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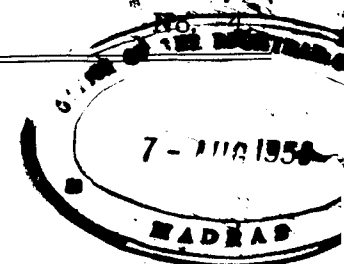
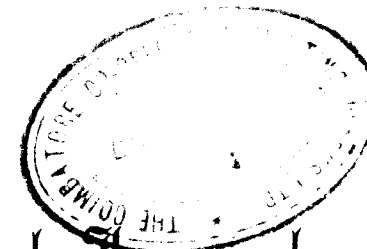
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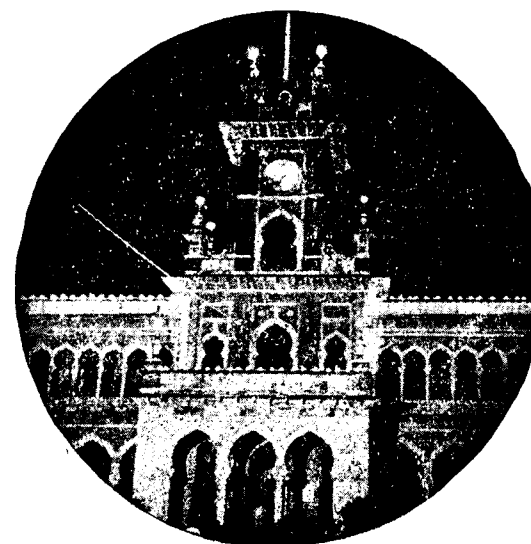
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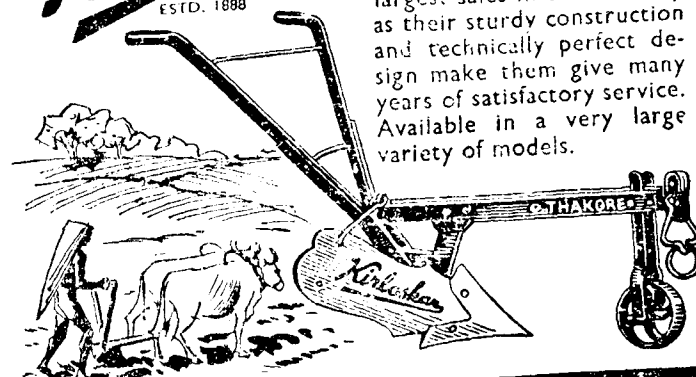
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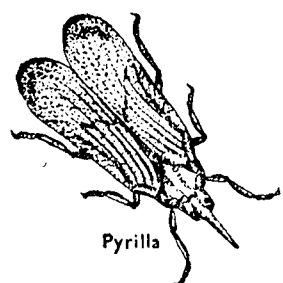
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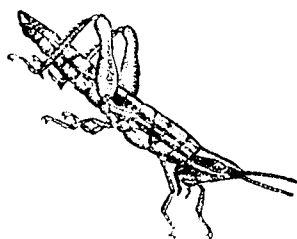
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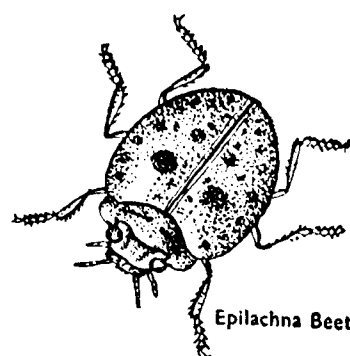
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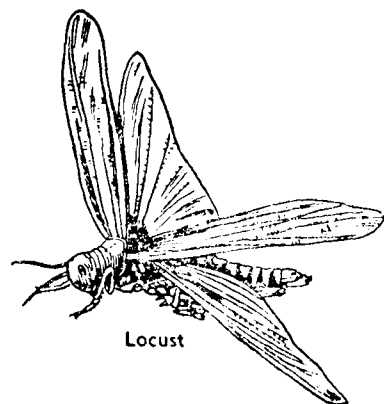
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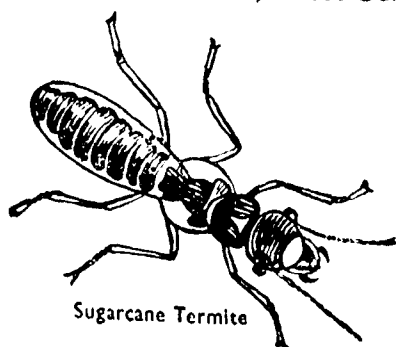


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Madras agric. J., 45 (4) : 135—141, 1958.

The Value of Productivity Ratings in the Soil Survey Report

by

T. R. SRINIVASAN and C. R. VENKATARAMANAN
Agricultural Research Institute, Coimbatore.

It is now accepted by soil scientists as well as agronomists all over the world that soil surveys should be the starting point for the systematic exploitation of land resources. The chief objective of a soil survey is to identify the various kinds of soils occurring in a given region, describe their characteristics, classify them and locate the positions of the classified soils on a base map. The fundamental purpose of soil survey is to make predictions. As such each soil survey report should contain in its body an assessment of the agricultural capabilities of individual soils shown on the soil map and a prediction in terms of expected average yields of specified crops from these soils under defined management practices. To this end of supplying a table of predicted yields for the mapping units, the use of 'Productivity Rating' has come into vogue.

A productivity rating is an attempt to express quantitatively the crop producing power of a soil. It is well known that many factors contribute to crop growth such as favourable soil conditions, climate and management practices. Therefore it is not feasible to fix the productive capacity of a soil in absolute terms. The problem should rather be tackled on a relative basis. Starting with a soil map which shows the distribution of individual soil types in a given region and the soil survey report which describes the characteristics of each soil type, the problem narrows down to one of constructing a table of predicted yields for each soil type occurring in the region. Much work has been done in the matter of evolving a systematic method for assessment of productive capacities of soils and as a result the productivity rating is used to bring out the soil type-crop relationship. The primary function of a productivity rating in a soil survey report is "to present in black and white, as it were, the comparative productivities of individual types for specific crops under definite systems of management" (1).

Method of Presentation of Productivity Ratings: In the earlier productivity rating tables, the notations used to express the ratings were numbers ranging from 1 to 10 with and without parentheses to

denote respectively, the natural productivity and productivity of these soils under management practices that included the use of amendment and fertilisers. An example of this type is the table of productivity ratings given by Bruce and Metzger for Maryland soils. (4)

Soil type	Crop productive index (values outside brackets are with fertilisers)				
	Corn	oats	fruits	pasture	potato
Hagerstown clay loam	8 (6)	9 (6)	9 (6)	8 (6)	8 (5).

Other Workers like Pohlman (7) have used this method for reporting productivity ratings.

In some cases such as the productivity tables of soils of Pentotoc county, Oklahoma, presented by Fitzpatrick (5), ratings ranging from 0 to 100 are assigned to individual soil types in the country having the rating of the best soil of the country, based on average annual yields of principal crops of the region on each soil and the percentage of each soil type utilised for each crop.

