

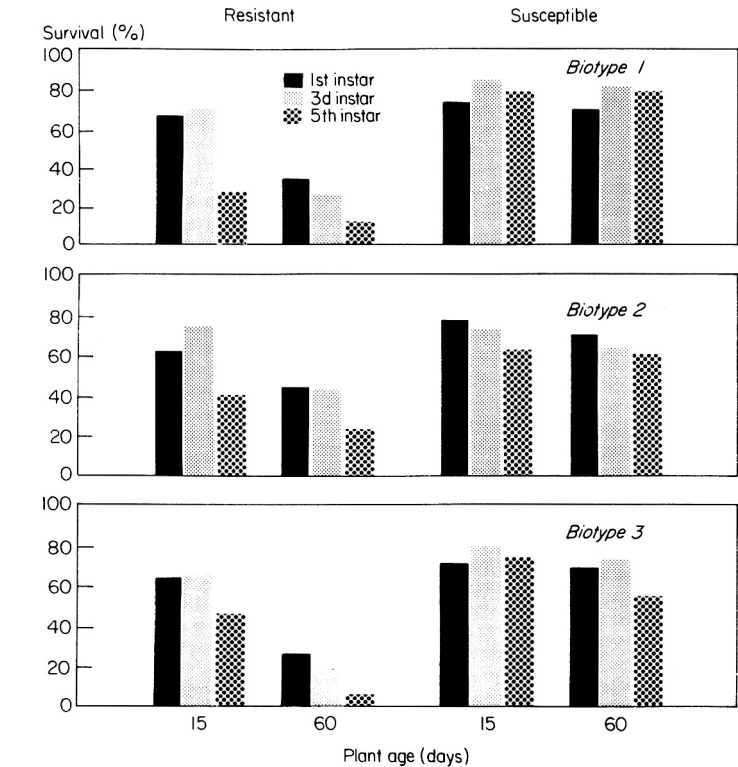
**Influence of the stage of the brown planthopper *Nilaparvata lugens* and plant age on insect survival on resistant varieties**

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Data on the survival, population buildup, and feeding activity are commonly used to study the nature of resistance of rice varieties to the brown planthopper (BPH) *Nilaparvata lugens*. In our studies we have been egg caging BPH on TN1 for oviposition, placing the 1st-instar nymphs on the test varieties and determining their survival rate after 30 days. We wanted to see if we could use 5th-instar nymphs to save time and determine if they would be more sensitive than earlier-instar nymphs. A study was conducted to test three age groups of the BPH to determine which stage was most sensitive to the resistant variety and thus would detect varietal differences most precisely.

The 1st, 3d, and 5th instars of biotypes 1, 2, and 3 were tested. Test insects were maintained on 50- to 60-day-old TN1 plants until used in the test. Ten insects were placed on 15- or 60-day-old plants in mylar film cages 7 cm in diameter and 65 cm high. Ten cages were used for each variety, each cage serving as a replicate. Resistant varieties tested were ASD7, IR26, IR42, Mudgo, and Rathu Heenati against biotype 1; ASD7, IR42, and Rathu Heenati against biotype 2; and IR26, Mudgo, and Rathu Heenati against biotype 3. TN1 was the susceptible variety. Survival was based on number of insects alive 8 days after infestation.

Survival of the 5th-instar nymphs was significantly lower than that of the 1st and 3d instars on the 15-day-old resistant plants (see figure). On 60-day-old resistant plants, survival of all instars was low. The 5th instar showed maximum differences in survival of the biotypes when comparing the resistant and susceptible varieties. But the 1st and 3d instars generally gave maximum differences when survival was compared on 15- and 60-day-old plants. We propose 1) that 5th-instar nymphs be



Reaction of BPH nymphs at three stages on resistant and susceptible rice varieties. IRRI, 1979.

used on 15-day-old plants to compare survival rates on varieties and to determine comparative levels of resistance, and

2) that 3d-instar nymphs be used to compare resistance levels on various ages of rice varieties. ■

**Multiple pest resistance in some tall traditional varieties**

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Sixty-six tall traditional varieties identified as resistant or moderately

resistant to brown planthopper (BPH) at Hyderabad, India, were screened for reactions to the whitebacked planthopper (WBPH), gall midge (GM), rice tungro virus (RTV), and bacterial blight (BB). All were susceptible to BB but resistant to one or more of the other stresses (see table). Varieties that showed resistance to BPH, WBPH, GM, and RTV were: Chennellu, Pandi, PTB19, PTB21, T1471 Valsara Champara, and Vellathil Cheera.

**Reactions of some tall varieties to 3 insects and 1 disease at Hyderabad, India.**

Designation	Origin	Reaction <sup>a</sup> to			
		BPH	WBPH	GM	RTV
ARC6564	India	R	R	S	R
ARC6650	"	R	MR	S	R
ARC10945A	"	R	S	S	R
ARC11704	"	R	MR	R	S
ARC13349	"	MR	MR	S	MR
ARC13788	"	MR	MR	S	R
ARC14342A	"	R	S	S	R
ARC14394	"	R	MR	S	MR
ARC14529A	"	R	R	S	R
ARC14539B	"	MR	R	S	S

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