

SURVEY OF STORED INSECT IN RICE FIELD BEFORE HARVEST

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A survey of stored insects in fields of rice before harvest, was conducted at 2 rice experiment stations for 2 year study. The results of the first year showed that *Sitotroga cerealella* Olivier was the only insect species found. The number of eggs laid on the panicle were not determined but panicles kept for 30 days after picking were examined and between 1,16 and 6,9 insects per 10 panicles emerged in varieties in RD 7 and Hom Om respectively. In the second year, the results confirmed that *S. cerealella* Olivier was the only insect found laying eggs in the field. The number of adult insects found by sweeping had an average of 2,7, 0,9, 1,18 and 2,4 insects per 50 x 50 metre per day in varieties RD 7, RD 15, Kao Dok Mali 105 and Hom Om respectively.

The number of adults emerging from the panicles was 3,6, 3, 2,7 and 4,8 per 10 panicles in varieties RD 7, RD 15, Kao Dok Mali 105 and Hom Om respectively.

INTRODUCTION

The need to know whether storage pest insects lay their eggs in rice field before harvest or not is important, as this may cause a serious insect infestation in the storage bin after some time. It is already known that some storage insects lay the eggs in the field before harvest but the significance of this is not known. As Thailand is a developing country, especially on agricultural side, if this condition occurs, it is possible that protection of agricultural produce may be done in the field before harvest. This may be appropriate to some crops but, in general, it should not be practiced. This is because protection of insect infestation by farmers still depends on insecticides and their use adds more toxic residue to man and environment unnecessarily. Therefore, this experiment was conducted to know kinds of insect present in the field before harvest and whether the eggs were laid in the field insufficiently large numbers that serious infestation occurred during storage.

The insects to be searched for were *Sitotroga cerealella* Olivier which is the most important insect pest of paddy during storage, *Rhyzopertha dominica* Hbst. and *Sitophilus specie*.

MATERIALS AND METHODS

The research was conducted at 2 rice experiment stations in the first year and 1 in the second year, during November to December 1982 and 1983. In the first year, 5 rice varieties from Bangkhen and Chainat experiment stations were tested and in the second year 4 varieties were tested at Chainat. The experiment consisted of rice plot of 50 x 50 metre and each plot contained only one rice variety. The plot was divided into 4 parts in which 10 panicles of each variety were randomly picking everyday for 15 days before harvesting. After picking, the panicles were put in a paper bag and dried in the room at ordinary temperature for 2-3 days because some panicles were still wet and might cause a fungal growth. Then the panicles were put in a glass jar and covered with a muslin cloth.

Adult emergence in each jar was recorded for 30 days after each picking. During picking the panicles, the adult insects were also collected by sweep net to see the kinds and number of insects present in the field.

RESULTS AND DISCUSSION (Result of the first year and second year were as followed).

First year

The results showed that *Sitotroga cerealella* Olivier was the only insect found in the field. But whether it had laid the eggs in the field was still in doubt. This was because the panicles were dried in the room near to the room where the insects had already infested. So, it was possible that insect might lay the eggs during this time. Therefore, the data showed the number of adult *S. cerealella* emerged from the jar was more in some varieties such as Hom Om and RD 7 (see table I). It should be noted that the nearer the harvesting time the more insects emerge from the jar. As it could be seen in table I, in which the data was from Chainat, adult *S. cerealella* laid eggs in every rice variety. In sweeping, *S. cerealella* adult was found in every variety (see table II). But at Bangkhen very few insect were found and the data were not shown here.

