

464

Regd. No. M. 5155

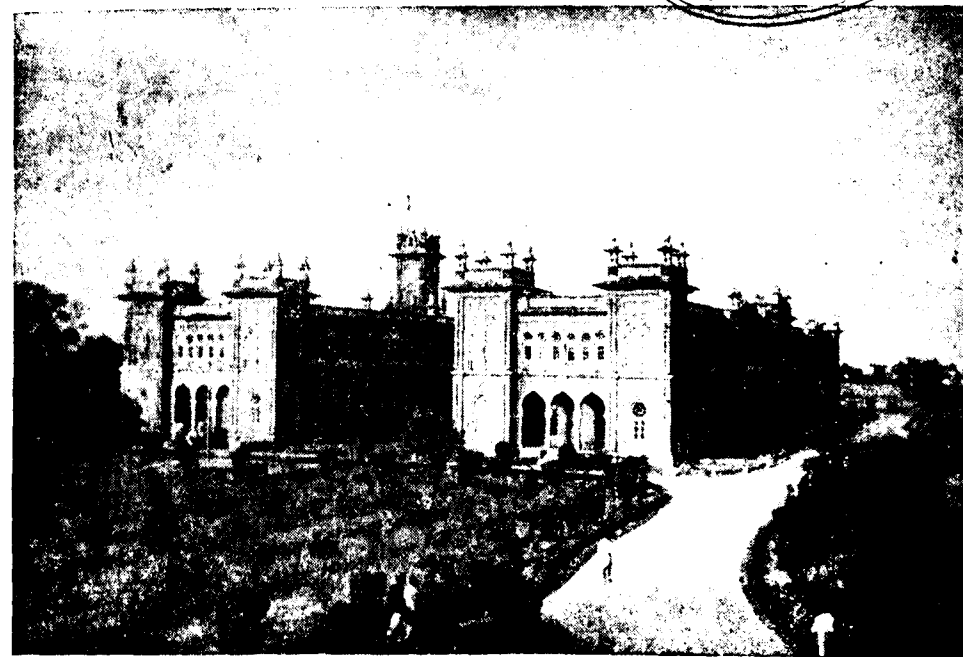
THE COIMBATORE CO-OPERATIVE
PRINTING WORKS, LTD., No. K. C.
POST OFFICE No. 522, COIMBATORE

Madras Agricultural Journal

Vol. XLII

May 1955

No. 5



AGRICULTURAL RESEARCH INSTITUTE AT COIMBATORE

Published by

THE MADRAS AGRICULTURAL STUDENTS' UNION,
AGRICULTURAL COLLEGE AND RESEARCH INSTITUTE,
COIMBATORE, S. INDIA.

Annual Subscription.

Inland Rs. 6—0—0

Foreign Rs. 7—0—0

Single Copy

As. 8

THE MADRAS AGRICULTURAL STUDENTS' UNION.

This is an association of the students, past and present, of the Madras Agricultural College, and of the officers of the Madras Agricultural Department, the Principal of the Agricultural College being the President, ex-officio. The Union conducts this Journal and celebrates annually the College Day, on which occasion it convenes an Agricultural Conference. The Association has Members, Associates, Honorary Members and Patrons. For detailed particulars apply to the Secretary.

THE MADRAS AGRICULTURAL JOURNAL

A Premier Agricultural Monthly in India

Editorial Board:

Dr. A. Mariakulandai, M. Sc., Ph. D. (Washington)
P. Madhava Menon, M. Sc. A. H. S. Sarma, B. Sc. (Ag.)
S. G. Aiyadurai, B. Sc. (Ag.) N. Kesava Iyengar, M. A.
N. V. Sundaram, B. Sc. (Ag.) M. Dinakaran, (Student)

William Odengo Omamo, Secretary, Students' Club (Ex-Officio)

A monthly journal in English devoted to the study and development of Agricultural Science; contains articles of scientific as well as of general interest written in popular language. Review of agricultural publications and extracts from various Journals—both Indian and foreign—a special feature. Commands a wide circulation and is therefore an excellent medium for advertisements.

Rates of Subscription

Journal supplied free to Members, Associates and Patrons of the Union.

Annual subscription rates for others:

India and Ceylon Rs. 6—0—0, Foreign Rs. 7—0—0, Single number Re. 0—8—0.

Rates of Advertisement:

For single insertion:

	Rs.	A.	P.
For full page	20	0	0
For half page	10	0	0
For quarter page	5	0	0

Inside cover pages 25 percent extra.

Outside cover pages 50 percent extra.

Preparation of blocks unless supplied by advertisers, charged extra.

N. B.— All advertisements are subject to the approval of the M. A. S. U. Managing Committee before insertion. The charges are strictly payable in advance.

Contributions to the Journal:

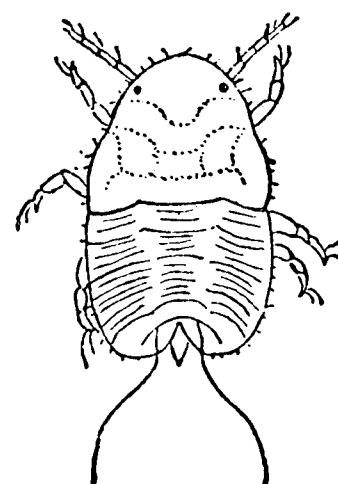
Contribution on Agricultural Science, subjects of agricultural interest or pertaining to rural economics and co-operation will be accepted for publication, subject to approval of the Editorial Board. Correspondence and queries on agricultural and allied subjects are invited. Manuscripts should be sent clearly written or typed on one side of the paper only. The Manuscripts should not ordinarily exceed 8 printed pages including tables and figures.

Twenty-five copies of reprints of contributions will be presented to authors. Extra copies and printed covers for reprints, if required, can be supplied at actual cost if intimation is given when the manuscript is presented. Contributors will be charged half the actual cost of block-making.

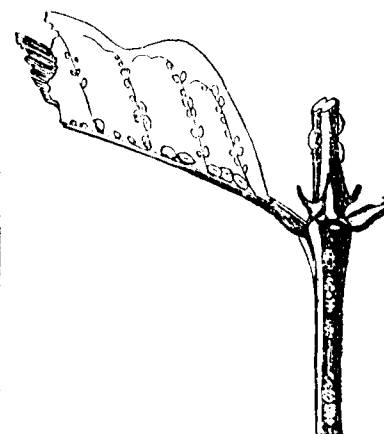
N. B.— The Editorial Board does not hold itself responsible for the opinions expressed by the contributors.

All communications should be addressed to:

The Secretary, M. A. S. Union,
Agricultural College, Lawley Road P. O., Coimbatore.



Mature Green Bug



Attacked Coffee Shoot

coffee

green

bug

controlled

by

H.E.T.P.

(Hexaethyl Tetraphosphate)

A synthetic contact insecticide for the destruction of Aphides and mites. Highly toxic even at low concentrations to Green Bug of Coffee.

H. E. T. P. is compatible with 'Gammexane' W. D. P. but not with Lime Sulphur, Bordeaux Mixture and Calcium Arsenate.

Used at recommended dosages it is very effective against the majority of insects attacking crops.

H.E.T.P. is very poisonous to man and other warm blooded animals.

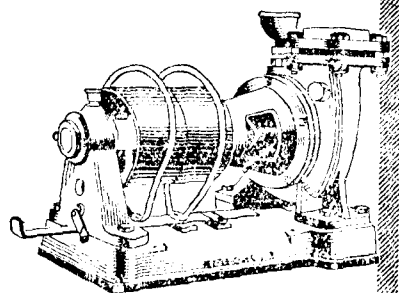
Proper precautions, therefore, in its use are essential.



Supplies and expert advice from
IMPERIAL CHEMICAL INDUSTRIES (INDIA) LTD.
P.O. Box 130, MADRAS P.O. Box 15, COCHIN
Agents For: ALBRIGHT & WILSON LTD.

IX-F 296

When answering our advertisers, please mention 'The Madras Agricultural Journal'



STREAMLINED
Kirloskar
TYPE NBS

CENTRIFUGAL PUMP incorporating latest design developments, supersedes our side-suction pumps like BSA, SVA etc. Main advantage - a) Extra protection to ball bearings, b) Pump can be dismantled for inspection and repairs without disturbing pipe connections.

KIRLOSKAR BROTHERS LIMITED,

KIRLOSKARVADI, DIST. SOUTH SATARA.

D-20

SUBSCRIPTION ARREARS

Members are requested to kindly clear all their arrears of subscription and help the management.

Secretary,
M. A. S. Union.

When answering our advertisers, please mention 'The Madras Agricultural Journal'



343

use

AGALLOL

for

BETTER GROWTH OF SUGARCANE

and

CERESAN

SEED DRESSING

for

PADDY AND ALL OTHER CROPS TOO.

(Products of

Messrs FARBENFABRIKEN BAYER A. G.,
Leverkusen, W. Germany.)

Write to: Messrs. CHIKA LIMITED,
Industrial Assurance Building,
Opp. Churchgate Station, Bombay - 1.

or

Messrs. A. V. THOMAS & CO., LTD.,
P. B. No. 47, Alleppey.

When Answering our advertisers, please mention 'The Madras Agricultural Journal'



SUCROSE CONTENT..

In Sugarcane Industry, SUCROSE CONTENT of Sugarcane weighs more than mere 'recovery' or 'yield per acre.' To achieve this, control *Pyrilla* which affects the Sucrose percentage and also Termites which seriously affect your yield.

'HEXAMAR' products will help you in these as they have helped several others.

B. H. C. 50% for *Pyrilla* Control.
CHLORDANE for control of Termites and soil insects.
PARATHION for control of Mealy bugs and mites.
RYANIA DUST for control of Stemborers..

'HEXAMAR'
 plays a vital role in Indian Sugar Industry.

controls *Pyrilla* and Termites

For Boiler Lagging use our **MAGNESIA 85% Lagging Compound** for maximum heat saving.
 Call for Samples →

For particulars please write to:
BHARAT PULVERISING MILLS
 Pest Control Division
 Byculla, Bombay 27.

When answering our advertisers, please mention 'The Madras Agricultural Journal'

The Madras Agricultural Journal

Vol. XLII

MAY 1955

No. 5

CONTENTS

	PAGE
Editorial ...	163
<i>Original Articles :</i>	
1. A Production Plan for Raw Cotton in the Madras (Undivided) State ... by R. Balasubrahmanyam	165
2. A Preliminary Note on the Study of Inter-racial Hybrids in Rice ... by K. Rajagopalan	177
Research Notes ...	181
News and Notes ...	185
Gleanings ...	186
Weather Review ...	190
Departmental Notifications ...	191
Market Committees Chronicle ...	193

**"Star" brand means
bigger harvests
for you-
more food for India**



We recommend for Paddy:

% ANALYSIS			
	Nitrogen	Phos. Acid	Potash
P. S. Fertiliser Mixture	16	4	Nil
Packing	80 lb. New Sealed Gunnies		
A. P. Special Fertiliser Mixture	14	7	Nil
Packing	80 lb. New Sealed Gunnies		
N. P. K. Paddy Fertiliser Mixture	12	6	6
Packing	80 lb. New Sealed Gunnies		
Improved A. P. Special Fertiliser Mixture	10	10	Nil
Packing	80 lb. New Sealed Gunnies		
N. P. K. Paddy Special Fertiliser Mixture	8	8	8
Packing	80 lb. New Sealed Gunnies		

**IT PAYS TO USE
"STAR" BRAND RANGE COMPOUNDS
FOR ALL YOUR CROPPING NEEDS
INDO-AGRI LIMITED.**

Managing Agents:

SHAW WALLACE & COMPANY LIMITED,
P. O. BOX 14, MADRAS.

