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Editorial

Planning for Better Nutrition: Most of us are by now quite familiar with the dismal pictures that are drawn from time to time by well-meaning economists, of progressive starvation of all the peoples of the world, by an ever-increasing pressure of population and scarcity of food. Since, to any question there are at least two sides and often more than two, there is also another group, less pessimistic, that argues that it should always be possible to prevent such a calamity, by proper conservation and a better exploitation of the sparsely populated regions of the world and a more sensible utilisation of the available supply of food materials.

In this connection it is pertinent to ask if sufficient attention has been devoted to explore all the sources of food material that are indigenous to various countries, some of which might be unknown outside their immediate neighbourhood. As an example we may cite the results obtained by Dr. R. H. Harris and his co-workers at the Massachusetts Institute of Technology, after a survey and analysis of the foods grown and eaten in the neighbouring countries of Mexico and the Central American States. This investigation was carried on for eight years, on a comprehensive programme which involved the collection and analysis of a large number of edible plants, an examination of various methods of food preparation, a survey of dietary habits and a chemical and biochemical investigation of nutritional status.

Some very surprising results were obtained from this study. In spite of the fact that Mexico was such a close neighbour, it was discovered that many of the plants examined were in species and varieties which were quite unknown as sources of food in the United States and not analysed previously. And what was even more surprising was the fact that they contained remarkably high levels of certain nutrients. Thus six varieties were found to

contain calcium far in excess of the maximum values observed in any food plant in the United States; 10 varieties were similarly richer in iron and 20 varieties were richer in ascorbic acid. Even in the case of plants that were commonly grown in both the countries some varieties in Mexico were higher in nutritive value than the corresponding varieties grown in the United States; showing clearly how unsafe it is to attempt to prescribe standard values of food composition for tropical zones, based on values from plants grown in the temperate regions.

Further, it was observed that different methods of preparing food had a profound effect on the nutritive value. In Mexico the daily bread of the common people is the "tortilla", prepared out of maize or Indian corn. The maize is soaked in a 1 per cent lime suspension and heated to 80 degrees for half an hour and then allowed to stand until the following day. The liquid is then decanted off, the maize is washed 2-3 times with water, and finely ground in a mill and the pulverised *masa*, in units of about 50 gms., is shaped into thin cakes and cooked on an iron plate.

The original maize grain and the intermediate and final products were analysed and it was found that the calcium content of the tortilla had increased twenty-fold compared with the original maize as a result of the lime treatment. The average daily consumption of tortilla is the order of 280 gms., but may be as high as 700 gms. (nearly 1½ lb.) and it is thus an important source of both calories and minerals and also of some vitamins.

These studies provide a very interesting demonstration of the importance of local custom and also show how false conclusions may be drawn from surveys which do not include methods of food preparation. Another item in the diet of the Mexican Indian is the fermented drink "pulque" obtained from cactus plants; this provides various minerals and vitamins, especially ascorbic acid. Its use was at one time prohibited by law, but the resulting illnesses necessitated the removal of the ban.

In a similar manner, Dr. Harris was able to demonstrate the high nutritive value of many plants and food preparations from the Chinese mainland.

A similar testimony is available from Africa, regarding the importance and value of native food-stuffs. Reed and other medical

workers observed that there was much to be learnt about edible plants that grow in different regions and the unusual foods that can be prepared out of them. Stannis from his experience of Africa was led to conclude that "it was not enough to deal only with the main staple food-stuffs in the diet of any region. Results are liable to be erroneous unless the investigators have an intimate acquaintance with the people and their life. Account must also be taken of the African's occasional snack of dried fish, the fried grasshoppers, the raw sugarcane and the assortment of green leaves which the women know so well to select and cook and last but not least, their mug of native beer". This worker points out that from the bare figures of a nutritional survey in Africa, it might be expected that some regions suffer from malnutrition, but actual observation reveals that it is not so.

It seems therefore that many countries should be able to raise their nutritional standards and promote a positive policy of health improvement, on the basis of improvements in agriculture, leading to greater production of certain crops of special value. In India, especially, a great deal remains to be done in the direction of correlating the agronomic, chemical and dietary aspects of food-production. Apart from the work of Akroyd and Gangulee and a few others, hardly anything at all has been done on the lines of the investigations by Dr. Harris and his co-workers in the Massachusetts Institute of Technology. Even in the Five-Year Plan this aspect has not received the attention it deserves; in fact it appears to have been ignored altogether.

It is a hopeful sign that groups of workers as widely flung as in Massachusetts, Africa and China have come by different routes to similar conclusions, that a fuller recognition is needed of the value of local dietary patterns in relation to indigenous agriculture as a basis of sound nutrition. These patterns are the result of age-old experience and accumulated wisdom through the centuries. For long periods of time communities have existed, increased and multiplied, depending almost entirely on indigenous crops and food-stuffs. These indigenous foods of many areas, when judged by the tests of history and also of vital statistics must contain within themselves the nutrients essential for growth and reproduction.

It was left to the vision of an astute politician to discover in recent times, a veritable gold-mine for the finances of Madras State, in the shape of the Sales Tax; on the same analogy, it is not beyond

the realms of possibility that a systematic and discriminating survey of our dietary habits and the relative nutritive values of our common food-stuffs would indicate ways and means of improving their food value by suitable easy and inexpensive methods. Such a survey would also help to show in what directions nutritional deficiencies could be made up by a greater use of some of the subsidiary ingredients in our common dietary.

The young agricultural graduate was holding forth on the scope and possibilities of scientific agriculture.

“In a few years’ time,” he said to his father, an old farmer, “I am sure we’ll be able to carry all the fertiliser necessary for an acre of land in one pocket.”

“And all the crop in the other” added his father.

Crop Planning Problems for Maximisation of Production in the Malampuzha Project Area (Malabar District)

By

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and

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Malabar has been a deficit district in the matter of food even before the recent war. Rice, which is the staple food crop of the area, occupies 8.1% of the total extent and makes up 6.8% of the total normal output of the Madras State; and the district continues to depend on imported food grains. Within the district the southern zone grows 69.50% of the total area under paddy, while the Palghat taluk alone contributes 26.60% of the total production in the district. Vast stretches of fertile paddy lands exist in Palghat taluk in contiguous blocks. The soil is red loam in most parts, the rainfall is fairly well-distributed and the area is benefited by both the monsoons during normal years. The terrain is fairly plain in comparison with the rest of the district, and there is a well-knit system of roads touching all villages and the ryots are comparatively progressive and responsive to all major improvements. Owing to these natural advantages, all pioneering work on improvements recommended by the department, have been tried here.

In spite of these advantages, the vagaries of the season have been a severe handicap for any concerted localisation of effort to increase production, as the paddy crop here is entirely rainfed. The average annual rainfall is 80" in normal years, distributed as 2" during dry weather, 8" during hot weather and 55" during the South-West monsoon and 15" during the North-East monsoon period. It is not uncommon in certain years, to have the annual precipitation as low as 48", with practically no rains during January-April, with about 40" during South-West Monsoon and 8" during North-East Monsoon periods. Instances are also not rare when the annual rainfall is as high as 150 inches, with 100-115 inches during the South-West Monsoon and 25-40 inches during the North-East Monsoon period. The normal rainfall, if well distributed, is sufficient to aid the first and second crops of paddy.

The first crop, which occupies 58% of the total area under paddy in the taluk is generally broadcast during April-May and harvested during September-October. In order to cultivate a succeeding second crop and depending upon the supply of rain water, two major varieties, one long and another short are grown.

A second crop is raised on about 42% of the paddy area and this is invariably transplanted, Nurseries are raised in drylands by July-August and planting is done during September-October. Based on the availability of water and family rains, a longer and a slightly short duration varieties are raised.

When the dry and hot weather rains are weak, the South-West monsoon is strong, putting out of gear all the preparatory operations, including sowing. During years of heavy South-West monsoon rains, planting of second crop is affected, while, when the North-East Monsoon is weak, the entire second crop succumbs to drought. On the other hand the shorter crop may be caught up in rains, while in flower, if the North-East monsoon is abnormally heavy. During this season the rice bug also thrives well and concentrates on the short crop and affects grain-setting. Thus the entire paddy cultivation is a gamble with the monsoons.

Investigations were started as early as 1914, to harness the seasonal floods in the Malampuzha river, near Palghat, in order to save the first and second crop paddy, but these were subsequently given up, as the revenue aspect of the project was not considered to be quite attractive until in 1949, when the scheme was sanctioned as a Grow More Food measure. The project consists of a storage reservoir near Palghat with an initial capacity of 4,500 m. c. ft. and 6,000 to 8,000 m. c. ft. in the successive stages with a discharge capacity of 1,84,000 millions cusecs and 20 miles of main canals. Preliminary investigations by the Public Works Department reveal that the canals traverse through Elapulli, Palghat, Kollengode, Koyalmanna firkas and finally falls into the Gayathri river. The area commanded by the main canal is roughly all the wet ayacut to the west of itself upto Cochin State, Kalpathy and Bharatha rivers on the north and west and Gayathri river on the south and some dry area. The aim of the project is to stabilise 40,000 acres of single and double crop wet lands. Incidentally 7,000 acres of single crop wet lands will be converted into double, 11,000 acres of double into third crop and 6,000 acres dry lands will be converted into single crop wet lands.

The benefits of this project will be felt in 64 villages; 14 in Palghat, 2 in Elapulli, 9 in Alathur, 6 in Kollengode and 33 in Koyalmannam firkas, for an irrigable extent of 65,700 acres in the first instance and extension to about another 30,000 acres in the second and successive stages.