Table I : Average number of *Sitotroga cerealella* emerging from panicles 30 days after picking at Chainat and Bangkhen during november to december 1982

Days panicles pick before harvest	Avg. No. of insect at chainat					Avg. No. of insect at Bangkhen				
	RD7	RD1	RD11	Hom	Om	RD5	RD5	RD7	NSPT	RD21
15	-	-	-	2	-	-	-	0	-	-
14	1	-	-	0,25	-	-	-	0	-	-
13	0	-	-	0,75	-	-	-	0	-	-
12	1,25	-	-	1	-	-	-	0	0	-
11	0,25	-	-	2,25	-	-	-	0	0	-
10	0,5	-	-	2,25	-	-	0	0	0	-
9	0,25	-	-	6,5	-	-	0	0	0,25	-
8	0,5	-	-	0,25	-	-	0	0	0	0
7	1,5	-	-	5,75	-	-	0	0	0	0
6	0,25	-	0,25	1	-	0,5	0	0	0	0
5	2,25	-	0,25	4	0	0,5	0,25	0	0	0
4	0	0	0	6,25	0,5	0	0,5	0	0,25	0
3	5,25	1	0	14,25	2,25	0,25	0	0	0	0
2	1,75	0,75	0,5	21,25	2	0,5	0	0	0	0
1	1,5	3	0,25	24	4,5	0,25	0	0	0,25	0

NSPT : Neo San Pa Tong
 KDML : Kao Dok Mali
 : No picking

Table II : The number of *S. cerealella* found by sweeping in different rice varieties in a 50 x 50 m² rice plot at Chainat during November to December 1982

Sampling day	RD1		RD5		Hom Om	
	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
15	-	-	-	-	0	0
14	-	-	-	-	0	0
13	-	-	-	-	2	2
12	-	-	-	-	1	0
11	-	-	-	-	1	2
10	-	-	-	-	2	1
9	-	-	-	-	1	0
8	0	1	-	-	0	0
7	2	1	-	-	1	1
6	1	1	-	-	0	0
5	1	0	-	-	1	0
4	1	1	0	1	1	0
3	2	1	2	3	1	0
2	0	1	1	4	2	1
1	1	0	2	3	2	1

: No panicle picking

The average number of *S. cerealella* adults per day which were obtained from the number of adult insects emerging from the jar after keeping for 30 days very high in Hom Om being 6,8 insects per day at Chainat while other varieties were much less. At Bangkhen, few adult insect emerged : 0,14 in RD7, none in Neo San Pa Tong, 0,06 in RD21 and none in Kao Dok Mali 105 (see table II).

Table III : Average number of adult *S. cerealella* emerging from each rice variety per day at Chainat and Bangkhen during November to December 1982

Rice variety	Avg. no of <i>S. cerealella</i> per day	
	Chainat	Bangkhen
RD1	1,18	-
RD11	0,29	-
RD7	1,16	0,14
Hom Om	6,68	-
RD5	1,65	-
RD15	-	-
NSPT	-	0
RD21	-	0,06
KDML	-	0

NSPT : Neo San Pa Tong

KDML : Kao Dok Mali 105

Second year

Only *S. cerealella* was found by sweeping. No other insect such as *Sitophilus oryzae* Linn. or other *Sitophilus* specie were found. The adult moth laid the eggs in the field but the numbers of the adult insect emerging were small compared to the number of seeds in the jar. The number of insects emerging from the glass jar were 3,6 insects in RD7, 3 in RD15, 2,7 in Kao Dok Mali 105 and 4,8 in Hom Om per 10 panicles per day. The average number of insect caught by sweeping 50 x 50 metre per day was 2,7, 0,9, 1,18 and 2,4 in RD7, RD15, Kao Kok Mali 105 and Hom Om respectively (see table IV).

Table IV : Average number of *S. cerealella* obtained by sweeping and from panicles after keeping for 30 days in 4 rice variety at Chainat during november to december 1983

Rice variety	Avg. no insect per day	
	from sweeping	from panicles
RD7	2,7	3,6
RD15	0,9	3,0
Kao Dok Mali 105	1,18	2,7
Hom Om	2,4	4,8

From the results of the 2-year study, it can be concluded that *Sitotroga cerealella* was the only insect found in the rice fields before harvest. Although it laid eggs on the seeds, only small numbers emerged and there are unlikely to cause a serious post-harvest infestation. Therefore, a pre-harvest application of insecticide is unnecessary.

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