AF-52-57

FIELD PROBLEMS ON THE FARM

Hardinath Agri. Farm
July 1975 — June 1977

October, 1977

Agricultural Development Cooperation Department
Japan International Cooperation Agency

Foreward

This photograph album is complied by Mr. S. AOTA who was dispatched to H.M.G. of NEPAL, to provide technical assistance in the Janakpur Zone Agricultural Development Project being executed by the organization, based on the agreement between the governments of JAPAN and H.M.G. of NEPAL.

Mr, AOTA provided technical assistance for the project from July 25, 1975 to July 24, 1977. The detailed information contained in his report should provide valuable information for future technical cooperation.

Sincere gratitude and appreciation is expressed here to Mr. AOTA and all others concerned who contributed greatly to the success of the project.

September, 1977
Michio NAKAHARA
Director,
Agricultural Development Cooperation
Department,
Japan International Cooperation Agency

CONTENTS

Preface :

This photograph album was an accumulated short experiences while I was working at Hardinath Agriculture Farm in Nepal for two years.

I Hope that this photographs will be helpful the junior technicians who work in front of the agricultural extension.

I am grateful to Dr. K.C. Sharma senior entomologist, for giving me his valuable suggestions and corrections in this reports.

In the last, I am thankful to the JICA for giving me chance of publication in this photograph album.

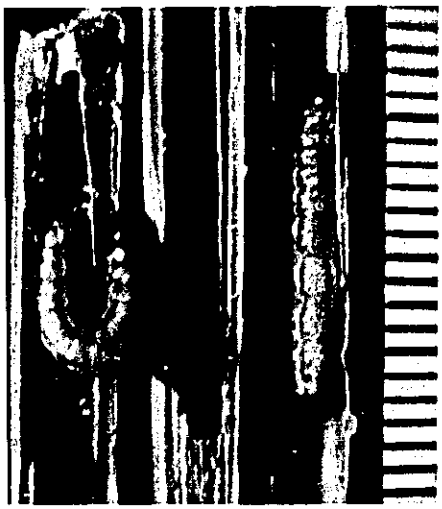
September 1977

Seiichi AOTA

RICE STEM BORER

Location: Hardinath Agri. Farm

"Dead heart" caused by stem borers

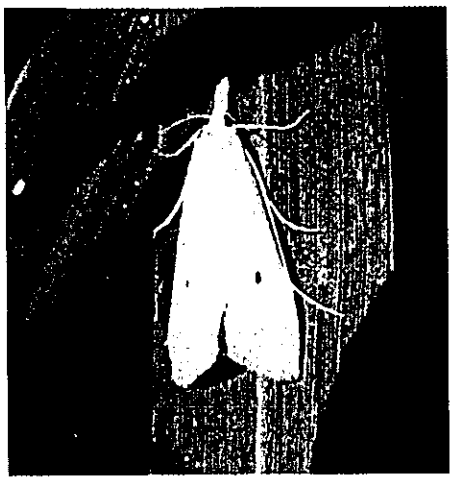


Feeding of larvae of stem borers within the stem

(mm)

YELLOW RICE BORER

Tryporyza incertulas WALKER
Location : Hardinath Agri. Farm (Oct. 1976)



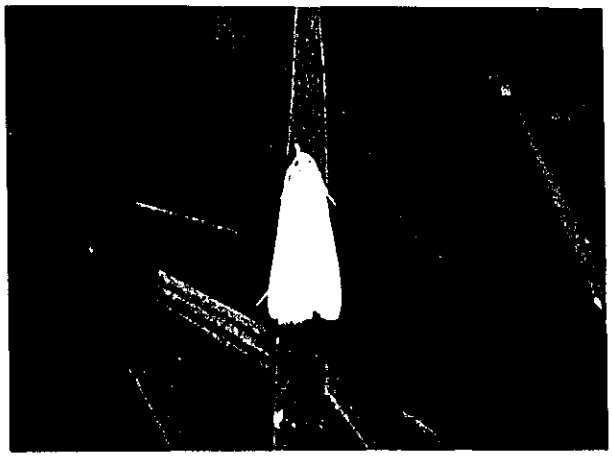
Adults

(mm)

