

I. INTRODUCTION

The work followed two main lines of investigation:

- (a) Study of weed succession on arable land
- (b) Trials with a single point quadrat apparatus.

The study of weed succession was prompted by the desire for more information on the plant communities to be found growing in the St. Augustine locality. On arable land, the climax association is not permitted to develop. However, after cultivation, there remain in the soil, seeds, fruits, tubers, rhizomes and other propagules from which the previous association will regenerate in part or whole. Thus, the present study follows a part of the secondary or transitional succession in the association.

Species react differently to the external factors of the environment and there are interactions between species during a succession. The success of any one species will be determined by its adaptation to the environment. Records of the species present in a particular environment will, therefore, provide an indication of the ecological habitat. "The best guide to ecological habitats are plant associations which respond to the complex interactions of climatic, biotic and edaphic factors which constitute an ecological habitat" (Bharucha and DeLeeuw, 1957).

Very little has been published about such studies in the tropics. Kooper (1927), working in Java, published what is still the most comprehensive study of weed associations on arable land in the tropics. He classified weeds into three levels of abundance - "constants", "accessory species" and "casual species", recording on several different soil types. Cleome spp. (= Polanisia spp.) appeared as a constant on all light soils; Cynodon dactylon was found to be a constant above 200 m. except on heavy clays or where drainage was poor; Cyperus rotundas was a constant on both heavy and light soils; Alternanthera sessilis was found as an accessory species on all soil types. These observations show the influence of edaphic factors on the success of various species.