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Research, Education and Propaganda in Relation to the Improvement of Chewing Variety of Tobacco in Madras State

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It is a recognised principle that to agricultural workers in all walks of life whether in the field or in the laboratory, the most essential function is to help the cultivators to meet their needs. Research, education and propaganda in the field of agriculture have hitherto progressed in a co-ordinated manner in dealing with the problems of the cultivators. However, the chewing variety of tobaco is one which has not received due attention in Madras State until very recently. The object of the paper is to present and discuss the different problems which need such a co-ordinated effort of all concerned to impart practical knowledge to tobacco cultivators in the scientific method of cultivation.

In Madras State the total area under tobacco extends to about 43 thousand acres of which varieties other than Virginia and *Nicotiana rustica* occupy nearly 35 thousand acres. Of the many types of chewing varieties grown, that which is known under the trade name of Meenampalayam tobacco commands a better market value on account of its intrinsic taste and a roma which is attributed to the nature of the soil and the brackishness of the well water invariably used for irrigation. As more attention is being concentrated on the aspects of all crops to improve the over all production for increasing the national output, it will be but fitting that the scientific growing of tobacco should also be taken up not only for increasing production and improving the quality but also to rectify and overcome the defects in other respects. Although an extensive field has been covered in the cytogenetical studies of the different species and varieties of tobacco, very little work has been done on the problems related to the cultivation of the chewing variety of tobacco. Of the four common varieties, Vazhaikappal is most popular one cultivated to a large extent and the next best is Vattakappal. Erumaikappal and Surikappal are cultivated to a limited extent. Information on

the classification of these varieties and their inherent response to different agronomical practices is yet inadequate. The nursery practices have not been standardised though seedlings are raised on well manured plots usually after a crop of Ragi. Mortality of seedlings is fairly high in the nursery beds, due to diseases especially in years of heavy rainfall. As a result, not only the growth and vigour of the seedlings are affected but also the transplanting is delayed. The optium age of seedlings necessary for transplanting and better methods of seed bed management to get healthy and vigourous seedlings are problems worth investigation. Planting commences in September and continues up to the end of December, the planting being adjusted according to the previous crop which is either Ragi and early harvested crop or Groundnut and Tenai which occupy the fields for a longer period. But mid seasons plantings are said to be the best for ensuring good yield and quality and comparative freedom from pests and diseases. Dewy weather, which usually sets in during the growing period of the mid season planted crops, is said to be helpful for including better growth, flavour and taste. Though the above is in general the experience of the cultivators, there are no regular observation recorded in the different varieties under the varying periods of planting and soil conditions. The same is the position with regard to the cultural practices followed. Intercultivation upto a certain period of growth is very essential for the proper development of leaves. Topping is very essential for the proper development of leaves. Topping is usually done at a height of about 2' leaving about 7 to 10 leaves normally. The relationship of topping at different heights and at different stages of growth of the crop to the ultimate development of leaves and incidence of pests and diseases are yet to be studied. The different methods of planting i. e., on ridges and in beds may influence the main field management and incidence of pests and diseases. There is practically no authentic information regarding the varietal response to different spacing and topping height in relation to the nature of the soils. Results of experiments done at the Hookah and Chewing Tobacco Research Station, Pusa (Bihar State) indicate that topping at 10 leaves favours better yield and quality. Closer spacing of 2' between plants spaced 30" apart has given higher yield and good grade leaf. Similarly from the results of trials conducted at the Cigar and Cheroot Tobacco Research Station, Vedasandur (Madras State) it was found that higher topping and closer spacings gave significantly higher yields than lower topping and wider spacings. Topping at 16 leaves and spacing at 24" were not significantly better