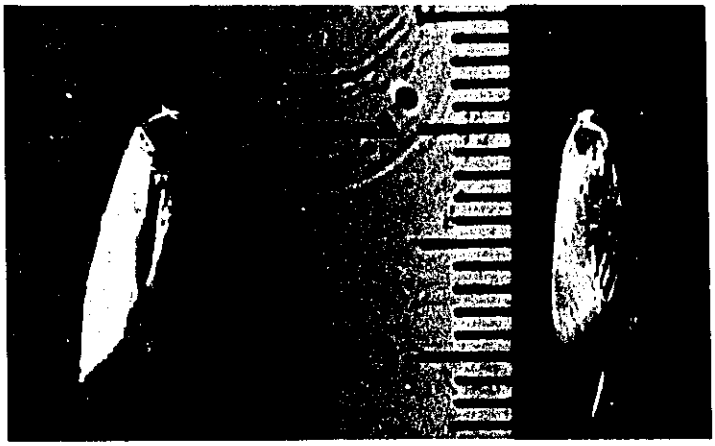
Egg

WHITE RICE BORER

Tryporyza Sp.
Hardinath Agri. Farm (Oct. 1976)

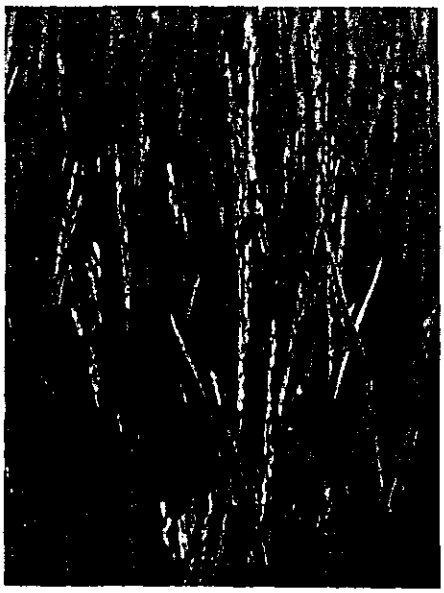


Adult



RICE PADI BUG

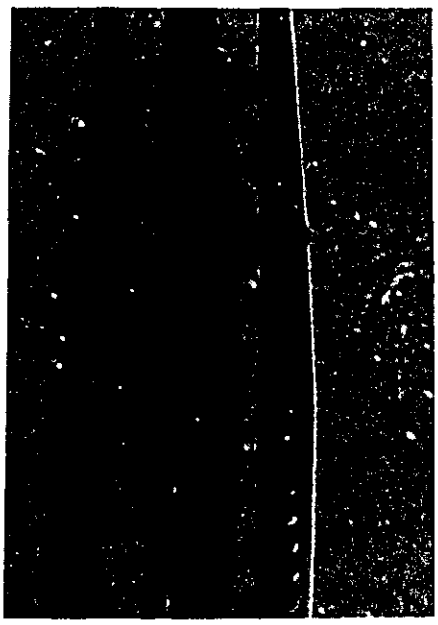
Leptocorisa Sp.
Hardinath Agri. Farm (Sep. 1976)



