

Science for the farmer

by

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Any one who wants to progress and improve upon his efforts must develop the habit of considering his actions objectively and critically. Such objective self-criticism is not easy. Knowing what others think of one is a great help. I know, because I have been the object of forthright and downright criticism during the last ten years I have been farming, and the criticism has been adverse without exception.

First, my purchasing a sandy waste-land for my farming venture instead of fertile land was (and, probably still is) considered extremely foolish. Latterly I have been considered crazy because I have taken to cultivating grass as a crop. These people derive confirmation of the correctness of their criticism from the absence of any appreciation of the need for pasture research in our State Agricultural Department.

In 1941; Ware, in an article "The cattle of India and their development" stressed the need for increasing the acreage under fodder crops. Figures given of the area of cultivated land per head of bovine population in India are 1.8 acres as compared with 3.4 acres in Great Britain, 4.5 in New Zealand, 31.4 in Canada and 24.9 in U.S.A. The I. C. A. R. made a belated start in grass research only in 1947. Few States departments have made even a tentative beginning.

The immediate food requirements of the country, no doubt, demand a rapid increase in the production of cereals. For this purpose our governments have taken the right step in encouraging increased outputs with a heavy use of synthetic fertilisers. What the effect of such strong stimulation of cereal crops by synthetic fertilisers will be in the long run upon soil structure and fertility has not been assessed. The experience in other countries of continuous and heavy cereal cropping with artificials has not been very encouraging. Future development in this country should be along lines laid down with a view to the permanence of the whole farming system and not solely from the point of view of immediate production of commodities saleable at the highest price for the time being. We pay far too little attention to soil-building farming systems, with the result that the soil is being destroyed by taking everything off and returning to the land little or nothing that will add to the humus content.

That grass as a crop can be as profitable as any other was realised by European farmers centuries ago. The inclusion of a grass crop in the crop rotation and of livestock to feed on the grass and help in maintaining soil fertility is a common feature of European agriculture. So much so that the E. Bruce Levy, the New Zealand expert, (New Zealand is a country whose agriculture is almost cent percent pastoral) remarks "In my recent trip abroad, perhaps nothing impressed me more than the part the animal played in building up and maintenance of soil fertility in Great Britain and Europe generally" and he adds a remark which is particularly applicable to our country - "stock in large numbers inadequately fed over a long period of time tend to ruin the country"

It was only after the first world war that the U. S. awakened to a realisation of the value of cultivated grass. Since then the awakening has been so thorough that today grass-land farming has become an important part of agriculture in the United States, and farmers keep a larger part of their crop land in grass to be rotated with arable crops, and all grass land is being made more productive by sowing better species and strains, by fertilising and other improved practices while practically all the States are making grassland farming a major part of their agricultural research and extension programmes.

In all under-developed colonial countries in tropical and sub-tropical regions under the control of European nations, especially the English-speaking ones, it has been the aim of agricultural experts to develop some system of alternate husbandry or mixed farming with grass as the pivotal crop for building up and maintaining fertility to ensure a stable income. For many years pasture research has been, and still is being conducted, and much advance has been made in colonies like West Indies, Anglo-Egyptian-Sudan, Nigeria, Gold-Coast, Zanzibar and S. Africa.

The reason for all this pasture research is obvious to those who study agricultural development in foreign countries. Any system, even mono-culture, will pay on very fertile soils but the area of such soils is very limited and is only a small fraction of the total area of cultivable land in any country. The major part consists of land which can be made very productive only if a suitable scientific system of farming is adopted which will provide a good and stable income while providing adequately for building up and maintenance of fertility. Alternate husbandry has been found

to be the best system so far devised for such marginal and sub-marginal lands. Alternate husbandry, however, cannot be adopted everywhere. It can be established only where climatic conditions, mainly humidity and rainfall, are favourable, or in arid and semi-arid regions where irrigation is possible.

This system of farming is entirely suitable for the whole of the coastal area comprising the South Konkan, S. Kanara and Malabar. For the sandy coastal belt this, I believe, will prove the only system which can make the cultivators of the infertile sandy soils as prosperous as the cultivators of the most fertile tracts of other districts. We have here the necessary unfailing rainfall while over much of the area supplemental irrigation is practicable. The temperature practically never goes above 100°F. The two factors which man cannot alter, viz., rainfall and temperature, are favourable for the practice of alternate husbandry. The other factors are within man's control.

There are now manifold forms of alternate husbandry but the essential common feature to all of them is the production of certain crops for human consumption or sale in combination with soil-improving forage crops for animal feeding. The problems are (1) Have we the soil-improving herbage species which will make it remunerative to grow grass as a cultivated crop?

(2) Have we the animals to be incorporated in the farm enterprise which have the physiological attributes that will make it a paying proposition to feed them with the more nutritious grass or forage crops produced at a greater cost than natural grazing and cereal straws?

(3) If the answers to both these are in the affirmative the problem still before us will be whether our agriculturists can be persuaded that the introduction of some grass-legume mixture or a soil-improving forage crop is desirable and feasible for the purpose of supplying a source of animal fodder and also for the purpose of improving the structure and therefore the fertility of the soil, both by root action and through the increased amount of animal manure which would be available. The production of more fodder from arable areas might also relieve the strain on grazing grounds which would thereby be given an opportunity to revive.
