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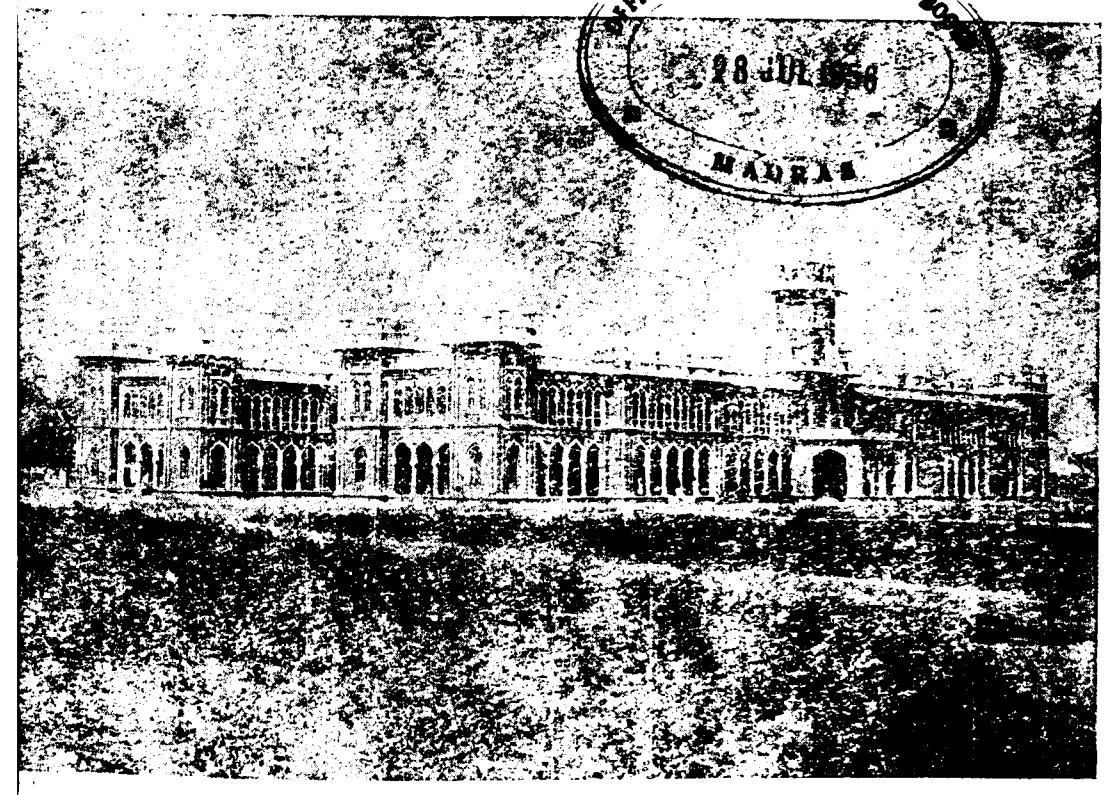
THE
Madras Agricultural Journal

Vol. XLIII April 1956 354 No. 4



AGRICULTURAL COLLEGE AND RESEARCH INSTITUTE, COIMBATORE

Published by

THE MADRAS AGRICULTURAL STUDENTS' UNION,

AGRICULTURAL COLLEGE AND RESEARCH INSTITUTE,

COIMBATORE, S. INDIA.

Annual Subscription.

Inland Rs. 6—0—0

Foreign Rs. 7—0—0

Single Copy

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1. The prize will be awarded during the College Day and Conference in 1956.

2. The prize will be in the form of a medal and will be awarded to the member of the Union who submits the best account of research or enquiry, carried out by him on any agricultural subject.

3. The subject matter shall not exceed in length twelve foolscap pages, typewritten on one side.

4. Intending competitors should notify the Secretary of the Madras Agricultural Students' Union with a covering letter giving the full name and address of the competitor. The author's name should not be shown on the paper, but should be entered as a *nom-de-plume*.

5. Four typewritten copies of the paper should be sent.

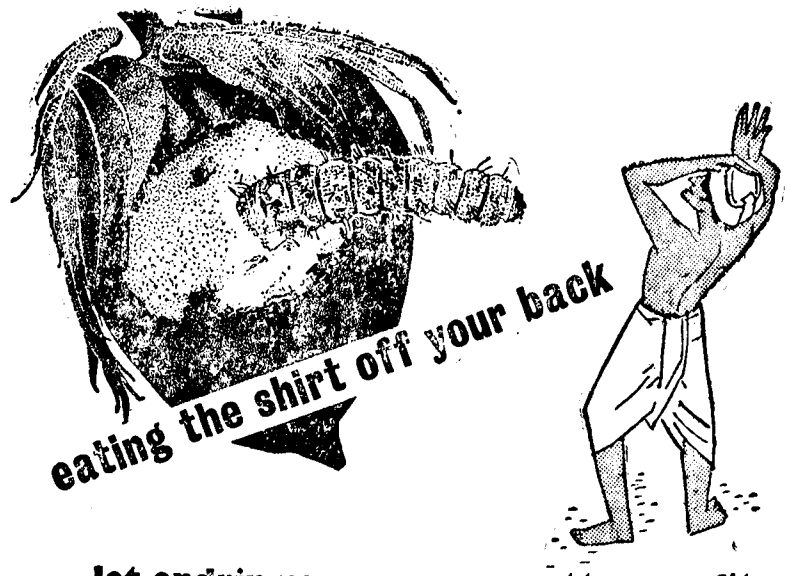
6. The name of the successful competitor will be announced and the prize awarded at the time of the College Day and Conference.

7. Paper or papers accepted will become the property of the Union, and the Union reserves to itself the right to publish all or any of the papers.

8. All references in the papers to published books, reports or papers by other workers must be acknowledged.

9. The last date for receipt of papers is 1st July 1956.

J. Sakharam Rao,
Secretary,



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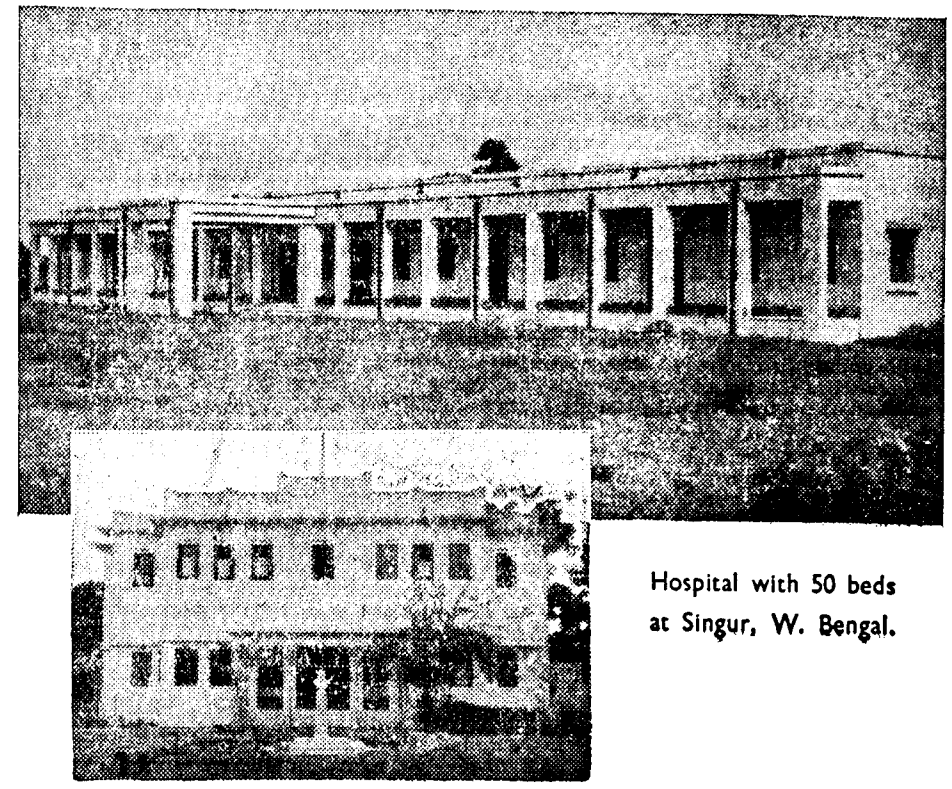

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THE MADRAS AGRICULTURAL JOURNAL

Hints to Contributors

The pages of the Madras Agricultural Journal shall be open ordinarily only to the members of the Madras Agricultural Students' Union.

All articles for publication should be addressed to the Editor, Madras Agricultural Journal, Lawley Road P. O., Coimbatore.

In view of the high cost of printing, contributions should be as concise as possible and should conform to the best usage in the leading Journals published in India and abroad.

Manuscripts should be typed with double spacing on one side of the paper only and with wide margin. They should not ordinarily exceed 5,000 words or 12 pages of printed matter including tables and illustrations in the Journal. Manuscripts should be carefully revised; numerical data and calculation checked. Main headings in the text should be typed in capitals with paragraph indentations and followed by a period and two hyphens. Sub-heads should be lower case and be underlined to indicate italics. Latin nomenclature and local terms etc., should be in italics. Original papers must conclude with a summary of not more than 300 words, drawing attention to the main facts and conclusions.

Tables: The number of tables should be restricted to those absolutely necessary, as numerous tables detract from the readability of the article. Each table should be numbered consecutively from 1 up and must have a heading stating its contents clearly and concisely. The tables are to be typed on separate sheets with their positions marked in the text.

Illustrations: Wherever possible illustrations should be made with pen and Indian ink for reproduction as line blocks. The name of the author, title of the article and figure number should be written on the back of each figure in blacklead pencil. Each figure should have a legend typed on a separate sheet.