Guaranteed Analysis

Free Scientific Advice.

When answering our advertisers, please mention 'The Madras Agricultural Journal'

The Madras Agricultural Journal

Vol. XLII

May 1955

No. 5

Editorial

At the tripartite labour conference held this month in Bombay, discussions were held to implement the provisions of the Minimum Wages Act of 1948 to farm labour. Minimum wages have been fixed for Industries and Plantations, where labour is well organised. But in the case of Farm Labour, it is well-known that they have always been in surplus, scattered and improperly organised and hence in a very weak bargaining position. Consequently, wages in agriculture have continued and still continue to compare unfavourably with wages in most other industries and there is an apparent acceptance of this gap as a permanent characteristic of our economy. But it cannot be gainsaid that the agricultural labourer is also entitled to fair wages as much as his Industrial contemporary. However, the point at issue seems to be in the *Modes operandi* of giving effect to the accepted minimum farm wages.

Due to the geographically scattered nature of Agricultural employment and the fact that work exists for only 189 days on an average in the year for farm labour, puts this category of labour entirely on a different footing from its counterpart in Industry. Mere implementation of the Act therefore, as rightly pointed out by the Ministers of Labour during the conference would be impossible. The Labour Minister of Hyderabad is reported to have said that attempts made to implement the Act in that State completely failed and added "that unless Agricultural Labour was properly organised and their holdings standardised and co-operative farms established the mere fixation of minimum wages would neither succeed in improving their lot nor solve the problem."

We are of the view that the absence of effective organisations and prevalence of low wages are the very conditions justifying State regulation of wages in this country. The English system may give a clue to a successful regulation. The Agricultural Wages Regulation Act of 1924 and the subsequent amendments introduced regulation of farm wages in England and Wales. The Act is reported to be working successfully and might therefore, give us some solution to the age old problem of minimum wages for agriculture in our country.

Announcement

★ Thirty-Eight College Day & Conference 1955 ★

The Annual College Day and Conference of the Madras Agricultural Students' Union has been decided to be held this year during the third week of August. The subject for the symposium will be "What next in Agricultural Research and Extension Programme?"

Persons desirous of contributing papers for the symposium are requested to communicate to the Secretary.

It is likely that all officers of the department, gazetted and non-gazetted, would be permitted to come on duty to attend the Conference at their own cost and as such are cordially invited to attend the function and make the best of the opportunity provided.

All members are earnestly requested to donate liberally and help to make the Celebration a success.

P. Madhava Menon,
Secretary,
The Madras Agricultural Students' Union.

A Production Plan for Raw Cotton in the Madras (Undivided) State

by

R. BALASUBRAHMANYAM
Principal, Agricultural College, Coimbatore

Introduction: During the first half of the nineteenth Century, the East India Company conducted extensive trials on the cultivation of American Cotton all over India, in order to develop the raw cotton resources of the colonies for feeding the textile industry of England. The results though disappointing opened the eyes of the then State Governments and indicated the desirability of taking up improvement work on the indigenous races in addition to acclimatisation of extra-Indian varieties of Cotton. The progress of cotton research in India has since then not only kept pace with the growth of mill industry but has also helped the country in forging herself to a very prominent place among the nations leading in textile manufacture. The textile industry of the Madras State owes a great deal to the fruits of cotton research done at Coimbatore and attached centres.

The position in regard to supply and distribution of cotton for the year 1952-53 was estimated at 67,25,000 bales and 59,45,000 bales respectively with a carry over stock of 16,80,000 bales. The whole of the estimated Indian production of 36,65,000 bales less exports of short staple varieties, was consumed and the demands for the foreign cotton were in excess of the imports. The target for the cloth production fixed for the year 1956 by the Planning Commission was exceeded in the year 1953 itself. In spite of improved domestic supplies during the last few years, there is considerable shortage of raw cotton and India is obliged to import from East Africa, Egypt and other countries. Competition, exchange and price structure will exercise a great influence on the quantitative aspect of imports even if cotton was available from East Africa, Egypt, U. S. A., Brazil, Peru and Pakistan. It is therefore imperative that India which leads Japan and Britain in textile exports must produce more cotton if the present supremacy is to be maintained and if the stability and progress of the industry are to be assured.

In any national drive for self sufficiency or maximum production the gaps in supply have to be made up either through increase in yield per acre or through rise in planted area. The programme should consist of short and long term policies, the former

a shorter life than MU 1 will help the expansion of cotton crop in other districts where the limiting factors are water, planting time and climate during growth or harvest.

It is very fortunate that cotton among the irrigated crops requires the least quantity of water during growth, can withstand a certain amount of water stress and can be normally grown in all seasons provided atmospheric temperature is not very high at flowering phase or the rainy weather does not coincide with ripening and harvest phases. The successful utilisation of rice fallows in the State will therefore depend on the development as well as the solution of problems pertaining to the three following main groups:-

(a) The tracts where the South West monsoon is weak and the North-East rains are strong and where during the June, July and August months, the temperature does not fall below 80°F or the winds do not blow with excessive velocity, are mostly the canal-fed portions enjoying fair supplies of underground water for lift irrigation during summer months or capable of development through assisted well sinking. Such areas can be further sub-divided into long and short fallows.

(i) Long fallows extending over seven months from middle of February to middle of September exist in single crop wet lands fed by canals from river projects and tanks. The districts coming into this category will be the whole or part of Tirunelveli, Ramanathapuram, Madurai, Tiruchirappalli, Tanjore, South Arcot, Chengleput, North Arcot, Chittoor and Nellore.

(ii) Short fallows of five months from mid-January to the cultivation of *Kururai* paddy in July (the actual fallow months being specific to each region in a district) are found in areas where two crops of paddy are taken, one closely following the other or with a long gap between the two. In the latter case where the paddy is grown during summer months, cotton can replace it. The area falling in this classification lies in Tirunelveli, Madurai, Tiruchirappalli, Tanjore, South Arcot and Chengleput districts. Fuller details about the possible developments of the rice delta of Cauveri are furnished by Balasubrahmanyam (1949, 1952).

(b) The zones where the South West rains are plentiful, the second monsoon is weak, winter temperature is not low, the

summer temperature is not too exacting and good surface springs exist, comprise the rainfed paddy areas in portions of Malabar and South Kanara districts especially near river courses. Cotton can be planted in September—October and kept on till March—April months.

(c) The regions where both the monsoons are fairly active or where the winter temperature touches low levels ranging from 54°F to 65°F or where the summer is characterised by hot winds or high temperature exceeding 110°F and where good underground springs can be tapped, cover the districts of Srikakulam, Visakhapatnam, East Godavari, Kistna, Guntur, Kurnool, Bellary, Anantapur, Cuddapah, Salem and Coimbatore. This area will admit of cotton planting in December but the crop will have to be removed by mid June to give place to rice crop.

Any improved variety developed for item a (i) at Srivilliputtur in the long staple cotton scheme, will suit all the specified districts except the delta and river project areas where the double and single crop wetlands lie intermingled, where the cultivation of the former will affect the cotton grown and retained in the latter, and where the field to field irrigation and seepage from canals cannot be avoided. P. 216 F and development of similar short duration varieties possessing a total crop life not exceeding four and a half months will fit in the category a (ii). Long and short duration cotton types will suit item (b), the two limiting factors being the availability of water for plentiful irrigation during the hot months of February and March and the capacity of cotton varieties to resist the adverse effects of heavy dew in December—January. High temperature and low humidity have been shown to cause contabescence, to induce flower shed and to affect proper seed development. Item (c) will come under this distress group. The preliminary observations on early sown cotton crop in these districts have shown that the cold soil in winter is not conducive for growth and that the crop remains stunted till the summer weather sets in. There is thus no great advantage in early planting during November—December. In other words, a variety having not only a shorter duration than P 216 F but capable of withstanding a high atmospheric temperature exceeding 110°F. during flowering phase must be found.

The larger development and utilisation of the three categories of fallow land outlined above are delayed not on account of non-availability or impossibility of breeding suitable varieties of cotton

situated in the vicinity of the canals throughout its course. Eventual increase in cotton area inclusive of the immediate expansion anticipated in the two completed river projects can be placed at four lakh acres. Breeding work and agronomical enquiries done on American cotton at Siruguppa for the Tungabadhra project have yielded valuable information. Varieties resistant to blackarm (Balasubrahmanyam & Kesava Ayyangar, 1952) have been evolved and agronomic problems relating to Jassid damage (Balasubrahmanyam & Kesava Ayyangar, 1950) have been solved. Luxmi cotton can be recommended for large scale cultivation until seeds from more productive, better quality and higher resistant types already evolved by breeding are multiplied and supplied. The problems of Lower Bhavani Project are comparatively simple. The cultivation of Cambodia cotton is not new to the area and M U 1 variety fits in well. The urgent need of the tract is improvement of the fertility status of the soil and layout of the individual holdings for canal irrigation. The State has already taken the necessary steps to provide the technical and monetary help in the project areas and it is hoped that with the contribution made by the benefiting farmers, the production targets will be realised sooner than anticipated.

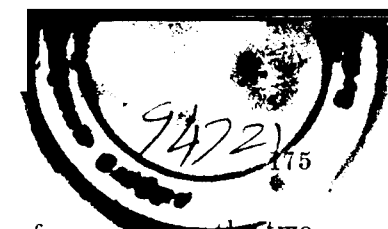
Manures—Long Term : A majority of farmers in Madras State apply all the cattle manure and compost available with them to cereal crops like Sorghum, finger millet and Italian millet which precede the cotton crop in normal rotations under a belief amounting to conviction to that direct application of manure to cotton encourages the leaf growth without increasing its yield per acre. It is only the cotton farmer of the irrigated Cambodia who devotes some attention to the aspect of manuring crop with his own farm and animal wastes while a few of them who are progressive in outlook and who are conscious of the benefits from oil cakes and ammonium sulphate resort to such supplementary applications as a regular feature. The rate of manuring however varies considerably from holding to holding and is entirely dependent on the solvency of cultivator. It is this factor which is responsible for the wide range of yields varying from 200 lb. to 900 lb. lint per acre and for an overall average of 270 lb. lint per acre for all irrigated cotton in the State.

The average acre yields of cotton in America are 450 lb. lint under irrigation and 250 lb. lint for unirrigated crop. The corresponding figures for Madras are 300 lb. and 125 lb. per acre for the

highest yielding zones in Cambodia and Karunganni tracts. In many of other areas, the yields are very low and do not exceed 50 lb. lint per acre. No American farmer will think of growing cotton without manure whether he raises the crop under irrigation or with the aid of rains. The national yield of America which was 160 lb. per acre in the year 1929 was raised to 289 lb. per acre in a period fifteen years through (a) increasing both the plant-food of contents and the quantity of fertilisers applied to every acre from 266 lb. to 326 lb., and (b) restricting the application of commercial fertilisers to zones receiving adequate rains or served by river projects.