Although the scheme has been classified as unremunerative from the point of view of outturn on capital outlay, the utility of project is clear enough. After the completion of the first stage 25·9% of the existing single crop, and 31·75% of the double crop wet land will be stabilised and insured against the vagaries of the monsoons. Conversion of the existing single to double, double to third and dry to wet lands is possible by 14·75%, 13·75% and 9·4% respectively.

The tables below give a clear account of the distribution of benefits under each class in each firka. Stabilisation of the entire single and double crop lands is possible in Koyalmannam firka with conversion of half of the existing double to three-crop area and single to double crop area. Palghat comes next and Alathur and Kollengode, are benefited equally but to a lower degree.

Agronomic Problems of the Project Area: 1. The risk of deleterious after-effects of irrigation on soil does not exist as the soil is very open, and well-drained, and does not contain any harmful salts in the subsoil.

2. Canals and distributories may cut across the high level drylands, which form the major catchment area of the paddy flats in the uncommandable area reducing to a certain extent the bountiful supply of rain water. It is also a matter of engineering detail in the interest of the proper maintenance of the canals; of restoring supply of rain water to uncommanded tracts. The undulating terrain of the ayacut may present serious difficulties, and ryots would naturally be anxious that valuable lands not commanded and intercepted by the canals should not be left without sufficient water to mature the crop.

3. The project commands only 25% of the single crop and 31·57% of double-crop wet lands and still a lion's share will be dependent on the uncertain monsoons. It is here that a little crop planning, adjustment and alteration in the existing cropping practices are necessary, so as to ensure the maximum utilisation of water for the greatest advantage of the paddy crop of the taluk.

Adjustments in cropping: The first crop of paddy which is now broadcast between April and June may still succumb to the adverse seasonal conditions, if this practice is continued. Broadcasting in semi-dry conditions during April and May has to be given up in favour of transplanting between 1st and 15th of June. A medium-duration variety has to be chosen, nurseries raised between April-May and June and transplanting completed on receipt of monsoon early in June. These crops mature by August. Single croplands can be followed by a green manure crop. The second crop should be so chosen, as to fit into a fairly long duration samba crop between September and January following a green manure crop for the summer. The third crop areas have an assured water supply and there is no problem arising out of this.

The adjustments in cropping will bring in its train a number of advantages and a few serious handicaps as well.

(a) *Nurseries for the first crop:* The canal water does not feed all villages and the entire area of commandable ayacut villages. Therefore it may not be possible to raise nurseries for the entire first crop individually. This calls for a co-operative effort on the part of the ryots to raise nurseries in groups of the ayacuts and distribute the seedlings to non-ayacutdars by June. There is a local practice of selling and buying seedlings, already prevalent among the ryots. This has to be coordinated, and organised by the timely intervention of the non-official agencies and the State.

In addition to rationalising the sowing and planting operations to ensure a good start of the crop, the seed rate for broadcasting (which is now 100—150 lbs. per acre) can be effectively reduced to 40 to 60 lbs per acre.

The preparatory cultivation of the first crop lands is at present far from satisfactory. Dry and hot weather ploughings depend on rains which are uncertain. The efficiency of the preparation of land for sowing is also very low, as the entire operation is hurried through to avail of the optimum moisture during April—May.

As a result of this perfunctory cultivation, the cost of weeding and removal of wild paddy and paddy stubbles of old crops, is very high. The first crop as it is, receives practically no green manure, as the crop is sown semi-dry. By adoption of transplanting for the first crop by June all these handicaps can be avoided during

preparatory cultivation, incorporation of green manure *in situ* is made possible and planting of healthy and robust seedlings is ensured for over 130,000 acres.

The problem reduces itself to this: (a) Raising of 13,000 acres of first crop nursery between April and June in 64 villages of the ayacut for distribution to the six firkas. Stabilisation of the single crop area is contemplated by the P. W. D. in about 18,800 acres; and it should be explored if water cannot be made available to raise 13,000 acres of nursery in the interests of the first crop.

There is a maximum potential of raising green manure crops in over 40,000 to 60,000 acres of irrigated land which might suffice for 130,000 acres of first crop.

The green manure crops to be sown on unirrigated single-crop lands and the present area under green manure crops, together with the forest resources available may be depended upon as a supplemental source for second crop paddy manuring.

(b) *Second crop: Nurseries:* Now seedlings are raised between July-August and September in dry lands to plant the second crop. Roughly 2 acres of dry land area are taken up to plant 5 acres of crop. This practice has to be altered to a quick and thin-grown wet nursery thereby relieving the heavy seed rate and releasing about 30,000 acres of dry land for cultivation of other crops during the main season. The area under dry land in this tract is only about 70,000 acres, other uncultivated land is about 22,000 acres and current fallows about 5,000 acres and these last two are 5.4%, 1.2% of the total extent of the taluk. Therefore adoption of a wet nursery will make available dry lands for extension of other crops that are more profitable than paddy.

(a) *Stabilising use of strains:* Improved strains are already popular but the seasonal failure of crops has been impeding to some extent the natural spread of these strains. This aspect of the Grow More Food efforts also will be improved over 60,000 acres of paddy crop.

(d) *Top-dressing with artificials:* The area is keenly manure-minded and the only handicap to the extension of this practice is the uncertain water supply which will now be overcome by

the project to at least 25-30% for the first crop and 35-40% for the second crop and an additional area of 12,000 acres for the third crop.

(c) *Rotation and introduction of other crops:* There is ample scope for the introduction of rotational crops like cotton, betel vine, short-term subsidiary food crops like sweet potato and tapioca. There will be a growing tendency to substitute more economic wet crops other than paddy and the State has to forestall this diversion from paddy, even now.

(f) *Piloting work on Agronomic problems:* Irrigation being entirely new to the tract, certain radical changes in the existing practices would be necessary, ensure the maximum utilisation of the project water. Some pilot demonstration work and extension by persuasion and legislation on specific problems may also be necessary. Fortunately, two minor private anicuts now exist, supplying 400 acres of land in Kadukkankunnu, Akathathara, Elapulli, provide an unsteady and inadequate supply of water to four other villages—Elapully, Pollpully, Thenari and Panayur. One of these areas can be selected for piloting and extension work on specific problems well in advance of the completion of the project.

1. **Summary and conclusions:** Palghat taluk which is one of the major paddy tracts of this deficit district Malabar is entirely dependent on the uncertain monsoons. Failure of crops is a frequent feature.

2. Harnessing of seasonal floods in the Malampuzha river was sanctioned only in 1949. This scheme was investigated as early as 1914 but was given up subsequently, owing to the unremunerative revenue outturn expected.

3. The estimated increase in production under stabilisation and conversion as per table VII is an estimate for revenue purposes and is very low. Malabar has a peculiar terrain and provision of one or two supplemental irrigations can save the crop and add to the production resources considerably.

4. The distribution of benefits within the ayacut is investigated firka-war, which throws light on the priority of areas for localisation of agricultural improvement in future. There are other jungle streams in the district, the harnessing of the seasonal

floods of which, can be utilised for maximisation of production. Although the revenue outturn on the ayacut may not warrant a huge capital outlay on these schemes, the principles in preliminary investigations, should have a greater bearing on the agricultural aspect of the ayacut and should be taken up by agricultural experts as well.

5. Irrigation is practically new to the tract and there are numerous handicaps in the existing cultural practices, in the way of effective utilisation of project water. Therefore certain major adjustments and alterations in practice are indicated.

6. The maximum potential under each altered or adjusted recommendation is indicated to throw light on the magnitude of problem.

7. When the project becomes a '*fait accompli*' several benefits will accrue to the ayacut, by way of efficient preparatory cultivation, optimum organic and artificial manuring, reduced seed rate, good start of the crop at planting, maintenance of pure paddy strains in addition to a release of 30,000 acres of dry lands for other crops.

8. The extension and enforcement of these practices has to be preceded by some pilot extension work in the area now commanded by the existing minor anicuts.

TABLE I
Area and production under paddy

Details	^o Madras State	Malabar District	Southern zone of Malabar	Palghat Taluk
Total area (Normal) in acres	10,774,620	8,75,000	6,07,718	2,12,000
% of Malabar to State	...	8.12	...	...
% South Malabar to District	...	...	69.45	...
% Palghat to District	...	...	...	26.60
Total outturn (Normal) in tons	72,63,470	4,94,300	3,79,825	1,32,500
% of Malabar to State	...	6.8	...	...
% South Malabar to District	...	...	70	...
% Palghat to District	...	...	...	26.60

TABLE II
Rainfall Data, (in inches) Palghat Taluk

Rainfall station	Year	Dry weather (Jan-March)	Hot weather (Apr-May)	South-West Monsoon (June-Sept.)	North-East Monsoon (October Dec)	Total annual rainfall
Average (1870—1939)						
Palghat	...	1-48	7-54	57-77	13-21	80-00
Alathur	...	1-75	8-79	64-22	14-36	89-12
Parli	...	1-60	9-09	68-21	18-05	96-95
Maximum						
Palghat	1924	1-68	5-26	100-97	12-83	120-73
Alathur	1924	2-40	4-44	116-82	18-59	142-25
Parli	1924	2-31	8-82	115-20	22-78	149-11
Minimum						
Palghat	1870	0-30	...	39-31	8-71	48-38
Alathur	1934	0-31	4-17	47-09	9-56	62-13
Parli	1928	1-05	3-03	47-06	8-96	60-10

TABLE III
Monthly sowing and harvesting (Percentage under Paddy)—Palghat Taluk:

Month	Sowing	Harvesting	Month	Sowing	Harvesting.
January	...	31	July	13	...
February	...	2	August	3	2
March	...	...	September	16	20
April	2	...	October	17	5
May	23	...	November	5	5
June	20	...	December	1	12

TABLE IV
Distribution of First and Second Crop Paddy—Palghat Taluk (Firka-war.)