But, the modern trends in the matter of presentation of productivity ratings in the soil survey report are highlighted by the following important features (2): inclusion of a table of estimated yields for the mapping units (soil types), as well as productivity indexes, the use of indexes ranging from 1 to 100 instead of 1 to 10, the assignment of indexes for individual soils for each major crop of the region and reporting the yields obtainable under current practices and yields obtainable under the best management of the soil type. The indexes refer to 100 as the standard. The standard for any particular crop "has been selected to represent the approximate average yield obtained for that crop on the more extensively and widely developed soils of the region in the whole country or state in which the crop is a principal product". A sample table (drawn from Ref. 3), given below, will bring out the unsefulness of such a productivity rating table:

Soil type	Productivity Rating							
	corn		wheat		alfalfa		sugarbeet	
	A	B	A	B	A	B	A	B
Miami silt loam	70	90	70	100	70	90	60	70

A = Rating under common practices (average farming) in the region.
B = Rating when put under best current practices of management.

The standard yields for the crops are given as, corn 50 bushels per acre, wheat 25 bushels, alfalfa 4 tons etc. From a reference to the rating table and standard yields it can be gathered that on Miami silt loam soil the yield of corn under common practices of management will be 35 ($70/100 \times 50$) bushels per acre while when managed under the best current practices an yield of 45 ($90/100 \times 50$) bushels per acre can be obtained. It is obvious how valuable such rating tables will be in advisory work.

Construction of Productivity Ratings: Productivity ratings are arrived at in two principal ways, namely the inductive and deductive processes (1). In the inductive process, the characteristics of a given soil profile are weighed in relation to their effect upon the production of a specific crop. In the deductive process "ratings are assigned to soil types according to yield data that are considered to be representative of the yield of the specified crop on the particular soil". Of the two, the first method of evaluating the soil characteristics is much the more difficult since the correlation of crop growth with soil properties is tantalisingly complex, especially when one considers the influence of environmental factors on a given soil. However some workers have attempted this approach. Notable amongst these is Storie (10) who has utilised information set forth in various soil survey reports to construct ratings for Californian soils. He considers three factors namely, (A) character of the profile (B) soil texture and (C) other modifying factors such as drainage, stoniness, alkali etc. Each factor is given 100 under ideal conditions and correspondingly less for unfavourable characteristics. The final rating for a given soil type is arrived at by multiplying the factors A, B and C. He prefers to multiply the factors to adding them as is done in the score card system, which, he shows, leads to misleading conclusions in comparing soils.

Weir and Storie (12) have determined ratings for each of the 59 California soil survey areas based on Storie's index and have prepared maps showing the location of the various grades of soils.

A similar inductive process has been reported to be used in Germany (3). Two factors, one relating to genetic soil type (to which values are given ranging from 10 for Chernozems to 4 for Podzols with hard pans) and the other relating to the texture (to which values ranging from 10 to 8.8 for loams, 8.8 to 6.5 for sandy loams, 8.4 to 6.0 for clays and 4.1 to 2.0 for sands are given) are multiplied to get the productivity rating of 'Bonitierung'.

Suggestions: In the light of the above considerations, the following suggestions are offered to the end of making the best use of the soils of our State.

Reconnaissance soil surveys of the districts of the State should be taken up immediately. The soil surveys should be conducted on the lines worked out by the Soil Survey Staff of the United States Department of Agriculture and soil maps on the scale one inch to a mile should be prepared. If possible, yield predictions in terms of productivity ratings for each mapping unit should be included in the soil survey report. In case available data are not sufficient for the purpose of working out ratings the following procedure is suggested. On the basis of the reconnaissance soil survey report, observational plot experiments may be started in large numbers on ryots' fields with the co-operation of willing and progressive farmers who should be responsible for keeping accurate and detailed farm record books. Data from such experiments, yield data from various experiments in Agricultural Research Stations and from other experiments which might originally have been started for some other purpose (such as crop cutting experiments, fertiliser demonstration trials and simple manurial experiments which are being conducted all over the state) should be studied carefully and utilised to work out productivity ratings for different soil types, after eliminating unreliable data and giving due consideration for climatic and other regional environmental factors.

The construction of productivity ratings may be done by both the inductive and deductive processes so that the possibility of arriving at a satisfactory and dependable procedure for rating soils can be explored.

As the work of reconnaissance soil survey gathers momentum, it should be possible to select specific areas suitable for intensive development and take up detailed soil surveying of these regions. The ultimate objective of such detailed soil surveys will be to establish the much desired close liaison between soil research and farmer's prosperity, in that the detailed soil survey report will serve as the basis for making recommendations for farm planning on individual farms.

Acknowledgment: Our thanks are due to Dr. A. Mariakulandai, Government Agricultural Chemist and Professor of chemistry, Agricultural College and Research Institute, Coimbatore, for his valuable suggestions in the preparation of this paper.

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Madras agric. J., 45 : (4) 142—145, 1958

A Brief Review of the Progress in the Utilisation of Wild Species of *Gossypium* for the Improvement of Cultivated Cottons in Madras

by
V. SANTHANAM,
Department of Agriculture, Madras.

The genus *Gossypium* L. comprises of twenty different species falling under two distinct cytological groups viz., those with $2n=26$ chromosomes and others with $2n=52$. The cultivated cottons of the world belong to only one or other of four species of *Gossypium* viz., *hirsutum* and *barbadense* in the American group ($2n=52$) and *arboresum* and *herbaceum* in the Asiatic group ($2n=26$). There are nearly sixteen other related wild species in existence and some of these are known to possess very useful characters like lint fineness, fibre strength, resistance to drought, pests and diseases etc. The role of these wild species as sources of new genes for desirable characters that can be transferred to cultivated cottons has been increasingly recognised in recent times.

Among the several wild species that have attracted the attention of cotton breeders in different parts of the world in the above work of character transference, *G. anomalum*, *G. thurberii*, *G. raimondii* and *G. armourianum* would appear to have yielded promising results. In the Madras State, *G. anomalum* has been utilised in crosses with cultivated Karunganni (*G. arboresum*) cottons, and *G. raimondii* with cultivated Cambodia (*G. hirsutum*) with some measure of success. The most salient features of the results obtained in this programme of work is briefly reviewed in this note.

G. anomalum Wawra and Peyr : The African diploid ($2n=26$) wild species *G. anomalum* is known to possess extremely fine and strong fibres, though short in length. The first attempt at the deliberate utilisation of *G. anomalum* to evolve new types of economic value in *G. arboresum* was perhaps that of Afzal, Sikka and Rahman, (1945). With the specific objective of transferring lint fineness (low mature-fibre-weight) from *G. anomalum* to Karunganni (*G. arboresum*) cotton, hybridisation was taken up at Coimbatore and the technique of recurrent back-crossing to *arboresum* strains was adopted to overcome the problem of low fertility in the *arboresum-anomalum* crosses.

Fully fertile and fine linted plants with good mean fibre length as well, were secured in the F_3 of first and second backcross progenies of these crosses and the detailed results of this programme of work have been discussed elsewhere (Kesava Iyengar, Santhanam and Leela, 1956). The economic characters of some of the outstanding plants derived therein are summarised below.

