlings should be planted in one clump. After transplantation no water should be allowed for 24 hours, what little water there is in the field should all be absorbed by the soil. Another important point is that the puddled field should never be allowed to dry or form cracks. Waterings after transplanting should be done very carefully, so that the manures applied are not washed away by the water. During the growing period the fields should be kept free of weeds — by growing two or three weedings. Flowering commences usually from about the twelfth week after transplantation; the crop requires at this time large quantities of water, but care should be taken that water does not stagnate in the fields. The bunds should be so adjusted that there will be an uniform flow of water, without allowing the fields to get dry.

A paddy crop is liable to get damaged by a number of diseases and also by a various insect pests, such as stem borer and the rice bug. Stem borers can be controlled by means of light traps and by pulling out and burning all affected plants. The rice bug can be controlled by keeping the bunds free of grass and other weeds — to prevent eggs being laid on them and by bagging the bugs and killing them.

Only by constant care and attention to the crop at all stages can we raise a good crop of paddy. We should have patience and also industry — if our lands are to be improved and kept in a condition that will give us good yields per acre year after year.

Our Government, in their Grow More Food Campaign concentrate their attention on the procurement side alone, and do not give sufficient attention to the real and vital problem of helping the agriculturists in raising good crops in their fields. If the Government is prepared to supply two hundredweights of bonemeal and two cwts. of fish meal per every acre of paddy land and the people of the Agricultural Department approach the peasants and render all possible assistance, I am sure the food crisis can be easily tided over. We, as true sons of our motherland should serve our country by increasing food production by our concerted efforts and by growing crops on a scientific basis. By so doing we can get good food and more food. We need not import any food grain from foreign countries. We should be in a position to export our surplus grain to other countries. Then and then alone can we claim to be true and worthy sons of our motherland and make our country second to none in food production.

A Soil Survey for Fruit Development in the Ceded Districts (Contd.)*

By

SRI G. K. CHIDAMBARAM, M. SUNDARAM AND N. RAGHUNATHA RAO,

(Agricultural Research Institute, Coimbatore)

APPENDIX I.

Statement showing the profile characteristics, stones, water-soluble salts and natural reserves of Calcium Carbonate in the soil samples.

Number of Sample	Area	Village	Pit No.	Depth	Colour	Texture	Stones	Natural reserves of Calcium Carbonate Effervescence with Dil. Acid	Water soluble salts	Remarks
1	2	3	4	5	6	7	8	9	10	11
1	Kottur	Kottur	1	0'—1'	Red	Sandy loam	12·0	Nil	·015	Shallow soil—Dis-
2				1'—2'	,,	Gravelly	53·0	,,	·023	integrated granite at
3				2'—3'	Brown	,,	56·0	Very slight	·035	3 ft. depth
4		Chapparadhalli	2	0'—1'	Brown	Loamy	2·2	Nil	·017	Soil of moderate depth
5				1'—2'	,,	,,	0·3	Moderate	·037	rock at 5 feet
6				2'—3'	,,	,,		Slight	·041	
7				3'—4'	,,	,,		,,	·046	
8				4'—5'	Light Brown	Gravelly		Brisk	·49	
9		Kodihalli	3	0'—1'	Red	Gravelly	63·1	Nil	·034	Deep Soil Granite
10				1'—2'	,,	Loamy	2·6	,,	·017	at 7 ft
11				2'—3'	,,	,,	2·5	,,	·020	
12				3'—4'	Brown	,,	9·8	,,	·024	
13				4'—5'	Light Brown	,,	7·1	Slight	·079	
14				5'—6'	,,	,,	10·2	Moderate	·052	
15				6'—7'	,,	,,	15·1	Slight	·052	

*Continued from Vol. XXXVI, No. 3, P. 123.

Number of Sample	Area	Village	Pit No.	Depth	Colour	Texture	Stones	Natural reserves of Calcium Carbonate Effervescence with Dil. Acid.	Water soluble salts	Remarks
1	2	3	4	5	6	7	8	9	10	11
16		Maruru	4	0'—1'	Red	Loamy	10·8	Slight	·044	Deep soil. Parent rock (granite) at 7 ft.
17				1'—2'	,,	,,	0·7	Nil	·016	
18				2'—3'	,,	,,	1·3	,,	·022	
19				3'—4'	,,	,,	4·6	,,	·021	
20				4'—5'	,,	,,	12·6	Very slight	·033	
21				5'—6'	Brown	,,	15·0	Slight	·046	
22				6'—7'	,,	Gravelly	53·9	,,	·035	
23		Himoselette	5	0"— 9"	Red	Loamy	8·8	Nil	·050	Shallow soil. Rock at 2½ ft.
24				9"—18"	,,	,,	3 3	,,	·011	
25				18"—30"	Brown	Gravelly	58·0	,,	·023	
26				30"—34"	Very little soil			Disintegrated rock		Pegmatite
27				Below 34"				Rock		
28		Jagategiri	6	0"—6"	Red	Loamy	30·0	Nil	·011	Very shallow soil.
29				12"—18"	Brown	Gravelly	56·0	Nil	·018	Fine grained pegmatite at 1½ ft.
30				18"—24"			Rock	—	Pegmatite.	
31		Herevadaraja	7	0"—9"	Brown	Sandy	16·8	Very slight	·022	Fairly deep soil. Rock at 6 feet.
32				9"—18"	,,	,,	12·4	Nil	·018	
33				18"—30"	,,	,,	16·5	,,	·010	
34				30"—40"	,,	,,	19·2	,,	·013	
35				40"—48"	,,	,,	12·7	Very slight	·013	
36				4'—5'	,,	,,	8·2	Nil	·011	
37				5'—6'	,,	Clayey	12·3	Very slight	·068	
38		Chinnenahalli	8	0'—1'	Red	Loamy	24·4	Nil	·012	Very shallow soil Rock at 2 ft.
39				1'—2'	,,	,,	46·0	,,	·095	

40		Harkanahalu	9	0'—'1	Red	Loamy	3·1	Nil	·027	Shallow soil. Rock
41				1'—'2	,,	,,	19·9	,,	·055	at 3 ft.
42				2'—'3	,,	Gravelly	64·0	,,	·067	
43		Konanahalli	10	0'—1'	Red	Loamy	5·6	Nil	·032	Shallow soil. Rock
44				1'—2'	,,	,,	4·7	,,	·021	at 3½ ft.
45				2'—3½'	,,	,,	27·7	,,	·045	
46		Nadamanahalli	11	0'—1'	Brown	Loamy	4·0	Nil	·019	Soil of moderate depth.
47				1'—2'	Black	Clay loam	1·5	Slight	·131	Kankar at 5½ ft.
48				2'—3'	,,	,,	1·9	Moderate	·205	
49				3'—5½'	,,	,,	13·0	Brisk	·265	
50		Kalapuram	12	0'—1½'	Red	Loamy	0·5	Nil	·017	Moderately deep soil.
51				1½'-3'	Brown	,,	0·2	,,	·017	Rock at 5 ft.
52				3'—4'	,,	,,	1·0	,,	·017	
53				4'—5'	,,	,,	39·7	,,	·022	
54		,,	13	0'—1'	,,	,,	4·4	,,	·015	Shallow soil. Rock
55				1'—2'	,,	,,	13·5	,,	·015	at 3 ft.
56				2'—3'	,,	,,	15·0	,,	·030	
57		Ujjini	14	0'—1'	,,	Clay Loam	7·8	Slight	·030	Very shallow soil.
58		,,		1'—2'	Black	,,	15·5	Moderate	·070	Rock at 2 ft.
59	Kottur	Ujjini	15	0'—1½'	Grey	Clay loam	13·9	Slight	·036	Shallow soil. Rock
60		,,		1½'-3'	,,	,,	4·2	Moderate	·078	at 3 ft.
61		,,			,,	,,		Rock		Amphibolite
62	Rudravaram	Kondamayapalli	16	0'—1'	Light Brown	Loamy	0·4	Nil	·021	Water table at 5 ft.
63				1'—2'	Yellow	Clay loam	0·1	Nil	·045	
64				2'—3'	,,	,,	2·1	,,	·038	
65				3'—4'	,,	,,	11·0	,,	·026	
66				4'—5'	,,	,,	16·2	,,	·029	
67		Valagalapalli	17	0'—1'	Brown	Loamy	7·7	,,	·034	Water table at 5 ft.
68				1'—2'	,,	,,	7·2	,,	·040	
69				2'—3'	,,	,,	7·8	,,	·074	
70				3'—4'	,,	,,	8·9	Moderate	·054	
71				4'—5'	,,	,,	15·4	Slight	·056	