The analysis of manurial trials done by Panse (1945, 1952) had definitely shown that manuring was profitable in areas where the cotton crop received irrigation or grew with an annual rain fall of about 30 inches. In the experiments carried out on the Government farms of the State, the cotton crop did benefit by manuring and did register increases in kapas yield especially in the irrigated Cambodia area and the un-irrigated Karunganni tract wherever the levels of soil fertility ranged from medium to high. The average responses of 200 lb. seed cotton per acre for a dose of 40 lb. Nitrogen (2 cwt. of Ammonium sulphate) on irrigated Cambodia and 70 lb. kapas per acre for an application of 20 lb. Nitrogen (1 cwt. of Ammonium sulphate) on un-irrigated Karunganni were obtained. At Koilpatty which is a rainfed Karunganni area, application of every pound of Nitrogen yielded an extra pound of lint on soils of low to medium fertility and two pounds of lint on lands of high fertility. The response of un-irrigated Cambodia enjoying a pre-war normal area of two and half lakhs of acres will be the same.

The best way of applying the fertiliser to Cambodia is to spread evenly by broadcast one cwt. before ridging up the fields for planting and to apply the second cwt. at hoeing in the month of December. In the case of farmers who are obliged to plant cotton late in stubbles after a crop of ragi, the first application may be in the month of December followed by another dose in January. Irrigation should invariably follow the manure application when the crop is on the field. On the blacksoils where Karunganni and Tinnies cottons are grown, one cwt. of Ammonium sulphate may be spread at about the same time the seeds are sown broadcast and covered with country plough.



The largest demand from the Textile Industry of India is for cottons of the medium and long staple ranging from 12/16 inch to 17/16 inch which are suitable for spinning 30's to 40's warp counts. Internal production of these styles, if stepped up, will reduce the foreign imports. The easiest and surest way of achieving the above objective is without doubt through a wider use of artificial fertilisers in the districts of South Arcot, Tiruchirapalli, Salem, Coimbatore, Mathurai, Ramanathapuram and Tirunelveli where good quality cotton varieties are now grown both as irrigated and rainfed crops. The Sindhri Fertiliser Factory has already been geared for full production, at the rate of 1,000 tons of ammonium sulphate per day. Even though the entire nitrogen requirements of the cotton area in Madras State cannot be met from the internal production, it will prove cheaper to import fertilisers than raw cotton. The data collected during the years 1950-53 from the Cotton Extension work in Madras disclosed that the farmers of irrigated Cambodia who spent Rs. 35/- per acre on fertilisers were able to reap on an average a gross profit of Rs. 100/- while their bretheren growing unirrigated crops could realise profits of Rs. 30/- on every acre of Karunganni cotton manured at a cost of Rs. 17/- per acre. A very significant finding was that in the two regions manuring was a profitable venture even under adverse climatic conditions. Regeneration of growth and bud formation soon after rains and after a wave of insect damage was much more evident in manured lands than unmanured blocks.

It is very necessary that persistent and intensive propaganda for application of nitrogenous fertilisers in the two project areas nearing completion viz. Lower Bhavani and Thungabadhra, where irrigated cotton will figure as important item, is done by special staff until the entire ayacut is fully developed and agricultural practices are fully established.

Crop Rotations — Long Term: Minor adjustments in crop rotations have been known to bring about a marked change in the productive capacity of the soils especially on the unirrigated areas. In such agronomic enquiries the legumes have played a major role. The experiments conducted at the several centres in Madras have already been summarised by Balasubramanyan (1947). The review indicated that legumes other than groundnut, tar, horsegram and gram for seed and pillipesara, guar for green manure were unprofitable.

Irungu sorghum for fodder and *bajra* for grain are the two principal rainfed crops grown by the cotton farmers of Ramanathapuram, Mathurai and Tirunelveli Districts over an area of 3,50,000 acres every year as a crop preceding Karunganni cotton. Irungu sorghum has been observed to have a depressing effect on the yield of succeeding crops. The loss in the yield of seed cotton following a crop of Irungu sorghum is estimated to range from 10 to 25 percent of a crop of cotton following *bajra*. The farmers though fully alive to this reduction are forced to continue the practice in order to raise the necessary cattle fodder needed by them. The monetary loss so sustained by every farmer for every acre of cotton planted after Irungu sorghum will be roughly Rs. 10/- on an average. The experimental data collected for over 10 years at the Agricultural Research Station, Koilpatti on the cause for the depression in the yield of cotton following Irungu sorghum and the ameliorative measures which would more or less correct them completely indicated that the mixed cropping of Irungu sorghum and indigo corrected the ill-effects and raised the yield of cotton to the level of the *pre-bajra* cropping. An average increase of 10 lb. lint per acre was obtained. Seeding Irungu mixed with 12 lb. indigo added about 20 lb. Nitrogen per acre through the activity of nodular organism in the roots and the opened up the soils well during summer. The yield of Irungu sorghum was not reduced in such mixtures. This practice when extended to the *bajra* crop was also noticed to benefit the succeeding cotton crop to an appreciable extent. A mixture of Irungu sorghum and *bajra* with 12 lb. of indigo per acre is recommended for general adoption. After the sorghum or *bajra* is harvested, the small indigo plants so far suppressed by shade and crowding of the associated crop put on good growth assisted at times by the summer showers received in April. The fields may be ploughed in May-June by incorporating the leguminous crop in the soil. The subsequent treatments are same as those of any other field on which cotton sowings are planned. It is a simple farming practice which if enforced will substantially add to the cotton production of the Karunganni tract.

The sorghum-cotton rotation in irrigated regions of Coimbatore district is an established farming practice. The sorghum crop is planted in March and harvested by July while the Cambodia cotton is dibbled in by the end of August and removed by the beginning of March. The cotton crop was found to give only

100 200 113
100 200 113

about 90% of its potential yield leading to an average fall of 20 lb. lint per acre. Experiments conducted for a number of years at Cotton Breeding Station, Coimbatore revealed that summer sorghum and *guara* mixed in the ratio of three to one had no effect on the yields of both fodder and grain but increased the yield of the succeeding Cambodia cotton. All the ryots following the intensive rotation of cotton-sorghum under irrigation would be well advised to grow a three to one mixture of summer sorghum and *guara* instead of pure summer sorghum. The *guara* crop comes to the maturity more or less at the same time as the sorghum crop and can be harvested along with summer sorghum for being fed to cattle which relish the mixture better than the pure summer sorghum straw considered inferior to the rainfed *periamanjil* sorghum sown in cold whether in the same area. The practice if it gets into vogue will be similar to the legume mixtures like green gram, cowpea or lablab grown with the rainfed grain sorghum in other parts of the State. The improvement in the fertility of the soil will be gradual but lasting. It will be ultimately reflected in the yield of Cambodia cotton which will increase by 60 lb. kapas or 20 lb. lint valued at Rs. 25/- per acre. Lands can be enriched without any investment. Its adoption over the whole of the early planted area of 25,000 acres in Coimbatore district would raise the production of Cambodia cotton by 1,000 bales of lint per annum.

(To be continued.)

OBITUARY

We note with deep regret the passing away of Raja Sri V. Madhava Rajah of Kollengode who was one of our patrons from early days. He evinced keen interest in agriculture and its problems and was a frequent visitor to the College Day Conferences and was present even during the 1954 session. May his soul rest in peace.

A Preliminary Note on the Study of Inter-racial Hybrids in Rice

by

K. RAJAGOPALAN

Assistant to the Paddy Specialist
Agricultural Research Institute, Coimbatore

Introduction: In general, the rice varieties grown in Japan belong to *Oryza sativa* forma *Japonica* which are characterised by short stature, stiff straw, non-lodging habit, and have short and coarse grains. Generally they are heavy yielders, the average yield being 4,000 lb. of paddy (rice in husk) per acre. In addition, these varieties show definite response to fertiliser applications. The rices that are cultivated in India belong to *Oryza sativa* forma *Indica*. The *Indica* rices easily lodge in most of the cases and the average yield of these varieties is less when compared to that of *Japonica* rice. Hence to combine the useful genes that exist in the two different races of rice, crosses were effected at the Central Rice Research Institute, Cuttack and the hybrids were distributed to the different States for study. The present note deals with the observations recorded during the study at the Paddy Breeding Station, Coimbatore.

Materials and Methods: F₂ seeds of ten sets of the following crosses, namely GEB. 24 x Norin 1, Norin 6 x GEB. 24, Norin 18 x GEB. 24, GEB. 24 x Norin 23, Asahi x GEB. 24, GEB. 24 x Asahi, GEB. 24 x Rikuu 132, Rikuu 132 x GEB. 24, GEB. 24 x Tihoku 6 and GEB. 24 x Taichu 65 were received from the Central Rice Research Institute, Cuttack during 1952-53. The study in the F₂ generation consisted in growing single plants in rows one foot apart with a spacing of six inches between the plants in the row. Height of plants, number of ear bearing tillers per plant, pigmentation, presence of awn on the spikelet, number of grains and chaff in the panicle were the main features studied. In each set of cross not less than 500 plants were studied for the above characters and desirable progenies were selected. The progenies in F₃ generation were studied for the segregation of parental characters and response to heavy manuring by growing them under two different doses of manure. The heavy dose of manure used in the study consisted of 6,000 lb. of green manure, 225 lb. of superphosphate and 200 lb. of ammonium

sulphate per acre, the normal dose of manure being 4,000 lb. of green leaf, 150 of superphosphate and 100 lb. of ammonium sulphate per acre. Observations regarding growth under the two conditions were made periodically and counts of ear bearing tillers and height of plants, were recorded.

Observations: The F₂ progenies were found segregating for morphological characters like pigmentation, colour of foliage and pericarp and other attributes such as height of plants, tillering habit, thickness of culm and non-lodging character, length of panicle, size and arrangement of grains, tendency for production of awns and sterility. Variation for pigmentation was noticed to a great extent since the parents involved possessed these characters. The progenies were segregating for pigmented and non-pigmented plants as shown in Table I. In general, non-pigmented plants were more than the pigmented plants. Variation for colour of foliage such as light green and dark green, was also noticed in few of the progenies. Presence of red riced plants was another feature though the parents were all white riced ones. A few plants of the *Japonica* parents grown along with the progenies for comparison were very short in stature having a height of about two feet with eight to twelve earbearing tillers per plant. The panicles were short with 30-40 grains per earhead. The progenies were segregating for dwarf and tall plants resembling the *Japonica* and *Indica* parents and for intermediate types. The mean height of *Japonica* types ranged from 1'-7" to 2'-0" that of *Indica* types ranged from 2'-10" to 3'-4" and that of intermediate types from 2'-2" to 2'-8". Counts of these types in the F₂ population consisting of not less than 500 plants in each cross revealed that Japonicas ranged from 1.5 percent to 21.2 percent, Indicas ranges from 33.5 percent to 79.9 percent and the intermediate types ranged from 16.9 percent to 62.2 percent. Similarly a record of the number of earbearing tillers made in each plant showed that the progenies resembling the *Japonica* parents had tillers ranging from 2.0 to 5.6, those resembling the *Indica* parents had tillers ranging from 6.2 to 8.9 and the intermediate types 5.2 to 7.6. A number of plants with stiff straw and non-lodging habit were also noticed. Sterility was prevalent to a great extent and unsetting of spikelets was predominant. The percentage of setting varied from nil to 100 and fully sterile plants were not uncommon. Very few plants with full fertility were met with. However, a count of fertile and sterile spikelets in each panicle from 25 plants in each of the hybrid which were carried forward for further study showed, a sterility percentage ranging from

21.0 to 32.3. Presence of awn was another interesting feature though the parents involved were awnless. Plants with tip, medium and long awned spikelets were noticed. The data collected from the study of the F₂ progenies are presented in Table I.

