The Madras Agricultural Journal

(ORGAN OF THE M. A. S. UNION)

Vol. XXXVII August 1950 No. 8

Editorial

The Thirty Third College Day and Conference: This annual celebration was held this year from the 29th till the 31st July and went off very well indeed. The functions that have by custom been associated with the College Day are so varied that nearly every one in the College and Research Institute has some point of interest in it, from the athlete student who looks forward to it as an opportunity to display his prowess, to the lazy one who hails it as a God-sent escape from the dreary round of lectures and practical classes. For the amateur actors, this is the chance of the year to make a name and hit the public eye, while at the other end come the harassed organisers who have to look to a hundred things and see that nothing goes wrong, and all of whom, right from the Principal downwards, would no doubt heave a sigh of relief when it is all over, without a hitch or hindrance anywhere.

The subject chosen this year for discussion was "Maximisation of Crop Production" and against the sombre background of the acute food shortage all over the country, this subject proved to be quite an absorbing one, as no less than thirty-five papers were presented for reading at the Conference. These papers covered practically every aspect of the subject and it is a matter for regret that all of them could not be read at the Conference for want of time.

The Conference was inaugurated by the Minister for Agriculture Bombay, who delivered a very thought-provoking address, stressing the urgent need for an integrated scheme of extension work for inducing farmers to adopt improvements in agricultural practices. Sir S. V. Ramamurty who followed next with his Presidential address, ranged over the whole field of agriculture in relation to food production and gave a very lucid picture of how limiting factors operate in any attempt towards maximisation and indicated the necessity to eliminate all such limiting factors that hinder the maximisation of crop production. This aspect, of how even a single factor can impair the ultimate level of performance is not sufficiently recognised at present. For example in securing the maximum outturn of agricultural crops, it is not enough if good seed, good land with plenty of water for irrigation and adequate fertilisers are

provided; even if all these exist, the maximum possible yield will not be achieved if a single factor, such as for instance, the incentive of the farmer is wanting, as it often is, where marketing facilities are defective or tenancy laws unduly harsh. Sir S. V. Ramamurty rightly laid a special emphasis on this prime necessity of every worker giving of his best, if the problem of maximisation of crop production was to be solved in the near future.

The Director of Agriculture, in opening the discussion on Maximisation of Crop Production, pointed out that Madras was well ahead of other sister States, both in the matter of launching a vigorous drive for increased food production as early as 1942 and in achieving the highest average yields in major food crops like rice and jowar. This is no doubt a matter for legitimate pride but we feel sure that in the abnormal conditions that prevail at the present time these achievements should serve only as a stimulus for even better results in the future.

The Third Year of Independence: We have passed the third milestone on the road of freedom, but no one can deny that a hard and stony path is yet before us, for a long way to come. The acute food shortage, the uncertain international situation and India's own financial anxieties, all these are still with us, but we have no doubt that they can all be surmounted, if every worker makes a resolve to do his best in the public cause.

Retirement: Sri S. N. Chandrasekhara Ayyar, M. A., Government Lecturing and Systematic Botanist, retired from the Madras Agricultural Service on 24th August 1950, after thirty years of very meritorious service in the cause of agricultural education. From the time of his joining the Department as an assistant in Botany under the distinguished botanist K. Rangachari, till his retirement as the head of the Botany Section, he was engaged in the teaching of Botany to the students of the Agricultural College and is no exaggeration to say that all the thirty batches of students who have passed through his hands are the richer for that experience. His never-failing urbanity, sympathy and kindness towards every one, set a high example of what a teacher should be, and endeared him to every one who came in contact with him. In the field of botany, he has made notable contributions in the shape of a number of articles on forage plants and two textbooks, one on Botany and the other on Genetics.

We wish him long life, health and all happiness in his retired life.

A note on cultivation of 'Kasi Gogu' (Pusa Gogu - *Hibiscus sabderiffa* - variety *altissima*) In Visakhapatnam District

By

GONA RAMARAO, B. Sc., (Ag.)
Special Agricultural Demonstrator, Bobbili.

General: Among the dryland crops, grown in Visakhapatnam district, Kasi or Pusa 'Gogu' occupies a prominent place as a commercial crop. Due to its high yield compared to the Bhimlipatam Jute (*Hibiscus cannabinus*) and due to the good price prevailing in the market for jute, the area under this crop is fast increasing, and replacing the local 'Gogu' (Bhimilipatam jute) as well as groundnut, an important dry land crop of this tract. It is largely grown in the taluks of Palakonda, Bobbili, Cheepurapalli, Parvatipuram, Vizianagaram, Srikakulam, Salur and Patapatnam of this district both on wet and drylands. The dryland area is very large compared to that on wet lands. Tekkali and Srungavarpukota taluks also grow this crop on a small scale, and it is having a rapid natural spread from one taluk to the other in this district.

2. **Seasons:** It is sown in the months of January - February on wet lands, taking advantage of the available water in the tanks and on dry lands it is sown in the months of May-June with the receipt of the first soaking rains.

The following is the average rainfall in this district for two cropping seasons (from Season and Crop Report 1947-48).

Month		Wet land Cropping	Dry land Cropping
January	...	0·30″	...
February	...	0·70″	...
March	...	0·60″	...
April	...	1·10″	...
May	...	2·70″	2·70″
June	...	4·90″	4·90″
July	...	5·70″	5·70″
August	...	6·70″	6·70″
September	...	...	7·70″
October	...	...	7·40″
Total	...	22·70″	35·10″

3. **Distribution**: The area under 'Gogu' crop in the Visakhapatnam district for the year 1947–48 was 19,304 acres as per the Season and Crop Report for 1947–48. Out of this 11,926 acres were under 'Kasi Gogu' and the remaining area was grown to local 'Gogu'. In the year 1948–49, the area under 'Gogu' (both Kasi and local) in this district was estimated at 35,000 acres and during 1949–50 over 50,000 acres were put to this crop in view of the lucrative price it fetched. More than 85% of this area was occupied by 'Kasi Gogu' as shown below.

Name of the Taluk		Area under Kasi gogu Acres	Area under local gogu Acres
Palakonda	...	13,857	192
Cheepurupalli	...	8,265	150
Bobbili	...	8,207	50
Patapatnam	...	5,000	...
Vizianagaram	...	3,150	450
Srikakulam	...	2,990	...
Salur	...	2,164	...
Parvatipuram	...	2,006	158
Tekkali	...	350	550
Total	...	45,989	1,550

The rapid spead of this crop is attributed to the following causes:—

(1) It gives more yield than the local Gogu. In some cases it has given twice the yield of local 'Gogu'.

(2) It withstands drought better.

(3) It is more vigorous in growth. In some cases the crop has attained a height of over fourteen feet.

(4) The crop is not damaged by cattle.

(5) The leaf is not stolen and used for culinary purposes.

(6) When compared to other rotation crops, this crop gives a higher margin of profit.

4. **Soils**: 'Gogu' is grown in all types of soils in this area. It is noted to be coming up better in black soils and loams than in red and sandy soils.

5. **Rotations**: 'Kasi Gogu' is grown on drylands from May to October as first crop and pure horse gram or mixture of horse gram and 'Patcha Jonna' is sown after the removal of 'Gogu'. In the case of wet lands, this is grown in 'Pyru' season after paddy. After the removal of 'Gogu' in August, the land is puddled and paddy is transplanted.

6. **Preparatory Cultivation**: In the case of dry lands, the land is ploughed five to six times after the receipt of summer showers. The wet land area is given four to five ploughings after the harvest of paddy at appropriate intervals in the months of December - January. In either case, land is tilled well and soil pulverised thoroughly before sowings are done.

7. **Manures and Manuring:** 'Kasi Gogu' is an exhaustive crop, and hence heavy manuring is adopted. Tank silt is applied to the drylands at the rate of 40 to 50 cart loads per acre, in addition to sheep-penning. For wetlands, cattle manure is applied at the rate of 20 cartloads per acre and sheep-penning is also done. In some villages application of tank silt at the rate of 100 cartloads per acre is adopted depending on its availability and the distance of the tank from the fields. In the case of sandy soils heavier manuring is done. Cattle manure at the rate of ten cart loads per acre, is applied in addition to the tank silt and sheep penning to such soils according to the availability of cattle manure with the ryot. Application of groundnut cake at 2 bags per acre was also resorted to, by a few ryots in Parvatipuram taluk. The response of the crop to groundnut cake manuring was very good.

8. **Seeds and Sowing:** After the receipt of good showers in May-June, sowing is done on drylands already prepared well. The land is ploughed once, seed is broadcast at the rate of 8 to 10 lbs. per acre and covered by giving a second ploughing. In the case of wet lands, after pulverising the soil well, the field is flooded in the month of January, with tank water. When the field comes to condition, the field is given one ploughing, seed is broadcast and covered by working a plough a second time. Generally sowing is done towards the close of January or the beginning of February. If sufficient water is available in the tanks another flood irrigation is given to the crop after hoeings are completed or a splash irrigation is given, if water is insufficient for a flood irrigation. The plants tide over the summer drought with the available moisture in the soil till the receipt of 'mango showers'.

9. **After Cultivation:** The field is given one or two hoeings before the crop attains one foot height. These operations must be done thoroughly to give a good initial start to the crop.

10. **Harvest:** The crop is pulled out in August from wetlands, by which time it attains an average height of 10 feet. The stalks are tied up into convenient sized bundles and are stooked in the fields for 3 to 4 days. The plants wilt and shed their leaves during this time. In the case of drylands the crops will be ready for harvest by the middle of October.

11. **Retting and Fibre Extraction:** The bundles of stalks are carted from the fields to a nearby tank or pond in which they are stooked, keeping the bottom portion of stalks immersed in water to a depth of about 2' to 2½' because the basal portion of the stalk takes a longer time for retting than the top portion. They are left like that for a minimum period of three days, and later put in the water horizontally for complete retting. They are arranged in layers to form heaps of convenient sizes and weighted down by means of clods of earth to keep them under water. This retting is termed as 'Kavu' locally. In this manner the stalks are

kept in water for a period, ranging from three to four weeks for retting. After 20 days of retting the stalks are tested to find out whether retting is complete or not, by noting the ease with which fibre can be extracted. When the retting is completed the bundles are removed from water and extraction of fibre is done. The fibre is washed thoroughly in clear water when it attains a good white colour and then dried well. The dried fibre is bundled to weigh 28 lbs. or 56 lbs. per bundle and stored.

12. **Yield:** The yield of fibre per acre varies from 800 lbs. to 1200 lbs. The average yield is 1000 lbs. per acre. Kasi 'Gogu' as already mentioned gives more yield than local Gogu. The maximum yield of local 'Gogu' does not exceed 800 lbs. per acre. After the fibre is extracted the stalks are used for fuel purposes.

13. **Quality of Fibre:** To fetch a high price, the colour of the fibre should be white. It should be soft and free from moisture and impurities. The basal portion of the fibre should be soft without even a shade of black colour. If it is stiff due to improper retting and black in colour, the fibre is considered inferior and this is locally termed as 'Peduchu Nara'. If retting and cleaning is done in an insufficient quantity of water, the fibre attains black colour and this is graded as poor quality fibre. To improve the quality, retting should be properly done in abundant water, and proper attention is necessary in cleaning and drying of the fibre. The experience of the ryots is that 'Kasi Gogu' fibre is inferior to that from local gogu in point of 'strength'.

14. **Pests and Diseases:** No major pests and diseases affect this crop. Crinkling of leaves and formation of crinkled leaf clusters, with infestation of mealy bugs are noticed here and there.

15. **Seed Production:** At the time of harvest of the crop from dry lands, the ryots leave a small portion for seed purposes. The crop stands on the field till December - January, by which time the capsules dry up and are ready for harvest. The plants are then cut and dried for collection of seed. The ryots extract fibre from these stalks also and use it for their domestic purposes.

16. **Marketing of Fibre:** The cultivators dispose off their produce by weight in terms of 'Putties' or candies to local merchants who deal in 'Jute'. One 'Putti' weighs 560 lbs. The rate per 'Putti' of fibre varies from Rs. 170/- to 210/- depending on the quality of fibre as well as on the "position of the market". The average rate per 'Putti' is Rs. 190/- during this season. These merchants in their turn dispose off the produce to the agents of big companies stationed at Vizianagaram, the main marketing centre for jute. This year merchants from Calcutta also came and purchased this 'Jute' on a very large scale direct from the producers in different areas.

The following companies are engaged in jute trade at Vizianagaram.

(1) Gordon Woodroffe & Co , Ltd.,
(2) Ripley Company Ltd.,
(3) East India Commercials & Co., (Kistna Jute Mills, Ellore.)
(4) Bhajarang Jute Mills, Guntur,
(5) Raighar Jute Mills, Raighar,
(6) Hindustan General Produce Co., Ltd., (Chittivalasa)
(7) Ralli Brothers,
(8) Nellimarla Jute Mills.

The agents of these companies purchase the produce from merchants and get it pressed into bales for transport. For pressing into bales, hand presses as well as power driven presses are used. The weights of pressed bales are generally 330 lbs. or 400 lbs. per bale. Bales of 125 lbs. weight are also pressed by means of small hand presses.

Some portion of this 'jute' is locally utilised by the mills of Nellimarla and Chittivalasa. But a major portion of the produce is exported to Ellore, Guntur, Raighar, Shalimar, Calcutta, and to other places in West Bengal, from important purchasing centres like Vizianagaram, Bobbili, Parvatipuram, Rajam, Ponduru, Gajapathinagaram, Amadalavalsa, and Cheepurupalli. The following is the estimated production of jute fibre in Visakhapatnam District for the past three years.

