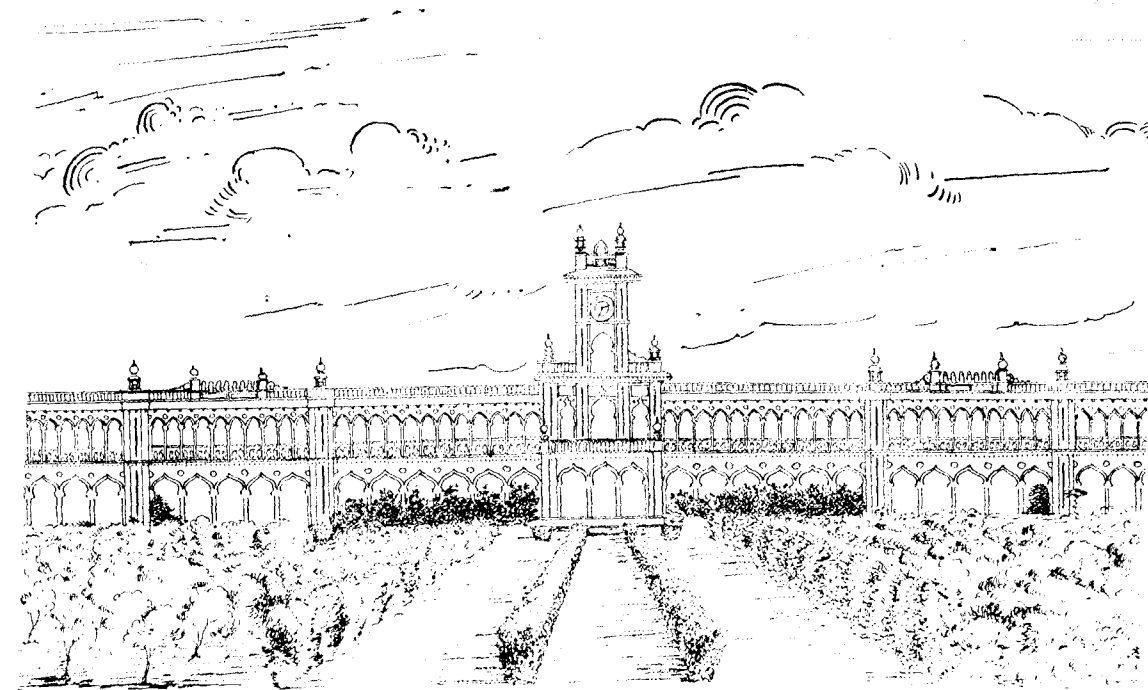


121
FEBRUARY 1962

THE MADRAS AGRICULTURAL JOURNAL



AGRICULTURAL COLLEGE AND
RESEARCH INSTITUTE
COIMBATORE
INDIA

Vol. 49 — No. 2

The Madras Agricultural Journal

Published by

THE MADRAS AGRICULTURAL STUDENTS' UNION

(ESTABLISHED: 1911)

AGRICULTURAL COLLEGE AND RESEARCH INSTITUTE

COIMBATORE, S. INDIA.

Vol. 49

FEBRUARY 1962

No. 2

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CONTENTS

	PAGE
Editorial	45
Original Article:	
1. Commercial Utilisation of Hybrid Vigour in 'Cumbu' (<i>Pennisetum typhoides</i> S. & H.) in Madras State	47
— R. Veeraswamy & V. Srinivasan	
2. Preparation of Cotton for the Market	50
— S. Kamalanathan & R. Sambandam	
Research Notes	55
Agricultural Jottings	58
Market Committees' Chronicle	62
Weather Review	67



**following
in his father's
footsteps?**

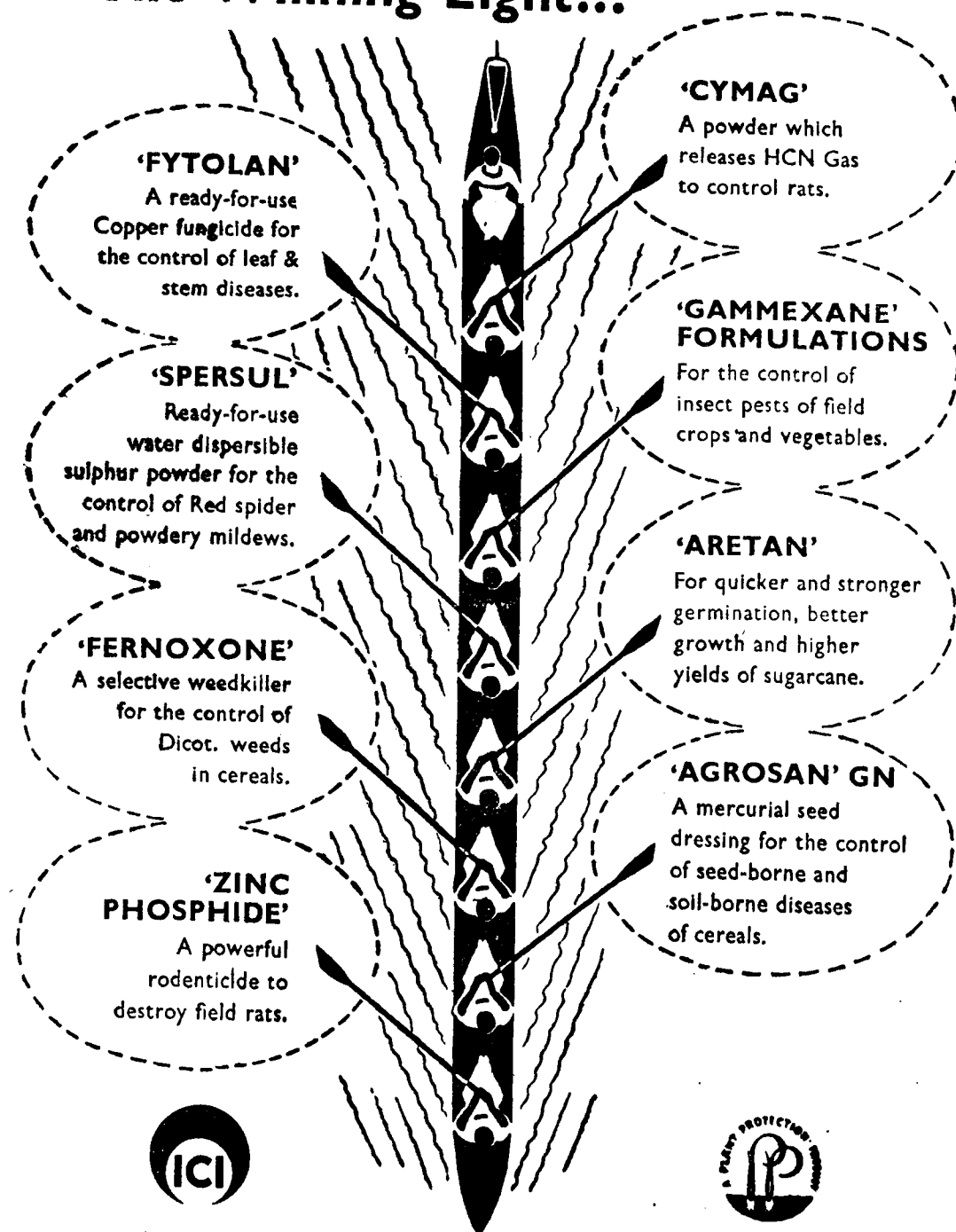
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The Madras Agricultural Journal