Name of firka	Area under 1st crop paddy (in acres)	Area under 2nd crop paddy (in acres)	Single Crop land in each area (in acres)
Palghat	19,160	9,840	0,320
Parli	15,560	9,440	6,120
Elapulli	20,880	12,120	8,730
Kollengode	25,780	15,220	10,560
Koyalmannam	19,500	14,500	5,000
Alathur	29,000	21,000	8,000
Total	1,29,880	82,120	47,760
Total area under paddy in the taluk ... 2,12,000 acres.			

TABLE V
Distribution of Beneficial Effects of the Project (Firka-war)

Details of benefits	Palghat		Parli		Elapulli		Kollengode		Koyalmannam		Alathur		Total	
	Area in acres	% of benefit	Area in acres	% of benefit	Area in acres	% of benefit	Area in acres	% of benefit	Area in acres	% of benefit	Area in acres	% of benefit	Area in acres	% of benefit
1. Stabilisation of single crop wet lands ...	3,577	38.0	...	...	218	2.4	1,570	14.9	5,942	100	1,863	23.3	13,170	25.9
2. Stabilisation of double crop ...	5,024	51.0	...	...	234	2.4	3,387	22.2	14,528	100	4,276	20.3	27,509	31.75
3. Conversion of single to double crop ...	2,294	24.6	...	...	130	1.6	670	6.3	3,090	56.8	1,000	12.5	7,184	14.75
4. Conversion of double crop to third crop ...	2,077	24.1	...	...	155	1.3	836	5.5	6,980	48.1	1,324	6.30	11,372	13.75
5. Conversion of dry to wet land ...	702	...	...	...	42	...	245	...	4,753	...	723	...	6,465	9.40
Total ...	13,674	...	...	...	839	...	6,708	...	35,293	...	9,186	...	65,700	...

TABLE VI
Estimated increase in production per acre

1. Stabilisation of single wet	12 paras (i.e., 180 lb.)
2. Stabilisation of double wet	18 paras (i.e., 270 lb.)
3. Converted single to double	42 paras (i.e., 630 lb.)
4. Converted double to third	36 paras (i.e., 540 lb.)
5. Converted dry to wet	36 paras (i.e., 540 lb.)

Plan and the People

By

SRI K. RAMUNNI MENON, I. C. S.,
Chief Secretary to Government

It was Thoreau, the thinker, who said that 'that Government is best which governs least'. That might well have been true at a time when Government meant mainly the exercise of coercive control and authority. The success and stability of democracy depend on the active co-operation of the people and their intelligent participation in public affairs. The report which has recently been released by the Planning Commission is an inspiring invitation to the people to pave the way for progress and prosperity by disciplined and well-directed endeavour, and constructive, co-operative and cumulative effort.

The chief failing of the common run of plans has been that they are far too ambitious, unmindful of realities, floating in the rarefied atmosphere of idealism, with the result that the reaction that follows when they fizzle out, is demoralizing and frustrating. A plan should, therefore, be practical and eminently practicable. It should work out a skilful equation between hopeful idealism and robust realism. This commendable moderation is a worthy feature of the present Planning Commission's report. If it is not spectacular, it is sober and substantial. It is cautious without being conservative. While it has not under-rated the difficulties, it has not failed to take note of the potentialities of manpower and material resources, the intelligent exploitation and planned utilization of which should usher in a new era.

The Need for a Plan

Independent India is facing a multitude of problems. The hangovers from the past have to be cleared; the transitional conditions of the present have to be steered through carefully, and the foundation for the future laid firmly. This gigantic task of national reconstruction can be undertaken only through planned effort. Dissipated efforts in diverse directions will only destroy the morale of the nation. Now, more than ever, is a plan needed to present things in their proper perspective, to determine priorities, give sound direction and effect co-ordination. If the nation is to progress, it is essential that there should be all-round development, planned advance and harmonious growth in the various spheres of national activity and no lop-sided expansion in any one branch at the expense of others. A plan should, therefore, have purpose, perspective and poise,—and the present plan possesses all these in ample measure.

The plan for this State is easily the largest in comparison with those of the other States, envisaging an expenditure of 137 crores of rupees. A noteworthy feature of the plan is that greater emphasis has been laid on the development of irrigation, power and agriculture, the total amount set apart under these three heads coming to more than 90 crores of rupees. This is understandable, as Madras suffers chronically from food deficit, and schemes to step up the production of foodgrains must necessarily take precedence over others. The amount set apart for irrigation and agriculture is however much below the original estimate prepared and submitted by the State to the Planning Commission after taking fully into account the needs of the State, the potentiality for development and the executive capacity for carrying out the same. The responsibility cast on this State for carrying out these schemes within the time-limit set out, is something stupendous, requiring not only executive efficiency and skill but also a high degree of idealism, the essential requisite for bringing to fruition reconstruction measures of such magnitude.

The New Outlook

The traditions and inhibitions that grew out of a century and more of alien rule should give place to a new and healthier mental outlook, in the era of people's rule. In olden days when the coercive role of the State was maintained and stressed without much apology, the people either received the activities of the Government with suspicion or left the same severely alone. To-day that attitude should change. Government's plan to-day is a people's plan. It is only when people take a vital share in the execution of the plan, that it can go forward steadily, surely. If, for example, the surplus man-power available in our villages is utilized for laying village roads, carrying out small irrigation schemes or improving sanitation, tasks which do not call for any high degree of skill, the results can be highly satisfying. Here again it is the mental attitude that counts most. A leadership that takes shape from the voluntary will of the people can alone undertake the tasks that lie ahead of us.

Planning Boards and Committees

The report of the Planning Commission contains suggestions for the establishment of public consultative bodies to enlist the active co-operation of the people. This suggestion has, to a certain extent, been anticipated by us in the scheme for the reorganization of the planning machinery set up by the Madras State, which was approved as early as April 1951. The revised scheme envisages the creation of a District Planning Board and a District Planning Committee for each district. The District Planning Board will have the District Collector as its Chairman, and a whole-time officer as its Secretary. The local M.L.As. and M.L.Cs., the President of the District Board or his nominee, five

non-officials, the President of the District Co-operative Societies, and any other co-operator connected with the co-operative institutions, one municipal chairman, and three representatives of industries and labour, will be among the members of the District Planning Board, besides representatives of Government Departments. The Boards will prepare development plans for their respective areas taking into consideration the local resources and readiness of the local people to contribute by way of labour, other services and money. The District Planning Committee will have the District Collector as its Chairman, a non-official as its Vice-Chairman, and the district representatives of the Government Departments in the District Planning Board as its members. The functions of this Committee will be to prepare material for the formulation of the district plans by the District Planning Board and also to supervise the allocation of specific programmes for execution by the various agencies in accordance with the district plan.

At the State level, there will be a State Planning Board and a State Planning Committee. The State Planning Board, of which the Hon'ble Chief Minister will be the Chairman, will have as its members all Hon'ble Ministers, ten Members of the Legislature from both the Houses, eighteen persons from amongst Economists, Scientists, Engineers, Doctors, Industrialists and financial, agricultural, labour and business interests, and the Chief Secretary to the Government. The Secretary to Government in the Development Department will be the Secretary of the Planning Board. The Board will be the chief consultative body to advise the Government on the broader questions of planning.

The State Planning Committee with the Chief Secretary as its Chairman and other Secretaries to Government among its members, will prepare and check material for the drawing up of a composite plan for the State and lay it before the Planning Board and the Government. It will be seen that this set-up was evolved primarily with a view to invite and enlist the maximum amount of active co-operation of the people at every level.

Some Precedents

Madras has to her credit some pioneering measures in the sphere of mobilizing public support and co-operation. The essence of the Firka Development Scheme of the Government is to help the people to help themselves. Under this scheme, villagers come forward to build roads, dig wells, and provide other amenities, and themselves contribute towards this money, material and labour, receiving only a portion of the cost of the scheme as grant from Government. The noticeable success of this scheme has marked a great advance in the technique of securing the direct and active participation of the people in public affairs. The Manimuthar Project, towards the execution of which the ryots of

Tirunelveli have voluntarily loaned over a crore of rupees, is another shining example of the new spirit prevailing among the people, who have come to realize that, in a democracy, the degree to which they can participate in running the Government depends mostly on their own will to co-operate. The progress of the co-operative movement in this State has also helped to spread this spirit of co-operation and the zeal for constructive activities. Madras leads the country in the field of co-operation, the working capital of the co-operative movement in this State being more than even the revenues of the whole State. We in Madras have thus the background necessary to approach the task of planning, conscious of our responsibility and confident of success.

