



**PUSAT PENYELIDIKAN PADI DAN TANAMAN INDUSTRI (RIC)**  
MARDI Seberang Perai, 13200 Kepala Batas, Seberang Perai

---

**EFFICACY OF PERFECT SHIELD AND AMISTAR FOR PANICLE BLAST  
CONTROL IN RICE**

Saad Bin Abdullah  
Principle Research Officer  
MARDI Seberang Perai.  
[asaad@mardi.gov.my](mailto:asaad@mardi.gov.my)

**INTRODUCTION**

Blast disease caused by *Pyricularia oryzae* Cavara [Synonym *Pyricularia grisea* Sacc., the anamorph *Magnaporthe grisea* (T.T Hebert) Yaegashi and Udagawa], is major disease in Malaysia and considered a constraint to higher yields in rice growing area. Foliar and panicle blast occurred extensively on susceptible cultivated variety. The fungus *P. oryzae* attacks at all stages of the crop and symptoms appear on leaves and nodes (Seebold *et al.*, 2004). The symptoms are more severe in case of neck blast that is characterized by infection at the panicle base and its rotting (Bonman *et al.*, 1989). Rice blast causes yield losses at all stages, leaf blast at vegetative stage and panicle blast at reproductive stage. Heavy yield losses have been reported in many rice growing countries. The most usual approaches for the management of rice blast disease include planting of resistant cultivars, application of fungicides, and manipulation of planting times, fertilization and irrigations (Georgopoulos and Ziogas, 1992). This paper reports on the influence of various fungicides on the management of rice blast disease and their impact on rice yield.

## MATERIALS AND METHODS

### *Field plots, land preparations and planting materials*

Experiment was conducted at paddy field at Jabatan Pertanian Bumbong Lima, Seberang Perai, Pulau Pinang during Off-Season 2008 (April – August 2008) and Main Season 2008/2009 (October 2008 – February 2009). Field lay out was done accordingly to the experimental design of RCBD with 4 replications with the plot size 6m X 4m. Variety MR211 was used as a test variety since it is susceptible to blast disease.

### *Inoculum preparation and fungal inoculation*

For the purpose of *Pyricularia oryzae* inoculation, blast isolate no. 293 was used as inoculum. Inoculation was done by spraying spore suspension during 1% panicle heading stage (69 DAS).

### *Fungicides application*

The treatments consisted of two new fungicides viz Amistar and Perfect Shield. Fungicides applications were done at the desired concentration (Table 1) were done at 5-25% panicle heading (70 DAS) and one week after the first fungicides application (77 DAS). The fungicides rates used were as follows:

**Table 1.** List of fungicides tested with desired rates to control panicle blast.

Treatment	Fungicides	Quantity
1	Amistar	250 ml/ha
2	Amistar + Perfect Shield	250 ml/ha + 625 ml/ha
3	½ Amistar + Perfect Shield	125 ml/ha + 625 ml/ha
4	Perfect Shield	625 ml/ha
5	Control	-

### *Disease assessment*

The data regarding the occurrence of the blast disease was collected after the symptom appeared (99 DAS) by measuring the number of infected panicles.

### *Yield assessment*

Rice plots were harvested manually at 102 DAS for 5m X 3m plots. Grain yield assessment was done to determine the effect of the fungicides application on yield.

### *Data analysis*

The data obtained was subjected to analysis of variance and the means were separated by using Duncan's Multiple Range Test (DMRT) and ANOVA.

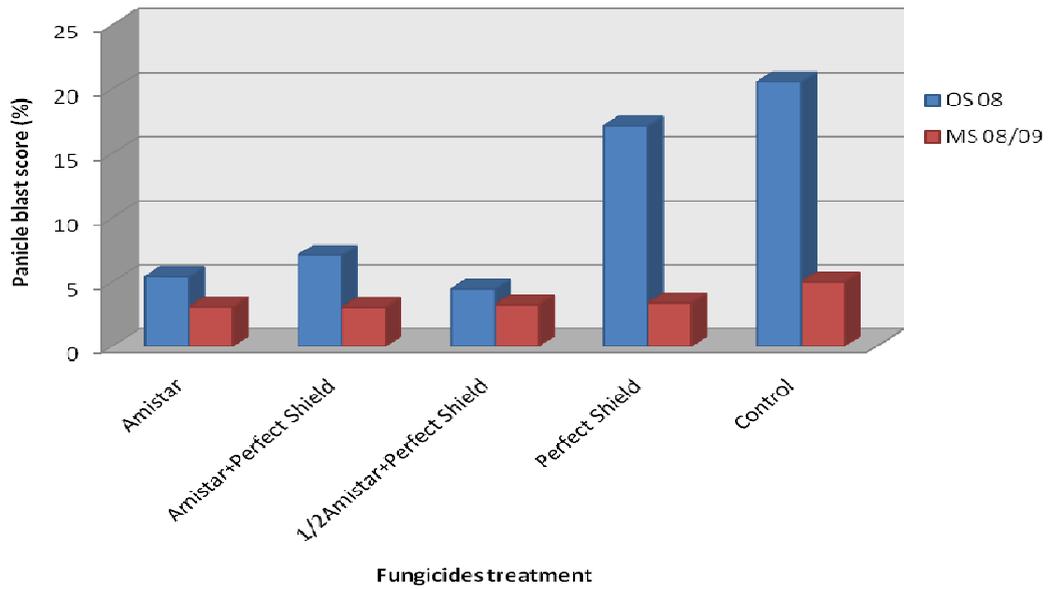
## **RESULT**

Evaluation of different fungicides on panicle blast under field conditions and their ultimate effect on crop yield is given in the (Table 2 and 3) and (Figure 1 and 2). The results showed that after the application of various fungicides against panicle blast, the combination of Perfect Shield and Amistar showed the best result with disease percentage of 4.43 % rather than application of Perfect Shield alone to control panicle blast with the percentage of 17.13% (Figure 1 and Table 2).