Vol. 49

February 1962

No. 2

Editorial

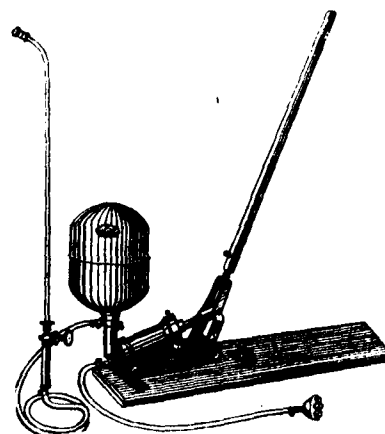
General Elections : The third general elections to be held in our country are over and the results are known for the majority of the constituencies. When it is borne in mind that the elections were conducted over more than a million square miles and that over 100 million voters were involved, the smoothness and efficiency with which the elections proceeded are a real tribute to the people who participated and the democratic ideals involved. Hectic 'electioneering' has been going on for a long time. Even illiterate people have been instructed by the various contending parties in the revised method of voting, which represents a marked departure from the ones employed on previous occasions. People have come from far and near and exercised a good deal of patience, standing in long queues to exercise their franchise. The polling personnel have acquitted themselves creditably in the face of inherent hardships and great pressure of work. Considering the magnitude of the whole effort, it is gratifying to note that the whole process was smooth and efficiently managed and was completed within the short period of about 10 days.

One aspect which has emerged clearly from the recent elections is the franchise-consciousness of the man-in-the-street. As against about 45 and 51 per cent polled in the last two elections, respectively, the per cent polled in the present elections has been more than 60 per cent in a number of places and more than even 80 per cent in a few instances. The striking increase in the per cent polled is highly suggestive of a marked improvement in the concern that the ordinary citizen has now come to entertain for the administration of the country.

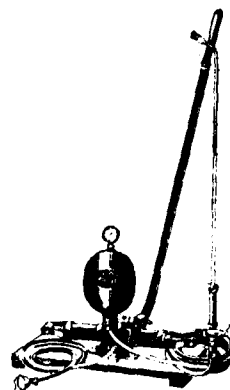
It is probably safe to assume that a considerable proportion of the increase in the per cent polled has been achieved through organised campaigning by the parties involved. The intriguing pattern of conviction emerging out of argument and counter-argument has probably caught the imagination of the public and persuaded even otherwise luke-warm citizens to contribute their individual mite to taking the final decision regarding the country's government.

SPRAYERS AND DUSTERS

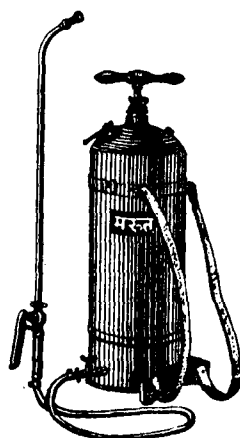
(UNDER RATE CONTRACT AND APPROVED LIST OF
THE DIRECTOR OF AGRICULTURE, CHEPAUK, MADRAS-5)



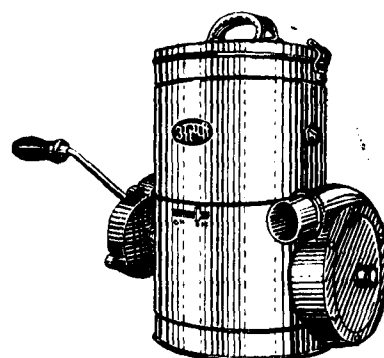
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As people interested in spreading knowledge of improved agriculture among the populace, we have a few lessons to take from the elections. It has been possible to move a heterogeneous and unwieldy mass of humanity to enthusiastic action in an important matter, through public addresses, personal discussions and house-to-house visits. The response from the public has been quite appreciable. It should be possible to get a similar response from the public to the improved agricultural methods we advocate, by adopting effective procedures and taking a concerted and coordinated action.

The appreciable improvement in the political consciousness of the common citizen augurs well, because there is the possibility that he approach problems of national importance, like increased food production, with a similar awareness. The common politician seldom, if ever, goes about in a scientific and systematic manner to approach his clientele. But with the years of rich experience that the Agricultural Department has accumulated and the tried out techniques of publicity and propaganda that are available to our Extension Wing, it will be possible, in a greater measure, to stimulate the agriculturist-citizen to increased effort towards better and greater food production.

Commercial Utilisation of Hybrid Vigour in *Cumbu* (*Pennisetum typhoides* S. & H.) in Madras State*

by
R. VEERASWAMY¹ and V. SRINIVASAN²

Synopsis: A special project implemented in Madras State during 1959—'60 and 1960—'61 for the maintenance and multiplication of selected homozygous parental stocks possessing maximum combining potentiality and the commercial production of hybrid seeds resulted in the production and distribution of one and a half lakhs of pounds of quality hybrid seeds of *cumbu*. This paved way for an additional production of 2,108 tons of food grains valued at 7.5 lakhs of rupees.

Introduction: The utilisation of heterosis or hybrid vigour, on account of its pronounced beneficial effects on several economic characters, notably on the productivity of crop plants, has been recognised in recent years as an efficient technique in the methods of crop improvement. The phenomenal success of hybrid maize in America stimulated elaborate work on similar lines on a variety of crops in this country and elsewhere. In India, intensive investigations, both fundamental and applied, carried out at the Millets Breeding Station, Coimbatore have resulted in notable success in the exploitation of hybrid vigour in *cumbu* as a practical proposition and three hybrid strains viz. *cumbu* X. 1, X. 2 and X. 3 recording 30 per cent increase in yields over the local varieties were released for large scale cultivation (Krishna Rao *et. al.* 1951). These hybrids, by virtue of their outstanding performance, became increasingly popular and, as might be expected, there was an unprecedented sharp rise in the demand for hybrid seeds.

Hybrids retain vigour only for one season and as such to obtain maximum benefit, F₁ seeds alone are to be used. Hence, there is an imperative need for the production and distribution of hybrid seeds for every sowing season. A pioneer project of work financed by the Government of Madras for the maintenance of selected parental Germplasm materials by a process of progressive inbreeding and utilising them for large scale production of hybrid seeds of *cumbu* X.1, X.2 and X.3 came into operation in November, 1958. The achievements of the scheme are summarised in this paper.