1947–'48	80,000 candies.
1948–'49	1,25,000 ,,
1949–'50	2,00,000 ,,

17. Production Costs:

Average Cost of Cultivation per Acre. (Dryland Crop)

	Cattle pairs at Re. 1/-	Men at Re. 1—0—0	Women at Re. 0—8—0	Rs.	A.	P.
1. Preparatory Cultivation:						
Six ploughings ...	12	12	...	24	0	0
2. Manures and Manuring:						
Carting 40 cartloads of tank silt ...	5	15	...	20	0	0
Cost of sheep penning ...	...	...	...	15	0	0
Cost of 10 cartloads of Farmyard Manure at Rs. 1—8—0 per cartload	...	...	...	15	0	0
Carting and spreading of Manure ...	2	4	...	6	0	0
Covering of manure ...	2	2	...	4	0	0
				60	0	0

	Cattle pairs at Re. 1/-	Men at Re. 1—0—0	Women at Re. 0—8—0	Rs	A.	P.
3. Seeds and Sowing:						
Cost of 8 lbs. of seed ...	...	...	25	5	0	0
Sowing of seed and covering ...	3	3	...	6	0	0
				11	0	0
4. After Cultivation:						
First weeding and hoeing	...	...	25	12	8	0
Second weeding and hoeing ...	...	...	25	12	8	0
				25	0	0
5. Harvesting, Retting and Extraction and Fibre:						
Pulling out plants, bundling and stooking ...	...	25	...	25	0	0
Carting to a pond and arranging into heaps for retting ...	2	9	...	11	0	0
Removal of bundles from water extraction of fibre washing and drying ...	...	6	50	31	0	0
Bundling of dried fibre and carting of fibre and stalks to ryots yard ...	2	6	...	8	0	0
				75	0	0
6. Land Kist (Average)				5	0	0
7. Total cost of cultivation per acre				200	0	0

N. B. In the case of wetland cultivation, an amount of Rs. 5/- to be added towards the cost of labour, for flooding the field before sowing and for one irrigation.

8. Average yield of fibre		1,000 lbs. per acre	
9. Cost of 1,000 lbs. of fibre at Rs. 190/- per 'Putti' of 560 lbs.	...	Rs. 339	4 0 or
		Rs. 340	0 0
Value of dried stalks fuel purposes	...	Rs. 20	0 0
Total	...	Rs. 360	0 0
10. Profit per acre Rs. 360 — 200 = Rs. 160/-			

18. **Acknowledgement:** I express my thanks to Agricultural Demonstrators for furnishing the details of acreage under 'Gogu' in their respective taluks.

Preservation and Improvement of Cattle Wealth of the Indian Union

By

MAJOR T. MURARI, A. I. A. (Aberystwyth), Dip-in-Rural Economy., B. Sc: (Oxon), F. R. S. A., A. I. R. O.
Joint Director of Animal Husbandry, Madras.

Received 10—7—1950

The Indian Union is a Secular State and all the great leaders have taken no end of trouble to proclaim this fact. The definition of Secular State emphasises that this state is purely worldly and not bound by any religious dogmas. Nevertheless we are having in the constitution that the cow should not be slaughtered in the Union. If this is to be symbolic to indicate unity of life and how we intend respecting the same it may be alright. But if we mean to put this into effect literally we are trying to do the impossible and consequently impracticable.

From the recent figures with regard to cattle population in the Union given, we note the following :

Number of Zebu in the Indian Dominion :

	Cows	*Buffaloes*
Cows	28,325,570	12,234,049
Bullocks	37,813,546	4,123,762
Young Stock	25,917,508	9,931,257
Useless	2,744,583	658,188
Total	94,801,207	26,937,256
Sheep ...	...	... 22,568,101
Goats ...	...	... 30,538,214
Poultry ...	...	... 70,748,985

Figures in respect of pigs, horses, mules and camels are not available.

Human population in the Union : 390 millions.

It is difficult to know how these figures have been gathered. If by useless stock is meant only old, and decrepit, it is probably a fair estimate. It would then mean that no account is taken of inefficient animals–barren cows, heifers not coming to heat and a large number of young stock that would never grow to be useful.

Add to this the efficiency of the Veterinary Departments in this country in combating diseases. It is computed that death rate mortality due to Rinderpest, H. S,, Foot and Mouth diseases. Black quarter is about 20·61 per 10,000. This is the situation despite the fact that we are very badly in need of adequate Veterinary staff to go round the contry. All the

Veterinary Colleges are producing more and more men each year and various laboratories are also producing vaccines and drugs to protect the livestock population of the country.

The picture would not be complete if it is not mentioned that in addition to the vast human population in this country, there is no birth control being practised by the population—human diseases are being combated by efficient doctors assisted by up-to-date and well equipped hospitals and malnutrition is being combated by rationing with its vast ramifications of procurement, purchase from abroad and grow more food campaign. To make things a bit more exciting many countries including Asiatic countries are getting rid of their Indian population and they are all comming to this country.

In short this is a very sketchy picture of the population and food situation in this country. Though what has been said is sketchy like modern art, one has to view the picture in the mind and put in a lot of things on the canvas which have been omitted perhaps by accidents. Some of the things not mentioned in that are the area of India is constant, forest grazing has been ruined by over-grazing and forest areas have already gone below the 20% figure which is considered a normal requirement of a country to keep up proper balance in many ways including weather. Add to this periodicity in disasters in this world in various ways due to effect of sun spots.

Having seen the picture it will be noticed that both the livestock and the humans are competing very hard for food and the race will go on until money can buy from foreign markets, but it must be remembered this policy cannot be long lived because of general food deficiency in the whole world. Lord Orr has been crying hoarse about the situation and a world Bank for food for human is being organised.

When these start facts face the world and the Indian Union in particular is it fair to either to the rest of the world or to us to consider any planning for the future blinded by overpowering sentimentalism which prevails all round us? As scientists, economists, administrators and enlightened people as we wish to be known, let this important problem be handled in a scientific manner with one simple goal of self sufficiency. Indian Union cannot afford to import food continuously and in case of a world conflagration it would be impossible for even money to procure because we have not a first rate navy, and air force to make imports possible. Since our policy is not to be aggressive we can only work at self sufficiency.

If this has to be made possible there is no room for sentimentalism especially when it is borne in mind that the Indian Union is a secular state. It is no use deluding ourselves by the cattle population figures of

other countries like Scandinavia, Canada, South America, Australia and New Zealand and saying that cattle population far exceeds the human population. The real fact is in most of these countries livestock farming is done on a large scale, the human population is null and there are vast areas for the cattle to find adequate food. There is also no use in saying that we cannot kill cattle particularly as we cannot kill say ones grandparents because they have grown useless at present. As a matter of availability of food in the end would decide the issue even with the humans e.g. witness various famines which affect this country periodically. It may be pointed out that in the past in India and other countries the very old were left in the forest with a little ration to perish, so that they may not affect the food problem of the country.

In the cycle of life, plants get their nutriments from the air and soil and with the help of the sun manufacture their own protoplasm. The animals live on plant life and in turn live on each other. Even among human beings there is no one who is not consuming animal food in some form or other and in turn his body is continuously fighting various types of parasites that are living in him and if balance is not maintained the body as such perishes.

Now coming to the cattle problems of the Indian Union it is for us to decide how we can solve the urgent problem facing us. From a survey of the livestock in the country it is seen that the livestock in most of the parts are poor and thus inefficiency for production either for work or milk. Each state or province is making efforts to improve livestock. In addition to improvement directly by breeding there is the question of carrying out mixed farming wherever suitable so as to increase fodder supply. Recently Dr. Nath has also reviewed the position regarding availability of fodder in the country. From his conclusions it is seen that mixed farming in addition to conservation and increase of water supply for growing fodder and food for human requirements and better utilisation of fodder grasses available in abundance in the forest areas during the rainy seasons will go a long way to minimise deficiencies. But even increase in food production cannot quite solve the problem because increase of food in this country also increases in the number of mouths to be fed. In spite of all these efforts made in this direction, no lasting improvement can be effected until the breeding stock is limited to efficient animals and the livestock population is also controlled so that only useful animals will make the best use of the available fodder in the country. If the problem is viewed from this angle it will not take many years to be able to reach our goal. It will not be difficult to plan out to achieve this end if there is co-operation between the public, Government and the scientists of the country.

THE THIRTY-THIRD COLLEGE DAY AND CONFERENCE

*

The Thirty-third College Day and Conference organised by the Madras Agricultural Students' Union was held this year from 29th to 31st July. Sri M. P. Patil, B. A., B. L., M. L. A., Minister for Agriculture and Forests, Bombay State, inaugurated the Conference. The Hon'ble Sri A. B. Shetty, M. L. A., Minister for Agriculture, Madras was also kind enough to be present and declare open the Agricultural Exhibition. Sri S. V. Ramamurty, I. C. S., the Hon. Regional Food Commissioner, kindly presided over the conference. Sri B. N. Uppal, Director of Agriculture, Bombay, Sri R. M. Sundaram, I. C. S., Director of Agriculture, Madras, Sri Hejmade I. C. S., Member, Board of Revenue and Regional Food Commissioner, Sri Murugesha Mudaliar, Dy. Secretary, to Govt. Food and Agriculture, Madras State, the Regional Deputy Directors of Agriculture, Several District Agricultural Officers, repersentatives of the Bapatla Agricultural College participated in the Conference.

The Conference commenced at 11 A. M. on the 29th Saturday, July 1950 with a welcome speech by the Principal Sri C. M. John. The Secretary then read out a number of messages from the President of the Republic of India and others wishing the function all success, followed by the reading of the Annual Report of the Managing Committee for the year 1949—50. Prizes were distributed to the various prize-winners of the Agricultural College during the acadamic year ending 1949 and the Ramasastrulu Munagala prize for 1950.

The Conference President then delivered his address wherein he gave a picture of the working of the Department of Agriculture in Bombay State and the various improvements done in that State. The Sessional President in his speech, opening the conference gave lucid picture of the food situation and laid emphasis on the urgent necessity for the nation to introduce changes in the normal dietary by substituting rice by some of the root crops at least partially and gave an account of the self sufficiency measures and researches that have to be done. The Hon'ble Minister for Agriculture Madras State declaring open the Agricultural Exhibition reviewed at length the work done by the Madras State in the drive for incrersed production of food.

The second session commenced at 2 P. M. with Sir S. V. Ramamurty in the chair. The Director of Agriculture first initiated the discussion on the suject of symposium " Maximisation of Crop production ". A number of papers were presented. Owing to the restricted time available each author was allowed to talk on the salient points of his contribution. A large number of non-officials especially, farmers from the districts and

even from Mysore State attended the conference. A new feature this year was the use of Tamil also to help the cultivators to express their views. Sri T.V. Sundaram, Sri V.C. Palaniswami Gownder, Sri P. G. Karuthiruman, Sri Sitharama Reddi took part in the discussions.

On the night of the 29th the Union arranged for a variety entertainment. Sri A. B. Shetty was present throughout.

The third session commenced at 8 P. M. on Sunday the 30th when the remaining papers were presented and discussed. The session came to a close with the President's lucid summing up and instructive concluding remarks. The annual College Day Sports and Tea commenced sharp at 3 P. M. The athletic items were keenly contested and the championship cup was awarded to K. N. B. Alwa. Sri A. B. Shetty, Sri R. M. Sundaram and Sri Murugesha Mudaliar were present.

On the 31st Monday the General Body Meeting of the Union was held between 8 and 10 A. M. The Departmental Conference was held on the 28th and 31st afternoon with the three departments of Government viz., the Agricultural, the Regional Food Commissioner and Co-operation taking part in deliberations.

Principal's Welcome Speech

The Hon'ble Minister for Agriculture, Bombay; *the Hon'ble Minister for Agriculture, Madras*; *Sir S. V. Ramamurty*; *the Director of Agriculture, Madras*; *Ladies and Gentlemen,*

It is my proud privilege as Principal of this Institution and the President of the Madras Agricultnral Students' Union, to accord a hearty welcome to all those assembled here today on the occasion of the Thirty-third College Day and Conference. The Union is fortunate in securing the presence in our midst today, of the Hon'ble Sri M. P. Patil, Minister for Agriculture and Forests, Bombay, who has graciously consented to inaugurate the proceedings of the Conference. He has, by accepting our invitation at great personal inconvenience, showed his great interest in matters pertaining to agriculture and increased food production as an All-India issue and has created a happy precedent of extending Inter-State goodwill and understanding. It is a gesture which we most gratefully appreciate. To him and to the Director of Agriculture, Bombay, we extend a cordial welcome and we trust that they will enjoy their visit to Coimbatore and carry with them happy memories of this occasion.

Sir S. V. Ramamurty who is to preside over our deliberations today, needs no introduction to this gathering. One of the outstanding personalities of this generation, he has, by virtue of his high intellectual

attainments, wide administrative experience, broad human sympathies and zeal for public causes, attained a high place in our public life. It was under his dynamic leadership as Director of Agriculture of this State, that the Madras Agricultural Department first received its due recognition from the people and the Government which enabled it to move forward on progressive lines and make itself felt as an important factor in the Agricultural Economy of this State. And again during the dark days of World War II, as Adviser to the Government of Madras, Sir S. V. Ramamurthy in charge of the Food Portfolio, brought into full play his great capabilities as an administrator and organiser and saved Madras from the horrors of starvation caused by short supplies, transport difficulties, maldistribution and black marketing. The Union is indeed very happy that he is in our midst today to guide the deliberations. And then, I have very great pleasure in welcoming our popular Minister, Sri A. B. Shetty. We are grateful to him for his sympathy and interest in the Union and for recognising it as a useful organisation in furthering the cause of Agriculture. We are aware, that his responsibilities as Minister for Agriculture weigh heavily on him in these difficult days, and we take this opportunity, to assure him of our loyal co-operation and service, in the accomplishment of the great task that is imposed on him by the people of Madras, in rescuing it from the unenviable position of a deficit State in regard to her food requirements, made worse by the failure of rains in successive seasons.

