



FOOD AND AGRICULTURE DEPARTMENT

REPORT ON AGRICULTURAL RESEARCH  
IN THE MADRAS PROVINCE

BY

THE EXPERT COMMITTEE

1949

PRINTED BY THE SUPERINTENDENT  
GOVERNMENT PRESS  
MADRAS  
1950

PRICE, 1 rupee 4 annas

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## MEMBERS OF THE EXPERT COMMITTEE.

### *Chairman.*

Dr. G. S. CHEEMA, I.A.S. (Retired), former Fruit Development Adviser to the Government of India.

### *Members.*

Dr. T. S. VENKATARAMAN, I.A.S. (Retired), former Sugarcane Expert to the Government of India, Thyagaroyanagar, Madras.

Dr. JAYACHAND LUTHRA, I.A.S. (Retired), Principal, Agricultural College, Benares Hindu University, Benares.

### *Secretary.*

Sri C. R. SRINIVASA AYYANGAR, L.A.G., Headquarters Deputy Director of Agriculture (Research), Madras.

## SUMMARY OF THE MAIN FINDINGS AND RECOMMENDATIONS OF THE EXPERT COMMITTEE.

When reviewing the research work of the Madras Agricultural Department during the five-year period, 1944 to 1948, the Committee had necessarily to take a rapid survey of research work and achievements previous to the survey period. The Committee find that, on the whole, the tempo and standard have been maintained. This has enabled it to make suitable recommendations for rectifying noticed defects and channelizing work in the future.

In the field of crop-breeding, which, in the past, has been one of the most effective lines of crop improvement, advances have been recorded in all the crops. In the major crops like paddy and cotton the possibilities of pure-line selection would appear to have been exhausted and future advances would appear to lie in new introduction and hybridization.

The millets, which are the staple food of the poor all over the Province, received attention from the department much later than the main crops and, in some respects, their breeding is even more difficult than of others. The Committee recommend the intensification of breeding work particularly with regard to regional requirements and suitability.

Work on oil-seeds—also recent—has registered considerable advance during the review period and the 80-year old coconut has been added. Besides their important role as food for men and livestock, some of them like the groundnut and the coconut, have exportable values for earning for the Province both hard and soft currencies in the world markets.

During the period the plant protection services of the Department have got closer to the grower through the organization of special staff to deal with mass incidence of pests and diseases in the districts. This phase of the work has gained materially from wonder drugs like the D.D.T. and Gammaxane—both war-babies—and rendered the departmental recommendations effective for the first time in

protecting large crop areas. As protection from crop enemies is as important as the growing of crops, the Committee recommend the strengthening and affording greater facilities as need arises.

The manurial experiments and trials which are as old as the Department itself, have resulted in specific recommendations with regard to particular crops. The fact that green manuring is, after all, the cheapest and best, besides being not dependent on imports from other countries, the Committee have made bold to suggest a scheme of compulsory sowing by the Department, if need be, of seeds of green manure crops at the time of paddy harvest in the deltaic tracts.

One important basis on which crop improvement work has been built up in the past is the introduction of improved types from the research stations. But pure seed thus distributed soon deteriorates at the hands of the ordinary cultivator, thus nullifying the work expended in evolving the types. The Committee feel strongly about the need for supplying to the cultivator reliable seed in sufficient quantities and well in advance of the time he needs them. The Committee consider that this should be the responsibility of Government under the conditions of the Province and has made recommendations to ensure seed supply even at some cost to Government any such expenditure being considered as legitimate part of research expenditure from which the Government do not expect immediate material returns.

The inadequacy of measures, for translating results of research in the cultivators' fields, has been commented on both in the press and platform and had attracted the attention of foreign visitors to the country. Owing to its importance the Committee have been paying marked attention to this aspect in its tours and discussions with the district staff. Certain defects have been noticed and it has been found that, the taking up of trading schemes by the Department, has lowered both the quantity and quality of demonstration and propaganda work. It has been found that the prevalent complaint in recent years about the poor germinating quality of seeds distributed by the Department is justified and has traced the causes

leading to this bad quality. The Committee are making suitable recommendations for effectively rectifying the noticed defects and re-winning the confidence of the cultivators in the matter of seed supplied. The recommendations involve some expenditure but this is essential for the good name of the Department and proper service to the agriculturists.

In the line of Agro-Industries, the Committee find that this Province is in certain respects ahead of other Provinces and it is to the credit of the Madras Government and its Agricultural Department that certain of these investigations have been carried on to the pilot plant stage.

The Malt Factory at the Agricultural Research Institute, Coimbatore, is working on a grain which is greatly inferior to the world renowned barley used for malting. This has resulted from the highly commendable idea of utilizing for manufacture of malt locally available grain. This factory is not likely to pay unless barley is grown nearby on the Nilgiris or some other grain of equal value to barley is found. The Committee are rather surprised that the other Provinces growing barley like that of United Provinces have not taken up this work. Having taken the investigational work to the pilot plant stage, the Committee consider that it is now best left to the Industries Department or private agencies to take up.

The Yeast Production Unit at the College has shown the possibility of this valuable vitamin food being produced, easily in the Province. As the plant now uses molasses as base material, it would appear that the location of the yeast plants in close proximity to a sugar factory where this stuff is available almost as waste product is indicated. The Mycologist should, however, continue the work for finding alternative base material that is available locally and at cheaper rates. Here again the investigation is ripe for private enterprise to take up and develop.

The Scheme of Ergot Production in the Nilgiris on rye, which was introduced for this purpose, is a lucky find. technique, the originators have discovered an agro-industry, which is paying even in the initial stages. \* The Committee is With very simple equipment, a small staff and an easy

viii SUMMARY OF THE MAIN FINDINGS AND RECOMMENDATIONS  
OF THE EXPERT COMMITTEE

recommending its full development in the future by carefully controlling rye growing and ergot production in the Nilgiris to make India as a whole self-contained in the matter of this valuable drug. High quality ergot, greatly superior to the usual world product in alkaloid contents, has been produced by careful scientific work and as the world gets to know of this production, the profits may increase in future years. The Committee are making recommendations to take advantage of the present favourable conditions for the full development of this venture.

Yet another Agro-industry—now in its initial stages—is the work on preservation and canning of fruits and vegetables in the fruit station at Kodur. Suitable development of this line of work in the future might give the Province a paying industry, improve the dietetic value of the South Indian and lead to the extension of fruits and vegetables in the Province. The Committee recommend that the fruits of the common man should receive attention in the future so that cheap fruits and in quantities would be available to the common man also.



## APPENDIX I.

G.O. Ms. No. 919, FOOD AND AGRICULTURE, DATED  
9TH SEPTEMBER 1949.

[Agriculture—Survey of research work done by the Agricultural Department—Constitution of an Expert Committee—Ordered.]

Read—the following papers :—

G.O. Ms. No. 4950, Development, dated 5th October 1948.

Letter from the Director of Agriculture, dated 29th January 1949, No. X-3, 1253/48, and dated 1st September 1949, No. X-2, 162/49.

ORDER :—*Ms. No. 919, Food and Agriculture, dated 9th September 1949.*

On a recommendation of the Retrenchment and Reorganization Committee the Government have decided that a Committee of Experts should be set up to review the progress of research work done in the Agricultural Department during the five years 1944-48 in order to assess the value of the results achieved so far in terms of practical application to agriculture and suggest further lines of work to be carried out in all branches, e.g., soil science, manures, crop breeding plant protection and development of agricultural industries. His Excellency the Governor of Madras accordingly directs that the following gentlemen will constitute the Committee :—

- (1) Dr. G. S. Cheema, D.Sc., I.A.S.,  
Fruit Development Adviser to the Government  
of India (Retired) (*Chairman*).
- (2) Dr. T. S. Venkataraman, D. Sc.,  
Sugarcane Expert to the Government of India (Retired),  
Thyagarayanagar, Madras.
- (3) Dr. D. V. Bal, M.Sc., Ph. D.,  
Director, Institute of Plant Industry, Indore.
- (4) Dr. Jayachand Luthra,  
Principal, Agricultural College, Benares Hindu  
University, Benares.

