INTRODUCTION.

The work carried out, the results of which are reported in the following pages, can be considered as a part of the programme of weed control experiments and investigations being carried out at the Imperial College of Tropical Agriculture. In itself it is incomplete as it does not lead to final recommendations about the use of MCPB as a herbicide in soya beans.

This chemical has been, and still is being tested on a variety of tropical crops both in the greenhouse and in the field, and is proving a safe and satisfactory chemical to use in weed control in many crops.

It is a well recognised fact that timely weeding, which usually means weeding to prevent competition in the very early stages of growth of a crop, is important in agriculture in general, and even more so in tropical agriculture where weed growth, especially at the beginning of the rainy season after a dry season, can be such that most crops cannot compete successfully. It is also recognised that one of the limits to the area which one peasant farmer can plant and cultivate often depends on the amount that he can weed.

Weeding at present in tropical areas is mainly by hand and hoe and even with this method very young crop plants are damaged, and physical disturbance of the soil may increase the drying out of the soil, an important hindrance in obtaining maximum stand and yield of crop.

The introduction of a cheap, safe and efficient herbicide which could be used on a large number of crops would, therefore, be of great importance in increasing food production under tropical conditions. It is doubtful whether all these qualities can be incorporated into one chemical but of those at present in use, MCPB (4-(4-chloro-2-methyl phenoxy) butyric acid) and 2,4-DB (2,4-dichlorophenoxy-butyric acid) offer considerable promise. Both are produced as stable solutions

are easy to formulate, and at rates which control many weeds are economical to use; and some cereal crops and many other food crops, including legumes, are tolerant of doses which will kill weeds. Thus crop damage, even in small areas of mixed cultivation, may not be very serious.

The mode of action of MCPB, the chemical chosen for testing, has been discussed by R.L. Morris (1956) and R.D. Sheldrick (1958). W.C. Shaw and W.A. Genter (1957) give a concise review of the literature and reported experiments carried out with twenty-five variously substituted phenoxyalkylearboxylic acids on more than twenty-five plant species. There are many references available on the use of MCPB, its effect on different crops and on different weed species both in British and American literature, but very little has been done in studying the effect on soyabean.

R.L. Morris (1956) carried out some preliminary trials with MCPB on soya bean using pre-emergence spraying. He considered that soya bean was tolerant at rates as high as 4 lb/acre active ingredient.

R.D. Sheldrick (1958) found that soya bean were more tolerant to pre-emergence applications than to post-emergence, but his results suggested that 2 lb/acre MCPB, applied three days after planting killed most of the plants. Both these workers were using the sodium salt, but both the different conclusions reached and the limited scope of the trials suggested that a more thorough investigation was required even before field trials were worth undertaking.

Similarly conflicting results were reported by Indyk, H.W. (1957 a and 1957 b). In a series of experiments on soya bean MCPB at 4 lb/acre gives good weed control, but in one location gave reduced stand and yield. The climatic conditions were not reported.