

GENERAL INTRODUCTION

In Trinidad, Royer (1910) estimated that although Phytophthora palmivora, the fungus causing Black Pod disease of cacao was responsible for the loss of 40% to 50% of all mature pods harvested during the wet season, only 10 to 15 cherelles per tree per annum were killed by it. With this, Dade's (1927) estimate of a 40% loss of harvested pods in the Gold Coast closely agrees, and more recently Newhall (1948) in Costa Rica has attributed the loss of 50% of the mature pods to this cause.

The phenomenon of cherelle wilting has for long been the cause of much speculation, and the losses in certain cacao areas have now been tabulated by Bowman (1951) as follows:-

Trinidad	19 to 93%
Gold Coast	22 to 84%
Colombia	35 to 60%
Venezuela	74.7%

He, working in Costa Rica, blames P. palmivora for 20% of this wilting. McLaughlin (1950), whilst giving no figures, supplied confirmatory evidence based on the fact that many wilted cherelles had had their pedicels destroyed by the fungus. These views are substantiated by the results obtained by Bartolome (1951), who reduced cherelle wilting from 24.09% to 5.86% by spraying with Bordeaux mixture.

On the other hand, Dade (1927) considered it rare for pods less than 9 cms. to be attacked by P. palmivora, and decided that all the wilting was due to a natural "cast-off" of pods set in excess of the carrying capacity of the tree, a condition analogous to that occurring in cotton and temperate tree crops. Rounce and Smart (1928) investigating the problem in Trinidad found that only 1.8% of the wilting could be assigned to destruction by disease and in the absence of further

evidence, ascribed the remainder to physiological causes, as have Voelcker (1936) and Humphries (1943) for the same area, and Hewison and Ababio (1929) in the Gold Coast. Explanations of wilting advanced by Trinidad cacao planters include the effect of cold winds, dry winds, dry spells, wet spells and the rays of the setting sun.

It was on account of the divergence of views regarding the effect of infection by P. palmivora on cherelle wilting that the present study was undertaken with the object of ascertaining its importance under Trinidad conditions. This was carried out in three parts; the first was field inoculation of cherelles so as to be able to distinguish between Phytophthora induced symptoms and other types of wilting; the second was collection and classification of wilting pods from differing cacao growing areas in Trinidad to assess the importance of the fungi diagnosed on them in relation to wilting; the third was an ecological survey of the distribution of Black Pod in the various treatments embodied in the Cacao Research Schemes Shade and Fertilizer Experiment at I.C.T.A.

The abnormally dry weather during the preliminary stages of the investigation necessitated the modification of the programme and techniques; and in fact Black Pod never developed to any significant extent at I.C.T.A until December 1952 and was negligible in the Shade Plot. Consequently, there was no opportunity to extend Freeman's (1929) observations on the effect of shade and fertilizer on the development of the disease, except by comparison of its importance at different estates.