The Secretary of the Committee will be appointed later in consultation with the Chairman and the Director of Agriculture, Madras.

2. The Committee will first assemble at Coimbatore and decide its programme of work. The Committee may visit such of the Centres of work or Agricultural Research Stations in the Province that it may choose for inspecting the work in progress. The itinerary will be decided by the Committee after it meets. A provisional tour programme for the Committee framed by the Director of Agriculture is given in the annexure to this order.\* The Director of Agriculture has reported that during the stay of the members at Coimbatore the members of the Committee will be accommodated at the Agricultural College, Rest House, and that facilities for boarding are also available there. The Director of Agriculture has also stated that at other places, the officers in charge of the Rest House

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\* Not printed.

at Agricultural Research Stations will be requested to arrange for the boarding and lodging of members. The Director of Agriculture is requested to circularise at once to all concerned to afford necessary facilities during the Committee's tour and also circulate immediately an advance copy of the notes of work done at the various scientific sections and Agricultural Research Stations to the members direct. The Government desire, that the work should be started as early as possible during the current month and finished, if possible, within six weeks. The Committee will submit a report direct to Government about the results achieved by the Research Sections together with its recommendations for their reorganization and reorientation of their programme.

3. The members of the Committee other than Dr. Luthra will be entitled to draw an honorarium of Rs. 1,000 each (rupees one thousand only) for the whole term of the Committee's work. The Government will meet the pay and allowances of Dr. Luthra for the period he is employed on the Committee. He will also be eligible to draw an honorarium of Rs. 500 (rupees five hundred only) in addition to his pay. The cost of the tours of all the members will be borne by Government. The members will be allowed Travelling Allowance as per officers of Grade I, viz., Daily allowance Rs. 10-8-0 (plus 50 per cent increase while in Madras). Mileage annas 9 (plus 50 per cent increase while in Madras). Railway Fare—1½ First Class.

NOTE.—Daily allowance will be admissible to members for all days required to be devoted to Committee's work from the date of assembling at Coimbatore.

4. Sanction is accorded to the employment of the following staff under the Committee for a period not exceeding two months from the date of employment or till the necessity for the staff ceases to exist whichever is earlier—

(1) One Stenographer on Rs. 45—90 p.m. with a special pay of Rs. 35 p. m. for shorthand higher grade.

(2) Four peons on Rs. 18—25 p.m. each (one for each member).

The proposal of the Director of Agriculture to employ a lower division clerk on Rs. 45-90 p.m. for a period of about two weeks to assist the Secretary in clerical work is also approved.

5. The expenditure will be debited to "40. Agriculture". The Director of Agriculture is requested to make necessary provision of funds in the revised estimate for the additional expenditure involved. Pending provision of funds the Accountant-General is requested to admit the expenditure in audit.

## APPENDIX II.

### LIST OF SUPERIOR STAFF WORKING IN COTTON SECTION AND VARIOUS SCHEMES UNDER ADMINISTRATIVE CONTROL OF COTTON SPECIALIST.

<i>Particulars of staff.</i>	<i>Cotton breeding station, Coimbatore.</i>	<i>Mungari scheme, Adoni.</i>	<i>Coconadas scheme, Narasaraopet.</i>	<i>Long staple cotton scheme, Palur.</i>	<i>Winter cambodia scheme, Coimbatore.</i>	<i>Tinnies and Karunganni scheme, Koilpatti.</i>	<i>Northerns scheme, Nandyal.</i>	<i>Westerns scheme, Hagari.</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gazetted Officers .. .. .	1/1	-/1	-/1	-/1	-/1	-/1	-/1	..
Upper Subordinates .. .. .	8/-	..	-/2	-/2	-/7	2/3	2/2	2/3
Fieldmen .. .. .	12/-	-/3	-/6	-/3	-/9	4/6	1/5	1/6
Upper Division Clerk .. .. .	..	..	..	-/1	-/1	..	..	..
Lower Division Clerk .. .. .	2/2	..	..	-/1	-/1	-/1	-/1	-/1
Laboratory Attender .. .. .	1/-	..	..	..	-/1	..	2/-	2/-

NOTE.—Numerator indicates permanent staff. Denominator indicates temporary staff.

## APPENDIX III.

## STATEMENT OF PLANT PROTECTION OPERATIONS FROM JANUARY TO AUGUST 1949—PESTS ON CROPS.

Name of pest.	Crops.	Place of occurrence.	Method of control.	Area treated.	Quantity of insecticides used.
(1)	(2)	(3)	(4)	(5)	(6)
1. Army worm of paddy ( <i>Spodoptera mauritia</i> ).	Paddy	.. South Kanara, East and West Godavari.	Mechanical and BHC dust D. 02 5.	6,301 acres.	2½ tons.
2. Paddy grass-hopper ( <i>Hieroglyphus banian</i> ).	Do.	.. Malabar and Krishna .. ..	BHC dust .. ..	8,370 "	5½
3. Oxya velox .. ..	Do.	.. Nellore and Krishna .. ..	Do. .. ..	360 "	..
4. Rice bug ( <i>Leptocserisa acuta</i> ) ..	Do.	.. Malabar, Coimbatore, Tirunelveli and North Arcot.	Netting and BHC dust ..	124 "	..
5. Paddy jassid ( <i>Nephotettix bipunctatus</i> .)	Do.	.. Salem, South, Arcot, Tirunelveli and Malabar.	Netting and DDT. spraying BHC and DDT dust.	293 "	..
6. <i>Leptispa pygmoea</i> .. ..					
7. <i>Tetroda histeroidea</i> .. ..	Do.	.. Coimbatore, Salem and Tiruchirappalli.	BHC dust .. ..	70 "	..
8. Parnara mathias .. ..	Do.	.. Coimbatore.. ..	DDT dust .. ..	6 "	..
9. Rats ( <i>Gunomys Kok</i> ) .. ..	Do.	.. Krishna district .. ..	Zinc phosphate in food ..	20,000 "	7 tons.
10. Rice case worm ( <i>Nymphula depunctalis</i> ).	Do.	.. Malabar, South Kanara, South Arcot and Krishna.	BHC dust .. ..	Small areas.	..
11. Surface grass hoppers ( <i>Aelopus</i> sp. <i>Chrotogonus</i> ).	Millets, Cumbu or Ragi.	Mathurai and Guntur .. ..	BHC dust .. ..	Do.	..
12. <i>Hieroglyphus neigrerepletus</i> ..	Cumbu	.. Cuddapah .. ..	BHC dust .. ..	1,867 acres.	..
13. Ortheris sp. .. ..	Do.	.. Ramnad .. ..	BHC dust .. ..	Small areas.	..
14. <i>Calocoris angustatus</i> .. ..	Cholam	.. Coimbatore.. ..	BHC dust .. ..	Do.	..

15. Cholan mite	.. ..	Cholan	Coimbatore, Salem, Tirunelveli and Mathurai.	Sulphur dust	.. ..	150 acres.	..	
16. Aleurodids	.. ..	Ragi	Mathurai	BHC dust	.. ..	Small areas.	..	
17. Epilachna	.. ..	Brinjal	All districts	Calcium arsenate dust	.. ..	160 acres.	..	
18. Chillies thrips ( <i>Scirto thrips dorsalis</i> ).	.. ..	Chillies	South Kanara, South Arcot, Mathurai, Tanjore, Ramnad and Tirunelveli.	Tobacco decoction	.. ..	Small areas.	..	
19. Mango hopper ( <i>Idiocerus sp.</i> )	.. ..	Mango	Salem, Malabar, Coimbatore, Tanjore, North and South Arcot, Ramnad and Tirunelveli.	Fish oil, resin soap, sulphur dust, DDT dust and spray.	.. ..	2,000 trees.	..	
20. Citrus leaf caterpillar	.. ..	Citrus	Vellore	DDT dust and spray	.. ..	825 "	..	
21. Groundnut aphid	.. ..	Groundnut.	Salem and Coimbatore	Tobacco decoction	.. ..	200 acres.	..	
22. Betelvine bug ( <i>Disphinctus</i> )	.. ..	Betelvins	.....	BHC dust	.. ..	20 "	..	
23. Nephantis	.. ..	Coconut	Godavari, South Kanara, North Arcot, Mathurai, Tanjore and Chingleput.	Parasites liberated	.. ..	50 "	..	
Total						..	37,971 acres and 2,825 trees.	15 tons.