Photographs: Photographs and wash drawings are more expensive as half-tone blocks are necessary. The cost of blocks is chargeable to the author of the article. Photographs submitted as illustrations should be unmounted, glossy prints of good quality, with strong contrasts, trimmed so as to include only the essential features to be illustrated. They should preferably be of the same size as desired in the printed paper. Photographs should always be packed flat, never rolled or folded.

Line drawings: Line drawings, and charts should be prepared in twice the scale desired in the printed form. All letterings, figure numbers and explanatory notes in graphs should be light face and large enough to be 1/16″ high in the finished illustrations.

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References: References and reviews of literature should relate only to closely pertinent papers. The list of references should come at the end of the article, after the summary and should be arranged in alphabetical order of authors' names followed by the year of publication in brackets, and then the title of the paper, name of periodical volume number in bold face type and then the page number, e. g. Darlington C. D., (1944) Heredity, development and infection. *Nature*, **154**; 164-9. Abbreviations for names of journals are to be in the approved form as given in the World List of Periodicals.

The responsibility for statements, whether of fact or opinion, rests entirely with the author of the article and not with the Editorial Board of the Madras Agricultural Journal.

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Editorial

Is Language a Vehicle or Barrier to Science? The one-world concept of Wendell Wilkie is still a far-off ideal and present day trends do not encourage any likelihood of speedy improvement, although stray examples like the F. A. O., with s solid, though unspectacular record of useful work and the ecent International Conference at Geneva on the peaceful ses of nuclear energy might mitigate our pessimism to a ight degree.

The value of things is seldom proportionate to their ize. The contribution to science of any country or inguistic group is not in proportion to its size, for instance, n spite of the fact that England is after all only a small sland in a corner of the continent of Europe, the majority of resent-day scientific work is published only in English. It s estimated that nearly fifty per cent of the world's scientific vork is written in English, about fifteen per cent in French nd German, perhaps ten per cent in Russian, and two to hree per cent in Spanish, while the remaining seven to eight er cent includes all the other languages of the world. In uture years it is likely that the importance of Russian and Japanese might increase and possibly Chinese too may come to assume more importance, but it is very unlikely that any language in India or Pakistan would ever emerge as capable of replacing English as a medium of scientific communication.

It follows therefore that a nation using a language which from the global viewpoint is only a "minority language" can never avoid the need to learn two languages, if it aspires to attain a high level of scientific achievement. In this context we have also to recognise that however strong

local and linguistic patriotism might be, equally strong is the desire of the scientific worker to publish his work in periodicals that are likely to be read by his scientific colleagues, whatever be their race or tongue.

A further brake upon excessive linguism is finance. In almost every country where the language is only one of the minor tongues of the scientific world, economic resources would be very limited and will not permit of being spent on ventures that can only pander to local vanities. Another limitation would be the very negligible overseas demand for such parochial periodicals on scientific subjects. Even as it is, very few libraries can afford to subscribe to all the scientific periodicals and publications they would like to have, so that they are compelled to be very severely selective in their choice. And then we have the scientific workers' difficulty of keeping abreast of current progress in different branches of science. Even now there is an urgent need to counteract undue specialisation, by concentrating publication in only a few periodicals, in languages that are most widely understood. From this point, one universal language would be most desirable, but unfortunately this is not a feasible idea at the moment. The utmost that can be hoped for at present is to have a world-wide organisation to make available translations or at least summaries of the most important papers concentrating upon major periodicals – as that would in turn encourage the scientist to publish his results in the most widely-read journals. The second need is to have a world list, complete and without any overlapping, of all books and papers published. The third need is to provide translations of any useful paper cheaply and quickly. It is no doubt true that a beginning has already been made in these directions by the Abstracting Board of the International Council of Scientific Unions, but what is really needed is a clearer appreciation of the paramount importance of free communication of ideas and information and the incompatibility of real scientific progress with nationalism – which often deteriorates into parochialism.

Science for the Farmer—III
Have we the Herbage Species?

by

R. M. SAVUR, I. E. S. (Retd.)

No country can take wiser action in the interests of the health and stamina of its people than to ensure that its children do not suffer for want of milk. This is just what our Governments are making frantic efforts to do, to ensure that our children do not want for milk. But so far all their measures are concerned only with improving the breed of our cattle, by providing more and better breeding bulls, artifiicial insemination, etc. But all seem to ignore the fact that the effect of better sires can easily be nullified by poor feeding. The improvement in the calves produced can be maintained only if they are fed with nutritious feeds and fodder in larger quantities than we have been finding it possible to give their mothers.

The Dutch Friesian breed was believed to be the heaviest milkers in the World. British breeders took Friesian cattle to England and so improved them that now the British Friesians are recognised as an almost distinct breed superior even to the Dutch Friesians. Breeders of this calibre, we are told, have a saying that "half the pedigree goes in at the mouth." *Pari passu* with measures to supply pedigree sires we must take steps to provide better feeds and fodders and in larger quantities, or all our efforts will be wasted.

In England and Wales in 1946 more than thirteen million acres were under permanent grass and temporary leys of cultivated grass, with an additional acreage of over two hundred thousand acres cropped with beans and peas for stock feed as against ten and a half million acres under grain and other crops. This is because Britain, being a Welfare State, prefers, in the interests of national health and economy, to produce all its requirements of liquid milk and to import foodgrains to meet its deficit in them. Fortunately for us we can aim at self-sufficiency in both liquid milk and foodgrains, for we have vast areas of cultivable waste land for grass production. Further, our acre yields of foodgrains are so low that with scientifiic methods we could double our production using less arable land than at present. So in this country it is quite possible to achieve self-sufficiency in both milk and foodgrains but

whether this is probable will depend entirely on the kind of lead our newly started extension services are going to give us farmers.

The main principles of growing forage crope and grass which are fundamental to sound farming practice are the same all over the World, but the environmental conditions in the tropics are so different from those in temperate climates that it is not feasible to put these principles into practice exactly on the lines that experience has proved to be advantageous in the United Kingdom. For instance, perennial legumes, like lucerne and the clovers of temperate climates will not thrive so well in the tropics and so far scientists in the tropics have failed to find a legume that will effectively take their place in the rotation. Scientific knowledge and research on the problem of grassland management in the tropics is still in its infancy. Such research in this country is essential, for in the words of Dr. J. B. Pole Evans: "Pastoral research, if given full scope, holds the key to the preservation of our water and soil resources, the raising of our soil fertility, the revitalisation of our agriculture, the termination of the drift from country to town, the production of more wholesome food, the creation of a more healthy people and a more contented and vigorous nation."

Attempts to grow grass, however need not wait for the results of such research, for there is enough information available about suitable grasses for every kind of environment. Such information as is available proves that we have in this country the grass species fit for cultivation and all that the farmer need do now is by actual trial choose the species, variety and strain best suited to his environment. We can proceed with confidence to make our trials and cultivate grass because we have one advantage which more than compensates for the absence of perennial legumes and the superior nutritional value of the grasses of the temperate climates. The average yield of green forage from cultivated tropical grasses will be several times that which is usually obtained from a good grass ley in England and the total yield per acre of digestible nutrients will be considerably more than is obtainable from pasturage in temperate regions with their shorter growing season and winter frosts. The protein content of tropical grasses can easily be raised to the level of the average pasture grasses of temperate regions by two simple measures well within the capacity of any farmer. One is better manuring of the forage crop. The second is the growing of grasses under the shade of leguminous trees

because this has been found to increase the total yield of grasses grown under shade as well as the percentage of protein. In fact figures quoted in books of unquestionable authority seem to show that by growing a good tropical grass under leguminous shade, combined with good cultural treatment the protein content can be raised so as to equal, if not excel, the percentage of protein in the best temperate grasses. In support are these figures taken from Joint Publication No. 10 of the Commonwealth Agricultural Bureaux and the F. A. O. study: "Improving the world's grasslands."

Carpet or sannah grass grown under legume shade	Protein content–14%
Very good (English) meadow hay	10. 0%
Young crested wheat grass (of temperate regions)	10. 15%

From the practical farmer's point of view forage species can be divided into two classes:–

(1) Forage crops of little or no value for building up soil structure.

(2) Species which have high feeding value as well as capacity for soil aggregation.

The farmer's job is to fit both these into his farming system so as to get highest return from his land while building up its fertility and maintaining it at the highest level possible.

Under each of the above classes will be mentioned only those species which have been tried and found to grow luxuriantly on the West Coast climate on the alluvial sands of the coastal strip. These will be enongh to prove that we have the species.

Class 1.

Seasonal Forage Crops which do not affect soil aggregation; The sorghum species are nutritious forage crops which are quick-growing and yield a heavy tonnage of green forage. Of these the best for fodder is some sweet sorghum variety. Sown with the first pre-monsoon showers towards the end of May, on well-drained soil one can get two heavy cuttings by the end of October, when the dry weather kills the stubble. Usually the sweet sorghum varieties are useless for grain purposes but a variety which I brought from Wardha bears excellent ear-heads of large white

grains and its grain yield on my farm was, last season, better than the best I have obtained from the improved Coimbatore dual-purpose strains like CO. 11.