Number of Sample	Area	Village	Pit No.	Depth	Colour	Texture	Stones	Natural reserves of Calcium Carbonate (Effervescence with Dil. Acid)	Water soluble salts	Remarks
1	2	3	4	5	6	7	8	9	10	11
72		Negireddipalli	18	0'—1'	Brown	Clay	15·6	Nil	·049	Water table at 5 ft.
73				1'—2'	,,	Clayey	10·6	Slight	·064	Plenty of ferruginous
74				2'—3'	,,	,,	16·0	Very slight	·041	gravel in the deeper
75				3'—4'	,,	Gravelly	75·6	Slight	·060	layers.
76				4'—5'	,,	,,	83·1	,,	·047	
77		Rudravaram	19	0'—1'	Light Brown	Loamy	1·7	Nil	·018	Water table at 5 ft.
78				1'—2'	Brown	,,	0·1	,,	·016	Chini garden
79				2'—3'	,,	,,	1·3	,,	·252	
80				3'—4'	,,	,,	0·3	,,	·022	
81				4'—5'	Yellow	,,	3·3	,,	·022	
82		Rudravaram	20	0'—1'	Red	Sandy	1·6	,,	·028	Water table at 4 ft.
83				1'—2'	,,	,,	1·4	,,	·041	Sandy soil—Mango
84				2'—3'	Reddish Yellow	,,	3·5	Slight	·092	garden.
85				3'—4'	,,	Sandy loam	17·3	,,	·079	
86		Rudravaram	21	0'—1'	Brown	,,	10·2	Nil	·066	Water table at 5 ft.
87				1'—2'	Yellow	,,	4·5	,,	·030	Mango garden.
88				2'—3'	,,	Clay loam	8·0	,,	·048	
89				3'—4'	,,	,,	6·3	,,	·058	
90				4'—5'	,,	,,	13·0	,,	·056	
91		Gonampalli	22	0'—1'	Brown	Sandy	12·6	,,	·017	Water table at 5 ft.
92				1'—2'	,,	Loamy	37·6	,,	·023	Plenty of ferruginous
93				2'—3'	,,	,,	39·6	Brisk	·044	gravel in the deeper
94				3'—4'	Light Brown	Clay loam	17·8	,,	·051	layers.
95				4'—5'	Yellow	,,	22·1	,,	·047	
96	Rudravaram	Gonampalli	23	0'—1'	Red	Loamy	31·6	Nil	·039	Water table at 5 ft.
97				1'—2'	,,	,,	33·7	,,	·075	Plenty of ferruginous

98	Rudravaram	Gonampalli	23	2'—3'	Brown	,,	38·9	Slight	·089	gravel in the deeper
99				3'—4'	Brown	Gravelly	77·3	Nil	·167	layers.
100				4'—5'	Light Brown	,,	80·5	,,	·195	
101		Chinnakam-baluru	24	0'—1'	Yellow	Loamy	10 1	Nil	·090	Rocks of the Cuddapah formations met with
102				1'—2'	,,	Clay Loam	29·1	Slight	·057	at 5 ft.
103				2'—3'	,,	,,	24·0	Nil	·071	
104				3'—4'	,,	,,	9·0	Nil	·166	
105				4'—5'	,,	,,	34·9	Slight	·226	
106		Peruru	25	0'—1'	Red	Sandy	1·1	Very Slight	·031	Water table at 5 ft.
107				1'—2'	,,	,,	8·0	Nil	·058	Sandy soil.
108				2'—3'	,,	,,	3·6	Nil	·039	
109				3'—4'	,,	,,	2·3	Slight	·051	
110				4'—5'	,,	,,	3·2	,,	·033	
111		Erraguntla	26	0'—1'	Grey	Loamy	47·6	Brisk	·089	Water table at 4 ft
112				1'—2'	,,	,,	53·2	,,	·077	plenty of ferruginous
113				2'—3'	Yellow	,,	52·2	,,	·062	gravel.
114				3'—4'	,,	Gravelly	62·1	,,	·059	
115		Near Wakkileru	27	0'—1'	Brown	Loamy	29·6	Moderate	·191	Deep soil. Neither
116				1'—2'	,,	,,	34·5	,,	·135	water table nor rock
117				2'—3'	Light Brown	,,	26·7	,,	·190	up to ft. 8 Kankar
118				3'—4'	,,	,,	26·5	,,	·211	nodules from 5 ft.
119				4'—5'	Yellow	,,	26·5	Slight	·215	downwards.
120				5'—6'	,,	,,	26·4	,,	·203	
121				6'—7'	,,	,,	40·9	Brisk	·093	
122				7'—8'	,,	,,	37·4	Moderate	·193	
123	Rudravaram	Gonampalli	28	0'—1'	Yellow	,,	28·5	Very slight	·041	Deep soil. Neither
124				1'—2'	,,	,,	20·8	,,	·051	water table nor rock
125				2'—3'	,,	,,	24·1	,,	·069	met with. Kankar no-
126				3'—4'	,,	,,	38·2	Slight	·090	dules from 5 ft. down-
127				4'—5'	,,	,,	38·3	Moderate	·108	wards.
128				5'—6'	,,	Gravelly	65·3	,,	·100	
129				6'—7'	Brown	,,	50·4	,,	·100	
130				7'—8'	,,	,,	58·6	,,	·089	

Number of Sample	Area	Village	Pit No.	Depth	Colour	Texture	Stones	Natural reserves of Calcium Carbonate Effervescence with Dil. Acid	Water soluble salts	Remarks
1	2	3	4	5	6	7	8	9	10	11
131		Near Bandaru-vagu	29	0'—1'	Brown	Loamy	9·1	Nil	·029	Deep soil. Neither rock nor water up to 8 ft. depth. Kankar nodules from 4 ft. downwards. Plenty of ferruginous gravel.
132				1'—2'	,,	,,	10·4	,,	·034	
133				2'—3'	,,	Sandy loam	40·3	Slight	·037	
134				3'—4'	,,	,,	52·8	Moderate	·044	
135				4'—5'	,,	,,	57·5	,,	·047	
136				5'—6'	,,	,,	49·3	,,	·051	
137				6'—7'	,,	,,	29·8	Slight	·045	
138				7'—8'	,,	,,	35·5	,,	·052	
139		Sirvel	30	0'—1'	Grey	Loamy	43·3	Moderate	·032	Water table at 3 ft. Plenty of ferruginous gravel. Rocks of the Cuddappah formation at 3 ft. (Chini garden) Rock and Water table at 4 ft. plenty of ferruginous gravel in the 4th ft.
140				1'—2	,,	Gravelly	68·7	Nil	·029	
141				2'—3'	,,	,,	78·0	,,	·040	
142		,,	31	0'—1'	,,	Loamy	38·2	,,	·025	
143				1'—2'	,,	,,	27·1	,,	·032	
144				2'—3'	,,	,,	26·5	Slight	·038	
145				3'—4'	,,	Gravelly	69·0	Very slight	·041	
146		,,	32	0'—1'	Grey	Clay loam	22·6	Brisk	·042	Water table at 4 ft. Plenty of ferruginous gravel.
147				1'—2'	Yellow	Loamy	46·9	,,	·046	
148				2'—3'	,,	Gravelly	60·3	,,	·054	
149				3'—4'	,,	,,	68·6	,,	·055	
150	Sirvel	Sirvel	33	0—1'	Grey	Loamy	27·8	Subject	·045	Water table at 5 ft. Plenty of ferruginous gravel Cheeni garden.
151	,,	,,		1—2'	,,	,,	28·3	,,	·062	
152	,,	,,		2—3'	,,	,,	38·0	,,	·066	
153	,,	,,		3—4'	,,	Gravelly	68·2	,,	·046	
154	,,	,,		4—5'	,,	Sandy loam	19·2	,,	·049	

