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Fodder problem in Madras

By

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Introduction: While we are making an all out effort to grow more food and have subsidies for well sinking, grand irrigation projects, an organised supply of manure and seeds, in fact all ways and means that we could muster with all the scientific knowledge at our command to produce enough food for the human population which is certainly a very right thing, have we thought sufficiently of food for the 'Dumb Millions' which form the *backbone* of our agriculture? Fodder scarcity has been more or less a permanent factor in Madras Presidency. During the last one or two decades the severity has been felt more, due to the diversion of the area under food crops into more paying money crops like tobacco, cotton and sugarcane. To add to this, the continued failures of rainfall have resulted in the drying up of the grasses in the grazing areas thereby producing a most alarming state of affairs. How best can this fodder problem for the cattle be faced and how speedily can we avert a crisis which has almost been reached!

Sources of Fodder: 1. *Food Crops:*— In most places the cattle are dependent on the straw of cereal crops like paddy, cholam, maize, cumbu, ragi etc., after the harvest of the grains. While paddy straw is extensively used, the straw of the millets serve as a very important source of fodder. Most of them are capable of cultivation under varied conditions of soil, climate and altitude. The leaves, shoots and pods (bhusa) of all the pulses are eaten by animals and are nutritious feed. In blackgram, green gram and horsegram the whole plant after the harvest of pods are stacked by ryots specially to be fed to animals. The vines in sweet potatoes and the refuse in vegetable crops are also valuable as cattle feed.

It is therefore abundantly clear that the food crops like paddy, millets, pulses, sweet potatoes, vegetables etc., serve to a great extent as fodder crops and efforts to increase the area under them will have to be augmented for many reasons. The tendency to take to money crops must be controlled to limited extent if we have to be self-sufficient in food and fodder.

2. *Fodder crops:* Fodder crops like cholam and maize can be raised in a short period of two to three months in rotation with other

crops and they yield 15 to 25,000 lbs per acre. Further the land is released for raising other valuable crops after the harvest of the fodder. Superior fodder strains of cholam namely Co. 10 and Co. 11 with juicy stalks have been evolved by the Millet Specialist and these are becoming popular with the ryot. On large holdings areas of 25 to 30 cents left permanently for crops like Guinea grass and Napier grass supplement to a great extent the green forage which is very necessary for cattle especially the milch cows. About 8 cuttings can be taken in a year if good irrigation facilities are available and acre yields of 80 to 120,000 lbs. of green fodder can be obtained annually.

There is a great possibility of developing and increasing the area under fodder crops in the vicinities of towns and municipalities where the sewage water is often allowed to go to waste. The experiences gained at the Municipal Sewage Farm at Madura show that guinea grass is the best suited for the purpose.

3. *Pasture grasses and Legumes :*—The village cattle are often let loose to find their own feed and they depend upon the stray clumps of grasses left here and there. Grazing facilities are not provided in most of the villages except in the tracts famous for the breeding of Kangayam, Ongole and Alambadi animals. Only very small percentage of our animals use forest grazing. There are possibilities of getting more fodder by improving the constituents of the existing grazing areas. The field bunds, roadsides, porombokes often outgrown with useless weeds and scrub jungle in many localities can be turned profitable by introducing the suitable grasses.

Indigenous grasses :— The problem of finding suitable grasses for the various parts of the Presidency is being tackled in the Botany Section here for over a decade. From over a hundred speices of indigenous grasses collected and tried, a dozen of them have been selected since being good for fodder purposes. The area under these grasses have been multiplied to enable supply of planting material, With the co-operation of the Madras Forest Department many of the grasses were tried in the forest areas and they have been found to be very successful. *Cenchrus ciliaris* is the best for soils rich in lime; however it comes up very well under most soil conditions. It is the staple pasture grass for the Kangayam breed of cattle. *Iseilema laxum* and *I. anthephoroides* are important grasses of the Ongole tract. *Sehima nervosum* is a favourite hill species.

Exotic grasses :— Some foreign types tried here have also been very successful. *Panicum antidotale* (the Australian Grass) is best suited for the dry arid conditions of the southern and eastern districts and it

remains green even in summer. The water grass, *Brachiaria mutica* comes up well in places with excessive moisture and as such is the best grass for reclaiming marshy areas. Trials here and at Koilpatti have shown that this is very well suited to be raised under irrigation. The giant star grass, *Cynodon plectostachyum* introduced from Africa as a good spreading habit and as such is becoming popular both as a fodder and soil binder. *Pennisetum polystachyon*, the thin or dry Napier, is getting established in west coast where it has been introduced.

Legumes:— Much has to be done in the selection and introduction of the proper perennial or annual legumes as mixtures in pasture *Phaseolus sublobatus*, (pillipesara) and *P. aconitifolius* (dew gram) are sown along with the *Cenchrus ciliaris* in pastures in Kangayam area. Pillipesara is the most popular leguminous fodder in Kistna, Godavary and Tanjore. It stands two or three cuttings and is adaptable to adverse conditions. After harvesting the green leafy matter for fodder the rest is ploughed as green manure in paddy fields. Sunnhemp is another useful dual purpose crop serving as fodder and green manure in cultivated field. The trials conducted here with over 20 legumes showed that *Glycine javanica* a wild ally of the popular Soyabeans collected locally to be a good spreading, perennial plant, drought resistant nutritious and relished by cattle. Two more promising legumes *Centrosema pubescens* and *Teramnus labialis* are under trial.