Materials and Methods: The special work was undertaken during 1959—'60 on 40 acres at the Agricultural Research Station, Bhavanisagar and 10 acres in each at the State Seed Farms, Sathyamangalam, Kannam-palayam and Veerakeralam in Coimbatore district. In 1960—'61, besides

* Received for publication on 2—6—1961. ¹ Assistant Millets Specialist, Sathyamangalam. ² Assistant in Millets, Sathyamangalam.

the above, a total area of 33 acres at the Central Farm, Coimbatore, the State Seed Farms at Mulluvadi, Papparapatty and Ayyalur and 110 acres of Seed Farms organised on the holdings of enterprising cultivators at 17 centres in Coimbatore district were brought under the scheme as supplementary planks for augmenting the production of hybrid seeds.

Production of inbred seeds of parents: The maintenance and multiplication of selected homozygous parental stocks possessing maximum combining potentials, by a process of meticulous inbreeding, constitutes the bed-rock of this project. The parental cultures of the hybrids were multiplied by a system of selfing in ear-to-row plots, then in one cent nucleus plots and finally in larger isolated blocks. A quantity of 5,250 pounds and 4,860 pounds of homozygous parental seeds were produced during 1959-'60 and 1960-'61, respectively.

Production of hybrid seeds: The commercial production of hybrid seeds in *cumbu* is rendered feasible due to high natural cross-pollination of 80 percent which is brought about by the protogynous floral mechanism in which the stigmas mature three days earlier than the anthers of the same flower. Investigations carried out to evolve a practical technique for the large scale production of hybrid seeds in *cumbu* have proved that mixing and sowing the parents in equal proportion and harvesting the resultant bulk constitute the cheapest and yet the most efficient method open to the plant breeder dealing with this crop (Krishna Rao *et. al.* 1949). The hybrid seeds thus produced contain a certain percentage of selfed or sibmated seeds of the parental types but when grown under field conditions, the weaker parental seedlings get suppressed by the more vigorous and markedly superior seedlings of hybrid progeny due to natural interplant competition. At the time of thinning also, the weaker parental plants get removed leaving the more vigorous hybrids in the field and the population of hybrids thus left out is sufficient to provide a normal stand. Results of trials have confirmed that the yields obtained from such commercially produced hybrids are almost equal to the yields of the hand-pollinated hybrid seeds (Subramaniam and Ponnaiya 1959) thus testifying to the efficacy and reliability of the method adopted. This hybridisation technique involving the planting together of chosen parents in an isolated location and allowing them for natural crossing was adopted with great success in the scheme programme. Under the purview of the scheme, a quantity of 76,644 pounds and 80,769 pounds of hybrid seeds of *cumbu* were produced and distributed during 1959-'60 and 1960-'61 respectively and without exception the performance of the seeds was praiseworthy. In this context, it is to be mentioned that the seeds were sold at local market rates only, with no

extra cost to the farmer. The production achievement of hybrid seeds in both the years has exceeded the annual target of 63,000 pounds fixed for the scheme.

Practical Utility: The average seed rate of *cumbu* being 10 pounds per acre, the total quantity of 1,57,413 pounds of hybrid seeds produced and distributed has covered about 15,740 acres resulting in an additional production of 2,108 tons of food grains, the money value of the extra yield being 7.5 lakhs of rupees estimated at a modest rate of 300 pounds of extra yield or Rs. 48 per acre.

Conclusion: It is to be pointed out that in other advanced countries, production of hybrid seeds for agricultural purposes has now become a profitable commercial proposition based on an efficient system constituted by the federal scientific institutions, crop improvement associations and registered growers. In our country, until such time that reliable seedmen or co-operative units come forward to take up the production and distribution of hybrid seeds the laudable scientific results achieved will remain dormant without being transmitted to the cultivators, thereby delaying progress indefinitely. In the light of the practical achievements of the present scheme, it is suggested that the bottlenecks in large scale hybrid seed production may be surmounted and the pipelines of distribution cleared up and vitalised by the institution of similar projects, at least one for each major zone. It need hardly be emphasised that such a step would go a long way in quickly improving the general standard of production in *cumbu* and serve as a reliable and practical approach to the problems of increasing food production.

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Preparation of Cotton for the Market*

by

S. KAMALANATHAN¹ and R. SAMBANDAM².

Synopsis: The various stages involved in the preparation of cotton to market in Coimbatore district and the proportion of lint, seed and other products obtained at each stage are explained.

Introduction: Cotton is grown for its lint. The seed forms by-product and is used for feeding cattle, extraction of oil etc., after reserving a portion for sowing.

The cotton crop yields *kapas* i.e., seed cotton which is gathered, stored and marketed. In normal trade channels, *kapas* is purchased from growers and processed in ginning factories. The lint obtained is consumed by the textile industry, while the seed is sold for sowing or for feeding cattle.

The object of the paper is to explain the various stages and the products obtained at each stage in the processing of *kapas* on a commercial scale, with suggestions for improving the quality and output.

Methods and stages in processing of kapas: MCU.1 seed-farm *kapas* from Tirupur area is being procured every year by the Madras Agricultural Department, processed and the lint supplied to the Madras Jail Department. Similarly, K. 5 *kapas* from the seed-farm crop in Palladam and Udumalpet taluks of Coimbatore District is being procured, cleaned, ginned and lint supplied to the Madras Department of *Khadi* for supply to spinners. The good seeds obtained are procured and distributed by the Agricultural Department for sowing. The data on the quantities of lint, seed and by-products obtained in the processing of *kapas* procured were taken for five consecutive seasons. The details are furnished in Appendix I for MCU.1 and in Appendix II for K.5 cotton.

Preparation of cotton for marketing commences from the harvest in the field. The *kapas* as obtained from the field usually contain hard locks and stains, known otherwise as yellow pickings and foreign matter like broken bits of capsules, leaf-bits, small twigs and dirt etc. The hard locks and stains and also the foreign matter to the extent possible are hand-picked by labourers, to improve the quality of lint and seed. The proportion of yellow pickings constitutes, on an average, 5.40% in MCU. 1 and 2.84% in K.5.

The good *kapas*, thus realised is ginned in double roller gins. Waste lint, good lint and seed, are the products obtained. In the process of ginning, a portion of lint gets stuck up on the rollers and joints of the gin. This lint, which is usually oily and soiled, is gathered separately. Of the total *kapas* procured, the mean proportion of roller lint, oily lint or waste lint, as it is otherwise called, is 0.07% in MCU.1 and 0.09% in K.5; the mean out-turn of good lint is 33.59% in MCU.1 and 29.19% in K.5 and seed alone constitutes 58.65% in MCU.1 and 67.31% in K.5, on an average.

There is a negative difference in weight, between the weight of *kapas* procured and the sum total of weights of the end products obtained by ginning. This loss, known as "invisible loss" or "Wastage in processing" also varies. MCU.1 cotton suffers a mean loss of 2.29% while it is low in K.5 with a mean of 0.57%.

