

PN-ABA-915
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AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D C 20523

DATE: 10/2/88

MEMORANDUM

TO: AID/PPC/CDIE/D1, room 209 SA-18
FROM: AID/SCI, Victoria Ose *VO*
SUBJECT: Transmittal of AID/SCI Progress Report(s)

Attached for permanent retention/proper disposition is the following:

AID/SCI Progress Report No. 3. A. 51
PR - 7-12/87

Attachment

11

3A-51

The Work Done from Mid July 1987 to December 1987
Under RG/AID/O3 Grant
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1. Brinjal pod borer - Leucinodes orbonalis and the tomato fruit borer - Heliothis armigera.

As discussed in the previous reports the survey of available parasitoids in the country for above two pests was continued.

The parasitoid samples of L. orbonalis which were sent earlier to the CIE were identified as,

- i Spalangia gemina Boucek (Hymenoptera:Pteromalidae)
- ii Phanerotoma sp (Hymenoptera:Cheloninae)
- iii Opius sp (Hymenoptera:Opiinae)
- iv Trathala flavoobitalis cameron (Hymenoptera:Ichneumonidae)

T. flavoobitalis was found every where, the survey was carried out. During this period a new parasitoid species was found from Pelwehera area, in addition to above mentioned species.

No parasitoids were bred from field collected tomato fruit borer.

This survey will be continued until a period of one year is completed.

2. Studies on fruit flies

(a) Parasitoid survey

The samples of the two parasitoid sent to CIE were identified as,

- i Opius fletcheri silv (Hymenoptera:Opiinae)
- ii Dirhinus anthracia walker (Hymenoptera:Chalcidae)

No parasitoids were found during this period, from the areas surveyed, though the fruitfly infestation was available. This may be due to heavy application of insecticides by the farmers.

(b) Seasonal occurrence of fruit fly and its parasitoids, and determination of their percentage parasitism

This is a new study started in December 1987, to findout the seasonal occurrence of fruit fly and its parasitoids and to determine their percentage parasitism. This is done by staggered planting of snake gourds at one month intervals at Wagolla adaptive research unit. All cultural practices are being done according to the recommendation of department of agriculture, but without pesticide application. After the infestation of pods fruit flies will be sampled at 10 days interval. Infested fruits will be kept in the laboratory for emergence of fruit flies or parasitoids, and also to determine percentage parasitism.

3. Studies on Plutella xylostella (DBM)

(a) Survey on the available parasitoids of DBM in different cabbage growing areas and determination of percentage parasitism.

This is a continuation from previous year.

Results

Date	Area	Parasitoids	% larval parasitism
14-08-87	Gannoruwa	<u>Apanteles plutellae</u>	13.45
		<u>Tetrastichus</u> sp	16
03-09-87	Seeta Eliya	<u>Diadromus collaris</u>	1.63
		<u>Apanteles plutellae</u>	13.11
01-10-87	Nuwara Eliya	<u>Diadromus collaris</u>	1.15
		<u>Apanteles plutellae</u>	30.05
14-10-87	Hanguranketa	DBM infestation was not found	
29-10-87	Maturata	<u>Apanteles plutellae</u>	10.00
18-11-87	Maturata	<u>Apanteles plutellae</u>	51.35
09-12-87	Nuwara Eliya	<u>Apanteles plutellae</u>	43.46
		Unidentified Ichneumonids	0.8
		Unidentified species	1.0
17-12-87	Seeta Eliya	<u>Apanteles plutellae</u>	29.45
		<u>Diadromus collaris</u>	2.74
		Unidentified Ichneumonids	1.37
		Unidentified species	

During this period Tetrastichus population has been very low. The parasitoids mentioned as Ichneumonids in the previous reports were identified as Diadromus collaris grav. by CIE. The two new parasitoids collected will be sent for identification.

(b) Laboratory culture of *Plutella xylostella*

Attempts were made to culture this insect in the laboratory. During this period the cabbage plants were replaced by radish, because latter has a faster rate of growth. The cabbage plants were used only for rearing egg parasitoids of DBM.

(c) Seasonal occurrence of DBM egg parasitoids
Trichogrammatoidea? bactrae

As mentioned in the previous reports, the species of egg parasitoids could be bred from DBM eggs which were kept in the unsprayed cabbage field maintained at CARI. During this period, an emphasis was taken to find out its seasonal occurrence. This studies was started from September 1987.

Method:

Two cabbage pots which have been infested by DBM were kept in the unsprayed cabbage field for about three days. Then they were brought to the laboratory and the eggs were collected under the microscope and were kept in test tubes plugged with cloth wrapped cotton wool. They were observed every day until the parasitoid or larvae emerged. Data were collected for weekly intervals and percentage egg parasitism was calculated.

Results:

During this period the egg parasitism caused by *Trichogrammatoidea? bactrae* varied from 0 - 48%.

4. Studies on beanfly *Ophiomyia phaseoli*

I. Laboratory culture of beanfly, *Ophiomyia phaseoli*

a) As discussed in the last progress report, Jan. - July 1987 the culture of beanfly has been maintained successfully in the plant house. Collecting of beanfly was done as follows:

1. Collected from the field by using "Aspirator" and released them to the culture in the plant house.
2. Collected beanfly infested legume seedlings from fields and kept them in the laboratory for emergence of beanflies and were released to the culture.

b) The culture was separated into different life stages and reared in different cages for the purpose of parasitoids study which is to be started in April or May 1988.

II. To confirm the collected beanflies as *Ophiomyia phaseoli*, some specimens of the collection were sent to CIE for identification. They confirmed them as *Ophiomyia phaseoli*.

III. Parasitoids survey

a) This survey started in June 1987, was carried out by collecting beanflies and their natural enemies in many localities in mid country wetzone. In this survey we observed many parasitoids of beanfly in the field. *Helicoptera propingua* and *Sphegigaster brunneicornis* are the most abundant parasitoids in the areas surveyed. (Matale, Nalanda, Welimada and Maturata area)

b) In addition, Wagolla area (Kegalle district) also was surveyed for parasitoids. Apparently, two new species of parasitoids were collected and are to be sent for identification.

c) Survey at C.A.R.I.

With this study during the last 6 months three spp of common parasitoids were collected and were identified as H. propingua, S. brunneicornis and P. indifensa.

One new parasitoids was observed from C.A.R.I. also, and probably they same as the new parasitoids observed from Wagolla.

Future programme

1. Continue all the above programmes until they complete one year cycle.
2. Making arrangements to import the parasitoids of beanfly (Opius spp) from Hawaii to test out their efficacy for parasitising beanfly.
3. A survey to findout alternative hosts of O. phaseoli during the off season.

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