155	Giddalore	Giddalore	34	0'—1'	Grey	Loamy	27·0	,,	·039	Rocks of the Cuddappah
156				1'—2'	,,	,,	26·0	,,	·061	formations at 6 ft. Plenty
157				2'—3'	,,	,,	33·7	,,	·048	of ferruginous gravel
158				3'—4'	,,	,,	34·1	,,	·046	especially in deeper
159				4'—5'	,,	,,	49·8	,,	·043	layers.
160				5'—6'	,,	,,	53·0	,,	·045	
161		,,	35	0'—1'	Brown	Loamy	4·6	Nil	·042	Rock at 6 ft. Kankar no-
162				1'—2'	,,	,,	5·0	Brisk	·055	dules in the deeper
163				2'—3'	,,	,,	10·9	,,	·055	layers.
164				3'—4'	,,	,,	21·9	,,	·052	
165				4'—5'	,,	,,	34·9	,,	·048	
166	Giddalore	Giddalore		5'—6'	Brown	Loamy	40·6	Brisk	·050	
167		Settireddipalli	36	0'—1'	Red	,,	42·5	Brisk	·025	Rock at 6 ft. Water
168				1'—2'	,,	,,	21·0	,,	·030	table in the well nearby
169				2'—3'	,,	,,	25·2	,,	·030	about 35 ft.
170				3'—4'	,,	,,	17 2	,,	·032	
171				4'—5'	Brown	,,	36·1	,,	·035	
172				5'—6'	,,	,,	22·5	,,	·036	
173		Ambavaram	37	0'—1'	,,	Sandy	2·7	Nil	·020	Rock at 7 ft.
174				1'—2'	,,	Loamy	17·1	Moderate	·035	
175				2'—3'	Light Brown	,,	15·1	,,	·040	
176				3'—4'	,,	,,	11·8	,,	·039	
177				4'—5'	,,	,,	27·5	,,	·036	
178				5'—6'	,,	,,	30·3	,,	·039	
179				6'—7'	,,	,,	48·4	,,	·032	
180		Uppalapadu	38	0'—1'	,,	,,	11·5	,,	·029	Rock at 5 ft.
181				1'—2'	,,	,,	19·2	Brisk	·041	
182				2'—3'	,,	,,	24·7	,,	·056	
183				3'—4'	,,	,,	32·6	,,	·068	
184				4'—5'	,,	,,	47 0	,,	·078	
185		Rajupeta	39	0'—1'	Red	Loamy	33·8	Moderate	·031	Deep soil. Neither rock
186				1'—2'	,,	,,	30·5	Brisk	·034	nor water table met with.
187				2'—3'	,,	,,	7·8	,,	·039	
188				3'—4'	,,	,,	9·9	Moderate	·034	

Number of Sample	Area	Village	Pit No.	Depth	Colour	Texture	Stones	Natural reserves of Calcium Carbonate Effervescence with Dil. Acid	Water soluble salts	Remarks
1	2	3	4	5	6	7	8	9	10	11
189		Rajupeta	39	4'—5'	Light Brown	,,	33·2	,,	·037	
190				5'—6'	,,	,,	38·2	,,	·067	
191				6'—7'	,,	,,	25·5	,,	·078	
192				7'—8'	,,	,,	25·8	,,	·079	
193		Kanchipalli	40	0'—1'	Red	Loamy	54·3	Moderate	·206	Rock at 6 ft. Water table
194				1'—2'	,,	,,	31·2	Slight	·090	in well nearby 30 ft.
195				2'—3'	,,	,,	25·4	,,	·136	
196				3'—4'	,,	,,	22·4	Moderate	·139	
197				4'—5'	,,	,,	19 4	Brisk	·051	
198				5'—6'	,,	,,	8·4	Moderate	·033	
199		Krishnamsetti-palli.	41	0'—1'	Light Red	Sandy loam	1·3	Brisk	·036	Deep soil. Rock at 8 ft.
200				1'—2'	,, ,,	,,	12·4	,,	·042	Water table in nearby
201				2'—3'	Brown	Loamy	10·5	,,	·040	well 30 ft.
202				3'—4'	,,	,,	14·9	,,	·042	
203				4'—5'	,,	,,	7·1	Nil	·069	
204				5'—6'	,,	,,	7·6	,,	·086	
205				6'—7'	,,	,,	0·6	,,	·020	
206				7'—8'	,,	Clay Loam	0·4	,,	·021	
207		,,	42	0'—1'	Red	Loamy	1·8	,,	·022	Rocks of the Cuddappah
208				1'—2'	,,	,,	2·1	Very alight	·043	formations at 5 ft.
209				2'—3'	,,	,,	7·6	Moderate	·051	
210				3'—4'	,,	,,	0·2	Nil	·025	
211				4'—5'	Brown	,,	1·6	Brisk	·033	
212		Diguvametta	43	0'—1'	Red	Loamy	3·2	,,	·034	Rock at 5 ft.
213				1'—2'	,,	,,	4·2	Moderate	·034	
214				2'—3'	Brown	,,	14·2	,,	·036	

215				3'—4'	,,	,,	28·0	Brisk	·032	
216		Diguvametta	43	4'—5'	,,	,,	34·1	,,	·036	
217		,,	44	0'—1'	Red	Sandy loam	30·1	,,	·037	Rock at 4 ft.
218				1'—2'	,,	,,	33·2	,,	·036	
219				2'—3'	Brown	,,	8·2	Nil	·033	
220				3'—4'	,,	,,	5·0	,,	·025	
221		,,	45	0'—1'	Red	Loamy	20·6	,,	·027	Rock at 4 ft.
222				1'—2'	,,	,,	11·7	,,	·031	
223				2'—3'	Brown	,,	27·1	Brisk	·036	
224				3'—4'	,,	,,	8·2	,,	·047	
225		,,	46	0'—1'	,,	Gravelly	61·6	,,	·042	Rock at 3 ft. Kankar
226				1'—2'	Grey	Clay loam	10·5	Moderate	·034	nodules from 2nd ft.
227				2'—3'	,,	Loamy	40 0	Brisk	·039	
228		,,	47	0'—1'	Red	Sandy loam	32·0	,,	·038	Rock at 3 ft. Water-
229				1'—2'	Brown	Loamy	44·8	,,	·238	table in nearby
230				2'—3'	,,	,,	4·0	,,	·100	well 35 ft.
231	Vontimitta	Chenchugari-	48	0'—1'	Red	Loamy	31·3	Very slight	·040	Rock at 6 ft. Water
232		palli.		1'—2'	,,	,,	29 0	Slight	·056	table 10 ft. Plenty of
233				2'—3	,,	Gravelly	67·0	,,	·053	stones especially in
234				3'—4'	Brown	,,	79·0	,,	·057	deeper layers.
235				4'—5'	,,	,,	83·5	,,	·049	
236				5'—6'	,,	Loamy	43·7	Brisk	·039	
237		Kottapalli	49	0'—1.	Grey	Loamy	15·3	,,	·056	Water table at 5 ft.
238				1'—2'	,,	,,	18·6	Very slight	·037	
239				2'—3'	,,	,,	19·7	,,	·038	
240				3'—4'	,,	,,	37·2	Slight	·040	
241				4'—5'	,,	Gravelly	85·5	Brisk	·064	
242		Vontimitta	50	0'—1'	Red	Loamy	51·5	,,	·035	Rock at 4 ft. Water
243				1'—2'	,,	Gravelly	74·3	Slight	·049	table very low - 35 ft
244				2'—3'	Brown	,,	62·8	Brisk	·039	Plenty of stones.
245				3'—4'	,,	Loamy	48·2	,,	·042	