Magnitude of the Plan

By

SRI J. M. LOBO PRABHU, I. C. S.,
Secretary, Development Department

The Magnitude of the National and State Plans is indicated in the statements below

Government of India Plan (1951-'56)

Items of Revenue	In Crores of Rupees	Items of expenditure	In Crores of Rupees
1. Surplus on Revenue account ...	211	1. Agricultural Development ...	191·70
2. Resources normally set apart in Revenue account ...	393	2. Irrigation and Power ...	450·26
3. Resources available from Capital account for development ...	487	3. Transport and Communication ...	388·20
4. Resources available for railway development out of the ordinary revenues of railway ...	30	4. Industry ...	100·99
		5. Social Services ...	254·08
		6. Rehabilitation ...	79·00
		7. Miscellaneous ...	28·54
Total ...	1,121	Total ...	1,492·77

Note: Reprinted from the Special Planning Number, Madras Information, October, 1951.

Madras State Plan

	In Crores of Rupees		In Crores of Rupees Total
1. State Revenues available for development expenditure on the present scale ...	30	I. Agriculture and Rural Development—	
2. Possible economies in expenditure ...	5	(1) Agriculture ..	16·00
3. Surplus from Deposit transactions ...	8	(2) Veterinary and Animal Husbandry } ..	1·5
4. Loans from the open market ...	17	(3) Dairying and Milk Supply } ..	4
5. Withdrawals from reserves ...	27	(4) Forests ...	1·00
6. Assistance from the Centre ...	30	(5) Co-operation ...	1·00
7. Additional taxation ...	20	(6) Fisheries ...	2·00
		(7) Rural Development ...	21·90
		II. Major Irrigation and Power Projects—	
		(1) Irrigation ...	30·16
		(2) Electricity ...	50·24
			80·40
		III. Industry—	
		(1) Cottage Industries ...	1·2686
		(2) Other Industries ...	8514
			2·12
		IV. Transport—Roads ...	5·00
			5·00
		V. Social Services—	
		(1) Education ...	8·00
		(2) Medical } ..	12·00
		(3) Public Health } ..	3·00
		(4) Housing ...	4·59
		(5) Amelioration of Backward Classes ...	27·59
Total ...	137	Total ...	137·01

Deficit Financing Involved

The National Plan may involve deficit financing of 290 crores if no further foreign assistance is forthcoming. In the State Plan, the proportion of prospective items is even larger. Nonetheless, it is criticised that the finances of the plan are of a small order, the total increase in expenditure being stated by the Commission to be an increase of only 10 per cent of the current year's figures, as against an increase of 100 per cent which has taken place since 1947. It is argued that from such expenditure the "sensation of change", which the Prime Minister considered necessary to transform the attitude of the people, cannot be expected.

It appears necessary to understand the magnitude of the plan with reference first to the economics of the country, and second to other proposals in the plan. The Commission is quite frank in admitting that the economy is greatly strained, inflation being $4\frac{1}{2}$ times, raw material production being below requirement, industrial output below capacity, accompanied by a sudden increase of population due to natural causes,

as also to partition. The Commission, therefore, concludes that there are structural deficiencies in the economy which prevent the creation of conditions of full employment. The Commission fears that full employment without corresponding increase in production would stimulate an upward trend in prices. Accordingly a disinflationary fiscal is forced on the Commission which accounts for the modest size of the budget of the plan.

There are some economists who argue that planned employment implies corresponding production and this should reduce rather than increase prices. In any case labour which is idle consumes food and other essentials and remains engaged only in increasing the population. It is further pointed out that reconstruction which is proceeding throughout the world involves expenditure far in excess of the revenue. This may be true in theory but India has received no appreciable foreign aid for reconstruction and perhaps cannot strain its financial system without risking inflation like the one which has overtaken nearly all countries in the East. In any case the Plan has to show the country its strength before any risk is taken with the fundamentals of its economy.

Village Production Councils

As more money cannot be found, the Commission relies on other processes to capitalize the land and labour of the country. The most important of these relate to agriculture, which is the fountain head of the incomes of all groups. The one proposal, which involves no expenditure, and is at the same time potential of revolutionary change is of the institution of Village Production Councils. These will be charged with the following duties :

- (1) frame programmes of production to be achieved at each harvest by the village ;
- (2) frame budgets of requirements for supplies and finance needed for fulfilling the programmes ;
- (3) assess results attained at each harvest ;
- (4) act as the channel through which all Government assistance is provided to the village ;
- (5) take steps to bring under cultivation land at present lying uncultivated ;
- (6) arrange for the cultivation of land not cultivated or managed by the owners ;
- (7) assist in securing minimum standards of tillage to be observed in the village with a view to increasing production ;

- (8) stimulate production through prizes and other incentive schemes ;
- (9) promote the cultivation of high-yielding food crops ;
- (10) organize voluntary labour for community works ;
- (11) estimate and assist in the provision of requirements of local raw materials for the artisans of the village ; and
- (12) assist in the procurement and sale of surplus foodgrains.

Madras can take pride that this proposal stems from the one suggested by them for "Progressive Villages." The difference is that the proposal for Progressive Villages provided an incentive in remissions of revenue for carrying out the programme, judged on a collective basis. However the Village Production Councils which are based on democracy should capitalize the potentials of land and labour in the villages and incentives and collective responsibility can be added if found necessary. At present how low these potentials are can be judged from the fact that the yield per acre, has fallen since 1939, from 619 to 565 lb. while fallows have increased by 10 million acres and greater areas of culturable land remain to be reclaimed. If Village Production Council can mobilize the cultivators to a sustained effort, the food deficit could be wiped out and the purchasing power of the country greatly raised to allow an immediate extension of the plan.

Enlisting Public Co-operation

Public co-operation is also to be secured through the institution of the Bharat Sevak Sangh. The Commission considers that the unused time, skill and other resources of the people should be canalized on a voluntary basis. Voluntary service can be marshalled in rural areas for the construction and repair of sources of water supply, roads, school buildings and works for better sanitation, and for satisfying a variety of needs which would otherwise remain neglected for years because the State has no financial resources to spare for the purpose. Voluntary activity of these lines, mostly on a sporadic character, is being carried out in different places, in the country. The State itself has lent support to such activity in several cases. It is necessary to evaluate and pool the varied experience in recent years, and work out the most effective methods for the utilization of the available voluntary effort.

An aspect of public co-operation, which deserves to be explored and developed, is the possibility of harnessing the spare manpower in the country for the cheaper execution of irrigation and power projects. In the performance of these tasks small groups everywhere can find scope for co-operative activity and the exercise of initiative, and every individual can have something to which to devote his spare time and

energy. Large scale opportunities can thus be furnished to the student community all over the country, for building up both physique and personality. These acts of disciplined service on the part of individuals and groups will foster the growth of leadership at all levels and will strengthen the economic and moral foundations of the community.

To awake Social Consciousness

The question is asked if such voluntary service will be forthcoming, considering the general lack of social consciousness. There are some therefore who suggest that some pressure should be organized against the recalcitrants. For instance it is suggested that the growing class of idle rich in the towns who now kill time in clubs, race courses, cinemas and other places of amusements could be made to give the benefit of their education, to schools, hospitals, slums, rural welfare by the simple expedient of their incomes or share in the family income being considered as unearned and taxed accordingly. The mere threat of such an imposition would awake such people to their social responsibilities.

Similarly labour could be commanded as condition precedent to the irrigation works from those to be benefited in proportion to the size of their holdings. As far as students are concerned, their degrees may be given only after a period of social service, the record of which will be considered at the examination.

The degree to which compulsion of this nature can be introduced will depend on the country's determination to use its available resources to increase the magnitude of its plans for reconstruction.

Financial Aspects of the Madras Plan

By

SRI T. A. VERGHESE, I. C. S.,
Secretary, Financial Department.

The estimated cost of the Five-Year plan for Madras covered by the first part of the Commission's report is Rs. 137 crores under the following heads:—

	<i>Rupees in lakhs.</i>	<i>Total Rupees in lakhs.</i>
I. Agriculture and Rural Development :		
1. Agriculture ...	1,600·00	
2. Veterinary and Animal Husbandry ...	150·00	
3. Dairy and Milk Supply ...	40·00	
4. Forests ...	100·00	
5. Co-operation ...	100·00	
6. Fisheries ...	200·00	
7. Rural Development ...	200·00	
	2,190·00	

Note: Reprinted from the Special Planning Number, Madras Information, October, 1951,

II. Major Irrigation and Power Projects :			
1. Irrigation	...	...	3,016·00
2. Electricity	...	...	5,024·00
			8,040·00
III. Industry :			
1. Cottage Industries	...	...	126·86
2. Other Industries	...	...	85·14
			212·00
IV. Transport — Roads :			
V. Social Service :			
1. Education	...	...	500·00
2. Medical	...	...	800·00
3. Public Health	...	...	1,200·00
4. Housing	...	...	300·00
5. Amelioration of Backward Classes	...	...	459·00
			2,759·00
			Grand Total ... 13,701·00

Compared with the plans of other States, ours is the largest, that of Bombay coming next with Rs. 120 crores and the Uttar Pradesh coming third with Rs. 91 crores; but this fact does throw a proportionately heavier strain on our resources. The large bulk of our expenditure is on irrigation and power development schemes (Rs. 80 crores) which would fetch to the exchequer a fair return on the sums invested. It would therefore be open to us to meet this portion of the expenditure, which is classified under the Capital head, from funds borrowed from the public to the extent open market operations are feasible during the five years. Even so, the sums ear-marked for the various welfare services, are beyond the present resources of the State and therefore resort will have to be had to additional taxation for implementing the plan in full.