Nature of cross	Generation	Pl. No.	No. of bolls harvested	Fibre length inch	Mature fibre weight $\times 10^{-6}$ g cm.	Swollen hair diameter μ
K.5 x (C1 x anomalum)	$BC_1 F_3$	1	21	0.86	1.43	19.3
		2	24	0.92	1.46	21.6
		3	23	0.89	1.48	21.1
		4	14	0.92	1.35	22.1
		5	14	0.91	1.36	21.6
		6	9	0.96	1.36	20.7
1175 x K. 2 x (C1 x anom.)	$BC_3 F_2$	1	8	0.92	1.39	20.7
		2	23	0.85	1.32	20.2
Improved strains	Karunganni-2 (<i>arboresum</i>)		11	0.86	2.21	25.0
	Karunganni-5 (<i>arboresum</i>)		10	0.85	2.02	24.4
	<i>G. anomalum</i>		15	0.27	0.59	11.1

An optimum standard for lint fineness to be achieved in this programme of transference has been fixed at a mature fibre weight of about 1.40×10^{-6} g/cm. and a swollen hair diameter of 20.0μ . Such a strain should be considered as appreciably fine linted, when compared to the normal values of 2.10 and 25.0 respectively for Karunganni strains. Further, the above standards are beyond the normal range of variation in *G. arboresum* and therefore justify the utilisation of *G. anomalum*. It is significant that many plants possessing the above standards for fineness as also good fibre length transgressing the parent values have been isolated and it is expected to build up homozygous lines from the progenies of the above plant which have been raised during 1956—57 for further exploitation.

G. raimondii Ulb: The South American deploid ($2n=26$) wild species *G. raimondii* is considered a putative parent of the present day cultivated tetraploid American cottons. Besides, this species is known to possess vegetative vigour under droughty conditions, resistance to the bacterial disease *blackarm* and *jassid* tolerance. Only a few instances of utilisation of this wild species in the breeding programme of cultivated cottons have been reported so far (Hutchinson *et al.* 1943, Ganesan, 1946).

At Coimbatore, a colchicine induced hexaploid was synthesised from the sterile triploid hybrid 4463 *hirsutum* x *raimondii* and this was backcrossed twice to the cultivated Cambodia strain MCU. 1. Further line breeding up to F_8 stage effecting selection for yield, halo length and ginning percent resulted in the isolation of fully fertile progenies equal in yield of *kapas* to MCU. 1, but superior in halo length and ginning percent and the detailed results of this study have been reported by Kesava Iyengar, Santhanam and Rajagopalan 1955.

The mean values for length and ginning % of the best progeny derived from this cross is given in the table below along with the values of the parents involved in this interspecific hybridisation programme.

No.	Material	Mean halo length mm.	Mean Ginning %
1.	<i>G. raimondii</i>	8	7
2.	4463 (<i>G. hirsutum</i>)	25	33
3.	4463 x <i>raimondii</i> F_1	Sterile	
4.	do. hexaploid	29	30
5.	MCU. 1 (<i>hirsutum</i>)	25	36
6.	MCU. 1 x (Hexaploid x MCU. 1) F_8 progeny mean	28	38

Further studies on this material is now in progress at the Cotton Breeding Station, Coimbatore.

It is interesting to note that transgressive values for length and ginning have been obtained in the selected progeny and the higher ginning percent of these plants was traceable to high density of population of seed hairs on the seed coat (calculated as 17,000 per seed), as compared to MCU. 1 (14,400).

G. raimondii, with a short coat of seed hairs and possessing a low ginning percent has thus indicated its latent potentialities in the improvement programme of cultivated American cottons and further work is in progress.

Acknowledgment: The author's thanks are due to Sri. N. Kesava Iyengar, M. A., M. sc. (Lond) for useful suggestions in the preparation of this note.

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Insects and Mites Affecting Jasmine in the Madras State

by

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Seven insects were recorded by Ramakrishna Ayyar (1927, 1940) as affecting the jasmine plant in the Madras State. The distribution, however, given for two of these fall outside the present limits of the State. There has been no further work to evaluate the injury to the crop by insects or mites. Observations made during the last one year showed that there are several insects and mites which are capable of causing severe injury to the crop. Two of the insects, as far as known, are being recorded on this plant for the first time. In this paper the biological characteristics and the economic status of the insects and mites which occur on the crop are given.

The study was undertaken in the gardens attached to the Agricultural College and Research Institute, Coimbatore. The three species of jasmine namely, *Jasminum sambac* (Adukku and Gundu — malli), *J. auriculatum* (Mullai) and *J. flexile* (Ramabhanam), commonly grown in the region were available in close proximity with each other in the same garden and provided an opportunity for assessing the host preferences of the insects. The occurrence and relative abundance of the insects under natural conditions were taken as indications of the specificity of the insects for the host plants. The economic status has been evaluated on the basis of injury to the buds which are the commercial products. The identifications of the insects were made by comparison with the collections of insects in the Institute. Two of these which were not represented in the collections were kindly identified by the Director, Commonwealth Institute of Entomology, London, whose help is gratefully acknowledged.

1. *The Bud worm, Hendecasis duplifascialis* Hampson, Pyralidae, Lepidoptera. By far the greatest injury is caused by a small green caterpillar which lives singly concealed inside immature buds. It is smooth with thin, pale hairs on the body, grows to half an inch in length and has a black head and prothorax and green legs. It feeds on the innermost petal of the closed bud in the initial stages and emerges through a circular hole made usually on the tubular portion of the corolla for tunnelling into other buds in the shoot. A few silk strands with faecal pellets entangled in them connect up the buds in

the shoot and 2 or 3 buds get damaged, before the caterpillar leaves the buds to pupate in thin silken cocoons in the soil. The buds mature and open normally but the central petal is found eaten away or drying along with some faecal matter left behind by the caterpillars. The moth is a small white one with black wavy lines on the posterior wings and abdomen and black up-turned palps. This insect attacks ordinarily *J. sambac* and is seen on the others only occasionally.

The food plant of the insect does not appear to have been recorded so far since its first description (Hampson 1896).

2. *The bud and shoot worm, Elasmopalpus jasminophagus* (Hampson), Pyralidae, Lepidoptera. This is another insect which attacks the bud but ordinarily lives outside the buds in tunnels of silk and excreta. In rare cases it is found inside buds in the early stages. It can be distinguished by the dark lines and spots on the head, the reddish brown pro- and mesothoracic segments and the dark legs. It grows to an inch in length and develops latero-dorsal streaks of brown and turns completely brown before pupation. It actively wriggles when disturbed, and pupates in the tunnels in folds of leaves. The moth is narrow, elongate and dark gray with pale hind wings. It occurs on all species of Jasmine and is found all through the year. Trehan's (1940) description of the jasmine insect in Lyallpur points to this species and Usman and Puttarudriah (1956) record it in Mysore on wild jasmine. This is apparently the first record of this insect in this State on cultivated jasmine.

3. *The bud gall fly, Contarinia maculipennis* Felt, Cecidomyiidae, Diptera. Apart from the caterpillars mentioned above, the yellowish maggot of this midge is also found to live inside unopened buds at the base of the tubular corolla. The buds swell up at this portion, become stunted in growth and gradually dry away. The maggot actively wriggles out when the bud is opened. It occurred on *J. auriculatum* in July and August after rains. Thirumal Rao *et al.* (1954 and 1955) recorded it on *J. sambac* in Andhra for the first time in India, and stated that it changed the colour of the bud to violet. The swelling noted in Coimbatore does not appear to be seen in *J. sambac*. Dr. M. S. Mani is said to have collected the midge in Madras but the species of the plant is not given. This appears to be the first record of the insect on *J. auriculatum* but the incidence in Coimbatore is not heavy.