Number of Sample	Area	Village	Pit No.	Depth	Colour	Texture	Stones	Natural reserves of Calcium Carbonate Effervescence with Dil. Acid	Water soluble salts	Remarks
1	2	3	4	5	6	7	8	9	10	11
246		Ratsapalli	51	0'—1'	,,	Gravelly	77·6	Nil	·036	Rock at 6 ft. Plenty of stones. Water table at 15 feet.
247				1'—2'	,,	,,	74·2	,,	·024	
248				2'—3'	Grey	,,	74·0	Brisk	·041	
249				3'—4'	Light Brown	,,	65·2	,,	·040	
250				4'—5'	,,	,,	70·4	,,	·036	
251				5'—6'	,,	,,	73·6	,,	·037	
252		Chalabad	52	0'—1'	Brown	Loamy	22·5	Very slight	·069	Rock at 6 ft. Water table at 10 ft.
253				1'—2'	,,	,,	21·5	,,	·105	
254				2'—3'	,,	Sandy loam	13·2	Slight	·090	
255				3'—4'	,,	,,	14·2	Very slight	·064	
256				4'—5'	,,	,,	7·3	Slight	·047	
257				5'—6'	,,	,,	30·5	Moderate	·036	
258		Polubuchayya-garipalli.	53	0'—1'	Light brown	Loamy	41·5	Brisk	·051	Sandstone at 4 ft. Plenty of stones.
259				1'—2'	Grey	Gravelly	73·7	Moderate	·041	
260				2'—3'	,,	,,	81·8	,,	·041	
261				3'—4'	,,	,,	84·0	Very slight	·039	
262		Nadimpalli	54	0'—1'	Brown	Sandy loam	57·2	slight	·037	Rock at 4 ft. Plenty of stones.
263				1'—2'	,,	Gravelly	65·7	,,	·051	
264				2'—3'	,,	,,	63·7	Moderate	·049	
265				3'—4'	,,	,,	77·9	Brisk	·090	
266		Cherlopalli	55	0'—1'	Light Brown	Sandy loam	55·6	Nil	·024	Water table at 4 ft. Plenty of stones.
267				1'—2'	,,	Gravelly	70·4	,,	·025	
268				2'—3'	Brown	,,	82·5	,,	·029	
269				3'—4'	,,	,,	67·3	Brisk	·045	

270	Mangampet	56	0'—1'	Light Brown	Loamy	43·6	,,	·039	Rock at 5 ft. Plenty of stones.
271			1'—2'	Red	,,	39·8	,,	·043	
272			2'—3'	,,	,,	44·7	,,	·041	
273			3'—4'	Brown	Gravelly	60·3	,,	·043	
274			4'—5'	,,	,,	74·6	,,	·047	
275	Mantapampalli	57	0'—1'	Brown	Sandy loam	14·2	Moderate	·039	Sri Chellama Reddy's land Natural soil. Rock at 5 ft. Water table at 10 ft.
276			1'—2'	,,	,,	14·2	Nil	·024	
277			2'—3'	Grey	,,	31·7	,,	·035	
278			3'—4'	,,	Gravelly	65·8	,,	·043	
279			4'—5'	,,	Sandy loam	5·0	,,	·030	
280	,,	58	0'—1'	Red	Sandy loam	18·6	,,	·045	Water table at 6 ft. Sri Chellama Reddy's land. Natural soil.
281			1'—2'	,,	,,	4·2	,,	·037	
282			2'—3'	Brown	Loamy	4·7	,,	·036	
283			3'—4'	,,	,,	3·5	,,	·035	
284			4'—5'	,,	,,	4·1	,,	·030	
285			5'—6'	,,	,,	2·4	,,	·030	
286	,,	59	0'—1'	Red	Sandy loam	14·7	Brisk	·043	Rock at 4 ft. Plenty of stones in the deeper layer. Sri Chellama Reddy's made-up soils. Water table at 20 ft.
287			1'—2'	,,	,,	8·2	,,	·043	
288			2'—3'	Brown	Loamy	6·3	,,	·045	
289			3'—4'	,,	,,	35·7	,,	·055	
290	,,	60	0'—1'	Red	Sandy loam	14·7	,,	·044	Made-up soil. Rock at 4 ft. plenty of stones.
291			1'—2'	,,	,,	34·0	,,	·045	
292			2'—3'	,,	,,	48·0	,,	·044	
293			3'—4,	Brown	,,	50·2	,,	·046	
294	,,	61	0'—1'	Light Brown	,,	9·2	,,	·030	Water table at 3 feet.
295			1'—2'	,,	,,	12·8	,,	·025	
296			2'—3'	,,	,,	22·0	,,	·033	
297	Mantapampalli	62	0'—1'	Red	Sandy loam	26·7	Brisk	·045	Rock at 4 ft. Plenty of gravel and stones. Very poor orchard.
298			1'—2'	,,	Gravelly	61·2	,,	·050	
299			2'—3'	Brown	,,	65·1	,,	·050	
300			3'—4'	,,	Loamy	47·8	,,	·048	
301			below 4'		rock	Kankar and shale			

Number of Sample	Area	Village	Pit No.	Depth	Colour	Texture	Stones	Natural reserves of Calcium Corbonate Effervescence with Dil. Acid	Water soluble salts	Remarks
1	2	3	4	5	6	7	8	9	10	11
302	Kodur	Pagadalapalli	63	0'—1'	Red	Sandy loam	1·4	Nil	·019	Deep soil. Kankar below 6 ft. Mango garden of Sri. Pitchi Raju.
303				1'—2'	,,	Loamy	1·0	,,	·017	
304				2'—3'	,,	,,	0·7	,,	.016	
305				3'—4'	,,	,,	3·9	,,	·016	
306				4'—5'	Brown	,,	3·8	,,	·019	
307				5'—6'	,,	,,	10·9	Very slight	·050	
308				6'—7'	,,	,,	58·5	Brisk	·042	
309				7'—8'	,,	,,	42·5	,,	·041	
310		Kapupalli	64	0'—1'	Light Red	Sandy loam	2·0	Slight	·039	Deep soil. Kankar below 7 ft.
311				1'—2'	,,	Loamy	1·5	Nil	·039	
312				2'—3'	,,	,,	0·9	,,	·034	
313				3'—4'	Brown	,,	0·7	,,	·034	
314				4'—5'	,,	,,	3·1	,,	·036	
315				5'—6'	,,	,,	4·7	,,	·043	
316				6'—7'	,,	Gravelly	59·7	,,	·050	
317				7'—8'	,,	,,	83·9	Brisk	·050	
318		Balireddipalli	65	0'—1'	Grey	Loamy	26·7	Slight	·062	Rock at 5 ft. Plenty of ferruginous gravel in deeper layers.
319				1'—2'	,,	,,	21·4	Moderate	·133	
320				2'—3'	,,	Clay loam	28·3	Slight	·240	
321				3'—4.	,,	,,	48·9	Nil	·265	
322				4'—5'	,,	Gravelly	72·0	,,	·315	
323				5'—6'	Loose Conglomerate — pebbles and gravel with calcareous clay as cementing material					
324		Sundramkapu-palli.	66	0'—1'	Red	Sandy loam	0·4	,,	·021	Deep soil.
325				1'—2'	,,	Loamy	1·4	,,	·018	
326				2'—3'	,,	,,	0·9	,,	·016	
327				3'—4'	,,	,,	3·1	,,	·016	
328				4'—5'	,,	,,	3·8	,,	·013	
329				5'—6'	,,	,,	2·4	,,	·015	