4. *Forest grasses:*— Forest areas are important sources of fodder in villages situated near by. According to the forest reports 1938 of the total area of 15,124 sq. miles of forest under the Departmental control about 11·55% were left for grazing. The total area of 3,272 sq. miles under forest panchayats were also under grazing. More attention has still to be paid for developing these grazing areas. Control grazing on block systems and rotational grazing have to be strictly followed if the areas are to provide enough fodder. More palatable and nutritious species of grasses have to be introduced to make them more productive. Above all reserve forest can contribute appreciable quantities of hay; though the cost of transport of these hay from the remote areas in the forest is a complicated problem, trials as pressing the hay into bales or '*brickettes*' have to be undertaken. Forest grasses can also be converted into silage in forests during flush growth period and sent down to villages and towns in summer when fodder is not available.

5. *Fodder trees:*— In times of severe and continued drought the leaves from some of the trees allieviate the famine conditions to a great extent. There are a large number of trees the leaves of which are readily eaten by cattle, sheep and goats. The analysis of the leaves of a few of these trees for feeding value have been found to be very good and as such

efforts have to be taken up in the planting of these trees which are useful in many ways to man and his animals. For the varied climatic conditions and localities there are a good selection of them which can be successfully grown.

6. *Utilisation of other sources :—* (a) *Non-leguminous herbs and shrubs :* While the legumes in general are greatly favoured as fodder, there are a large number of other plants such as the different Amarantaceae, Commelinas etc., which are much relished by cattle. Every effort must be made to utilise the weeds of cultivated fields and waste lands to the best of purpose. Nothing should be allowed to go to waste. Extensive trials have to be made in finding out the possible uses of our vegetable wealth which are often neglected or have not received the proper attention due to them. Some plants may be useful in reclaiming areas not suitable for cultivation as the saline or alkaline areas. In Australia species of *Atriplex* have been successfully grown in alkaline areas as browse plants for cattle, In Russia the sunflower (*Helianthus annuus*) has become a very important multipurpose crop suited for fodder, silage. oil, and oilcake. Hence there is ample scope and possibilities for converting much of so called waste into wealth.

(b) *Hay and silage making :—* With the rainfall the grasses are available in plenty in many places ; but much care is not taken to store them for a future necessity and this is specially the case in areas adjacent to forests. The superfluous fodder can be converted into either hay or silage. The best hay is obtained by harvesting the grass just before flowering and drying them. Most of the grasses tend well for silage also and the particular aroma created during storage is liked by animals. This method is best adopted in areas where heavy rains do not allow drying up of the cut grass. Fodder maize which gives 15 to 18,000 lbs., of green matter in about 45 to 60 days under irrigation is best suited for conversion into silage.

(c) *Avoiding the waste of many of the straws :—* It is often noticed that a good portion of the fodder fed in the stall is wasted by animals if thick culmed as in cumbu and cholam. A lesson has to be taken by the South Indian ryot from North India where wheat and oats straw are cut into small bits by chaff cutters and fed in baskets or well constructed feeding troughs. Power driven chaff cutting mills are quite common in many of the towns in the North. Though this is adopted by a few ryots here, it has to be popularised to minimise waste.

(d) *Processing* of less palatable fodders like the straw of Thalaivirichan cholam, ragi, tenai and many other forest grasses and converting them into nutritious feed by various chemical treatments have to be undertaken to utilise these straws going to waste.

CONCLUSION

We have sufficiently indicated the gravity of the problem and the methods of tackling them. The best of grasses, legumes and fodder trees should be grown in all agricultural research stations and in the fields of enterprising ryots so that the public may come to know about their usefulness. Free supply of seeds will be an inducement for the ryots to take up the cultivation of these fodders. Utilisation of the available material to the maximum extent and the avoiding of the loss by wastage should be other concerted measures. One more possibility to find enough fodder is by the elimination of the unproductive animals; while this is a controversial issue much thought and planning is necessary.

Some problems on Banana Breeding

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The province of Madras has an estimated area of 1,36,455 acres under bananas, with an annual production of 11,33,000 tons of fruits. Added to this the banana has also numerous other virtues, which entitles it to be classed as the most popular fruit crop in this province. It thrives from sea level up to 5,500 feet and is as equally at home in the arid hot plains as in the tropical humid zones. With a capacity to yield a quantity of food per acre excelled by none and of a type valuable to infants, invalids as well as for all normal persons the banana assumes a special importance in the present context of intensified food production. It is, therefore, appropriate that the Government of Madras, in conjunction with the Government of India have decided to establish the All India Banana Research Station in our province, in the Tanjore District.

In a crop like the banana which has enjoyed popular estimation from time immemorial, it is to be expected that there would be a very large number of types and varieties with special adaptation for different soil, climate or cultural conditions. This is exemplified by the good yields of Sirumalai and Virupakshi on the Lower Palnis and of the Red Banana at lower elevations, while the very same varieties form no match in yielding capacity or quality to the Chakkrakeli of the Circars, Vamanakeli of parts of Rayalaseema, or the Rastali in the southern parts of the province. Thus the desirable characteristics which should go to give us the ideal banana, are now dispersed over a large number of varieties, types and