Infested rice plant by Rice bugs

Sucking the milk from the grain at miling stage

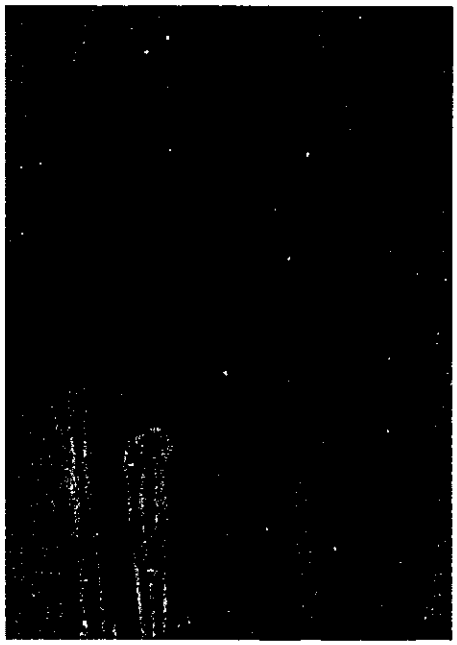
Adult



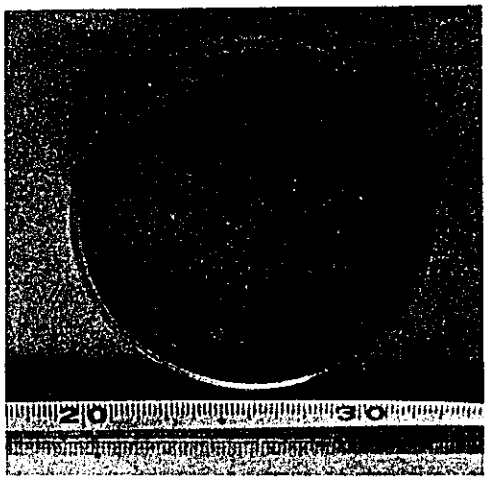
Eggs

RICE HISPA

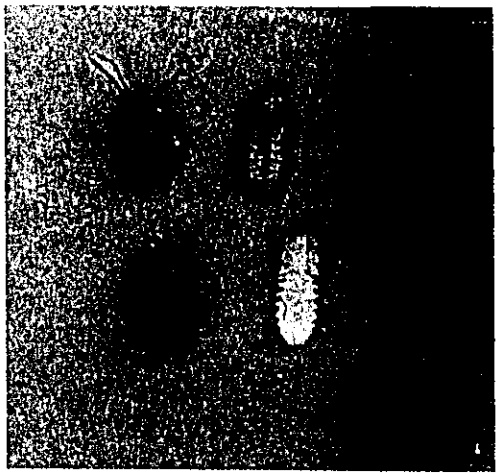
Dicladispa armigera OLIVIER
Hardinath Agri. Farm (May 1976)



Typical damage by Hispas (narrow white streak on the leaf)



Adults

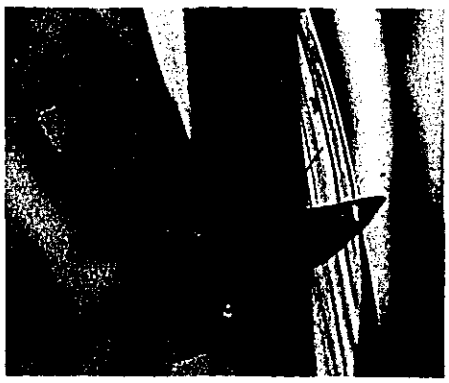


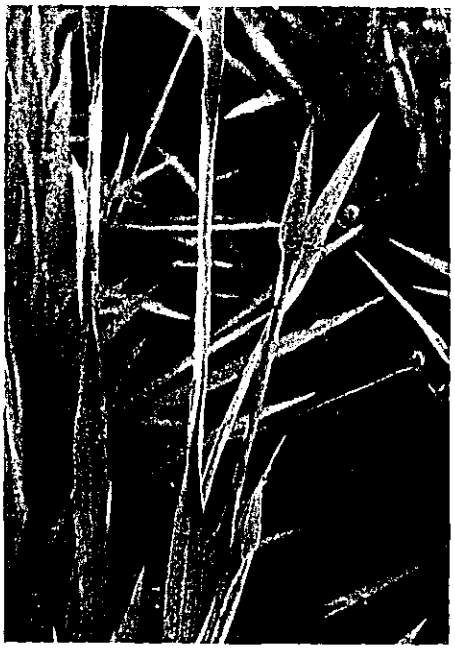
Adults & larvae (mm)

RICE LEAF ROLLER

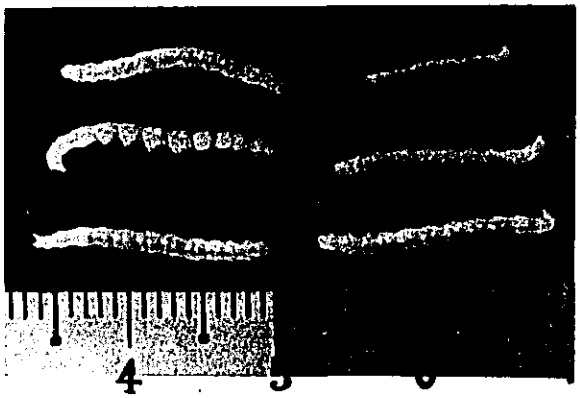
Cnaphalocrocis medinalis
Hardinath Agri. Farm (Oct. 1976)

Adult





Rolling leaves



Larvae (cm)

Larvae stay within the rolling leaf and feed on the leaf.

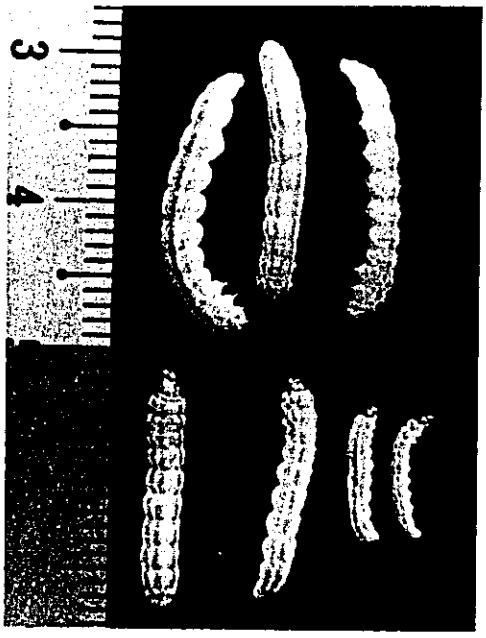
Maize

SORGHUM STEM BORER

Chilo zonellus
Hardinath Agri. Farm (Jun 1977)