330	Sundramkapu-	66	6'—7'	,,	,,	1·4	,,	·015	
331	palli		7'—8'	,,	,,	3·9	,,	·013	
332	Peddivaripalli	67	0'—1'	Brown	Loamy	3·1	Nil	·022	Deep soil. Rock at 7 ft. Plenty of ferruginous. Gravel at deaper layers.
333			1'—2'	,,	,,	4·0	,,	·023	
334			2'—3'	,,	,,	8·2	,,	·025	
335			3'—4'	,,	,,	33·6	,,	·031	
336			4'—5'	,,	Gravelly	53·2	,,	·030	
337			5'—6'	,,	,,	62·3	,,	·033	
338			6'—7'	,,	,,	69·1	,,	·036	
339			7'—8'	Very little soil — Practically all stones — quartzite bits.					
340	Kichamma	68	0'—1'	Red	Loamy	4·7	Nil	·013	Deep soil.
341	Agraharam		1'—2'	,,	,,	1·2	Nil	·016	
342			2'—3'	,,	,,	2·4	,,	·017	
343			3'—4'	,,	,,	3·2	,,	·015	
344			4'—5'	Brown	Loamy	5·7	,,	·023	
345			5'—6'	,,	,,	17·6	,,	·014	
346			6'—7'	,,	,,	21·7	,,	·015	
347			7'—8'	,,	Gravelly	63·0	,,	·015	
348	Chiyyavaram	69	0'—1'	Red	Loamy	1·2	,,	·011	Deep soil. Water table and rock at 7 ft. Plenty of ferruginous gravel below 5 ft.
349			1'—2'	,,	,,	1·3	,,	·017	
350			2'—3'	,,	,,	3·8	,,	·020	
351			3'—4'	,,	,,	2·9	,,	·019	
352			4'—5'	,,	,,	4·6	,,	·021	
353			5'—6'	Brown	,,	44 8	,,	·018	
354			6'—7'	,,	Gravelly	81 0	,,	·024	
355	Kammavaripalli	70	0'—1'	Light Brown	Sandy loam	3·1	,,	·017	Deep soil. Plenty of ferruginous gravel below 4 ft.
356			1'—2'	,,	,,	5·7	,,	·017	
357			2'—3'	,,	Loamy	3·8	,,	·021	
358			3'—4'	Brown	,,	5·7	,,	·019	
359			4'—5'	,,	Gravelly	76·8	,,	·024	
360			5'—6'	,,	,,	78·5	,,	·026	
361			6'—7'	Red	,,	61·0	,,	·022	
362			7'—8'	,,	,,	64·5	,,	·018	

Number of Sample	Area	Village	Pit No.	Depth	Colour	Texture	Stones	Natural reserves of Calcium Carbonate Effervescence with Dil. Acid	Water soluble salts	Remarks
1	2	3	4	5	6	7	8	9	10	11
363		Anantarajupeta	71	0'—1'	Brown	Sandy	0·3	Nil	·014	Deep soil.
364				1'—2'	,,	Sandy loam	0·9	,,	·027	
365				2'—3'	,,	Loamy	0·4	,,	·013	
366				3'—4'	,,	,,	0·1	,,	·016	
367				4'—5'	,,	,,	0·4	,,	·017	
368				5'—6'	,,	,,	1·6	,,	·021	
369				6'—7'	,,	,,	1·5	,,	·034	
370				7'—8'	,,	,,	3·9	,,	·045	
371			72	0'—1'	Red	Sandy loam	2·5	,,	·014	Deep soil.
372				1'—2'	,,	Loamy	0·9	,,	·014	
373				2'—3'	,,	,,	1·8	,,	·017	
374				3'—4'	,,	,,	1·5	,,	·017	
375				4'—5'	,,	,,	1·8	,,	·015	
376				5'—6'	Brown	,,	0·8	,,	·022	
377				6'—7'	,,	,,	2·0	,,	·021	
378				7'—8'	,,	,,	7·4	Very slight	·043	
379		Mangampet	73	0'—1'	Brown	Sandy loam	9·9	Nil	·019	Shallow soil. Plenty
380				1'—2'	,,	Gravelly	82·2	Nil	·032	of gravel below 1st
381				2'—3'	,,	Gravelly	82·7	,,	·045	foot Water table at 3 ft.
382		Anantarajupeta	74	0'—1'	,,	Loamy	5·3	,,	·032	Water table at 4 ft.
383				1'—2'	,,	,,	2·5	,,	·026	
384				2'—3'	,,	,,	1·1	,,	·032	
385				3'—4'	,,	,,	1·5	,,	·048	
386		Settigunta	75	0'—1'	Brown	Sandy loam	3·4	,,	·015	Rock at 4 ft. Plenty of
387				1'—2'	,,	Loamy	2·1	,,	·015	gravel and stones in

388		Settigunta	75	2'—3'	,,	,,	11·9	,,	·019	the last foot of soil. Site
389				3'—4'	,,	,,	43·7	Very slight	·043	in view for land
390				4'—5'	Rock	Red Quartzites				colonization scheme for ex-servicemen.
391		,,	76	0'—1'	Red	Sandy loam	1·7	Nil	·011	
392				1'—2'	,,	,,	4·3	,,	·018	
393				2'—3'	Brown	Loamy	2·0	,,	·015	
394				3'—4'	,,	,,	37·0	,,	·019	
395				4'—5'	,,	,,	25·7	,,	·034	
396		Janakipnram	77	0'—1'	Nil	Sandy loam	1·8	Nil	·009	Deep soil Plenty of
397				1'—2'	,,	Loamy	6·4	,,	·026	gravel from th foot. 4
398				2'—3'	,,	,,	10·7	,,	·017	
399				3'—4'	Brown	,,	14·6	,,	·015	
400				4'—5'	,,	Gravelly	71·8	,,	·012	
401				5'—6'	,,	,,	77·3	,,	·013	
402				6'—7'	,,	,,	76·7	,,	·016	
403		Maisurivaripalli	78	0'—1'	Red	Loamy	6·0	,,	·024	Deep soil. Cheeni gar-
404				1'—2'	,,	,,	4·5	,,	·020	den.
405				2'—3'	,,	,,	3·8	,,	·030	
406				3'—4'	Brown	Clay loam	1·5	,,	·025	
407				4'—5'	,,	,,	5·9	,,	·035	
408				5'—6'	,,	,,	3·0	,,	·025	
409				6'—7'	,,	Loamy	2·9	,,	·025	
410				7'—8'	,,	,,	3·0	,,	·021	
411	Panyam	Panyam	79	0'—1'	Grey	Sandy	8·7	,,	·025	Mango garden of Sri.
412				1'—2'	,,	,,	2·3	Brisk	·028	P. Madhava Rao.
413				2'—3'	,,	,,	1·4	,,	·036	Deep soil sandy —
414				3'—4'	,,	,,	3·7	,,	·028	water table below
415				4'—5'	,,	,,	3·3	,,	·030	40 feet.
416				5'—6'	,,	,,	2·3	,,	·031	
417				6'—7'	,,	,,	1·1	,,	·037	
418				7'—8'	,,	,,	6·7	Moderate	·022	

Number of Sample	Area	Village	Pit No.	Depth	Colour	Texture	Stones	Natural reserves of Calcium Carbonate Effervescence with Dil. Acid	Water soluble salts	Remarks.
1	2	3	4	5	6	7	8	9	10	11
419	,,	,,	80	0'—1'	Grey	Loamy	4·9	Brisk	·042	Cheeni garden of Sri. P. Madhava Rao. Deep very rich loamy soil.
420				1'—2'	,,	,,	5·8	,,	·046	
421				2'—3'	Black	Clay loam	2·8	,,	·046	
422				3'—4'	,,	,,	2·3	,,	·073	
423				4'—5'	,,	,,	6·4	,,	·049	
424				5'—6'	Brown	Loamy	5·5	,,	·045	
425				6'—7'	,,	,,	1·9	,,	·044	
426				7'—8'	,,	,,	1·3	Moderate	·432	

Extract.

Preventing Soil Erosion — Rebuilding Soil in U. S.

"Incorporation of organic matter adds plant food and erosion resisting characteristics of the soil"—Many farmers of the wheat growing areas of the U. S. Pacific North West have put this into practice and reduced their top soil losses to a minimum. Dr. S. C. Vande Caveye of the Soils Department of the State College of Washington has found that by utilising the stubbles and other crop residues and adding Nitrogen the organic matter level can be raised to something over 3½ per cent soil which has only 3 per cent organic matter can be rebuilt. During the process of rebuilding a great deal of raw humus is left on top of the ground or at plough depth depending on rainfall or other local conditions. As it rots it is an important factor in solving down run off and improving filth of the soil. The farmers at Paulose adopt a croping system wherein they save all their crop residues and add Nitrogen either in the form of legumes grown in rotation or by applying commercial Nitrogen to the stubble. The straw is evently spread over the surface of the fields with straw spreaders and thus making it easier to disc in, plough under, put into the top soil or leave on top as trash, To add Nitrogen Alfalfa or sweet clover is grown. Mixing a grass with legume is still better. (Planters' Journal and Agriculture, Vol. XLI — No. 3, March '49.)