Closely allied to these cultivated sorghums there are some grass sorghums whose seed is of no value except for sowing. Of these the only important species is Sudan grass. Curiously enough Sudan grass is unimportant in Sudan itself but is greatly valued in the U. S. where it was introduced from Khartoum in 1909 and met with immediate success. We are told that from the eight ounces of seed originally imported in 1909, a crop was developed that in 1918 was worth 10,500,000 dollars. I have tried and found Sudan grass eminently suited to these well-drained but poor, sandy soils. It makes excellent hay and can also be used for silage. It can be cut and fed as green forage or grazed. On the West Coast, when sown with the pre-monsoon showers it yields at least three cuttings and sometimes four, if there are showers in November-December. Under irrigation it will live for more than a year and give six to eight cuttings depending on the manuring. It makes very rapid growth from seed and tillers profusely, the tillering being favoured by mowing. Its quick growth makes it very well adapted for use as a catch crop for hay or silage. In the U. S. the yield is stated to be over three tons of cured hay per acre. At the University Farm at Honolulu the total annual yield from eight cuttings was reported to be 49 tons an acre of green forage. When you add to all this the fact that tests at the University Farm showed that Sudan grass was the only one of several grasses (including Napier, Guinea, and Rhodes grasses) that gave significantly higher milk production you can imagine its potential value to the mixed farmer of the West Coast who has an acre or two of waste land that he does not know how to use.

In the U. S. they have developed a variety called Sweet Sudan by crossing a saccharine sorghum with Sudan grass which is said to be even better than Sudan grass, because it is more palatable, has broader leaves, larger stems and taller growth than the ordinary Sudan grass and matures later.

In spite of the potentialities of Sudan grass we are not likely to be able to get seed to enable us to grow it on any scale. Fortunately for our immediate needs we have substitutes which are not inferior to it. It seems that according to chemical analyses *Setaria italica (Tenai)* is about as nutritious as Sudan grass and Timothy, which

is by far the most extensively grown hay grass in the U. S. *Setaria italica* does better than sorghum on poor soils and stands heavy rains better. It can therefore be sown later than cholam, even when the monsoon is beginning in right earnest. Another forage crop which is not exacting in its soil and fertility requirements is *Pennisetum typhoides (Cumbu)*. The seeds of both these are cheap and only a few pounds are required to sow an acre. But in the case of *Cumbu* there is a special fodder variety which tillers profusely and can be cut repeatedly. This fodder variety should be used in preference if a purely forage crop is desired.

Both the total yield of forage and its protein content can be enormously increased by growing some legumes in association with the above-mentioned cereals. At the same time the legume roots and stubble will more than replenish the soil nitrogen used up by the forage crop. I have found two annual legumes pre-eminently suited to these poor soils. In areas which are not water-logged, cow-pea and velvet bean do well in the poorest of soils provided they contain legume nodule bacteria. On land on which legumes have never been grown it is advisable to use inoculated seed for the first sowing. This culture can be obtained from the Coimbatore Agricultural Institute and costs nothing.

I smiled a superior smile when I read that the Sudanese were so ignorant of the value of Sudan grass that they never attempted to cultivate it. But believe me, I did not feel amused and ceased to feel superior when I read about velvet bean. What I read was this :–

"The velvet been is apparently a native of India. It is said to have been introduced into Florida nearly a century ago. It was grown as an ornamental vine for porches and trellises. The velvet bean has been an important factor in the development of the live-stock industry and as a soil-improving crop. The seeds have a high feeding value and are important as a concentrated feed; the leaves and vines afford good roughage. For soil improvement, especially on sandy soils, the velvet bean is one of the best crops."

There is not the least exaggeration in the above quotation for I have been growing velvet bean for more than four years and I know. But how many fellow-countrymen of mine grow this valuable native of India ?

Cowpea likes warm weather, will stand considerable drought and tolerates shade. It is better adapted to varied soils and makes better growth under adverse conditions than most other legumes. In the U. S. it is considered so valuable a crop for human consumption as well as for hay and silage, that the annual acreage under cowpea is some three million acres. Cowpea hay analysis, on the average show a little over 16 percent of protein; mixing cowpea hay with even paddy straw would provide a maintenance ration sufficiently nutritious for our indigenous cattle to justify cutting out expenditure on cakes. I am putting into practice my conviction that in velvet bean and cowpea we have two of the finest legumes for improving poor soils and poor cattle, not to mention poor farmers as well.

Research Notes

A note on Sweet Sudan Grass

There have been frequent enquiries by a number of interested farmers as to what exactly 'Sweet Sudan' is. These enquiries have been prompted by the high praise this fodder grass has received in foreign journals and press communications. Sweet Sudan grass U. S. A. Reg. No. 92 was obtained by workers at the Texas Agricultural Experiment Station in co-operation with the U. S. Department of Agriculture. The common Sudan grass has insipid stems and to improve this important fodder grass it was crossed with a sweet-stemmed grain sorghum variety 'Leoti Sorgo'. The hybrid was crossed back to Sudan grass. Some of the plants from the progeny which were highly palatable to cattle were inter-crossed, and from the progeny suitable plants were selected. The mixture of strains has been named as 'Sweet Sudan'. The following characteristics of the plant has been extracted: (Agronomy Journal Vol. 41, 1949–page 539).

"Sweet Sudan grass is a strain that resembles the common variety but has stems that are slightly coarser, and are juicy and sweet, rather than pithy. It is slightly later in maturity, has tan plant colour, and has glumes that are sienna in colour rather than straw to black." "The desirable characteristics of Leoti Sorgo that have been incorporated into Sweet Sudan grass are: juiciness and sweetness of stem; some resistance to foliage diseases, to chinch bug and charcoal rot; sienna glume colour that allows a mechanical mixture with Johnson grass to be easily detected; high seed-producing ability; and less shattering. Sweet Sudan grass grows more slowly in the early spring than does common sudan grass but

remains green and growing and more palatable later in summer and fall. A mixture of strains was distributed rather than a pureline because no pure line was found that was a vigorous as first generation hybrids whose parents were different strains. Since the cross-pollination percentage in Sudan grass in frequently 50 or more, it was thought that a mixture of purelines would soon result in a synthetic variety that would soon become homozygous and contain enough heterozygous plants to raise the average production and vigor of the variety considerably".

At the Agricultural College and Research Institute, Coimbatore, hybridizations have been done between Sudan Grass and one of the recommended fodder types namely, Co. 11. Cholam Co. 11 is a strain having juicy and sweet stalks which is now spreading in all the districts. It yields about 25,000 lb. of succulent sweet green fodder per acre, in about 70 days when grown under irrigation. The selections from this hybridization would yield fodder types which may be drought-resistant also and thus give plants which may demand less water.

Another series of hybridisations is at hand in which the hybrid between the grain Sorghum and Johnson grass is inter-crossed with several other types like (i) Co. 11, a fodder strain of cholam (ii) low HCN content Sudan grass to evolve a fodder strain with less of HCN content, (iii) Leoti Sorgo, a sweet juicy-stemmed grain sorghum from America and (iv) A. S. 4003 a cholam variety from Africa resistant to the parasite Striga in order to select out different types of fodder sorghum strains.

Agriculture Research Institute,
Coimbatore, 17—3—1956. } N. KRISHNASWAMY.

A Note on Heavy Manuring of Rice at The Agricultural Research Station, Aduthurai

Experiments to determine the optimum dose of manure for rice were conducted at the Agricultural Research Station, Aduthurai in previous years, as a result of which a manurial schedule of 5000 lb. of superphosphate, is being adopted at the station and also recommended to cultivators to get maximum economic returns. The present note deals with observations on a bulk trial conducted during 1954 in *Kuruvai* (June–September), *Samba* (July–January) and *Thaladi* (September–February) seasons, to find out how far the yield could be increased without reference to margin of profit, by heavy dosages of manures in comparison with the doses usually adopted. The details of the trials are furnished below.

Two contiguous plots in the same block, each 40 cents in area were selected, of which one field received heavy manuring as detailed below.

A. *Heavy manuring per acre:*

6000 lb. green leaf (30 lb. Nitrogen)
10 cartloads cattle manure (50 lb. Nitrogen)
350 lb. Ammonium Sulphate (70 lb. Nitrogen)
150 lb. Super phosphate (25 lb. P_2O_5)

Total Nitrogen	150 lb.
Total P_2O_5	25 lb.

B. *Normal manuring per acre:*

5000 lb. green leaf (25 lb. Nitrogen)
150 lb. Ammonium Sulphate (30 lb. Nitrogen)
150 lb. Super phosphate (25 lb. P_2O_5)

Total Nitrogen	25 lb.
Total P_2O_5	25 lb.

Green leaf and cattle manure were applied well in advance of planting and superphosphate at the time of final puddling and levelling of the plots. Ammonium sulphate was applied in split doses to supply 35 lb. nitrogen at planting and 35 lb. nitrogen a month before flowering in the case of heavy manuring (A) and 20 lb. nitrogen and 10 lb. nitrogen correspondingly, under nomal manuring (B). Variety ADT. 20 (105 days) was grown in *Kuruvai* season, Co. 25 (185 days) in *Samba* season and ADT. 25 (165 days) in *Thaladt* season. As is the usual practice, in *Kuruvai* season the seedlings were planted with a spacing of 4″×4″ while in the other two seasons it was 6″×6″.

One hundred plants were taken at random for counts of productive tillers and measurement of height, length of panicle and proportion of of grain and chaff. The gross yield also was taken from which acre-yields were calculated. The data collected during the three seasons are furnished in the table.

Field observations showed that the crop under heavy manuring had better growth with darker green foliage than that receiving normal manuring. Lodging was seen in the crop under heavy manuring in all seasons, particularly so in *Samba* and *Thaladi*. The *Samba* and *Thaladi* varieties had a longer vegetative phase and so grew taller and lodged even before blooming.