4. *The shoot web-worm, Margaronia unionalis* Fabricius, Pyralidae, Lepidoptera. The tender leaves of new shoots are knit together with small stitches by a stout green caterpillar with pale

head and legs. Minute black dots are found on the sides of the thoracic segments. Resting longitudinally in these webbings the caterpillars scrape away the parenchyma of the leaves in the early stages and eat away portions in later stages. The dark pellets of excrement found under the webbings indicate the presence of the caterpillars. It folds the leaves backwards and pupates in thin silk cocoons. The moth is about an inch in size, white with a thin brown line along the anterior border, of the forewings. It affects all species of the plant but prefers *J. auriculatum* usually with *J. sambac* coming next. Although the leaves are damaged to a slight extent, the growing shoots are not affected and therefore the injury is not severe. The insect has been recorded previously but is not very destructive.

5. The leaf web-worm, *Nausinoe geometralis* Guenee, Pyralidae, Lepidoptera. Another green caterpillar which builds elaborate network of webbings with leaves especially in the lower portions of the plant, causes more severe injury to the plant. It has a broader head with dark lines on the sides and has dark circular markings around the hairs on the body. The caterpillars are found in groups and the infestation spreads among the branches, reducing the leaves to mere nerves. The naked green pupa is found suspended in the webbings. The moth is brown with many hyaline patches on both the wings. It affects all species of the plant but prefers *J. sambac* or, *J. flexile* and is found all through the year. Hampson (1896) gives the distribution as the whole of India but so far it does not appear to have been recognised as one feeding on this crop. This insect has not been recorded in this institute hitherto.

6. The wingless grasshopper, *Orthacris simulans* Fabricius, Acrididae, Orthoptera. The brown wingless grasshopper with lateral red stripes bordered with black is known to be a polyphagous insect causing injury to several plants in Coimbatore. It is generally found eating away portions of leaves in tender shoots and the injury becomes marked during summer when other crops are not present in the field.

7. The brown spotted stink bug, *Antestia cruciata* Fabricius, Pentatomidae, Heteroptera. The small stink bug with brown spots and white lines on the dorsum is usually found on the hills affecting coffee and other crops. Though it was reported to infest the plant in Bellary, so far it has not been found in the plains of the present Madras State. In Coimbatore it was found living on *J. auriculatum* most of the time and occasionally affecting the other two species also. It, however, did not cause any perceptible injury to crop.

8. The Brown Leaf hopper, *Ricania fenestrata* Fabricius, Fulgoridae (Homoptera). This is a brown moth-like insect with a large hyaline patch on the forewings, which feeds on the terminal twigs. The nymphs are pale green with white wax all over the body and the long caudal filaments are held like a fan over the body. It breeds on all the species of plants and is found all through the year. Puttarudriah and Maheswariah (1954) regarded it as a severe pest of *J. flexile* in Mysore and stated that the oviposition caused the withering of shoots. Such wilting of shoots has not been observed in Coimbatore nor is it injurious in any way. It has been noted on lucerne (*Medicago sativa*) and sapota (*Achras sapota*) also. The insect is included in the collections in the Institute collected on jasmine by former workers but has not so far been reported.

9. The green leaf hopper, *Flata ocellata* Fabricius, Fulgoridae Homoptera. This pale green moth-like insect with minute red spots on the forewings is also found feeding on the terminal stem. The nymphs are elongate and white with two thin yellow median lines on the body bordered with green. Two long white filaments protrude from the caudal region. This is also found on all the three species but prefers bushy portions of the plant for breeding. Like the previous one it also does not cause any visible injury. The insect has been collected by previous workers but not reported so far.

10. The white fly, *Dialeurodes kirkaldyi* Aleyrodidae, Homoptera. The oval, yellow nymphs of this white fly occurs on the lower surface of leaves of *J. auriculatum* from March to May. Except a certain amount of discolouration of the leaves, there is not much injury to the plant.

11. Mealy bugs and scales. *Pseudococcus virgatus* Cockerel, Coccidae — Homoptera. A red elongate mealy bug with transverse rows of white meal and two small caudal processes is usually found singly or in small groups on the lower surface of leaves in association with spiders and leaf webbing insects. It has not caused any visible injury to the plant so far, since the population does not increase to any great extent.

The mealy bug, *Phenacoccus ornatus* Green and the red scale *Aspidiotus aurantii* M. have not so far been noted on jasmine in this locality, nor has been heard of as affecting the crop in the State in recent years.

12. The lace wing bug, *Leptopharsa ayyari* Distant, Tingidae Heteroptera. This lace wing bug has only been observed occasionally in March and October on *J. sambac* and in both instances there were only mild incidence of the insect. Evidently it does not cause much injury to the plant.

13. The flower thrips *Isonurothrips orientalis* B., Thysanoptera — (Thripidae). This black thrips with yellow nymphs is usually found in the buds and flowers and only rarely on the very tender leaves. It is present all through the year on all the species but the damage is almost negligible.

14. The red spider mite, *Tetranychus cucurbitae* Rahman and Sapru. Tetranychidae — Acarina. Very often the leaves get covered with large colonies of this red mite with yellow nymphs and turn yellow. *J. sambac* and *J. auriculatum* are usually affected throughout the year, occasionally injury to the plants, being severe.

15. The gall mite, *Eryophyes* sp. Eryophyidae — Acarina. This mite makes the leaves turn whitish with thick incrustations on the lower surface. Many leaves in the plants get affected and though the leaves do not wither away, the vitality of the plant is reduced. It has been noted to affect *J. sambac* and *J. flexile* in gardens in the surrounding area.

Acknowledgments: The writer's grateful thanks are due to the Director, Commonwealth Institute of Entomology, London, for kindly identifying two moths, to Sri V. Thirumal Rao, former Government Pathologist, Andhra (Bapatla), for information regarding the gall fly and to Sri M. Basheer, Govt. Entomologist, Coimbatore, for the facilities given for the work.

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Madras agric. J., 45 : (4) 151-152, 1958

Research Notes

A note on foliar variation in Greengram or Mung (*Phaseolus aureus*, L.).

The leaves of the greengram plant are generally trifoliately compound (Figure 1). An abnormal plant with all the leaves having either four or five leaflets, instead of three, was observed in a population of greengram strain Co. 1 in 1956 summer season, at the Millets Breeding Station, Coimbatore. Excepting for the leaf, the plant resembled its sister plants in respect of other characters. The floral parts did not show extra structures of any kind and fruit formation was normal. The fourth and fifth leaflets were borne as independent units near the basal pair (Figure 2) giving the appearance of a whorl. Both the extra leaflets were distinct with their petioles and normal venation, showing that these were not formed by fission but actually additional foliar structures. Sabnis (1934) records the occurrence of extra leaflets in *Phaseolus aureus* and *Phaseolus mungo* but in these cases the extra leaflets were due to fission only.

A population raised from the selfed seeds of the abnormal plant gave four kinds of plants, i. e., (i) with three leaflets; (ii) four leaflets; (iii) four and five leaflets; and (iv) five leaflets as shown below :—

No. of plants with three leaflets. (Normal)	Number of plants with more than three leaflets. (Abnormal)				Total No. of plants.	Chisquare.	P. Value.
	Four leaflets.	Four and five leaf- lets.	Five leaflets.	Total.			
Observed 41	22	65	39	126	167	0.02	0.9
Expected 41.75 (on 3 : 1 basis)				125.25	167		

It is seen from the above, that the normal leaf with three leaflets appears recessive and that the abnormal plant described herein is heterozygous for this character. The exact nature of segregation of the normal leaf with three leaflets and the abnormal leaf with more than three leaflets will be confirmed in the F₃, and a homozygous plant with more than three leaflets will also be fixed to pursue the behaviour of this character.