Gleanings.

Plastic Watch Straps. Do They Cause Skin Trouble? Do plastic watch straps cause skin diseases? This allegation, recently raised in the Madras M. L. A., is being hotly argued all over the country. Manufacturers of the plastic material in England and America have been quick to refute the Madras allegation. The British have already proved that their plastic material is 100 per cent safe.

Elaborate research investigations, in England, proved that a British material, "Welvic", is completely free from any toxic hazard. The technical name of the plastic used is polyvinly chloride, or P. V. C. for short.

During the war, many uses were developed for this versatile plastic. One of its spectacular applications was for the manufacture of artificial ears, noses and fingers, for war wounded. It was imperative that the P. V. C. used for these purposes was non-toxic and caused no skin diseases. Manufacturers soon proved to the world that no skin troubles resulted from the wearing of P. V. C. surgical aids for many years of constant use, testify to the complete safety of these compounds.

Advice to the Public. Manufacturers in India should safeguard their interests by ensuring that they use the correct type of compound, namely, materials obtained from highly reliable suppliers. Likewise members of the public, when buying plastic watch straps, can guarantee complete satisfaction and safety by purchasing straps which bear the name of a reputable manufacturer. (I. C. I.)

Crop and Trade Reports.

Statistics—Crop—Gingelly—1948—'49—Fourth or Final Report. The average area under gingelly in the Madras Province during the five years ending 1944—1945 represents 14·7 per cent of the total area under gingelly in India.

2. The area sown with gingelly in 1948—1949 is estimated at 651,800 acres. When compared with the actual area of 638,400 acres according to the Season and Crop Report of the previous year, it reveals an increase of 2·1 per cent. The present estimate reveals a decrease of 4·8 per cent when compared with the average area of 684,900 acres during the previous five years.

3. The estimated area under gingelly in 1948—1949 is the same as the final area in the previous year in Guntur District. An increase in area is estimated in the districts of Vizagapatam, Kurnool, Bellary, Anantapur, Nellore, Chittoor, North Arcot, Salem, Coimbatore, Ramnad, Tirunelveli and South Kanara and a decrease in area in the other districts of the Province. The decrease is marked in Chingleput (—6000).

4. The yield per acre is estimated to be normal in Krishna and Guntur and below the normal in all the other districts of the Province due mainly to adverse seasonal conditions. The condition of the late sown crop is reported to be generally satisfactory. The seasonal factor for the Province as a whole works out to 85 per cent of the average as against 82 per cent estimated in the Season and Crop Report of the previous year. On this basis the total yield works out to 75,800 tons which is more than that estimated in the Season and Crop Report of the previous year by 5·1 per cent. The present estimate shows a decrease of 5·5 per cent, when compared with average yield of 80,200 tons during the previous five years.

5. The wholesale price of gingelly seed per imperial maund of 82. 2/7 lbs. (equivalent to 3200 tolas) as reported from important markets on 9—4—1949 was Rs. 35—4—0 in Salem, Rs. 32—15—0 in Tirunelveli, Rs. 32—3—0 in Tuticorin, Rs. 31—6—0 in Cuddalore Rs. 30—12—0 in Rajahmundry, Rs. 30—1—0 in Kakinada and Rs. 27—1—0 in Vizagapatam. When compared with the prices which prevailed on 8—1—1949, these prices reveal a rise of 16 per cent in Salem 12 per cent in Tuticorin, 11 per cent in Rajahmundry, 9 per cent in Kakinada, 5 per cent in Tirunelveli and 2 per cent in Cuddalore and Vizagapatam. (From Public and Economic Statistics Department).

Cotton Raw, in the Madras Presidency (in bales of 392 lbs.) The receipts of loose cotton at presses and spinning mills in the Madras Presidency from 1st February 1949 to 29—4—1949 amounted to 70934 bales of 392 lbs. lint as against an estimate of bales of the total crop of 1949. The receipts in the corresponding period of the previous year were 113582 bales. 145861 bales mainly of pressed cotton were received at spinning mills and 1656 bales were exported by sea while 41755 bales were imported by sea mainly from Karachi and Bombay. (From the Director of Agriculture, Madras).

Weather Review—For April 1949.

RAINFALL DATA.

Division	Station	Actual for month in inches	Departure from normal in inches	Total since January 1st in inches	Division	Station	Actual for month in inches	Departure from normal in inches	Total since January 1st in inches
Orissa & Circars.	Gopalpore	0·5	—0·2	0·5	South.	Negapatam	0·1	—1·0	0·6
	Calingapatam	Tr.	—0·7	0·4		Adutural*	Nil	—2·7	Nil**
	Vizagapatam	0·2	—0·5	0·6		Pattukottai*	1·0	—2·0	1·4
	Anakapalle*	2·0	+1·0	2·2		Mathurai	5·9	+3·7	6·8
	Samalkot*	0·5	—0·8	0·5		Pamban	0·6	—1·2	6·8
	Kakinada	2·1	—0·4	2·2		Koilpatti*	0·5	—3·1	2·4
	Maruteru*	0·3	—0·1	0·3		Palamcottah	0·9	—1·6	1·8
	Masulipatam	0·4	—0·3	0·4		Amba-samudram*	2·6	—1·2	3·8
	Guntur*	0·5	—0·5	0·5					
	Agrl. College, Bapatla	0·5	—0·3	0·5	West Coast.	Trivandrum	4·0	—0·6	4·3
	Veeravanam (College Farm)	0·4	... x	0·4		Cochin	6·1	—1·2	6·5
						Calicut	9·5	+4·7	9·6
Ceded Dists.						Pattambi*	2·6	—0·9	2·6
	Kurnool	1·5	+0·8	1·5		Taliparamba*	1·3	—1·5	1·3
	Nandyal*	0·7	—0·1	0·7		Nileshwar*	2·1	—0·6	2·1
	Hagari*	0·7	—0·5	0·7		Pilicode*	1·5	—1·7	1·3
	Siruguppa*	Nil	—0·7§	Nil		Mangalore	Nil	—1·9	Nil
	Bellary	Nil	—0·8	Nil		Kankanady*	Nil	—1·8	Nil
	Rentichintala	0·2	...	0·2					
	Cuddapah	Nil	—0·6	Nil	Mysore & Coorg.	Chitaldrug	0·3	—0·7	0·3
	Anantharajpet*	0·1 y	—0·4	0·1		Bangalore	1·6	Nil	1·9
Carnatic.	Nellore	0·4	—0·1	1·4		Mysore	2·1	—0·2	2·1
	Buchireddi-palem*	Nil	—0·7	Nil					
	Madras	0·9	+0·3	0·9	Hills.	Mercara	3·0	+0·4	3·1
	Tirurkuppam*	Nil	—1·9$	Nil		Kodaikanal	2·5	—2·3	3·5
	Palur*	Nil	—2·4	Nil		Coonoor*	5·7	+0·2	5·7
	Tindivanam*	0·5	—0·7	0·5		Ootacamund*	2·2	—2·8	2·2
	Cuddalore	0·1	—0·9	0·1		Nanjanad*	2·2	—2·9	2·2
Central.	Vellore	1·5	+0·5	0·5					
	Gudiyatham*	Nil	—0·8	Nil					
	Salem	5·8	+3·9	5·9					
	Coimbatore (A. C. R. I.)*	1·3	—1·4	1·4					
	Coimbatore (C. B. S.)*	1·1	—1·8	1·1					
	Coimbatore	1·5	—0·1	1·5					
	Tiruchirapalli	1·1	—1·3	1·2					

Note :—

(1) * Meteorological Stations of the Madras Agricultural Department.

