

## Effect of Irrigation on the Incidence of Brown Spot of Rice

The brown spot of rice caused by *Drechslera oryzae* (Breda de Hann) Subram and Jain is widespread in all the rice growing areas of the world (Singh, 1973). It was considered to be a major factor contributing to the Bengal famine of 1942, the losses then amounting to 50-90% (Padmanabhan, 1973).

Field experiment was conducted at Agricultural Research Station, Mugad, during kharif 1992-93. The experiment was laid out in Randomised Block Design (RBD) with ten treatment and three replications. Variety used was Gama-318 (Avinash) and sowing was done on 31st May, 1992. The total amount of rainfall received during kharif, 1992-93 was 1155.3 mm in 76 rainy days. Treatments were as follows :

1. Completely rainfed;
2. Irrigation at boot leaf stage (BLS);
3. Irrigation at flower stage (FS);
4. Irrigation at grain filling stage (GFS);
5. Irrigation at BLS & FS;
6. Irrigation at FS and GFS;
7. Irrigation at BLS & GFS;
8. Irrigation at BLS, FS & GFS;
9. Maintaining 5 cm submergence from BLS till 10 days before harvest;
10. Dummy plot to irrigate in the event of early stress + Irrigation at BLS, FS & GFS.

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Brown spot was scored based on 0-9 scale (standard evaluation system for rice) and then per cent disease index (PDI) was calculated by using following formula.

$$PDI = \frac{\text{Total of individual ratings}}{\text{Total no. of leaves screened} \times \text{maximum disease grade}} \times 100$$

Results indicated that brown spot incidence was more in completely rainfed crop which was on par with irrigation at boot leaf stage. Su (1938) also observed increased infection with reduced water supply. Hemmi and Suzuki (1931) reported that seedlings were more susceptible in dry than in wet soil.

Disease incidence was significantly reduced when irrigation was given during flowering stage or grain filling stage. Disease incidence was minimum when the plots were irrigated for three times i.e. during bootleaf stage, flowering stage and grain filling stage.

From the results it is clear that brown spot incidence was less in irrigated rice when compared to rainfed rice.

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### References

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Table 1. Effect of irrigation on the incidence of brown spot of rice

Sl.No.	Treatment	Brown spot	(PDI)*
1.	Completely rainfed	63.17	(79.6)
2.	Irrigation at boot leaf stage (BLS)	61.88	(77.8)
3.	Irrigation at flowering stage (FS)	50.86	(60.3)
4.	Irrigation at grain filling stage (GFS)	52.69	(63.2)
5.	Irrigation at BLS & FS	53.28	(64.2)
6.	Irrigation at FS & GFS	49.10	(57.2)
7.	Irrigation at BLS & GFS	53.04	(63.8)
8.	Irrigation at BLS, FS & GFS	46.92	(53.3)
9.	Maintaining 5 cm submergence from BLS till 10 days before harvest	52.83	(63.5)
10.	To irrigate in the event of early stress + irrigation at BLS, FS & GFS	47.88	(54.9)
	CV %	17	
	CD at 5%	8.67	

\* Figures in parenthesis are original values and outside are arcsin values