ABSTRACT

In a bid to establish a major sugar industry at Abaco planting material was procured from Guyana in 1965 which resulted in the accidental introduction of *Diatraea centrella*, a pest difficult to control through biological means and with little information available on its chemical control.

Attempts to eradicate the pest by burning the severely infested cane and treating all fields with heavy applications of insecticides being unsuccessful, studies were undertaken on its behaviour and control measures. On account of the unusual small size of egg-masses the borer spread rapidly and became a major pest, within few months displacing the native *D. lineolata* which, although normally a pest of corn, has been damaging cane in Abaco and inflicting economic losses.

In Abaco *D. centrella* completed five generations annually. It has been experimentally demonstrated by using insecticides that *Diatraea* spp. can cause a loss of at least half a ton of sugar per acre. The indigenous natural enemies being ineffective several introductions were made. Although initially some of those were recovered, permanent establishment probably did not occur because releases were not intensive or extensive enough.

Studies on host-parasite relations involved various hosts from Trinidad and several species of parasites from the Old as well as the New World. *Apanteles flavipes* was a very promising and effective parasite.

Although various species of parasites attacked all species of *Diatraea*, the level of successful parasitism was very low in *D. centrella*. Various reasons responsible for the unsatisfactory development of certain parasites in some hosts were - prolonged development, failure of developed parasite larvae to emerge from the hosts, humoral effect, encapsulation and melanisation.

Paratheresia claripalpis, an important Tachinid parasite of *D. saccharalis* and *D. impersonatella* in Trinidad, parasitised *D. centrella* larvae to the same extent as the other species but failed to develop in this host because of encapsulation. The density of haemocytes in the haemolymph seemed to bear no relation to the hosts' ability to encapsulate foreign bodies.