(2) Average of ten years data is taken as the normal

(3) $ Average of six years data for Tirurkuppam, and seven years for Pilicode is given as normal.

(4) ** Actual figure is 0·03".

(5) (y) Actual figure is 0·05".

(6) § Taluk office normal is 0·95".

(7) x Readings are being recorded only from February 1948.

(8) Tr. Trace, i. e., Rainfall below 0·04".

(9) ... Figures not available.

Weather Review for April 1949

The month began with a shallow low over Gangetic West Bengal and the neighbourhood and this 'low' became unimportant on the third day of the month.

The seasonal trough of 'low' pressure was found established over Chota Nagpur and neighbourhood even in the first week of the month.

The begining of the second half of the month was characterised by the appearance of a shallow 'low' over South Bihar and the East United Province.

A depression was noted on 22—4—1949 in the southeast and the adjoining east Central Bay of Bengal with its central region lying this morning near Lat. 12°N, Long. 90°E. It was expected to intensify and move northwest. Apparently it crossed the coast near Sandyway on the third day.

Practically throughout the second half of the month Cuddapah was recording high maximum temperature in the range of 104 to 110°F. Places like Kurnool, Nellore and Rentachintala were also recording high maximum temperatures but not so continuously as Cuddapah. In short, severity of summer was felt practically throughout the Madras Presidency. Night temperatures happened to be invariably above normal in many parts of the Presidency.

Fairly widespread thundershowers occurred in different parts of the Presidency. The note-worthy falls in the month are as detailed below :—

Date.	*Place.*	*Rainfall in inches.*
4—4—1949	Salem	2·1
,,	Vellore	1·3
7—4—1949	Madura	2·0
8—4—1949	Calicut	4·8
18—4—1949	Cochin	2·7

M. B. V. N. & C. B. M.

ANDHRA UNIVERSITY

The following is the provisional list of Register Numbers of successful candidates at the under-mentioned Examinations held in March—April 1949.

B. Sc., Degree Examination in Agriculture.

First Examination :— 1, 2, 3, 4, 6, 8, 11, 12, 14, 18, 19, 20, 21, 22, 23, 25, 30, 36, 37, 39, 40, 43, 45, 47, 48, 49, 51, 54, 55, 57, 58, 60, 61, 62, 63, 65, 68, 71, 76, 80, 83, 84, 85, 72, 75.

Passed in Agriculture :— 9, 10, 13, 17, 24, 27, 28, 38, 42, 46, 53, 56, 59, 66, 69, 70, 73, 74, 79, 81, 82, 86.

Passed in Botany :— 5, 9, 13, 17, 24, 27, 28, 32, 35, 42, 46, 52, 53, 56, 59, 66, 69, 70, 73, 74, 77, 79, 81, 82, 86, 87, 88, and 89.

Passed in General and Soil Chemistry :— 5, 9, 13, 17, 24, 28, 32, 35, 38, 42, 46, 52, 53, 56, 66, 67, 69, 70, 73, 74, 77, 79, 82 and 86.

Passed in Zoology:— 5, 9, 10, 13, 24, 27, 28, 32, 35, 38, 42, 46, 52, 56, 59, 66, 69, 70, 73, 74, 77, 79, 81, 82 and 86.

Passed in Agricultural Engineering (Civil):— 5, 17, 32, 35, 38, 52, 53, 59, 77, 81 and 88.

The results of the following candidates will be announced later.

7, 15, 16, 26, 29, 31, 33, 34, 41, 44, 50, 64 and 78.

Second Examination:— 90, 91, 92, 93, 94, 96, 97, 98, 99, 100, 101, 103, 104, 105, 106, 107, 108, 110, 111, 112, 114, 115, 117, 118, 120, 121, 122, 125, 126, 127, 128, 131, 132, 134, 136, 137, 139, 140, 142, 143, 144, 148, 149, 150, 151, 152, 153, 154, 156, 157, 160, 161, 162, 163, 165, 166, 167, 168, 169, 170, 171, 172, 174, 175, 176, 177, 178, and 179.

Passed in Agriculture—Plant Husbandry:— 95, 109, 113, 116, 119, 123, 124, 129, 130, 133, 135, 138, 141, 145, 146, 147, 155, 158, 159, and 164.

Passed in Agricultural—Botany. (Crop Botany and plant Breeding and genetics):— 95, 109, 113, 116, 124, 141, 145, 146, 147, 155, 158, 159, and 181.

Passed in Agricultural Chemistry. (Organic Chemistry and Plant Chemistry):— 119, 123, 141, 159, and 164.

Passed in Agricultural Entomology:— 95, 109, 113, 116, 119, 123, 124, 129, 130, 133, 135, 138, 141, 145, 146, 147, 155, 158, 159, 164, 173 and 181.

Passed in Agricultural Engineering (Mechanical);— 95, 109, 113, 116, 119, 123, 124, 138, 145, 146, 147, 155, 158, and 164.

Final Examination (Second Class):— 182, 184, 185, 186, 187, 188, 190, 191, 192, 193, 194, 195, 196, 197, 199, 200, 201, 202 to 206, 208, 209, 211, to 215, 217, to 225, 227, to 230, 234, to 244, 246, 247, 249 to 260, 262, 263, 264, to 269, 271, 272, 274, and 275.

Passed in Agriculture — Horticulture:— 183, 189, 216, 226, 231, 232, 248, and 273.

Passed in Agriculture—Economics and Farm Management:— 183, 189, 207, 210, 216, 226, 231, 232, 233, 248, and 270.

Passed in Agriculture — Animal Husbandry and Dairying:— 231, 233, 245, 248, 261 and 273.

Passed in Botany (Plant Pathology):— 183, 189, 216, 226, 232, 273, 277 and 278.

Passed in Agricultural Chemistry:— 183, 189, 198, 207, 216, 226, 231, 232, 245, 248, 270, 273, and 279.

Passed in Animal Hygiene:— 183, 189, 207, 226, 231, 232, 233, 248, 273, 277, and 279.

Departmental Notifications.

GAZETTED SERVICE—POSTINGS AND TRANSFERS.

Name of Officers	From	To
Sri Dharmalingam Mudaliar,	Retired Dy. D. A.,	Provincial Biochemist for compost Development, Madras.
,, Francis, T. S.	Gazetted Assistant Office of D. A., Madras,	D. A. O., Trichinopoly.
,, Jeevan Rao, M.	P. A., to D. A., O., Bellary,	Assistant Marketing Officer, Madras.
,, Krishnamurthi, C.	Assistant Entomologist, Nellikuppam,	Gazetted Assistant to Lecturer in Entomology, Bapatla.
,, Krishnamurthi Iyer, K. S.	P. A., to D. A. O., Pattukottai,	D. A. O., Tanjore.
,, Lakshmipathi Rao, T.	Special A. D., Sugarcane Development Board, Ramachandrapuram,	D. A. O., Anantapur.
Janab Mohammad Basheer Sahib	Lecturer in Entomology Agricultural College, Bapatla,	Assitant Entomologist (Sugarcane pest scheme) Nellikuppam.
Janab Mohammad Abbas, U. B.	D. A. O., Saidapet,	Assistant Marketing Officer, Madras.
Janab Mohammad Adeni Sahib,	D. A. O., Chicacole,	Dy. D. A., Vizagapatam.
Sri Rama Mohan Rao, A.	Assistant Marketing Officer, Cuddapah,	D. A. O., Anantapur.
,, Ramakrishna Rao, K. L.	Special A. D., Crop Cutting Experiments, Tanjore,	D. A. O , Nellore.
,, Raman Menon, K.	A. D., Ponnani,	D. A. O., Salem.
,, Ramana Rai, K. S.	Special A. D., Sugarcane Development Scheme, Mangalore,	D. A. O., Saidapet.
,, Srinivasa Ayyangar, S. R.	Special Duty on Compost Work,	Gazetted Assistant to Lecturer in Agriculture, Coimbatore.
,, Subramania Sharma, A. H.	Gazetted Assistant to Lecturer in Agriculture, Coimbatore.	Assistant Marketing Officer, Coimbatore.
,, Satagopan, V.	Assistant Marketing Officer, Coimbatore,	Dy. D. A., Cuddapah.
,, Varadachary, K.	D. A, O., Trichinopoly,	Gazetted Assistant Office of the D. A., Madras.
,, Venkataraman, K.	Dy. D. A., Vizagapatam,	Dy. D. A., Guntur.
,, Viswanatha Reddy, D.	Under Training at Sholapur Institute,	Assisting Marketing Officer, Cuddapah.