Millets Section, Agrl. College & Research Institute, Coimbatore, 1st December, 1957.

R. VEERASWAMY.

V. K. KUNJAMMA.

LITERATURE CITED.

T. S. Sabnis.

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FIG. 1.
Normal leaf of green gram with three leaflets.



FIG. 2.
Abnormal leaves of green gram with four and five leaflets.

Line planting and intercultivation in Rice.

In the past two years, line planting and intercultivation, which are important features of the Japanese method of rice cultivation, are being adopted as a routine practice in raising bulk crops of paddy in this station. It has been found that these improved practices help in saving labour and facilitate quicker execution of work. In order to assess the economies of adopting these two improved practices, actual data were gathered from a bulk crop of TKM 6, cultivated in the Navarai season of 1956—'57. The crop was planted in lines 10' apart. For intercultivating, the Meenakshi bamboo rotary weeder was used.

The advantages of line planting and intercultivating may be stated as follows :

- (1) Line planting saves labour.
- (2) Line planting facilitates easier and more efficient roguing and thus helps to maintain the purity of seed.
- (3) Intercultivating with rotary weeder is more economical than hand weeding.
- (4) Lodging of the crop is reduced to an appreciable extent by this method of planting.
- (5) The improved practices appear to exercise beneficial effects on yields.

The actual data collected from the station are presented below :

I. Bulk planting and hand weeding :

Cost of planting — 16 Women @ 62 Np.	Rs.	9.92
Cost of weeding — (2 weeding) —		
14 Women @ 56 Np.	Rs.	7.84
	Total	Rs. 17.76

II. Line planting and working bamboo rotary weeder :

Cost of planting — 12½ Women @ 62 Np.	Rs.	7.75
Cost of working rotary weeder (3 times) —		
3 × 2 men @ 87 Np.	Rs.	5.22
	Total	Rs. 12.97

Acre yield of grain :

A Bulk planting and hand weeding	...	2249 lb.
B Line planting and intercultivation	...	2705 lb.
Increase in yield over A	...	456 lb.

Keeping all other operations equal, the saving in expenditure on account of the adoption of the two improved practices is Rs. 4.79 per acre. In addition to the saving in expenditure of about Rs. 5/- per acre, an increased yield of 456 lb. (about 17%) per acre was also recorded. It is pointed out, however, that the trial was not a replicated randomised experiment.

It may be stated that the adoption of these improved methods result in a definite saving in expenditure; and there are indications of increase in yield also.

There can be no hesitation, therefore, in commending to the ryots the adoption of these methods as routine practices.

Rice Research Station, }
Tirur.

M. K. VENKATASUBRAMANIAN.

The Response of Potato to Foliar Feeding.

Potato is a soil exhausting crop. Apart from what is needed by the plant much more manure than necessary has to be added at least for two important reasons: (1) to allow for the inevitable fixation of nutrients particularly phosphorous in the lateritic soils of Nilgiris and (2) also to allow for the leaching out of nutrients through the open nature of soil by rain. It is for this reason that the manurial bill is heavy in the case of potato. Any attempt to reduce the manure bill, without seriously affecting the yield, commends itself and with this end in view the response of potato to foliar feeding was investigated in an observational trial at the Agricultural Research Station, Nanjanad. The trial was conducted during the years 1954-55 and 1955-56 on the second crop (September sown). Folium, a green coloured compound containing 20 N, 20 P₂O₅ and 20 K₂O and supplied by the Monsanto Chemicals Limited, for observational studies was used for the trials. The following gives an account of the results of the investigation.

During the first year of the trial the results were vitiated on account of the wide differences in fertility status of the experimental area. Besides no manure was applied to the crop other than through foliar sprays. Nevertheless, growth observations clearly indicated that foliar feeding may not be enough without soil supplement of plant food.

Based on the experience gained in the first year of trial the experiment was laid out in another field of uniform fertility and the response to foliar feeding was studied in addition to manuring the crop with split doses of the popular 'Nanjanad Mixture' (Nanjanad Mixture comprises of the following: 500 lbs. of groundnut cake, 200 lbs. of ammonium sulphate, 350 lbs. steamed bone-meal, 336 lbs. concentrated superphosphate and 224 lbs. potassium sulphate. The dose per acre is 1610 lbs.). The following treatments were under study in randomised plots replicated four times.

1. Control (no manure) basal dressing of 10 cartloads of cattle manure.
2. Nanjanad Mixture (at the recommended dose) + Basal dressing of 10 cartloads of cattle manure.
3. 10 cart loads of cattle manure + 1/5 Nanjanad Mixture + Foliar spray.
4. do. + 2.5 do. + do.
5. do. + 3.5 do. + do.

The manure mixture was applied as usual at the time of forming ridges and furrows for planting the crop. The crop was planted on 11—8—1955. Foliar spray at 40 N, 40 P_2O_5 and 40 K_2O per acre was given at weekly intervals for 10 weeks after complete sprouting of the crop. The crop was harvested on 20—12—1955 and the yield data is given below :—

Treatment	Replication (Yield in lbs.)				Total plot yield	Yield in lbs./acre
	I	II	III	IV		
1. Control	16 $\frac{3}{4}$	24	27	16	83 $\frac{3}{4}$	4190
2. Nanjanad Mixture (Full dose)	51	67	67	70	255	12750
3. 1/5 Nanjanad mixture + Foliar spray	36	42	52	44	174	8700
4. 2/5 do. + Foliar spray	40	60	52	43	195	9750
5. 3/5 do. + do.	44	65	64	59	232	11600

The data indicates that the treatment 2 has given the highest yield closely followed by treatment 5, whereas the other treatments have given low yields. The foliar spraying has not given better yields especially at lower manurial levels and Nanjanad mixture remains the best form of manuring for potatoes in the Nilgiris.

A. MARIAKULANDAI.
S. VENKATACHALAM.
K. SAPTHARSHI.

Madras agric. J., 45 (4) : 157, 1958

7th SCIENTIFIC WORKERS' CONFERENCE

5th SEPTEMBER, 1957

(Abstracts of accepted papers)

Some studies on the influence of 2, 4-D in Decreasing Blossom-drop and Increasing fruit-set in a Summer Crop of Brinjal.

by

C. R. Muthukrishnan,

In a summer crop of brinjal it was observed that as much as 28 percent of the flowers dropped and by application of 2, 4-D (5 p. p. m.) as water spray, to individual flowers, it was possible to reduce the blossom drop to 66.4 percent. The bulk of the blossoms which dropped consisted of the true short-styled flowers (49.6 percent on the whole) which are inherently sterile which always drop and never produce any fruit.

Among the rest of the potentially fertile flowers, 2,4-D was able to reduce the blossom drop by 60.5 percent. On the whole against only 12.0 percent fruit-set in the control, the treated plants recorded 37.0 percent which is more than three times the fruit-set in the control.