Damage of Maize plant caused by borers

Larvae



(cm)

Maize

CUTWORM

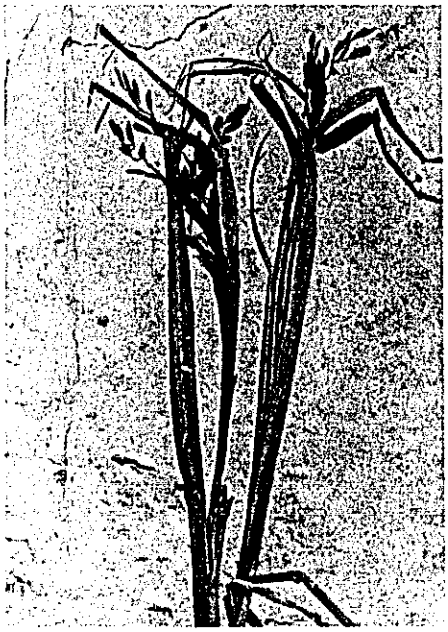
Agrotis Sp.
Hardinath Agri. Farm (Jan. 1977)

Cut leaf caused by cutworms

Larvae

RICE MEALY BUG

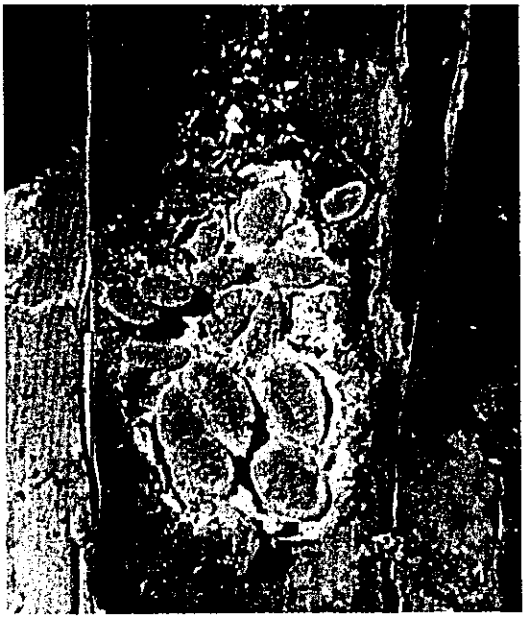
Location : Batraul. Sarlahi District
(May 1977)

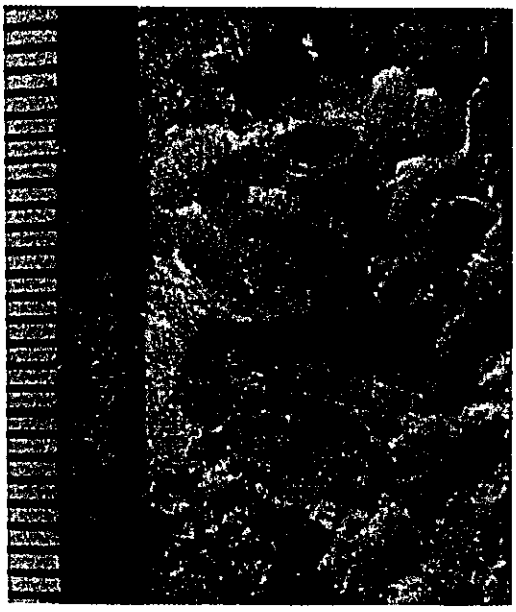


Damage of rice plant caused by Mealy bugs

SUGAR CANE MEALY BUG

Location : Batraul, Sarlahi District
(May 1977)





(mm)

BACTERIAL LEAF BLIGHT

Xanthomonas oryzae Dowson
Hardinath Agri. Fram (Sep. 1976)

Variety IR-8

Sever damage caused by B.L.B.

Variety IR-20

Leaves infected with B.L.B. showing distinct healthy and diseased areas.