The performance of the F₃ progenies under ordinary and heavy manured conditions is shown in Table II. Only four sets of crosses consisting of 131 progenies were studied for their behaviour under these conditions. Height of plant and number of earbearing tillers of ten plants in each of the progeny were recorded and the mean for each set of cross is presented in the table. It may be seen from these data that the progenies had grown taller by two inches to six inches under heavy manuring than under ordinary manuring. Similarly the number of tillers are also more.

Summary of Results: Of the various attributed studied in F₂ and F₃ generations of the different sets of inter-racial crosses, namely, *Oryza sativa* forma *Indica* and *Oryza sativa* forma *Japonica*, height of plant, productive tillers and spikelet fertility may be considered as important from the point of view of productivity. Japonicas are short statured and unsuitable for growing under our conditions. Hybrid progenies which combined good tillering, thick culm and non-lodging habit and fully fertile forms were met with and it appeared that further elimination of undesirable characters in the subsequent generations are quite possible by continuous selection. It also appeared from the study of the F₃ progenies under different conditions of manuring that they respond favourably well to higher fertility and it might be possible to fix up hybrids which would respond to heavy manuring. For achieving this, selection of progenies should be done by growing them under high fertility. Further studies in these directions are in progress.

Acknowledgment: My thanks are due to Sri M. B. V. Narasinga Rao, B. A., B. Sc. (Ag.), Assoc. I. A. B. I., now Paddy Specialist (Andhra State) under whose guidance the studies were initiated. I am also grateful to Sri K. Ramaswamy, B. Sc. (Ag.), Paddy Specialist for his kind interest in preparing this note and to the Director, Central Rice Research Institute, Cuttack for the supply of seeds.

TABLE I. F2 Progenies

S. No.	Particulars	Pigmented Plants			Non-Pigmented Plants			Habit			Mean Height			Mean Tillers		
		Japonica %	Indica %	Intermediate %	Japonica %	Indica %	Intermediate %	Japonica %	Indica %	Intermediate %	ft. inch.	ft. inch.	ft. inch.	Japonica	Indica	Intermediate %
1.	GEB. 24 × Norin 1	57.4	43.9	48.7	42.6	46.1	51.3	18.4	37.8	43.8	2 — 0	2 — 11	2 — 5	4.4	6.6	5.2
2.	Norin 6 × GEB. 24	1.7	14.4	1.1	98.3	85.6	98.1	21.2	47.1	31.7	1 — 11	2 — 10	2 — 6	4.9	6.3	5.3
3.	Norin 18 × GEB. 24	—	14.6	4.5	100.0	85.4	95.5	7.8	62.5	29.7	1 — 11	3 — 0	2 — 5	4.0	6.2	5.2
4.	GEB. 24 × Norin 23	—	11.6	2.9	100.0	88.4	97.1	15.7	53.4	30.9	1 — 10	2 — 11	2 — 5	2.0	6.5	5.2
5.	ASAHI × Norin 24	—	17.1	2.4	100.0	82.9	97.6	4.3	33.5	62.2	1 — 8	3 — 4	2 — 7	5.6	8.9	7.1
6.	GEB. 24 × ASAHI	10.0	9.1	—	90.0	90.9	100.0	3.6	35.2	61.2	1 — 7	3 — 1	2 — 6	5.4	7.7	7.6
7.	GEB.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8.	24 × RIKUU 132	52.4	47.8	55.2	47.6	52.2	44.8	6.1	60.6	31.8	1 — 8	2 — 11	2 — 4	4.0	6.6	5.5
9.	RIKUU 132 × GEB. 24	40.0	57.2	56.1	60.0	42.8	43.9	7.1	66.3	22.3	1 — 7	2 — 10	2 — 2	4.4	6.7	5.8
10.	GEB. 24 × TIHOKU 6	—	13.6	5.3	100.0	86.4	94.7	4.0	69.0	25.3	1 — 9	3 — 0	2 — 5	4.8	7.0	6.0
	24 × TAICHU 65	—	19.6	14.5	100.0	80.4	85.5	1.5	79.9	16.9	1 — 7	3 — 4	2 — 8	2.8	7.0	5.4

TABLE II. F3 Progenies

S. No.	Particulars of Cross	Number of Progenies	Mean Height			Mean Number of Tillers		
			Ordinary Manuring	Heavy Manuring	Heavy Manuring	Ordinary Manuring	Heavy Manuring	Heavy Manuring
1.	GEB. 24 × TAICHU 65	52	3' — 6"	4' — 0"	4' — 0"	5.0	5.5	5.5
2.	RIKUU 132 × GEB. 24	26	3' — 4"	3' — 8"	3' — 8"	5.3	6.5	6.5
3.	GEB. 24 × RIKUU 132	27	3' — 5"	3' — 9"	3' — 9"	5.3	6.4	6.4
4.	GEB. 24 × TIHOKU 6	26	3' — 9"	3' — 11"	3' — 11"	4.6	5.6	5.6

BIBLIOGRAPHY

1. Mitsui, S. (1952) Rice Production in Japan. Madras agric. J. 8, 456—57.
2. Narasinga Rao, M. B. V. (1951) Rice in other countries. Madras agric. J. 3, 169—70.
3. Narasinga Rao, M. B. V. (1953) Japan and Japanese Agriculture. Madras agric. J. 10, 463—65.
4. Ramiah, K. and Vachhani, M. V. (1950) Features of Rice work in Japan and how they differ from those in India. Indian Farming, Vol. XI, No. 3.
5. Ramiah, K. and Narasinga Rao, M. B. V. (1953) Rice Breeding and Genetics. The Indian Council of Agricultural Research, Scientific Monograph, No. 19.

Research Notes

A peculiarity of flowering in gingelly (*Sesamum indicum* L.)

Flowering in gingelly is normally of the racemose type with a flower in each leaf axil. Two extra floral nectaries are found on either side of the flower. In a few varieties and types one or both of these nectaries develop into flower and produce capsules. The result is the characteristic whorled appearance in each leaf axil and the type is described as 1 to 3 flowers in an axil. This is obviously an economic character in that the production of capsules per plant is increased. An extracted pureline X-52-a (cross between S. I. 61, Dholka & S. I. 1, Local) is the standard type for the character maintained on this Research Station. Even in this type a few leaf axils may produce only a single or two flowers but a majority have three flowers. A selection S. I. 1047 from the local variety of Samkot also exhibits this character.

Though found in only a few varieties this character breeds true to type and has therefore been taken as a distinguishing feature in the classification of gingelly varieties by KashiRam (1930), Rhind & Thein (1933) and Hilterbrandt (1932). The inheritance of this character was worked out by John (1934), who found that single flower in an axil is dominant to 1 to 3 flowers in an axil.

During the 1953-54 cold weather season (November 1953-February 1954) the character was found to occur in a large number of varieties and types raised on this station. A detailed study of these revealed that the character was expressed to varying degree, 0 to 41 percent in the thirty three varieties and types studied, the results are given in the following table:—

Number of varieties	Percentage number of plants in the population showing the character
1	Nil
7	5 and less
16	6 to 6
9	Above 20

The local variety in a cultivator's bulk field situated about two miles from this Research Station was examined and found to show the character. Of the 291 single plant selections made 131 (nearly 45%) revealed 1 to 3 flowers in an axil. The material will be utilised for continuing the study in the ensuing season.

It is clear therefore, though the character is inherited one its expression is largely controlled by seasonal conditions. This phenomenon has not been observed for the last few years. During the year 1953-54 a rainfall of over 2" just prior to general flowering is probably the reason for the expression of this character to a large extent. An analogous case is found in the character of 1 to 3 kernelled nature of groundnut pods which though a varietal character, is largely controlled by rainfall and its distribution.

REFERENCES

1. Hilterbrandt, V. M. (1932) *Sesamum indicum* L. Bull. Appl. Bot. Gen. and Pl. Breed. Leningrad. Series IX: No. 2: 3-107 (English Summary 107-114).
2. John, C. M. (1934) Inheritance studies in gingelly—*S. indicum* Proc. Assoc. Econ. Biol. Coimbatore, 2833-40.
3. Kashi Ram (1930) Studies in indian oilseeds (4). The types of *S. indicum* DC. Mem. Dep. Agri. India (Bot. Ser.), 18: 127-147.
4. Rhind D. and Thein, Ba. (1933) The classification of Burmese sesames, *S. orientale* Linn. *Indian J. Agri. Sci.* 3: 478-95.

Agri. Research Station,
Tindivanam.

M. BHAVANI SHANKER RAO and
V. SUBBIAH.

A Note on the Abnormal Development of Brackets in the Spadix of Coconut Palm (*Cocos nucifera* L.)

Various abnormalities have been observed and recorded in coconut by various workers from time to time and reviewed by Sundararaj (1952) and Davis and Menon (1953). Polyembryony, branching of the stem, foliation of the spadix, bulbiferous spadix, suckering, unbranched spadix, development of the pistillodes in the male flowers, apocarpous are the commonly known instances in the coconut palm. In this paper, a multispatheate condition observed in the spadix of a coconut palm is described.

In a normal spadix of the coconut palm there is a single spathe which is elongated, boat-shaped and is about the same length as the spadix. Just outside this and extending nearly a third of its length, is a fibrous sheath-like bract. The outermost or the first bract is very small in nature. At the base of the spadix, inside the spathe, is seen the inner-most inconspicuous scaly bract. Besides these four bracts, there are many small secondary bracts which subtend the rachillae or branches of the spadix.

Davis and Menon (1952) describe the development of the innermost bract which becomes as big as the normal spathe or sometimes even slightly bigger, leading to a bispatheate condition of the spadix. Davis (1947) observes in a bulbiferous coconut palm, the development of the inconspicuous secondary bracts subtending the rachillae which are reduced to rudimentary buds. These bracts developed to their maximum which gradually became true pinnate leaves. The same author has also quoted Sands who has reported a case of unbranched spadix, in which the rachillae are highly reduced to the state of only 3 or 4 flowers and the rudimentary bracts subtending the rachillae have developed considerably and are conspicuous and big enough to cover and protect the flowers in their axils. In the variety "Spicata" described by Jacob (1941), these bracts have developed to a conspicuous size. Petch (1915-'17) describes an interesting case of proliferation in the spadix; the spathe terminated in a solid stalk-like tip about 5 inches long which bore a fan-shaped leaf and undivided like the first leaves of a seedling coconut. The secondary bracts also exhibited excessive development but was attended by the entire or partial suppression of the spikes. In one region of the inflorescence, the flowering branches were represented by aborted shoots.