SUBORDINATE SERVICE

APPOINTMENTS

The following candidates are appointed to the posts shown against each.

Names	To
Sri Appalanarasimham, J.	Assistant in Chemistry, Coimbatore.
,, Hanumantha Rao, M.	Assistant in Cotton, Palur.
,, Krishna Rao, R.	Assistant in Entomology, A. R. S., Siruguppa.
,, Koteswara Rao, K.	A. D., Hospet.
,, Lakshminarayana, K.	Assistant in Cotton, Adoni.
,, Nagaeswara Rao, M.	A. D., Virdachalam.
,, Nagi Reddi, M.	Assistant in Oilseeds, Tindivanam.
,, Rajanna, B.	A. D , Nannilam.
,, Raghava Rao, N.	A. D., Tadpatri.
,, Rama Koteswara Rao, G.	Assistant A. R. S , Pilicode.

TRANSFERS AND POSTINGS.

Name of Officers	From	To
Sri Antony, J. S, C.	A. D., Papanasam,	A. D , Tobacco Scheme, Sendarampatti.
,, Ananthachari, P. S.	A. D., (on leave),	A. D., Maduranthakam.
,, Bhagirathi Padi, P.	A. D., Parvatipur,	A. D., Padapatnam.
,, Divakaran, K.	Assistant in Plant Physiology Bapatla,	Assistant in Millets, Coimbatore.
,, Gavurangamurthi, K. V.	A. D., Ramachandrapur,	A. D., Ramachodavaram.
,, Gopalakrishnan, A.	A. D., Patapatnam,	A. D., Chodavaram.
,, Krishnamurthi, G.	A. D., Avanigadda,	F. M., Nandyal.
Miss Kunjamma, V. K.	Assistant in Millets, Coimbatore,	Assistant in Chemistry, Coimbatore.
Sri Kulasekharan, C. R.	Special A. D., C. M. P., Ayangudi.	A. D., Peravurai.
,, Konda Reddi, G.	A. D., Tadapadri,	P. A., to D. A. O., Anantapur.
,, Lakshmipathi Rao, S.	A. D., Madurantakam,	Teaching Assistant in Botany, Bapatla.
,, Mohammad Maqbaloor Rahiman,	P. P., Assistant Nellore,	Assistant in Plant Physiology, Bapatla.
,, Madhava Rao, S.	Special A. D., Crop Cutting Experiments, Vellore,	A. D., Chingleput.
,, Mohammad Baig,	On leave,	A. D., Polavaram.
,, Mahadeva Iyer, S.	A. D., on leave,	Special Crop Cutting Experiments, Tanjore.
,, Mohammad Fajinddin	A. D., Nelayagiri,	A. D., Anakapalle.
,, Nagarajan, K. R.	On leave,	Assistant in Entomology, Nellikuppam.

Name of officers	From	To
Sri Narayanan, K. M.	F. M., Botanical Gardens, Ooty,	Military Department.
,, Narayana, N. G.	Cotton Assistant A. R. S., Koilpatti,	Assistant in Cotton, Coimbatore.
,, Parameswara Menon,	F. M., A. R. S., Taliparamba,	Special A. D., Crop Cutting Experiments, Calicut.
,, Raja Rao, G.	Chemical Assistant Malt Factory Coimbatore,	Analytical Chemist, Coimbatore.
,, Rama Rao, P. V.	A. D., Chodavaram,	A. D., Puthur.
,, Rama Rao, M.	Assistant Biochemist, Kodur.	Assistant in Cotton, Palur.
,, Radhakrishnan, T. V.	Cotton Assistant Coimbatore,	Cotton Assistant A. R, S., Koilpatti.
,, Suryanarayana, T.	A. D., Polavaram,	A. D., Avanigodda.
,, Sivasankaran Nair, K.	Assistant in Chemistry, Coimbatore,	Chemical Assistant (Malt), Coimbatore.
,, Seshadri, T. V.	Under Training Sholapur Institute,	P. P. Assistant (Entomology) Chittoor.
,, Srinivasan, C.	P. P. Assistant (Mycology) Chittoor,	P. P., Assistant (Entomology) Cuddalore.
,, Suryanarayana, Y.	A. D., Hospet,	A. D., Udayagiri.
,, Sivasankaran Nair,	Special A. D., Crop Cutting Experiments Calicut,	F. M., A. R. S.. Taliparamba.
,, Subbaraya Sastri, K.	A. D., Ramachodavaram,	A. D., Ramachandrapuram.
,, Suryanarayana, K.	Special A. D., For Production of Tobacco Seed, Guntur.	A. D., Parvatipur.
,, Satyanarayana, T.	A. D., Tobacco Scheme, Sendarampatti,	Assistant in Cotton, Palur.
,, Sankaran Unni, T.	Botonical Assistant, Ootacamund,	F. M., Botanical Gardens,
,, Suryaprakasa Rao, P. V.	On leave,	Assistant to Biochemist, Kodur.
,, Venkataramanappa, S.	A. D., Puttur,	Special A. D., Crop Cutting Experiments, Vellore.
,, Venkatarama Reedi, T.	F. M., Sugarcane Liaison Farm, Hospet,	P. P., Assist (Mycology) Nellore.
,, Viswam, K. E.	Marketing Assistant, on leave,	A. D., Virdachalam.

Agricultural College and Research Institute Library, Lawley Road, P. O., Coimbatore.

MONTHLY LIST OF ADDITIONS FOR APRIL 1949

1. DASTUR (R. H.): Periodic partial failures of the American cottons; their causes and remedies. 1948
(Indian Central Cotton Committy Scientific Monograph 2.)
2. FRANCK (James): Photosynthesis in plants — a monograph of the American Society of Plant Physiologists. 1949
3. GUILBERT (H. R.): and HART (G. H.): California beef production. 1948
4. HIBBARD (Benjamin Horace): Agricultural Economies. 1948
5. HILDITCH (T. P.): Chemical constitution of facts Edn. 2. 1947
6. HOAGLAND (D. R.): Inorganic nutrition of plants. 1948
7. HOLMSTROM (J. Edwin): Records and Research in Engineering and Industrial Science Edn. 2. 1948
8. HUGHLETT (Elozd J.): *Ed:* International Industry yearbook. 1948
9. HUTCHSON (T. B.) · *etc:* Production of field crops. 1948
10. LYON (Lyttleton) and BUCKMAN (Hary O.): Nature and properties of soils. 1947
11. OXLEY (T. A.): Scientific principles of grain storage. 1948
12. PEARSE (H, L.): Growth substaness and their practical importance in Horticulture. 1948
13. ROBINSON (D. H.): Fream's elements of Agriculture Edn. 13. 1949
14. STORER (Tracey I.): General Zoology. 1943
15. TEMPANY (H. A.): Practice of soil conservation in the Birtish Colonial Empire. 1949
16. WIEMAN (H, L.): General Zoology Edn. 3. 1938
17. YEGNANARAYANA IYER (A. K.): Field crops of India Edn. 2. 1947
18. YEGNANARAYANA IYER (A. K.): Principles of crop Industry. 1948
19. Bibliography of liturature on miner elements and their relation to plant nutrition Vol. I. Edn. 4. 1948
20. Encyclopaedia Britannica book of the year 1945—1946
21. Encyclopaedia Britannica book of the year. 1946—1947
22. Wealth of India — a dictionary of Indian raw materials and Industrial products.
    Pts. I Sec. A — B. Industrial products.
    Vol. I Sec. A — B. Raw materials.
23. LOVE (Haskel) and LOVE (Doris): Chromosome numbers of northern plant species. 1948