BACTERIAL LEAF STREAK

Xanthomonas translucens
Hardinath Agri. Farm (Oct. 1976)

Variety : Chandina

FALSE SMUT

Ustilaginoidea virens TAKAHASHI
Hardinath Agri. Farm (Oct. 1976)

Variety Masuli

RICE BLAST

Pyricularia oryzae CAVARA
Hardinath Agri. Farm (Feb. 1977)

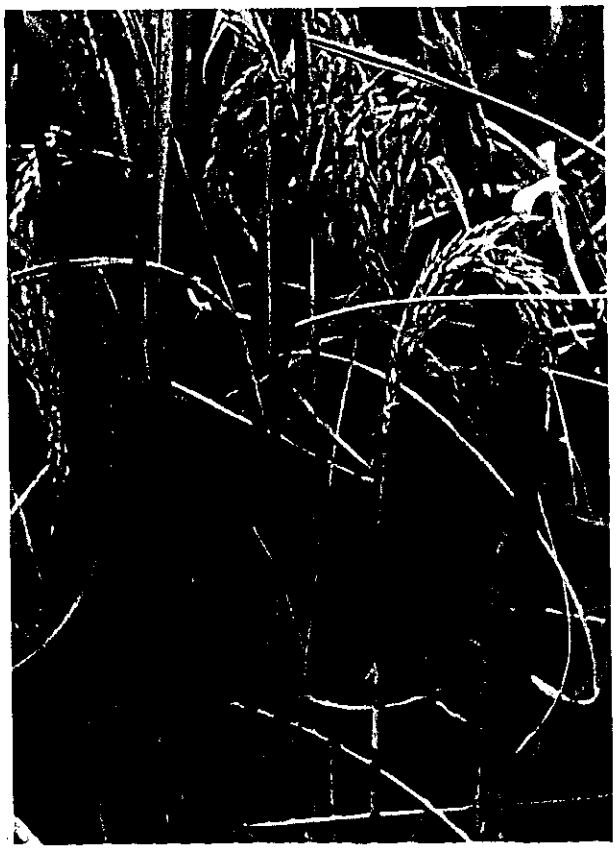
Varietal difference of blast resistance

Symptoms of leaf-blast

NECK BLAST

Pyricularia oryzae CAVARA
Sindhuli Agri. Farm. (Oct. 1976)

Variety: Masuli



Variety Masuli

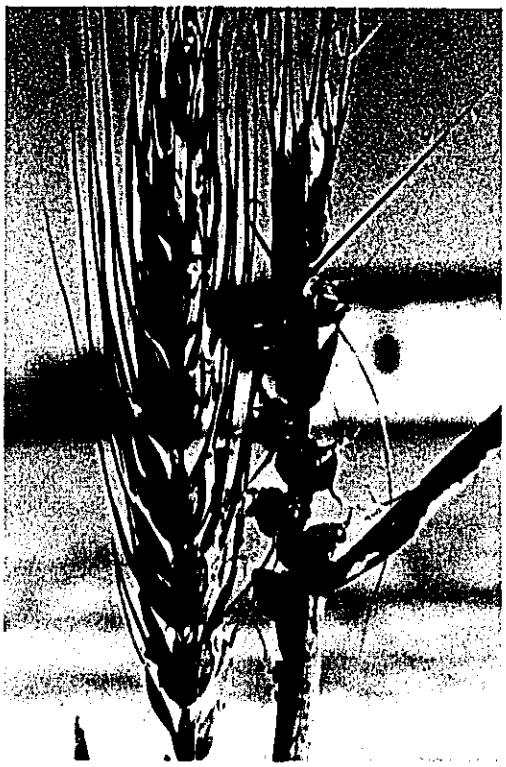
SHEATH BLIGHT

Rhizoctonia solani Kühn
Sindhuli Agri. Farm (Oct. 1976)

Wheat

LOOSE SMUT

Ustilago tritici ROSTRUP
Hardinath Agr. Farm (Mar. 1977)



Potato

EARLY BLIGHT

Alternaria solani SORAUER
Hardinath Agri. Farm (Mar. 1976)

Garden pea

POWDERY MILDEW

Erysiphe Pisi
Hardinath Agri. Farm (Mar. 1977)

Cabbage

CABBAGE BUTTER FLY

Peiris brassicae

CABBAGE APHID

Lipaphis erysimi

Hardinath Agri. Farm (Mar. 1977)

