

# **Effectiveness of practiced management option to control of rice sheath blight**



## **Report**

**Submitted by**

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**Research Title:** Effectiveness of practiced management option to control of rice sheath blight

**Investigation Issue:** High temperature with wet moisture Increased sheath blight disease.

**Model:** Effectiveness of Practiced management options to control Sheath blight disease.

**Objectives:** To identify sustainable management options for sheath blight disease

**Materials and Methods:**

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

**Cultivar:** Swarna ( A variety of T-aman)

**Treatment:** There were two treatments applied to control the sheath blight, which are given below-

- 1) Treatment -1: Collection of floating debris (F.D) + Fungicide (Folicure)
- 2) Treatment-2: Chemicals (Folicure) + 1/2 of the MPO with 2nd top dress of urea.

**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 (1<sup>st</sup> split 10 days after transplanting (DAT) + 2<sup>nd</sup> split 25 days DAT and 3<sup>rd</sup> 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 2<sup>nd</sup> top dress of urea)

**Gypsum:** 60 kg/ha

**Pest Management:**

Perching and judicious pesticide were used. In case of stem borer attack Virtako were applied. When rice bug infestation noticed at the flowering stage then any melathion sprayed avoiding pollination time (10 AM-14 AM). Rat infestation controlled by using bait, watering or put carefully Phostoxin table t inside hole and blocked hole with mud.

**Data Recording:**

Name of the cultivar, name of the treatments, date of seedling, date of transplanting, seedling age , flowering date, number of productive tiller per hill, date of Maturity, date of harvest, yield and yield components (harvested 10 m<sup>2</sup> for each treatment and replication).

**Participatory Practice Selection:**

In each site a field day was arranged were farmers (both male & female), academician, seed dealer, reporter, livestock officer and other service providers from GO & NGO were participated in the voting process. In Patnitala, paba and Baraigram total voters were 40, 35 and 60 respectively. Voting data were analyzed by preference analysis (PA) using the “**The preference index (PI)**” (IRRI). The preference index (PI) for each practice was calculated following the formula.

**Result:**

Influence of fungicides on yield components of swarna rice variety grown in three location trails for sheath blight are presented in Table 1. Fertile tiller production differed among the treatment but locations and their interaction with variety was not significant. The highest number of fertile tiller was recorded at Paba location using Folicure fungicide with  $\frac{1}{2}$  MPO applied second top dressing time urea application. Compare among within locations, lowest fertile tiller was produced at Patnitala using all treatments. The grain number/panicle was significantly different with in treatment and location interactions. Highest number of grain/panicle was produced at Patnitala using Folicure fungicide with  $\frac{1}{2}$  MPO at second top dress of urea and it was followed by Paba location aslo. The grain number was reduced significantly at Baraigram location using both locations. 1000 grain weight significantly varied between two treatment and interaction with location. Among the all location, significantly different and highest value recorded at Patnitala. Yield was significantly reduced at Baraigram location using both treatments.

Effect of fungicide with floating debris (T1) and nitrogen fertilizer formulation (T2) on sheath blight incidence (%) and draught duration in three locations are presented in Fig. 1. Rainless days were increased at Baraigram location for this variety followed by Patnitala. The lowest rainless days was found at Paba location. The sheath blight incidence was increased at Patnitala location using both treatments. The highest disease incidence recorded using fungicide with nitrogen fertilizer formulation. The disease incidence was reduced at Paba and Baraigram locations.

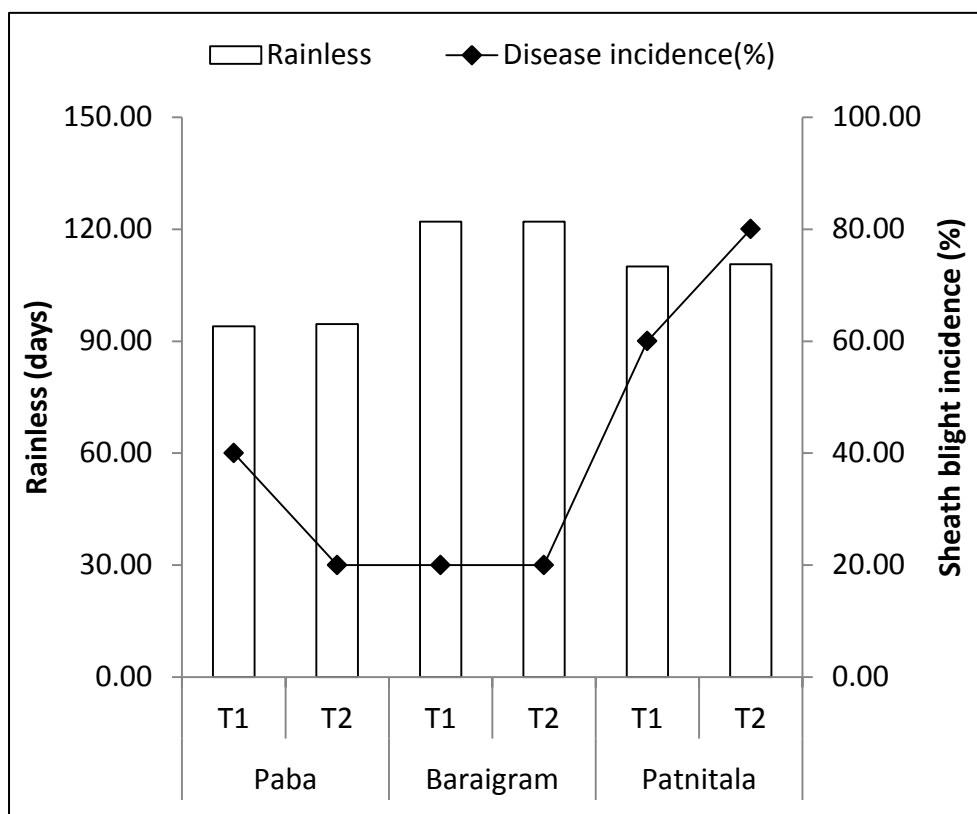
Correlation between sheath blight incidence and yield using fungicide with floating debris (A) and nitrogen fertilization (B) in three location are shown in Fig. 2. The positive correlation was observed between yield (ton/ha) and disease incidence (%). The sheath blight incidence was affected yield of swarna at all locations.