The active interest taken by our Director of Agriculture, Sri R. M. Sundaram, in the affairs of the Union is a source of great encouragement to every one of us. His sympathetic guidance, in the organisation of this Conference has been of invaluable help. It was mainly due to his efforts that we have been able to secure the presence of so many distinguished visitors to this Conference and the large and representative gathering that have assembled today in this hall. The union is greatly indebted to him, for the happy idea of enlarging the scope of this Conference and making it an event of great State significance.

I am glad to report that the College continues to function in a very satisfactory manner. The results of the Degree Examinations during the year have been quite good. Out of 76 students who appeared for the Final examination in April 1950, 73 came out successful. Their ranking in the University examination has not yet been communicated to us. Among the students who passed out in 1949, Sri K. Srinivasan has obtained the highest marks and is the recipient of four medals. I take this opportunity to congratulate him and others who have passed the examination. I am glad to state that almost all of them have been absorbed in the Department to help in the Grow More Food campaign.

In recent years, the rush for admission to the Agricultural Colleges has not been so great as to the other professional Colleges, and among the applicants, fifty percent of those selected did not join. Agriculture is the most important basic Industry of the State and the work that lies ahead of us, if we are to progress on modern lines demands the best brains of the country. It will be a pity if the Agricultural Colleges which are maintained at such high cost for the welfare of the State, are deemed inferior to other professional Institutions. This is a matter which merits the serious attention of the Government and others who cherish a dream of a Progressive New India.

Once again, I have very great pleasure in welcoming you, Ladies and Gentlemen, to participate in this Thirty-third Agricultural College Day and Conference.

Reading of the Report by the Secretary

The Managing Committee of the Madras Agricultural Students' Union, in taking this opportunity of presenting their report for the year 1949—50, desire to express their sense of deep gratitude to the Hon'ble Sri. M. P. Patil, Minister for Agriculture, Bombay State, for so graciously consenting to come down to Coimbatore and inaugurate the celebration of our Thirty-Third College Day and Conference today. The Union is extremely fortunate in having with us on this occasion, the Hon'ble Minister for Agriculture, Madras, Sir S. V. Ramamurty and Sri. B. N. Uppal, Director of Agriculture, Bombay. It is quite a unique occasion that we are having today, as this is perhaps the very first time in the annals of the Union, that the College Day and Conference is graced by the presence of distinguished personages from outside the State of Madras. It is in the fitness of things and in keeping with our new-found National consciousness that we Indians should transcend the borders of narrow provincialism and take a keener interest in the affairs of the country as a whole and the presence of the Hon'ble Minister for Agriculture and Director of Agriculture, Bombay in our midst today is an event of very happy augury for all of us to take note of.

The Hon'ble Sri. M. P. Patil, who is to inaugurate our Conference today, has been one of the most steadfast and sincere workers in the National Cause since 1930, when he resigned a Lieutenancy in the Indian Territorial Force and joined the Satyagraha Movement. During the time of the first Congress Ministry in 1936, the Hon'ble Sri. M. P. Patil was intimately associated with Agriculture and Rural Development, as Parliamentary Secretary and we feel sure that his ripe experience and counsel will be of great benefit to us in the solution of our immediate problems relating to crop production.

Sir S. V. Ramamurty, Honorary Regional Food Commissioner is no stranger to us, having been our Director of Agriculture and later as Adviser to the Government of Madras, in charge of Agriculture and other Development Departments, was in intimate touch with the activities of our Department. On behalf of the Union, permit me to thank you, Sir, for so readily consenting to our request to preside over and guide the deliberations of this year's Conference.

The Madras Agricultural Students' Union: The Union was founded in the year 1911. It was started as an organisation to bring together the past and present students of the Coimbatore Agricultural College as well as its predecessor, the Saidapet College of Agriculture. To this we have added, since 1945, the past and present students of our sister Institution, the Bapatla College of Agriculture. The Union has been, during all its thirty-nine years of existence, an entirely independent, voluntary and self-supporting organisation, composed of not only the members of the Agricultural Department, but also some of the leading agriculturists of the State, who have become the Patrons of our Union. In addition to its function as a link between the past and present students of the College, the Union can also claim, through the medium of the Madras Agricultural Journal, as a clearing house of information on matters relating to Agriculture, with special reference to Madras.

The Madras Agricultural Journal: The Journal was first started as a Year Book in 1911, and later became a quarterly publication until 1915, when it was converted into a monthly Journal. We are glad to record that the Journal continued to maintain its regularity and the standard we have set before us in its publication, throughout the year under report. It is also gratifying to record that our Journal is recognised as a suitable medium for publication, of not only items of what may be termed of popular interest, but also of research items of scientific importance. Our Journal has also secured a place among the scientific periodicals of the world and has on its exchange list a large number of scientific publications, both Indian and Foreign. It must be admitted, however, that the present get-up of the Journal still leaves room for a great deal of improvement and it is to be hoped that conditions would soon improve to such an extent in our finances as to make this ideal, possible of attainment.

Finance: In the general scarcity of almost every article that prevails in the country to-day, the high cost of paper and printing charges continue to be a matter of serious concern, in the annual budget of the Madras Agricultural Students' Union. In this connection the Union desires to place on record its sense of gratitude to the Director of Agriculture and Government, for a special grant of Rs. 1,800/- made during the year, towards the increased cost of paper and printing charges. For the same reason it

was found necessary to increase the subscription rates for the Journal during the last year. The Managing Committee desires to make a fervent appeal to one and all of our College Students, past as well as present, to enrol themselves as members of the Madras Agricultural Students' Union and thereby help towards maintaining its self-supporting character.

College Day and Conference, 1949: The celebration of the Annual Agricultural College Day and Conference is one of the important activities of the Union. The Thirty-Second College Day and Conference was celebrated last year from July 30th to August 2nd. The Hon'ble Premier of Madras, Sri P. S. Kumaraswami Raja presided over the Conference. A symposium on "Transmission of Research – How best to translate the results of Research into General Farming Practices", was organised for the occasion and provided a subject of very keen and animated discussion, in which a number of prominent persons, official and non-official, participated. The Hon'ble Sri A. B. Shetty, Minister for Agriculture, Madras also honoured us by his presence and was kind enough to declare open the Agricultural Exhibition that was arranged for the benefit of all those who were interested in agriculture. A detailed account of the proceedings of the College Day celebrations has already appeared in the August number of the Madras Agricultural Journal, 1949.

Retirements: Since our last report, the following members Messrs. C. R. Srinivasa Ayyangar, K. M. Thomas, M. C. Cherian, K. G. Bhandari, T. Lakshmipathi Rao and M. Subramania Pillai have retired from service.

Sri C. R. Srinivasa Ayyangar was a Vice-President of our Union in 1940 – 41 and President for a short time and was closely associated for a number of years with almost every activity of the Union and Journal.

Sri K. M. Thomas was another of our active members who was connected with the Union in various capacities. He was the Editor of our Journal in the year 1940.

Sri M. C. Cherian who was the Principal of the College and ex-officio President of the Union up to last April was another of our old members who had taken a very keen interest in all the activities of the Union. We extend our best wishes to one and all of them and trust that they would continue to take an active interest in the well-being of our Union.

Obituary: We record with deep sorrow the death of five of our members during the year, Messrs. T. S. Ramasubramaniam, K. Sankara Narayana Ayyar, B. Achutha Ramiah, T. Satagopan and T. Narayana Rao. We take this opportunity to convey our condolences to their bereaved families.

Acknowledgements: It is now our pleasant duty to record our thanks to all those who have helped the Union during the year. To the Hon'ble Premier, Sri P. S. Kumaraswami Raja, the Union owes a deep debt of gratitude, for presiding over the last College Day and Conference and to the Hon'ble Sri A. B. Shetty, Minister for Agriculture, the Union owes an equal debt of gratitude for guiding the deliberations and discussions during the proceedings of the Conference. To Sri C. M. John and to Sri P. V. Ramiah, the Principals of the Coimbatore and Bapatla Colleges, the Managing Committee offers its heartfelt thanks for their help in guiding the affairs of the Union. To Sri R. M. Sundaram, I. C. S., O. B. E., our Director of Agriculture, the Committee tenders its grateful thanks for his never-failing help and guidance so freely given to the Union. To all those ladies and gentlemen, who helped to make the last College Day and Conference a success and helped the Committee during the year in so many varied ways, our heart-felt thanks are herein recorded.

U. Achutha Wariar,
Secretary.

Opening Address by The Honourable Mr. M. P. Patil Minister for Agriculture and Forestry, Bombay

It is almost a truism to say that India is predominantly an agricultural country, but I think the statement bears repetition. In spite of what we may do to promote the industrialisation of our country, agriculture must remain the key-stone in the arch of our economic structure. Since the attainment of independence three years ago, the popular Governments throughout the country have given earnest attention to improving the lot of the actual tiller of the soil. During the last three years, in the sphere of agriculture, most of the work done was pertaining to rural legislation and the Grow More Food campaign.

"State Governments embarked on enacting new or suitably amending the existing legislation, mainly in order to free the actual tiller of the soil from the shackles of the money-lender and the absentee landlord. The Zamindari Abolition Acts of the various States and the storm that brewed over them bear testimony to the immense difficulties of rooting out this centuries-old institution with its widespread social and political tentacles. In Bombay, we are somewhat lucky in this respect. Almost the entire area is Ryotwari except for a few pockets here and there. Last year, we abolished these out-dated tenures in the Gujarat districts of the State and in the next session of the Legislature the remaining pockets would be liquidated. But we still have the class of absentee landlords—not a Zamindar in the sense in which the term is used in Bengal, Bihar or in some of the districts of your State, but usually a middle-class man who often lives in the cities and lives on or supplements his income from professions or business, by the rent he receives. It was necessary that

he should not exploit the tiller of the soil. We, therefore, passed the Tenancy and Agricultural Lands Act by which tenants could not be evicted, rents were controlled, and a landlord who kept his lands uncultivated ran the risk of his lands being taken over by the State for cultivation. The Acts to control the money-lender had easier passage in most of the States, since none had sympathy with the usurer. But this control has led to the contraction of credit in the rural areas and the co-operative credit movement must bestride the gap if it is not to fail the cultivator in this hour of need.

Grow More Food Campaign: The other aspect of agricultural improvement on which major attention was given during the last three years is the Grow More Food Campaign. The country is deficit in cereals by three to four million tons and in recent years we have been spending about Rs. 125 crores worth of valuable foreign exchange on importing the minimum required to make up the deficit. Last year, the food imports represented nearly one-fifth of our total import trade. For an agricultural country like India, this is ludicrous and, what is more, we cannot afford it, if, as we do, we want to industrialise the country so as to consolidate our freedom and face the world with equanimity in times of stress. By the end of 1951, we must become self-sufficient in food.

In 1949—'50, the total result of the effort in the country was to reduce the deficit by about a million tons. We have to step this up at least three-fold during the current and the next year. Bombay, like Madras, is a permanently deficit area. We are deficit by about nine lakh tons per year. A third of the State is liable to frequent scarcity of rains and famine and only four per cent of the cultivated area is irrigated. Soils except in the river valleys and the northern and eastern portions, are poor. Our aim is to produce by the end of 1951 three lakh tons of additional foodgrains and we feel confident that the aim will be achieved.

Bombay is a major cotton area and we propose to increase both the area and the yield per acre of that crop as much as possible. Long staple varieties like your Co. 4 are being grown under irrigation on about 25,000 acres. The restrictions on cotton growing under Growth of Foodcrops Act have been entirely removed. For jute, Bombay is of minor importance; yet we are making attempts to grow Mesta, or what we call Ambadi, on additional 10,000 acres. Indigenous varieties of jute are being tried.

Since our aim is to be self-sufficient by the end of 1951, the Grow More Food schemes have to be planned in such manner as to yield results before that date. Most of the schemes have, therefore, to be necessarily of a short-term character. On account of the limitations of financial and technical resources, long-term schemes have to be slowed down. All long-term schemes are, however, not less urgent than the immediate problem facing us.

The glaring example of this is the erosion and impoverishment of our soils, which has been taking place for the last several years, especially since the destruction of forests began on a large scale and the pressure on grazing areas started to become acute. In the Bombay State, considerable experimental work had already been done and certain methods of cultivation, collectively called the 'Bombay dry farming method' had been evolved. But propaganda for this method was being carried out in a very small way, as was perhaps true of propaganda for other agricultural improvements also. In 1942, the Bombay Government decided to undertake on a large scale the work of soil conservation and introduction of the dry farming method in the drier parts of the State which are liable to frequent scarcity of rains and also famine.

Between 1942 and 1947, over seven lakhs of acres had been improved by bunding, trenching, etc., at a cost of about Rs. 170 lakhs. Three-fourths of the cost is recoverable from the cultivators in easy instalments. We have now passed an Act under which a minority of cultivators in a catchment area, who do not agree to get their land included in a scheme prepared for the whole catchment area, can be compelled to join the scheme. A separate section of the Agriculture Department has been set up for pushing on with this work vigorously. The Government gives subsidy for such land improvement to the extent of 50 per cent of the cost, not exceeding Rs. 10 per acre. We have also got a training centre in the State for training Agricultural Department staff in methods of soil conservation and dry farming. This training centre has proved extremely useful and has been taken advantage of by several other States in India. Research for evolving suitable methods of soil conservation and dry farming, mainly in those parts of the State where this work has not yet been undertaken on a large scale, and for making further improvements in the existing methods in other areas has not been neglected and is being continued vigorously.