"Studies on the effect of Seed treatments in breaking the Impermeability of Leguminous seeds".

by

N. Narayana Prasad

Germination studies were made with the seeds of sixteen impermeable species belonging to the sub-families of Leguminosae. The seeds of these impermeable species were given the same seed treatment, viz., mechanical scarification, sulphuric acid treatments for 3 and 5 minutes and hot water treatments at 50, 60, 70, and 80°C, for 3 minutes. The percentage of germination was assessed in all the untreated and treated seeds.

Mechanical scarification has shown good effect on the species of Papilionaceae and Mimosoideae, but on the species of Caesalpinioideae the response was poor.

In the case of sulphuric acid treatments the three impermeable species of Papilionaceae reacted well with 5 minutes duration than with 3 minutes, in the species of Caesalpinioideae the treatment has no effect for 3 or 5 minutes duration and the species of Mimosoideae reacted well for the sulphuric acid treatments, but there is no appreciable increase in the germination percentage with an increase in the duration of the treatment.

The hot water treatments have no effect on the species of Papilionaceae and Caesalpinioideae. In the case of Mimosoideae all the species responded to hot water treatments at one temperature or other.

**Extract of replies received from Government on
Resolutions passed at the State Conference
held on 7th September 1957.**

RESOLUTION No. 2:

The Government regret that they must decline to comply with the request contained in the resolution cited to the effect that agricultural graduates alone should be appointed as Block Development Officers.

RESOLUTION No. 3:

Ref: G. O. 660 Public (Services — A) dated 1—3—1958.

Consequent on the reorganisation of the States, Tamil has become the official language of the State by an Act of the Legislature and an adequate knowledge of it has been prescribed for recruitment of personnel to the various services in the State. The Special rules for the various State and subordinate services prescribe language tests in Telugu, Urdu, Malayalam, Kannada and Hindi. Now that Tamil has become the official language of the State, it is considered that there is no necessity for the language tests in languages other than Tamil prescribed for the officers in the various services. The Government accordingly direct that the language tests prescribed in those rules should be abolished.

RESOLUTION No. 4:

The Government consider that the technical personnel should not be wasted on administrative work especially when there is such an acute shortage of Upper subordinates as at present. Only with this object in view orders were issued for replacing the Personal Assistants to the District Agricultural Officers by the Junior Superintendents in the six bifurcated districts. The Government do not consider that there is any case for reconsidering these orders.

RESOLUTION No. 5:

There is no case for enhancing the present rates of fixed travelling allowance of Agricultural Demonstrators.

RESOLUTION No. 6:

The Agricultural Demonstrator cannot be divested of responsibility for the stores in the depot in his charge.

RESOLUTION No. 8:

This request will be borne in mind whenever proposals for converting temporary posts into permanent ones are received from the Director of Agriculture and examined.

Lawley Road, P. O. }
Coimbatore, }
16—4—1958. }

**Secretary,
Agricultural Upper Subordinates' Association.**

Weather Review — For March, 1958.

RAINFALL DATA (IN INCHES)

Division	Station	Total rainfall for the month	Departure from normal	Total since 1st January 1958
North	Madras (Meenambakkam)	0.1	— 0.2	0.1
	Tirurkuppam*	Nil	— 0.3	Nil
	Vellore	0.1	— 0.2	1.2
	Gudiyatham*	Nil	— 0.3	1.6
East Coast	Palur*	Nil	— 0.4	0.5
	Tindivanam*	Nil	— 0.5	1.8
	Cuddalore	Nil	— 0.7	1.6
	Nagapattinam	0.1	— 0.7	0.5
	Aduthurai*	0.4	+ 0.1	0.9
	Pattukkottai*	1.2	+ 0.1	2.0
Central	Salem	0.7	+ 0.2	0.8
	Coimbatore (A. M. O.)*	0.1	— 0.1	0.3
	Coimbatore	0.1	— 0.4	0.3
	Tiruchirappalli	0.4	Nil	0.5
South	Mathurai	0.5	— 0.2	1.0
	Pamban	0.9	+ 0.2	1.5
	Koilpatti*	1.1	Nil	1.2
	Palayamcottai*	0.9	— 0.1	2.8
	Ambasamudram*	2.1	+ 0.2	5.1
	Nagercoil*	1.4	Nil	3.0
Hills	Kodaikanal	6.3	+ 4.5	7.7
	Coonoor*	5.9	+ 2.8	13.7
	Ootacamund*	5.4	+ 4.8	6.4
	Nanjanad*	3.0	+ 1.9	3.9

Note:— * Meteorological Stations of the Madras Agricultural Department.

The weather was mainly dry in Madras State during the month of March, 1958, except for the occasional light showers in interior and south Madras.

Dry weather prevailed throughout the State on 1st March, 1958, when a wind discontinuity at 900 meters a. s. l. passed through Salem. On 2nd March, 1958, thundershowers were received at a few places in interior Madras. On 3rd March, 1958, weather was mainly dry in Madras State. Scattered thundershowers occurred in Tamilnad on 4th March, 1958. On 5th March, 1958, dry continental air generally prevailed over the country outside the south Peninsula and except for the isolated showers in Ootacamund, weather was dry elsewhere in the region. An easterly wave that was moving across the south Andaman sea on 6th March, 1958, was apparently moving across the extreme south-east Bay of Bengal on the next day and crossed the south-west Bay subsequently. On 9th March, 1958, the easterly wave off Ceylon became unimportant and the other easterly wave moved into the south Bay of Bengal. For 7 days from 6th March, 1958, weather was dry in Tamilnad. Isolated showers were received in south Madras on 13th March, 1958, while dry weather prevailed elsewhere in the region. Thundershowers were scattered in Madras State on 14th March, 1958 and rains or thundershowers occurred at a few places in interior Madras on 15th March, 1958.

On 16th March, 1958, dry continental air was generally prevailing over the country outside the extreme south Peninsula, when rains or thundershowers occurred at a few places in Tamilnad. For 6 days from 17th March 1958, weather was dry throughout the Madras State. Rains or thundershowers were received at a few places in south Madras on 23rd March 1958. A cyclonic circulation existed over south Madras State and neighbourhood up to 900 metres a. s. l., as a result of which thundershowers were received at few places in Madras State for two days from 24th March, 1958. An upper air discontinuity between dry and relatively moist air at 1500 metres a. s. l. passed through Mangalore and Madras on 26th March 1958, when showers were localised in south Madras. Weather was mainly dry for two days from 27—3—1958. Thundershowers occurred at a few places in interior Madras on 29th March, 1958 and dry weather prevailed during the last two days of the month.

Regarding the fluctuations of day temperatures, they were generally above normal during the first three weeks and then a fall in day temperature was recorded. Night temperatures were generally above normal throughout the month under report.

Rainfall: The noteworthy rainfalls and the zonal rainfalls for the month are furnished below:

Noteworthy Rainfalls

No.	Date	Name of place	Rainfall in inches
1.	2—3—1958	Nanjanad	1.18
2.	15—3—1958	Kodaikanal	2.65
3.	16—3—1958	Ambasamudram	1.59
4.	26—3—1958	Coonoor	1.87
5.	29—3—1958	Ootacamund	4.76

Zonal Rainfall (in inches)

Name of Zone	Rainfall for March, 1958	Departure from Normal	Remarks.
North	0.1	— 0.3	Below normal
East Coast	0.3	— 0.4	do.
Central	0.3	— 0.1	Just below normal
South	1.2	Nil	Normal
Hills	5.8	+ 3.6	Above normal

Agricultural Meteorology Section,
Lawley Road Post, Coimbatore.
15th April, 1958.