**Table 1.** Influence of fungicides on yield components of swarna rice variety grown in three location trails for sheath blight. Data presents mean value with standard error. Differences with in location by LSD at 5% level.

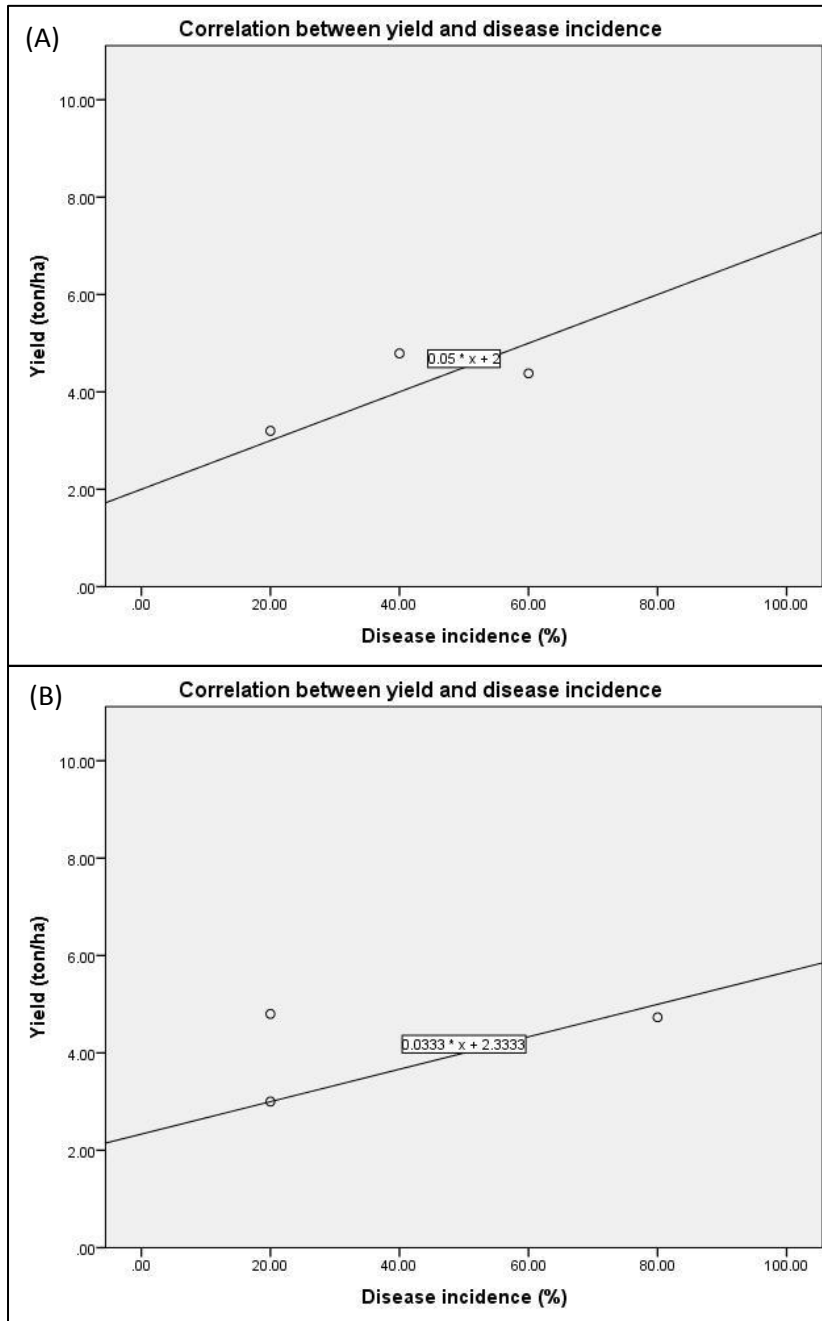
| Location  | Treatment | Yield components |                  |                        |
|-----------|-----------|------------------|------------------|------------------------|
|           |           | Fertile tiller   | Grain/panicle    | 1000 grain weight (gm) |
| Paba      | T1        | 14.600±1.304 a   | 154.800±8.776 a  | 22.000±0.173 b         |
|           | T2        | 17.400±1.304 a   | 171.800±8.776 a  | 22.020±0.173 b         |
| Baraigram | T1        | 14.000±2.915 a   | 130.000±19.625 b | 21.500±0.388 c         |
|           | T2        | 12.000±2.915 a   | 128.000±19.625 b | 21.200±0.388 c         |
| Patnitala | T1        | 12.200±1.304 a   | 163.400±8.776 a  | 22.400±0.173 a         |
|           | T2        | 12.800±1.304 a   | 181.600±8.776 a  | 23.400±0.173 a         |

T1= Collection of floating debris (F.D) + Fungicide (Folicure)

T2= Chemicals (Folicure) + 1/2 of the MPO with 2nd top dress of urea



**Figure 1.** Effect of fungicide with floating debris (T1) and nitrogen fertilizer formulation (T2) on sheath blight incidence (%) and draught duration in three locations.



**Figure 2.** Correlation between sheath blight incidence and yield using fungicide with floating debris (A) and nitrogen fertilization (B) in three location of Rajshahi Division.