Education of the Cultivator: I wish to say something about an aspect of agricultural improvement which needs greater attention in the future than has been given to it hitherto. That aspect is the instruction of the cultivator in the improved methods and the supplying of the wherewithal to practice those improved methods. This is commonly known as agricultural extension work. To my mind, to-day, the weakest link in the chain of agricultural improvement is this agricultural extension service. Prior to World War II, in Bombay, the official who was in contact with the cultivator was the District Agricultural Overseer, who was an agricultural graduate, sometimes fresh from the college, and who was a member of the subordinate agricultural service. His charge was the whole district with about 1,000 villages. It can be imagined how often and how efficiently he must have been contacting the cultivators in so extensive an area.

With the starting of several schemes under the Grow More Food Campaign, for example, compost making, distribution of groundnut cake, chemical fertilisers, improved seeds, etc., separate extension staff was employed for each of them as and when the schemes were sanctioned. Very soon, cultivators began to be visited by several persons, all of whom represented the Agricultural Department, in order to cater to their different needs. There was also some avoidable duplication.

About two years ago, we reorganised the agricultural extension service in the State and have now modelled it more or less on the extension service existing in the U. S. A., no doubt modified according to our resources and technical personnel available. Now, we have a District Agricultural Officer in Class II of the State Agricultural Service for each district. He has under him four or five Agricultural Officers who are also agricultural graduates. Under each Agricultural Officer, there are about 10 Agricultural Assistants each in charge of about 25 villages. Those Agricultural Assistants look after all the various schemes of the Agricultural Department operating in those villages. The cultivators have now only one person to go to for meeting their needs. The training of these Agricultural Assistants is a very important matter, since it is the efficiency and the tact of these persons, that will ultimately decide the success of work of the Agricultural Department in all its aspects. We have 17 Agricultural Schools at present which turn out about 500 trained persons every year. Persons who have completed seven years' schooling are admitted to a two-year course. It is now our policy to appoint only persons trained in the Agricultural Schools to the posts of Agricultural Assistants.

Unification of Rural Agencies: To my mind, the unification of the agencies dealing with the several aspects of the work of the Agricultural Department into a single agent is not enough. The cultivator still has to go to the Co-operative Officer for co-operative credit, co-operative marketing of agricultural produce and so on. He has still to go to the Patwari for obtaining Taccavi loans. I think that it is necessary that there should be a single agent in the village representing all the departments of Government operating outside the medical, educational, tax collection, and law and order fields. With the further unification of agencies, as suggested by me, it would also be necessary to reduce the present charge of the Agricultural Assistant. About 10 villages per Assistant should enable him make personal and frequent contacts with the villagers, which is necessary for winning their confidence. The work of these Agricultural Assistants would also have to be supervised by the Agricultural Officers, whose charge should not extend beyond one taluka. The Agricultural Assistants should be able to develop the group of 10 villages in their charge as a unit.

Each village should have a well-organized co-operative credit society and each group of ten villages should have a co-operative multi-purpose society. The chief functions of the multi-purpose society should be to arrange the distribution of improved seeds, manures, fertilisers, essential requisites, etc., and to arrange for the sale of cash crops and dairy produce. Actual distribution of fertilisers, seeds, etc., is at present being done in many areas by the Government. But I think that this work ought to be done by the farmers themselves and their co-operatives must come into their own as early as possible.

The agricultural demonstration centre should form an important part of agricultural extension work. No amount of paper used for printing pamphlets would carry conviction to the cultivator, who is prone to distrust the lecturer-propagandist and believes in seeing things for himself. And I think he is right in having this attitude of mind. In Bombay, we have at present an Agricultural Demonstration Centre for each taluka, which is in charge of one of the Agricultural Assistants. It is our aim to increase the number of these centres so that each Agricultural Assistant in charge of about 25 villages will have at least one 'solid propaganda pamphlet' in the form of a demonstration centre in each village. The observance of special weeks and days are of considerable use for making propaganda and also for actually doing the work. We started celebrating the Gram Sudhar Saptah on the occasion of Mahatma Gandhi's birthday since 1948. The work done during the last two years in these Saptahs was very satisfactory.

Development Boards: Even if the agencies at the village end are completely unified, as I have suggested, it would still be necessary to co-ordinate the activities of the several departments of the Government at the higher levels. This would be necessary because the Agricultural Assistant at the lower level cannot be expected to be a master of all. He would have to be tutored by specialists at the higher level, in the different fields of activities. We have for this purpose Taluka Development Boards in each taluka. The officers of the various Departments of Government dealing with rural development are represented on these boards. At the district level, we have District Rural Development Boards, of which the Collector is the Chairman and the district officers of the Development Departments are members. The need for enlisting non-official co-operation in development activities needs no emphasis from me. Such co-operation is to my mind, the only road to progress. We have, therefore, nominated prominent social workers in the field of rural development, as well as all the members of the Legislature from the district, on the District Rural Development Boards. On the Taluka Development Boards also, we have non-officials as well as members of the District Rural Development Board who are residents of the taluka. A prominent non-official, who is an enthusiastic worker and can

devote full time to the work of rural development is appointed the Secretary of each District Rural Development Board. At the apex, we have the State Rural Development Board, of which the Chief Minister is the President. All Heads of Departments connected with rural development are also members of the State Rural Development Board. This body is mainly advisory. A small standing committee of this Board meets frequently to advise the Government on the day-to-day problems which arise during the implementation of the grow More Food and Rural Development schemes.

We have also set up Village Food Production Committee, which consist of the Patwari, the Patel, the village school teacher, the president of the village panchayat, if any, and two or three progressive cultivators in the villages. These committees are the last link in the chain of agricultural extension.

Appeal to Agricultural Graduates: And now I wish to conclude by addressing myself to the young friends whose College Day is being celebrated to-day. To you, all I have said so far is a little distant. Yet you think of your studies, prize distributions, games and the annual reports competitions and the entertainment items. This is as it should be. If you work and then play, no one can blame you. What I wish to tell you is that in a couple of years, when you graduate, you will have to join the stream of life and it is well to prepare for it now. Learn to think of the problems for yourself. The habit of independent thinking will stand you in good stead. You should put forward your point of view boldly, irrespective of personalities, once you are convinced that reason is on your side. But I caution you against arrogance and self-esteem. These are as dangerous as timidity or diffidence. Secondly, develop a love for the rural areas which you have to serve in your future life. You may have been born and brought up in a rural area and yet you may be a lover of cities. I have come across no small number of such cases. And it is not unnatural. Our rural areas are to-day very unattractive, compared to the cities. There are no facilities for education and no entertainment. Housing is bad, there is comparative insecurity of life and property, social life is marred by dissensions and family feuds and above all, economic opportunities for bettering one's lot are meagre. You have to develop a love for the village in spite of all this; for without love you will not make a good job of the assignment given to you in the agricultural extension service as I perceive it. In that service, you must not become an official, but a true servant of the people.

Presidential Address by Sri S. V. Ramamurty, I. C. S.

Let me first thank the organisors of this College Day and Conference for the honour they have done me in asking me to preside. Some ten years back I had the pleasure of presiding on a similar occasion. I have been connected with this College in various capacities. Like the teachers

and students of this College, I have always been interested both in culture and agriculture. Indians are inheritors of a long developed tradition which while giving supremacy to things of spirit does not neglect the values of material life. The country that produced the great sages of the Vedas and authors of the Puranas and Shastras has also developed a way of civilised life as rich as any country in the world did till perhaps about 300 years ago when Europe gained a march over her by the discovery and application of modern science. The task of India to-day is while retaining the wealth of her spiritual inheritance to use it also in order to enhance the richness of material life by the integration of the old vision of India with the new vision of Europe.

In India the old and the new were brought together by the political supremacy of England over India. England has been the means whereby the new knowledge of Europe and her energetic handling of natural resources have been brought to bear on the needs and opportunities of India. When the Second World War started and Burma fell a prey to Japan, struggle for food started in India. Before then wheat was if anything surplus to India's requirements but rice was being imported from Burma which only a few years before had been a part and parcel of India. As India's insufficiency in rice started with the partition of Burma, so India's dificit in wheat has started largely with the cession of Pakistan. Even before then, the deficit of rice which was not easily available in the rest of the world had to be made up partly by the use of wheat instead of rice. The need to switch over from old established habits of food started with the last war. In Bengal people died rather than eat millets which were imported in the time of the great famine in 1944. But in Madras the supply of wheat began to be taken up in increasing measure by the people in place of rice. The need for a change in food habits has been due not only to the reduction of available supplies when India shrank from her former size but also to the growing rise in her population. The application of rationing methods has also by equal distribution of the available supplies among the mass of the population naturally tended to limit the amount available to each person. As the years went on with deficits mounting, the available resource of food in the country dried up with the result that in the last 2 or 3 years India has been obliged to import food from abroad to the value of something like a 100 crores a year. I believe that self sufficiency in food can be attained in India. It is up to you agricultural experts and students to say how it shall be done. This symposium on maximisation of food production will, I have no doubt, give valuable aid to the Grow More Food campaign that is being carried out in this country.

To achieve we must decide and drive. The average production of paddy in this country as well as in other countries of Asia in the same latitude from Pakistan through Burma, Siam and Indo-China is about

1,200 lbs. an acre. It is about 2,000 in China, 3,000 in Japan and I was told at the Rice Conference at Bangkok, it is even 2,000 in Java, though this last figure has been contested. I asked at the Bangkok Conference for information from the various rice producing countries of the world what were the factors correlated with the average production of paddy in each country. In India we have some land producing paddy as much as any country in the world, but our average is poor, much poorer than we feel it should be. In the report of the Famine Enquiry Commission it has been pointed out that considerable attention had been paid by the Agricultural Departments to the breeding of good seed and its spread but equal attention has not been paid to the feeding of the good seed. The result has been that while the seedlings are good they do not grow as much as they are expected to grow because they are ill fed. The commission pointed out that the next great drive should be towards the improvement of manure supply to paddy producing land. One ready and even cheap way of supplying manure is growing green manure on the land itself and applying it to the land. There are, however, practical difficulties in getting even the moderate amount of water that is necessary for growing the green manure and it is not all land that can be supplied with green manure. Even in the delta districts I have been told that something only like a quarter of the area could be provided with green manure. The remaining area has thus therefore to depend upon other sources. Groundnut oil cake has been applied as far as possible, so too bone meal. Their supplies are limited. These are ways of applying organic manure but along with organic manure the experiments and experience of Agricultural Departments have shown that inorganic manure could also be applied without any detriment to the soil. If there are doubts in the minds of some that the application of inorganic manure is harmful to the soil, they should be removed by the opinion of scientific experts who have made experiments for half a century on agricultural farms in India as well as by the experience both scientific and practical in other countries of the world, where the application of inorganic manure with suitable safeguards has not depleted the fertility of the soil. Plants take out certain chemical ingredients from the land and it is not unreasonable to put them back in suitable ways. The representative of Japan at the Bangkok Conference attributed the high fertility of Japan's paddy land to be largely due to the application of ammonium sulphate, of which before the war they produced 1½ million tons a year. During the war this manufacture fell and so too the productivity of the paddy land. After the war they have already reached a production of a million tons a year and the productivity of paddy land has been restored. In Java, the representatives told us that one of main reasons for the productivity of paddy land in Java was natural phosphatic manure. In China the people are fortunate in being deviod of sentimental objections to the use of human excreta as manure for their soils. In

India methods of making compost from human excreta have spread but little. To meet with our immediate problem the ready method is the applying of inorganic manure, namely ammonium sulphate with a suitable addition of super phosphate. I have met cultivators in various parts of Madras, Mysore and Travancore-Cochin in the last few months. I have not come across a cultivator who has denied that the application of a bag of ammonium sulphate has not produced about 3 bags of additional paddy. Deterioration of the soil by the exclusive application of ammonium sulphate can, we are told by experts, be avoided by the application of a corresponding quantity of super phosphate even if green manure and groundnut oil cake cannot be applied with ammonium sulphate. The application of inorganic manure can then raise our paddy yields by about 3 bags or 500 lbs. per acre if a bag of ammonium sulphate with super phosphate is applied. Thāt is to say the yield of 1200 lbs. can be raised to 1,700 lbs. and the yield of 1,600 lbs. per acre which is the average reached in the delta districts can be raised to over 2,000 lbs. Our long term paddy crop is poor in yield even as our short term paddy crop is poor in yield too. Both need to be enhanced by the application of adequate manure. It is for this reason the Government of India have recently suggested to the Government of Madras the application on a mass scale of inorganic manure consiting of ammonium sulphate and super phosphate in the districts of Madras with an assured water supply. Both in Mysore and Travancore the Governments of States have already put in force an organisation for the application of such manure on a mass scale, It is to be hoped that by the end of the year the production of paddy in South India will be appreciably increased by the application of this manure.

Madras is in a fortunate position in as much as the Agricultural Department through a long course of years helped to produce and distribute good paddy seed so that something like 60 to 70 per cent of the paddy land has, I believe, had the benefits of improved seed. There are few other States which can show this record. Methods of combating disease and methods of improving storage have also been receiving attention. These are elements of a long range strategy of improving production and the department will no doubt strive to improve them steadily and assiduously.