The seeds obtained by ginning contain good seeds, broken seeds, fuzzy seeds, muddy seeds and dirt. These are separated by sieving. The fuzzy seeds being bigger in size collect at the top of the sieve and are stored separately. All other seeds pass through the sieve. These are once again sieved with a smaller mesh. The cut seeds, nooks etc. are collected beneath the sieve. The seeds that are left over on the top of the sieve are of uniform quality and are gathered and bagged for purpose of sowing.

Out of the total quantity of seed-farm *kapas* procured for extracting good quality seeds for sowing purpose, only 55.10% of good seeds is thus realised in MCU.1 and 50.76% in K.5 cotton on an average i.e., for every *podhi* (280 lb.) of seed-farm *kapas* procured and processed in Coimbatore District, only 154 lb. of good quality seed is realised in MCU.1 and 142 lb. in K.5 cotton. The processes involved and the products obtained are furnished in table I.

In normal trade channels, the average outturn of good quality lint is 33.59% in MCU.1 and 29.19% in K.5. The remaining 66.41% in MCU.1 and 70.81% in K.5 form the by-products in cotton industry. The good quality lint is marketed to the mills for direct consumption. The yellow pickings and waste lint are sold away through the waste cotton merchants for spinning yarns of lower counts. The good seeds are sold away for sowing purpose and the other seeds for use as cattlefood.

The lint outturn or ginning percent is mainly a varietal character. It is influenced by seasonal conditions, moisture content, presence of impurities and the ginning machinery. The quality of seeds depends on factors like soil fertility, irrigation, seasonal conditions, damage due to

* Received for publication on 13-10-1960.

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² Gazetted Assistant to Cotton Certification Officer, Rajapalayam.

insect pests, rodents and diseases, method and stage of harvest, method and period of storage, the pre-cleaning treatment given, efficiency of labour and the ginning machinery. The invisible loss or wastage in processing varies according to variety of cotton, conditions of crop growth, seasonal factors, cleanliness and moisture content of *kapas* and efficiency of labour and machinery.

TABLE I

(Quantities are expressed as percent of the total *kapas* procured)

Stages and products	MCU. 1		K. 5	
	Mean of 5 seasons	Range	Mean of 5 seasons	Range
Total <i>kapas</i> procured ...	100	...	100	...
A. By cleaning :				
1. Stains and hard locks ... obtained	5.40	2.94 to 9.24	2.84	1.52 to 3.85
2. Good <i>kapas</i> realised ...	94.60	90.76 to 97.08	97.16	96.15 to 98.48
B. By ginning good <i>kapas</i> :				
1. Waste lint obtained ...	0.07	0.03 to 0.12	0.09	0.02 to 0.13
2. Good lint obtained ...	33.59	32.94 to 33.97	29.19	27.95 to 30.14
3. Seed obtained ...	58.65	56.76 to 60.24	67.31	66.39 to 69.15
4. Invisible loss ...	2.29	0.94 to 3.03	0.57	0.49 to 0.70
C. By sieving seeds :				
1. Good quality seeds ...	56.10	51.82 to 57.91	50.76	44.37 to 63.75
2. Other seeds obtained ...	3.55	1.64 to 4.96	16.55	4.38 to 22.02

APPENDIX I.

M. C. U. 1 Cotton.

A. Weight in pounds.

Season	Kapas procured	Total stains obtained	Good kapas obtained and ginned Col. (2) — (3)		Lint obtained		Seeds obtained			Total lint and seed obtained Col. (7) + (10)	Invisible loss. Col. (4) — (11)
			Good lint	Waste lint	Good lint	Waste lint	Good seeds	Others	Total seeds Col. (8) + (9)		
1	2	3	4	5	6	7	8	9	10	11	12
1952-'53	4,31,156	12,670	4,18,486	1,46,470	117	1,46,587	2,49,686	10,034	2,59,720	4,06,307	12,179
1953-'54	5,06,266	46,760	4,59,506	1,86,784	580	1,67,364	2,62,368	25,010	2,87,368	4,54,732	4,774
1954-'55	4,56,478	18,163	4,38,315	1,54,016	331	1,54,347	2,53,200	16,813	2,70,113	4,24,460	13,855
1955-'56	2,36,600	10,410	2,26,190	80,367	156	80,523	1,35,500	3,870	1,39,370	2,19,893	6,297
1956-'57	1,46,573	7,876	1,38,717	49,295	100	49,395	78,425	7,267	85,692	1,35,087	3,630

B. Expressed as percent of the total weight of kapas procured.

1952-'53	100	2.94	97.06	33.97	0.03	34.00	57.91	2.33	60.24	94.24	2.82
1953-'54	100	9.24	90.76	32.94	0.12	33.06	51.82	4.94	56.76	89.83	0.94
1954-'55	100	3.98	96.02	33.74	0.07	33.81	55.47	3.68	59.17	92.99	3.03
1955-'56	100	4.40	95.60	33.97	0.07	34.03	57.27	1.64	58.19	92.04	2.66
1956-'57	100	5.37	94.63	33.63	0.07	33.70	53.50	4.96	58.46	92.15	2.48
Mean of 5 seasons	100	5.40	94.60	33.59	0.07	33.66	55.10	3.55	58.65	92.31	2.29

APPENDIX II.

K. 5 Cotton.

A. Weight in pounds.

Season	Kapas procured	Total stains obtained	Good kapas obtained and ginned Col. (2) — (3)	Lint obtained		Total lint Col. (5) + (6)	Seeds obtained			Total lint and seed obtained Col. (7) + (10)	Invisible loss. Col. (4) — (11)
				Good lint	Waste lint		Good seeds	Others	Total seeds Col. (8) + (9)		
1	2	3	4	5	6	7	8	9	10	11	12
1952-'53	5,84,519	14,357	5,70,162	1,67,899	680	1,68,579	3,72,616	25,617	3,98,233	5,66,812	3,350
1953-'54	10,59,964	37,722	10,22,242	2,96,301	1,349	2,97,650	5,89,056	1,29,551	7,18,607	10,16,257	5,985
1954-'55	6,65,948	25,649	6,40,299	1,94,519	384	1,94,906	2,95,500	1,46,644	4,42,144	6,37,050	3,249
1955-'56	1,42,679	2,174	1,40,505	42,654	35	42,689	75,200	23,461	98,661	1,41,350	+ 845
1956-'57	15,39,015	33,633	15,05,372	4,63,923	1,162	4,65,085	6,94,150	3,35,426	10,29,576	14,94,661	10,711

B. Expressed as percent of the total weight of kapas procured.

1952-'53	100	2.46	97.54	28.72	0.12	28.84	63.75	4.38	68.13	96.97	0.57
1953-'54	100	3.56	94.44	27.95	0.13	28.08	55.57	12.22	67.80	95.88	0.56
1954-'55	100	3.85	96.15	29.21	0.06	29.27	44.37	22.02	66.39	95.66	0.49
1955-'56	100	1.52	98.48	29.20	0.02	29.92	52.71	16.44	69.15	99.07	+ 0.59
1956-'57	100	2.19	97.81	30.14	0.08	30.22	45.10	21.79	66.90	97.12	0.70
Mean of 5 seasons	100	2.84	96.16	29.19	0.09	29.28	50.76	16.55	67.31	96.59	0.57

Research Notes

Meiosis in *Pennisetum squamulatum* Fresen*

Young panicles of *Pennisetum squamulatum* Fresen were fixed in 1:3 acetic alcohol after pretreatment in 9:6:1 Carnoy's fluid and the fixed anthers squashed in propionocarmine to study the meiosis.