Sources of Finance

The Planning Commission has indicated in a general way how the plan has to be financed for the country as a whole. As far as this State is concerned, the money is expected to come from the following sources:—

	<i>Rupees in crores.</i>
(i) State Revenues available for development expenditure on the present scale	... 30
(ii) Possible economics in expenditure	... 5
(iii) Surplus from Deposit transaction	... 8
(iv) Loans from the open market	... 17
(v) Withdrawals from reserve	... 27
(vi) Assistance from the Centre	... 30
(vii) Additional taxation	... 20
	Total ... 137

A good few of the items included in the plan, are mere continuations of schemes already in operation in this State, as for example the expenditure on rural development, construction of new roads, improvements to hospitals, amelioration of Backward Classes; etc. Even without the plan, provision would have been made, to the extent possible, in the revenue of the State for these services and normally a sum of Rs. 30 crores would have been spent on them during the five years and that is the sum indicated under item (i) above.

The sum of Rs. 5 crores under item (ii) above will have to come out of drastic economies in departments like Civil Supplies, Police, Prohibition and other spheres of general administration. Item (iii) represents the normal capital accumulations with the Government from transactions, such as deposits on account of provident funds and state trading schemes. Under item (iv) credit has been taken for Rs. 17 crores to be raised from the open market during the five years, which works out to an average of Rs. $3\frac{1}{2}$ crores per year. The Government has still in reserve securities worth Rs. 32 crores and it is proposed to raise Rs. 27 crores by their sale, as indicated under item (v). The quantum of Central assistance has not yet been fully fixed.

The Commission has indicated an assistance of Rs. 20 crores only, but this Government has pressed for its enhancement of Rs. 30 crores and that request is still under consideration. It is therefore hoped that the sum of Rs. 30 crores under item (vi) will materialize, in which case, the extent of additional taxation can be limited to about Rs. 20 crores, at an average of Rs. 4 crores per year, as shown under item (vii).

Additional Taxation

The scope for additional taxation in this State, which has already shouldered the severe strain of complete prohibition, is very limited. The proposal, now under consideration by the Union Government, to levy death duties, may meet a small portion of our needs. For further augmentation of our revenues, to the extent expected by the Commission, we shall have to turn to the land. Our Land Revenue, which used to be the mainstay of our pre-war budgets, is still being maintained more or less on the old level. No doubt, we have controlled the prices of food-grains and therefore, agriculturists growing foodcrops, have not been able to earn their full share of the increased prices. But, on lands growing commercial crops such as groundnut, cotton, coconut, pepper, etc., the present assessment sits comparatively light.

It is therefore possible to augment our resources to some extent by enhancing suitably the assessment on lands growing commercial crops. Another source of additional revenue is a betterment levy on newly irrigated land. The execution of various irrigation schemes at enormous

public expenditure, has increased the value of lands newly brought under the plough. It is but fair and proper that a portion of this unearned increment is appropriated by the State to provide funds for development in other areas. The Revenue Reforms Committee has recommended the levy of a surcharge on agricultural holdings paying assessment of over Rs. 150 on a sliding scale. In effect, this levy may be equivalent to Agricultural Income-tax which the Planning Commission has recommended to States which have not introduced that measure so far. If all these measures indicated above are adopted, it may be possible to secure a fair proportion of the additional funds envisaged by the Commission.

Taxation measures are unpopular at all times and in all countries. But we have to remember that in no country in the world, do we see disparities in the standard of living between the richer sections and the poorer, of the same magnitude as we have in our country. Britain is indeed a wealthy nation, but the ratio between the spending capacities of the richest man and the poorest, will only be a small fraction of the corresponding ratio obtaining in this land. No doubt, our primary aim is to level up the general standard of living, but if that could be achieved only by some levelling down of the higher income groups, then we have to resort to that process, however disagreeable that might appear.

Covering the Food Deficit

Ours is the most deficit of all States in food and all that deficit is in rice. Annually we part with Rs. 50 to 60 crores to import foodgrains from outside at prices which are often dictated by the sellers. We have still immense water resources with fertile plains lying on either side to grow all the rice we need and we have also drawn up a 15-year plan for this purpose. Through our sustained efforts during the past few years we have built up a first-rate engineering organization capable of holding its own against the best in the world.

It is in the interests of the nation and the State in particular, that this priceless organization, capable of investing about Rs. 20 crores per year should be continuously used and improved on. The Planning Commission is now preparing a supplementary programme costing about Rs. 300 crores to be implemented subject to external assistance being forthcoming. Let us hope that in the apportionment of priorities for new schemes for this programme, the special needs and facilities obtaining in this State for the development of natural resources, will receive adequate consideration.

The Present Food Position

By

Sri R. M. SUNDARAM, I. C. S.,
Secretary, Food and Agriculture Department

The Madras State has always been deficit in food production. In prewar years this deficit amounted to 5 lakhs of tons. It was made good by imports from other countries, particularly from Burma. The war and its aftermath created conditions making it difficult for the usual imports to flow into the country. Further, the population has been growing all these years at a rapid rate and Nature too has been very unkind during the past five years in succession. All these factors have accentuated the very difficult food position in this State. Thus controls in regard to food, viz., procurement and rationing which were originally adopted as war time measures have unfortunately come to stay with us for a longer period than was originally expected. We began these controls in a few districts in 1942-43 and later on extended them, as our situation grew worse, with the result that by 1946-47, the entire State was completely under control in the matter of procurement and rationing.

Owing to a change in policy advocated by the Central Government, there was an interlude of decontrol in 1947-48; but this experiment having proved quite unsatisfactory, the Government of India directed reversion to full controls in all States. Intensive procurement and rationing throughout the State (except rationing in a few surplus districts) were thus functioning again till 31st December 1950. Owing however to repeated complaints from the ryots, especially in the deficit districts, that procurement resulted in unnecessary harassment, the Government decided upon a partial change of policy from the beginning of the calendar year 1951. The main lines of the revised policy are, intensive procurement in six surplus districts, levy procurement in five more or less self-sufficient districts, inter-district ban on movement of foodgrains, statutory rationing in municipal towns except in surplus districts, and informal rationing in the rural parts of Malabar and Nilgiris and the Hosdrug sub-taluk of South Kanara district and distribution of foodgrains both locally procured and imported through fair price shops in the derationed areas and in the deficit parts of surplus districts.

The main advantage of this revised policy is that it frees producers from the unwelcome attentions of the procurement officers and in a way gives a fillip to better production. On the other hand, the producers in derationed areas are bound to sell their surplus at exorbitant prices, making it impossible for the poor consumers to purchase their requirements in the open market. On the whole however, the new policy can be

considered to have worked satisfactorily within the limitations inherent under any system of decontrol at the present time of shortages.

Provisions in the Plan

The Planning Commission have expressed themselves strongly against decontrol. They have observed that the adverse repercussions of decontrol in 1947-48 warrant caution in the adoption of measures of partial or complete decontrol in future. They have also expressed themselves strongly against allowing free movement of foodgrains, for which, they consider the present conditions were not favourable. The danger of decontrol was that traders may buy up large quantities of grain and charge exorbitant prices from the middle classes. They also point out that past experience shows that where controls are efficiently managed, the prices in the rationed and non-rationed areas remain fairly reasonable while on the other hand, where there has been decontrol, the prices rose to levels higher than in deficit districts, where the control systems were efficient.

They therefore state that any step in the direction of decontrol is under present conditions certain to raise prices and likely to jeopardize the entire system of food controls, which have been built up in the country with considerable effort. They sum up saying that adequate procurement supplemented by necessary imports and efficient arrangements for distribution of the available supplies at reasonable prices are the essential cornerstones of food policy under the present conditions. With regard to rationing, the Commission is of the view that all towns of a size to be prescribed by the Central Government should be rationed and that a form of rural rationing on a system of fair-price shops should be adopted in deficit areas.

Importance of Public Co-operation

Controls are irksome but are necessary when as at present, there is disequilibrium between supply and demand. Controls over food by their very nature, interfere with the day-to-day life of the entire population, whether in their capacity as producers or consumers. It creates a set of new offences. Unless the public enter into the spirit of controls and co-operate with the Government to make them successful, there must inevitably be some friction and controls will fail in their purpose. Public co-operation on the following main lines is essential to make the Government's policy a success:—

- (1) Surrendering the entire surplus to the Government or their agents;
- (2) selling the surplus produce to consumers in the derationed areas at controlled prices;
- (3) preventing smuggling;

- (4) checking blackmarket by desisting from resorting to it; and
- (5) economizing consumption by observing the rationing and austerity restrictions.

Critical Appreciation

As stated earlier, though there is one school of opinion that holds that the partial decontrol policy adopted in this State is a success, there is another school which differs from this view. There can however, be no two opinions that so long as shortages in foodgrains continue and so long as adequate imports to meet this shortage can be arranged, a policy of full and complete control with intensive procurement and all-out rationing will be desirable. But we have to appreciate the point of view of the people who have been in the grip of controls for nearly a decade and are impatient to get out of it.

Though the Planning Commission has expressed itself even against a policy of partial decontrol and though its observations that free market prices will tend to rise high, making it impossible for Government to bring them down, have been found true, yet in view of the partial success that has attended the derationing experiment adopted this year in the State, it is considered desirable to continue the same experiment for another year. [Reprinted from the Special Planning Number, Madras Information, October, 1951]

A note on the Phyllotaxy in *Thevetia nereifolia*, Juss

Generally phyllotaxy is kept up in a species, in a genus and even in a family (Rubiaceae-opposite; Malvaceae-alternate). The family *Apocynaceae* is characterised by opposite phyllotaxy, but a whorled arrangement is also not uncommon. Only a few plants are mentioned to possess alternate arrangement of leaves in this family and *Thevetia nereifolia*, Juss., is one. Among the South Indian species described by Gamble (1923) there are 35 species in the family out of which 28 are with opposite arrangement, 7 are whorled and 3 are described as alternate.