From the data presented it will be seen that although the number of earbearing tillers is more under heavy manuring, the difference between lengths of panicle is negligible. The proportion of chaff to grain is higher in heavily manured plots in all cases; it is highest in the short-duration *Kuruvai* crop.

An extra yield of 275 lb. is obtained from *Kuruvai* crop under heavy manuring, but the value is not commensurate with the extra expenditure involved. In the other two seasons there is an actual reduction of yield, due to lodging and consequent non-set spikelets.

The results that the advantage of heavy manuring can be realised only if a non-lodging variety is grown. Whether or not a heavier dose of superphosphate (under heavy manuring) would reduce the lodging, is a factor to be considered. In spite of a larger proportion of chaff, the *Kuruvai* crop under heavy manuring has recorded high yields. This may be attributed to the closer spacing adopted and consequent increase in the number of plants per unit area. Manuring beyond an optimum dose is decidedly uneconomical. Other conditions being equal, spacing would also appear to be one of the factors influencing yield in *Kuruvai* (short duration) varieties.

Particulars	Kuruvai (ADT. 20)		Thaladi (ADT. 25)		Samba (ADT. 25)	
	Intensive manuring	Normal manuring	Intensive manuring	Normal manuring	Intensive manuring	Normal manuring
Height of plant (Mean of 100 plants) ..	3′ 6″	3′ 5″	4′ 5″	4′ 3″	5′ 2″	5′ 0″
No. of ear-bearing tillers (Mean of 100 plants) ..	5·2	4·6	6·6	6·0	5·4	5·2
Length of panicle (Mean of 100 ears) ..	20·3 cm.	20·2 cm.	23·5 cm.	23·3 cm.	22·8 cm.	22·3cm.
No. of grains per ear (Mean of 100 ears) ..	66	77	142	141	178	173
No. of chaff per ear (Mean of 100 ears) ..	15	10	22	18	32	20
Percentage of chaff (unsetting) ..	18·4	11·2	13·4	11·3	15·2	10·4
No. of plants per unit area (one square foot) ..	9		4		4	
Yield of grain per acre ..	2993 lb.	2718 lb.	2537 lb.	2637 lb.	3200 lb.	3592 lb.
Extra expenditure per acre (By intensive manuring) ..	Rs. 49—2—0		Rs. 49—2—0		Rs. 49—2—0	
Extra income per acre Do. ..	Rs. 29-15—0		nil		nil	
Net loss per acre Do. ..	Rs. 19—3—0		Rs. 59—9—9		Rs. 90—3—6	

Note:— *Kuruvai* paddy is valued at Rs. 13—8—0 per bag of 124 lb.
Thaladi and *Samba* paddy valued at Rs. 13—0—0 per bag of 124 lb.

Agricultural Research Station,
Aduthurai.

V. SRINIVASAN.
K. RAJAGOPALAN.

Selected Article

Can Black Heart of Pineapples be avoided ?

by

R. C. CANNON, F. W. BERRILL & K. KING

Black Heart, a physiological breakdown in the flesh of the maturing pineapple fruit, is responsible for losses each winter both at canneries and in the fresh fruit markets. The extent of these losses varies from year to year and has been considerable in some seasons, notably 1954 and 1955.

The problem: Although this disorder has been studied over a fairly long period, the precise cause of the breakdown is still not definitely established. It is certainly associated in some way with winter conditions. Losses are greatest during the months of July and August, though outbreaks sometimes occur as early as June and may continue into September. As there appears to be little prospect of preventing outbreaks of black heart, the alternative is to eliminate, as far as possible, cropping during the July - August period.

Cropping periods: Although pineapples flower and mature fruit at all times of the year, there are two major cropping periods in Queensland, summer and winter. As a general rule, the ratoon crop, at least in southern Queensland, is harvested about 18 months after the plant crop. Thus a summer plant crop is followed by a winter ratoon crop in the ordinary course of events. A plantation which produces a winter plant crop takes longer to produce its ratoon, and more often than not this crop is also harvested in winter.

Except in very abnormal seasons, a summer plant crop can be assured by efficient management. This entails planting at the correct time, the use of suitable planting material and good cultural treatment during the growing period. Provided growth is satisfactory, natural flowering for a summer crop will usually take place. If necessary, however, flower induction treatment can be applied to prevent "holding over" in plants which do not flower naturally.

Controlling the Ratoon Crop: When the plant crop is produced in summer, it is sometimes possible to harvest the ratoon crop in the following summer by making use of flower induction. However, unless the plants are well advanced and encounter favourable growing conditions, a large proportion of fruit may be undersized. A system of crop management based on the production of two successive summer crops is, therefore not generally desirable.

Two other possibilities merit consideration. These are:— (1) Advancing the plant crop by means of artificial flower induction with acetylene or ANA solutions so that the fruit can be harvested in the January - February instead of the February - March period. Sucker growth would then be more forward prior to winter, thereby improving the chances of obtaining sizeable fruit from the ratoon crop in the following summer and autumn. (2) Harvesting the plant crop at the normal time (February - March) and forcing the growth of the suckers for an autumn crop some 15 months later.

A combination of these two methods may prove the best solution to the problem of obtaining maximum yields in the minimum time and the elimination of July - August cropping. The real problem is how to provide the extra stimulation to sucker growth for the ratoon crop. Irrigation would be an advantage, but the requisite facilities are rarely available on existing pineapple farms in Queensland. On the other hand, adequate and correctly timed fertilizer application may be sufficient to produce the desired result.

These general objectives are tantamount to restricting harvesting in the pineapple crop to the summer - autumn period of the year. Provided this did not accentuate the summer peak, there should be no undue strain on cannery facilities, and the concentration of the main harvest into six months of the year may prove an advantage.

Crop management along these lines implies precise planting programmes, efficient cultural practices and the artificial control of flowering and fruiting.

Planting: Under Queensland conditions, the cold winter and comparatively dry spring tend to check plant growth in the pineapple plantation. The adjustment of planting to control cropping is therefore not so simple as it would be in more equable climates where seasonal effects are less pronounced.

Seasonal Planting: In Queensland there are essentially two planting seasons, namely autumn and spring. Pineapples will grow at any period of the year but the behaviour of out - of season plantings rarely conforms to the requirements of a crop management system designed to control the crop.

The performance of different types of planting material under average conditions is well known. This knowledge can be utilised to assist in the control of cropping, but has to take account of differences in locality and aspect which influence the rate of growth. Some allowance has also to be made for the fairly wide seasonal variations which are characteristic of our climate and no system can be entirely reliable.

Tops, slips and suckers are the most commonly used types of planting material. The behaviour of butt plantings is rather less

predictable, and they are of doubtful value where precise timing of the harvesting period is required.

Top Plantings: The planting of summer tops has many advantages, particularly in terms of uniform plant growth and cropping. Summer tops are planted in autumn and in all but colder localities can be expected to produce a summer crop within two years of planting. To achieve this, planting should be completed before the end of March. In very favourable seasons later plantings may succeed, but more often than not, growth is barely sufficient for the production of a profitable summer crop. On account of their greater reserves of plant foods, large tops are preferred as planting material.

The scope of early planting of summer tops is limited by the time the crop from which they are obtained is harvested. Advancing the summer plant crop by even one month would provide ample supplies of tops for planting.

There are some risks associated with autumn planting of tops, for the disease known as top rot can cause quite appreciable plant losses, particularly in a wet season. Being low-set in the ground, the hearts are exposed to infection from the soil; hence the importance of having the land well prepared with a minimum of surface irregularities.

Slip and Sucker Plantings: Slips and suckers planted in the spring, given reasonably good growing conditions, will normally crop in the summer 18 months from planting. Here also, size (particularly of slips) is important, and the larger the plants used, the better the prospect of producing a good summer plant crop.

Suckers should be reasonably large but not old, otherwise they are liable to flower prematurely and produce worthless fruit. There is reason to believe that long-term storage before planting tends to increase the amount of premature flowering; hence it is preferable to collect and prepare suckers shortly before planting begins.

As Spring in southern Queensland is usually fairly dry with occasional storm rains, sucker plantings often take some time to become established. Removal of the basal leaves to expose the young roots promotes early establishment, but this is a time-consuming operation and few growers practise it. Peeling is probably not important in a season with good spring rains when the basal leaves rot fairly quickly, but in a dry season the extra work entailed would probably pay dividends.

Cultural Practices: As mentioned above, blackheart may be avoided by producing the ratoon crop before the July – August period. Much can be done by the use of good, vigorous planting material, and planting at the right time, but these alone are not sufficient. Sound

cultural practices which will maintain maximum growth from planting onwards are essential, and particular attention must be given to the selection of land for the crop, its preparation for planting, fertilising practices and weed control.

Choice and Selection of Land: The growth and survival of the pineapple root system is determined by the physical condition of the soil in which the crop is grown and even temporarily defective drainage can have an adverse effect. However, the grower has to make the best use of what land is available. Where the soil is shallow and overlies a clay subsoil, ways and means of improving the drainage have to be considered. There is good reason to believe that "ripping" improves sub-surface drainage, at least in soil types where the subsoil is not a stiff clay. In shallow soils it is also an advantage to form the land into broad beds with inter-row drains.

In preparing land for planting, the soil should be brought to a good tilth with a minimum of surface irregularities which tend to collect water on the surface and provide conditions favourable for top rot infection.

Surface mulching with sawdust, begasee and similar materials is sometimes used to conserve soil moisture during dry periods, This practice, though frequently beneficial, is somewhat risky, particularly in damp locations, since it may hold too much moisture in the soil during the wet season. Under wet conditions, a surface mulch can actually increase the incidence of top rot and root rot wilt. During the winter, a surface mulch is also liable to increase the risk of injury from chilling. These points should be taken into account when deciding whether or not a heavy surface mulch should be applied.