An important method which is being applied in various parts of India as a part of the self-sufficiency drive is the reclamation of land. In large areas of Central India land has got infested with kans grass and tractor units are ploughing the land deep in order to eradicate the weeds. In United Provinces the *terai* which has been a malarial swamp has been taken in hand and recent accounts show considerable success in freeing the land from malaria and developing cultivation of food crops in the area. In Madras the weed infestation of land has not been a

problem but there are large areas which have been infested with malaria and have remained sparsely cultivated. Among such areas are the Agency Tract in Vizagapatam and the Wynad in Malabar. The Vizag Agency mainly belongs to the Jeypur Zamindari which along with the rest of the Zamindari is 20,000 square miles in extent. The density of population is very small. While the hillmen spread themselves out to cultivate land here and there in each year it is clear that the country which needs food and can grow it in such a tract is now being deprived of such production. A few years ago the Government of Madras started the reclamation of the Araku Valley and I was glad to see recently that it is practically free from malaria now. A large number of villages right up to the Orissa border have had the benefit to anti-malarial measures and the fertile land of the area with its adequate rainfall should be made available for increasing the production of food needed for Madras. There will be no doubt difficulties in re-adjusting the occupation of the land but this must be met with tact and determination. I saw an excellent example of such overcoming of difficulties in the area held by the Rayagada Sugar Factory, just across the border. They have taken up land worth hardly Rs. 10/- an acre, cleaned it with bulldozers, cultivated it with tractors and irrigated it with pumps. They are now raising sugar cane on the land both as irrigated crop and as rain-fed crop and the land is worth many times more than what it was. In this area also there were the local hill men with cultivation dotted here and there. But the Sugar Company under the supervision of Mr. V. Ramakrishna, Managing Director, has been able to gain the confidence of the hill men by helping them to improve their own cultivation. The hill men's land was cultivated also with tractors and they were helped to raise more. Sometimes the land was cultivated by the Company itself and the increased profits were given to the hill men; sometimes the land was exchanged for other land in the vicinity of the village; sometimes the land was leased or purchased. But all this was done in a manner which gained for the Company the good will and affection of the hill men. This area is similar in regard to agrarian conditions to any other area in the Agency Tract. While maintaining the interest of the hill men in the area which they sparsely populated, it should be possible by organisation to rearrange the cultivation so that with the help of plainsmen if possible and with the help of mechanical cultivation where it is needed and is desirable, the vast area of 20,000 square miles may be enabled to produce more food than it has hither to done. To remove the scourge of the malaria on the Orissa side too, the W. H. O. has sent a party to take vigorous measures. There too there is need to follow them up with improved agriculture, so that malaria may not creep back into the region. Apart from any efforts on the part of Government themselves I believe that the development of the Araku Valley Township will itself help to draw enterprising plainsmen to that place from which they could spread out into the underdeveloped areas round about.

Another important method adopted for the Grow More Food Campaign is the improvement of irrigation. A vigorous programme of tank reconstruction has been taken on hand. The construction of new wells and repairs to old ones have been subsidised on a large scale. The use of machinery has been adopted in Mysore to desilt tanks and it seems to me that the method is capable of application to other parts of South India. But the continued drought in South India for the last 4 or 5 years has brought to light one serious difficulty in the irrigation strategy of the Grow More Food Campaign. In a good year a good tank is better than a bad tank. In a bad year a bad tank and a good tank are equally bad. But wells come to the rescue with the water that has been stored under ground. But after 2 or 3 years of drought even wells dry up. Then neither tanks nor wells nor the rivers in the region are of help. What can help is rivers from another region where there is rain even when in this region there is no rain. South India is divided by the Western Ghats into two regions. In the region to the west of the Western Ghats there has been heavy rainfall all through these 4 or 5 years as it always has, but in the region to the east of the Western Ghats there has been a large scale drought. There are only two links between these two regions whereby water from the west is brought to the east. These are the two rivers Godavary and Krishna. These have not failed during these 4 years. But the Cauvery which derives its supplies from the eastern region has been failing. This is the basis for pressing the construction of reservoirs on the Godavary and Krishna in order that they may strengthen the irrigation strategy of the Grow More Food Campaign. They are essential for sustaining rice production in South India. It must be remembered that the food problem of India is largely a rice problem. It is not economical to grow wheat in Northern India under the large schemes that may be taken up there and then transport the wheat to South India to supply it as food to people who are preferably rice eaters.

The increased production of cereals is however not enough because while cereals are food, food is not cereals. Self-sufficiency in food is not therefore confined to cereals. The possibility of using tubers and groundnut as a substitute for cereals in deficit has been pointed out by the Famine Enquiry Commission. Experiments as to how to combine the carbohydrate of tubers with the protein of groundnut in forms acceptable to the consumer which are nutritious and economical, have been made under the auspices of the Subsidiary Foods Committee. At the Food Planning Institute Mysore, recent experiments have shown that the addition up to 25% of tapioca or sweet potato to rice or wheat does not decrease the nutritional value. This was surprising when it was previously believed that the reduction of protein would produce a reduction in quality. Apparently the balance of minerals supplied by the tubers help to keep up the nutritional value. On the basis of this result, the present-day

deficit in food in India at the existing total ration of 12 ounces can be made up by tubers alone without the use even of groundnut. Tubers and groundnut together have been found to be 2 to 3 times as nutritious as rice. Tuber powder can be used with wheat atta and tuber sago can be cooked with rice without loss of quality or flavour. I venture to hope that in Madras where already a lead has been taken in Salem where over 40 factories process tapioca throughout the year and produce most of the sago consumed in India, the Agricultural Department will turn its attention to improved methods of production and processing of the tubers. Tubers are indeed the connecting link between cereals and vegetables. Nature has also produced tubers with a high degree of protein. A South American variety is being grown at Patna at the Potato Research Station by Dr. Ramanujam formerly of Coimbatore. It contains 18% of protein Its yield in quantity is not large but Dr. Ramanujam hopes to improve it by cross breeding. Such tubers link up cereals with groundnuts. It is not enough that India should continue to eat the cereals which she discovered some thousands of years ago, though all honour to her to have discovered food of such long standing value. In evolution, man is but a baby. He has to learn to change his food as he grows. The tubers which he ate when he lived in forests may come to his rescue if he improves them with his science and power of organization.

The development of natural resources is not enough because with the same natural resources, men of differing quality and energy produce different results. Cultivators of Coimbatore and Vizagapatam produce more efficient results from their resources in land and water than perhaps their colleagues in any other district of Madras. Production is not the result of man+nature but of man×nature. The taller the man, the more the production from the same natural resources. The wider the natural resources, the greater the production by the same man. In India our crying need in production is how to increase the average yield per acre. One way of doing it is say, to add manure. But a more complete way is to know how to rehabilitate man. I call this method, human reclamation. I have spoken to people in various parts of South India about a concrete way of attempting it. With a typical village growing paddy in South India, we may divide its fields into three classes yielding say 1,000 lbs. 1,500 lbs. and 2,000 lbs. per acre. Call them C, B and A classes. Let a village committee of experienced cultivators examine each field in class C and say what is needed to promote it to class B. Does it need water? If so, can a channel be extended to it or a well be dug? Does it need fertility? If so, can organic or chemical manure be provided? Does it need financial outlay? If so, can the holder be given a Takkavi loan? Does it need labour? If so, can additional labour be arranged? Having ascertained the needs through a village committee, a committee of Government officers consisting of a Revenue Officer, an Agriculture Officer and an Engineer should concentrate on giving all the aid required to meet the needs. By

this individual treatment of fields and their owners, the C class lands can be promoted to B class lands at the end of the year like the promotion of boys from the 1st standard to the 2nd standard in a school. Each class has a definite and manageable task to perform in a year. The human material in the village will then be enabled to raise its average effectiveness by an appreciable amount. If this can be achieved in some typical villages it should be capable of being generally applied and we shall gain the confidence that India is not a C class nation on the average but can by an effort of organization be raised in its level of practical efficiency.

India has after a course of dependence as a colony attained freedom. The savour of freedom is in adventure. The country needs to dare and show readiness to change old established methods when her leaders in vision and action bid her do so. Cultivators cannot by themselves take the risks of moving along untried channels. It is for scientists and research workers of this Institute to meet the risks of adventure and take the country by the hand and lead her along new lines to a goal of increased food and wealth. May this annual Conference help in such an achievement!

Speech of the Hon'ble Sri A. B. Shetty, Minister for Agriculture

The present Food situation : The Intensive Food Production Plan has now worked for over a year. In this State our attempts to increase food production have been considerably impeded by the unfavourable seasons we had during the last 3 years in succession. We have an overall deficit of 14 lakhs tons of food grains this year and we have been compelled to reduce our rice ration to 7 ounces. Sri Munshi's statement issued on the 25th of this month shows how the country as a whole continues to be in the grip of a formidable food crisis. The rice ration has been cut in several other States also. The main rice-exporting states, Uttar Pradesh, Madya Pradesh and Assam have failed to procure rice according to their commitments. Orissa alone is said to be proceeding according to schedule. Among the deficit states, Bombay and Madras are said to be doing their best, but in other states procurement has been unsatisfactory. According to Sri Munshi's statement, the Central Government will have to import an additional quantity of 1 million tons of food gains over and above the 2 million tons of imports fixed for this year in spite of exchange difficulties. Several irrigation schemes, major and minor, have been executed. Fairly large extents of land have been reclaimed by means of mechanical cultivation. The supply of chemical fertilisers and other manures has been increased. It is claimed that 9·35 lakhs of tons of additinal food grains have been produced in the whole of this country during 1949–50 as the result of all these G. M. F. schemes. But there has been no increase in procurement during the last 3 years in spite of the several crores of rupees spent on the G. M, F. campaign by the Central as well as the State Governments.

Agricultural Planning: The G. M. F. campaign and price control and procurement policies seem to work at cross purposes. Why grow more food crops and deliver it at low prices when it is more profitable to raise commercial crops which fetch better prices and are not liable to procurement–so the ryots think and feel and this mass feeling takes away the incentive required for a Grow More Food drive. Control, Procurement and Rationing have to be adopted in every country when there is a shortage of supplies. Our ryots must realise that agricultural production is no longer considered a mere personal affair. Food production and distribution has become today the concern of the nation. It is now the duty of the cultivator to deliver to the Government whatever surplus he has got. The time will soon come when the State will tell the farmer what types of crops he should grow, how much of each type he should produce and in what kind of lands. The organisation of Vanamahotsava is meant to make the people more conscious of the value of trees and forests. Government have to follow a policy of balanced land utilisation so that forests, pasture, food, and commercial crops may each have its due proportion of land planned out in suitable areas. The introduction of legislation for agricultural planning and State control on the lines of the British Agricultural Act may become necessary in our country also in the near future.

Assured water-supply; Agricultural production is a function of different variables such as soils, water supply, seeds, manures, cultural practices, climatic conditions, pests and diseases and other environmental factors. Adverse seasonal factors can defeat our best efforts. A favourable monsoon and a good crop are still a matter of good fortune rather than of expert planning. We cannot plan food production without assured water-supply any more than we can make bricks without straw. The major irrigation projects of Tungabhadra and Lower Bhavani which are now under execution at an estimated cost of Rs. 25 crores will begin to yield results by 1952. They are expected to add 3½ lakhs tons of rice to our food resources by bringing 5 lakhs acres under cultivation. The new Union Minister for Food and Agriculture, rightly attaches the maximum importance to smaller schemes which will immediately increase the supply of water to lands. The Madras Government have been concentrating on minor irrigation schemes which promise to give quick results. Sri Munshi's 8-point scheme places emphasis on tube wells as an important source of providing irrigation. Uttar Pradesh, Bihar and the Punjab are said to have taken up a complete programme of tube well construction which would to executed by reliable commercial agencies. In addition to the 21 artesian wells already sanctioned to be sunk in South Arcot district, Government have decided to put down 101 more artesian wells there by the end of December 1951 at an estimated cost of about 8 lakhs and maintain them as Government sources of irrigation. The question of installing tube wells in other suitable areas will be considered in due course.

Intensive cultivation Areas: Another important scheme recently re-emphasised by the Government of India is the demarcation of zones with proper irrigation facilities for intensive cultivation work. Suitable areas have been selected for this purpose in 9 of our districts and special staff is being provided for concentrating work, particularly in regard to distribution of fertilisers. If the Delta ryots use fertilisers for their first crop as they are doing it now for their second crop, the additional yield resulting from it may cover a considerable portion of the present food defiicit in the State.

Compost Work: Our research workers are doing their job particularly well. The promising results of their labours have to be applied to the problems of agriculture as expeditiously as possible. Farm practice must keep pace with the progress of agricultural science. Otherwise, agriculture cannot attain a high degree of efficiency. The new knowledge gained in our research stations and the improved techniques successfully applied in our departmental farms have so far touched but a small fraction of our ryots. Even in ordinary matters like the conservation and proper use of farm-yard manure, the attempts of the department have proved largely infructuous in changing the unscientific practice of the ryots. Bombay Government are said to have sanctioned this year Rs. 35 lakhs for a scheme of improvement of farm-yard manure in villages. They have also been observing since 1948 a 'Village Improvement Week' with an active programme of digging manure pits and preparing compost in villages during these celebrations. As it is necessary that all the available resources of the country in respect of cowdung, urine, night soil and vegetable refuse should be utilised for increasing the production of manure, the Government of India have suggested that a similar week should be observed in other states also during the Gandhi Jayanti celebrations from 2nd to 8th October. Accordingly, the Madras Government have issued instructions for the observance of a 'Compost Week' in all our villages when the proper method of compost making and preparation of farm-yard manure would be explained and demonstrated to the people. The village officers, school teachers, Congress Committees and all persons interested in agriculture are being asked to join in this work and make it a success.

Better supply of Pure Seeds: Among the achievements which stand to the credit of our research workers the evolution of improved strains of paddy and other crops takes probably the first rank. It has made a substantial contribution to improvement of agricultural production. It is nearly a year now since the Seed Development Staff was appointed to specially attend to the multiplication and distribution of improved seeds. We have to devise ways and means of overcoming the difficulties now experienced in arranging sufficient extent of seed farms, getting pure seeds, carrying them to the doors of ryots in remote villages and enabling

them to purchase and use them. Ryots must be given reliable seed of good germinating quality well in advance of the sowing season. Increased production of improved seeds, popularisation of their use, and attempt to cover the entire area of paddy and millets with such seeds, is admittedly a work of great importance which must receive our best attention.

