
Performance of a new generation fungicide Metominostrobin 20SC against Sheath Blight disease of rice in West Bengal

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To investigate the bioefficacy of Metominostrobin 20SC in West Bengal against Sheath Blight disease of rice along with other existing recommendation of Hexaconazole and Tricyclazole as check fungicides, it was found that two sprays of the fungicide Metominostrobin 20SC @ 200 g a.i. ha⁻¹ (2 ml l⁻¹ water) not only gave an effective control of the Sheath Blight disease, but also improved the grain yield considerably, when compared with an untreated crop and a crop treated with a comparative fungicide.

Key words : Metominostrobin 20SC, fungicide, rice, Sheath Blight

INTRODUCTION

Sheath blight caused by *Rhizoctonia solani* Kühn. is one of the most important fungal diseases of rice during *Kharif* season in almost all rice growing areas of West Bengal (Biswas, 2000). Yield losses due to this disease has been reported from 30% - 40% depending upon environment condition, attack on crop stage, cultivars etc. (Ou, 1985). Due to high popularity, Swarna - a susceptible variety of rice to Sheath Blight disease is cultivated widely throughout West Bengal. As a result the disease has spread all over West Bengal in faster rate. Very few commercial resistant varieties are available to the farmers and so, fungicidal control appears to be the only practical solution to control the disease, so as to achieve full yield potential of the crop. Several fungicides like Validamycin, Flusilazole, Propiconazole, Hexaconazole, Trifloxystrobin-Tebuconazole combination etc. (Bag, 2009; Bora *et al* 1999; Saha 2006; Shadab *et al* 2007) have been targeted against the disease, but the continuous use of same fungicides might lead to resistance of the pathogen (Sengupta, 2004).

Thus, a meticulous search for new effective biorational fungicide is the mandate of the day. Targeting the mandate as the corner stone, the

present effort has been given for an intensive evaluation of a new generation strobilurin compound 'Metominostrobin 20SC' a potential fungicide against Sheath Blight of rice under West Bengal condition.

MATERIALS AND METHODS

The trial was conducted at the experimental field of Rice Research Station, Chinsurah, Govt, of West Bengal during *Kharif* season (2008). The experimental design was Randomized block with three replications and eight treatments including one untreated check. Swarna (MTU-7029), a high yielding cultivar and highly susceptible to Sheath Blight was selected for the experiment. Standard agronomic practices were followed for raising the crop. Fertilizer dose was N:P₂O₅:K₂O @ 120:50:30 kg ha⁻¹.

All the plants except the border ones were inoculated with 10-days old highly virulent isolate of the fungus by the 'straw-bit' method during active tillering stage (Rao and Kannaiyan, 1973). The pathogen was isolated from the infected leaf sheath of the susceptible cultivar. Five fungicides namely Metominostrobin 20SC, Metiram 70WDG, 'Captan 70% + Hexaconazole 5%' 75WP, Hexaconazole 5SC and Tricyclazole 75WP were

tested in their respective doses along with the untreated check.

Metominostrobin 20SC were sprayed in three different doses viz., 0.5 ml l⁻¹, 1.0 ml l⁻¹ and 2 ml l⁻¹ of water, Metiram 70WDG @ 4.0g l⁻¹, 'Captan 70% + Hexaconazole 5%' 75WP @ 1.5g l⁻¹ of water and two check fungicides Hexaconazole 5SC 2 ml l⁻¹ and Tricyclazole 75WP 0.6 g l⁻¹ of water were sprayed.

First fungicidal spray was done just after the initial appearance of the disease and second spray was done 10 days after first spray. The control plot was sprayed with plain water without any fungicide. Precautions were taken to prevent drifting of spray particles from target plot to other plots during spraying. The disease incidence was recorded 10 days after the last spray of fungicides from twenty five randomly affected plants in each treatment. The plants were assessed individually using SES, 0-9 scale (Anonymous, 1996). Disease severity (%) was calculated using this formula:

$$\text{Disease severity (\%)} = \frac{O(N_0) + 5(N_1) + 30(N_5) + 50(N_7) + 100(N_9)}{\text{Total No. of tillers of hills observed}} \times 100$$

Statistics was applied on ARCSIN transformed values of disease severity (%) data.

The grain yields recorded on plot basis and were converted to kg ha⁻¹ for statistical analysis, because as per Marchetti and Bollich (1991), there is a strong correlation between symptom severity and yield reduction.

RESULTS AND DISCUSSION

Perusal of data (Table 1) revealed that all the treatments increased grain yield and reduced disease severity as compared to untreated check. Disease pressure was on the higher note during *Kharif*, 2008 as is evident from the PDI value of untreated control plot (85.3%).

Metominostrobin 20SC @ 2 ml l⁻¹ of water manifested its superiority by possessing the lowest mean disease severity (30.1%) and highest grain

yield (6350 kg ha⁻¹) which was 40.5% higher than control. It also proved better than the check fungicide, Tricyclazole 75WP which had a mean disease severity of 64.9% and yield of 4880 kg ha⁻¹ which was only 8% higher than control. The performance of Metiram 70WDG @ 4.0g l⁻¹ was almost at par with the check fungicide but it was better than untreated control.

Though Metominostrobin 20SC @ 2 ml l⁻¹ was at par with Metominostrobin 20SC @ 1.0 ml l⁻¹, 'Captan 70%+Hexaconazole 5%' 75WP @ 1.5g l⁻¹ and Hexaconazole 5SC 2 ml l⁻¹ but Metominostrobin 20SC @ 2 ml l⁻¹ gave the lowest DS% and highest yield.

Table 1 : Performance of new fungicides against Sheath Blight of rice

Name of fungicides	Doses litre ⁻¹ of water	Disease severity (%)	Yield (kg/ha)
Metominostrobin 20SC	0.5 ml	43.9 (41.4)	5730
Metominostrobin 20SC	1.0 ml	39.9 (39.1)	5870
Metominostrobin 20SC	2.0 ml	30.1 (33.1)	6350
Metiram 70 WDG	4.0 g	54.2 (47.4)	5030
Captan 70% + Hexaconazole 5% 75 WP	1.5 g	31.0 (33.8)	6120
Contaf 5SC (Hexaconazole)	2.0 ml	32.1 (34.5)	6100
Dhanteam 75WP (Tricyclazole)	0.6 g	64.9 (54.6)	4880
Check (Untreated)	—	85.3 (68.7)	4520
CD (0.05)		13.6	815
CV(%)		17.6	12.2

N.B. Figures in parenthesis indicate ARCSIN transformed values.

Metominostrobin 20SC @ 2 ml l⁻¹ was also found best in managing ShB disease in other AJCRIP centre like Faizabad, Moncompu, Patna, Pantnagar, Mandya durinf kharif 2008 (Anonymous, 2009).

Application of Metominostrobin 20SC was found much effective in reducing other rice diseases such as leaf blast, neck blast, brown spot, stem rot etc. in compare to these same set of fungicides (Anonymous, 2009).

No phytotoxicity symptoms like leaf necrosis, epinasty, hyponasty, leaf tip injury, chlorosis, stunting or wilting were observed and hence the fungicide may be considered as safe for use in rice crop.

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