Fertilising: Good growth in the plantation cannot be expected without an adequate supply of plant foods. This means that the pineapple crop must receive sufficient of the right fertilisers at the right time. The pineapple is a relatively heavy feeder and requires about one ton of fertilizer per acre per year for good growth and maximum yields. Fertilizer is costly but it is false economy to reduce the amounts used below the requirements of the crop.

Pineapples require very little phosphorus but need considerable amounts of both nitrogen and potassium. Owing to the removal of soluble nutrients by leaching during periods of heavy rain, it is necessary to make several applications of fertilizer each year. The usual practice is to apply alternately a 10-6-10 mixture and straight sulphate of ammonia. This procedure is satisfactory on many soils in the more important pineapple growing areas, but some modification is needed on certain areas. For instance, the sandy soils are, for the most part, so deficient in

potassium that the above schedule provides insufficient of this element. In such cases the better procedure would be to double the amount of potassium applied by using a 10-6-10 mixture for each application. This will increase yields and could mean the difference between an early and a late summer crop.

Timing of fertilizer applications is more important than is sometimes imagined. For instance, a pre-winter dressing of fertilizer, if applied late, may be of little benefit since plants which are virtually dormant cannot make effective use of plant nutrients. For good growth in spring, it is essential that adequate supplies of nutrients be available immediately growth is resumed after the winter, and an early spring application is desirable. The usual practice is to make four applications each year – early March, early May, September, and December – January. This is the basic practice, but more frequent and lighter dressings would probably be advantageous were it not for the extra labour entailed.

High nitrogen just prior to flowering may promote excessive vegetative growth and delay natural flowering or make artificial flower induction very difficult. For this reason, it is inadvisable to apply a heavy dressing of nitrogenous fertilizer at this time. After flowering has taken place the position is quite different, for during the period of fruit development the plant requires a great deal of nitrogen and any shortage could be reflected in reduced fruit size. Similarly, an adequate supply of nitrogen is needed immediately after the summer crop has been harvested; the liberal use of nitrogenous fertilizers at this time might well determine whether or not the ratoon suckers will be sufficiently advanced to produce a May – June crop.

Weed Control: Weeds in the plantation can greatly retard the growth of pineapple plants, particularly in dry periods when soil moisture is limited. From planting onwards throughout the cropping cycle, complete freedom from weeds of any size is most important.

Weeds soon get out of hand if proper attention is not given to spray schedules and growth of the pineapples suffers. Too much emphasis cannot be given to the advantages of pre-germination PCP sprays as against the contact sprays used to deal with established weeds.

Artificial Flower Induction: Given favourable treatment and a reasonably good season, a summer plant crop of fruit can be expected, even without the aid of artificial flower induction. However, this is a valuable means of ensuring that a well grown crop does not "hold-over" and upset planned cropping. Following a summer plant crop, only a limited proportion of the first ratoon plants will flower naturally and produce a crop before winter. To achieve prewinter cropping over

the whole area, therefore, it is not only necessary to promote maximum growth in the ratoon suckers, artificial flower induction is also imperative.

In central and northern Queensland where temperatures generally are rather more favourable for plant growth, a summer or autumn ratoon crop is more readily attainable following a summer plant crop.

Normal Plant Crop: The normal summer crop in southern Queensland is usually harvested from late January to March, but the period is variable depending on the district and the particular aspect of the plantation. In some of the colder areas, harvestiug may not be completed until late in April. Suckers on a plant which matures its fruit in January are usually considerably more advanced by the onset of winter than those produced following a March crop.

To ensure uniform flowering in a given area for a summer crop, flower induction treatment may be applied in the preceding May. The value of this practice is now generally recognised, but some growers are reluctant to adopt it because they fear that poor suckering and generally reduced vigour will follow treatment. This fear is based on wrong premises, for if a plant is sufficiently well grown at the time of flowering, it will produce a normal complement of vigorous suckers, as well as a good-sized fruit, irrespective of whether the flowering process occurs naturally or is initiated artificially.

Time of flowering influences the amount of suckering and even a well-grown plant may not sucker satisfactorily if forced to flower out of season. An under-sized plant, on the other hand can be induced to flower but will invariably produce a small fruit and few, if any, suckers. Experience will indicate the minimum size at which plant can be safely treated, but, as a guide, unless the largest leaves are 30 inches or more in length a grower should hesitate to induce flowering.

Advancing the Plant Crop: As the aim is to produce a first ratoon crop earlier than usual to avoid harvesting in the winter period advancing the plant crop would be an advantage. Since climatic conditions become increasingly less favourable for growth as the winter approaches, an advance of only a few weeks in the time of maturity of the plant crop could easily increase the size of the ratoon suckers before winter.

The use of artificial flower induction treatment in May has been advocated for some time as a means of ensuring uniformity in flowering for the normal summer crop. Where it is desired to induce earlier bearing it would be necessary to correspondingly advance the time of treatment. April treatment would in many areas have the desired effect. Advancing the time of treatment excessively is undesirable owing to the likelihood of producing a "prickly-eye" type of fruit in the Christmas period.

In cool districts, where the summer crop normally does not mature until well into the autumn, it is probably impracticable to attempt to advance flowering. In such areas the normal winter ratoon crop would be so much later that it would automatically escape the critical blackheart period.

Spreading the Harvest: While uniform flowering is an advantage from many points of view there may be circumstances where concentration of the harvest in a limited period may overtax the labour force for a short time. The position may be relieved to some extent by treating the developing fruit with a high concentration of ANA, which will increase weight and slightly delay maturity. This treatment applied to portions of a cropping area would be an advantage in such cases, and the delay of about 10 days in harvesting would not be of great consequence, particularly where the crop had already been advanced by early flower induction treatment.

The above discussion of black heart in the winter pineapple crop indicates that the problem in southern Queensland may be solved by means of crop management practices designed to eliminate harvesting during the critical months of July and August.

[From the Agri. Gaz. N. S. W., Dec. 1955]

Notes and News.

THE MADRAS AGRICULTURAL COLLEGE HOSTEL DAY CELEBRATIONS.

The Hostel Day was celebrated on 1st March 1956, with Sri S. Ganesan, Addl. District and Sessions Judge, Coimbatore, in the chair. Sri R. Balasubramaniam, Principal and Warden, welcomed the gathering. The President in his address to the students emphasised that they had to play a vital part in improving farming methods and in increasing the general cropping capacity of the State. Sri Rajaram Upadyaya proposed the Toast of the seniors, to which Sri V. Balasubramaniam responded. Sri K. M. P. Nambeesan presented the Hostel Day Rag. Sri M. Sundaram, Senior Deputy Warden, made an eloquent plea for telephones, electric fans and other modern amenities for the hostel. Sri Mohamed Kunhi Muliyar, General Secretary, Hostel Day Committee, presented the Annual Report of the hostel for 1955-56. Sri M. D. Prabhu, Junior Deputy Warden, proposed a vote of thanks. The students then entertained the guests with variety of skits and dramatic pieces.

Gleanings

Fumigation of Cocoa Beans with Methyl Bromide: Methyl bromide or monobromomethane (CH_3 Br) is a nonflammable organic compound with a boiling points of 4° C. So at normal working temperatures (15–20°) it is a gas and is able to penetrate into vegetable products, such as cocoa beans, and to kill insects living in and on these products. Methyl bromide is not only very toxic to insects but also to human beings. We have therefore investigated the following two points. Can residues of methyl bromide, remaining in cocoa beans after fumigation, be harmful to man and can these have any influence on the flavour of the cocoa, especially if made into chocolate?. In our fumigating experiments we used a dose of methyl bromide of 2 lb. per 1000 cubic feet (34 mg/l). The beans were taken from an original bag of plantation cocoa from Trinidad. The samples were packed in small bags of cotton or linen and stored in the fumigation chest on a tray for a period of 24 hours at room temperature.

After the fumigation the amount of bromide retained by the beans proved to be 20-39 p.p.m. with an average of 29 p.p.m. In the shell (16, 8%) 119 p.p.m. had been absorbed against 13 p.p.m. in the cotyledons (83, 2%). So the shell retains approximately twice as much methyl bromide as the cotyledon, which is an advantage, as only the cotyledons are used in the manufacture of cocoa and chocolate. In chocolate manufactured from the fumigated beans (with only sugar and cocoa butter added, no milk powder or other sweets) there appeared to be retained 4 p.p.m. bromine. Three manufacturers of chocolate were provided with samples of fumigated and untreated beans for the preparation of chocolate. The organoleptic tests showed no marked differences between both types of chocolate; at one time there was a slight differences in favour of the fumigated beans, at another time it was just the reverse.

While our experiments were in progress we received from the Pest Infestation Laboratory, Slough, Bucks, samples of fumigated and non-fumigated beans originating from a test in a fumigation chamber owned by one of the large cocoa manufacturers in England, and controlled by them. "The dose of methyl bromide used was 1 lb. per 1000 cub. ft. They wrote: "Chemical tests showed very small bromide residues and organoleptic tests showed no taint or loss of flavour in cocoa, chocolate, or cocoa butter manufactured from the fumigated beans". A Dutch manufacturer made chocolate from both samples, neither of us could find any marked difference in taste. This result agrees with ours. *[Bull No. 252, Tropical Products Department of the Royal Tropical Institute, Amsterdam, October, 1955·]*

[T. R. N.]

Correspondence

To

THE EDITOR,
The Madras Agricultural Journal, Coimbatore.