**Table 2.** Percentage of panicle blast after application of various fungicides treatments.

<b>Treatment</b>	<b>Percentage of Panicle blast scoring (%)<sup>a</sup></b>
Amistar	5.40
Amistar + Perfect Shield	7.07
½ Amistar + Perfect Shield	<b>4.43</b>
Perfect Shield	17.13
Control	20.57

<sup>a</sup> 4 replications were done for each treatments.



**Figure 1.** Panicle blast score (%) after fungicide application.

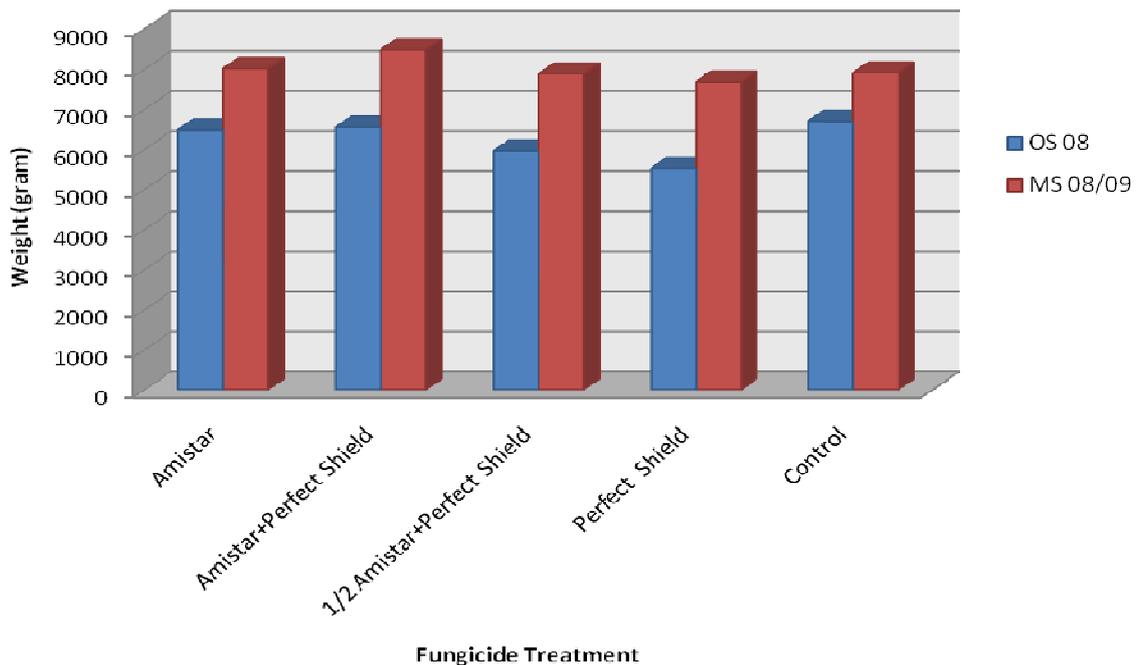
The result from yield assessment indicated that no significant differences in yield between the plant with fungicide treatment and untreated plant (control). However, plant treated with combination of Amistar and Perfect Shield gave highest yield than others in Main Season 2008/2009 and highest yield compared to untreated plant but slightly lower than untreated plant (control) in Off-Season 2008.

**Table 3.** Clean weight of grain yield of panicle blast infected rice after fungicides application on Off-Season 2008 and Main-season 2008/2009.

Treatment <sup>a</sup>	Ranks	Mean of clean weight
Amistar	3	6483.60 c
Amistar + Perfect Shield	5	6749.60 e
½ Amistar + Perfect Shield	2	5959.40 b
Perfect Shield	1	5519.07 a
Control	4	6696.33 d

Means followed by a common letter are not significantly different at the 5% level by DMRT.

<sup>a</sup> 4 replications were done for each treatments.



**Figure 2.** The effect of different fungicides on the grain yield of panicle blast infected rice.

## CONCLUSION

This experiment suggested that combination of Amistar and Perfect Shield could be used as panicle blast control since it can suppress panicle blast better than application of Perfect Shield alone.

## REFERENCES

- Bonman JM, Estrada BA, Banding JM, 1989. Leaf and neck blast resistance in tropical lowland rice cultivars. *Plant Dis.*, **73**:388-390.
- Seebold KW, Datnof JLE, Correa-Victoria FJ, Kucharek TA, Snyder GH, 2004. Effects of Silicon and fungicides on the control of leaf and neck blast in upland rice. *Plant Dis.*, **88**: 253-258.
- Georgopoulos SG, Ziogas BN, 1992. Principles and methods for control of plant diseases, Athens, p: 236.