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Meteorology and Agriculture

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Introduction : Agriculture is being revolutionised by modern science. Weather Science has its own important part to play in the development of scientific agriculture. Scientists have evolved faithful and highly reliable instruments to record the minutest changes occurring in the weather conditions, both above and below the soil and also in different strata of the atmosphere. Exhaustive weather data, collected in a net work of meteorological observatories, enable the meteorologists to prepare weather maps and predict weather conditions a day or two in advance. Recently. the meteorologists have directed their research to the influence of the weather conditions on the crops under cultivation. Dr. L. A. Ramdas and his colleagues are the pioneers in this field fo far as India is concerned. The Central Government and the various Commodities Commities and the Madras Goverment are financing the 'All India Co-ordinated Crop Weather Scheme' and the experiments are in progress at six selected typical agricultural tracts in the Presidency.

Agricultural Meteorology in Rural Environments : Because of the irregular and erratic nature of monsoon development, the farmer is extremely interested in knowing whether precipitation will be normal and season favourable for his cultural operations. It is for this reason that he often consults Indian almanacs, which predict, in some detail, rainfall in the light of astronomical calculations based on the position of stars in relation to moon. Those who visit the agricultural tracts and talk to the farmers will not fail to observe two things. One is the hopes and fears regarding rainfall and the other is the importance, which older and experienced farmers attach to rains in a particular 'KARTHI'—(a term related to the twelve signs of the Zodiac and the twenty seven stars–as a means of predicting weather and rainfall). Every tiller of the soil is a weather prophet of some ability. In fact, in the early hours of the morning he daily scans the sky and notes the direction of wind and then pictures to himself what the weather for that day will be, so that he can plan his field operations to suit the weather conditions. If he were unaware of the influence of weather condititions on the crops he raises, he would certainly not do so. Inspite of his many ignorances he is fully conscious of the fact that weather is the factor, controlling his daily activities in the field. No farmer takes the risk of sowing if torrential rain is expected within a period of twenty four hours and thus waste his

seed material and labour. No farmer wants to irrigate his crop if the prospects of getting a rain in a day or two are really bright. Labour saving is his main criterion. No farmer will venture, particularly at the time of harvest, if weather conditions appear to be definitely uncertain and unsafe. He knows that he must have clear weather conditions at the time of harvest.

This awareness is perhaps the reason for a good number of proverbs among the rural population, embodying the influence of weather on the cultivated crops. As John Russel has said "A proverb is one man's wit and all men's wisdom." Long before the man studied the science of weather, there were people, who, from local observation, could often predict the weather. Many of these observations are now available in different languages as apt sayings, proverbs or little couplets. Though all of them might not hold a great deal of truth, yet they do certainly provide interest and advantage for examining scientifically some of them. A start has been made to render some weather service to farmers with the kind co-operation of the All India Department with effect from 1—7—45. There are seven Regional Forecasting Centres in India. They are at Calcutta, Delhi, Lahore, Karachi, Bombay, Nagpur and Madras. At present, a regular feature of the rural broadcast programme is the issue of the Farmers' Bulletin in the regional languages. Further, certain leading dailies publish weather forecast. But as matters stand at present, the weather news do not reach the home of the farmer.

Suggestions for Improving Weather Service: (i) Co-operative organisations, as in America, can play an important part in the efficient dissemination of the weather news. No Government can maintain more than a few observatories of the first, second and third class types. Thousands of observatories of third class type can be run, as in England, by voluntary workers. Very valuable data can be collected by them and communicated to the Central Meteorological Office, which issues daily weather forecasts.

(ii) Agriculture is the mainstay of the Indian population and its success or failure depends mainly on weather. Hence, it becomes logically imperative that every educated man must be conversant with the fundamentals of weather science. For a man to become a village official it must be made compulsory that he should pass the preliminary examination in the study and interpretation of weather charts and underatanding the weather forecasts as announced in the papers and by the radios.

(iii) The Government can easily arrrange for more detailed regional weather bulletin broadcasts by the regional Radio Stations at Madras, Tiruchirappalli, Mysore, Trivandrum Kozhikod and Vijayawada. Each group of villages within a radius of one mile is to be provided with a radio set. The village Karnam or Munsiff must be made responsible for

further spreading the news announced by the radio. By suitable legislation, if necessary, wide publication must be achieved in actual practice. Every organisation, whether official or otherwise, should help the State to this end. Press also has got its important role to play in this national weather service.

(iv) The Government can financially help the voluntary orgnisations involved in weather study. These organisations have to be continuously vigilant in their observations, since then only they can be successful, as changes occur so rapidly in the weather. The really valuable information can be merited and awarded a merit bonus. These organisations are not to ignore the phenological side of weather.

(v) On co-operative basis and with the support of the Government indnstrial workshops are to be started in suitable localities to manufacture the required essential thermometers, windvanes, anemometers, rain-gauges and screens. As it is, the initial cost of setting up an observatory is very high. It can be reduced considerably if these workshops function efficiently with suitable efficient staff.

Conclusion: The State and the Public should take co-ordinated measures to run weather service on a par with 'Postal Service'. In addition, the farmers should be posted with all details as to what the adverse weather conditions are for their particular locality with special reference to everyone one of the cultivated crops. This valuable information can be furnished to them, crop-war, by enabling them to have for reference, Crop Weather Calendars in regional languages. Steps in this direction have already been taken by the Director, Agricultural Meneorology, Poona, with the kind co-operation of the various Provincial Agricultural Departments.

Some Experiences with Gammexane (B. H. C.) and D. D. T.

II. *The Garlic and onion thrips — Thrips tabaci*

By

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Garlic is one of the most important spice crops in this Province but its cultivation is restricted to certain parts of Coimbatore, Madura and Bellary districts, probably because of its being able to thrive only under the peculiar envionments prevalent in these tracts. At Bellary only one crop is raised from October to January while at Coimbatore there are two seasons, the first one from June to September and the second