**APPENDIX IV.**  
**DISEASE ON CROPS.**

<i>Name of disease.</i>	<i>Crop.</i>	<i>Place of occurrence.</i>	<i>Method of control.</i>	<i>Area treated.</i>	<i>Quantity of insecticides used.</i>
(1)	(2)	(3)	(4)	(5)	(6)
1. (a) Piricularia in the nurseries.	Paddy	Nellore, Chittoor and North Visakhapatnam.	Spraying the nurseries	250 acres.	$\frac{1}{2}$ ton.
(b) Piricularia	Do.	Tanjore, Tiruchirappalli and Mathurai.	Distribution of resistant varieties.	40,000	..
2. Foot rot	Do.	Coimbatore, Mathurai and South Arcot.	Seed treated with Agrosan.	4,000	420 lb.
3. Smut	Sorghum	Bellary, Anantapur, Cuddapah, Kurnool, Guntur, Nellore and Mathurai districts.	Seed treatment with sulphur	1,08,000	2 tons.
4. Smut	Sugarcane	Chittoor, North Arcot and Mangalore.	Eradication of smutted shoot	50	..
5. Fruit fall	Citrus	Wynad, Malabar	Spraying Bordeaux mixture	Bulk of the area sprayed by the owners and 100 acres by the department.	1 ton.
Mottle leaf	Do.	Chingleput, South Arcot, Salem, Tirunelveli, Coimbatore, Cuddapah, Malabar and South Kanara.	Spraying zinc sulphate	600 acres.	6 $\frac{1}{2}$ tons.
6. Sugarcane	Red rot	South Kanara and Tiruchirappalli.	Selection of disease from setts and dipping in Bordeaux mixture.	120	..

7. Mahali .. .. .	Arecanut ..	Malabar and South Kanara ..	Spraying Bordeaux mixture.	The entire area in the district is sprayed by the owners themselves.	700 tons
8. Panama .. .. .	Plantain ..	Tiruchirappalli and Chittoor ..	Eradication of deceased plants.	5 acres.	..
9. Mildew .. .. .	Grapevine ..	Mathurai and Salem ..	Three sprayings with Bordeaux mixture.	50 ..	2 tons.
10. Fruit rot .. .. .	Chillies ..	Guntur, Salem and Tirunelveli ..	Spraying with Bordeaux mixture.	40 ..	..
11. Stem-bleeding .. .. .	Coconut ..	Malabar, Salem, South and North Arcot.	Tree surgery .. .. .	20 ..	..
12. Alternaria blight .. .. .	Onions ..	Cuddapah, Anantapur and Coimbatore.	Spraying Bordeaux mixture	25 ..	2 cwt.
13. Leaf spot .. .. .	Turmeric ..	Salem and Coimbatore ..	Application of Bordeaux mixture.	50 ..	5 "
14. Alternaria blight .. .. .	Potato ..	Nilgiris .. .. .	Do.	12 ..	1 "
Total ..			153,322 acres and 712 tons 8 cwt. 420 lb.		

Besides these numerous spraying demonstrations on small scales were carried out throughout the Province by the Special Plant Protection Staff in connexion with the control of diseases in vegetables and food crops.





## APPENDIX VII.

## STATEMENT OF SALES OF "P.S.G." PLOUGHS AND AGRICULTURAL IMPLEMENTS EFFECTED TO THE VARIOUS RYOTS AND AGRICULTURAL DEPARTMENTS.

Particulars.	During the years.		
	1944-45.	1945-46.	1947-48.
1 Ploughs .. .. .	1,481	859	1,924
2 Mhote wheels .. .. .	935	1,058	1,432
3 Ridge Ploughs .. .. .	32	52	116
4 Wetland Puddlers .. .. .	39	1	47
5 Green Manure Trampers .. .. .	33	3	17
6 Bund Formers .. .. .	139	58	69
7 Guntakas .. .. .	12	54	39
8 Bucksrapers .. .. .	5	1	8
9 Cultivators .. .. .	15	71	5
10 Chaff Cutters .. .. .	19	26	34
11 Triangular Peg tooth Harrows .. .. .	10	3	..
12 Cast Iron, Iron Bars .. .. .	59	..	..
13 Cotton Stalk Pullers .. .. .	2	1	..
14 Winnowing Machines .. .. .	12	6	18
15 Seed Drills .. .. .	10	11	3
16 Sugarcane Crushers—Bullock driven type .. .. .	23	67	55
17 Do. —Belt power type .. .. .	8	1	19
18 Do. —No. 12 Horizontal type. .. .. .	2	11	21
19 Turmeric polishers .. .. .	1	3	..
20 Decorticators .. .. .	..	2	..

## CROP AND AGRICULTURAL RESEARCH

Permanent.

Name of station.	Officers in charge.	Controlling officers.	Major crops dealt with.	Year of starting.
(1)	(2)	(3)	(4)	(5)
<b>CENTRAL AND</b>				
Sugarcane Research Station, Gudiyatam.	Farm Manager ..	Sugarcane Specialist, Anakapalle.	Sugarcane ..	1935.
Rice Research Station, Tirurkuppam.	Superintendent ..	Paddy Specialist, Coimbatore.	Paddy .. ..	1942.
Agricultural Research Station, Tindivanam.	Do. ..	Oilseeds Specialist, Coimbatore	Groundnut, Gingelly and Castor.	1933.
Agricultural Research Station, Palur.	Do. ..	Deputy Director of Agriculture, Tanjore.	Sugarcane, Paddy and Millets.	1912.
Agricultural Research Station, Aduthurai.	Do. ..	Do. .	Paddy .. ..	1922.
Agricultural Research Station, Pattukkottai.	Farm Manager ..	Do.	Paddy mixed cropping.	1930.
Agricultural Research Station, Koilpatti.	Superintendent ..	Deputy Director of Agriculture, Mathurai.	Cotton and Millets.	1910.
<b>Coim</b>				
Central Farm, Coimbatore.	Superintendent, Lawley Road.	Principal, Agricultural College, Coimbatore.	....	1909.
Paddy Breeding Station, Coimbatore.	Paddy Specialist, Coimbatore.	Paddy Specialist, Coimbatore.	....	1915.
Cotton Breeding Station, Coimbatore.	Cotton Specialist, Coimbatore.	Cotton Specialist, Coimbatore.	....	1923.
Millet Breeding Station, Coimbatore.	Millet Specialist, Coimbatore.	Millet Specialist, Coimbatore.	....	1930.
Botanic Gardens and Orchard, Coimbatore.	Government Lecturing and Systematic Botanist, Coimbatore.	Government Lecturing and Systematic Botanist, Coimbatore.	....	1910.
<b>Nil</b>				
Agricultural Research Station, Nanjanad.	Superintendent ..	Deputy Director of Agriculture, Coimbatore	Potato .. ..	1917.
Fruit Station, Kallar and Buzliar, Coonoor.	Assistant Fruit Specialist.	Fruit Specialist, Madras.	Hill fruits ..	1915.
Botanical Gardens, Ootacamund and Sim's Park, Coonoor.	Curator, Ootacamund.	Deputy Director of Agriculture, Coimbatore.	Ornamental gardening.	1930.
<b>WEST</b>				
Agricultural Research Station, Taliparamba.	Farm Manager ..	Deputy Director of Agriculture, Coimbatore.	Pepper mixed crop.	1935.
Agricultural Research Station, Nilleshwar II and III.	Superintendent, Pillode.	Oilseeds Specialist, Coimbatore.	Cocunut .. ..	1916.

