Mixed Farming

BY

C. R. TURBET

FORMERLY SPECIALIST IN ANIMAL HUSBANDRY (PRODUCTION)

KNOWLEDGE of the value of mixed farming as a means of providing social security to small farmers is now widespread. By adopting a diversified system of farming, the farmer is able to establish himself in a happy state of independence in which from the products of his farm he is almost if not entirely self-supporting in a well-balanced food supply for himself and family as well as for his livestock.

From the proceeds of the sale of cash crops he obtains funds for the purchase of clothing, household furniture and equipment, extra food, new livestock, material for farm improvement and the means of educating his children, the providing of entertainment and vacation and social security.

By mixed or diversified farming is meant the inclusion in the operation of the farm a well-balanced use of several kinds of livestock on the one hand and on the other the cultivation of several kinds of crops. In regard to the latter, it would be well for the farmer to plant both permanent and annual crops.

Permanent crops should include fruit trees as well as economic trees providing saleable products, fodder, firewood, fencing material and shade. In setting out the farm much thought is needed so that the permanent trees may be placed to the best advantage. They may constitute fence lines and so provide economy in fencing, wind breaks or shade trees and at the same time improve the appearance and comfort of the farm for man and animals. If fruit from the orchard is to be harvested, the orchard needs to be planted close by the home for its protection.

The area of a mixed farm in the wet tropics suitable for the care of the farmer and his family, without permanent extra labour would vary from five to ten acres. Of this area about one tenth should be set apart for house, farm buildings, vegetable garden and permanent fruit and other trees, except that trees may be planted elsewhere on the farm such as along boundary lines or for shade.

The kinds of trees planted must vary according to the location of the farm, whether it be in lowlands or uplands, wet or dry zones. A complete list of suitable trees need not be set down but those for which there is great affection should appear commonly in groups of mixed farms. The coconut palm, jak fruit, mango, arecanut and the citrus fruits provide foods for daily use. The kapok, material for his bed.

The vegetable garden will provide much of the daily food requirements and be particularly helpful in creating a ration well supplied with the vitamins when rice makes up the bulk diet. Some perennial plants will be included among those in the vegetable garden.

Among the main crops it will be found that some will be planted with unceasing regularity whilst others will vary according to market requirements. Some crops will be suited to special localities only whilst others may be more widely grown. There will be no doubt, however, that wherever it can be grown, rice will be the staple crop. It is not well to have all one's eggs in one basket and in conformity with the idea of mixed farming a rotation of crops will help towards security of profit and farm maintenance.

The more livestock kept the greater the amount of animal manure that will be available for the maintenance of soil fertility. Good judgment on the part of the farmer and his advisers will be needed in deciding on the livestock carrying capacity of the farm.

A certain area, approximately half of the farm should be set aside for the establishment of grassland for grazing. This area should be fenced and subdivided for rotational grazing if the best is to be got out of the pasture. One has to consider the desirability also of including the pasture land in a system of rotation with land which is being cultivated for crops. Where there has been considerable expenditure in the establishment of pasture in the way of fencing, draining, grading for irrigation and the planting of grass, it will be probably uneconomical to break it up to include it in rotation with crops.

If the farm is stocked to capacity it will carry more animals than can be maintained from grazing. It will be necessary therefore for the farmer to devote some of his arable land to the cultivation of fodder crops for his stock and to obtain grain, particularly for poultry feed although some grain could well be produced and fed as a concentrate to large animals.

If the stock were to be grazed all the time it would be difficult to collect or control the economical distribution and utilization of animal manure to maintain the fertility of his cultivation fields. It is well therefore to provide housing for the stock in which animals may be maintained at night and on very wet days. Bedding in the form of dry grass or straw should be provided both for the comfort of the animal and for the purpose of incorporating it in the animal manure to form humus.

There are two ways of handling the manure problem. One is to clean out the cattle pens daily, removing manure and soiled straw to manure pits for composting or a method described in the *Times of Ceylon* recently by Mr. Spencer Schrader in which straw at the rate of 7 lb. per animal is spread. The manure accumulation for the night is spread out over the old straw each morning and a further 7 lb. of straw per animal spread over the manure. The cattle are grazed during the day and fed about 3 lb. of coconut poonac. The cattle eat some of the straw or hay during the night and the balance is trodden in. The animals are not secured in the sheds under this system but are allowed free movement. Water must be provided in the shed. If 100 sq. ft. per animal is allowed the height of the accumulation of straw and manure will rise about fifteen inches in four months. In that time the underlying material will have become thoroughly decomposed, well compacted and solid. It is said that 10 tons of manure per annum per head may be provided by this method.

There is no reason why several different kinds of animals should not be kept with profit from each and added interest particularly to the family of the farmer. Cattle would undoubtedly make up his principal stock.

