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GENERAL INTRODUCTION. they were discontinued for several

years until Maize, or corn as it is more commonly known in America, probably originated in Mexico, whence it has been spread by the agency of man throughout much of the tropical and sub-tropical world. Its inability to withstand frost has been a sufficient barrier to the extended growth of the crop in the colder climates of the world. There is no doubt, however, that increasingly larger areas continue to be produced within the tropics: indeed the tropics are said to produce better maize, (1) given suitable physical conditions and acclimatized varieties, than do more temperate climates.

Maize has been grown for centuries in the West Indies, including Trinidad, and varieties have become well acclimatized while physical conditions may be regarded as allowing of the growth of good crops. Despite this, much of the maize grown in Trinidad results in very poor and often unsightly yields of grain which indicate the necessity of some form of improvement. This need may be well appreciated by even the most cursory examination of almost any collection of harvested ears or of the ears offered for sale in the local native markets. One is forcibly struck by the lack of uniformity in such characters as size, colour and ripeness. It would be absurd to attempt to ascribe this unevenness to so many known and well defined inimical agencies because the number and extent of factors unfavourable to growth is not well enough appreciated yet to warrant such certainty. One thing that is certain is that good crops cannot be expected to grow from poor seed. The proof of this statement lies in the accumulated experience of generations of men who have lived by endeavouring to assist Nature to produce the fruits of the earth.

Invariably, the first step in the improvement of a crop, which is already established in a country, is the selection of good seed for future planting. It is with the methods of selection carried out at the Imperial College for the improvement of maize grown under Trinidad conditions that this paper is concerned. It may be

mentioned here that similar experiments (2a & 2b) were started at the College some years ago but they were discontinued for several years until it was decided to restore them during the present session. It is to be hoped that these experiments will lead to the production of better yielding strains, while it is suggested that the College might be a centre from which the local maize growers could obtain superior seed for planting, thereby attaining, with due attention to good agricultural practice, better returns from their maize plots.

The paper is divided into two main sections. The first section consists of a discussion of the methods of selection which are at present being generally practised in maize improvement. The second section is an account of the experimental work on maize selection which has been carried out at the Imperial College of Tropical agriculture during the session 1931-32 by D. F. Ruston and the writer.

It consists of saving for subsequent planting seed from the best ears, grown on the best plants; that is the plants which are best adapted to the environment. Such a procedure cuts out the competition of plants grown from inferior seeds and tends to higher the level of quality.

The selection is done by ear characters alone or by ear and plant characters.

Mass Selection by Ear Characters does not take the growing plant into consideration and is concerned only with the harvested ears. These are carefully examined by the grower, who, from past experience, carries a "fixed type" in his mind with which he compares the ears and considers. Naturally this "fixed type" will vary according to the ideas of the different selectors but there are a number of ear characters which should be considered in every selection. These are enumerated and commented on below:-

1. Complete freedom from disease.

The need for this is too obvious to need analysis.

2. The ear should be heavy in relation to its stalk because the ears which were such ears are unlikely to have suffered from disease.