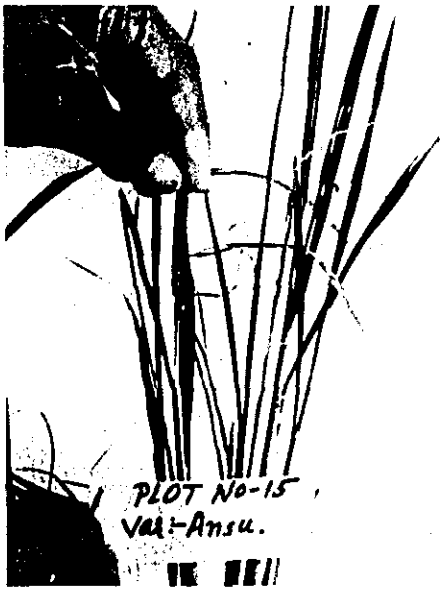
ZINC DEFICIENCY

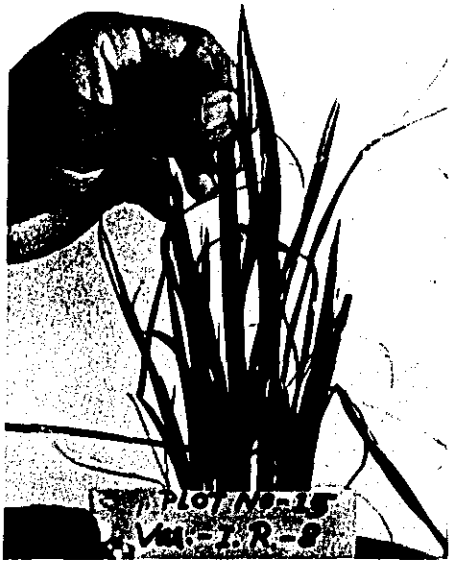
Hardinath Agri. Farm (Mar. 1977)

Seed ling S

30 days after transplanting

Symptoms of Zinc Deficiency





15 days after tranplanting

Damage of ear caused by 2.4-D
Hardinath Agri. Farm (Mar. 1977)

Normal Malformation

Different types of malformed ear

Occurence of Insect pests and Diseases

in Hardinath Agriculture Farm

August 1975 - June 1977

Seiichi Aota

Japanese Expert (Agronomy)

Table - 1 List of Insects

Crop	Common name	Species	Time of infestation	Remarks
1. Rice	Striped rice borer	Chilo suppres-salis	-	Not identify
2.	Yellow rice borer	Tryporyza in-certulas	throghout the year	Severe damage (seedling-matu-rity)
3.	White rice borer	T. sp.	"	Slightly
4.	Pink rice borer	Sesamia sp.	Oct. - Feb.	Slightly
5.	Rice padi bug	Leptocorisa sp.	Jun, Sep. - Oct.	Occasionally severe damage
6.	Rice hisper	Dicladispa *armigera*	May - Jun.	" (young rice crop)
7.	Rice leaf roller	Cnaphalocrocis *medinalis*	Jun. - Oct.	Not severe
8.	Rice leaf miner	Hydrellia *griseola*	May - Jun.	"
9.	Rice grass hopper	Not identify	Throghout the year	"
10.	Green rice leaf hopper	"	Jun. - Oct.	"
11. Maize	Common cutworm	Agrotis sp.	Dec. - Feb.	Occasionally causes heavy losses
12.	Sorghum stem borer	Chilo zonellus	Jun. - Jul.	Severe damage (summer máize)

Table - 2 Number of moths caught per month in Light trap

(Jun. 1976 - May 1977)

		Rice borer			Hopper		Rice bug
		Yellow	White	Pink	Green	Other	
1976.	Jun.	86	2		29	13	453
	Jul.	514	14		184	282	575
	Aug.	1264	270		1152	197	592
	Sep.	5184	831		55	15	96
	Oct.	4947	284	199	3441	119	1899
	Nov.	217	105	236	729	196	27
	Dec.	88	36	150		16	
1977	Jan.	52	13	125			
	Feb.	80	31	180			
	Mar.	1606	93	170		47	
	Apr.	331	46	111		22	
	May.	125	12	41		30	26