In the present case of abnormal spadix which was handed over to the author by Bhaskaran, a student of the Agricultural College, Coimbatore there were many fairly well developed spathes each subtending a flowering branch in its axil, besides the normal spathe. The innermost bract found at the base of the spadix in a normal inflorescence and the secondary rudimentary bracts subtending the spikes have all developed to appreciable sizes. (Fig. 2). The normal spathe and the spathes resulted due to the development of the innermost bract and some of the secondary bracts can be seen in Fig. (1). Each of the flowering branch is well protected by a spathe, while the spadix as a whole is protected by the main spathe. This sort of excessive development of the bracts has been attended with the complete absence of the female flowers in the spadix (Fig. 2). The male flowers of the inflorescence were found to be quite normal with three sepals, three petals, six stamens and a centrally placed pistillode of three erect processes. Since self-fertilization is common in coconut, this palm with only male flowers may not be economically useful. Further, the spadices which appeared subsequent to the one described in this article are all said to be of the same sort.

Further, the behaviour of this coconut palm, as understood from the owner is very peculiar. The tree which is in Badagara (Malabar) is said to be about 40 years old and was producing normal spadices with female flowers for a long time; but all the female flowers shed, none of them developing, into fruits. For the past four years it is said to be producing these abnormal multi-spatheate spadices without female flowers. The reason for the change in the sex expression of this palm though not known, may be due to virus and requires investigation.

REFERENCES:

1. Davis, T. A. (1947) *J. Bombay Nat. Hist. Soc.* 47: 527-529.
2. Davis, T. A. and Menon, K. P. V. (1952) *Indian Coc. J.* 6: 1: 30-34.
3. do. (1953) *Indian Coc. J.* 6: 4: 139-144.
4. Jacob, K. C. (1941) *J. Bombay Nat. Hist. Soc.* 41: 906-907.
5. Petch, T. (1915-17) *Annals Roy. Bot. Gardens, Peradeniya* 6: 21-30.
6. Sundararaj, D. D. (1952) *Indian Coc. J.* 5: 3: 149-154.

Botany Section, Agricultural
Research Institution,
Coimbatore. }

D. MEENAKSHISUNDARAM.

Abnormal Development in the Spadix of Coconut Palm



Fig. 1



Fig. 2

On the Viability of the Wild Indigo Seeds

In a research note published by the author under reference cited it was shown that seeds of Wild Indigo (*Thephrosia purpurea*) do not give full per cent germination due to a thick deposit of wax on some of the seeds present and not due to the hard seed coats that these seeds have, as is popularly believed. In Wild Indigo, there exist two morphologically different kinds of seeds, one with a hard seed coat and another with a soft one. The former does not readily sprout in contact with moisture, whereas, the latter instantly does. The hard seed has a thick layer of wax upon its seed coat while the soft one has only a very insignificantly thin layer of wax. The accompanying cross sectional photographs taken under the same magnification of the hard seed coat (Fig. 1) and of the soft one (Fig. 2) serve to illustrate the comparative thicknesses of wax layer upon these two kinds of seeds.

REFERENCE

Uttaman, P., (1953) *Mad. Agrl. Jour.*, XL, 452.

P. UTTAMAN,
Seed Development Officer,
Vellore.

NEWS AND NOTES

A General Body meeting of the Agricultural College Students' Club was held at 6 p. m. on 18-5-'55 with Dr. A. Mariakulandai, the Vice-President in the chair, to elect the Executive Committee and Office Bearers of the Club for the year 1955-'56.

The following students were elected as members of the Executive Committee for the posts noted against each :—

1. Sri P. Kandaswamy Gounder of Class III as the Club Secretary; 2. Sri K. Marappan of Class III as Games Secretary; 3. Sri Rajaram Upadaya of Class II as Cricket Captain; 4. Sri Muthukrishnan of Class II as Tennis Captain; 5. Sri Dhanapalan of Class III as Hockey Captain; 6. Sri Sankarapandian of Class II as Foot-ball Captain; 7. Sri Kailasam of Class II as Minor Games Captain; 8. Sri K. Parthasarathi of Class III as the representative of his Class and 9. Sri Manickavasagam of Class II as the representative of his Class.

As Office Bearers outside the Executive Committee the following students were elected for the current year:—

1. Secretary, Photographic Society — S. Hydroos; 2. Secretary, Social Service League — Purushothaman; 3. Secretary, Debating Society — Govindarajulu; 4. Secretary, Dramatic Society — R. Perumal Raja; 5. Secretary, Hiking Society — M. Thankavelu; 6. The "Tatler" Editor — S. Haja Sheriff; 7. Lady Students representative — Kumari V. Savithri.

The Volunteer Corps for the year was also formed with the following students:—

M. K. Mular (Leader); Theetharappan (Asst. Leader); D. V. Viswanath; M. Saldhana; Sivaraman; Marappan; Soundarajan; Dhanapalan; Navakodi; Gopinath; Hydroos; Ramanathan; Jesudasan; Muthiah; Subbiah; Javad Hussain; Kumari V. Savithri; Vivekanandam; G. Venkatesan; Aravindakshan; C. V. Ramachandran; Rajaguru; S. Palaniswamy; Thottiappan; K. Nagappan; Chandrasekara Nair; Rajamani; D. D. Chinnappa; Ramalingam; P. Kanniah; Chinnaraj; Jagadesan.

Viability of Wild Indigo Seeds



Fig. 2



Fig. 1

GLEANINGS

Tuyyamalli (A S D. 8) A High Yielding Strain of Paddy: Tuyyamalli is a variety of paddy grown in Tirunelveli district particularly in Ambasamudram and Tirunelveli Taluks as a catch crop from June to September, in the seed bed areas intended for raising Pishanam (Second crop) nurseries. The crop is generally raised as a broadcast one, after the land is prepared to a good puddle. But the variety also lends itself to transplanting. As the duration of the crop from seed to seed is only 80 days, the seedlings should not be kept in the nursery for more than 15 to 18 days. The husk is dark brown in colour and the rice, red which becomes white on milling. Even A D T. 3, which has established a name for earliness and is popular in a number of places, is longer in duration than Tuyyamalli by about a week. For this reason, it is admirably suited for areas dependent on tank water supply as in Ramanathapuram district and Pudukottai area of Tiruchirapalle district and even in other districts where similar condition prevail. As regards the yield, 3,000 lb. per acre on an average, is the rule under ordinary conditions of manuring on lands of average fertility.

(Madras Agril. News Letter, April 1955) [A. M. K.]

Cumbu (P. T. 833) A high yielding selection of Cumbu P. T. 833 maturing in about 80 days had been sent out for trial in the southern districts. From the results received it is found to be consistently high yielding in most of the centres tried. From the reports received it is noted that this selection gave as much as 32 percent more yield than the local variety in Mudukulathur taluk in Ramanathapuram district.

(Madras Agril. News Letter, April 1955) [A. M. K.]

Digestibility of Cow's Milk and Buffalo's Milk: Two research workers of Food in an University in Giza, Egypt, have reported results on the comparative digestibility of cow's milk and buffalo's milk. They used sheep as test animals. The final average data for digestibility of the different constituents of both types of milk were as follows:—

Co-efficient of digestibility	Dry Matter Per Cent	Protein Per Cent	Fat Per Cent
Cow's milk	79.21	83.18	97.07
Buffalo's milk	77.04	83.87	97.62

From these results, it can be concluded that the digestibility co-efficients of different constituents of buffalo's milk are practically equal to those of cow's milk. As regards protein digestibility, the results were verified by a separate experiment using pepsin and hydrochloric acid when it was 95.01 for cow's milk and 94.47 per cent for buffalo's milk. It seems, therefore, that the relatively higher amounts of fat in buffalo's milk did not affect the digestibility of proteins and fats. In the opinion of these workers the idea of medical men that cow's milk is preferable to buffalo's milk has no physiological basis.

[A. M. K.]

How Legitimate are Names on Scientific Papers: Are names on technical papers a perversion of the ideal of selfish devotion to Science?

A man scrambles to get his name on paper. Getting promoted depends on the number of papers you have published. Either get papers out or get out. The man who scrambles to get his name in print, has a living to make. Though he did not make this system, he has to live by it. It is all a part of the present

competitive system and spirit, now being applied to Science, no less than to business and industry.

Science as practised to-day would be impossible without the wholesale exchange of ideas and theories, facts and figures brought out by individuals and teamwork and materials picked up from the literature. The contribution of Einstein, Bohu, Dirah, Heisenberg, Born and Planck lies to a great extent on the work going around them and in these men giving a new twist or in integrating into a unified system, a heterogenous mass of Scientific material. To over emphasise the importance of their work is to belittle the achievements of all competent Scientists.

The true scientific spirit must be the desire to pass along what has been discovered and worked out. There is nothing inherently discreditable in getting one's names appearing on papers. But the mad scramble for credit by rushing up to get names on papers cannot be said to be scientific spirit. (Science Vol. 120, 276, 1954) [D. D. S.]

Planting Cardamoms — Higher Yields with Longer Rhizomes: Using longer rhizomes for planting increases cardamom yields, experiments at the Cardamom Research Station at Singampatti have shown. Planters generally do not use sufficiently long rhizomes for planting. For the experiments, the planting of mother rhizomes eight inches long was compared with the planting of short ones of an inch in length. With the same care given to both, it was found that where long rhizomes were planted, the crop began bearing about six months earlier and gave an increase in yield of cardamom.

(I. C. A. R. Farm News Release No. 47)

Double Rows for Potatoes — New System of Planting: Planting potato tubers at one inch depth from the soil surface in two rows six inches apart on the ridge is getting popular with farmers in the Punjab. The system, recently evolved, consists of growing two rows of potatoes on ridges 2½ ft. to 2½ ft. apart, instead of a single row on ridges 1½ ft. to 2 ft. apart as is the practice. The bigger spacing makes cultural practices easier, economises irrigation water and cuts labour costs of interculture and harvest. After planting the seed tubers in double rows on the ridge, it is recommended that fertilizer is applied in a band in the middle of the rows, an inch deeper than the seed. Similarly, fertilizer is also applied in bands two inches away from each row on the outer sides of the ridge. The seed and the fertilizer are later covered with two or three inches of earth taken from the outer side of the ridge to make one ridge over the two rows of seed potatoes. The new system, it is claimed, increases the returns from the potato crop.

(I. C. A. R. Farm News Release No. 48)

Vitamin-Rich Milk — Giving Shark Liver Oil to Cows: Milch Cows and buffaloes produce milk rich in vitamin A, if shark liver oil is included in the daily feed, research has shown. Cows get vitamin A in the form of carotene through green fodder. To assure that vitamin A rich in milk be produced even in the season when green fodder is not available, feeding shark liver oil is recommended. Cows and buffaloes fed with ten grams of shark liver oil per day per head along with dry roughage during the dry fodder period gave milk rich in vitamin A content, experiment showed. The flavour of the oil was not noticed in the milk produced.