Thevetia nereifolia, Juss., a tropical American plant belonging to *Apocynaceae* though at a glance appears to possess alternate arrangement, on extended observation is seen to have three or four kinds of phyllotaxy in the same plant or branch and in certain cases the arrangement does not conform to the Fibonacci series, by which the rule of phyllotaxy is

slightly disturbed. The series noticed in *T. nereifolia*, Juss., were $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{5}$, $\frac{3}{8}$ etc., and it is quite possible that other members of the series may also be represented in some cases.

In a tree of 4 years of age, 72 branches were studied from the growing tip and the majority of them were characterised by $\frac{1}{2}$ and $\frac{2}{5}$. Also $\frac{1}{3}$ and $\frac{3}{8}$ were met with and in 17 branches there was irregular phyllotaxy. A study of the plant from seedling stage was also made and it was observed that the leaves exhibited a clear opposite condition in the initial stages, but after a month one of the leaves was taken up and thereafter the leaves seemed to possess an alternate arrangement. There was no regularity in the arrangement and the angles of divergence varied very widely.

Botany Section, }
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Crop and Trade Reports

Cumbu Crop: The area sown with cumbu or bajra (*Pennisetum typhoideum*) in the Madras State upto 25th September, 1951 is estimated at 14,31,000 acres. Compared with the area of 14,23,800 acres estimated for the corresponding period of the last year, this is an increase of 7,200 acres or 0.5 per cent. Cumbu has not been raised in the districts of Malabar, South Kanara and the Nilgiris. An increase in the area sown is estimated in the districts of Srikakulam, Visakhapatnam, Krishna, Kurnool, Chingleput, South Arcot, North Arcot, Coimbatore, Tiruchirapalli, Tanjore, Ramanathapuram and Tirunelveli and a decrease in all the other districts of the state. The decrease in the area sown is generally attributed to delayed or insufficient rains at sowing period. The decrease in the area in Salem district is due to preference shown to groundnut cultivation. The condition of the standing crop at the time of report is reported to be generally satisfactory except in Kurnool, Anantapur, Cuddapah, Nellore, Chittoor, North Arcot, Salem, Coimbatore and parts of Tanjore

districts where the crop is reported to have been affected to some extent by inadequate water supply. The wholesale price of Cumbu per imperial maund of 82 2/7 lb. (equivalent to 3,200 tolas) as reported from important markets on the 20th October, 1951 was Rs. 7—8—0 in Rajahmundry, Rs. 8—5—0 in Guntur Rs. 8—6—0 in Tiruchirapalli.

Korra Crop: The area sown with Korra (Tenai or *Setaria Italica*) in the Madras State upto 25th September, 1951 is estimated at 10,51,100 acres. Compared with the area of 10,55,300 acres estimated for the corresponding period of the previous year, this is a decrease of 0.4 per cent. Korra is not cultivated in the districts of Tanjore and South Kanara, Sowings have not yet commenced in Tirunelveli district. The area estimated is the same as that for last year in East Godavari, West Godavari, Krishna, Coimbatore, Tiruchirapalli, Malabar and the Nilgiris districts. An increase in area is estimated in the districts of Visakhapatnam, Kurnool, Chingleput, South Arcot, Chittoor, North Arcot, Salem, Madurai and Ramanathapuram and a decrease in area in the other districts of the State. The decrease is generally due to want of timely rains. At the time of the report, the condition of the crop was reported to be satisfactory in all the districts except in Anantapur, North Arcot and Coimbatore districts where the crop is reported to have been affected by inadequate water supply.

Pepper: The area under pepper upto 25th December, 1951 in the districts of Malabar, South Kanara and the Nilgiris is estimated at 1,05,600 acres (1,200 acres) in the district of Malabar, 14,300 acres in the district of South Kanara and 100 acres in the district of the Nilgiris. Compared with the area of 1,04,700 acres (91,600 acres in the district of Malabar, 13,000 acres in the district of South Kanara and 100 acres in the district of the Nilgiris) estimated for the corresponding period of the previous year, it shows an increase of 0.9 per cent. The increase in area is largely due to the incentive afforded by high prices for pepper. In Malabar and South Kanara districts the crop is reported to have been affected by inadequate rains at the time of spike formation and the yield per acre is expected to be below the normal. The seasonal factor is estimated at 80 per cent of the normal for the district of Malabar, 85 per cent of the normal for the district of South Kanara and 95 per cent of the normal for the district of the Nilgiris as against 100 per cent of the normal for the three districts for the corresponding period of last year. On this basis, the total yield is estimated at 7,200 tons (6,160 tons in the district of Malabar, 1,030 tons in the district of South Kanara and 10 tons in the district of the Nilgiris). Compared with the yield of 8,840 tons (7,730 tons in the district of Malabar, 1,100 tons in the district of South Kanara and 40 tons in the district of the Nilgiris) estimated for the corresponding period of last year it shows a decrease of 18.6 per cent. The wholesale price of pepper per Imperial Maund of 82 2/7 lb. or 3,200 tolas as reported from important market centres on 5—1—1952 was Rs. 411—7—0 in Mangalore, Rs. 375/- in Cochin, Rs. 367—14—0 in Tellicherry and Rs. 356—12—0 in Kozhikode. Compared with the prices in the corresponding period of last year (i. e.) those which prevailed on 6—1—1951 these prices reveal a decrease of 18 per cent in Kozhikode, 17 per cent in Cochin, 9 per cent in Tellicherry and 8 per cent in Mangalore.

Sugarcane Crop: The area under sugarcane in the Madras State upto 25th September 1951 is estimated at 1,97,150 acres. Compared with the area of 1,77,800 acres estimated for the corresponding period of the previous year, this is an increase of 19,350 acres or 10.9 per cent. The increase is due generally to attractive prices for jaggery. The estimated area is the same as the that for last year in the districts of Srikakulam, Guntur, Anantapur, Chingleput, Tirunelveli and Malabar. A decrease in area is estimated in the districts of Kurnool, Cuddapah, Chittoor, North Arcot, Selam Coimbatore and Tiruchirapalli and an increase in area in the other districts of the State. There was no area under the crop in Nellore district. The condition of

the crop is generally satisfactory except in parts of South Arcot, Chittoor, North Arcot and Coimbatore where the yield of the crop is reported to have been affected by the recent floods, is reported to have rallied as a result of heavy manuring.

The Seasonal Factor for the State as a whole is estimated at 89 per cent as against 93 per cent estimated for the corresponding period of the previous year. On this basis, the total yield for the State, in terms of jaggery works out to 5,39,990 tons as against 5,13,150 tons for the corresponding period of last year representing an increase of 26,849 tons or 5.2 per cent. The average yield per acre in the current year works out to 6,135 lbs. as against 6,465 lbs. in the previous year. The wholesale price of jaggery per imperial maund of 82 2/7 lb. (equivalent to 3,200 tolas) at important markets on the 13th October, 1951 was Rs. 20—9—0 in Mangalore, Rs. 19—0—0 in Cuddalore, Rs. 18—12—0 in Rajamundry, Rs. 18—1—0 in Visakhapatnam and Vizianagaram, Rs. 18—0—0 in Bellary, Vellore and Salem, Rs. 17—10—0 in Tiruchirappalli, Rs. 17—0—0 in Chittoor, Rs. 16—7—0 in Kakinada and Rs. 14—11—0 in Coimbatore. Compared with the prices published in the last report i. e., those which prevailed on the 8th September, 1951 the prices reveal a rise of approximately 4.7 per cent in Vellore, a fall of 0.7 per cent in Bellary and 4.9 per cent in Coimbatore, the prices remaining stationary in the other markets.

Cotton Crop: Pickings of Mungari or early sown crop are in progress and the yield per acre is expected to be severely affected in Anantapur District by droughty conditions prevailing in that district. The standing crop is also reported to have been affected to some extent by inadequate rainfall in parts of Guntur, Cuddapah, Nellore and North Arcot districts and the yield per acre is expected to be below normal in these districts. In Ramanathapuram district the yield was reported to be very low due to incidence of pests and diseases and scarcity of water. The crop is also reported to have been attacked by insect pests to extent in Madurai district Reports in respect of Visakhapatnam, West Godavari, Krishna, Kurnool and Salem districts have not been received. The condition of the crop is reported to be satisfactory in the other districts of the State. The average wholesale price of cotton lint per imperial maund of 82 2/7 lbs. (equivalent to 3,200 tolas) as reported from important market centres on the 5th January 1952 was Rs. 93—10—0 for White Northerns, Rs. 94—13—0 for Red Northerns, Rs. 76—11—0 for Westerns (Mungari), Rs. 85—0—0 for Westerns (Hingari), Rs. 116—0—0 for Coimbatore Cambodia, Rs. 103—6—0 for Coimbatore Karunganni, Rs. 86—10—0 for Tinnevely and Rs. 78—12—0 for Nadam Cotton, Compared with the prices published in the last report (i.e.), those which prevailed on the 8th December 1951, these prices reveal a rise of approximately 9.6 per cent in the case of Coimbatore Cambodia, 8.2 in the case of Coimbatore Karunganni, 0.7 per cent in the case of Tinnevellys, the prices remaining stationary in the case of white and red Northerns, Westerns (Mungari) and (Hingari) and Nadam Cotton.

