Short Communication **Oryza Vol. 45. No.4, 2008 (331-332)**

Evaluation of rice genotypes against white backed plant hopper (*Sogatella furcifera* Horvath)

P. C. Rath

Central Rice Research Institute, Cuttack-753006,Orissa, India

ABSTRACT

Ninety five rice genotypes along with resistant and susceptible check varieties Ptb33 and TN1, respectively were evaluated against Sogatella furcifera Horvath *under net house condition at CRRI Cuttack during 2006. The result of the experiment revealed that only Ptb33 and IRGC 10118 were resistant and recorded damage score '0'. The genotype IRGC 13753 was found to be moderately resistant recording damage score '1'. Five genotypes viz., IRGC 10035, IRGC 44967, IRGC 45653, IRGC 45696 and IRGC 46021 were less susceptible to the pest with damage score '3', three genotypes viz., IRGC 45242, IRGC 45152 and IRGC 45938, were recorded damage score '5',eight genotypes were found moderately susceptible with score '7' and the rest seventy eight were highly susceptible with score '9'.The genotype IRGC 10118 was again evaluated against the pest in 2007 and was found resistant.*

Key words: *Resistance, rice germplasm, WBPH*

The White Backed Plant Hopper (WBPH),*Sogatella furcifera* Horvath damages rice crop in many parts of India including Andhra Pradesh, Assam, Bihar, Delhi, Haryana, Himachal Pradesh, TamilNadu, Uttar Pradesh, West Bengal, Madhya Pradesh, Manipur, Orissa, Maharashtra, Rajasthan and Punjab (Chelliah and Gunathilagaraj, 1990). Both nymphs and adults suck phloem sap causing reduced vigour, stunting, yellowing of leaves and delayed tillering. It is a major pest of rice in hilly tracts of Uttar Pradesh (Sachan and Garg, I992) and Haryana (Kushwaha *et al*., 1982). This pest is more abundant during the early stage of crop growth in rice. Under favorable conditions, WBPH produces several generations and can cause hopper burn. Thus it is necessary to find out resistant genotypes for endemic areas and donors for varietal development programme. Till now, very few donors *viz.*, Udaya, Saras, Anjali, Phalguna, Kranti, Krishnabeni, Himadhan, Kishira and Kalyani II have been identified (Rath *et al*., 2005). So an attempt has been made to evaluate 95 genotypes against WBPH to find out suitable resistant genotypes.

Ninety five rice genotypes along with white backed plant hopper (WBPH) resistant and susceptible check varieties Ptb33 and TN1 respectively were evaluated against WBPH under net house condition at CRRI Cuttack during 2006. Each genotype was sown in a line in a plastic tray. An uniform plant population of 20 plants was maintained for each variety. A mother culture of WBPH was maintained and reared in the susceptible variety TN1 to get sufficient number of WBPH population of uniform sizes in the net house. After 10 days of germination, WBPH nymphs (mixed population of 2nd and 3rd instars) were collected and released on the seedlings at the rate of 7-8 insects per plant. The plastic trays were kept inside a cage for ten days. After ten days of insect feeding, observations were recorded on the per cent mortality of the plants as per the IRRI Standard Evaluation System,(1996). The resistant genotypes was again evaluated in same procedure during 2007.

The result of the experiment (Table 1) indicated that only Ptb33 and IRGC 10118 was resistant and recorded damage score '0'.This resistant genotypes can be further utilized in resistant breeding programme. The genotypes *viz.*, IRGC 13753 were found to be moderately resistant recording damage score '1'. Five genotypes viz., IRGC 10035, IRGC 44967, IRGC 45653,IRGC 45696 and IRGC 46021 were less susceptible to the pest with damage score '3' and three

Table 1. Screening of rice germplasm against WBPH

Damage score(SES)	No. of genotypes	Genotypes
0	2	Ptb33 (resistant check), IRGC10118
1	1	IRGC13753
3	5	IRGC45653, IRGC10035, IRGC44967, IRGC45696, IRGC46021
5	3	IRGC45242, IRGC45152, IRGC45938,
7	8	IRGC45115, IRGC45578, IRGC44957, IRGC45364, IRGC10077, IRGC6173, IRGC10042, IRGC45122
9	78	IRGC5815, IRGC6156, IRGC6185, IRGC6339, IRGC6358, IRGC6450, IRGC6669, IRGC8891, IRGC9965, IRGC9966, IRGC9986, IRGC10004, IRGC10005, IRGC10037, IRGC10055, IRGC10060, IRGC10105, IRGC10113, IRGC10116, IRGC10127, IRGC10136, IRGC10154, IRGC10175, IRGC10187, IRGC13749, IRGC19300, IRGC39576, IRGC39615, IRGC39691,IRGC39726, IRGC39842, IRGC40017, IRGC42069, IRGC42142, IRGC42703, IRGC43228, IRGC43311, IRGC44901, IRGC44905, IRGC44973, IRGC44984, IRGC45000, IRGC45084, IRGC45109, IRGC45128, IRGC45144, IRGC45165, IRGC45167, IRGC45238,IRGC45310, IRGC45365, IRGC45413, IRGC45416, IRGC45467, IRGC45477, IRGC45478, IRGC45481, IRGC45489, IRGC45495, IRGC45522, IRGC45579, IRGC45583, IRGC45606, IRGC45631, IRGC45642, IRGC45702, IRGC45720, IRGC45748, IRGC45798, IRGC45840, IRGC45960, IRGC45994, IRGC46030, IRGC46081, IRGC46101, IRGC46123, IRGC46134 and TN 1 (Susceptible check).

SES: Standard Evaluation System

genotypes viz., IRGC 45242, IRGC 45152 and IRGC 45938 were with damage score '5'. Eight genotypes viz., IRGC 45115, IRGC 45578, IRGC 44957,IRGC 45364, IRGC 10077, IRGC 6173, IRGC 10042 and IRGC45122 were found moderately susceptible with damage score '7' and the rest seventy eight were highly susceptible and recorded damage score '9'. The promising genotypes were again screened for WBPH resistance during 2007 and IRGC 10118 was found to be highly resistant.

REFERENCES

Anonymous 1996. Standard Evaluation System, IRRI, Philippines

Chelliah S and Gunathilagaraj K1990. Rice pest management: Status and strategies. Lead paper presented in the *National Symposium on Rice in Wetland Ecosystems*, December 19-21,1990,Kottayam, Kerala, pp54

Kushwaha KS, Mrig K. and Singh R1982.Damage to rice cultivars by whitebacked planthopper. Indian J. Ent 44;283-284

Rath PC, Prakash A, Rao J and Subudhi HN. 2005. Screening of rice varieties against white backed plant hopper (WBPH) *Sogotella furcifera* Horvath, in net house condition. J Appl Zool Res 16(1): 21-22

Sachan SK and Garg DK 1992.Field pest of rice in hills of Uttar Pradesh. *Oryza* 29:81-83