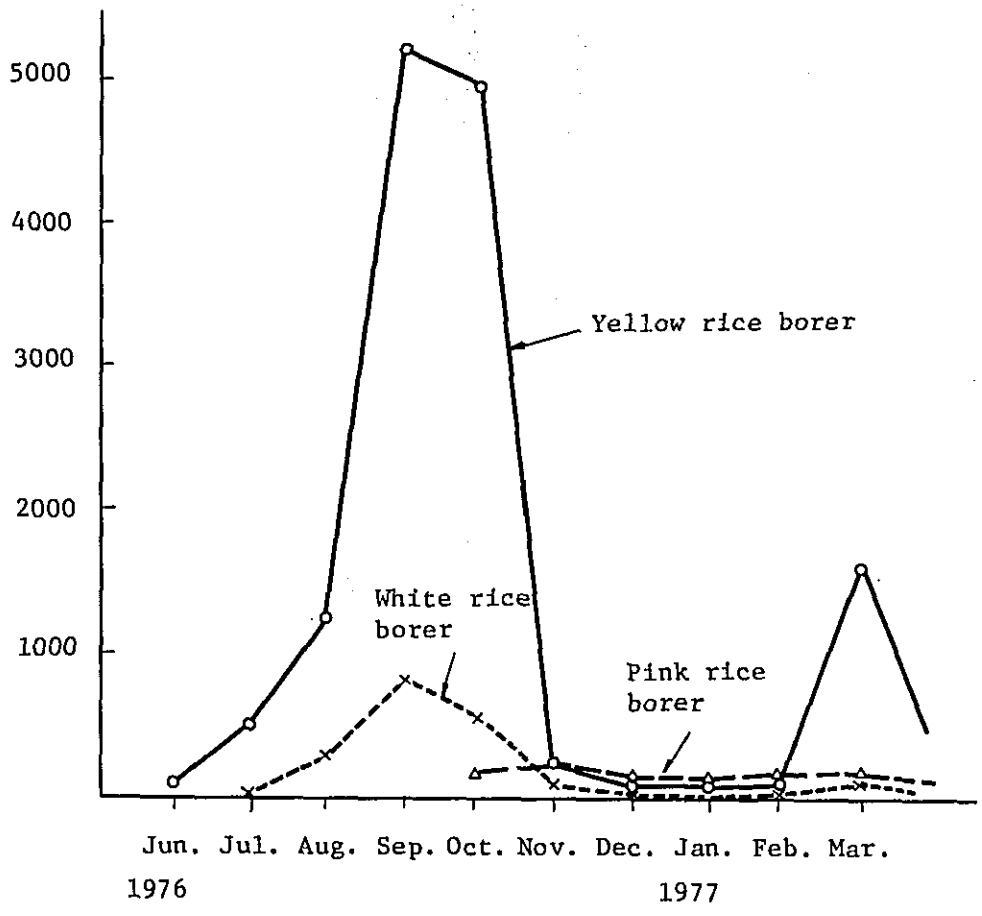


Fig. 1 Number of stem borers caught per month by light trap

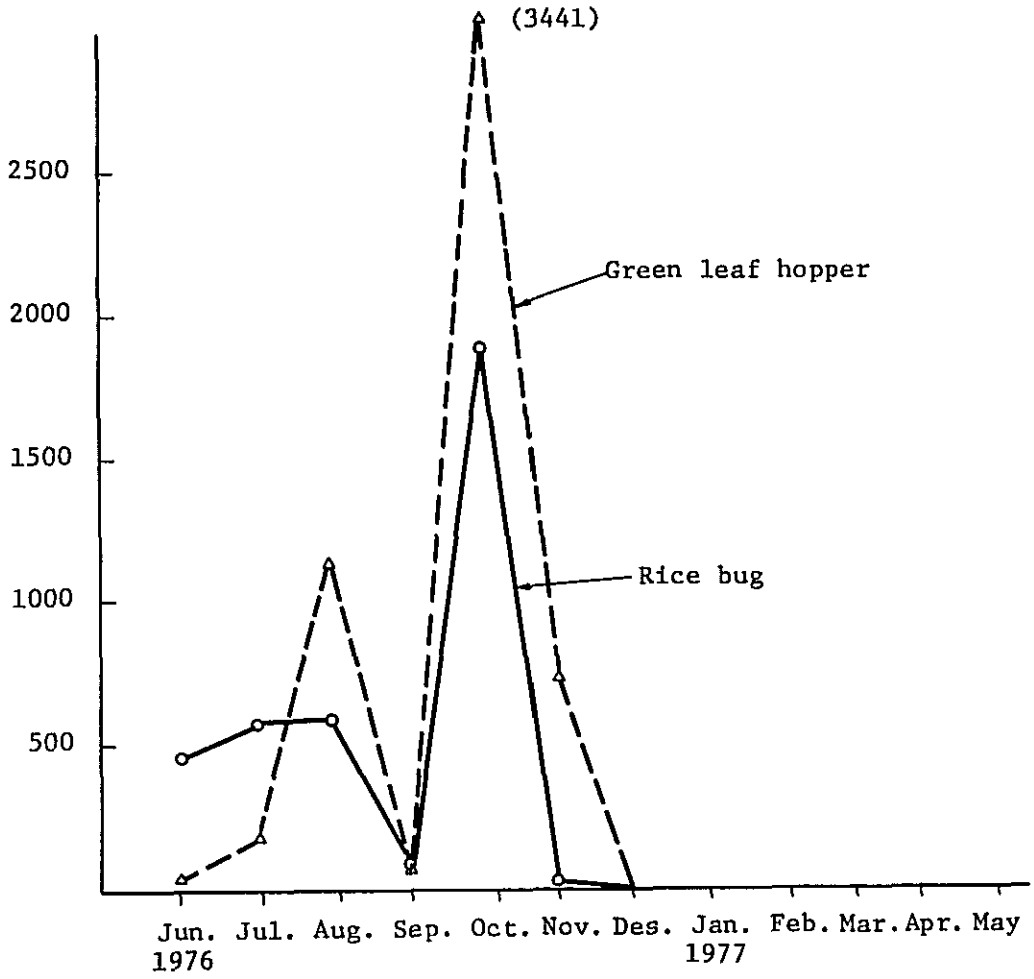


Fig. 2 Number of rice bugs and green leaf hoppers caught per month by light trap

Table - 3 Control practices of insect in the Farm

List No.	Name of insects	Control methods
1	Striped rice borer	At young rice crop: Sumithion E.C. 50% or Diazinon W.P. 34%,
2	Yellow rice borer	0.1% liquid 70l/10a a
3	White rice borer	At short blade stage: 0.15% liquid 120l/10a a spray repeat if necessary
4	Pink rice borer	Metacid 50 E.C. liquid spray also effective
5	Rice bug	Applying 2 times 5% BHC dust 2 kg/10a or 1.5% Malathion dust 3 kg/10a
6	Rice hisper	Sumithion or Diazinon 0.1% liquid spray & Metacid 50, 0.1% spray
7	Rice leaf roller	" "
8	Rice leaf miner	" "
9	Smaller grass hopper	Malathion E.C. 50% - 0.1% liquid spray, 1.5% Malathion dust 2-4kg/10a
10	Green rice leaf hopper	" "
11	Common cutworm	Catching and killing, apply Dipterex 1% granul 2-3kg/10a
12	Sorghum stem borer	Sumithion E.C. 50% - 0.15% liquid spray repeat if necessary or apply 5% Dipterex granul 2kg/10a

Table - 4 List of Deseases

Crops	Common name	Pathogenic Fungus	Peak of Occurence	Remarks
Rice	(1) Bacterial leaf blight	Xanthomonas oryzae	Jun. - Oct.	
	(2) Bacterial leaf streak	Xanthomonas translucens	Jun. - Oct.	
	(3) Sheath blight	Rhizoctonia solani	Jun. - Nov.	
	(4) Rice blast	Pyricularia oryzae	Sep. - Dec.	
	(5) Brown spot	Cochliobolus miyabeanus	Jul. - Nov.	