## DIX VII.

## STATIONS—MADRAS PROVINCE.

Temporary.				
Name of scheme.	Officer in charge.	Controlling officers.	Committee financing the scheme.	Year of starting.
(6)	(7)	(8)	(9)	(10)
<b>SOUTHERN DISTRICTS.</b>				
Sugarcane scheme, Gudiyattam.	Farm Manager ..	Sugarcane Specialist.	Indian Sugarcane Central Committee.	1935.
Tobacco Exploratory Station, Salem.	Do.	Deputy Director of Agriculture, Vellore.	Indian Tobacco Central Committee.	1948.
Tobacco Exploratory Station, Cuddalore.	Do. ..	Do.	Do.	1948.
Sugarcane Liaison Farm, Nellikkuppam.	Superintendent ..	Sugarcane Specialist, Anakapalle.	Indian Sugarcane Central Committee.	1949.
Banana Research Station.	Assistant Fruit Specialist.	Fruit Specialist, Madras.	Indian Council of Agricultural Research.	
Ariyalur Milllets Sub-station.	Assistant ..	Milllet Specialist, OBE.	Provincial Scheme.	1949.
Karunganni Cotton Scheme, Kollipatti.	Superintendent ..	Cotton Specialist, Coimbatore.	Indian Cotton Central Committee.	1949.
Rice Research Station, Ambasamudram.	Assistant ..	Deputy Director of Agriculture, Mathurai.	Provincial Scheme.	
Tobacco Exploratory Station, Elayarampannai.	Do. ..	Do.	Indian Tobacco Central Committee.	1949.
Sugarcane Liaison Kunittalai.	Farm Superintendent.	Sugarcane Specialist.	Indian Sugarcane Central Committee.	
<b>BATORE.</b>				
Improvement of winter cambodia Cotton and Sea Island,	Superintendent ..	Cotton Specialist, Coimbatore.	Indian Cotton Central Committee.	1948.
Scheme for breeding Striga resistant Strains.	.....	Milllets Specialist.	Indian Council of Agricultural Research.	1949.
Cumbu Hybrid Scheme.	....	Do.	Do.	.....
<b>GIRI.</b>				
Icarya Scheme ..	Assistant Entomologist.	Government Entomologist.	Indian Council of Agricultural Research.	
Ergot Scheme ..	Assistant Mycologist, Gota-mund.	Government Mycologist.	Provincial Scheme.	
<b>COAST.</b>				
Sea Island Cotton trial—Pattambi, Nilleshwar and Mangalore.	....	....	Indian Coconut Central Committee.	1948.

## APPENDIX—

## CROP AND AGRICULTURAL RESEARCH

## Permanent.

<i>Name of station.</i>	<i>Officers in charge.</i>	<i>Controlling officers.</i>	<i>Major crops dealt with.</i>	<i>Year of starting.</i>
(1)	(2)	(3)	(4)	(5)
<b>WEST COAST</b>				
Paddy Breeding Station, Mangalore.	Assistant ..	Paddy Specialist.	Rice .. ..	1944.
Ambalavayal Farm, Wynsad.	Superintendent ..	Deputy Director of Agriculture, Colmbators.	Fruits mixed cropping.	1945.
Agricultural Research Station, Pattambi.	Assistant Paddy Specialist.	Paddy Specialist.	Paddy .. ..	1936.
<b>NORTHERN</b>				
Agricultural Farm, Arakuvalley.	Special District Agricultural Officer.	Deputy Director of Agriculture, Visakhapatnam.	Mixed .. ..	1946.
Sugarcane, Research Station, Anakapalle.	Superintendent ..	Sugarcane Specialist.	Sugarcane, Millets and Paddy.	1918 extended in 1927.
Agricultural Research Station, Samalkot.	Do.	Deputy Director of Agriculture, Ellore.	Paddy, Sugarcane and Plantain.	1902, 1918-14.
Agricultural Research Station, Maruteru.	Do.	Paddy Specialist, Colmbators.	Paddy .. ..	July 1925.
Agricultural Research Station, Lam.	Farm Manager ..	Deputy Director of Agriculture, Guntur.	Mixed cropping rainfed.	May 1922.
Agricultural Research Station, Nandyal.	Do. ....	Do. ....	Dry Cotton and Millets.	1906-1911.
<b>CENED</b>				
Agricultural Research Station, Siruguppa.	Agronomist, Siruguppa.	Deputy Director of Agriculture, Bellary.	Irrigation and Agronomic studies.	and August 1937.
Agricultural Research Station, Hagari.	Superintendent ..	Deputy Director of Agriculture, Cuddapah.	Cotton and Millets.	1907-08, 1910-11.
Fruit Research Station, Kodur (Cuddapah district).	Do. ....	Fruit Specialist, Madras.	Fruits .. ..	1935.
Agricultural Demonstration Farm, Kalabasti.	Farm Manager ..	Do. ....	Mixed vegetable seed, multiplication.	1925.

VII—cont.

STATION—MADRAS PROVINCE—cont.

Temporary.				
Name of scheme.	Officer in charge.	Controlling officers.	Committee financing the scheme.	Year of starting.
(6)	(7)	(8)	(9)	(10)

—cont.

CIRCARS.

Sugarcane Research Scheme, Anakapalle.	Superintendent ..	Sugarcane Specialist.	Indian Central Sugarcane Committee.	1947.
Yellamanchalli Tobacco Explo-ratory Station.	Farm Manager ..	Agricultural Demonstrator, Visakhapatnam.	Indian Central Tobacco Committee.	1948.
Narasapatam Millet Sub-station.	Assistant.. ..	Millet Specialist, Coimbatore.	Provincial Scheme.	1949 sanctioned but not started.
Sugarcane Liaison Farm, Samaikot.	Superintendent ..	Sugarcane Specialist.	Indian Central Sugarcane Committee.	1949.
Cocanada Cotton Scheme.	Assistant Cotton Specialist, Narsaraopet.	....	Indian Central Cotton Committee.	....
Chilli Scheme, Lam.	Do.	Cotton Specialist and Deputy Director of Agriculture.	Indian Council of Agricultural Research.	1949.
Ongole Millet Scheme.	Assistant ..	Millet Specialist, Coimbatore.	Provincial Scheme.	1949.
College Farm, Machavaram, Bapatla.	Senior Lecturer in Agriculture.	Principal ..	Temporary Farm.	1945.
Rice Research Station, Buchireddipalem.	Assistant ..	Deputy Director of Agriculture, Guntur.	Provincial scheme.	1937.
Northern Cotton Scheme, Nandyal.	Assistant Cotton Specialist.	Cotton Specialist, Coimbatore.	Indian Central Cotton Committee.	1949.
Tobacco Explanatory Station, Nandyal.	Farm Manager ..	Deputy Director of Agriculture, Guntur.	Indian Central Tobacco Committee.	1948.

DISTRICTS.

Adoni Mungari Scheme.	Assistant Cotton Specialist.	Cotton Specialist, Coimbatore.	Indian Central Cotton Committee.	....
Western Cotton Scheme, Hagari.	Do.	Do.	Do.	1949.
Sugarcane Liaison Farm, Hospet.	Superintendent ..	Sugarcane Specialist.	Indian Central Sugarcane Committee.	1949.

## APPENDIX VIII.

### LIST OF SPECIAL AGRICULTURAL SCHEMES IN PROGRESS IN THE PROVINCE.

Serial number and name of scheme.	Place of work.	Controlling officer.	Object of the scheme.
(1)	(2)	(3)	(4)
(a) SCHEMES FINANCED BY THE INDIAN COUNCIL OF AGRICULTURAL RESEARCH.			
1 Fruit Research Scheme ..	Kodur (Cuddapah district).	Fruit Specialist, Madras ..	Horticultural improvements of fruits such as mangoes, sapotas, with special reference to the classification of local types and problems of propagation, manuring and irrigation. Improvement of this fruit industry of the plains by undertaking research on the more important commercial fruit crops particularly mango and citrus.
2 Scheme of research on groundnut for multiplication of improved strains.	Agricultural Research Station, Tindivanam (South Arcot).	Superintendent, Agricultural Research Station, Tindivanam.	Isolation of pure lines for high soil contents, high shelling percentage and low free fatty acids content, production of varieties with short, intermediate and long duration, evolution of drought resistant varieties, study of inheritance of economic characters and study of manurial and water requirements.
3 Pulses Research Scheme ..	Coimbatore, Salem and Visakhapatnam districts.	Pulses Specialist, Coimbatore.	Isolation of high-yielding strains resistant to diseases taking into consideration points of interest like bold size of grain, attractive colour, cooking quality and flavour. The pulses dealt with are red gram, black gram, cowpea and lablab.
4 Scheme of research for the investigation of blast and foot-rot diseases of rice in Madras.	Coimbatore ... ..	Assistant Mycologist under the control of the Government Mycologist.	To investigate the blast disease of rice caused by the fungus <i>Piricularia oryzae</i> and foot-rot disease of rice caused by the fungus <i>Fusarium moniliforme var majus</i> with a view to devising suitable methods of control such as the utilisation of resistant varieties and the use of fungicides. Treatment in order to reduce the loss caused by those diseases in rice production.