Sir,

In my article "Science for the Farmer — III" which you have accepted for publication in the next issue, I am afraid I have cast an unmerited slur on your plant breeding research. My only excuse is that the articles were written several years ago but only submitted for publication now, because of the recent appreciation of the need for forage production shown by the Second Five-Year Plan.

I visited for the first time some six months ago your Millets Research Section where Dr. Krishnaswami showed me the work he has been doing on forage species. He has already done valuable work by evolving two outstanding hybrids and by introducing certain new species of grasses. I was given some of this material for trial as a result of which I hasten to offer my apology to your Cyto-geneticist.

The Cumbu × Napier amphidiploid and the CO. 1 Sorghum × *S. halepense* are two very valuable hybrids. The CO. 1 × *S. halepense* is in a couple of respects even superior to Sweet Sudan we read so much of. As both parents are nutritious grasses I have no doubt the hybrid will be at least as nutritious as either of the parents.

Of the introduced grasses I find that *Setaria pallidifusca*, *S. superba*, *S. splendida* and *S. sphacelata* are far superior to the well-known Guinea grass or any other of the numerous other species I have tried. Another introduction of outstanding merit is *Pennisetum merkerii* strain.

Y. R. Farm, Kanhangad,
20—4—1956.

Yours faithfully,
R. M. SAVUR.

Weather Review — For March, 1956

RAINFALL DATA (IN INCHES)

Division	Station	Total rainfall for the month	Departure from normal	Total since 1st January	Division	Station	Total rainfall for the month	Departure from normal	Total since 1st January
North	Madras (Meenambakkam)	Nil	— 0·3	1·4	South	Madurai	Nil	— 0·7	1·3
	Tirurkuppam*	*Nil*	— 0·4	1·3		Pamban	Nil	— 0·7	0·6
	Vellore	Nil	— 0·3	0·9		*Koilpatti**	0·5	— 1·1	1·2
	Gudiyatham*	Nil	— 0·3	0·6		Palayamcottai	0.4	— 0·6	3·3
						Ambasamudram*	1·2	— 1·7	4·5
East Coast	Palur*	Nil	— 0·5	1·1	West Coast	Trivandrum	0·7	— 0·8	1·5
	Tindivanam*	Nil	— £ 2	1·6		Fort Cochin	0·2	— 1·8	4·6
	Cuddalore	Nil	— 0·7	0·7		Pattambi*	0·1	— 0·9	1·2
	Nagapattinam	Nil	— 0·8	2·7		Kozhikode	1·8	+ 1·4	1·8
	Aduthurai*	Nil	— 0·6	2·1		Taliparamba*	Nil	— 0·5	Nil
	Pattukottai*	*Nil*	— 1·6	2·6		Wynaad*	£ 1	— 1·2	1·1
						Nileshwar*	Nil	— 0·4	Nil
Central	Salem	Nil	— 0·5	0·3		Pilicode*	Nil	— 0·4	Nil
	Coimbatore (A. M. O.)*	Nil	— 0·2	0·1		Mangalore	*Nil*	— 0·5	Nil
	Coimbatore	Nil	— 0·5	Tr.		Kankanady*	Nil	— 0·5	Nil
	Tiruchirapalli	Nil	— 0·4	0·5	Hills	Kodaikanal	1·1	— 0·7	3·3
						Coonoor*	Nil	— 3·7	2·7
						Ootacamund*	Nil	— 1·1	0·3
						Nanjanad*	Nil	— 0·6	0·2

Note:— * Meteorological Stations of the Madras Agric. Dept.
Tr = Rainfall of 0·01″ to 0·04″ (Trace).
£ 1 = Actual Rainfall is 0·03″.
£ 2 = Actual Deviation is 0·04″.

In the first ten days of the month the weather was mainly dry throughout the Madras State. In this period, there was no noteworthy variation in the day temperature, which was practically near about normal. On 11—3—1956 isolated thundershowers to the extent of 1.00″ were received at Kodaikanal. Elsewhere the weather was mainly dry. In the subsequent two days also, the weather remained dry. On 14—3—1956 localised thundershowers (2″) were received at Kozhikode. In other places the weather was dry. On 15—3—1956 dry weather prevailed throughout the State. On the next day also the weather was dry, but Alleppey alone had ·50″ of isolated thundershowers. In the subsequent two days light showers were received at a few places in south Tamilnad. On 19—3—1956 and 20—3—1956 Alleppey alone had light showers and elsewhere the weather was mainly dry. On 21—3—1956, day temperatures rose slightly over the region, but the weather remained dry on this day and also in the next two days. Trivandrum alone had 0·55″ of rain on 24—3—1956 and in other places the weather continued to be dry. From 25—3—1956 to the end of the month the weather was mainly dry. Light scattered showers were received in Travancore-Cochin State only on 25—3—1956. But in this period, there were mild variations in the day temperatures.

The seismograph in the Meteorological Office, Madras recorded at 1—52 P. M. on 18—3—1956 an earthquake shock of moderate intensity, about 1160 miles away from Madras.

Considering the month of March, 1956 as a whole, the rainfall was below normal over the entire region. Practically dry weather prevailed over the North, East Coast and the Central districts of the Madras State.

The noteworthy rainfall and the zonal rainfall in inches are furnished below :—

Noteworthy Rainfalls			Zonal Rainfall			
Date	Place	Rainfall in inches	Name of Zone	Rainfall for the month	Departure from normal	Remarks
11/3/56	Kodaikanal	1·0	North	Nil	— 0·3	Below normal
14/3/56	Kozhikode	2·0	East Coast	Nil	— 0·7	Far below normal
16/3/56	Alleppey	1·5	Central	Nil	— 0·4	Below normal
			South	0·4	— 1·0	Far below normal
			West Coast	0·3	— 0·6	Below normal
			Hills	0·3	— 1·5	do.

Agricultural Meteorology Section,
Lawley Road P. O.,
Coimbatore, 10—4—1956

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

Departmental Notifications

Gazetted Service—Postings and Transfers

Name and present post	Posted as
Subramaniam C. R., Acting Agrl. Eng. Tractor Workshop, Coimbatore,	Assistant Agrl. Eng. River Pumping Scheme, D. A's Office, Madras.
Kasiviswanathan M., Addl. D. A. O. Pattukottai.	Agronomist, Bhavanisagar.
Ranganathachari N., Asst. Lecturer in Agricultural Economics.	Supdt. C. F. Coimbatore.
Raman Moosad C., Spl. Assistant Marketing Officer, Hosur.	D. A. O. Tellicherry.
Daniel F. L., on leave.	Asst. Agrl. Chemist, Coimbatore.
Krishna Menon K. M., Asst. Agrl. Chemist, Coimbatore.	Agricultural Bacteriologist, Coimbatore

Upper Subordinates

Names and present post	Posted as
Subramaniam K. P., Extension Officer in Agri., Kadambathur.	A. D. Velur.

Sri K. P. Kesava Menon, Editor, Mathrubhoomi inaugurated the Second Regulated Market for coconuts and arecanuts at Thalakadathur, near Tirur, on 18th March 1956.

DISTRICTS
S. ARCOT, COIMBATORE
MALABAR, S KANARA
RAMANATHAPURAM
TIRUNELVELI
NORTH ARCOT

MARKET COMMITTEES CHRONICLE
DEVOTED TO A FACTUAL RECORD OF SERVICE FOR REGULATED MARKETING

CROPS
COTTON, GINGELLY
GROUNDNUT
COCONUT
ARECANUT
TOBACCO

MARKETING OF GROUNDNUTS

Quality Competition

Conducted by South Arcot Market Committee Cuddalore - 1955

The institution of prizes for encouraging production and marketing of commercial crops was resolved at the Conference of Chairmen of Market Committees in 1953. This scheme was first implemented in part by the South Arcot Market Committee from its own funds by instituting a 'Quality Competition' prize, to improve the quality of groundnuts.

The South Arcot markets for groundnuts are purely spot markets. The produce comes for sale only as kernels and contains moisture from anything between 1 to 10 percent besides refraction such as foreign matter, shrivelled, broken, damaged, split kernels and nooks in varied proportions. The buyers take into consideration the above refractions when quoting the prices.

The competition was open to all persons who sold groundnut kernels in any of the eight markets of the Committee. Each market was considered as a separate unit for the purpose of this competition and any lot entering the market for sale irrespective of the source of production was allowed to compete. Sellers were also allowed to enter the competition with one or more lots as the case may be on days the produce was brought for sale. Lots comprising of not less than two full bags alone were allowed to enter the competition. An entrance fee of one rupee per entry or in its place 5 lb. of groundnut kernels was also fixed.

Applications from persons desirous of entering the competition were obtained by the Market Superintendents in a form prescribed. On acceptance of the application a 10 lb. sample from the lot entered

for the competition was drawn and analysed for the various refra ive ingredients of moisture, foreign matter etc. percentage moisture in the sample was estimated in duplicate by sun-drying tw pound samples in muslin cloth bags for two successive days t a constant weight was reached. The analysis was conducted by th Superintendents or Supervisors of the Committee in the presence o the competitior and one member out of a panel appointed by the Market Committee for each market; and the total refraction calculated in the sample. The lot of groundnut showing the lowest percentage of total refraction was determined as the best quality groundnut.

The competition was run for the first time by the Committee in all the eight markets during the Summer Crop of 1955. The number of entrants for the competition in each market, the results of analyses and the names of the prize winners are given in the statement appended.

Groundnut Summer Crop Quality Competition - List of Prize-Winners - South Arcot Market Committee.