	(6) Damping - off	Fusarum SP, Rhizoctonia sp, Pythium sp.	Mar. - May	
	(7) False smut	Ustilaginoidea virens	Sep. - Oct.	
Wheat	(8) Loose smut	Ustilago tritici	Feb. - Mar.	
Potato	(9) Early blight	Alternaria solani	Jan. - Mar.	
Tomato	(10) Virus disease	Virus	Jan. - Apr.	
	(11) Bacterial wilt	Pseudomonas solanacearum	Dec. - Feb.	
Garden-pea	(12) Powdery mildew	Erysiphe Pisi	Feb. - Mar.	

Table - 5 Environmental Conditions on the diseases

List No.	Name of Disease	Effect of environmental conditions	Disease infection	Remarks
(1)	B.L.B.	High temperature, high rates of nitrogen favors development of the disease P_2O_5 & K_2O deficiency & excess, silica & Mg, also increase disease incidence	Susceptible Var. IR-8 IR-20 PP-I ?	Resistant Var. Masuli Local Var.
(2)	B.L,S	Effect of environment condition, Varietal resistance & Control have not been studied in detail	PP-I Chandina IR-22 IR-24	Local
(3)	Sheath-blight	Highly humid & warm temperature. High rates of N. also make the tissues more susceptible to the disease.	Masuli	
(4)	Rice blast	Rice plants are mostly infested with blast at temperature of 20-24°C Relatively cool mights favour the formation & duration of dew. High nitrogen supply increases the incidence & severity of blast	Masuli Local Var	IR-8 IR-20 etc.
(5)	Brown-spot	Brown spot disease has been associated with soils that are deficient in nutritional element & with reduced soils in which toxic substances have accumulated	All Var.	