5	Scheme for breeding on a large scale the predatory beetle, <i>Rodolia cardinalis</i>	Kodaikanal and the Nilgiris (Fernhill).	Government Entomologist ..	The scheme has for its object the breeding and liberation of the predatory beetle, <i>Rodolia cardinalis</i> . Muls., with a view to check the further spread of the fluted scale <i>Icerya purchasi</i> , Mask, and bring it under control in the Nilgiris and the Kodaikanal hills.
6	Scheme of Scientific aid to cardamom industry in South India.	Singampatti (Tirunelveli district).	Government Mycologist ..	Pests and diseases take a heavy toll of once flourishing cardamom industry in South India. The yield of cardamoms has consequently deteriorated from an average 100 lb. per acre to 35 lb. or less which make the cultivation of the crop unprofitable. The object of the scheme is to find out ways and means of controlling pests and diseases and restore yields to normal.
7	Pepper Research Scheme ..	Payyanoor of North Malabar district.	Pepper Specialist .. ..	To evolve higher yielding varieties of pepper to undertake research on control of insect pests and diseases and to work out the Agronomic problems connected with the pepper cultivation.  NOTE.—The scheme though sanctioned has not been put into operation during the year under report.
8	Scheme for the improvement of chillies.	Guntur .. ..	Cotton Specialist, Coimbatore.	Breeding of a variety of chillies resistant to thrips and suitable to northern districts.
9	Opening of Banana Research Station at Aduthurai.	Aduthurai .. ..	Assistant Fruit Specialist under the control of Fruit Specialist.	To conduct research on Banana and to do breeding work for classification of banana varieties.
10	Scheme of research of orange borer in Wynaad.	Wynaad (North Malabar) ..	Government Entomologist ..	To study the causes of high mortality of orange trees in Wynaad.
11	Scheme for the investigation and control of orange disease in Wynaad.	Wynaad (North Malabar) ..	Government Mycologist ..	To investigate into the cause and incidence of orange disease.

Serial number and name of scheme.	Place of work.	Controlling officer.	Object of the scheme.
(1)	(2)	(3)	(4)
<b>(b) SCHEME FINANCED WITH THE AID OF GRANTS BY THE INDIAN CENTRAL SUGARCANE COMMITTEE.</b>			
1 Scheme of research on sugarcane borer pests Scheme of research on sugarcane pests and Trichogramma Colonization Scheme.	Coimbatore and Nellikuppam.	Government Entomologist ..	To tackle a number of items of research aiming at the study of the habits of important borers of the sugarcane crop at Coimbatore, the incidence of the weather on the borer population, their alternate host, host plant and natural enemies as well as the methods of control.
2 Sugarcane Research Scheme for the Madras Presidency at Anakapalle (Visakhapatnam district) and Gudiyatam (North Arcot district).	Anakapalle and Gudiyatam.	Sugarcane Specialist, Anakapalle.	Selection of high-yielding and useful types of canes that suit the different conditions of soil and climate. Reduction in cost of production without detriment to high yields is also sought to be achieved.
<b>(c) SCHEME FINANCED BY THE INDIAN CENTRAL COTTON COMMITTEE.</b>			
1 Scheme for the improvement of Mungari cotton.	Adoni (Bellary district)	.. Assistant Cotton Specialist under the control of Cotton Specialist, Coimbatore.	Evolution of strains suitable to red soils of the Western Mungari tract and to replace inferior Mungari.
2 Scheme for the maintenance of nucleus of pure cotton seed.	Koilpatti, Coimbatore, Hagari, Nandyal and Palur.	District Agricultural Officer, Tirunelveli, Superintendent, Central Farm, Coimbatore and District Agricultural Officer, Kurnool and Cuddalore.	Maintenance of nucleus of pure seed of improved varieties of cotton Co.2 H1 and K-1.
3 Scheme for the improvement of Kakinada cotton.	Narasaraopet and Guruzala (Guntur district).	Assistant Cotton Specialist under the control of the Cotton Specialist, Coimbatore.	Improving the acre yield of Cocanadas and keeping at the same time the colour of the lint.



4	Scheme for long-staple cotton breeding.	Palur .. . . .	Cotton Specialist, Coimbatore.	To evolve a long staple cotton suitable for cultivation in the East Godavari district under irrigation in summer.
5	Cambodia cotton scheme for Ceded districts.	Siruguppa (Bellary district).	Do.	To evolve a long staple cotton for the black soils of Bellary under irrigation.
6	Scheme for the multiplication, distribution and marketing. Co. 4 and B. 40.	Srivilliputtur .. . . .	District Agricultural Officer, Ramnad at Sattur.	To multiply and distribute pure Co.4 B. 40 variety of cotton for the Srivilliputtur area.
7	Scheme for the improvement of Tirunelveli and Karunganni cotton.	Koilpatti (Tirunelveli district).	Assistant Cotton Specialist under the control of the Cotton Specialist, Coimbatore.	To evolve a cosmopolitan Karunganni type with high ginning percentage and staple length of the variety.
8	Scheme for the improvement of Westerns.	Hagari (Bellary district)	Assistant Cotton Specialist, Adoni under the control of Cotton Specialist, Coimbatore.	Improvement of Western cotton.
9	Scheme for the Marketing survey.	Throughout the Province	Provincial Marketing Officer, Madras.	To undertake a cotton survey in Madras Province as in Punjab.
10	Scheme for the breeding of long staple American cotton as a Winter crop in the Central Districts and Sea Island Cotton in the West Coast.	Tiruchengode, Srivilliputtur, Avanashi, Nileshtar, Pattambi and Coimbatore.	Cotton Specialist, Coimbatore.	To evolve a suitable strain of long staple American cotton and cultivating an inter crop in Central Districts and for conducting the trials of Sea Island varieties of cotton in West Coast of this Province.
11	Scheme for the multiplication of K-2 cotton.	Tirunelveli and Ramnad districts.	Do.	To run a combined seed multiplication and distribution scheme for Co-4 and K-2 Cotton.
12	Scheme for the improvement of White Northern cotton in Madras Province.	Nandyal .. . . .	Assistant Cotton Specialist.	To supply pure seeds to the cotton growers with a view to increase the staple length and spinning value of the cotton grown in this Province.

Serial number and name of scheme.	Place of work.	Controlling officer.	Object of the scheme.
(1)	(2)	(3)	(4)
(d) SCHEME FINANCED BY THE INDIAN CENTRAL COCONUT COMMITTEE.			
1 Coconut Nursery scheme in East Godavari and Tanjore districts.	Agricultural Research Station, Samalkot and Pattambi.	Oilseeds Specialist, Coimbatore.	To produce and supply good quality seedlings to the public on a large scale and at a cheap variety rate by starting Government coconut nurseries in the important coconut tracts of this Province. This is expected to eliminate the possibilities of the ryots planting inferior seedlings which would in the long run, result in low and uneconomic yields of coconuts.
2 Scheme of Research of coconuts.	Agricultural Research Station, Nileshtar.	Do.	Research scheme envisages the investigation of certain economic and practical problems connected with the coconut to establish criteria for the selection of seedlings that would ultimately give good yield to investigate into the causes of shedding of buttons (young nuts) in the coconut and to study the fibre obtained from coconut husks of different stages of maturity.
3 Scheme for raising coconut nurseries.	Agricultural Research Station, Samalkot, Anakapalle, Maruter, Aduthurai, Pattukottai, Pattambi, Nileshtar and Tindivanam.	Do.	To produce and distribute <i>Crotalaria striata</i> to the public of these districts.
(e) SCHEME FINANCED WITH THE AID OF THE GRANT OF INDIAN CENTRAL TOBACCO COMMITTEE.			
1 Scheme for opening of exploratory stations for tobacco.	Ellamanchilli, Nandyal, Sundarampatti, Cuddalore and Elayarampannai.	Deputy Directors of Agriculture.	To find out whether cigarette tobacco can be cultivated in this Province successfully.
2 Scheme for the production of 6,000 lb. of H.S. 9 tobacco seed.	Guntur district	Deputy Director of Agriculture, Guntur.	To produce 6,000 lb. of H.S. 9 tobacco seed for distribution.

