Table 2. Stability parameters for seed yield in black gram

Genotypes	Mean (kg/ha)	bi	S^2d
VBG 3	403	1.45	14501.87 *
VBG 11	470	1.69	13908.52 *
VBG 20	531	1.31	12847.30 *
LBG 17	416	0.69	4619.23
LBG 402	330	0.95	9476.58 *
CO 5	350	1.02 z	4050.21
T 9	450	0.54	9664.55 *
VAMBAN 1	481	0.35 zu	490.78
SE	49.8	0.49	
CD (P=0.05)	102.1		

* significant at 5 % level against pooled error ; z significant at 5 % level from zero ; u significant at 5 % level from unity.

the genotypes, three genotypes *viz.*, Vamban 1, LBG 17 and Co 5 recorded non-significant S^2d values indicating their stable performance over environments for seed yield (Table 2).

Among the genotypes, Vamban 1 recorded the b value of 0.35 which is less than unity. Hence, it may be considered as below average responsiveto environment. The genotype Co 5 recorded the b values of 1.02 which is equal to unity and considered as average responsive to environment. Other six genotypes recorded b values which were non-significantly deviating from zero. These genotypes may be considered as no responsiveness to environment. While considering the mean values, genotypes VBG 20, Vamban 1, VBG 11 and T9 recorded high mean seed yield.

It may be concluded that the genotype Co 5 is stable, average responsive to environment but poor yielder and Vamban 1 is stable, below average responsive to environment and high yielder. Hence, Vamban 1 may be recommended to any environment because of its predictable performance, low responsive to environment and high yield.

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RESIDUAL EFFECT OF GREEN MANURE AND GROWTH REGULATORS ON THE YIELD OF RATOON RICE

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ABSTRACT

Sesbania rostrata applied @ 12.5 $t.ha^{-1}$ as basal for main crop of rice increased the growth parameters, grain yield and straw yield of ratoon crop. Glucose 2% spray on 5th day after harvest of plant crop (DAHP) plus 2% DAP (diammonium Phosphate) spray on 30 DAHP increased the growth parameters and yield of ratoon rice.

KEY WORDS : Green manuring, growth regulators, ratoon rice

Ratooning is one of the practical ways to increase rice production per unit area and per unit time. In areas where adequate water is available for a shorter time after main crop, rice ratooning could be practice. Ratooning and its usefulness has been studied in many countries (Krishnamurthy, 1988). Positive results of green manuring in increasing the rice yields of varying magnitudes were reported by Ladha *et al.*,. (1989).

MATERIALS AND METHODS

Field experiments were conducted during 1991 to study the residual effect of green manure and

growth regulators on the yield of ratoon rice crop. The main plot treatments were, (M_0) rice-solid stand, (M_1) *Sesbania rostrata* @ 12.5 t.ha^{-1} as basal applied 7 days before transplanting the main crop of rice, (M_2) *S. rostrata* intercropped with main crop of rice and incorporated on 30 days after planting, (M_3) *S. rostrata* intercropped with main crop of rice and incorporated on 60 days after planting. The sub-plot treatments (for ratoon crop) were, (T_1) no spray, (T_2) 2% glucose spray on 5th day after harvest of plant crop (DAHP) + 2% DAP (diammonium phosphate) spray on 30 DAHP. (T_3) 2% glucose spray on 5th DAHP + Cytozyme* spray (recommended dosage) on 30 DAHP, (T_4) 2% jaggery solution spray on 5th DAHP + 2% DAP spray on 30 DAHP, (T_5) 2% jaggery solution spray on 5th DAHP + Cytozyme spray (recommended dosage) on 30 DAHP. The experiment was conducted in a split plot design with three replications. The soil of the experimental field was deep clay loam. In the main crop, a spacing of 20x10 cm was adopted for the treatments M_0, M_1 and 15x10 cm for rice, where *S. rostrata* was intercropped. *S. rostrata* was planted at a spacing of 45x10 cm. The experiment was conducted from June to December with the medium duration rice variety Bhavani.

RESULTS AND DISCUSSION

S. rostrata @ 12.5 t.ha^{-1} as basal increased the plant height (PH), leaf area index (LAI), dry matter production (DMP), grain yield, (GY) and straw yield (SY) of the main crop (Table 1). The GY and SY were 4.15 adn 4.58 t.ha^{-1} respectively.