Cotton Raw in the Madras State: The receipt of loose cotton at presses and spinning mills in the Madras State from 1st February 1951 to 11—1—1952 amounted to 2,80,704 bales of 392 lb. lint. The receipts in the corresponding period of the previous year were 3,06,120 bales. 4,16,293 bales mainly of pressed cotton were received at the spinning mills and 10,541 bales were exported by sea while 1,18,830 bales were imported by sea mainly from Karachi and Bombay.

OBITUARIES

KING GEORGE THE SIXTH

King George the Sixth of England, Head of the Commonwealth of Nations of which India is a member, passed away peacefully in his sleep on 6th February 1952 at Sandringham. His reign lasted sixteen years and was marked by tremendous events, like the World War II, and the formation of two sovereign republics, of India and Pakistan out of the former Indian Empire; but more than everything the reign of the "gentlest of the Georges" will be remembered for his unflinching devotion to duty in the face of failing health, during the last five years of his reign. He is succeeded by his daughter, the 26-year-old Queen Elizabeth II. It is the hope and desire of everyone that the reign of Elizabeth II would be as eventful and glorious as that of her illustrious namesake who ruled over England four centuries ago.

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Dr. T. V. RAMAKRISHNA AYYAR, B. A., Ph. D., F. Z. S.

We regret to announce the death of Dr. T. V. Ramakrishna Ayyar on February 13, at Palghat. With his death, one more link is snapped between the old-time pioneers of the Agricultural Department in Madras and the present-day generation and India itself may be said to be the poorer by the loss of one of its most distinguished entomologists.

Dr. Ramakrishna Ayyar was born in 1880 in Tarakad village, Palghat, and had his early education in the same town. After graduating with distinction from the Madras Christian College in 1898, he was awarded the Buckie Studentship for two years of postgraduate study and then took up teaching work in the Maharajah's College at Ernakulam. His real career as an entomologist, however, started only in 1904, when he was appointed as assistant to Dr. Maxwell Lefroy, First Entomologist to the Government of India. Under the stimulus and inspiring guidance of that first-rate scientist, Dr. Ayyar was able to develop his life-long interest in entomology, an interest which he maintained to the end of his life. In 1906 he was transferred from Pusa to Coimbatore, as senior Entomology Assistant and when Mr. T. B. Fletcher was appointed as Entomologist to the Government of Madras, he was chosen as his first assistant. In 1915 Dr. Ayyar was appointed as acting Government Entomologist in the Indian Agricultural Service and held the post for four years, during which he displayed administrative ability of a high order. In 1920, he was gazetted as Senior Assistant Entomologist and when the Research Institute was separated from the College he was made Lecturer in Zoology and Entomology, a post which he held till 1930, when he became the Government Entomologist. He retired as Government Entomologist in August, 1935.

In 1927 Dr. Ayyar went abroad for further studies and worked in the Stanford University, California, from where he obtained the Ph. D. Degree 1928. He visited also various other countries like Japan, China, Europe and the United Kingdom, to acquaint himself with the progress of science in these countries.

Dr. Ramakrishna Ayyar was by common consent one of the foremost entomologists in India. Special mention must be made of his outstanding contributions, in nearly 120 papers, on the systematics of the Thysanoptera, Hymenoptera (especially parasites) and the Coccidæ. His text-book, the Hand-book of Economic Entomology for South India is a lasting monument to his eminence in the field of agricultural entomology.

As a lecturer too, he was a man of outstanding ability, combining a rare grasp of the subject with an inimitable power of lucid exposition, while to the research worker he was always ready to lend a helping hand and place at his disposal all the resources of his knowledge and experience. It was characteristic of him that in all the numerous honorary offices that he held, he displayed the same zeal and efficiency that he showed in his official duties. As the first President of the Research Council, as President of the Officers' Club, as Warden of the Students' Hostel for over six years and the first President of the Association of Economic Biologists, he won the admiration of all by his energy and ability. With the Madras Students' Union, he was always closely associated, being an Editor for two years and Vice-President for one year.

As a man he was always kind and sociable; his acute mind and keen sense of humour lending a rare zest to his conversation. We extend our heartfelt sympathy to all the members of his family.

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T. A. RAMALINGAM CHETTIAR, B. A., B. L., M. P.

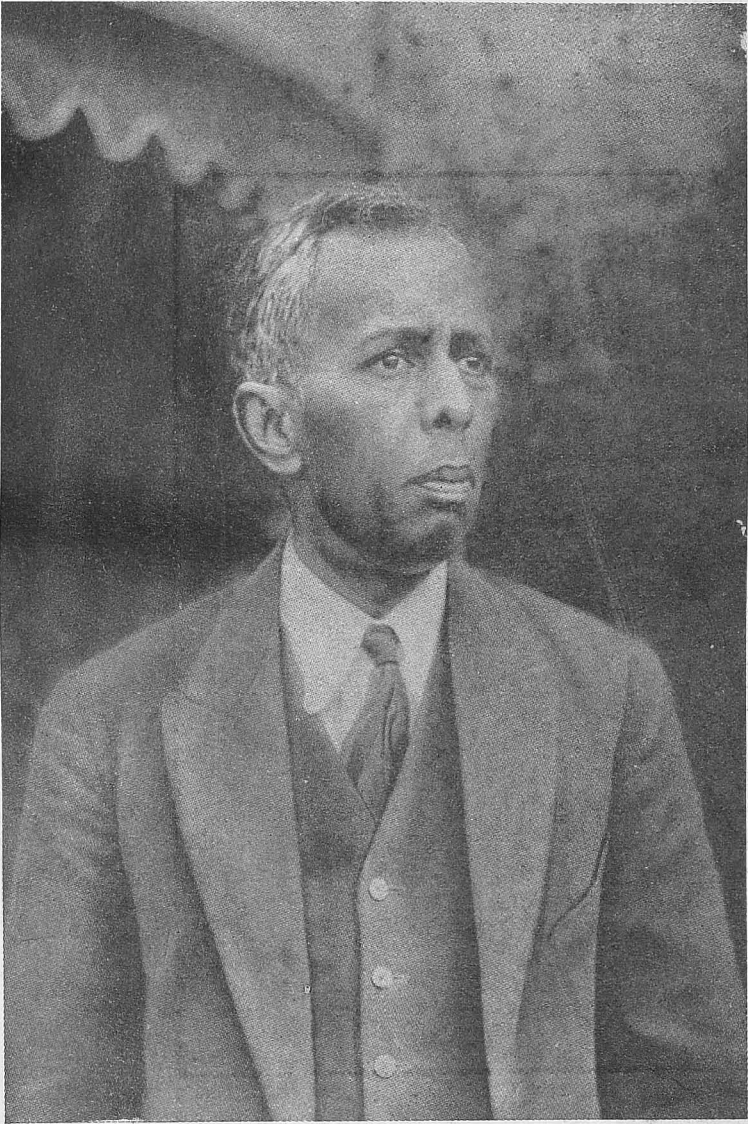
We regret to announce the death of one of our patrons, Sri T. A. Ramalingam Chettiar, on February 12, at his residence in Coimbatore, after a heart attack. Mr. Chettiar was 72.

Mr. Ramalingam Chettiar had been only recently returned unopposed to the Indian Parliament from the Coimbatore-Nilgiris constituency. After a successful career as an advocate at the Coimbatore Bar, Mr. Chettiar entered politics nearly twenty years ago and was a member of the old Madras Legislative Council. In 1937 he was elected to the Central Assembly on the Congress ticket. In Madras he has been one of the stalwarts of the Co-operative movement for over thirty years and made notable contributions to the development of Co-operation in the Madras State. He was also associated with the improvement of Coimbatore Town and the re-organisation of the Coimbatore District Board along sound and progressive lines. He was connected with several textile mills in Coimbatore and was a patron of the Madras Agricultural Union since 1920.

As a man Mr. Chettiar was a very popular personality, who was universally esteemed for his frank and unassuming manners and high integrity.

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We regret also to announce the death of Sri C. S. Krishnaswami Ayyar, Sugarcane Liaison Officer, Nellikuppam and Sri K. Srinivasan, District Agricultural Officer, Vellore. Both these officers were in active service at the time of their demise and had still some more years before they were due to retire. Our heartfelt sympathy goes out to the relatives of both the officers.



DR. T. V. RAMAKRISHNA AYYAR, B. A., Ph. D., F. Z. S
(Retired Government Entomologist)
(1880 — 1952)



SRI T. A. RAMALINGAM CHETTIAR, B. A., B. L., M. F.