(f) SCHEME FINANCED BY THE INDIAN OILSEEDS COMMITTEE.

- |   |   |   |
|---|---|---|
| 1 Scheme for the economic survey of oil bearing plants and seeds in the Province. | Whole Province .. -- Oilseeds Specialist, Coimbatore. | To survey the oil bearing plants and seeds in this Province and to survey the various commodities in all their aspects. |
|---|---|---|

(g) GOVERNMENT OF MADRAS SCHEME.

- |   |  |   |  |
|---|--|---|--|
| 1 Parasites for the control of black headed caterpillar pest ( <i>Nephantis serinopa</i> ) in East and West Godavari districts. | East and West Godavari districts.                        | Deputy Director of Agriculture, Eluru.                    | To control the leaf, eating caterpillar of coconuts.   |
| 2 Scheme for the investigation and control of black heart disease of potatoes.  | Coimbatore -- -- --                                      | Government Agricultural Chemist, Coimbatore.              | To control blackheart disease developed by potatoes during transit from the Nilgiris to consuming centres.   |
| 3 Experimental trials of economic plants and trees of exotic and local origin.  | Anakapalle, Siruguppa, Aduthurai, Wynaad and Ootacamund. | Government Lecturing and Systematic Botanist, Coimbatore. | To select useful economic plants for propagation on a large scale.<br>NOTE.—The experiment has been discontinued during the year in all places except at Anakapalle. |
| 4 Co. 2 multiplication and distribution.  | Tiruppur .. ..   | District Agricultural Officer, Coimbatore.                | To supply more seed of Co. 2 cotton for Coimbatore and Tiruchirappalli districts.  |
| 5 C. 11-2 or Co. 5 scheme ..  | Udamalpet, Coimbatore district.                          | Do.   | To supply pure seed for Co. 5 cotton for Coimbatore, Tiruchirappalli and Udamalpet.  |
| 6 Scheme for the evolution and multiplication of a strain of jonna for munnagari season.  | Siruguppa and Nandyal ..                                 | Millet Specialist, Coimbatore.                            | To evolve a suitable munnagari jonna for the Tungabhadra area.   |
| 7 Sugarcane Development Scheme.   | Pugalore, Nellikuppam, Hospet and Samalkot.              | Sugarcane Specialist, Anakapalle.                         | To increase the yield of sugarcane in the areas under the crop round about the sugar factory and in jaggery-producing areas.   |
| 8 Scheme for the improvement of sugar cultivation.  | Aduthurai and Siruguppa ..                               | Do.   | To select high yielding and useful types of canes and to determine the optimum manurial and cultural schedules of the tract.   |

Serial number and name of scheme.	Place of work.	Controlling officer.	Object of the scheme.
(1)	(2)	(3)	(4)
(g) GOVERNMENT OF MADRAS SCHEME—cont.			
9 Scheme for the chemical investigation of the cholam effect at the Agricultural Research Station, Koilpatti.	Agricultural Research Station, Koilpatti.	Government Agricultural Chemist, Coimbatore.	To conduct chemical investigation of soil samples and to ascertain the reasons for the adverse effect on fodder, cholam breeding on the dry cotton crops in southern districts.
10 Scheme for the opening new research stations for the production of improved strain of millet.	Ariyalur, Tirupathur, Ongole and Narasapatam.	Millet Specialist, Coimbatore.	To evolve new strains of improved millets which are resistant to pests and diseases and to supply high yielding strains of millets to millet-growing districts.
11 Scheme for the cultivation of jute in Madras Province on ryots' holdings.	Malabar, South Kanara and North Visakhapatnam.	Director of Agriculture, Madras.	To conduct exploratory trials on ryots' holdings to study the possibility of cultivating jute in South India.
12 Hingari Jonna Scheme ..	Siruguppa .. .. .	Millet Specialist, Coimbatore.	For the multiplication of a cholam strain suitable for the Hingari season in Ceded districts.
13 Scheme for opening Demonstration Farms in 12 selected districts for perennial grasses.	Twelve districts .. .. .	Director of Agriculture, Madras.	To demonstrate to the ryots the value of growing perennial fodder crops.

(h) SCHEMES PARTLY FINANCED BY GOVERNMENT OF INDIA, MINISTRY OF AGRICULTURE, NEW DELHI.

1 Scheme for the multiplication of improved gingelly seeds.	Agricultural Research Station, Tindivanam.	Oilseeds Specialist, Coimbatore.	Multiplication of improved gingelly seeds and to increase production.
2 Scheme for the establishment of fruit farms at certain Agricultural Research Stations.	.... .. .	Fruit Specialist, Madras ..	To develop fruit cultivation and fruit industry in the Province.

3	Scheme for the soil and water conservation by contour bunding.	Ceded districts .. .. .	Assistant Agricultural Engineer, Bellary.	To prevent soil erosion and increase moisture content of the soil.
4	Scheme for the training of one Assistant Agricultural Engineer and three Supervisors at Central Tractor Organization, New Delhi.	.....	.....	.....
5	Soil and water conservation by contour bunding in Visakhapatnam and Ceded districts.	Visakhapatnam and Ceded districts.	.....	To consume rain water and to prevent soil erosion over 10,000 acres with dry farming area in Visakhapatnam and in Ceded districts.
6	Land development by mechanical cultivation and installation of pumpsets.	Throughout the Province ..	Joint Director of Agriculture, Madras.	To attend to tractor ploughing, technical assistance for sinking of wells, hiring and sale of pumping sets and other machinery to ryots, demonstration and spread of improved implements and mechanical.
7	Production and distribution of compost from town refuse.	.....	.....	To manufacture compost from night soil and rubbish and sell it to Co-operative Societies or direct to ryots or in public auction.
8	Rural compost making from waste vegetable matter.	.....	.....	To assist groups of ryots in rural areas to compost waste vegetable matter in common pits on a co-operative basis and to divide it among them for application to food crops.
9	State Trading Scheme for the purchase and sale of manures, seeds, iron and steel.	Throughout the Province ..	Joint Director of Agriculture, Madras.	To purchase large quantities of manures, improved seeds and iron and steel and distribute seeds and manures on subsidised basis and the iron and steel at cost price.
10	Popularisation of phosphatic manures.	Tanjore, Krishna, Guntur, East and West Godavari and Mathurai districts.	Director of Agriculture, Madras.	To demonstrate the use of phosphatic manures over 1,000 acres for bone meal and 400 acres for super phosphates in the six districts. <i>Note.</i> —The scheme has since been discontinued with effect from 31st March 1949.