The meiosis in fifty pollen mother cells of *P. squamulatum* Fresen was studied. The following types of chromosome association were observed.

	Sexi-valents.	Quadri-valents.	Tri-valents.	Bi-valents.	Uni-valents.
Average frequency per cell	0.20	5.82	9.42	13.64	0.98
Range	0-1	1-9	0-4	5-25	0-5

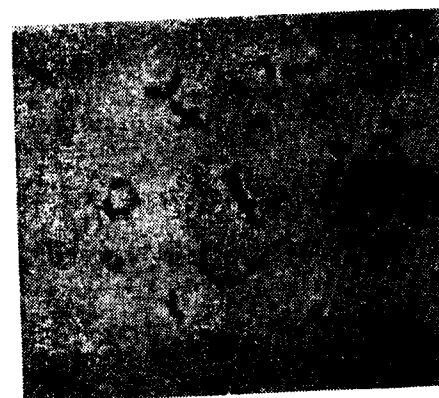


FIG. 1
 $^1\text{VI} + ^7\text{IV} + ^{10}\text{II}$

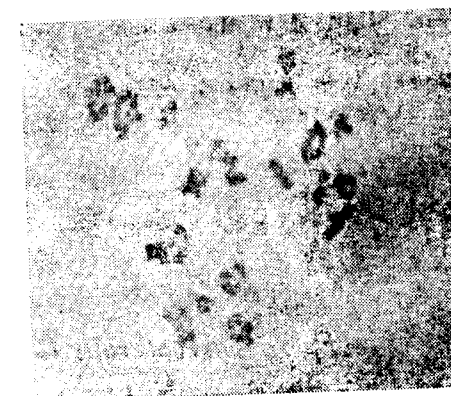


FIG. 2
 $^9\text{IV} + ^9\text{II}$

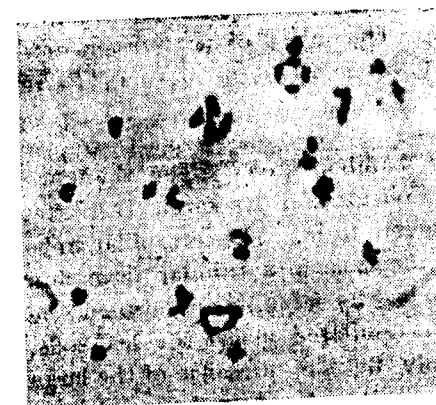


FIG. 3
 $^4\text{IV} + ^3\text{III} + ^{16}\text{II}$

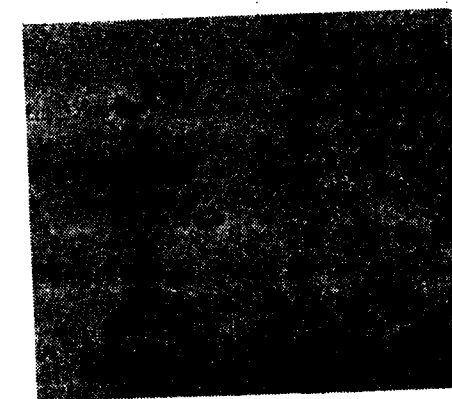


FIG. 4
 $^1\text{VI} + ^7\text{IV} + ^8\text{II} + ^4\text{I}$

* Received for publication on 8-12-1961.

Raman *et. al.* (1959) reported that this species possessed 54 chromosomes in its somatic cells and that, during meiosis in the pollen mother cells, only bivalents and quadrivalents were formed. A maximum of one quadrivalent per cell was recorded by them. Patil *et. al.* (1961) recorded the occurrence of quadrivalents, trivalents, bivalents and univalents. A maximum of eight quadrivalents per cell was recorded by them.

The present observation on nine quadrivalents in *P. squamulatum* Fresen. is therefore interesting.

Botany Section,
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S. KRISHNASWAMI.
G. THULASIDAS.

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Raman, V. S., P. Chandrasekharan & D. Krishnaswamy. 1959 *Curr. Sci.* **28**: 127.

Psara phoeopteralis Gn. (Lepidoptera - Pyralidae)

A new record on Bamboo *

Bamboo (*Dendrocalanus* sp.) is usually subject to the attack of a few insects such as the stem-boring beetle, *Stromatium barbatum* F., the chalcid shoot borer, *Eurytoma chrysothrix* W., the plant lice, *Oregama bambusae* B. and other minor pests in South India (Ramakrishna Ayyar 1940). The object of the present note is to record the occurrence for the first time of yet another insect, viz., *Psara phoeopteralis* Gn. on bamboo in Coimbatore.

The insect was first observed to infest the bamboo grown along the fence in the Orchard attached to the Agricultural College and Research Institute, Coimbatore during July and August in a rather severe form. The caterpillar webs together tender leaves of the terminal portion of the shoot in a tubular form and remains inside feeding on the green matter of the leaf by scraping and also on the tender buds. The excreta of the larvae get accumulated inside the leaf rolls. The symptom of attack can be made out easily by the presence of the large number of characteristic leaf rolls. Each leaf roll is noticed to have only one caterpillar inside. A severe infestation by the insect may result in retarding the growth of the plant.

* Received for publication on 8—12—1961.

Pupation takes place inside a cocoon made of silk and the excreta. It has been observed to pupate inside the leaf rolls as well as in soil in the Laboratory. Cherian and George (1926) have found them to pupate on the surface of the soil at the base of the host plant. They have also recorded the insect on a few graminaceous plants; viz., *Panicum javanicum*, *P. miliacium*, *Andropogon annulatus*, *Cynodon dactylon* and wheat (*Triticum vulgare*) in South India. Agarwal and Ramanujam (1959) have noted its occurrence on sugarcane in the early stage of the crop in a severe form in Coimbatore.

As the insect is known to be a serious pest of fodder grass and occasionally on sugarcane, its occurrence on bamboo may be of interest, for it forms another alternate perennial host plant available throughout the year.

Cherian and George (*loc. cit.*) have recorded an Ichneumon larval parasite, *Syzeuctus annulipes* on this insect. During the present study another unidentified Ichneumon parasite has been noted to parasitise the larva.

