

## GROWTH RATES OF CHICKS IN THE WET TROPICS.

There are at present two exceedingly heavily populated centres in the world, namely European and Asiatic. After centuries of compulsion the people of these areas have developed an agriculture which fulfils the one essential condition of continued high production. The maintenance of fertility which this statement implies is obtained in the European system by a mixed husbandry of livestock with crops and the main lesson to be learnt from this agriculture is the importance of the "animal factor". The Asiatic system seems superficially to be radically different from the European in that production is concentrated so markedly on the crop aspect, while cattle are often regarded as sacred ornaments and the flesh of pigs as inedible. However, the Asiatics seem from the first to have understood the value of manures in the maintenance of fertility and man himself has fulfilled the role of "animal factor" in his farming system.

With the recognition of the importance of animals for the maintenance of fertility, it is only right that attempts to improve the agriculture of backward places and peoples should begin with a search for suitable livestock. The unfruitfulness of this search is responsible in large measure for the relatively small improvements which have so far been attained.

Eventually recourse has been made to the livestock of the homelands. Where these have been of Asiatic type, they have contributed nothing to an increased production because this characteristic has never been required of them before. European stock is far more capable of bringing about a higher production but has been unable to do so in the strenuous conditions of the tropics. The tropical environment is firstly noted for the poor quality of its feed. Under-nutrition plays its part of course but is not beyond the reach of a simple remedy. Disease falls into much the same category and animals have to contend with many forms of insidious parasitism. Even for these though there are remedies. The only other major factor which can be incriminated is the climate and by comparison with this the other factors pale to insignificance. Typical symptoms of tropical degeneration have

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been produced by keeping stock in artificially heated chambers, and the difference in resistance of indicus and taurus breeds are now explained away on the basis of heat-eliminating characteristics.

The physiological basis of heat tolerance remains obscure as yet. Attempts to incorporate the characteristic into European stock have aimed simply at obtaining the necessary genes as such by introducing Zebu blood. For lack of knowledge we cannot prescribe a type towards which we should breed and be certain of getting a heat-tolerant animal thereby.

Attempts to determine the nature of heat resistance have consisted so far of the comparison of tolerant with non-tolerant animals and a listing of the obvious differences which occur. The greatest need at the moment is for a systematic fundamental investigation of all the various factors which may be incriminated. However, the first stage would be to define the problem in hand. What exactly is the reaction of the stock to the tropical environment? We must answer this question before attempting to find the causes for the reaction. That is precisely the object of this study and it sets out to answer this question : exactly how do chicks react to the tropical environment of Trinidad? A glance at the summary of the results at the end of this paper will show the provisional answer we have obtained.

Yet we claim to have made no more than a start. The conditions have been too specific to allow of any accurate generalisations. We have been limited to one class of livestock, namely poultry, and we have been limited to one environment in one place. Our measurement has been of only one characteristic, body weight; our interpretation of one phenomenon, growth. Yet weight is a composite reflection of all measurement, growth an expression of all reactions.

Because the study is considered to be the foundation for a great deal of work yet to be done, the elaboration of technique and explanation of theory is perhaps more extensive than is justified by the volume of results. However the technique and recommendations arising from the study must be considered as valuable a contribution as the results. A long journey lies ahead but even the longest must still be accomplished step by step.