INTRODUCTION

The natural vegetation of an area of land has been stated to be the best indication available of its potential value for agriculture, resulting as it does from the effects of climate, soil type and topography (Brown, 1957). It is still of great guidance to-day although it must be realised that an ecological type can extend over a wide range of conditions which a crop plant may not tolerate; thus it is used in conjunction with soil and climate information in relation to known crop requirements. In the tropics, laboratory facilities and climatic records are often limiting factors and vegetation study therefore proves of increased importance.

Man's farming activities have removed or altered the natural vegetation but on abandonment of the land the flora may regenerate by stages to the original climax vegetion, i.e. that which is stable under the existing environmental conditions - this process of change is known as succession.

The dominant plants in the early stages of succession on abandonment of arable land are most likely to be the weeds of cultivation as the nucleus of them, as seeds or vegetation structures, will already be present in the ground. A study of the species in the successional stages will give an indication of the possible weed problem as well as providing a pointer to the level of past management of the land. In some areas it may be desirable to keep a cover on the soil at certain times to minimise erosion in fallow periods, and a knowledge of the weeds likely to develop is useful in that control measures can then be put in, if necessary, to keep any noxious weeds in check.

A study of weed flora in the tropics is itself of great importance as there is a general lack of information although the deleterious effect on crop yield and quality is generally realised. It is necessary to have a basic knowledge of the habits of growth and life cycles of the plants for determining control measures, either cultural or chemical, and this will become of increasing importance with the need for a higher level of agricultural production in the future.

Successional studies are also of value on natural vegetation to study the effects of different management conditions, for example the grazing of natural grasslands, and there is thus a general demand for a method of measuring change in quantitative terms. This is necessary as it then enables comparisons to be made with different areas and other conditions and also provides material for more exact study than is obtainable by visual observations.

The experiment on which this report is based follows on work by Muchangwe (1959) and Haizel (1959) in an attempt to further evaluate the line transect as a means of measuring weed succession on arable land and to determine any difference in the succession on another site. The work was carried out in conjunction with a study using the point quadrat - this has been reported by Grime (1960).