S. rostrata @ 12.5 t.ha^{-1} as basal for main crop of rice increased the PH, LAI, DMP, GY and SY of ratoon rice crop. The GY and SY were 2.13 and 2.28 t.ha^{-1} (Table 2). The ratoon crop yields in *S. rostrata* intercropped treatments were less. Since the number of tillers in the main crop was suppressed by the shading effect of *S. rostrata* the ratoon crop tillering was very much affected, resulting in poor grain yield.

Glucose 2% spray on 5th DAHP + 2% DAP spray on 30 DAHP increased the PH, LAI, DMP, GY and SY. The GY and SY were 1.87 and 2.04 t.ha^{-1} (Table 2) respectively. Kanagasabai (1987)

Table 1. Growth parameters and yield attributes of main crop

	Treatments	Plant height at PI stage (cm)	LAI at 50% flowering	DMP at 50% flowering	Grain yield t.ha^{-1}	Straw yield t.ha^{-1}
M_0	Rice (solid stand)	101.73	6.72	6945	3.83	4.16
M_1	Rice (solid stand) with basal application of green manure @ 12.5 t ha^{-1} for main crop	106.23	6.86	7261	4.15	4.58
M_2	*Sesbania rostrata* inter-cropped with main crop of rice & incorporated on 30 days after planting	99.53	6.75	6995	3.86	4.18
M_3	*Sesbania rostrata* inter-cropped with main crop of rice & incorporated on 45 days after planting	96.87	5.40	6786	3.37	3.87
M_4	*Sesbania rostrata* inter-cropped with main crop of rice & incorporated on 60 days after planting	96.00	5.30	6677	2.62	3.02
	SED	0.87	0.01	29.665	0.04	0.04
	CD at 5%	2.00	0.03	68.407	0.010	0.10

* Mention of a proprietary product does not mean endorsement by the MASU.

Table 2. Residual effect of green manure, growth regulators on ratoon rice crop.

	Treatments	Plant height at PI stage (cm)	LAI at 50% flowering	DMP at 50% flowering	Grain yield t.ha^{-1}	Straw yield t.ha^{-1}
M_0	Rice (solid stand)	61.50	4.30	3815	1.53	1.69
M_1	Rice (solid stand) with basal application of green manure @ 12.5t ha^{-1} for main crop	63.47	5.35	4172	2.13	2.28
M_2	*Sesbania rostrata* intercropped with main crop of rice & incorporated on 30 days after planting	60.91	4.45	3818	1.59	1.75
M_3	*Sesbania rostrata* intercropped with main crop of rice & incorporated on 45 days after planting	59.29	4.01	3632	1.35	1.57
M_4	*Sesbania rostrata* intercropped with main crop of rice & incorporated on 60 days after planting	57.89	3.70	3221	1.29	1.48
	SED	0.151	0.09	1.033	0.02	0.03
	CD at 5%	0.321	0.21	2.300	0.05	0.06
T_1	No spray	59.86	4.15	3722	1.46	1.62
T_2	2% Glucose spray on 5th DAHP + 2% DAP spray on 30 DAHP	62.54	4.77	3754	1.87	2.04
T_3	2% Glucose spray on 5th DAHP + Cytozyme spray on 30 DAHP	61.09	4.53	3742	1.62	1.84
T_4	2% Jaggery spray on 5th DAHP + 2% DAP Spray on 30 DAHP	59.17	4.01	3708	1.42	1.59
T_5	2% Jaggery Spray on 5th DAHP + Cytozyme spray on 30 DAHP	60.39	4.35	3732	1.52	1.69
	SED	0.241	0.16	2.166	0.03	0.03
	CD at 5%	0.487	0.33	4.378	0.06	0.06

reported that glucose sprayed for ratoon rice crop increased the yield components.

It is concluded that, rice (solid stand) with basal application of green manure *S. rostrata* @ 12.5 t.ha^{-1} for the main crop increased the growth parameters, grainyield and straw yield, in ratoon crop. Among the growth regulators, glucose 2% spray + DAP 2% spray increased the growth parameters, grain yield and straw yield of ratoon rice.

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