

INTRODUCTION.

Two great problems confront the tropical areas of the world. The first is the enormous increase in populations primarily brought about by improvements in preventive medicine during the last half century. The second is the production of food for the ever-increasing populations.

Over-population is the starting point for the vicious circle of food shortage, surplus labour, low wages and low productivity. To convert the vicious circle into an ascending spiral, it must be attacked at two points. Control over the rate of population increase must come through some form of birth control. This is the field of the Doctor and Sociologist.

Industrialization is the oft-quoted panacea for the problem of surplus labour. A glance at the history of any industrialized country will show that before industrialization began, or indeed could begin, agriculture was as a firm basis of permanent cultivation with sustained or rising yields. The only temporary exception was the pioneering phase in the development of the Great Plains of North America. Food for the whole population was produced by only a proportion of that population, releasing labour with which to establish industry. In short, agriculture moved away from subsistence farming. New land was cleared, improved techniques found by trial and error, and more food was produced to cater for the demands of an increasing population. Industry prospered, enabling Britain to import cheap food. Thus we have the ascending spiral.

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In many tropical areas and in Africa in particular, increased demands for food have been met by clearing and cultivating new land rather than by the adoption of new techniques. Land suitable for cultivation is limited, so this process cannot go on indefinitely. Bad practices combined with the enormous potential for, and actual, erosion aggravate the pressure on the land. Saturation has already been reached in many Kikuyu areas in Kenya where over population and erosion, hence land hunger, is one of the basic causes for the present troubles in that country. Thus we have the vicious circle of over-population, shortage of food, low wages and low productivity.

The standard of living of a country is reflected in the proportion of food consumed that is obtained from animal products. The F.A.O. Year Book (1953) indicated 30 - 40% for the prosperous nations of Europe, 18 - 42% for North and Central America, 7 - 10% for Africa, and 2 - 12% for Asia. A country with a high level of animal protein intake produces people of superior mental stamina and generally better physique than one with a lower level.

The shortage of protein and especially animal protein is the most pressing nutritional need in the tropics. Foods high in carbohydrates are relatively easily produced. Techniques for the production of grain crops are basically simple and can be mechanised easily. The conversion of these foods into animal products is generally not very efficient. The basic process is the condensation of plant protein into animal protein. The most efficient "condenser" is the laying hen. In temperate areas, its efficiency is quoted at approximately 25 - 30%. At..../

At the other end of the scale, beef production has an overall efficiency of only 4%.

All young animals have a relatively high efficiency of conversion which declines as they age. Chicks are very efficient. They can be produced easily, cheaply and lend themselves to mass production. Hens and their offspring would therefore seem to supply part of the answer to the protein requirements of a population.

Little critical information is available on the rates of food intake of chicks and hens in the humid tropics. While much is available in temperate zones, it is not necessarily applicable to poultry in the wet tropics. This project is designed to give some information on the basic requirements under these conditions.

Any contribution to knowledge of animal nutrition in the tropics, however humble, may be of use as part of the larger design of improving nutritional standards of both man and his domestic animals.

In both batteries, water was supplied ad lib. in galvanised iron troughs serving six cages each. They were replenished daily and cleaned weekly. Some water flicking was observed. This did not appreciably wet the food.

Feed troughs, each extending across two cages were of deep section galvanised sheet metal with no deep corners to accumulate food. In the larger battery, the deep section of the trough eliminated spillage. No waste from this source was detected. The troughs of the smaller battery were of shallower sections. The inner edge had a lip to prevent spillage. No waste was detected.