in yield than 14 leaves topping and 27" spacing. In the cultivation of Meenampalayam Tobacco greatest importance is paid to manuring. Heavy doses of cattle manure upto 50 cart loads are applied per acre, either to the preceding crop or directly to tobacco before planting, if the previous crop happens to be groundnut, Tenai etc.,. Sheep-penning is also a practice followed by some which is reported to induce better quality and taste in the cured product. Some of the more advanced cultivators apply (over a basal dose of 10 tons of cattle manure) about 2 cwt. of Ammonium sulphate and 150 lb. of Groundnut cake. Potassic fertilizers are rarely used, as brackish water from the wells invariably used irrigation is said to supply the required quantity of such salts to the crop. The effect of application of green manures and bulky organic manures at different levels individually and in combination and fractional application of concentrated manures for the standing crop to the final yield and quality should also be studied. There is an opinion current among the cultivators that inorganic fertilisers tend to affect the keeping quality of the cured produce although they increase the yields. There is no experimental evidence to substantiate this belief. This is an important item to be investigated as it is concerned with the market value of the crop. It is the age long experience of the cultivators that irrigation with brackish water from the wells increases the yield and quality of the cured product. On the contrary, sweet water from any source either wells, canals or tanks has been noted to impart paler colour, lower density of the leaves and inferior flavour and keeping quality though it has been found possible to reduce the effects of sweet water to a good extent by sheep-penning the lands before planting. The problem of irrigation in the tobacco tract in relation to soil and season require an organised study. Sun curing is commonly adopted for this chewing tobacco. Though the agronomic practices determine the yield and quality of the crop to a good extent, the final texture, colour and aroma depend upon the proper stage of harvest of the crops in relation to the prevailing weather conditions and care taken in the final curing under shade in the godowns. The curing consists in opening and rearranging heaps or curing stacks at regulated intervals depending on the weather conditions and the progress in curing of the leaves in the stacks from time to time. But the various processes to be followed for ensuring high quality in tobacoo have not been worked out in detail or standardised for the different varieties. Detailed work on this aspect will be taken up after the return of the officer of the Madras Agricultural Service who has been deputed to

Ceylon for necessary training in cultivation and curing practices of the Jaffna variety. The main pests on the crop noted are the plant lice, leaf-eating caterpillar and the stem borer. The "frog-eye" spot disease is the one commonly seen and in certain years it has been noted to affect the crop badly resulting in poor growth and inferior quality. Effective remedial measures or prophylactic applications have to be found out which should in no way affect the quality and taste of this chewing type. Here again, there is a real need to carry out adequate investigations on various aspects in relation to the occurrence of pests and diseases, so that we may be able to programme and test out different remidial measures before recommending suitable methods for general adoption.

From the above brief survey, it is quite obvious that a vast field of research lies here, wherefrom practical results may be expected in a number of aspects closely related to increased crop production. A study of the effects of the prevailing weather conditions on the yield and quality of the crop should prove also another useful item of work. Besides, the applicability of the age long practices in vogue have to be examined for the furtherance of the tobacco industry. The excise revenue is also likely to increase considerably as a result.

With the opening of the Lower Bhavani Project in Coimbatore District another problem that has cropped up is regarding the suitability of canal water for growing tobacco. The alleged inferior quality of tobacco grown under sweet water compared to the brackish water from the wells has to be investigated. The urgency to take up the above study is apparent from the fact that with the supply from the canal, the tobacco crop can be irrigated at a much lesser cost than that usually required for irrigation from the wells. Further, of late, opinion is gaining ground with some cultivators that due to the seepage of water from the canal into the wells in the ayacut; the brackishness of the well water has got reduced, resulting in poorer quality of tobacco. This is a problem which is bound to vitaly affect the area grown with tobacco in this tract and also the excise revenue in the long run. The defects noted in the canal water will have to be got over by supplementing the canal water with suitable salts to produce a crop comparable in quality and colour to that grown with water from the wells. With the timely assistance rendered by the Indian Central Tobacco Committee, problems related to the possibility of producing a quality crop with canal water supplemented with potassic salt similar to that usually obtained

previously with well water, manuring of tobacco and time of
are being studied at the Agricultural Research Station, Bhava
Late in 1956 the problem was taken up and the results obtair
in favour of obtaining superior yields with better quality b
addition of suitable salts to canal water and by judicious man
A significant increased production of 46·9% of cured leaves has
recorded in plots manured with 400 lbs. of ammonium sulphate
the plots that received with 50 cart loads of cattle manure .
The trial will be repeated in the subsequent years to ob
confirmatory results.