The authors are much thankful to Sri P. S. Narayanaswamy, Entomologist and Associate Professor of Entomology, for the valuable guidance given in the preparation of this note.

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Cherian, M. C. and C. J. George. 1926 On *Psara phoeopteralis* as a pest on grasses in South India. *J. Bomb. nat. Hist. Soc.* **31** (2), 529—30.
Ramakrishna Ayyar, T. V. 1940 *Handbook of Economic Entomology for South India* Superintendent, Govt. Press, Madras.

How to take a Soil Sample: The soil sample sent for testing should correctly represent the soil type in your farm. For this purpose, separate soil samples should be collected from places where soils apparently differ. Soils similar in appearance and productivity may be grouped together.

First dig a V shaped hole to a depth of six inches, after scraping the surface of the soil and removing all trash and other vegetation. Then scrap the soil from the side of the hole uniformly from bottom to top and collect it separately. This can be done with a mammutty. Repeat this in 10 or 20 different spots and mix all the samples together thoroughly. Then dry the composite soil sample in the shade and not in the open sun. Remove one pound into a clean cloth bag and label with all particulars and send it to the Assistant Soil Chemist, Soil Testing Service, Coimbatore 3. While taking samples avoid places where manure was heaped previously.

How deep to Plough: This is the season of preparatory cultivation and the problem 'how deep to plough' looms large before the farmer. There is the age-old proverb advising farmers to plough deep. When this proverb was evolved perhaps farmers had only country ploughs. Necessarily, we have to plough deep with a country plough to get a good tilth as we cannot go deeper than four or five inches even if we so desire with that plough. In modern days however we have big iron mould-board ploughs which can plough to great depths even up to twelve inches or more. There are some tractor ploughs which can plough deeper still. The advent of these ploughs and their ability to plough deep coupled with the old philosophy conveyed in the proverb have created some incorrect ideas among farmers that deep ploughing is good and necessary. Soils are ploughed to kill weeds and other vegetation, to bury the stubbles of harvested crops, to loosen the soil for preparing the seed bed and lastly to facilitate circulation of air and water. Ploughing and the improved aeration resulting thereby assist in the decomposition of organic matter and thus hasten the liberation of plant nutrients into available forms. These objectives can be achieved in cultivated fields by normal ploughing to a depth of about six inches.

Experimental evidence and experience have shown that for many crops ploughing to a depth of five to six inches is sufficient. Deeper ploughing, except when there are deep rooted weeds to be removed, is also very costly. Where root crops like potatoes, turmeric etc., or some long duration crops like sugarcane are to be cultivated ploughing may be deeper to say nine inches. For ordinary cultivation with the application of manures and fertilisers in limited quantities, very deep ploughing is unnecessary.

Look for the Coconut Black headed Caterpillar: The black headed caterpillar (*Nephantis serinopa*) is a serious pest of coconut, commonly found in this season. It lives on the underside of the leaves and feeds on the green leaves. The foliage dries up and when many fronds are affected the tree suffers considerable damage and the yield is materially affected. Infested trees are easily recognised by the dried up patches in the leaflets and the deposit of

excreta on these parts. The pest appears during hot summer months (March, April and May) generally. If the south-west monsoon is delayed, the pests continue their activity and cause extensive damage. When the galleries of the pest get wet after rains a high mortality occurs due to fungal and bacterial attacks. The pest however does not disappear during this period, but its population is thinned down. After the rains, the pest again starts multiplying rapidly.

The simplest remedy in the early stages of attack is to cut off and burn all infested leaves which show any traces of larval galleries. The infested material must be burnt immediately. The affected palms and the adjoining ones may be sprayed with 50% wettable D.D.T. two times, with an interval of 15 days. As preventive measure spraying of the palms with one percent DDT has been found to give good results.

A new cotton Stalk Puller: It is almost time to pull out the cotton plants. The pulling out of the cotton plants after all the picking is completed is a difficult job. Generally they are pulled by hand and the smaller ones would come off perhaps easily. But the bigger and well grown plants require two people to pull out. A mechanical contrivance to pull out the plants easily is therefore, to be welcomed. For quite sometime, we have a lever type cotton stalk puller in which a pair of teeth catches the bottom of the stem which is levered up and this assists in the easy pulling out of the plants. Even so, this needs considerable improvement to become a perfect puller. Work in this direction is going on at the Agricultural College Engineering Workshops and a good puller has now been designed and is under trial. It consists of a reciprocating plate with four sets of teeth in it. By manipulating a pedal these plates can be made to move to and fro resulting in four cotton stalks being pulled out at the same time. The pedal facilitates easier operation. Trials are on and we are looking forward to its perfection and use very soon.

(From the Extension Specialist, Agricultural College and Research Institute, Coimbatore 3.)



Review of market conditions of commercial crops in the Madras State for the month of January 1962.

Cotton:

COIMBATORE DISTRICT: *Season:* There were practically no rains during the month under Report.

Arrivals and Transactions: **Kapas:** The kapas market at Tirupur started with an opening stock of 6278 quintals of cambodia and 207 quintals of karunganni. The total arrivals during the month were 29959 quintals of cambodia kapas. Despatches during the month 27347 quintals of cambodia and 207 quintals of karunganni. At the end of the month the market was left with a stock of 8890 quintals of cambodia.

Lint: The lint market at Tirupur started with an opening stock of 33506 quintals of cambodia and 8 quintals of karunganni. The total arrivals were 20491 quintals of cambodia (includes 5241 quintals locally ginned). Despatches were, 30456 quintals of cambodia and 8 quintals of karunganni. The stock was 23541 quintals of cambodia.

Prices: The prices of kapas and lint that prevailed during the month were as follows.

Kapas (in Rs.): Pollachi 137, Tirupur 144, Sular 148, Coimbatore 150, Avanashi 135, Erode 114 and Bhavani and Gobichettipalayam 130.

Lint: Pollachi 352-73, Tirupur 337, Sular 335, Coimbatore 400, Avanashi 375, Erode 276 and Bhavani and Gobi 320.

RAMANATHAPURAM DISTRICT: *Season:* Hot sun and clear sky accompanied by chill winds prevailed throughout the month all over the district.

Arrivals and Transactions: **Kapas:** The opening stock was nil. There was an arrival of 1750 quintals of kapas in Virudhunagar market. The closing stock was 1750 quintals.

Lint: The opening stock was 2140 quintals in Rajapalayam market. The receipts were 500 quintals in Virudhunagar market and disposals were 500 quintals and 890 quintals in Virudhunagar and Rajapalayam markets respectively. The closing stock was 1250 quintals in Rajapalayam market.

Prices: The prices per quintal in Rs. nP. are as follows.

Kapas: Lakshmi 104 to 114, Karunganni 84 to 104 and inferior 67-33 to 86-66.

Lint: Karunganni Best 267 to 285 & Karunganni 233 to 258.