On ten acres of well-farmed land, his herd might consist of a pair of working bulls; three cows, averaging two in milk; three yearling animals, progeny of the cows and three calves. This is heavy stocking but can be done with reasonable soil, good rainfall or irrigation and by feeding extra rations.

A male goat and a pair of nannies may be kept on a very small area and be fed largely on surplus products of the vegetable garden. A single sow well housed would be sufficient for the farm. According to the fancy of the farmer and to the availability of foodstuffs, poultry should be kept in large or small numbers. The minimum number kept should be sufficient to produce his own needs in eggs and poultry flesh.

Apart from the manurial value of all his stock and the traction value of his bulls, the cows should provide on the rations consumed sufficient milk to nourish their calves; provide milk, butter and ghee for the family and if they are very good cows a small surplus of butter fat for sale. In addition, there should be profit from the sale of the animal surplus brought about by the birth and growth of three calves. The animals may either be sold under two years old or be used to replace adult stock. In the latter case equivalent adult stock should be sold. Under no circumstances should the animal increase be allowed to accumulate on the farm to bring about overstocking.

A pair of she-goats may be expected to produce a pair of twins each twice annually or thereabouts. There is good profit in this, whether the progeny are sold or consumed as food on the farm.

A single sow by producing two litters, averaging six survivors each, yearly will probably turn out to be the most profitable asset on the farm. Trouble comes when the small farmer fascinated by the profit from one sow decides greatly to increase his herd. He then comes up against the difficulty of supply from his farm sufficient highly nutritious food such as is required for pigs. Malnutrition then affects all the pigs and production becomes unprofitable.

To a mixed farmer poultry are most essential for the maintenance of health and good physical development of his family. They add interest to the farming and help to use up surplus food, converting this into profit. A certain number of mixed farmers will do well to develop the poultry farming side of his operations if sufficient food can be obtained and if a good market exists within marketing distance.

A useful development in a community of small mixed farmers would be to encourage each to own a small cream separator (the smallest made, separating fifteen gallons of milk per hour). The cream, produced at each farm, could be sent to a central factory (co-operative) which need not be large, and there converted into butter for sale as butter or for further conversion into ghee. The scheme is capable of considerable extension by multiplication of groups so that as it gains popularity the qauntity of ghee produced becomes sufficient to be classed as a commercial industry. Such a scheme has succeeded in Tanganyika.

The idea of co-operative marketing may be extended to all of the products, both plant and animal, produced in a mixed farming community. It follows that a central village with market place and social amenities will spring up. It should be anticipated and receive the attention of a local town planning committee with an expert adviser.

It would be folly for a peasant farmer to set himself up alone in an isolated locality and expect to do well as a mixed farmer. Success is more likely to come to a group of farmers, who by their united efforts are able to clear substantial areas of jungle, drain it or irrigate it as the case may be, put in roads and provide social services.

Considerable capital is required also and few peasant farmers will be found in the beginning with sufficient capital to do all the things mentioned above. From some source funds should be made available for development and subsistence until the farmer commences to obtain income. Subsistence allowance may then cease but advances for development should continue under the watchful eye of a Government Officer (Agricultural Officer) as long as good development is taking place and the farming operations are conducted on an economical basis.

Associated also with each community of mixed farmers there should be a demonstration farm. This should in the first instance be pushed ahead and completely brought into production. It will give the farmers an ideal to strive for. Each single item of equipment, housing or development might be looked upon as a unit. The beginner strives to provide one unit for his own farm and then another, so that in the end he has a farm as well equipped as the demonstration farm.

In regard to the latter farm although full expenditure to what might have appeared an extravagant extent would be warranted to bring it on the early stages, subsequently the farm should be conducted on strictly economical lines. Full records should be kept for all items of expenditure and income so that farmers may be warned early of unprofitable undertakings.

Expert advice could be made available to new farmers in setting out their farms which should be well planned from the beginning. Such points as accessibility, possibility of putting in feeder roads, best site for the house to avoid flooding or to provide good drainage, wind breaks, water supply, land contour for draining or irrigation. The beginner also should start with good stock and plant material or seed.

There will be much that will go wrong in the early stages of development and some farmers will become disheartened. At this time they will need encouragement and the advice of well-trained and experienced officers. Epizootic disease may break out in their stock or more insidious nutritional disease or mineral deficiency may retard growth and development. Plant diseases may occur or fire or flood may cause disaster. These are the trials of pioneer farmers. Courage on their part and sympathetic and practical assistance from Government is needed at such times.

From what I have seen there does not appear to be land in the uplands suitable for development of mixed farms which is not already under some form of cultivation. Thousands of square miles of country, flat to gently undulating occur on the lowlands and which are now uninhabited. The land is fertile. By the provision of water, the control of diseases such as malaria by mass settlement, by the provision of amenities and by the encouragement of a high standard of living, rural life in the lowlands could undoubtedly be made attractive to many thousands of peasant farmers.

I trust that the picture I have painted is not too Utopian. To me the state of rural happiness described is a goal to strive for.