

Madras Agric. J. 74 (6-7) 265-266 June-July, 1987.

EFFECT OF SLOW RELEASE NITROGENOUS FERTILIZER IN THE CONTROL OF STEMBORER OF RICE

R. RAJENDRAN¹, M. GOPALAN² and G. BALASUBRAMANIAN³

Application of coal tar coated urea 100 Kg N/ha, in three splits (50% N as basal, 25% N on 15 DAT and 25% N on 30 DAT) resulted in lesser incidence of stemborer DH and WE and registered higher grain yield in rice.

Saxena *et al.* (1984) observed that application of neem blended urea (3 : 10) on 30 DAT recorded low build up of brown planthopper population but at 2 : 10 ratio recorded higher yield. Alagarsamy *et al.* (1985) found that neem blended urea recorded less incidence of stemborer and sheath rot, compared to coal tar coated urea, urea super granule and prilled urea. Experiments conducted by Balasubramanian *et al.* (1987) revealed the basal application of neem-blended urea (1 : 5) and coal tar coated urea reduced the incidence of stemborer deadhearts, white ears and recorded higher yields.

MATERIALS AND METHODS

Microplot and field experiments were conducted during rabi and kharif seasons, 1985 respectively at the Paddy Breeding Station, Tamil Nadu Agricultural University, Coimbatore to evaluate the effect of five and four slow release nitrogenous fertilizers respectively as in Table 1 for the control of stemborer with the variety Co 43 adopting a spacing of 20 × 10 cm. Twenty-day-old seedlings were planted in the microplots of 2 m². Fifty per cent of total 'N' was applied as basal at the time of planting and the remaining 50 per cent applied as top dressing in two equal splits at 15 days intervals after planting. Freshly collected stemborer

moths from the field were inoculated @ 20 (female : male 1 : 1) per microplot continuously for three days on 15 day after transplanting and each plot was confined with a nylon net.

The field trial was conducted in plots of 40m². In both the experiments stemborer infestation was assessed for dead hearts (DH) on 30 and 45 DAT and for whiteears (WE) on 75 DAT by counting the total number of tillers and affected tillers from 10 hills, selected at random per plot and the percentage of damage was worked out. Grain yield was gathered at harvest. The data on percentage of stemborer incidence were transformed into arcsin values and analysed statistically.

RESULTS AND DISCUSSION

In the microplot experiment, the data on stemborer deadhearts on 30 DAT showed that all the 'N' fertilizers recorded higher incidence of dead hearts compared to control. Among the different forms of urea, NCU 100 kgN/ha recorded the maximum incidence. With regard to whiteears, coal tar coated urea 100 kg N and 80 kg N/ha registered 1.43 and 1.50 per cent respectively as against 3.77 in control.

In the field experiment, there was

¹ Assistant Professor; ² Professor; ³ Associate Professor. Department of Agricultural Entomology Centre for Plant Protection Studies, Tamil Nadu Agricultural University, Coimbatore 641 003.

Table 1. Influence of slow release N fertilizers on the incidence of rice stem borer, *Scirpophaga incertulas*

Treatment	Green house evaluation (Stemborer damage (%))*			Field evaluation Stemborer damage (%)*			Yield Kg/ha
	Deadheart		Whitear	Deadheart		Whitear	
	30 DAT	45 DAT	75 DAT	30 DAT	45 DAT	75 DAT	
Prilled urea 100 Kg N/ha (PU)	d 38.28	c 54.47	b 2.74	a 24.38	ab 13.99	b 11.43	b 2272
Neem cake urea mixture 80 Kg N/ha (NCU)	e 49.50	c 54.80	c 3.24	—	—	—	—
Neem cake urea mixture 100 Kg N/ha (NCU)	cd 35.93	b 42.92	bc 2.87	a 25.79	bc 14.81	ab 9.22	c 1980
Coal tar coated urea 80 Kg N/ha (CCU)	bc 34.30	a 37.09	a 1.50	a 23.04	bc 15.20	a 7.84	a 2561
Coal tar coated urea 100 Kg N/ha (CCU)	b 32.67	ab 40.14	a 1.43	a 26.11	a 11.56	a 7.48	a 2640
Untreated control	a 24.99	ab 40.47	d 3.77	a 24.27	c 17.25	ab 9.25	b 2100

In a column, means followed by the same letter are not significantly different at 5% level by DMRT

* arcsin transformed values

DAT Days after transplanting

no significant difference in stemborer DH among the treatments at 30 DAT. At 45 DAT coal tar coated urea at 100 kg N/ha was significantly superior to all other treatments in recording less percentage of deadhearts (11.56%) as against 17.25 per cent in control. With regard to whiteears, coal tar coated urea 100 kg N and 80 kg N/ha were on par in recording 7.48 and 7.84 per cent respectively but superior to other treatments. The treatment coal tar coated urea both at 100 and 80 kg N/ha also recorded 2640 and 2571 kg of grain yield/ha respectively which were on par. The superior effect of coal tar coated urea in reducing the stemborer damage and realising the higher yield is in conformity with the findings of Subramanian (1984) and Balasubramanian *et al* (1987).

REFERENCES

- ALAGARSAMY, G., M. VELUSAMY, and S. RAJAGOPALAN, 1985. Effect of slow release nitrogenous fertilizers on stemborer and sheath rot incidence on rice grain yield. *International Rice Research News letter* 10 (4) : 19.
- BALASUBRAMANIAN, G., S. JAYARAJ, and M. BALASUBRAMANIAN, 1987. Effect of slow release fertilizer nitrogen and neem products in the control of stemborer of Rice. *Indian J. Plant Prot.* 15: 132-135.
- SAXENA, R. C., H. D. JUTO, and P. B. EPINO, 1984. Evaluation and utilization of neem cake, against the rice brown planthopper *Nilaparvata lugens* (Homoptera: Delphacidae). *J. Econ. Entomol.* 77 : 502-507.
- SUBRAMANIAN, A. 1984. Effect of major nutrients applied to rice brown planthopper, *Nilaparvata lugens* Stal. M. Sc., (Ag.) Thesis, (Unpublished), Tamil Nadu Agric. University, Coimbatore.