(I. C. A. R. Farm News Release No. 49)

Better Vegetables — Prepare the Seed-Bed Well: Experiments in research stations show that very good crops of Vegetables can be obtained if the seed-bed

is properly prepared. A well sifted mixture of four parts each of sandy soil and leaf mould and one part of well-rotten farm manure has been found to be the best for the seed-bed. If sowing has to be done on the ground, make small beds raised a few inches above ground level. This will provide a good drainage. Before sowing, water the beds thoroughly to make the soil settle down firmly. Work up the topsoil for one or two inches after two or three days and then sow the bed. In sowing, it is advisable to sow in two or three lots rather than one. This will ensure a uniform supply of fresh vegetables. Avoid thick sowings. The depth of sowing depends upon seed and type of soil. As a general rule, the covering should be three to five times the diameter of the seed. The sowing should be a little deeper in heavy soils. (I. C. A. R. Farm News Release No. 45)

Early Blight of Potatoes — Timely Spraying Recommended: In the plains of northern India, where the bulk of potato is cultivated blight disease makes its appearance from time to time. The disease occurs late in the season so that the early planted main crop is not affected. Affected plants show brown spots with concentric rings on the leaves. The spots enlarge and merge together, killing the entire leaf. Yields get reduced whenever there is blight disease attack. Timely spraying with Bordeaux mixture 'Perenox' or 'Diathane D-14' has been found to effectively control the disease and is being recommended to all potato growers. (I. C. A. R. Farm News Release No. 46)

Controlling the Sugarcane Root Borer — Method of Harvest Helps: The practice of harvesting sugarcane by digging it out has not only been found to add to the total yield, but also found to keep down the root borer attack to a great extent. The root borer, a common sugarcane pest, severely damages the cane crop in the early stages. The central shoot dries up and shows a greyish white colour. When damages is serious, the crop is lost. Where digging out the cane crop is not practicable, the cane should be harvested by cutting it as close to the ground as possible. The stubbles left in the field should be removed and destroyed so as to kill the borer hiding in them. Wherever the pest is serious, agricultural experts also advise that farmers discontinue raising the ratoon crop. (I. C. A. R. Farm News Release No. 50)

Compost is a Good Manure — Supplement it with Fertilizers for Good Results: Compost, whether produced on the farm or brought in from town depots, is a good organic manure, and is best applied to the soil at the time of preparatory cultivation. The dose of the manure to be applied to the fields varies with the intensity of cultivation, but, generally, ten to twenty cartloads (one cartload is equal to about 1,000 lb. of manure) are found to be adequate per acre of irrigated land. Where rainfall is between 20 and 50 in., four to eight cartloads per acre have been prescribed, and when it is less than 20 in., two cartloads have been found sufficient. Compost manure is rich in organic matter, but it is poor in nitrogen, phosphoric acid and potash. Farmers are advised to supplement it, wherever necessary, with nitrogenous and phosphatic fertilizers. Where intensively cultivated crops like vegetables, potatoes, rice or sugarcane are grown, it is profitable to use nitrogenous supplements, such as ammonium sulphate or oilcake. Compost manure supplemented with extra nitrogen, phosphate and potash gives good results for such fruits as banana, citrus and mango. (I. C. A. R. Farm News Release No. 51)

Feeding Chickens — Protein-Rich Food Essential: Proteins are essential for young growing chickens. Poultry specialists point out that unless chickens are fed with protein-rich food they do not make satisfactory growth. As cereals are some what deficient in proteins, special foods rich in proteins should be given.

Separated milk or buttermilk solves this problem. If chickens are given either of these in place of water, there would be no need to look for other protein foods. Meat offal (intestines of animals from the slaughter-house) also gives excellent results. The meat offal should be chopped and cooked for an hour before it is fed with the mash. Feed chickens with ample cut green food every day from one week onwards, and also limestone grit or oyster-shell from two days onwards for getting good results. (I. C. A. R. Farm News Release No. 52)

Efficient Poultry Feed — 1.64 lbs. feed per lb. gain: University of Maryland scientists have evolved a high powered ration which makes it possible to save three pounds of feed in producing a three pound broiler chickens. They can raise this bird in just 52 days using only 1.64 pounds of feed per pound of gain. Most good U. S. chicken farmers average around 2.75 pounds of feed per pound of gain. The key to the remarkable efficiency of the new ration lies in a new balance between 'energy' feeds such as corn, and feed such as bean type meals and cereals, which have a high protein content. The scientists found that it was neither "high energy" nor high protein that made a food efficient, but plenty of each. The important thing, they discovered, was to have enough "energy" or calories in proportion to the percentage of protein. Chickens fed protein rations without sufficient "energy" feed overeat and waste energy, the scientists found, whereas "energy" feeds are wasted when birds eat "high energy" low protein rations. The perfect chick starter mash, they discovered, ought to have 42 calories of usable "energy" for each one per cent of protein per pound of ration to produce the greatest growth. A finishing ration should have 47 calories for each one per cent of protein. This means 860 calories per pound of 20 per cent protein and 940 calories per pound of 23.5 per cent protein food or the reverse of what is found in most commercial feeds used in the U. S. In other words, according to the Maryland discoveries, commercial feeds are causing birds to over-eat either the "energy" or protein feeds. Credit for this discovery and the benefits that will stem from it go to Dr. Gerald Combs, Dr. G. Lynn Romoser and Dr. William Supplee of the University of Maryland Poultry Husbandry Department. (Planters Journal, May 1955) [A. M. K.]

Gamma Rays for insect control: Considerable possibilities are seen in the use of ray and atomic radiation for controlling insects by interfering with their reproductive capacity. Dr. E. P. Kipling sterilised the males of the screw worms affecting domestic animals with gamma rays. 40,00,000 of these males were introduced in the island of curacas in West Indies. Since the female mates only once within two years of the introduction, the population of the screw worms was brought down almost to zero. The same procedure is now being attempted for the pinkboll worm of cotton. Encouraging results have already been obtained in the use of the gamma rays to keep the insects from reproducing. Dr. F. C. Bishopp says that it may prove practical particularly when the insects occur in small numbers or when the female mates only once. Experiments are in progress also for testing these rays for the control of the insect in the field and insects in stores. Portable equipment for being taken to the field are being developed. (Planters Journal and Agriculturist XLVII No. 5. 1955.) (S. K. D.)

Weather Review — For the month of April, 1955.

RAINFALL DATA (IN INCHES)

Division	Station	Total rainfall for the month	Departure from normal	Total since 1st January	Division	Station	Total rainfall for the month	Departure from normal	Total since 1st January
North	Madras (Meenam-bakkam)	1.9	+ 1.3	6.6	South	Madurai	4.3	+ 2.1	5.1
	Tirur-kuppam*	1.6	+ 0.5	6.5		Pamban	7.0	+ 5.2	13.1
	Vellore	0.7	— 0.3	2.5		Koilpatti*	3.0	— 0.6	8.0
	Gudiyatham*	0.6	— 0.3	2.4		Palayam-cottai	6.8	+ 4.3	8.9
East Coast	Palur*	4.8	+ 3.8	7.4	West Coast	Amhasamudram*	5.0	+ 1.2	11.3
	Tindivanam*	2.1	+ 1.1	2.6		Trivandrum	2.9	— 1.7	5.9
	Cuddalore	3.6	+ 2.6	5.6		Fort Cochin	6.4	+ 1.5	8.1
	Nagapattinam	4.8	+ 3.7	8.2		Pattambi*	5.1	+ 1.9	5.2
	Aduturai*	4.3	+ 3.3	5.8		Kozhikode	6.9	+ 2.0	7.9
Central	Pattukottai*	2.7	— 0.1	5.9	Hills	Taliparamba*	1.3	— 1.1	1.8
	Salem	2.8	+ 0.9	4.3		Wynaad*	5.8	+ 0.8	9.3
	Coimbatore (A. M. O.)*	2.9	+ 1.0	3.3		Nileshwar*	2.8	+ 0.1	3.0
	Coimbatore	4.4	+ 2.8	4.9		Pilicode*	2.8	— 0.3	2.8
	Tiruchirappalli	4.1	+ 1.7	5.0		Mangalore	0.9	— 1.0	0.9
						Kankanady*	1.2	— 0.8	1.2
						Kodaikanal	14.0	+ 9.2	18.3
						Coonoor*	5.2	— 0.9	12.1
						Ootacamund*	5.5	+ 0.7	7.4
						Nanjanad*	3.9	— 1.2	5.6

Note:— * Meteorological Stations of the Madras Agric. Dept.

The month began with thundershowers at a few places in interior Tamilnad. The weather was practically dry in the succeeding five days. Again, on 7—4—1955 localised thundershowers were received in south Tamilnad. Weather in the subsequent six days was characterised by isolated light thundershowers in some part or other of Tamilnad and also in Travancore-Cochin, Mysore and along the West Coast. The weather became dry on 14—4—1955 and remained so for three days with the exception of light showers in Palni hills.

The high grounds of interior Tamilnad received scattered showers on 17—4—1955. In the subsequent two days thundershowers were localised in south Tamilnad and Travancore-Cochin. On 20—4—1955 practically the entire Tamilnad and Travancore-Cochin received a sort of general rain and this type of widespread rain and cloudy weather persisted till 25—4—1955. The weather became dry on 26—4—1955. In the last four days of the month localised light showers were received in Travancore-Cochin and at a few places in Tamilnad and Malabar and South Kanara districts.

The major portion of the Madras State had good summer showers in April, 1955. Agriculturally these rains had good effect on the standing crops like groundnut, chola, ragi, etc. Further, they improved considerably the water position in the wells.

The note-worthy rainfalls and the zonal rainfall in inches are furnished hereunder:—

Note-worthy Rainfalls			Zonal Rainfall			
Date	Name of Place	Rain-fall	Name of Zone	Av. rainfall for April, 1955	Dep. from normal	Remarks
10/4/55	Ootacamund	3.0	North	1.2	+ 0.3	Above normal
13/4/55	Kozhikode	4.0	East Coast	3.7	+ 2.4	Far above normal
13/4/55	Cochin	3.0				
20/4/55	Pamban	3.0	Central	3.6	+ 1.6	Above normal
20/4/55	Nagapattinam	3.0	South	5.2	+ 2.4	do.
21/4/55	Kodaikanal	5.0				
21/4/55	Cuddalore	2.5	West Coast	3.6	+ 0.1	Normal
23/4/55	Mathurai	2.0	Hills	7.2	+ 2.0	Above normal
25/4/55	Alleppey	3.0				

Agricultural Meteorology Section,
Lawley Road P. O.,
Coimbatore, 11—5—1955.

C. B. M. & M. V. J.

DEPARTMENTAL NOTIFICATIONS

Postings and Transfers

Name and Present Post	Posted as
Anantapadmanabha Pillai, Principal, Grama Sevak Centre, Bhavanisagar,	Spl. D. A. O., Crop Sampling, Tanjore.
Kalyana Sundaram, N. V., Spdt. A. R. S., Bhavanisagar,	D. A. O., Madurai.
Rayappa Pillai, M. On leave,	Supdt. A. R. S., Bhavanisagar.
Venkatakrishnan, G., On leave,	D. A. O., Salem.
Ahmad Bavappa, K. V., Asst. in Paddy, Aduturai,	Paddy Asst., Mangalore.