Serial number and name of scheme.	Place of work.	Controlling officer.	Object of the scheme.
(1)	(2)	(3)	(4)
<i>(h) SCHEMES PARTLY FINANCED BY GOVERNMENT OF INDIA, MINISTRY OF AGRICULTURE, NEW DELHI—cont.</i>			
11 Comprehensive scheme for the multiplication and distribution of improved seeds of paddy, millets, pulses, groundnut and green manure seeds.	Throughout the Province. ..	Director of Agriculture, Madras.	To replace the impure varieties of crops by higher-yielding strains and thereby to increase the yield of food crops.
12 Control of pests and diseases of crops.	Do. ..	Do.	To purchase sprayers and fungicides and to supply them on loan to farmers.
13 Distribution of seeds and manures free of cost to poor and deserving ryots.	Do. ..	District Agricultural Officers.	To enable the poor ryots to liberally manure and sow seeds in their lands and thereby to increase the production of food crops. <i>Note.</i> —This scheme has been discontinued as ordered in G.O. Ms. No. 5717, Development, dated 19th November 1948.
14 Maintenance of reserve stock of paddy seed for emergencies.	Malabar district .. ..	District Agricultural Officer, Kakinada.	To serve as a reserve for emergencies like floods, cyclone, etc. <i>Note.</i> —This scheme has been discontinued.
15 Increasing production of vegetables.	Madras City .. ..	District Agricultural Officer, Thyagarayanagar, Madras.	To supply vegetables seeds to growers at cost price, to supply chemicals and fungicides and to give technical advice.
16 Free distribution of vegetable seeds to schools.	Throughout the Province ..	Director of Agriculture, Madras.	To supply vegetable seeds free of cost to schools for cultivation in school gardens.
17 Multiplication of seeds of improved vegetables.	Do. ..	Do.	To multiply English vegetables seeds and seedlings in an area of 90 acres at Wellington on the Nilgiris for distribution to farmers. <i>Note.</i> —The scheme has been discontinued from 31st March 1949.

- |   |   |  |  |
|---|---|--|--|
| 18 Poultry development in Agricultural Research Stations.               | Anakapalle, Samalkot, Palur, Aduthurai and Koilpatti. | Director of Agriculture, Madras.                           | To rear poultry in Agricultural Research Stations and supply eggs, chicks, and fowls to farmers.   |
| 19 Education of Farmers by special extension course.                    | All Districts .. ..                                   | Do.  | To take batches of enthusiastic farmers on tour to visit important Agricultural Regions and Government Agricultural Farms for widening their outlook on Agricultural improvements.   |
| 20 Manurial Experiments at the Agricultural Research Station, Nanjanad. | Nanjanad District).                                   | (The Nilgiris Government Agricultural Chemist, Coimbatore. | To explain the possibilities of reducing the dosage of manures for growing potatoes in the Nilgiris district without impairing the yield or the productive capacity of the soil and thereby to reduce ryots manurial bill. |

## APPENDIX IX.

## STATEMENT SHOWING EXPENDITURE AND RECEIPTS OF AGRICULTURAL STATIONS IN THE PROVINCE FOR THE YEAR 1948-49.

Name of station.	Total Expenditure.			Total Receipts.		
	RS.	A.	P.	RS.	A.	P.
1 Agricultural Research Station, Samalkot ..	61,418	9	6	21,369	5	5
2 Cotton Breeding Station, Coimbatore ..	88,380	2	3	8,041	4	11
3 Agricultural Research Station, Pattambi.	76,234	4	10	38,342	1	2
4 Fruit Research Scheme, Koduru .. ..	32,380	0	0	5,725	0	0
4A Nursery Scheme, Koduru .. .. .	11,804	0	0	6,238	0	0
5 Rice Research Station, Tirurkuppam ..	32,526	3	8	5,969	6	6
6 Paddy Breeding Station, Coimbatore ..	68,979	1	0	10,780	15	0
7 Paddy Breeding Station, Mangalore ..	41,646	7	0	6,871	4	6
8 Paddy Breeding Station, Ambasamudram.	15,035	14	0	9,167	1	11
9 Government Botanical Gardens, Ootacamund.	70,770	0	0	10,566	9	6
10 Agricultural Research Station, Tindivanam.	43,812	0	0	12,615	0	0
11 Agricultural Research Station, Nileshtar.	59,902	0	0	24,282	0	0
12 Millet Breeding Station, Coimbatore ..	59,729	0	0	6,302	0	0
13 Agricultural Research Station, Nanjanad.	59,000	0	0	34,500	0	0
14 Sugarcane Research Station, Gudiyatham.	29,974	0	0	14,932	0	0
15 Agricultural Farm, Arakku Valley ..	1,13,196	0	0	22,247	0	0
16 Agricultural Research Station, Maruter ..	57,323	10	10	16,676	0	0
17 Pomological Station, Coonoor .. ..	16,245	0	4	5,127	8	6
18 Fruit Station, Kallar .. .. .	24,275	7	3	5,403	14	11
19 Fruit Station, Burliar .. .. .	5,326	9	6	3,349	2	9
20 Agricultural Farm, Wynaad .. .. .	76,055	9	5	11,716	9	7
21 Agricultural Research Station, Siruguppa.	76,762	0	0	7,399	0	0
22 Agricultural Research Station, Hagari ..	52,139	0	0	18,789	0	0
23 Agricultural Research Station, Pattukkottai	20,946	9	6	8,450	3	4
24 Agricultural Research Station, Koilpatti ..	58,147	9	9	13,108	11	11
25 Agricultural Research Station, Kalahasti ..	9,000	0	0	1,998	12	11
26 Agricultural Research Station, Taliparamba.	57,918	13	3	16,868	2	11
27 Sugarcane Research Station, Anakapalle ..	1,17,881	0	0	42,540	0	0
28 Agricultural Research Station, Palur ..	48,726	0	0	18,543	0	0
29 Agricultural Research Station, Guntur.* ..	28,685	15	0	1,509	8	6
30 Agricultural Research Station, Nandyal.*†	24,466	1	0	3,023	8	6
31 Central Farm, Coimbatore .. .. .	1,83,814	0	0	20,765	0	0
32 College Farm, Machavaram, Bapatla* ..	56,517	0	0	8,410	11	9

\* Refers to 1946-47.

\*† Refers to 1945-46.



## APPENDIX X.

STRENGTH OF STAFF IN THE AGRICULTURAL DEPARTMENT  
DURING 1948-49.

Name of posts.	Number of		Total.
	Perma- nent.	Tempo- rary.	
Gazetted officers—			
(a) At headquarters .. .. .	3	12	15
(b) Marketing Section .. .. .	4	3	7
(c) Officers on District work .. .. .	27	11	38
(d) Officers in charge of Research Stations ..	2	12	14
(e) Agricultural College .. .. .	5	24	29
(f) Research Section .. .. .	19	41	60
	—	—	—
Total ..	60	103	163
	—	—	—
II. Non-gazetted—			
(a) Ministerial .. .. .	148	1,274	1,422
(b) Madras Agricultural Subordinate service.	839	1,601	2,440
(c) Other services .. .. .	44	42	86
(d) Inferior services .. .. .	145	483	628
III. Engineering Section .. .. .	..	1,141	1,141

## GLOSSARY OF SCIENTIFIC NAMES.

Common name.	Scientific name.
Acid lime .. .. .	Citrus auratifolia, Swingle.
Agave .. .. .	Agave Sisalana, Perrine.
Alu bokaru (Cuj.) .. .. .	Prunus communis, Hunds., var. insititia.
Apple .. .. .	Pyrus malus, L.
Arecanut .. .. .	Areca catechu, L.
Avocadao .. .. .	Persea americana, Mill.
Banana .. .. .	Musa Paradisiaca, L.
Barley .. .. .	Hordeum vulgare, L.
Bengalgram .. .. .	Cicer arietinum, L.
Betel vine .. .. .	Piper betle, L.
Billi-kichili .. .. .	Citrus sp.
Blackgram .. .. .	Phaseolus mungo, L.
Blast on paddy .. .. .	Piricularia cryzae, Br. and Cav.
Bread fruit .. .. .	Artocarpus incisa, L.
Bullock's heart .. .. .	Anona reticulata, L.
Cabbage .. .. .	Brassica oleracea, L., var. bullata D.C.
Cambodia Cotton .. .. .	Gossypium hirsutum, L.
Cardamom .. .. .	Elettaria cardamomum, Maton.
Carrot .. .. .	Daucus carota, L.
Cashewnut .. .. .	Anacardium occidentale, L.

