

Effectiveness of practiced management option to control of rice stem borer



Report

Submitted by

Md. Asadul Islam
M S Thesis Student
Dept. of Agronomy & Agricultural Extension
University of Rajshahi

Title: Effectiveness of practiced management option to control of rice stem borer

Investigation Issue: Less rainfall and high temperature Increased stem borer

Model: Effectiveness of practiced management options to control of rice.

Objectives: To identify sustainable management options for rice stem borer.

Materials and Methods: The experiment was conducted in 3 SAFBIN projects sites namely paba, Baraigram and patnitola upazillas of greater Rajshahi. In each upazilla there were two pest management option (gonabum and neemcake).

Cultivar: Relatively short duration drought tolerant and drought escaping variety was selected for this trial, the variety was BINA-7.

Treatment: There were two treatments which are given below-

- 1) Treatment -1: Gonabum
- 2) Treatment-2: Neem cake

Experimental design: The trial was laid out in RCBD with 3 replication. Individual plot size was 6m × 4m with 4 border rows alongside the whole experimental field. 21-25 days old seedlings were transplanted having 3-4 seedlings per hill with spacing 20cm × 15cm.

Fertilizer management: The following fertilizers were used.

Urea: 180 kg/ha applied in 3 equal splits (1st split 10 days after transplanting (DAT) + 2nd split 25 days DAT and 3rd split at the panicle initiation stage.

TSP: 75 kg/ha applied during final land preparation.

MOP: 90 kg (1/2 at the basal +1/2 with the 2nd top dress of urea)

Gypsum: 60 kg/ha

Pest Management: Gonabum and neem cake were used for controlling of rice stem borer.

Data Recording: Growth duration (days), rainless days, Plant height, fertile tiller/ hill, number of grain/panicle, yield, pest incidence (harvested 10 m² for each treatment and replication).

Data Analysis: Combined analysis was performed for growth duration, fertile tillers, thousand grain weight and yield using SPSS.

Result:

Influence of insecticides on yield components of BINA-7 rice variety grown in three location trails for stem borer are presented in Table 1. The fertile tiller/hill was significant with insecticides with locations. Fertile tiller number was significantly increased at paba location and it was reduced on other two location. Between two insecticides, Gonabum was suitable at Paba and Baraigram location except Patnitala location. The total grain weight varied significantly between the two insecticides with locations. The total grain weight increased significantly at Patnitala location and followed by Paba then Baraigram. The grain yield was also significant between insecticides and location interactions. The significant yield was recorded at Paba and Patnitala location. The grain yield reduced significantly at Baraigram location. Between the two insecticides, the neem cake was superior to gonabum to increase rice yield at all three locations.

Effect of gonabum (T1) and neem (T2) insecticides on stem borer incidence (%) and growth duration in three locations are shown in Fig. 1. The present rice variety taken almost similar growth duration at all location. The lowest growth duration was taken to BINADhan7 rice at Patnitala. The pest incidence was varied using two type of insecticides. The stem borer incidence was increased at Baraigram location using Neem cake.

Correlation between dead heart incidence (%) and yield (ton/ha) using two insecticide Gonabum (A) and Neem cake (B) in three locations are presented in Fig.2.

By analysis the correlation between yield and dead heart incident of Binadhan-7, the yield significantly varied by dead heart incidence. The highest grain yield was obtained from Paba and Patnitala as compared to Baraigram by the using two insecticide, gonabum and neem cake. The yield of this variety was decreased with the increase of dead heart incidence.

Table 1. Influence of insecticides on yield components of BINA-7 rice variety grown in three location trails for stem borer. Data presents mean value with standard error. Differences within location × insecticide by LSD at 5% level.

Location	Insecticides	Yield components		
		Fertile tiller/hill	1000 grain weight (gm)	Yield (ton/ha)
Paba	Gonabum	19.33±2.06 a	21.00±.22 b	4.85±.14 a
	Neem cake	18.33±2.06 a	21.00±.22 b	4.87±.14 a
Baraigram	Gonabum	14.66±2.06 b	20.30±.22 c	3.86±.14 b
	Neem cake	13.33±2.06 b	20.50±.22 c	4.06±.14 b
Patnitala	Gonabum	14.66±2.06 b	22.66±.22 a	4.82±.14 a
	Neem cake	16.00±2.06 ab	22.66±.22 a	5.02±.14 a