Cotton seeds: Karunganni 34-75 to 37-25, Lakshmi 33-25 to 34-25 and Tinny 35 to 39-50.

TIRUNELVELI DISTRICT: *Season:* About 20 mm. of rainfall was recorded during the month.

Arrivals and Transactions: The opening stock of kapas and lint was nil. Arrivals were 185 and 220 quintals of Karunganni kapas and lint respectively in Koilpatti market and 200 and 300 quintals of Uganda kapas and lint respectively in Sankarankoil market. Disposals were 85 and 115 quintals of Karunganni kapas and lint respectively leaving a stock of 100 and 105 quintals of kapas and lint respectively in Koilpatti market. In Sankarankoil market disposals were 160 and 100 quintals of Uganda kapas and lint respectively leaving a stock of 40 quintals kapas and 200 quintals lint.

Groundnut:

SOUTH ARCOT DISTRICT: *Season:* No rainfall was recorded during the month under report. Weather was unusually chill.

Arrivals and Transactions: The total arrivals of groundnut kernels amounted to 6,174 tonnes comprising of 6,042 tonnes from South Arcot district itself and 132 tonnes from other districts. Consumption by oil mills and country chekkus was 5,168 tonnes and 494 tonnes respectively. Despatches to other districts and export to the other States came to 2,372 tonnes and 10 tonnes respectively. Wastages were calculated to be 164 tonnes. The stock with the trade at the close of the month stood at 4,261 tonnes.

Prices: The average prices in several markets ranged from Rs. 66 to 73 per bag of 80 kgs.

RAMANATHAPURAM DISTRICT: *Season:* Lack of rains adversely affected the crop.

Arrivals and Transactions: (In quintals in Virudhunagar market).

Groundnut kernel: Opening stock — 2,595, receipts — 28,500, disposals 29,000 and closing stock 2,095.

Groundnut pods: Opening stock — 1,000, receipts — 4,000, disposals 3,000 and closing stock — 2,000.

Prices: (Rs. nP.): Groundnut Pods 23-00 – 26-00 (37 Kg.), Groundnut Kernels 66-66 – 79-00 (80 Kg.), Groundnut Oils 395-43 – 428-57 (226 Kg.) and Groundnut Oilcake 75-23 – 85-40 (226 Kg.).

NORTH ARCOT DISTRICT: *Season:* The month continued to be dry with chilly weather prevailing throughout. There was practically no rains during the month except for a few occasional showers.

Arrivals and Transactions: The arrivals, disposals and prices etc. of groundnut in the district during the month were as follows:

Name of Commodity.	Opening Stock	Arrivals	Disposals	Closing Stock
Groundnut Pods in bags of 40 kg.	13,000	44,722	46,922	10,800
Groundnut Kernels in bags of 80 kg.	20,888	57,053	58,053	19,883

Prices: (per bag of 40 kgs.): Groundnut Pods Rs. 18 (lowest opening) and Rs. 26 (highest closing); Groundnut Kernels (per candy of 240 kg.) Rs. 192 (lowest opening) and Rs. 267 (highest closing) and Groundnut Oil (per candy of 226 kg.) Rs. 385 (lowest opening) and Rs. 436 (highest closing).

TIRUCHIRAPALLI DISTRICT: *Season:* There was practically no rain and only dry weather conditions continued in the area during the month.

Arrivals and Transactions: The Regulated Markets, Jayankondan received 6706 bags of 79.5 kg. and Ariyalur 207 bags of 66 kg. of groundnut kernels during the month. The other two markets did not attract at all. Due to upward trend of prices, the arrivals have decreased considerably.

Prices: The prices of Kernels during the month was between Rs. 210—237 per candy of 240.85 kg. The average price of gingelly per candy prevailed at Rs. 265.00.

Tobacco:

COIMBATORE DISTRICT: At the end of the month under report, there was a stock of 26281 quintals of chewing tobacco and 1250 quintals of cheroot tobacco. About 4964 quintals of chewing tobacco and 750 quintals of cheroot tobacco were exported to places in Kerala, Mysore, Andhra and Bombay States and to Salem, Tiruchy, Tanjore and North Arcot districts of Madras State. The Market was steady during the month with price being maintained at the level of the previous month. There was good demand from merchants of North Arcot District for pit cured varieties in Palladam.

Prices: The prices of Meenampalayam variety ranged from Rs. 106 to 240 per quintal according to quality in Gobi area.

Variety	I Grade	II Grade	III Grade
(Prices per quintal)			
Chewing tobacco - Sun-cured:			
Meenampalayam	225—240	191—225	106—130
Other Varieties	180—230	120—177	44—110
Cheroot varieties - Sun-cured:			
Grown in Erode and Bhavani Taluks	177—231	110—177	44—110
Chewing tobacco - Pit-cured:			
Grown in Palladam and Sulur Areas	250—297	150—200	

Cardamom:

MADURAI DISTRICT: *Season:* During the month of January 1962, there was slight rainfall in the last week only in the cardamom plantation areas in Madurai district as well as in Kerala Hills adjoining Madurai District.

Prices: (Prices in Rs. nP. per lb).

Bodinaickanur:				Virudhunagar:			
Motta Green	Rs. 7.02	—	7.19	Extra Bold	Rs. 7.50	—	8.75
Extra Green	" 5.98	—	6.80	Rabin	" 6.25	—	7.62
Green	" 4.98	—	6.02	Shipment Greens	" 4.50	—	5.75
Medium	" 4.21	—	5.56	Smalls	" 5.50	—	6.00
Thakkolam	" 1.25	—	4.00	Seeds	" 7.75	—	9.00
Splits	" 3.50	—	4.70				
Seeds (Inferior)	" 3.60	—	6.88				
Pattiveeranpatti: (Sun dried) Store Green:							
Superior	Rs. —	—	—		Rs. 7.12	—	8.88
Medium	" 5.80	—	6.10		" 6.02	—	6.76
Inferior	" 4.50	—	5.48		" 5.16	—	5.96
Others:							
Splits					Rs. 4.10	—	5.42
Chaffs					" 1.50	—	4.35
Seeds					" 3.62	—	7.71

Gingelly:

SOUTH ARCOT DISTRICT: *Season:* No rainfall was received.

Arrivals: The quantity arrived for sale from district produce amounted to 4045 bags of 80 Kgs. each. Despatches to other districts came to 2507 bags. The chekkus consumed 1310 bags. The stock with the trade at the end of the month stood at 1374 bags.

Prices: (Price per bag of 80 Kgs.): The prices were on the improved trend and they varied from Rs. 73.60 — 101.90 in several markets.

Review of administrative activities of market committees in the Madras State during the month of January 1962

The Market Committees of South Arcot, North Arcot, Coimbatore, Tiruchy, Tirunelveli and Ramanathapuram continued to function during the month under report.

Enforcement:

The following are the details of licensees in force during the month.