Plant Protection : The Plant Protection staff appointed last year have been able to show notable results in combating pests and diseases with the aid of the more effective chemicals and other devices which science has recently placed in our hands. We have to consider what further steps can be taken to add to usefulness of this work and minimise the loss caused to ryots by damage and destruction of crops.

Soil conservation : The disastrous consequences of soil erosion have been recently brought to public attention in a striking manner by what has happened on the slopes of the Nilgiri hills as the result of clearing forests and other vegetation for the purpose of potato cultivation. Bombay has gone ahead of us in soil conservation work. We have had some of our men trained there. It is said that the erosion control methods adopted in Bombay have not been altogether successful. We must make use of their experience. Further experiments will have to be made to find out methods which are suitable to different regions where soil conservation work has to be taken up.

Stabilisation of Agricultural Economy: The problem of improving agricultural production is a complex matter involving not only agricultural technique and environmental factors but also different aspects of our social and economic life such as land tenures, rents, agricultural prices etc. Prevention of evictions, protection from rack-renting, guarantee of a reasonable income to the agriculturists through stabilisation of prices and a scheme of crop insurance are measures most necessary for the progress and prosperity of agriculture. The Bombay State has already passed legislation for controlling rents and giving security of tenure to tenants. The Land Revenue Reforms Committee recently constituted by the Madras Government will go into the question of granting security of tenure to the tenants and the fixing of fair rent. The Committee has also been asked to suggest whether any scheme of crops insurance can be taken up to protect agricultural communities against the hazards of adverse seasonal factors and stabilise their income. The proposals made by the Kumarappa Committee to restrict the size of holdings which an individual should be allowed to cultivate and to eliminate non-cultivating land-holders and give the land to the actual tillers of the soil have caused a feeling of uncertainty and disturbed the minds of big land-holders. There is unrest among the tillers of the soil also, as they are waiting for the promised change in the set up of agrarian relations.

Propaganda and Demonstration Methods: There are several impediments to agricultural improvements in our country. The illiteracy of the cultivating classes is a great obstacle to any kind of progress. The great majority of them have only small holdings. Their economic status is low. Owing to these causes our cultivators have not been able to apply to agriculture the knowledge and appliances which science has made available today. The field organisation we have for carrying advice and assistance to the doors of the cultivators is far from adequate. Three-quarters of the cultivated areas have no irrigation facilities of any kind and agricultural operations are dependent on the vagaries of the monsoon. In such circumstances it is no easy matter to suggest improvements or enable the ryots to avail themselves of the facilities offered by the Department. We have to make the best of the situation in which we are placed. How to establish closer touch between the Agricultural Department and the cultivator? What is the best method of disseminating the knowledge of agricultural improvements and influencing the practice of the cultivator? Propaganda and publicity is a fine art which has made remarkable progress during recent years. The three main agencies available for propaganda purposes, the press, the films and broadcasting have increased enormously in power and scope. A Special Propaganda Officer has just been appointed by Government to collect all publicity material and the Director of Information will make use of the press, radio, films, etc., to carry it to the farmer. These officers will do well to learn the working of organised extension service in America. The advertising men also can teach valuable lessons in this matter, since they are past masters in the art of propaganda. They have made psychology a working science. The propaganda technique, which commercial organisations, such as the Indian Tea Association, are said to have employed with great success, may be followed by the department to the extent it is suited to our purpose. Our leaflets, village calendar and G. M. F. journals are no doubt useful in their own way. We must remember that the number of cultivators who can read is small, the number who can read to any purpose is still smaller. But all except the blind and deaf can see and hear. The film and the radio are, therefore, better instruments for mass education and persuation. The number of community radio receiving sets will have to be increased in villages. Arrangements will have to be made to see that agricultural films are shown at every cinema theatre, both permanent as well as touring. The organisation of agricultural exhibitions is one of the forms of visual education and propagandist activity which is being increasingly made use of by the department. A well got up exhibition can be both attractive and educative. It is a valuable means of demonstrating to large crowds of people what the department has attempted and achieved. Such an exhibition helps to bring a large number of cultivators into touch with the agricultural staff and rouses interest in the work of the deparment. A succession of such shows year

after year is bound to have a cumulative effect on the farming practice of the ryots in any area. We can publicise the valuable results of research if we hold an annual function in our Government farms and Research Stations and invite the ryots to it from all the neighbouring places. The results of research must be given to the cultivator in a form which he can readily understand, appreciate, and adopt with the means at his disposal. It is easy for any farmer, however illiterate, to educate himself through his own eyes. He must be shown what improvements can be carried out on an average holding by a fellow like himself and how they can bring a better economic return for the labour and money spent. Such ocular demonstration in the ryot's own field is acknowledged to be the best and quickest method of propaganda. It carries conviction even to the ordinary cultivator in a more effective manner than demonstration in the Government farm. Government farms do not unfortunately show that agriculture by modern methods can be a remunerative business. At the instance of the Government of India our State Government have just sanctioned a scheme for establishing 224 model forms, one in every taluk. The success of this scheme will depend upon selecting the right kind of farmers who will carry out the advice and directions of the department and make their farm a really good demonstration centre for propagating better farming methods.

Improvement of Farming Technique: Several western countries are able to produce enough food to feed their people and their cattle and also export it outside by using modern implements and methods which the development of agricultural science has made possible. We must learn from their experince and adopt their methods to our conditions. The big increase in production achieved by them has been made possible by increased machinization of farming operations. Artificial fertilisers have been largely used to get the most out of the soil. With tractors and fertilisers they are able to grow a crop even on marginal lands. We are only at the beginning of farm mechanisation in this country. We require tractors for land reclamation which has a part to play in the solution of our food problem. There is now a growing demand for mechanised cultivation in places where labour is scarce, wages are high and deep-rooted weeds have to be eradicated by deep ploughing. We must find out the economics of mechanised farming. It will not be a wise policy to extend agriculture to sub-marginal lands which are more suitable for growing forest or raising pasture for cattle. Chemical fertilisers have so far been used mostly for commercial crops. Cultivators of food crops have to be made to realise that judicious application of organic manures and chemical fertilisers in proper proportions will give better and quicker results in increasing the yield per acre.

Agricultural Education : Agriculture being fundamental to human life and welfare in every country, some knowledge of it should be given to all people whether they are to be agriculturists or not. In this predominantly agricultural country where agriculture forms the backbone of national economy, agricultural education is vitally important to the welfare and prosperity of the nation. The University Commission in their recently published report have said that agricultural education should be recognised as a major national issue and that the study of agriculture in primary, secondary and higher education should be given high priority in national economic planning. It is said that in America today, any farmer, any farm boy can have an excellent agricultural education without ever seeing a college campus. He can learn an incredible amount through the 4–H clubs, the Country Agents and other agencies and organisations. The attempts made in our state to run agricultural middle schools with a view to impart practical agricultural training to the sons of farmers have proved failures. Our sister State of Bombay seems to be successfully running agricultural schools in several of their districts and they intend to have them in every district and also develop them as centres of rural uplift. We shall have to learn from their experience and see whether we cannot set up similar institutions for the benefit of our farmers' children. If our education can give an agricultural and rural bias to our young people, it will become easier for us to make people take greater interest in agricultural improvement and rural welfare.

Popular Co-operation : Now that our demonstrators have been released from their trading scheme duties, they will have more time to go to the villages and establish closer contact with the ryots. The need for enlisting popular co-operation is well understood, but the attempts made so far in this direction have not met with success. More adequate steps have to be taken to create the necessary enthusiasm among the people for furthering the Food Production drive. It has been found that no Agricultural Associations exist at all in eight of our districts. In 17 other districts 296 Associations are said to have been formed of which 160 are defunct. Our Agricultural Officers should do their best to start Agricultural Associations where they do not exist, and to revitalise Associations which are inactive. The farmers must been couraged to have their own associations. They can invite Agricultural Officers to talk to them and demonstrate to them the present-day scientific methods of agriculture. They can send their members to visit Agricultural Colleges, Government Farms and Research Stations and Model Demonstration Farms of progressive cultivators. It is our duty to see that the farmers organise and help themselves and also become willing and enthusiastic partners in the campaign that has been launched for making India free from dependence on foreign food imports.

Director of Agriculture Sri R. M. Sunderam's Speech, opening the Symposium on "Maximisation of Crop Production"

Mr. President, Hon'ble Ministers, Ladies and Gentlemen,

It is now my privilege to open the Symposium on "Maximisation of Crop Production". In the present context of the reduced rice ration we are having the subject of maximising crop production. Particularly food production should be of great concern to all of us. Our over-all deficit of food grains in Madras State is about five lakhs of tons. As against the target of 1·64 lakhs of tons of additional production of food grains which we fixed for the year ending June 1950, I am glad to say that our estimated achievement according to the Agricultural Department is about 1·8 lakhs of tons. Our targets for the coming years are 4·5 lakhs of tons during 1950—'51 and 5·5 lakhs of tons during 1951—'52, so that by 1952 we expect to have reached our goal of self sufficiency.

The Hon'ble Minister for Bombay said this forenoon that he would, like to have some details of the various Grow More Food Schemes we are working. This province was probably the first to launch a vigorous campaign for increased food production as early as in 1942 when imports from Burma, Thailand and Indo-China ceased. The measures taken during the last seven or eight years were broadly on the following lines:

(i) Bringing new land under food crops with the aid of tractors, bull-dozers etc.

(ii) Improving yield per acre by intensive cultivation methods, irrigation by rivers, tanks and wells, manuring and improved seeds.

(iii) Increasing the production of short term paddy.

(iv) Improving production of protective foods such as vegetables, milk, eggs, fish etc.

(v) Combating of pests and diseases.

Under the first, irrigation is the most important item. Over 170 irrigation works were undertaken in the postwar period. The well digging campaign is in operation from 1944 and nearly three lakhs of wells have been subsidised by Government since then. Wells have also helped to ensure water supply to old lands.

The supply of chemical fertilisers on a subsidised basis for food crops formed an important plan in the Grow More Food Campaign of this State. The consumption of Ammoniumsulphate has increased considerably. About one lakh tons of Ammoniumsulphate goes to increase food production every year leading to an increase of at least a lakh of tons of food grains. Superphosphate is given at half cost. There has been a vigorous drive for the growing of green manure and manufacture of composts.

Multiplication and distribution of improved strains of seed is given a high place in the Grow More Food Campaign. The increase in yield on account of this factor alone is ten per cent in the case of paddy and 15 to 20% in millets. Seed farms are run all over the province for multiplying seeds of improved strains of paddy and millets. During the year 1949—'50 we have supplied improved seeds to cover an area of about 2·5 lakhs of acres producing about 12,500 tons of additional food grains. Substantial progress has thus been made under these categories during the year just ended. Nearly 60% of our normal area of about ten million acres under paddy is already under improved strains, while 7 lakhs out of 120 lakhs of acres of millets is cropped with our better yielding strains. Almost the entire cropped area under sugarcane is cultivated with the improved varieties, while in respect of cotton our improved strains cover about 30% of the area. According to a recent estimate made by the Indian Council of Agricultural Research, the average yield of rice in India is only 748 lbs. per acre, whereas Madras ranks highest yielding about 1023 lbs. per acre. In jowar the average yield is about 541 lbs. per acre while Punjab gives 190 lbs. and Uttar Pradesh 481 lbs.

As compared with Bombay in which only 4% of the cropped area is irrigated, we in Madras are more lucky in that 32% of our cropped area is irrigated. The remaining area depends entirely upon the caprices of the monsoon rains. The soils of our State are older by many geological ages as compared with other States. To that extent our soils have been leached out for millions of years. While the North Indian rivers are fed by melting snows of the Himalayas, our rivers depend entirely on the South West Monsoon rains which during the last two or three years have been disappointing. Despite all these handicaps we are glad to say that our per acre output of many crops is higher than many other States in India and our endeavours have established the yields at the increased levels. Fortunately for us absentee landlordism is not acute in this State since non-cultivating land-lords constitute only 14% of the agricultural population and even they generally direct agricultural operations and desist only from manual labour.

You, Sir, have referred to the organisational set-up of the Agricultural Department in the Bombay State pointing out the increase in strength of the extension staff and also the fact that you have geared non-official support to the extension work. While in Bombay an agricultural officer has been posted to each district only recently, we are having this organisation over the last one decade. We have an agricultural graduate working as a demonstrator in every taluk and in some of the heavier taluks we have even two demonstrators. This is our normal staff, and under the Grow More Food Campaign, we have also additional staff of fieldmen i. e., non-graduate assistants and maistries for almost every firka. We have a special squad for Plant Protection of four Officers and 50

agricultural demonstrators. We too are having Agricultural Associations and the Grow More Food Committee both at the district and taluk levels, but we still feel that in this huge country and in view of the low percentage of literacy, there is greater need to make more personal contacts.

In referring to the scope for improvement in your extension service, you, sir, have referred to the fact that the cultivator in Bombay has still to go to the village officers for obtaining Takkavi Loans. We, are more fortunate in this respect. Our District Agricultural Officers have been empowered to grant Takkavi Loans up to Rs. 80/- in each case for the purchase of manures and seeds and these loans are interest-free and repayable in two annual instalments. This measure is very popular. During the financial year 1949—'50 the District Agricultural Officers disbursed loans amounting to Rs. 28·4 lakhs. The Revenue Department would also have issued loans which are in excess of the powers of the District Agricultural Officers for purchase of manures and seeds. Under a scheme .for the intensified distribution of ammonium sulphate plus superphosphate we have recently raised this limit of the loan to Rs. 200/- in each case for the purchase of the fertiliser. This loan is repayable in one instalment.

