

INTRODUCTION.

The importance of green manuring in tropical agricultural practice needs no emphasis here. The maintenance of soil fertility in the tropics is a problem of the greatest importance. Green manuring is an inexpensive and efficacious means whereby this may be accomplished.

Whilst a considerable amount of work has been done in the past on the chemistry of green manuring (24), comparatively little attention has been paid to the practical utilisation of green manure crops.

In accounts of green manuring in temperate climates considerable emphasis is generally laid upon the necessity for turning in the material when green, before any seed is produced. Indeed one is led to believe that the practical utilisation of the crop is the most important consideration. It is generally believed, too, that the improvement of the land resulting from green manuring is of a lasting nature and benefits the yield of several succeeding crops. Good accounts of green manuring in temperate climates are given in publications from Rothamsted (24) (25).

The first serious work to be done in the tropics on the practical utilisation of green manure crops was begun at Ibadan, Southern Nigeria, in 1922. The results of experiments carried out from 1925-1933 are summarised by Faulkner (7). A more detailed account, including the earlier experiments, is given in a bulletin by Lewin (13).

When the Ibadan experiments were begun in 1922 it was expected that the principles of green manuring in temperate climates would be roughly applicable to green manuring in the

tropics. The results however have been contrary to all expectations. Briefly, they show that provided a good cover is obtained the actual method of application of the green manure makes very little difference to the yield of the following crop. Slight differences were evident it is true, but they were never considerable and were usually statistically insignificant. Moreover the benefit obtained from green manuring was found to be largely exhausted by the succeeding crop.

These results obtained under tropical conditions are of considerable interest. The only previous investigations of this nature on the College Farm were carried out by Measures (15) during 1937-38. His results closely agree with those obtained at Ibadan. The First Experiment of the present investigations is a continuation, with certain modifications, of this previous work. Certain other workers have from time to time carried out investigations on these lines. The results of such work, insofar as they are directly relevant to the results of the present investigations, will be considered under the heading of Discussion.

Furthermore, comparatively little information is available concerning the nature and rate of decomposition under tropical conditions of fibrous organic material turned into the soil. It is generally believed that such decomposition takes place rapidly (vide Corbet (5) and Vageler (19) for example). The Second Experiment is intended to throw some light on this important problem.