Name and Present Post	Posted as
Achutha Nair, E. P., P. A., Tellichery,	P. A., to D. A. O., Tellichery.
Annaswami, B., A. D., Srivaikuntam,	P. A., to D. A. O., Tirunelveli.
Balakrishna Alwa., P. P. A., Tellichery,	A. D., Kunhangod.
Balasubramaniam, M., A. D., Gudimangalam,	A. D., Peruvallappur.
Balasubramaniam, K. R., S. D. A., Tanjore,	A. D., Chingleput.
Govindan Nair, K. V., Instructor Agrl. Basic Training, Taliparamba,	A. D., Cananore.
James, K. I., Cotton Asst., Coimbatore,	Cotton Asst., Pattambi.
Kannan Nambiar, P., A. D., Cananore,	A. D., Badagara.
Kalyana Raman, A. V., Ex. Officer, Tiruvellore,	A. D., Namakkal.
Navaneethakrishnan, T. V., P. P. A., Tanjore,	P. P. A., Pattukottai.
Nagarajan, V., A. D., Conjeevaram,	A. D., Tirumani.
Oblichetty, T. V., Sugarcane Asst., Gudiyattam,	Cane Asst., Palur.
Perumal, K. P., P. A., Tirunelveli,	P. P. A., Madurai.
Ramachandran, K. V., A. D., Badagara,	Instructor, Agrl. Basic Training, Taliparamba.
Ratnasabapathy, A. D., Pattukottai,	A. D., Varagoor.
Sivaraman, S. S., Spl., A. D., Coimbatore,	P. P. A., Tanjore.
Sundaresan, K. R., (On leave)	Sugarcane Asst., Gudiyattam.
Sethumadhavan, K., Spl. A. D., Palghat,	Spl. A. D., Laccadive and Amindivi, Islands.
Samu Iyer, P. V., Spl., A. D., Nillakottai,	A. D., Conjeevaram.
Thanickachalam, T. K., A. D., Tirukoilur,	A. D., Cuddalore.
Venugopal, K., P. P. A., Pattukottai,	Spl. A. D., Sugarcane, Coimbatore.
Vaidyanathan, S., Sugarcane Asst., Gudiyattam,	Cane Asst., Palur.
Vijayaraghavan, A. P., A. D., Taliparamba,	P. P. A., Tellichery.
Venkatachalam, T., A. D., Peruvallappur,	A. D., Gudimangalam.



Review of Market Conditions for Commercial Crops in the Areas of Market Committees (April, 1955)

I. Cotton: (In this Section Candy = 784 lb., Bale = 392 lb., Pothie = 280 lb.) The lint market at Tirupur was active this month with brisk arrivals and transactions. On 26-3-1955 there was a market stock of 4,845 candies cambodia and 1,221 candies Karunganni lint at Tirupur. Arrivals upto 30-4-1955 amounted to 19,668 (Cambodia 16,867, Karunganni 2,801) candies as against 5,023 candies in the previous month (Cambodia 4,570; Karunganni 453). The arrivals for April included 10,750 (Cambodia 8,724; Karunganni 2,026) candies of lint locally ginned at Tirupur from Kapas assembled there and 1,060 bales imported from other areas. Disposals of cotton for the same period were 16,962 candies (cambodia 14,569; Karunganni 2,393) including 2,627 bales despatched to places outside Coimbatore district. The month end stocks were 11,557 (cambodia 9,902; Karunganni 1,755) candies.

In the kapas market at Tirupur there was an opening stock of 25,615 (Cambodia 22,795; Karunganni 2,820) pothies. Fresh arrivals amounted to 33,616 pothies from other centres. Disposals, including stock issued for ginning of Tirupur amounted to 22,384 pothies (Cambodia 20,470; Karunganni 1,914) leaving at the end of April, 55 a stock of 36,847 pothies (Cambodia 30,942; Karunganni 5,905).

The flow of kapas into the market at Koilpati was in full swing with receipts upto 13,232 pothies. Local mills were active buyers in the market.

In the three markets of Virudhunagar, Rajapalayam and Sattur together there were 2,920 pothies of Karunganni Kapas at the commencement of the month; 32,216 pothies (Karunganni 31,120 pothies;

Cambodia 1,096 pothies) of kapas were received and 31,896 pothies (Cambodia alone 1,016 pothies) were sold leaving a month end stock of 3,240 pothies (Cambodia alone 80 pothies) Kapas.

Prices of Cambodia lint at Tirupur opened at Rs. 880/- per candy and after a decline to Rs. 860/- on 23-4-1955. At Virudhunagar cambodia lint maintained a steady price of Rs. 720/- for the best quality and Rs. 696/- for the poorer quality. The price of cambodia kapas started at Rs. 107/- per pothi at Tirupur and rose steadily to Rs. 110/- by the middle of this month to close stronger at Rs. 112/- at the end. At Virudhunagar the Kapas also maintained a steady tone between Rs. 70-11-0 to Rs. 84-6-0 according to quality throughout the month. Madras Uganda lint at Virudhunagar marked a slight decline in prices from Rs. 1,100/- to Rs. 1,050 per candy between the commencement and end of the month.

Prices for Karunganni lint at Tirupur after being steady at Rs. 711/- per candy till the middle of the month declined slightly to Rs. 701/- on the last day of the month. At Virudhunagar the price for the first quality Karunganni lint fluctuated between Rs. 656/- to Rs. 691/- with a steadily increasing under tone. The top prices as between different qualities ranged between Rs. 616/- and Rs. 691/-. The lint market for karunganni at Koilpatti was in a declining trend from Rs. 680/- down to Rs. 660/- for the I quality and Rs. 650/- to Rs. 620/- for the II quality. 1.7 the prices for karunganni kapas were oscillating within narrow margins between Rs. 80/- to Rs. 83/- per pothi at Tirupur and Rs. 74/- to Rs. 76/- for the best qualities at Virudhunagar. At Koilpatti however, a steadily gaining trend from Rs. 74-12-0 upto Rs. 81-8-0 for the best quality was registered.

The Market for cotton seed (Karunganni) at Koilpatti was steadily declining from Rs. 21/- per pothie down to Rs. 20/- at the close of the month after a steadiness at Rs. 20-8-0 during the middle of the month for two weeks. Karunganni seeds at Virudhunagar were steady at Rs. 20/- upto the middle after a spurt to Rs. 21-2-0 in the third week came down to Rs. 18-11-0 towards the end of the month. The price of Cambodia seeds however ruled steady at Rs. 16-10-0 per pothie throughout the month.

Prospects of good flush are held out at all centres.

II. Groundnut: In this Section candy = 531 lb. Bag = 80 lb.)

Arrivals of groundnut kernel in the eight regulated markets of South Arcot were declining. The total quantity accounted for was 1,551 tons of which Vridhachalam alone accounted for 509 tons closely followed by 468 tons at Tindivanam and 301 tons at Tirukoilur. About 350 tons were received at Tiruvannamalai in North Arcot District while arrivals in the other markets were trivial.

The average of prices for the kernels for the whole month as between the different markets in South Arcot ranged from Rs. 84-8-0 per candy at Villupuram upto Rs. 93-3-0 at Vridhachalam. A steady tone was maintained from week to week except for a little sagging in the third week. The kernels market in the centres of North Arcot were featureless with buyers luke-warm and overseas indications lacking in buoyancy. In this district large quantities are also reported to be held back by the growers. The prices were steady between the levels of Rs. 85/- to 94/- per candy from week to week. The price of pods indicated a slight decline from the range of Rs. 9/- to Rs. 11/- at the commencement down to Rs. 8-8-0 to Rs. 9/- per bag at the end of the month, the decline setting in during the third week. The Virudhunagar prices for kernels were steady between Rs. 98 to Rs. 105/- per candy with but a slightly firm tone at the higher levels in the second and third week.

III. **Gingelly:** (Bag in this section = 2 maunds each of 82 2/7 lb). The arrivals of gingelly in five regulated markets of South Arcot were also in a declining trend. The total quantity accounted for was 1338 bags of which the share of Vridhachalam alone was 1197 bags. Prices ruled easy between Rs. 35/- and Rs. 37-5-0 per gag — the top price being accounted for by Vridhachalam the biggest gingelly market in South Arcot. At this market the prices gained by nine annas per bag to Rs. 38/- in the second week declined by 4 annas in the third week and registered a further sharp decline to Rs. 36-2-0 in the last week.

IV. **Coconut:** (Candy in this Section = 700 lb and Bag = 100 lb). Four markets in Malabar had an opening stock of 5.7 million nuts and 6.5 million nuts were received in the course of the month. Disposals out of these amounted to 7.5 million leaving a closing stock of 4.7 million nuts. Out of the disposals 7.2 million nuts were despatched to other states and districts within the State. Arrivals were heavy and there was good offtake by Bombay. Prices ruled steady between Rs. 105/- and Rs. 138/- per 1,000 nuts in the Malabar markets and between Rs. 135/- to Rs. 160/- for the raw nuts and Rs. 160/- and Rs. 190/- for the dry nuts at Mangalore.

In the copra markets of Kozhikode and Badagara the opening stocks for the month were 2,615 candies. Arrivals were heavy being 5,546 candies. Demand from millers was good. The total disposals amounted to 4,927 candies of which 3582 candies were despatched to other centres outside Malabar. The month end stocks were 3,234 candies. The prices of copra maintained a steady tone. The fluctuations as between the different varieties and from market to market are shown below:—

Variety	Rupees per candy	
	Max.	Min.
Office	282	262
Edible	295	285
Rajapur	430	425
Madras	400	370

At Mangalore the prices revealed a slight gaining trend with fluctuations remaining between Rs. 265/- and Rs. 300/- per candy.

V. **Arecanuts:** The supari stock at Mangalore opened with 1,0628 cwt. and 25,500 cwt. were added to it from the currant arrivals. Disposals and exports took away 25,777 cwt. leaving 10,351 cwt. as the closing stock for the month. The price of supari marked a slight downward trend during the first half of the month but assumed firmness later with good demand from Bombay. The range in prices for the different grades are given below :—

Mangalore Supari	...	Rs. 135/- to Rs. 170/-
Malabar Supari	...	Rs. 125/- to Rs. 150/-
Koka	...	Rs. 90/- to Rs. 115/-

Sliced arecanuts (choor) at Kozhikode and Ponnani Markets of Malabar held in stock at the commencement of the month were 643 bags (each 100 lb). At Ponnani alone 220 bags were received. In both the markets together 208 bags were sold of which 158 bags were despatched to other centres outside Malabar. The stock held at the end of the month were 655 bags. The prices ranged from Rs. 170/- to Rs. 185/- per cwt.

VI. **Tobacco:** Tobacco stocks in Coimbatore district were 7,947 candies (each 500 lb.) of chewing types and 1,402 candies of Cheroot tobacco. Out of the former 1,346 candies and 804 candies out of the latter were despatched outside the district, chiefly to Pudukottai, Malabar (Palghat) Travancore-Cochin State (Quilon) and Ramanathapuram. Prices remained steady at the levels as in the previous month and the ranges are indicated below —

Variety	Per candy of 500 lb.		
	I grade	II grade	III grade
1. <i>Chewing Tobacco Sub cured :</i>			
(a) Meenampalayam	... 450 to 500	330 to 450	220 to 280
(b) Other varieties	... 400 to 425	250 to 300	175 to 225
2. <i>Cheroot varieties :</i>			
Sun cured (grown in Erode and Bhavani Taluks)	... 200 to 240	140 to 180	100 to 120
3. <i>Chewing varieties :</i>			
Pit cured (grown in Palladam and Sullur areas)	... 200 to 220	120 to 150	80 to 95

Activities of the Market Committees During the Month of April, 1955

Of the Seven Market Committees in the State five in the districts of North Arcot, South Arcot, Coimbatore, Malabar and South Kanara were actively functioning. The activities of the Committees in the districts of Ramanathapuram and Tirunelveli continued to be restrained as per the injunction order of the High Court.