It is generally realised that increase in crop yields can be expected from improvements effected under the heads of water, manures, seeds, cultural practices and control of pests and diseases. But it is not enough to regard such factors as a series of individual items in an improvement scheme. Each factor by itself can be expected to contribute its quota to general improvement, but the individual factors have also mutual interaction effects. For instance, the full effects of manuring are not realised unless there is sufficient soil moisture, and both factors have to be tackled simultaneously. Considerable work has been done in Madras and elsewhere on these problems. But knowledge about interaction of these factors and their final results are lacking. What constitutes good farming is a question to be answered with reference only to each zone based on environmental factors and we have yet to collect much data in this respect.

On the question of self-sufficiency in food, there has been considerable discussion. It has been urged that the food crisis is an event which cannot be viewed with equanimity and that we should cease to depend on imports of food from foreign countries, whatever the cost of the necessary measures may be. It has also been argued that if a unit of land is capable of producing more yields and higher income by devoting it to cash or commercial crop, there is no reason why we should not grow a cash crop and with the increased income so obtained import food grains from abroad. The cultivator often argues as to why he should be forced to grow the food crops in preference to a cash crop and thus lose his income, whereas other people in many other, professions are not asked to make

such sacrifices. It seems, therefore, necessary to balance the individual needs of the ryots (in order not to put him to financial loss) and the needs of the Nation as a whole. To this end it is necessary that research should gather more data with the ultimate object of evolving blue prints of crop husbandry suitable to each zone, so that the land may be put to the best use, if the ryot is not allowed to suffer loss.

I now invite the views of this conference on the maximisation of crop production.

MAXIMISATION OF CROP PRODUCTION

LIST OF PAPERS FOR THE SYMPOSIUM

	SUBJECT	NAME
1.	How cultivation increases crop production	Sri V. T. Subbiah Mudaliar, Headquarters Dy. Director, Madras.
2.	Maximisation of crop growth through Manuring	Sri P. D. Karunakar, Govt. Agrl. Chemist, Coimbatore.
3.	The part played by improved seeds in the Maximisation of crop production	Sri R. Balasubramaniam, Cotton Extension Officer, Coimbatore.
4.	The importance of pest control in the Maximisation of crop production	Sri S. Ramachandran, Govt. Entomologist, Coimbatore.
5.	The importance of disease control in Maximisation of crop production	Sri D. Marudarajan, Govt. Mycologist, Coimbatore.
6.	The Effect of various types of farming systems in maximising crop production	Sri A. H. Subramania Sarma, Lecturer in Agricultural Economics, Coimbatore.
7.	Irrigation as a means for the Maximisation of crop production	Sri N. Kesava Iyengar, Asst. Cotton Specialist, Siruguppa.
8.	How Mechanisation of Agriculture helps in Maximisation of production	Sri C. P. Raju, Research Engineer, Coimbatore.
9.	Role of plant breeding in a scheme of Maximising production in crops	Sri M. B. V. Narasinga Rao, Paddy Specialist, Coimbatore.
10.	Concentration in intensive manuring is the only way for Maximisation of crop production	Sri K. L. Ramakrishna Rao, Dt. Agricultural Officer, Tanjore.
11.	Pre-treatment - A new aid for Improving crop yields.	Sri T. R. Narayana Iyer, Plant Physiologist, Coimbatore.

12.	Maximisation of production by the cultivation of Hybrid strains with special reference to Cumbu-Pearl Millet	Sri P. Krishna Rao, Millet Specialist, Coimbatore.
13.	Groundnut in Madras - Maximisation of production	Sri G. Venkatanarayana, Oilseeds Specialist, Coimbatore.
14.	The horticultural approach in Maximising food production	Sri U. Narasinga Rao, Fruit Specialist, Madras.
15.	Some means to increase production of Rice	Sri V. Krishnaswami, Asst. Paddy Specialist, Coimbatore.
16.	Modification of weather for Maximisation of crop production	Sri C. Balasubramaniam, Agricultural Meteorologist, Coimbatore.
17.	Women in Maximisation of crop production	Miss Kunjamma V. K., Assistant in Chemistry, Coimbatore.
18.	Maximisation of crop production through adequate irrigation	Janab S. A. Ibrahim Ali, P. P. A. (Mycology) Sattur.
19.	Maximising the production of gingelly seeds in Madras	Sri M. M. Krishna Marar, Asst. in Oilseeds, Coimbatore.
20.	Crop Planning problem for Maximisation of production in the Malampuzha project area.	Sri K. Sivasankara Menon, District Agricultural Officer, Calicut.

OTHER PAPERS

1.	Propaganda posters	Sri S. Varadarajan, Assistant in Chemistry, Coimbatore.
2.	Modern trends in utilization of plant hormones for production of fruits and other horticultural crops and its maximisation.	Dr. S. Krishnamurthi, Curator, Botanical Gardens, Ootacamund.
3.	Role of plant protection in Intensive Agriculture	Sri E. R. Gopala Menon, Plant & Crop Protection Officer, (Entomology) Coimbatore.
4.	Plant Protection Methods	Sri K. Krishna Menon, Plant Protection Officer, Coimbatore.
5.	Economics of crop production on Bapatla sandy soils	Sri S. V. Doraiswami, Lecturer in Agricultural Economics, Bapatla.
6.	Usefulness of water and soil conservation by bunding lands in low rainfall areas	Janab Mirza Anser Baig, District Agricultural Officer, Kurnool.
7.	Pre-sowing Treatment of Seeds of some cultivated plants	Sri L. Venkataratnam, Plant Physiologist, Bapatla.

8.	Effect of salts on the performance of a few cultivated strains of paddy	Sri L. Venkataratnam, Plant Physiologist, Bapatla.
9.	Groundnut for the control of soil Erosion	Sri S. G. Aiyadurai, Asst. Oilseeds Specialist, Coimbatore.
10.	Food yeast from cane molasses	Sri D. Marudarajan, Government Mycologist, Coimbatore.
11.	The Paddy Stem-Borer and problem of its control	Sri K. P. Anantanarayanan, Asst. Entomologist, Coimbatore.
12.	Cardamom	Sri V. Gomathinayagam Pillai, Cardamom Specialist, Singampatti Group, Tinnevelly.
13.	Gogu (Bhimlipatam jute) varieties cultivated in Madras Presidency.	Sri T. Venkataramana Reddy, Lecturer in Botany, Bapatla.
14.	Food Production & Seed Development Work	Syed Ibrahim, Seed Development Officer.
15.	Soil Conservation & Maximisation of crop production	F. L. Daniel, Soil Physicist, Coimbatore.

Report of the Managing Committee for the year 1949—'50.

(Presented to the General Body)

The Managing Committee presents the following report of the activities of the Union for the year 1949—'50.

Membership: The strength of the Union as it stands on 30—6—'50 was 907 consisting of 358 officer members, 331 student members and 218 other subscribers of Journal. The strength last year was 961. This reduction in membership was due to the discontinuance of some of the student members of the Bapatla College. The Managing Committee appeals to the students of the Bapatla College through the head of that Institution to enrol themselves as members *en masse*. The Committee wishes to appeal to all those who are not members to help the cause of the Union by enrolling themselves as members.

Office Bearers: During the year the Treasurer, Sri S. V. Varadarajan and the Manager Sri F. L. Daniel resigned their membership of the Managing Committee. The Committee co-opted Sri S. Muthuswami as treasurer and Sri K. Jayabhima Rao as Manager. Towards the close of the year Sri S. Muthuswami resigned his treasurership as he was transferred to Madura and Sri A. Shanmughasundaram was co-opted in his place. The Secretary looked after the duties of the Treasurer. Sri V. T. Subbiah Mudaliar resigned his membership in the Managing Committee on his promotion as Headquarters Dy. Director of Agriculture.

Meeting of the Managing Committee: The Managing Committee met twelve times during the year to transact business of the Union.

The Madras Agricultural Journal: The Journal has been published regularly every month. About one thousand copies of the Journal were printed every month at an average cost of 8 annas for each copy. The Journal has in its exchange list about 36 Journals both Indian and Foreign. The Committee places on record its grateful thanks to the Secretary, Co-operative Printing Works for the neat get up and prompt delivery of the Journal.

Editorial Board: The Editorial Board met eleven times during the year to select articles for the Journal. A large number of articles on various subjects, both scientific and popular, were received. The Editorial board regrets to say that it could not publish all the articles received, owing to the restriction of the number of pages of the Journal. If one and all of the members of our Department become members of the Union, it is possible to improve both the size and the get up of the Journal, a thing which is not possible at present due to the budget position. The Committee takes this opportunity for placing on record its gratitude to the members of the Editorial Board and the Editor. Dr. N. Krishnaswami.

Subscribers: With a view to place the Union above want, the subscription of the Journal was raised from Rs. 2/- to Rs. 3/- for students, from Rs. 3/- to Rs. 4/- for non-gazetted officers getting below Rs. 250/- and Rs. 6/- for all other officers and general public. It is feared that more members are discontinuing their membership leaving the Union to its fate. The Managing Committee appeals to one and all of its members to use their good offices to enlist as many new members as possible.

Finance: The Committee records its gratitude to the Government of Madras for the subsidy of Rs. 1,800/- granted during the year. The Committee was able to secure as advertisement charges, Rs. 1,061/- during the year under report. In spite of all these endeavours it is depressing to note that the financial position of the Union is not flourishing, as it should.

Ramasastrulu Munagala Prize: Two essays were submitted for consideration for the Ramasastrulu Munagala prize. The papers received, were evaluated by a Committee of Judges appointed for that purpose. The essay entitled "Herbicides and their scope in South India" was awarded the prize, which goes to Sri L. Venkataratnam, Plant Physiologist, Agricultural College, Bapatla to whom the Committee offers its congratulations. The Committee thanks the Judges for readily responding to its request and adjudging the essays.

Acknowledgment : The Committee thanks the various members of the Union for the unstinting help they have given in conducting the affairs of the Union. Our thanks are due to Mr. M. C. Cherian the retired President of the Union. The Committee records its gratitude to Mr. C. M. John who became the President of the Union on the retirement of Mr. M. C. Cherian, for his active and unfailing help. To the conveners and members of the various sub-committees such as Reception, Entertainment, Sports, Tea and the Conference, we extend our grateful thanks for their whole-hearted co-operation and help in making the College Day a success. In conclusion I wish to express my personal thanks to all the members of the Managing Committee for the kind and generous help given throughout the year.

List of Medal winners for the year 1949.

1.	Robertson Medal	Sri G. Radhakrishnan.
2.	Clogstoun Medal	Sri K. Srinivasan.
3.	Keess Medal	Sri M. A. Viswanathan.
4.	Diwan Bahadur Raghunatha Rao Medal	Sri K. Srinivasan.
5.	D. Silva Memorial Medal	Janab Abdul Kadir.
6.	Goschen Medal	Sri C. Narayanan.
7.	Rao Bah. K. S. Venkatrama Ayyar Medal	Sri G. Thulasidas.
8.	Sampson Medal	Sri K. Srinivasan.
9.	Diwan Bahadur L. Swamikannu Pillai Medal	Sri K. Srinivasan.

College–Day Sports, 1949.

LIST OF PRIZE WINNERS.

Champion of the year 1950 — K. N. B. Alwa.

1. *Cross Country Race :—* (5 Miles) THE NORRIS CUP.
   (College Record : 34 min. 41 Sec.)
   1. Kulandaiswami, S.
   2. Ponnappa, B. M.
   3. Mahalingam, M.

   Time : 37 min. 43½ Sec.
   (This was run on 19—7—1950)

2. *Pole Vault :—* (College Record 8 ft. 11 in.) New Record 9 ft. 3 in.
   1. Ramu, S.
   2. Shanmugam, C. T.
   3. Ratnaswami, M. C.

3. *100 Metres Hurdles :—* (THE RAMASWAMI SIVAN CUP.)
   College Record : 19⅗ sec. 19 Seconds, New Record.
   1. Lakshmanan, V. N.
   2. Alwa, K. N. B.
   3. Shanmugam, C. F.

4. *Shot Put :—* (College Record : 29 ft. 6¼ in.)
   1. Alwa, K. N. B.
   2. Joseph D.
   3. Lakshmanan, V. N.

5. *100 Meters Dash :—* (College Record : 11⅘ Seconds.)
(THE SAIDAPET OLD BOYS CUP)
1. Joseph, D. 3. Ramu, S.
2. Alwa, K. N. B.

6. *Long Jump :—* (College Record : 18 ft. 7⅝ in.)
1. Lakshmanan, V. N. 3. Ramiah, S. M.
2. Alwa, K. N. B.
(Heats 19 ft. 2 in.)

7. *Cricket Ball Throw :—* (College Record : 98 yds. 1 ft.)
1. Ranganathan, P. 3. Krishna Alwa, H.
2. Alwa, K. N. B.

8. *200 Metres Hurdles :—* (College Record : 30⅘ Sec.)
1. Alwa, K. N. B. 3. Shanmugam, C. T.

9. *High Jump :—* (College Record : 5 ft. 2 in.)
(THE TADULINGAM CUP.)
1. Ranganathan, P. 3. Lakshmanan, V. N.
2. Karanth, M.

10. *Invitation Race :—* (800 Meters)
1. Madras Forest College, Coimbatore.
2. St. Michael's High School, Coimbatore.

11. *Hop, Step and Jump :—* (College Record : 37 ft. 2½ in.)
1. Joseph, D. 3. Paramanandam, P.
2. Lakshmanan, V. N. (Heats 38′—9″)

12. *400 Meters Race :* (College Record : 57⅗ Sec.)
1. Kulandaiswami, S. 2. Shanmugam, C. T.
3. Abubucker, D.

13. *Javelin Throw :* (College Record : 123 ft. 9⅞ in.)
1. Ranganathan, P. 2. Ratnaswami, M. C.
3. Krishna Alwa, H.