Name of Market	Total No. of entrants enlisted	Name of I Prize Winner	Result of Analysis Total Refraction	Name of 2nd Prize Winner	Result of Analysis Total Refraction
Cuddalore O. T.	50	R. Venkatarama Reddiar V. Kilpathi	2.70	Balakrishna Pillai Reddichavadi	4.94
Villupuram.	50	D. Padmanaba Reddi, Nemmur Village, Mel-karanai Post	6.17	C. Perianayagam Theli Village, Kappur Post	8.11
Tindivanam	42	S. Appavu Mudaliar, Olagapuram	6.18	M. Ramasami Gounder, Siruvai	6.61
Tirukoilur	28	Sadaya Kounder, Nallapalayam	3.51	Chinnathambi Gounder, Pushpapuri	4.08
Vridhachalam	33	A. Karuppa Padayachi, Kandiankollai	3.28	N. M. Kadirvel Mudr., Waviankovil P. O.	3.31
Panruti	27	R. Dorsikannu Reddi, Panapakkam, Panruti	3.44	C. Perumal Gounder, Chitrachavadi	7.58
Ulundurpet	3	Ratna Udayar, Ulundurpet	13.96	N. Thillaigovindan, Ulundurpet	14.09
Chinnasalem	23	L. Kandasami Pillai, Sempadakurichi	6.05	K. Ramasami Servai, Thachur, Kallakurichi	6.98

District Prize Winner, R. Venkatarama Reddiar, in Cuddalore O. T. Market.

Review of Market Conditions of Commercial Crops in the areas of Market Committees for March, 1956.

I. **Cotton :** (In this section : Candy = 784 lb. Pothi = 280 lb.)

Cotton Stocks : Tirupur : Lint : The cotton market at Tirupur opened with a stock of 1303 cdys of Cambodia and 302 cdys of Karunganni lint. Arrivals during the month amounted to 6807 cdys of Cambodia and 506 cdys of Karunganni which included 1934 cdys of Cambodia and 126 cdys of Karunganni produced from ginneries. Despatches from Tirupur accounted for 4475 cdys of Cambodia and 179 cdys of Karunganni lint. These despatches include 2024 cdys of lint sent to Orissa, Travancore Cochin State, Madura, Pondicherry, Mysore, Malabar, Bombay, Ahmedabad, North Arcot, Madras, South Arcot, Salem, and Tirunelveli. There was a closing stock of 3635 cdys of Cambodia and 629 cdys of Karunganni lint at the end of the month.

Kapas : The kapas market at Tirupur started with an opening balance of 2353 pothis of Cambodia and 202 pothis of Karunganni kapas. Arrivals in the month accounted for 41,896 pothis of Cambodia and 3599 pothis of Karunganni and these arrivals include 12,607 pothis received from Salem. Disposals during the month amounted to 26,613 pothis of Cambodia and 1,823 pothi of Karunganni after leaving a closing stock of 17,636 pothis of Cambodia and 1978 pothis of Karunganni at the end of the month.

Koilpatti : Lint : The lint market at Koilpatti started with an opening stock of 83 cdys of Karunganni and 50 cdys of Uganda during the month. About 250 cdys of Karunganni were received during the month while disposals of 300 cdys of Karunganni lint and 50 cdys of Udganda were effected, leaving a closing stock of 33 cdys of Karunganni lint alone.

Kapas : About 2,500 pothis of Karunganni Kapas were received during the month in Koilpatti Market and the entire quantity disposed of. 500 pothis of Karunganni kapas remained as month-end carry over stocks.

Ramanathapuram District : Lint : The three markets of Virudunagar, Sattur and Rajapalayam put together opened with a stock of 365 cdys of lint while the arrivals were 3730 cdys. Disposals during the month amounted to 3830 cdys, leaving a closing stock of 265 cdys at the end of the month.

Kapas : None of the abve three markets held any opening stock. Receipts during the month amounted to 35,000 pothis and the entire quantity received was disposed of.

South Arcot District — Kapas : Arrivals were kapas only, amounting to 3 pothis. Despatches from South Arcot Markets to Coimbatore amounted to 47 pothis leaving a closing stock of 16 pothis at the end of the month.

Cotton Prices : Lint : Tirupur : The cotton market in Tirupur was very steady and the prices of Cambodia lint touched the ceiling.

Koilpatti : Prices of Karunganni lint opened at Rs. 770/- to 796/- for the best quality and gradually advanced to Rs. 800/- to Rs. 830/- per cdy during the second week. The prices remained steady thereafter. About 50 cdys of Uganda were exported to Bombay at prices varying from Rs. 1100/- to Rs. 1160/- for certified quality and at Rs. 970/- to Rs. 1000/- for the uncertified quality.

Ramanathapuram District : The opening and closing values for cotton lint in all the markets of the district ruled as follows :

		Opening :	*Closing :*
Karunganni	...	Rs. 796–821	Rs. 796—846
Uganda Lint :			
Certified MU. 1	...	Rs. 1086—1095	...
Certified MU. 2	...	Rs. 1161.	...

Kapas : Tirupur : The prices of Cambodia kapas were quoted at Rs. 135/- per pothi in the beginning of the month. Although there was a little recession in prices during the third week, the market became firm once again by the end of the month.

Koilpatti : The transactions of kapas in this market was limited during the month.

Ramanathapuram District : The opening and closing prices of Kapas in the markets of this district are quoted as follows :

	Opening :	*Closing :*
Karunganni	Rs. 111—120	Rs. 92—112

South Arcot : The average price obtained at the kapas market in this district was quoted at Rs. 79—12—0 per pothi.

Cotton Seeds : Koilpatti : The prices of Karunganni seeds opened as Rs. 48/- to Rs. 51/- and declined suddenly towards the middle of the month to Rs. 35/- to Rs. 37/- per pothi. The prices further declined in the third week to Rs. 29/- to Rs. 31/- but rose upto Rs. 33—35 per pothi by the end of the month.

Ramanathapuram District : The opening and closing prices of cotton seeds are as follows :

	Opening :	*Closing :*
Karunganni	Rs. 15-0-0 to 15-4-0	Rs. 10-11-0 (per Mound of 82½ lb)

II. **Groundnut :** (In this Section : Candy = 531 lb. of kernels. Bag = 80 lb. of pods.)

South Arcot District : All the nine markets of South Arcot, started with an opening stock of 8170 tons of groundnut kernels during the month. Arrivals into all the markets amounted to 1485 tons. Receipts from other districts and other States accounted for 2179 tons and 304 tons respectively. Consumption by oil mills and country *chekkus* was placed at 5828 tons and 171 tons respectively. Despatches from all the markets to other districts and States amounted to 339 tons and 92 tons respectively. Deducting the wastage of 217 tons, the month-end stock was 5491 tons of kernels with the trade.

The average prices at several markets ranged from Rs. 127-11-0 to 146-1-0 per candy according to quality.

North Arcot District : About 1638 tons of kernels were received into the markets during March and about 1759 tons of kernels were disposed of during the month which included 83 tons transported to Madras, Salem, Coimbatore and South Arcot. A quantity of 1050 tons of pods and 1397 tons of kernels was left over at month-end.

The prices of pods were quoted at Rs. 13 to 20/- per bag while the prices of kernels ruled steady at Rs. 136/- per candy, till the middle of the month and spurted upto Rs. 147 to 150.

Ramanathapuram District : The opening and closing rates of groundnut in the markets of Ramanathapuram district are quoted to be as follows :

		Opening :		*Closing :*
Groundnut pods	...	Rs. 12½—14	Rs.	14—15 per bag.
Groundnut kernels	...	Rs. 130-140	Rs.	150-160 per candy.

III. **Gingelly : South Arcot District :** (In this section : Bag = 168 lb.)

Arrivals of gingelly in the four Markets of the district amounted to 1044 bags. Receipts from other districts like Tiruchirapalli amounted to 507 bags. Despatches from the markets of South Arcot district to other districts amounted to 541 bags. Leaving the wastage of 6 bags the closing stocks with the trade at the end of the month was 640 bags.

The average price of gingelly marketed in this district was quoted to be ranging from Rs. 60-2-0 to Rs. 66-10-0 per bag.

IV. **Coconut:** (In this section: Cdy = 700 lb.)

Coconut; stocks (In thousands): The particulars of stocks of coconuts transacted in the districts of Malabar and South Kanara are extracted below:

Name of the market	Opening balance	Arrivals	Disposals	Closing balance
Kozhikode ...	6,375	4,900	4,710	6,565
Badagara ...	682	1,425	1,242	865
Ponnani ...	600	2,000	2,000	600
Tellicherry & Dharmadam ...	680	1,112	1,118	674
Mangalore ...	55	275	270	60

Prices: The Minimum and maximum prices of coconut as between the different markets of Malabar district ranged as follows:

(In Rs. per thousand)

	Minimum	*Maximum*
Kozhikode ...	Rs. 115	Rs. 120
Ponnani ...	,, 110	,, 140
Badagara ...	,, 103	,, 115
Tellicherry & Dharmadam ...	,, 110	,, 140

The opening and closing prices of coconuts that prevailed in Mangalore market are furnished below: (In Rs. per thousand)

	Opening:	*Closing:*
Raw	Rs. 125 — 155	Rs. 120—155
Dry	Rs. 150 — 200	Rs. 150—200

Copra: The stock position of copra in Malabar and Mangalore Markets are extracted below:

Name of the market	Opening balance	Receipts	Disposals	Closing balance
(*Malabar district in candies.*)				
Kozhikode ...	6,008	13,500	14,020	5,488
Badagara ...	597	2,848	3,065	380
South Kanara district				
Mangalore ...	60	270	235	95

Prices: The prices of copra of different varieties at several markets of Malabar district are furnished below:

(*Prices in Rs. per candy*)

	Kozhihode		*Badagara*	
	Minimum	Maximum	Minimum	Maximum
Office ...	Rs. 280	Rs. 285	Rs. 270	Rs. 285
Edible ...	,, 290	,, 295	,, 290	,, 295
Madras ...	,, 300	,, 315	,, 300	,, 300
Rajpur ...	,, 325	,, 335	,, 325	,, 335

The prices of copra in Mangalore market were quoted at Rs. 265/- to Rs. 295/- per cdy.