C. B. M., M. V. J., & M. S. D.

Departmental Notifications

Gazetted Officers — Postings and Transfers

Name and Designation	Posted to or Transferred
Sri B. S. Kuppuswami, Asst. Horticulturist	Loan of services to the Coffee Board. Extension - one year.
„ B. P. Masilamani, D. A. O. on leave	Superintendent, Central Farm, Coimbatore.
„ T. S. Lakshmanan, Asst. Agri. Chemist	Gazetted Asst. Lecturer in Chemistry.
„ S. V. Kuppuswami, Asst. in Chemistry	Asst. Agri. Chemist.
„ S. Gopalakrishnan, Asst. in Plant Physiology	Asst. Agri. Chemist, Groundnut Storage Scheme, Coimbatore.
„ D. John Durairaj, Asst. Agri. Chemist, Cuddalore	To continue as Asst. Agri. Chemist, Cuddalore.
„ K. Vasudeva Menon, Asst. in Chemistry	Asst. Agri. Chemist (Blast Resistant scheme) Coimbatore.
„ T. A. Govinda Ayyar, Statistical Asst. in Chemistry	Asst. Agri. Chemist vice Sri F. L. Daniel on leave.
„ B. W. X. Pennayya, Millets and Pulses Specialist on return from training in U. S. A.	Millets and Pulses Specialist.
„ S. Sundaram, Millets and Pulses Specialist	Vice Principal, Agri. College and Research Inst. Coimbatore Vice Sri M. Bhavani- Sankara Rao granted leave.
„ P. N. Krishnaswami Rao, Asst. Cotton Specialist on leave	Gazetted Asst. to the Certifying Officer, Rajapalayam.
„ K. Bettai Gowder, Asst. Horticulturist (Veg. Scheme) on leave	Assistant Horticulturist, (Veg. Scheme) Coimbatore.
„ F. L. Daniel, Asst. Agri. Chemist on leave	Asst. Agri. Chemist, Coimbatore.
Dr. A. Mariakulandai, Government Agricultural Chemist Coimbatore	Earned leave for 30 days from 15—4—1958.
Sri M. Sundaram, Lecturer in Chemistry	To be in charge of the current duties of the post of Government Agri. Chemist Coimbatore.

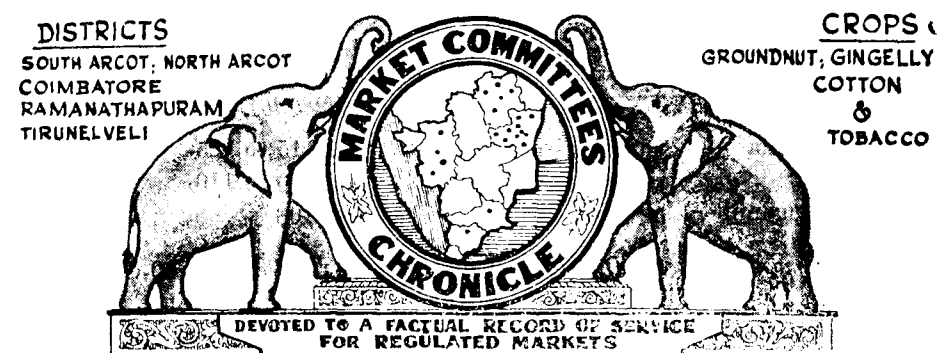
Subordinate Officers — Posting or Transfers

Name and Designation	Posted to or Transferred
Sri R. Venkataraman, Spl. A. D., (Khadi) Udumalpet	Exten. Officer in Agri., Thirukazikundram.
„ C. P. Natarajan, Asst. in Chemistry, I. A. R. I., New Delhi. On completion of his training.	Asst. in Chemistry, Coimbatore.
„ P. Kandaswamy, Instructor in Agri. Bhavanisagar.	Exten. Officer in Agri., Shombanarkoil.
„ V. M. Kalyanaraman, on leave.	Asst. in Entomology, (Sugarcane) Pest Scheme, Coimbatore.
„ S. M. Vittal, Asst. in Entomology, Coimbatore.	Asst. in Entomology, Sub-Station, Kumaramangalam, Tanjore District.
„ N. Ramadoss, Exten. Officer in Agri., Sattur.	A. D., Tirukoilur, S. Arcot.
„ C. R. Muthukrishnan, Asst. in Fruits, on leave.	Asst. in Fruits, Thimmapuram, Salem Dist.
„ G. Laxinarayanan, Asst. in Fruits, Thimmapuram.	F. M., State Seed Farm, Thiruvannamalai.
„ V. Mallayan, Fieldman, Coimbatore.	A. D., Rasipuram.
„ V. Balasubramaniam, Coconut Nursery Asst. on leave.	Senior Asst. the Regional Coconut Res. Station, Tanjore.
„ W. R. Nargunam F. M., S. S. Farm, Kakuppam.	Exten. Officer in Agri., Ulundurpet.
„ P. S. Ranganathan, Exten. Officer in Agri. Saidapet.	Asst. (Agri. Section) Parasite Breeding Station, Gudiyatham.
„ P. A. Krishnamurthi, A. D., Thirukoilur.	Hort. Dev. Asst., Cuddalore.

Change of Head-quarters

Sri A. Kandaswamy	— Satyamangalam	— Gobichettipalayam.
„ D. Christdas	— Tirunelveli	— Nanguneri, Tirunelveli Dt.
„ S. V. Ponnuswami	— Tiruchinopoly	— Tanjore.
„ S. Ayyaswami, Fieldman	— (on Foreign Service)	— A. D., Peralem.

Madras agri. J., 45 : (4) 163—167, 1958

Review of Market Conditions of Commercial Crops in the
Notified Areas for the Month of March 1958.

Cotton : (In this section Lint : Candy of 784 lbs.
Kapas : Pothi of 280 lbs.)

Season : Tiruppur : Coimbatore District. There were no rains during the month under report. The yield of the cotton crop is reported to have been affected in Pollachi Taluk due to pest attack and the season is also practically over here.

Tiruppur : The Market started with an opening balance of 2048 edys. of cambodia and 75 edys. of karunganni lint. The total arrivals into the market at Tiruppur during the month were 11,627 edys. of cambodia and 225 edys. of karunganni lint which included 2591 edys. of cambodia and 75 edys. of karunganni locally ginned. Despatches from Tiruppur accounted for 7,428 edys. of cambodia and 99 edys. of karunganni lint sent to Madras, Tanjore, Salem and Dindigul and to places in Kerala and Andhra states. At the end of the month there was a closing stock of 6247 edys. of cambodia and 201 edys. of karunganni lint.

Kapas : The kapas market opened with a stock of 3,688 pothis of cambodia and 103 pothis of karunganni kapas. The total arrivals into the Tiruppur during the month were 61,575 pothis of cambodia and 4,667 pothis of karunganni. The disposals during the period were 41,002 pothis of cambodia and 3,521 pothis of karunganni kapas in the market area of Tiruppur. At the end of the month there was a closing stock of 24,261 pothis of cambodia and 1,249 pothis of karunganni kapas.

Prices : The cotton market was fairly steady during the month. Prices slightly declined due to poor demand from the textile mills and larger arrivals of new crop cotton. The price ranges were as follows :

Prices in Rs. lint (per candy of 784 lbs.)