<i>Common name.</i>	<i>Scientific name.</i>
Castor .. ..	.. Ricinus Communis, L.
Cauliflower .. ..	.. Brassica Oleracea, L., Var., botritis, L.
Cheeni orange .. ..	.. Citrus sinensis, obbeck.
Cherimoyer .. ..	.. Anoa cherimolia, Mill.
Chillies .. ..	.. Capsicum annuum, L.
Cholam (Tam.) .. ..	.. Sorghum spp.
Cluster beans .. ..	.. cyamopsis tetragonoloba, Taub.
Cocoa .. ..	.. Theobroma cacao, L.
Coconut .. ..	.. Cocos mucifera, L.
Cotton .. ..	.. Gossypium spp. see Cambodia Karunganni, Nadam, Pulichai and Uppam.
Cowpea .. ..	.. Vigna unguiculata, Walp.
Crab apple .. ..	.. Pyrus baccata, L.
Cumbu (Tam.) .. ..	.. Pennisetum typhoides, Stapf and Hubbard.
Custard apple .. ..	.. Anona reticulata, L.
Dhaincha .. ..	.. Sesbania bispinosa Fawcett and Rendle, pers.
Elephant grass .. ..	.. Pennisetum purpureum, Schum.
Fig .. ..	.. Ficus Carica, L.
Foot-rot of Paddy .. ..	.. Fusarium moniliforme, Sheld, var. Majus, Wr. and Rg.
Gajanimma (Tel.) .. ..	.. Citrus pennivesiculata, Tanaka.
Garlic .. ..	.. Allium sativum, L.
Gingelly .. ..	.. Seedmum orietale, L.
Ginger .. ..	.. Zingiber officinale Bosc.
Crape vine .. ..	.. Vitis vinifera, L.
Greengram .. ..	.. Phaseolus sureous, Roxb.
Groundnut .. ..	.. Arachis hypogaea, L.
Guava .. ..	.. Psidium guajava, L.
Guinea grass .. ..	.. Panicum maximum, Jacq.,
Horsegram .. ..	.. Dolichos biflorus, L.
Jack or Jak .. ..	.. Artocarpus integer, Merr.
Jamberi .. ..	.. Citrus Jambhiri, Lush.
Jasmine .. ..	.. Jasminum, spp.
Jonna (Tel.) .. ..	.. Same as Cholam.
Jujube .. ..	.. Zizyphus jujuba. Lam.
Karamani (Tam.) .. ..	.. Vigna unguiculata, Walp.
Karunganni cotton (Tam.)	.. Gossypium arboreum var neglectum forma India (H. and G.).
Khatta .. ..	.. Citrus aurantium (L.) Tanaka.
Kichili .. ..	.. Citrus madraspatna, Tanaka clandestinum.
Kolakkattai (Tam.) .. ..	.. Grass Cenchrus ciliaris, L.
Kolinji (Tam.) .. ..	.. Tephrosia purpurea, Pers.
Kollaganjeru (Tel.) .. ..	.. Ipomoea hispida, Reem and Sch.
Korali .. ..	.. Sotaria pallidifusca, Stapf and Hubbard.
Korra (Tel.) .. ..	.. Seteria italica, Beauv.
Kumquat .. ..	.. Citrus Japonica, Thunb.
Lab-lab .. ..	.. Dolichos Lablab, L.
Ladies fingers .. ..	.. Hibiscus esculentus, L.
Lemon .. ..	.. Citrus limon, Burm. f.

<i>Common name.</i>	<i>Scientific name.</i>
Lime .. .. .	<i>Citrus aurantifolia</i> (Christm Swingle).
Litchi .. .. .	<i>Litchi chinensis</i> , Soññ. *
Loquat .. .. .	<i>Eriobotrya japonica</i> , Lindl.
Lucerne .. .. .	<i>Medicago sativa</i> , L.
Lupin .. .. .	<i>Lupinus</i> , spp.
Maize .. .. .	<i>Zea mays</i> , L.
Mango .. .. .	<i>Mangifera indica</i> , L.
Mangosteen .. .. .	<i>Garcinia mangostana</i> , L.
Nadam cotton (Tam.) .. .. .	<i>Gossypium arboreum typicum</i> (H. and G.)
Napier grass .. .. .	<i>Pennisetum purpureum</i> , Schum.
Oats .. .. .	<i>Avena sativa</i> , L.
Onion .. .. .	<i>Allium cepa</i> , L.
Orange .. .. .	<i>Citrus cinensis</i> , Osbeek.
Paddy .. .. .	<i>Cryza sativa</i> , L.
Paddy, gall fly .. .. .	<i>Pachdiplosis oryzae</i> , M.
Paddy, silvershoot .. .. .	<i>Pachydiplosis oryzae</i> , M.
Paddy stem-borer .. .. .	<i>Schoenobius incertellus</i> , W.
Palmyra .. .. .	<i>Borassus flabellifer</i> , L.
Pamparapanas (Tel.) .. .. .	<i>Citrus paradisi</i> , Maef.
Panivaragu (Tam.) .. .. .	<i>Panicum limiaceum</i> , L.
Papaya .. .. .	<i>Carica papaya</i> , L.
Passion fruit .. .. .	<i>Passiflora edulis</i> , Sims.
Peach .. .. .	<i>Prunus Persica</i> , Stokes.
Pear .. .. .	<i>Pyrus communis</i> , L.
Peas .. .. .	<i>Pisum sativum</i> , L.
Pepper .. .. .	<i>Piper nigrum</i> , L.
Persimmon .. .. .	<i>Diospyros Kaki</i> , L.
Phalsa .. .. .	<i>Grewia asiatica</i> , L.
Pillipesara (Tel.) .. .. .	<i>Phaseolus trilobus</i> , Ait.
Pine apple .. .. .	<i>Ananas comosus</i> , Merr.
Pink bollworm .. .. .	<i>Platyedra gossypiella</i> , S.
Plantain .. .. .	<i>Musa paradisiaca</i> , L.
Plum .. .. .	<i>Prunus domestica</i> , L.
Pomegranate .. .. .	<i>Punica Granatum</i> , L.
Pomelo .. .. .	<i>Citrus paradisi</i> , Maef.
Potato .. .. .	<i>Solanum tuberosum</i> , L.
Pulichai cotton (Tam.) .. .. .	<i>Arboreum</i> Var. <i>neglectum forma bengalensis</i> (H. and G.).
Pummelo .. .. .	<i>Citrus grandis</i> , Osbeek.
Ragi (Tam.) .. .. .	<i>Eleusine coracana</i> , Gaertn.
Redgram .. .. .	<i>Cajanus cajan</i> (L.) Millsp.
Rice .. .. .	<i>Oryza sativa</i> , L.
Rice Bug. .. .. .	<i>Leptocorisa acuta</i> , Th.
Rice easeworm .. .. .	<i>Nymphula depunctalis</i> , Gr.
Safflower .. .. .	<i>Carthamus tinctorius</i> , L.
Sajja (Tel.) .. .. .	Same as cumbu.
Samai (Tam ) .. .. .	<i>Panicum miliare</i> , Lam
Sepota .. .. .	<i>Achras sapota</i> , L.
Seethaphal (Tel.) .. .. .	<i>Anona squamosa</i> , L.

<i>Common name.</i>	<i>Scientific name.</i>
Soft rot of ginger .. ..	Pythium Butleri, Subrm.
Sour orange, country .. ..	Citrus aurantium war Bigardia Bnmp.
Sorghum .. ..	Sorghum spp.
Star apple .. ..	Chrysophyllum Cainito, L.
Strawberry .. ..	Fragaria vesca, L.
Sugarcane .. ..	Saccharum officinarum, L.
Sunnhemp .. ..	Crotalaria Juncea, L.
Sweet orange .. ..	Citrus cinensis, obbeek.
Tapioca .. ..	Manihot utilissima, Pohl.
Tenai (Tam.) .. ..	Same as Korra.
Thrips .. ..	Thrips oryzae, W.
Tobacco .. ..	Nicotiana Tabacum, L. and N. rustica, L.
Tomato .. ..	Lycopersicum esculentum, Mill.
Turmeric .. ..	Curcuma Longa, L.
Uppam cotton (Tam.) .. ..	Gossypium herbaceum L.
Varagu (Tam.) .. ..	Same as Arika.
Variga (Tel.) .. ..	Same as Panivaragu
Vasambu (Tam.) .. ..	Acorus calamus, L.
Vempali (Tel.) .. ..	Tephrosia purpurea, Pers.
Water melon .. ..	Citrullus vulgaris, Schrad.
Wattle .. ..	Acacia spp. (Australia).
Wheat .. ..	Triticum spp.

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