V. **Arecanut:** (In this section, Bag = 100 lb.)

Stocks: The stock particulars of arecanuts in Malabar and South Kanara districts are extracted below:

	Opening balance	*Receipts*	*Disposals*	*Closing balance*
Malabar District (in bags)				
Kozhikode ...	Nil.	15	15	Nil.
Palghat ...	275	Nil.	175	100
Ponnani ...	1,360	Nil.	1,060	300
South Kanara district (in cwts).				
Mangalore (supari)	21,400	29,750	28,350	22,800

Prices: Prices of Arecanut (Choor) in Palghat ranged between Rs. 165/- to Rs. 172/- per bag each

The price ranges of supari in Mangalore market of the different varieties are noted below:

(Price in Rs. per cwt.)

	Minimum	*Maximum*
Koka ...	Rs. 80	Rs. 120
Choll ...	,, 170	,, 195
Malabar Supari ...	,, 120	,, 145
Mangalore ,, ...	,, 130	,, 165

VI. **Tobacco (Tiruppur):** (In this section, Candy = 500 lbs.)

Stocks: The tobacco market at Tiruppur started with an opening balance of 3058 cdys of chewing and 480 cdys. of cheroot tobacco. About 30 cdys of beedi tobacco are reported to have been imported during the

month. Despatches in the month amounted to 1235 cdys of chewing variety to places in Travancore-Cochin State, Palghat, Madras, Dindigul, Tanjore, Tiruchirapalli and Vedaranyam. At the end of the month there was a closing stock of 3555 cdys of chewing tobacco.

Prices: The prices of different varieties of tobacco for different grades ruled at the ranges furnished below:

(Prices in Rs. per cdy of 500 lb.)

1. *Chewing Tobacco, Sun-cured:*

		I grade	*II grade*	*III grade*
Meenampalayam	...	400 — 460	300 — 400	150 — 260
Other varieties	...	300 — 335	200 — 250	115 — 150

2. *Cheroot varieties*.

Sun-cured (grown in Erode and Bhavani Taluks.)	...	—	—	—

3. *Chewing varieties:*

Pit-cured (grown in Palladam and Sulur areas.)	...	300 — 375	200 — 275	125 — 200

Review of the Activities of the Market Committees during March 1956

All the Market Committees continued to function during the month. Except the Coimbatore Market Committee which is functioning under an elected body all the other Market Committees are working under the respective Collectors or his nominees under Section 6A of the Act. Necessary steps are continued to be taken to conduct fresh elections of these Committees.

The following progress was made by the Market Committees in the issue of licenses under the provisions of the Act.

	Section 5 (1)		Section 5 (3)		Weighmen		Broker	
	A	B	A	B	A	B	A	B
North Arcot Market Committee	128	467	74	363	48	192	3	3
South Arcot Market Committee	174	888	139	810	122	740	3	3
Coimbatore Market Committee	119	274	134	329	40	218	—	—
Tirunelveli Market Committee	—	3	—	1	—	—	—	—
Ramanathapuram Market Committee	1	4	—	3	—	—	—	—
Malabar Market Committee	15	209	156	904	5	144	2	5
South Kanara Market Committee	4·6	163	41	138	9	51	—	—

Meetings: A meeting of the Coimbatore Market Committee was held on 30—3—1956 in the Office of the Committee, Tirupur when fourteen subjects were discussed at the meeting. A few of the subjects dealt with at the meeting are extracted below.

(a) The Committee approved the Administration Report for 1955.

(b) The Committee resolved to execute an agreement with the Tirupur Sale Society on certain conditions.

(c) The Committee resolved to purchase the requirements of departmental publication from the Agricultural Department and sell them to the public at the Committee's regulated markets.

Quality appraisal: 160 samples were drawn and analysed to quality factors from out of 2561 lots comprising of 23111 bags of groundnut kernels in six markets of the South Arcot Market Committee. The total common refraction was below 4% in 75 samples, 5 to 8% in 79 samples and above 8% in 6 samples. The details of analysis which may be of interest are extracted below:

Particulars	Cuddalore	Villupuram	Tindivanam	Virudhachalam	Panruti	Kallakurichi
1. *Dryage:*						
2% and below ..	—	—	14	28	—	—
above 2% and upto 3% ..	2	1	—	4	1	—
above 3% and upto 4% ..	2	1	10	6	10	6
above 4% and upto 5% ..	2	—	6	—	1	6
above 5% and upto 10% ..	7	6	17	—	7	12
above 10% ..	3	—	6	—	1	1
2. *Total refraction:*						
4% and below ..	9	4	19	12	20	11
above 4% and upto 8% ..	7	4	34	26	—	8
above 8% ..	—	—	—	—	—	6

Crop & Trade Reports

Korra crop — Second Report, — 1955 — '56 — Madras State: The area sown with korra or tenai *(Setaria italica)* in the Madras State upto the 25th December [illegible] estimated at 75,800 acres. Compared with the area of 78,500 acres estimated for the corresponding period of the previous year, this is a decrease of 3.4 per cent. As compared with the average area of 70,599 acres, calculated for the five years ended 1954—'55, the present estimate shows an increase of 7.5 per cent. Statements showing the district-wise estimates of area and production of the *Kharif* crop (sown during the period June to October 1955) and preliminary estimates of area under the *rabi* crop (sown during November and December 1955) are enclosed. The *kharif* crop has been or is being harvested. The yield per acre is estimated to be normal in South Arcot and Tirunelveli districts and below normal in all the other districts of the State, except South Kanara, where the crop is not cultivated. The Seasonal factor for the State as a whole works out to 96 per cent of the normal for the *Kharif* crop, as against 95 per cent estimated for the corresponding period of the previous year. The yield of the *Kharif* crop works out to 18,600 tons of unhusked grain or 14,900 tons of cleaned grain, as against 19,000 tons of unhusked grain or 15,200 tons of cleaned grain estimated for the corresponding period of the previous year, representing a decrease of 2.1 per cent. As compared with the average production of 15,700 tons of unhusked grain or 12,600 tons of cleaned grain calculated for the five years ended 1954—'55, the current year's estimate is an increase of 18 5 per cent.

Varagu — Second Report — 1955 — '56 — Madras State: The total area sown with varagu *(Paspalum scrobiculatum)* in the Madras State upto the end of December '55 is estimated at 606,300 acres. Compared with the corresponding estimate of 597,800 acres for the previous year, this is an increase of 1.4 per cent. As compared with the average area of 538,200 acres calculated for the five years ended 1954—'55, the current year's estimate shows an increase of 12.7 percent. Statements showing the district-wise estimate of area and production of *Kharif* crop (sown during the period from June to October '55) and preliminary estimates of area under *Rabi* crop (sown during November and December '55) are enclosed. The *Kharif* crop has been or is being harvested. The yield per acre is estimated to be normal in the districts of Chingleput and South Arcot and below normal in all the other districts of the State, except South Kanara and the Nilgiris where the area under the crop is nil or negligible. The condition factor for the State as a whole works out to 96 percent of the normal as against 95 percent estimated for the corresponding period of the previous year. The yield of the *Kharif* crop works out to 218,500 tons of unhusked grain or 131,000 tons of cleaned grain as against 216,700 tons of unhusked grain or 130,000 tons of cleaned grain estimated for the corresponding period of the previous year, representing an increase of 0.8 percent, As compared with the average production of 176,000 tons of unhusked grain or 105,600 tons of cleaned grain calculated for the five years ended 1954 — '55, the present estimate is an increase of 24.1 percent.

Samai — Second report — 1955 — '56 — Madras State: The total area sown with Samai *(Panicum miliare)* in the Madras State upto 25th December 1955 is estimated at 406,500 acres. Compared with the area of 391,600 acres estimated for the corresponding period of the previous year, the present estimate is an incease of 3.8 percent. As compared with the average area of 336,900 acres calculated for the five years ended with 1954—'55, the present estimate shows an increase of 20.7 per cent. Statements showing the district-wise estimates of area and production of *Kharif* crop (sown during the period June to October 1955) and preliminary estimates of area under *Rabi* crop (sown during November and December 1955) are enclosed. The *Kharif* crop has been or is being harvested. The yield per acre is estimated to be below normal in all the districts of the State except South Arcot and South Kanara where it is expected to be normal. The seasonal factor for the State as a whole works out to 95 per cent of the normal as against 93 per cent estimated for the corresponding period of the previous year. The yield of the *Kharif* crop works out to 60,000 tons of unhusked grain or 33,000 tons of cleaned grain as against 56,700 tons of unhusked grain or 31,200 tons of cleaned grain estimated for the corresponding period of the previous year, representing an increase of 5.8 per cent. As compared with the average production of 45,909 tons of unhusked grain or 25,200 tons of cleaned grain, calculated for the five years ended with 1954 — '55, the current year's estimate shows an increase of 30.7 per cent.

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Edited and published by T. R. Narayanan, B. sc. (Ag.), M. A. (Cantab.), for the Madras Agricultural Students' Union and printed by A. Subramaniam, at The Coimbatore Co-operative Printing Works, Ltd., Coimbatore.