Cambodia - superior quality	Rs. 900 to 970
„ average „	Rs. 750 to 850
Karunganni - Superior „	Rs. 871

Prices in Rs. kapas per pothi of 280 lbs.

Cambodia Superior quality	Rs. 115 to 125
do average „	Rs. 100 to 110
Karunganni superior „	Rs. 108

Ramanathapuram District: There was a rainfall of 0.80 cents and 0.38 cents at Virudhunagar and Sattur respectively. Pickings of kapas were in progress and the yield of karunganni was estimated to be above normal.

The following were the arrivals and disposals of kapas and lint in the important markets of the district during the month.

Arrivals: Kapas in pothis of 280 lbs. and lint in cdys. of 784 lbs.

	Opening Stock	Receipts	Total	Disposals	Closing Stock
Kapas	—	28,200	28,200	26,200	2,000
Lint	—	3,775	3,175	3,105	670

Prices: The trend of the kapas market was weak, throughout the month.

The following were the prices of kapas and lint in the district during the month.

Prices in Rs - kapas in pothis of 280 lbs.

Karunganni	Rs. 91 to 103
Tinny Karunganni	Rs. 86 to 95
Tinny	Rs. 75 to 83

Lint in cdys. of 784 lbs.

Karunganni	Rs. 770 to 846
Tinny Karunganni	Rs. 745 to 825
Tinny	Rs. 726 to 730
Uganda certified	Rs. 1,090
Uncertified Uganda	Rs. —
Cambodia	Rs. 820 to 990

Seeds in Mds of 82.2/7 lbs.

Karunganni	Rs. 9.25 to 10.60
Cambodia	Rs. 7.00 to 7.86

South Arcot District: Arrivals were negligible on account of slack season. Villupuram market received one pothi. The trade had a stock of 38 pothis at the end of the month. The average price worked out to Rs. 68.80 per pothi of 280 lbs.

Groundnut: South Arcot District: Arrivals of winter groundnuts came down as the season for this crop was coming to a close. Receipts from the district produce amounted to 2,388 tons while arrivals from other districts like North Arcot, Tiruchirapalli etc. to 805 tons. Imports from other states came to 5 tons. The off-take by oil mills and country chekkus was 2,643 tons and 304 tons respectively. Despatches to other districts like Madras, Tiruchirapalli, Salem etc. and other states stood at 769 tons and 32 tons respectively. Wastages were calculated at 135 tons. The stock with the trade at the end of the month was 1,678 tons.

The average prices in the several markets of the district ranged from Rs. 131/54 to 140/27 per cdy of 531 lbs. according to quality of the produce.

North Arcot District: Mainly hot weather conditions prevailed throughout the month.

The following were the stocks, arrivals, despatches and closing stock of groundnut at North Arcot markets during March, 1958.

Quantity in tons.

Name of commercial crops	Opening balance	Arrivals	Disposals	Closing balance
Groundnut kernels	481	1298	1276	503
Groundnut pods	1074	486	1007	553

The prices of groundnut and its products moved up very slightly, as compared to last month. Groundnut kernels were sold at Rs. 110 to 140 per candy of 531 lb., oil at Rs. 280 to 300 per candy of 500lb., pods at Rs. 11—14 of 82 2/7 lb. and oil cake at Rs. 8—9.28 per standard maund of 82 2/7 lb.

Ramanathapuram District: The following were the arrivals and disposals of pods and kernels in Virudhunagar market during March, 1958 under report:

Pods in tons	Opening stock	Receipts	Total	Disposal	Closing stock
„	450	250	700	700	Nil
Kernels in candys	1705	—	1705	100	706

The following were the prices of pods, kernels, oil and oilcakes in the Virudhunagar market during the month:

Pods in maunds	Rs.
Kernels per 531 lb.	135—150
Oil per 35 lb.	19.75—20.00
Oilcake per maund	7.75—9.00

Gingelly: South Arcot District: Arrivals from the district produce and from other districts came to 983 and 389 bags per bag of 168 lb. respectively. More than 97% of the arrivals were to Vridhachalam market alone. The chekkus utilised 1185 bags for crushing. Despatches to other districts came to 178 bags. The trade was left with a stock of 356 bags. The prices in the several markets ranged from Rs. 63.00 to 66.00 per bag of 168 lb.

Tobacco: Coimbatore District: The prices had slightly declined during the last fortnight due to poor demand from the traders in the exporting centres like Kerala State. But the prices are expected to improve with the commencement of business in the Tamil New year. Harvest of the early planted crop was almost over in all the three taluks. Only the late planted crops were yet in the field and the conditions of these is reported to be fair.

At the end of the month under report, there was a stock of 11255 candies of chewing and 105 candies of cheroot tobacco. About 1800 candies of chewing and 125 candies of cheroot tobacco were exported to Madurai, North Arcot, Salem, South Arcot, and Nilgiris in the Madras State and to places of Mysore, Bombay, Kerala and Andhra states.

The price range were as follows:

Variety	(per candy of 500 lb.)		
	I Grade	II Grade	III Grade
1. <i>Chewing tobacco:</i> (sun cured)			
(a) Mecnampalayam	260—310	200—260	150—180
(b) Other varieties	200—285	120—180	10—105
2. <i>Cheroot varieties:</i> sun cured (grown in Erode and Bhavani taluks)	180—240	100—160	60—90
3. <i>Chewing tobacco:</i> pit cured (grown in Palladam and Sular areas)	200—250	100—200	50—125

Prices in Rs per lb.	
1. Green	Rs. 8.25 — 8.68
Green (extra green)	Rs. 9.41 — 9.71
2. Shipment	Rs. 7.25 — 7.97
3. Splits	Rs. 8.11
4. Lights	Rs. 6 — 7.40
5. Seeds	Rs. 4 — 5.35

Review of Administrative Activities of Market Committees during March 1958.

General: The Market Committees of South Arcot Market Committee, North Arcot Market Committee and Coimbatore Market Committee continued to function during the month. The Market Committees of Ramanathapuram and Tirunelveli could not function due to the cases pending with the Supreme Court.

Enforcement: The progress of licencing by Market Committees during the month are as follows:

Name of Market Committees	Section 5 (1)		Section (3) 5		Weighmen	
	A	B	A	B	A	B
South Arcot Market Committee	183	1166	146	839	144	796
North Arcot Market Committee	192	616	138	538	96	341
Coimbatore Market Committee	238	561	182	445	118	344

A: During the year.

B: up to the end of the month.

North Arcot Market Committee: The second Meeting of the Committee was held at Vellore on 5—3—1958 and all the 36 subjects in the agenda disposed off.

Coimbatore Market Committee: There were two meetings of the Committee during the month, under report. The first meeting was held on 10—3—1958 at Tiruppur and the other which was an urgent meeting was held at Tiruppur on 27—3—1958. The most important subjects discussed and passed were as follows:

1. The Committee decided to adopt sales in the regulated markets either by open auction or by closed bid system.
2. The Committee decided to open a regulated market at Coimbatore from 1—4—1958.

Quality analysis: Nil

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THE RAMASASTRULU MUNAGALA PRIZE, 1958

1. The prize will be awarded during the College Day and Conference in 1958.
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 to 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 July 1958.

C. M. Bhakthavathsalu,
Secretary.

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