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INVESTIGATIONS
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TABLE V

RESULTS OF EXAMINATION OF FIDDLER BEETLE INSECTICIDE TRIALS

Charlton 1954

Treatment	Total Plants	Fiddler Grubs	Trees Yielding no Grubs	White Grubs
A. Control	16	4	12	..
B. Dieldrex 15, 1/25	16	nil	16	..
C. " " 1/50	16	nil	16	..
D. " " 1/100	16	nil	16	..
E. Clordox 1/250	16	nil	16	..
F. " 1/500	16	3	14	..
G. " 1/1000	16	4	13	..
H. Bluestone/Lime 1:3lb per mound	16	2	14	..
Total ..	128	13	117	..

The soil was extremely dry and in such a condition that most of the grubs must have perished.

Date of Examination: April, 1957.

TABLE VI

RESULTS OF EXAMINATION OF FIDDLER BEETLE INSECTICIDE TRIALS

Grove Place, 1954

Treatment	Total Plants	Fiddler Grubs	Trees Yielding no Grubs	White Grubs
1. Control	16	172+4 pupæ	2	..
2. Dieldrex 15, 1/25 ..	16	..	16	..
3. " " 1/50 ..	16	..	16	..
4. " " 1/100	16	..	16	..
5. Dieldrin 50% W.P. 1/125	16	..	16	..
6. " " 1/120	16	..	16	..
7. " " 1/500	16	1	15	..
8. Clordox " 1/250	16	4	13	..
9. " " 1/500	16	30	9	..
10. " " 1/1000	16	76+1 pupæ	1	..

TABLE VII

RESULTS OF EXAMINATION OF FIDDLER BEETLE INSECTICIDE TRIALS

Grove Place, 1955. *Mounds Disturbed* 1956

Treatment	Total Plants	Total Grubs	Trees Yielding no Grubs	White Grubs
A. Control	8	11	3	..
B. Dieldrex 15, 1/100 ..	8	1	7	..
C. " 1/500 ..	8	7	6	..
D. " 1/1000 ..	8	8	6	..
E. " 1/2000 ..	8	3	6	..
F. Dieldrin 50% W.P. 1/500 ..	8	10	4	..
G. " " 1/1500 ..	8	1	7	..
H. " " 1/6666 ..	8	7	5	..
I. Clordox 1/1000 ..	8	15	4	..
J. " 1/2000 ..	8	17	4	..
K. " 1/13333 ..	8	31	1	..
L. Aldrin 40% W.P. 1/500 ..	8	2	7	..
M. " " 1/1500 ..	8	1	7	..
N. " " 1/5333 ..	8	8	5	..
O. Bluestone Lime 1: 3 lb per mound	8	8	5	..
P. Lindane 1/500 ..	8	6	5	..
Q. " 1/2000 ..	8	1	7	..
Total ..	136	137	89	..

(W.B.D.)

BIOLOGICAL CONTROL

7. Investigations and Application of Results (EE.bc. 1)

Distribution of Parasites

The supply to growers who required consignments of the following parasites and predators has been maintained throughout the period:—

(1) The parasite *Eretmocerus serius* (Silv.) which parasitises Black Fly of citrus (*Aleurocanthus woglumi* Ashby). Limited distribution of these was made locally.

(2) The predator beetle *Plaesius javanus* (Er.) attacking the Banana Weevil

(4) Due to the discovery of the widespread distribution of the destructor scale (*Aspidiotus destructor* Sign) on coconuts the following species of Coccinellids were imported from Trinidad and distributed:—

(i) *Azya trinitatus*
(ii) *Cryptognotha nodiceps*
(iii) Miscellaneous species.

BIOLOGICAL STUDIES OF FIDDLER BEETLES (PREPODES SPP. AND PACHNAEUS SPP.)

I. The larval stage of *Prepodes* hatched and reared in the laboratory averaged nine months.

II. Studies of the geographic distribution of species of *Prepodes* revealed among other things that the larvae of the species which occurs at Innswood in the parish of St. Catherine were consistently and significantly smaller in all stages than those from any other parish. Measurements were taken of the dorsal surface of the cephalic capsule using a micrometer eyepiece. This reduction in size was not entirely due to a function of thermal constants, as, although precise meteorological data are not available, there are several areas from which specimens were collected which had higher mean recorded temperatures throughout the year.

There were no correlating morphological differences and genitalia preparations of specimens from the Innswood area could not be differentiated from similar material from other areas.

III. The previously accepted theory that *Prepodes* lays eggs only at night was proved to be erroneous as adult Prepodes were persuaded to lay during the daytime under conditions of average light intensity but away from the direct rays of the sun. Differentials in temperature and humidity seem to be more important factors in the stimulation of egg laying.

CONTROL STUDIES

Biological

1. Decision was taken to introduce *Tetrastichus marylandis, Horsimenus sp.* and *Ufens Osborni* which are all egg parasites of *Diaprepes spp.* in Dominica. The Commonwealth Bureau of Biological Control undertook to assist in these introductions by collecting parasitised egg masses of *Diaprepes* in Dominica and dispatching them to Jamaica.

2. Cultures of *Beauveria bassiana* and *Metarrhyzium* anisopliae were received from Dr. Steinhaus of the University of California. Spores of *Bacillus popillae*

These micro-organisms were tried against adults and first instar larvae *Prepodes* and *Pachnaeus* spp. *Beauveria* and *Metarrhyzium* proved to be pathoge to the first instar larvae under certain precise conditions in the laboratory, only with great difficulty could these conditions be duplicated in the field.

Bacillus popillae exhibited little pathogenicity to Fiddler Beetle larvae, the spores are being kept for testing against scarabid larvae.

3. The population of parasites which are indigenous to the island were stuc in several areas. In certain parts of Southern Manchester and at Irwin in James, the population of *Tetrastichus habitiensis* built up rapidly early in season. Counts of as high as 100% parasitism of eggs in the masses were freque obtained. This suggested that *Tetrastichus* is not as specific as was origin supposed but it is able to subsist on material other than the eggs of *Prepodes Pachnaeus*. This theory was supported by observations made on caged ci trees growing on the laboratory compound. These trees are in an area wl there is only sporadic laying of Otiorrynchids yet eggs laid on them were parasitised by *Tetrastichus*. The search for other food material of *Tetrasti* is being actively pursued.

(W.B.I

FIELD CROPS

GENERAL

8. Introduction and Trials of New Varieties of Local Field Crops (F.C.

(i) Planting material was introduced in appreciable quantity during period. Among them were hybrid corn from Canada, sweet corn from Pu Rico, rice from the United States of America, South Africa and Costa Rica, sorg from the United States of America and cassava from Cuba.

(R.E.O.)

(ii) **Cotton**

Objective: To explore the possibility of growing cotton under a wide rang soil and climatic conditions, with and without artificial irrigation and witl threat of invasion by a number of pests and diseases.

In 1955, with the sugar industry facing a threat of a cut-back in produc a search was made to find alternative crops to occupy lands which might be t out of sugar.

Previous records and experience suggested that development of a c industry was a possibility. This was particularly so as there now exists the l hood of finding a local market with the textile mills at Ariguanabo and as duction of short-staple types as used by these mills could to a large exte