Name of the Market Committees	Section 5 (1)		Section 5 (3)		Weighment	
	A	B	A	B	A	B
South Arcot	596	596	351	351	314	314
North Arcot	260	260	258	258	138	138
Coimbatore	398	398	280	280	216	216

Name of the Market Committees	Section 5 (1)		Section 5 (3)		Weighment	
	A	B	A	B	A	B
Tiruchirapalli	189	189	138	138	127	127
Tirunelveli	46	46	46	46	43	43
Ramanathapuram	...	...	...	...	...	...

Meetings :

A meeting of the South Arcot Committee was held on 3—1—1962. Twenty eight subjects were discussed and disposed of at the meeting. Copies of the proceedings of the meeting have been sent to all concerned. The important decisions taken were to open a Regulated Market at Valavanur and to revise the scales of pay of the various employees of this Market Committee as per orders of Government with retrospective effect from 1—6—1960. The first ordinary meeting of the North Arcot Market Committee for the year 1962 was held at Vellore on 21—1—1962 when eight out of the eleven members were present and 12 subjects were disposed off. The important resolution of the committee at this meeting was the approval of the Balance sheet of the committee for the year 1961.

The Coimbatore Market Committee met on 13—1—1962 and considered 20 subjects. The Committee also resolved to open a Regulated Market at Palladam in a rented building to start with. Consideration of the question of restricting trading to the markets at Gobi and Pollachi was adjourned as the members representing the above areas were not present, other resolutions were of routine administrative nature. A meeting of the Committee proposed for 8—1—1962 could not be held for want of quorum.

The Tiruchirapalli Regulated Market Committee held its first ordinary meeting of the current year on 7—1—1962, under the Presidentship of the Committee's Chairman, Sri B. Venkatachalam Pillai, B. A., B. L., and 16 subjects were disposed off. The Committee sanctioned the purchase of a jeep for the use of the Secretary as well as the payment of arrears of pay and allowances of the Market Committee staff in the revised scales of pay. During the month itself, the jeep was taken delivery of and the arrears paid. The Tirunelveli Market Committee held its ordinary meeting on 27—1—1962. About 23 subjects were discussed and disposed off. A resolution was passed requesting the Government to permit this committee to open a Regulated Market at Tuticorin.

No meetings were held during the month by Ramanathapuram Market Committee.

Quality Analysis and Competition: Nil.

Weather Review — for January, 1962.

RAINFALL DATA (IN INCHES)

Region	Station	Total rainfall for the month	Departure from normal	Total since 1st January
North	Madras (Meenambakkam) ...	Tr	— 1.4	Tr
	Tirurkuppam* ...	0.2	— 1.0	0.2
	Vellore ...	0.6	— 0.8	0.6
	Gudiyatham* ...	0.7	— 0.4	0.7
East Coast	Palur* ...	£	— 1.6	£
	Tindivanam* ...	Nil	— 1.2	Nil
	Cuddalore ...	0.1	— 2.2	0.1
	Nagapattinam ...	2.6	+ 0.1	2.6
	Aduthurai* ...	£	— 1.9	£
	Pattukkottai* ...	1.0	— 1.2	1.0
Central	Salem ...	£	— 0.3	£
	Coimbatore (A. M. O.) * ...	0.5	— 0.1	0.5
	Coimbatore ...	0.6	— JN	0.6
	Tiruchirapalli ...	£	— 0.8	£
South	Madurai ...	0.5	— 0.3	0.5
	Pamban ...	0.7	— 1.9	0.7
	Koipatti* ...	0.3	— 1.4	0.3
	Palayamcottai ...	1.0	— 0.7	1.0
	Ambasamudram* ...	2.5	— 1.0	2.5
	Nagercoil* ...	4.3	+ 3.5	4.3
	Capecomorin* ...	0.9	— 0.3	0.9
Hills	Kodaikanal ...	0.8	— 2.4	0.8
	Coonoor* ...	2.7	— 3.7	2.7
	Ootacamund* ...	0.2	— 6.3	0.2
	Nanjanad* ...	0.2	— 0.3	0.2

* Meteorological Stations of the Madras Agricultural Department; £ - Actual value 0.01 to 0.04; Tr - Trace; JN - Just normal.

Except for scattered and localised rains on 14th, 22nd and 27th January 1962 in South Madras the weather remained dry throughout the month under report. Night temperatures were far below normal on 11th & 12th January. A noteworthy rainfall of 3" was received at Thiruppathisaram (Kanyakumari Dist.) on 26—1—'62.

(From the Agricultural Meteorologist, A. C. & R. I., Coimbatore - 3).

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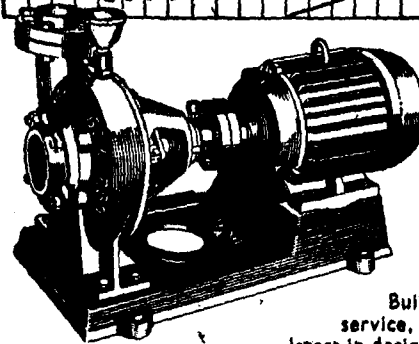
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Departmental Notifications

Madras Agricultural Department — Postings and Transfers during the month of February 1962.

Name and Designation	Posted or Transferred to
Gazetted Officers	
Sri V. Ravikumar, Asst. Agricultural Chemist, Coimbatore.	Stores Officers, Agrl. College and Research Institute, Coimbatore.
„ T. A. Govinda Iyer, Soil Survey Officer.	Asst. Agrl. Chemist (Soil and Plant Analysis), Coimbatore.
„ T. Radhakrishnan, Asst. Agrl. Chemist, Cuddalore.	Asst. Agricultural Chemist (Pesticide Testing Laboratory), Coimbatore.
Upper Subordinates.	
Sri N. Ganesan, A. E. O. Kammudi	Technical Asst. to the Coconut Development Officer, Ramanathapuram.
„ G. Ramanathan, Upper Subordinate.	Farm Manager, Agrl. Research Station, Bhavanisagar.
„ S. Subramaniam, Farm Manager, Mekkudi.	Farm Manager, Vadakkanandal.
„ S. Sreyankumar, Farm Manager, Sethiathope	Plant Protection Asst., Tindivanam.
Postings after Farm Management Training.	
Sri N. Shanmugasundaram	Farm Manager, Karaikudi.
„ S. Srinivasan	Farm Manager, Sethiathope.
„ R. S. Srinivasan	Farm Manager, Mekkudi.
„ M. Raman	Farm Manager, Colgrain, Ooty.
„ M. Duraisamy	Farm Manager, Pappankulam.
New Appointments.	
Sri R. Venkataramani, Madras	Millet Assistant, Agrl. Res. Station, Koilpatti.
„ George Oommen, Kerala State.	Asst. (Agronomy), Manaparai.
„ N. Venkataraman, Madras.	Bacteriology Asst., A. C. & R. I., Coimbatore.
„ K. Natarajan, Salem.	Statistical Asst., A. C. & R. I. Coimbatore.

JL
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