(Patron, M. A. S. Union)

(1881 — 1952)

Weather Review — For January 1952

RAINFALL DATA

Division	Station	Total rain-fall for the month	Departure from normal in inches	Total since 1st January in inches	Division	Station	Total rain-fall for the month	Departure from normal in inches	Total since 1st January in inches		
Orissa & Circars	Gopalpur	0.0	-0.3	0.0	Central Contd.	Coimbatore	0.1	-0.5	0.1		
	Calinga- patnam	0.0	-0.2	0.0		Tiruchirappalli	0.8	-0.2	0.8		
	Visakha- patnam	0.0	-0.4	0.0		South	Naga- pattinam	2.5	-0.3	2.5	
	Araku Valley*	0.0	-0.1@	0.0			Aduturai*	3.2	+1.3	3.2	
	Anakapalle*	0.0	-0.2	0.0			Pattukottai*	1.9	+0.5	1.9	
	Samalkot*	0.0	-Tr.	0.0			Mathurai	0.9	+0.1	0.9	
	Kakinada	0.0	-0.3	0.0			Pamban	5.4	+2.9	5.4	
	Maruteru*	0.0	-0.1	0.0			Koilpatti*	0.3	-0.6	0.3	
	Masulipatnam	0.0	-0.2	0.0			Palayam- cottai	2.1	+0.4	2.1	
	Guntur*	0.0	-0.0	0.0			Amba- samudram*	3.6	+0.7	3.6	
	Agri. College, Bapatla*	0.0	-Tr.	0.0			West Coast	Trivandrum	0.2	-0.5	0.2
	Agri. College Farm Bapatla*	0.0	-0.0	0.0				Fort Cochin	0.0	-0.9	0.0
	Rentachintala	0.0	-0.0	0.0		Kozhikode		0.0	-0.3	0.0	
	Ceded Districts	Kurnool	0.0	-0.1		0.0		Pattambi*	Tr.	-0.3	Tr.
Nandyal*		0.0	-0.0	0.0	Taliparamba*	0.0	-0.2	0.0			
Hagari*		0.0	-0.1	0.0	Nileshwar*	Tr.	-0.3	Tr.			
Siruguppa*		0.0	-Tr.	0.0	Pilicode*	0.0	-0.4	0.0			
Bellary		0.0	-0.1	0.0	Mangalore	0.0	-0.3	0.0			
Cuddapah		0.0	-0.4	0.0	Kankanadi*	0.0	-0.3	0.0			
Kodur*		0.0	-0.7	0.0	Mysore & Coorg.	Chitaldrug	0.0	-0.2	0.0		
Anantapur		0.0	-0.2	0.0		Bangalore	0.0	-0.2	0.0		
Carnatic		Nellore	0.0	-1.3		0.0	Mysore	0.0	-0.1	0.0	
		Buchireddi- palem*	0.0	-0.3		0.0	Mercara	0.0	-0.2	0.0	
	Madras (Meenam- bakkam)	Tirurkuppam*	0.0	-2.0@	0.0	Hills	Kodaikanal	0.9	-2.3	0.9	
		Palur*	0.6	-1.6	0.6		Coonoor*	2.3	-2.4	2.3	
		Tindivanam*	0.2	-1.4	0.2		Ootacamund*	0.9	-0.5	0.9	
		Cuddalore	0.8	-1.5	0.8		Nanjanad*	0.1	-1.2	0.1	
		Central	Vellore	0.0	-1.5		0.0				
			Gudiyatham*	0.0	-0.6		0.0				
			Salem	Tr.	-0.3		Tr.				
			Coimbatore* (A. M. O.)	0.1	-0.7		0.1				

- Note:—*
1. * Meteorological Stations of the Madras Agricultural Department.
 2. @ Average of nine year's data for Tirurkuppam, and eight years' data for Arakuvalley is given as normal.
 3. Average of ten years' data is taken as normal.
 4. X The farm was started only this year.
 5. Tr. 1 to 4 cents of rain.

Weather Review for January, 1952

A trough of low pressure lay over Rajasthan and the South Punjab on the 1st day of the month. On the same day a low pressure wave was moving westwards in the Comorin area across Ceylon, inducing a few light showers in the South Tamil Nad. The "low" over Rajasthan moved away eastwards across the Simla-Kumaon Hills on 3-1-1952. Another low pressure wave moved into the Comorin area across Ceylon on 3-1-1952, and favoured only local rains in South Tamil Nad. This moved away westwards across the Comorin-Maldives area on 5-1-1952. Another low pressure wave was moving across Ceylon on the very next day and moved away across the Comorin-Maldives Region on the following day itself. This helped some precipitation of rain at a few places in the South Tamil Nad.

A fresh low pressure wave moved westwards across the extreme South West Bay of Bengal on 8-1-1952, passed over the south of Ceylon on the 10th and became unimportant on the very next day,

A low pressure wave was moving westwards across the Andaman Sea on 14-1-1952 with markedly unsettled conditions near about lat. 7°N and long. 92½°E. and became less marked and unimportant on 17-1-1952. A spell of mainly dry weather prevailed for thirteen days from 11-1-1952. A low pressure wave which existed in the extreme south-west Bay of Bengal on the 21st January, passed over the Gulf of Mannar and the Comorin area on the 23rd and moved away westwards on the next day. This resulted in an isolated rainfall of 2·8" at Pamban on 23-1-1952.

Another low pressure wave appeared in the extreme South-West Bay of Bengal off Ceylon on the 24th and passed away westwards, south of Ceylon, on the very next day. Yet another low pressure wave was moving westwards across the Gulf of Mannar on the 27th and on the same day an upper air anticyclonic circulation developed over the Central parts of India, causing incursion of moist air, over the Peninsula. This caused local and widespread light to moderate showers in Tamil Nad from the 28th to 30th January.

Eight western disturbances with their associated secondaries passed over North-West India during this month.

Night temperatures were generally above normal over the 'Madras Region' except during the period 15th to 22nd January when they were slightly below normal.

The particulars regarding the noteworthy falls and zonal rainfall are furnished below:—

Note-worthy Falls during the month

S. No.	Date	Place	Rainfall in inches
1	8-1-52	Minicoy	1·4"
2	23-1-52	Pamban	2·8"

ZONAL RAINFALL

S. No.	Name of Zone	Actual Rainfall	Departure from normal	Remarks.
1	Orissa and Circars	0·00	— 0·16	Just below normal.
2	Ceded Districts	0·00	— 0·20	Just below normal.
3	Carnatic	0·26	— 1·33	Below normal.
4	Central	0·17	— 0·63	Below normal.
5	South	2·49	+ 0·63	Above normal.
6	West coast	0·02	— 0·39	Just below normal.
7	Mysore and Coorg	0·00	— 0·18	Just below normal
8	Hills	1·05	— 1·60	Below normal

Agricultural Meteorology Section,
Lawley Road Post, Coimbatore
Dated, 9th February, 1952.

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

Departmental Notifications
Gazetted Service—Postings and Transfers

Names	From	To
Sri Francis, T. S.,	Dy. D. A., Coimbatore,	D. A. O., Tiruchirapalli
„ Subbaiah Mudaliar, V. T.,	On leave,	Lecturer in Agricultural, Coimbatore
„ Venkateswara Iyer, P. A.,	Lecturer in Agricultural, Coimbatore,	Dy. D. A., Coimbatore
Subordinate Service		
„ Adivi Reddy, A.,	A. D., Chandragiri,	Fruit Asst., Kodur
„ Ali Hyder, R.,	P. A., to D. A. O., Bellary	A. D., Rayadrug
„ Abdul Hameed,	On leave,	A. D., Chintalapudi
„ Gopalakrishna Gokhale, G.,	On leave,	A. D., Tindivanam
„ Krishnaswami Iyer, K. A.,	A. D., Mathurai,	A. D., Dindigul
„ Karuppannan, P.,	Addl., A. D., Dindigul,	Entomology Asst., Coimbatore
„ Kumaraswami, V.,	On leave,	Addl., A. D., Rajahmundry
„ Kumaraswami, P.,	Addl., A. D., Rajahmundry,	Entomology Asst., Car- damom Scheme, Singam- patti
„ Kunhiraman Nambiar, P. A.,	A. D., Perunthalamanna,	P. P. A., (Mycology), Tellicherry
„ Narasimhan, J. A.,	A. D., Kakinada,	Fruit Asst., Kodur
„ Padmanabha Rao, K.,	P. P. A., (Mycology), Tellicherry,	P. A., to D. A. O., Bellary
„ Purushothaman, P. S.,	Special A. D., Cotton, Srivilliputhur,	Addl., A. D., Cotton Rice fallow Scheme, Mannar- gudi
„ Prabhuswami, G. R.,	A. D., Kollegal,	A. D., Udipi
„ Rama Rao, A.,	A. D., Alur,	Addl. A. D., Kakinada
„ Seshachala Sarma, C.,	A. D., Rayadrug,	A. D., Alur
„ Sundara Rao, P.,	On leave,	Paddy Asst., R. R. S., Tirurkuppam
„ Subramaniam, K.,	A. D., Siyaganga,	Addl., A. D., Srivilliputhur
„ Srinivasan, B.,	A. D., Udipi,	Journal Asst., (Kannada) Office of D. A., Madras
„ Srinivasa Rao, P.,	Special A. D., Manures, Narasapur	A. D., Chidambaram
„ Sakharama Rao, J.,	Asst., in revision of weeds book of S. India,	Asst., in Botany, Coimbatore
„ Venkatapathi, T.,	Botany Asst., Coimbatore,	A. D., Kollegal
„ Venkatachalam, K. M.,	A. D., Chidambaram,	Addl., A. D., Cotton Rice Fallow Scheme, Chidam- baram
„ Vaidyanathan, N. S.,	A. D., Tindivanam,	A. D., Manjeri

Appointment

Sri K. S. Basappa, B. sc., (Ag.,) is appointed as upper subordinate and is posted as Agricultural Demonstratore, Dhone (Kurnool District)

THE MADRAS AGRICULTURAL JOURNAL

Hints to Contributors

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

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

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

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

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

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

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

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

Graphs: Graphs should be drawn in Indian ink on co-ordinate paper ruled with blue lines. Any portion which is desired to appear in the reproduction should be drawn over with Indian ink.

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

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