The following progress was made by the Market Committees during the month in the issue of licences under Section 5 of the Madras Commercial Crop Markets Act.

Commodities	Sec. 5 (1)		Sec. 5 (3)		Weighmen		Broker	
	A	B	A	B	A	B	A	B
North Arcot Market Committee	—	542	—	262	—	268	—	7
South Arcot Market Committee	159	1,005	179	1,171	41	443	1	3
Tirunelveli Market Committee	—	36	—	15	—	17	—	—
South Kanara Market Committee	46	180	40	153	15	33	—	38
Malabar Market Committee	—	86	180	—	132	132	—	9
A — During the month.					B — Upto the end of the month.			

The total of transactions in commercial crops in the thirteen regulated markets in the districts of South Arcot, North Arcot and Coimbatore during April, 1955 is extracted below :—

Crop	Quantity	No. of Regulated Markets
Groundnut kernels	... 2,045 tons	9
Gingelly seeds	... 1,769 tons	5
Cotton lint	... 3,076 candies	1
Cotton kapas	... 17,444 pothies	1
(Candy = 784 lb. Pothi = 280 lb.)		

II. **Meetings:** The Malabar Market Committee held an urgent Meeting on 25—4—1955, while there was no meeting of the South Arcot Market Committee during the month. The other committees are functioning under the respective District Collectors under Section 6-A of the Madras Commercial Crop Markets Act.

III. Special features: The Chief Minister of Madras paid a visit to the Malabar Market Committee at Kozhikode during his visit to Malabar on 25-4-1955 when he was presented with an address of welcome by Chairman on behalf of the Committee. The Chief Minister felt glad that the Committee was functioning smoothly without any party rivalries and that it is working for the benefit of the Growers in securing a fair price for their produce. He promised to consider a few points raised in the address presented and see what is possible is done.

IV. Quality appraisal: The South Arcot Market Committee continued its work on the quality appraisal of the Groundnut kernels marketed in five of its Regulated Markets on the basis of random sampling. A total of 538 samples of groundnut kernels was drawn from the arrivals into five Regulated Markets from 3,965 lots comprising 1,545 tons and were analysed.

CROP AND TRADE REPORTS

Tobacco-First Forecast Report-1954-'55-Madras State: The area sown with tobacco upto 25th December, 1954 is estimated at 42,000 acres. Compared with the area of 41,100 acres estimated for the corresponding period of last year, it shows an increase of 4.7 per cent. Compared with the average area of 38,500 acres for the five years ending with 1953-54, this is an increase of 9.1 per cent. The increase in area this year is due to adequate rains at the time of ploughing. The area estimated is the same as that of last year in the districts of North Arcot, Tiruchirapalli, Tanjore, Madurai and Tirunelveli. An increase in area is estimated in the districts of South Arcot, Salem, Coimbatore, Ramanathapuram and South Kanara and the area is little or negligible in the other districts of the State. The condition of the crops is reported to be generally satisfactory in all the districts of the State. The yield per acre is expected to be normal in all the districts of the State except in North Arcot, Madurai and Tirunelveli where it is too early to report on the yield of the crop. The wholesale price of tobacco per maund of 82 2/7 lbs. or 3,200 tolas as reported from important market centers on 8-1-1955 was Rs. 39-7-0 in Erode compared with the price which prevailed on 9-1-1954 this price reveals an increase of 0.2 per cent.

Paddy-Third or Final Forecast Report 1954-55-Madras State: The total area sown with paddy in 1954-55 in the Madras State is estimated at 64,28,000 acres. Compared with the area of 64,25,000 acres according to the provisional figures as per the Season and Crop Report for the previous year, the present estimate reveals a slight increase of about 0.03 per cent. As compared with the

average area of 58,67,000 acres calculated for the five years ended 1953-54, the current year's estimate shows an increase of 9.6 per cent. Attacks by pests have been reported in parts of Chingleput, South Arcot, North Arcot, Tiruchirapalli, Tanjore, Tirunelveli and Ramanathapuram districts. Heavy losses were averted by timely preventive measures taken by the Agricultural Department. Rains in December '54 and in subsequent months also improved the condition of the crop affected by pests. The condition of the standing crop is reported to be generally fair except in parts of Coimbatore, Ramanathapuram, North Arcot and non-Periyar area of Madurai District.

The Seasonal Factor for the State as a whole works out to 97 per cent of the normal for the first crop, 94 per cent for the second and third crops, as against 94 per cent, 93 per cent and 92 per cent respectively estimated for the previous year. On this basis, the total yield of rice is estimated at 30,96,000 tons. Compared with the estimate of 30,67,000 tons for the previous year according to the provisional figures as per the Season and Crop Report, the present estimate shows an increase of 0.9 per cent. As compared with the average yield of 24,00,000 tons calculated for the five years ended 1953-54, the current year's estimate is an increase of 29.0 per cent. The wholesale price of Paddy II Sort, per standard maund of 82 2/7 lb. (equivalent to 3,200 tolas) as reported from some important centres for the week ending 12-2-'55 was Rs. 7-14-0 at Cuddalore, Rs. 8-4-0 at Vellore, Rs. 8-8-0 at Tanjore, Rs. 9-3-0 at Madurai and Rs. 9-6-0 at Tiruchirapalli compared with the prices which prevailed during the corresponding period of the previous year, the current prices reveal a fall of 8.7 per cent at Tanjore, 9.3 per cent at Madurai, 14.3 per cent at Cuddalore, 28.3 per cent at Vellore and rise of 2.7 per cent at Tiruchirapalli.

Cholam (Jowar) 1954-'55-Second Forecast Report-Madras State: The area sown with Cholam (Jowar) or Sorgham Vulgare in the Madras State upto the end of December, 1954 is estimated at 14,93,300 acres. Compared with the estimated area of 14,70,100 acres for the corresponding period of the previous year, this is an increase of 1.6 per cent. The early sown crop has been harvested in the districts of Chingleput, South Arcot, Madurai and Ramanathapuram. The yield per acre is expected to be normal in Tanjore district and slightly below normal in the other districts of the State except South Kanara where the crop is not grown. The condition factor for the State as a whole works out to 96 per cent of the normal as against 97 per cent in the previous year. On this basis, the total yield works out to 4,82,000 tons of unhusked grain or 4,09,700 tons in terms of cleaned grain as against 4,80,800 tons of unhusked grain or 4,08,700 tons in terms of cleaned grain estimated for the corresponding period of the previous year, representing an increase of 0.2 per cent. The average wholesale price of Cholam per standard maund of 82 2/7 lb. (equivalent to 3,200 tolas) as reported from certain important market centres on 22-1-'55 was Rs. 9-14-0 at Tiruchirapalli, Rs. 9-5-0 at Tiruppur and Rs. 8-10-0 at Salem.

Pepper-Third and Final Forecast Report-1954-'55-Madras State: The area under pepper in 1954-55 in the districts of Malabar, South Kanara and the Nilgiris is estimated at 1,19,650 acres (1,02,000 acres in Malabar district, 17,500 acres in South Kanara District and 150 acres in the Nilgiris District). Compared with the actual area of 1,18,830 acres (1,01,490 acres in Malabar District, 17,190 acres in South Kanara District and 150 acres in the Nilgiris District) for the previous year, the present estimate shows an increase of 0.7 per cent. Compared with the average area of 1,10,160 acres (94,890 acres in Malabar District, 15,140 acres in South Kanara District and 130 acres in the Nilgiris District) calculated for the previous five years ending 1953-54, the present estimate shows an increase of 8.8

percent. The condition of the crop is reported to be below the normal in the districts of Malabar and South Kanara. The seasonal factor is estimated at 90% of the normal for the district of Malabar, 75% of the normal for the district of South Kanara; and normal for the district of the Nilgiris, as against 90% of the normal for the districts of Malabar and South Kanara and 85% of the normal for the district of the Nilgiris estimated for the previous year. On this basis, the yield is estimated at 8,870 tons of black pepper (7,750 tons in Malabar District, 1,110 tons in South Kanara District and 10 tons in the Nilgiris District). Compared with the yield of 9,030 tons of black pepper (7,710 tons in Malabar District, 1,310 tons in South Kanara District and 10 tons in the Nilgiris District) estimated for previous year, the present estimate shows a decrease of 1.8 percent. Compared with the average yield of 8,190 tons (7,020 tons in Malabar District, 1,180 tons in South Kanara District and 10 tons in the Nilgiris District) calculated for the previous five years ending with 1953-'54, the current year's estimate reveals an increase of 8.3 percent.

The wholesale price of black pepper per standard maund of 82-2/7 lb. or 3,200 tolas as reported from important market centres on 12-3-1955 was Rs. 122-7-0 in Cochin, Rs. 121-4-0 in Mangalore, Rs. 118-7-6 in Tellicherry for Wynaad and Vatakkan varieties, Rs. 112-4-0 for Nadan variety, Rs. 117-8-0 in Kozhikode or Wynaad variety, Rs. 103-13-0 for Vatakkan and Nadan varieties. Compared with the prices which prevailed in the corresponding period of last year i. e. on 13-3-54, these prices reveal a decrease of 64.3 percent for Vatakkan and Nadan varieties in Kozhikode 62.4 percent for Wynaad variety in Kozhikode, 45.0 percent Mangalore and 41.2 percent in Cochin.

Mesta-Madras State-1954-'55-Supplementary Forecast Report: The area sown with mesta (*Hibiscus Cannabicus*) in the Madras State during 1954-'55 is estimated at 1,310 acres. Compared with the area of 1,470 acres estimated for 1953-'54 this is a decrease of 10.9. The crop is mainly grown in the district of Coimbatore. An increase in area is estimated in the districts of North Arcot, Tiruchirappalli, Madurai and Tirunelveli and a decrease in the district of Coimbatore. The area in the current year is the same as that of last year in Tanjore.

The yield per acre is estimated to be below normal in the districts of North Arcot, Madurai and Tirunelveli and normal in other districts. The seasonal factor for the State works out to 94 per cent of the normal which is the same as that for the previous year. On this basis the total yield in terms of fibre works out to 2,420 bales of 400 lbs. as against 2,740 bales estimated for the previous year representing a fall of 11.7 per cent.

Announcement



THE RAMASASTRULU MUNAGALA PRIZE, 1955

1. The prize will be awarded during the College Day and Conference in 1955.
2. The prize will be in the form of a medal and will be awarded to the member of the Union who submits the best account of research or enquiry, carried out by him on any agricultural subject.
3. The subject matter shall not exceed in length, twelve foolscap pages, typewritten on one side.
4. Intending competitors should notify the Secretary of the Madras Agricultural Students' Union with a covering letter giving the full name and address of the competitor. The author's name should not be shown on the paper, but should be entered as a *nom-de-plume*.
5. Four typewritten copies of the paper should be sent.
6. The name of the successful competitor will be announced and the prize awarded at the time of the College Day and Conference.
7. Paper or papers accepted will become the property of the Union, and the Union reserves to itself the right to publish all or any of the papers.
8. All references in the papers to published books, reports or papers by other workers must be acknowledged.
9. The last date for receipt of papers is 1st June 1955.
10. Further particulars may be obtained from the Secretary, Madras Agricultural Students' Union, Lawley Road P. O., Coimbatore.

P. Madhava Menon,
Secretary.



02.
Jm 21, N13

N52-42-1