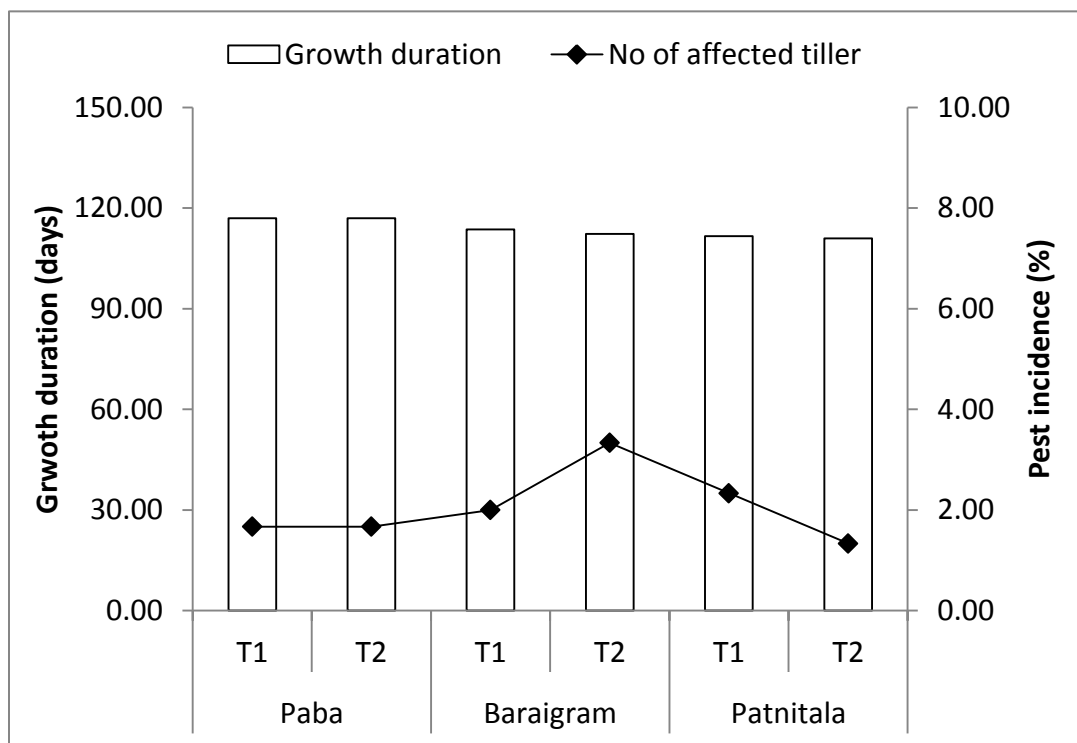


Figure 1. Effect of gonabum (T1) and neem (T2) insecticides on stem borer incidence (%) and growth duration in three locations.

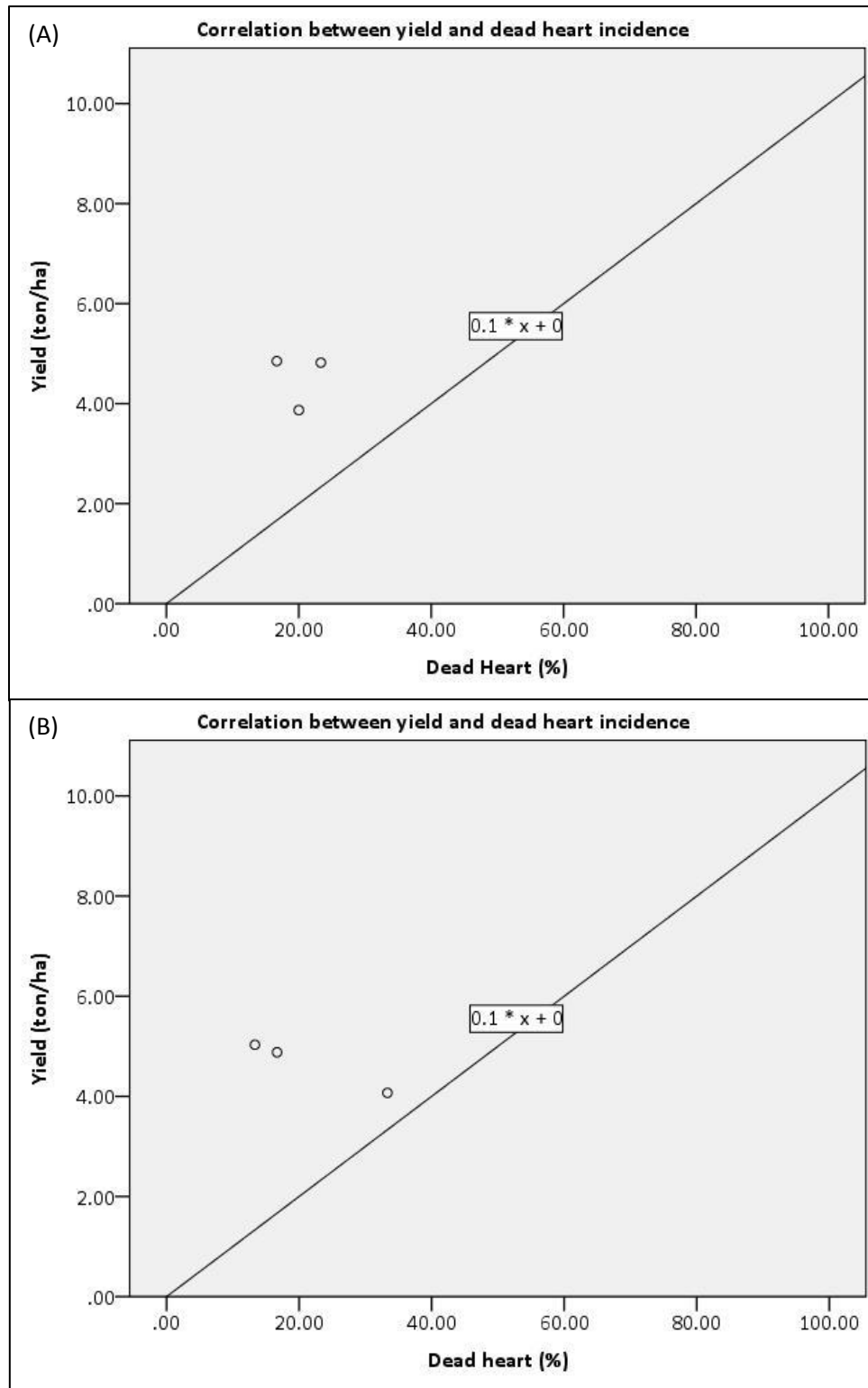


Figure 2. Correlation between dead heart incidence (%) and yield (ton/ha) using two insecticide Gonabum (A) and Neem cake (B) in three locations of Rajshahi Division.