

## I N T R O D U C T I O N

A change-over in peasant agriculture from shifting to fixed cultivation, seems inevitable in many British Colonies, as their populations increase. The consequent importance of maintaining the fertility of peasant farms needs no stress. A recent bulletin issued by the International Institute of Agriculture (21) summarises the vast literature which deals with the value of green manuring for the maintenance of fertility in the tropics. No attempt is made therefore, in this paper to give a general account of green manuring in the tropics.

The investigations to be described were stimulated by a report of Mr. Faulkner's on green manuring experiments carried out in Nigeria (5). Mr. Faulkner writes: "Prevailing ideas about green manuring may perhaps be expressed roughly as follows: a green manure is a crop which.... is turned into the soil in order to enrich it with the nitrogen and organic matter resulting from the decomposition of the material thus buried.... Considerable emphasis is generally laid upon the necessity for turning in the material when green, before any seed is produced; and turning it in without delay into moist soil, so as to encourage rapid decomposition. Indeed, it is sometimes even suggested that the success or failure of green manuring.... may depend entirely on the condition of the green manure crop and of the soil when the burying takes place. It seems also to be inferred that the improvement of the land which results from green manuring persists for a considerable time and influences the yield of several succeeding crops.

Only in the course of years have we come to believe that not one of the series of general ideas expressed or implied in the above description of green manuring holds good in our local conditions.... We find that it makes little difference whether the crop is buried at the proper stage of growth or is allowed to produce



its seed; whether it is buried green or allowed to remain on the surface of the soil through our three months of dry weather and then buried in a desiccated state; or even whether it is burnt in situ. Again, we find that the benefit from green manuring in our conditions is largely exhausted by the next succeeding crop. It must be emphasised that these statements are believed to apply only to a strictly tropical climate."

Green manure crops occupy a considerable portion of the College Farm rotations. It is therefore a matter of considerable interest to discover whether Mr. Faulkner's findings apply to our conditions, which are not extremely unlike those prevailing at Ibadan. At the same time direct measurements of the effects of our green manuring on subsequent yields were desirable, because previous investigations on green manuring at the College (1, 20) have been chiefly concerned with the selection of suitable green manure crops. Two field experiments were therefore carried out to measure the effects of green manuring on the yields of two succeeding crops, and to compare different methods of applying the green manures.