14. *1,500 Metres Race :* College Record : 5 min. 3 Sec.
(THE ANSTEAD CUP)
1. Kaliyappan, R. 3. Ponnappa, B. M.
2. Kulandaiswami, S.

15. *4×400 Metres Relay Race :—* (Inter-Tutorial)
(THE CHUNAMPET SHIELD)
Sri P. D. Karunakar's Wards.

16. *Tug of War :—* (Inter-Tutorial)
(THE RAMNAD SHIELD)
C. Jagannatha Rao's Wards.

Research Note

A note on the variation in soil moisture in Coimbatore.

This note refers to the variations in soil moisture at different depths in the observatory enclosure located at the Cotton Breeding Station, Coimbatore. Weekly soil samples at the depths of 3", 6", 12", 18" and 24" were taken. For each depth samples from four places were taken and the composite sample was taken for assessing the moisture content in duplicate. The average percentage of moisture content for each depth was calculated for each date of drawing the sample. Commencing on 9—6—1948, 91 sets of data have been collected up to 1—3—1950. These data were analysed statistically to get the variation in soil moisture under the conditions obtainable at the Cotton Breeding Station, Coimbatore, which may roughly correspond to the ordinary rainfed conditions at Coimbatore.

The analysis of variance was worked out. Summary of conclusions are given in the table :—

	3"	6"	12"	18"	24"	General Mean	'Z' Test	Critical difference
Percentage of Moisture	11·64	14·78	16 52	15·71	15·63	14·86	Yes	
Percentage of Moisture on general mean	78·32	99 45	111·10	105·70	105·20	100·00		5 03

The following tentative conclusions are drawn :—

(i) The average percentage of soil moisture is the highest at 12" depth and lowest at 3" depth. This information is of great importance in crop-growth.

(ii) The differences between the 12" and other depths are significant. Similarly variation was found to be significant in regard to the dates.

(iii) Moisture percentages are on a par with each other at 18" and 24" depths.

It may be mentioned that crops with their root zones at near 12" depth will have the best advantage of utilizing the soil moisture under Coimbatore conditions and naturally they will be the best survivors under adverse weather conditions.

Acknowledgment: Our thanks are due to the Government Agricultural Chemist for the facilities afforded and Sri M. V. Jayaraman for the help rendered in the collection of the data.

Agricultural Meteorology Section,
Lawley Road P. O., Coimbatore,
Dated 26—4—1950.

C. Balasubramaniam
&
M. B. V. Narasinga Rao.

Weather Review — For July 1958

RAINFALL DATA

Division	Station	Total for the month in inches	Departure from normal in inches	Total since January 1st in inches	Division	Station	Total for the month in inches	Departure from normal in inches	Total since January 1st in inches
Orissa & Circars.	Gopalpore	18·1	+10·9	35·8	Central—*Contd.*	Coimbatore (C. B. S.)*	2·3	+0·5	7·1
	Calingapatnam	4·0	—1·5	13·3		Coimbatore	1·8	+0·2	6·0
	Vishakapatnam	8·4	+4·0	14·5		Tiruchirapalli	1·0	—0·1	7·2
	Anakapalle*	4·4	—0·5	13·2	South.	Nagapattinam	1·2	—0·5	9·1
	Samalkot*	9·1	+2·0	15·8		Aduturai*	0·7	—1·0	8·1
	Kakinada	7·8	+1 2	13·0		Pattukottai*	2·7	—0·6	11·0
	Maruteru*	9·8	—2·6	16·5		Mathurai	1·5	—0·5	9·1
	Masulipatnam	8·2	+1·8	15·2		Pamban	Nil	—0·5	7·4
	Guntur*	7·5	+1·5	16·0		Koilpatti*	0·2	—0·5	10·3
	Agrl. College, Bapatla*	5·8	+0·3	11·5		Palayamcottai	Nil	—0·3	10·6
	Rentichintala	2·3	—2·5	6·2		Ambasamudram*	0·8	(y)Nil 6	13·4
Ceded Dists.	Kurnool	2·8	—1 6	11·3	West Coast.	Trivandrum	7·6	—0·2	32·0
	Nandyal*	6·8	—1·4	12·0		Fort Cochin	33·1	—9·8	84·4
	Hagari*	1·2	Nil (x)	6·9		Kozhikode	39·1	+4·8	83·1
	Siruguppa*	1·4	-1·4(a)	5·0		Pattambi*	35·1	+9·6	120·2
	Bellary	0·7	—0·9	4·7		Taliparamba*	59·5	+15·3	104 7
	Cuddapah	2·6	—1·5	5·1		Nileshwar*	61·2	+20·0	111·0
	Kodur*	3·8	+0·2	6·3		Pilicode*	55·0	+11·4@	99·5
						Mangalore	54·9	+15·4	103·1
						Kankanady*	56·2	+16·0	106·2
	Nellore	6·0	+3·3	8 9					
Carnatic.	Buchireddipalem*	3·4	+0 8	4·6	Mysore & Coorg.	Chitaldrug	3·0	+0·1	7·9
	Madras (Meenambakkam)	3·5	—0·1	9·1		Bangalore	2·8	—1·1	7·9
						Mysore	3·3	+0·6	14·7
	Tirurkuppam*	4·1	-1·2 @	8·2		Mercara	47·5	+4·4	72·1
	Palur*	2·1	—1·6	8·3	Hills.	Kodaikanal	5·0	+0·3	17·8
	Cuddalore	2·1	—0·5	8·0		Coonoor*	3·7	+0·8	19·0
	Tindivanam*	3·4	+0·4	8·2		Ootacamund*	8·5	+2·7	15·5
						Nanjanad*	15·2	+4·9	27·2
Central.	Vellore	1·5	—3·1	3·8					
	Gudiyatham*	0·8	—2·3	2·8					
	Salem	3·1	—0 7	9·3					
	Coimbatore (A. C. R. I.)*	2.4	+0·7	7·0					

Note:—

(1) * Meteorological Stations of the Madras Agricultural Department.

(2) Average of ten years data is taken as the normal.

(3) @ Average of seven years data for Tirurkuppam and eight years data for Pilicode is given as normal.

(4) (a) Taluk office normal is 3·03" and Rainfall is 1·27".

(5) (x) Actual Deviation is + 0 02"

(6) (x) Actual Deviation is + 0·04".

Weather Review for July 1950.

The month began with an active monsoon along the West Coast. On 4—7—50 a well-marked trough of low pressure was found extending into the west central Bay of Bengal, off North Andhra Coast. The next day it became feeble. But the South West monsoon became active and continued to be so till the end of the month. Except on the hills like Kodaikanal and Nilgiris and the districts comprising the Circars and the West Coast, the other districts in the Madras State received rains below their respective normals and this has held up the sowings and progress of dry crops.

Day temperatures were generally below normal, except in certain places in Tamilnad and the Circars, where they were slightly above normal on certain days. Generally the weather was cloudy, right through the month, particularly along the West Coast. The chief falls in the month are given below :—

Serial No.	Date	Place	Rainfall in inches
1	3—7—50	Nellore	3.7
2	4—7—50	Vishakapatnam	4·2
3	17—7—50	Mangalore	6·7
4	23—7—50	Kozhikode	4·6
5	27—7—50	Alleppey	3·5
6	28—7—50	Fort Cochin	3·5
7	28—7—50	Mercara	5·7

Agricultural Meteorology Section,
Lawley Road Post, Coimbatore
Dated, 12—8—50.

M. B. V. N., C. B. M., & M. V. J.

Estate and College News.

Sri S. N. Chandrasekhara Iyer, M. A., retired from service on the 25th of this month. He was presented with a farewell address by the Students on the 20th Sunday and the Officers gave him a send off tea on the 22nd Monday. Both functions were well attended.

The Students' club elections of Office-bearers was held with the following being elected :— Club Secretary—M. Sundaram; Games Secretary—S. Ramu; Class representatives. IIIrd year—P. Paramandam, IInd year—P. S. Ranganathan, Ist year—M. Laxmanan; Games Captains :— Cricket—M. Karanth; Hockey—K. A. Ayappa; Football—V. N. Laxmanan; Tennis—A. K. Natarajan; Minor games—S. M. Ramiah. Editor club-tatler-Chandramohan. The inaugural address of the Students' Club was delivered by Dr. T. S. Raghavan, M.A. PhD., F.L.S., Second Sugarcane Expert on 18—8—1950. The subject was on "Certain problems of the sugarcane breeder". The several games teams of the college promise to be of a fairly high standard this year.

The Annual General Body Meeting of the Madras Agricultural Upper Subordinates' Association held on 23—8—1950: After the presentation and adoption of the Committee's Report for the years 1948—50 the following were elected as office-bearers for the year 1950-51 :— President—Sri S. Rajarathnam Chettiar; Secretary—Sri V. Srinivasa Mudaliar; Treasurer—Sri N. Ranganathachari; Members—Sri F. L. Daniel and Sri K. Sheenappa.

Departmental Notifications

GAZETTED SERVICE—APPOINTMENTS

Postings and Transfers

Sri P. D. Karunaker, Government Agricultural Chemist is appointed to act as Vice Principal, in addition to his duties.

Sri J. P. Walter Devasahayam is appointed to act on probation as Assistant Agricultural Engineer (Mechanical) Coimbatore with effect from the date of taking charge.

Name of Officers	From	To
Sri Achutha Rama Raju, D.	On leave,	Special D. A. O. (Crop Sampling), Bellary.
,, Balasubramaniam, C. S.	P. P. O., (Entomology),	Lecturer in Entomology, Bapatla.
,, Gopalan Nair, T.	Asst. Fruit Specialist, Aduthurai,	Fruit Specialist, Coimbatore.
,, Hanumantha Rao, D.	P. A. to D. A. O., Vijayawada,	Addl. D. A. O., Manure Scheme, Vijayawada.
,, Krishna Menon, K.	On leave,	P. P. O., (Mycology), Coimbatore.
,, Krishnamurthy, C.	Lecturer in Entomology, Bapatla,	Gazetted Asst. Lecturer in Entomology, Bapatla.
,, Narasinga Rao, V.	Fruit Specialist, Madras,	Asst. Fruit Specialist, Aduthurai.
,, Natesan, K. V.	P. A. to D. A. O., Salem,	D. A. O., (Crop Sampling), Mathurai.
,, Narayanan, K.	P. A. to D. A. O., Tiruchirapalli,	D. A. O., Cuddalore.
,, Parameswara Menon, P. K.	Asst. M. O. Cuddapah,	D. A. O., Cuddapah.
,, Rajasekhara Mudaliar, C.	Asst. Lecturing and Systematic Botanist, Coimbatore,	Lecturing and Systematic Botanist, Coimbatore.
,, Ramachandra Iyer, S.	On leave,	Government Entomologist, Coimbatore.
,, Raman Menon, K.	Asst. M. O., Coimbatore,	D. A. O., (Crop Sampling) Coimbatore.
,, Sridharan, C. S.	Asst. Agrl. Engineer, II Mount Road, Madras.	Asst. Agrl. Enginneer, Mathurai.
,, Sankara Narayana Reddy, N.	Asst. Agrl. Engineer, Bellary,	Asst. Agrl. Engineer (Civil) Coimbatore.
,, Subramania Sarma, A. H.	Lecturer in Agrl. Economics Coimbatore,	Asst. M. O. (Crop Sampling), Coimbatore.
,, Syed Mohmmad, P. P.	On leave,	D. A. O., (Crop Sampling), Kozhikode.

Name of Officers	From	To
Sri Sanjeeva Shetty, K.	P. A. to D. A. O., Mangalore,	Asst. M. O., Cuddapah.
,, Somaya, M.	Addl. D. A. O., Vijayawada,	D. A. O., (Crop Sampling) Vijayawada.
,, Santhanam, K.	D. A. O., Cuddalore,	D. A. O., (Crop Sampling) Madras.
,, Satyanarayana, M.	Special D. A. O., Madras,	D A. O., (do.) Kakinada.
,, Sadagopan, V.	Dy. D. A., Coimbatore,	Dy. D. A., (do.) Madras.
,, Subramania Iyer, N.	On leave,	Dy. D. A., Coimbatore.
,, Thirumala Rao, V.	Govt. Entomologist, Coimbatore,	P. P. O., (Entomology), Bapatla.
,, Venkatasubramaniam,	P. A. to D. A O., Tirunelveli,	D. A. O., (Crop Sampling), Tanjore.

Agricultural College and Research Institute, Coimbatore.

LIST OF ADDITIONS TO LIBRARY FOR JULY & AUGUST, 1950.

1. ARAKIE (David Haye Shalom) Ed. Industrial and Commercial India 1950 Edn. 2. Newman Printing Works, Calcutta.
2. C. E. C. England: Dairy produce 1950. C. E. C. England.
3. CRAFTS (A. S.) etc., Water in the physiology of plants. 1949: Chronica Botanica Co.,
4. FREAR (D. E. H.) and HILBORN (M. T.): Pest control materials 1950: Pennsylvania. Agric. Expt. Stn. & Manie Agric. Expt. Stn.
5. INDIA: Information and broadcasting (Ministry of —) India: a pictorial survey 1950: Publication division. Ministry of Information and broadcasting,
6. NATU (W. R.): Livestock census of India. 1945. 1949: Manager of Publication: New Delhi.
7. RIPER (W. E.): Pest control: Farmers hand book 1950. Pest Control Ltd., Cambridge.
8. SHARMA (K. R.): Irrigation Engineering Edn. 2. in 3 Vols. 1948 India Printers, Jullundur City.
9. TENNESSEE Agricultural Relation (Department of —) Food at the grass roots: the Nation's Stake in soil minerals T. V. A.
10. THOMPSON (Homer C.): Vegetable crops Edn. 3. 1939. Mc Graw Hill Book Co.

D. B. K.