J. Phytol. Res. 14 (1) : 99-100, 2001

BIOMETRIC PARAMETERS OF CLUSTER BEANS AS INFLUENCED BY SAGOWASTE AND PRESSMUD

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Using cluster beans as the test crop, pot culture study was conducted in red sandy loam soil to reveal the influence of the agrowastes - sagowaste and pressmud on the biometrical parameters of the crop. Composted agrowastes applied individually and in combination with biofertilizers had increased the growth parameters of cluster beans.

Keywords : Pressmud; Sagowaste.

The high yield of modern agriculture are mainly dependent on the use of chemical fertilizers. The repeated heavy application of these fertilizers leads to the deterioration of soil properties besides causing environmental damage. Resorting to the application of organic manure could minimize these problems, as they posses many advantages over chemical fertilizer. The sagowaste and pressmud are the solid wastes from the sago factory and sugar factory respectively. These wastes can be effectively composted into an enriched organic manure. This research was carried out to brighten the possibilities of using the agrowastes in increasing the productivity of cluster beans in pot culture experiment.

A pot culture study involving cluster beans as tesat crops was conducted in red sandy loam soil.

The treatment details were :- T_1 - Control; T_2 - NPK; T_3 - Raw sagowaste; T_4 - Composted sagowaste; T_5 - Raw pressmud; T_6 - Composted pressmud; T_7 - Phosphobacteria; T_8 - *Rhizobium*; T_9 - Composted Sagowaste+phosphobacteria; T_{10} - Composted Sagowaste+*Rhizobium*; T_{11} - Composted pressmud+phosphobacteria; T_{12} - Composted pressmud+*Rhizobium*.

The design of the experiment is a randomised block design with twelve treatments and three replications. The raw agrowastes was composted with *pleurotus* and urea. The agrowastes-sagowaste and pressmud were applied at the rate of 12.5t/ ha and biofertilizers 10gms per pot. NPK were applied at the rate of 25 Kg, 50 kg, and 40 kg/ha respectively. Cultivation practices were followed properly and the plants were pulled out carefully at the vegetative and flowering stages to record biometric observation.

The results were observed and recorded at vegetative and flowering stages (Table 1 and 2).

The shoot length and root length had an appreciable influence in all the treatments. There had been a marked influence of the treatment T_{12} on number of nodules (7.0) and nodule index the maximum increase was noted in the treatment T_8 (0.43). The plant fresh weight was increased in the treatment T_5 whereas plant dry weight was maximum in the treatment composted pressmud with phosphobacteria.

The growth and yield parameters of maize and wheat were increased significantly due to addition of pulverized maize stock and bio-inoculants in pot experiments[1].

The application of composted sagowaste and pressmud with biofertilizers had increased the shoot length and root length of clusterbeans at 60th day. The treatment T_{12} (*Rhizobium*) had increased number of nodules (8.0). The nodule index was maximum in the treatment T_7 (0.58). All the treatments had increased the plant fresh weight and plant dry weight when compared to control. Dubey[2] stated that the yields of soyabean increased by 22.6% and 15.8% with application of 6t FYM or 3t PM/ha together with bradyzhirobium

Table 1. Vegetatie parameters of cluster beans as influenced by sagowaste and pressmud (30 days)

Treat-ments	Shoot Length (cm)	Root Length (cm)	Number of nodules	Nodule index	Plant fresh weight (g)	Plant dry weight (g)
T_1	10.4	10.8	2.7	0.26	1.01	0.081
T_2	11.1	15.7	3.0	0.19	1.05	0.102
T_3	11.0	12.7	4.7	0.37	1.10	0.088
T_4	12.4	13.3	4.0	0.30	1.11	0.090
T_5	12.9	14.1	4.3	0.31	1.15	0.094
T_6	13.1	15.2	5.7	0.37	1.18	0.091
T_7	13.3	17.7	6.7	0.42	1.21	0.092
T_8	13.9	15.8	6.3	0.43	1.23	0.092
T_9	14.2	16.0	6.3	0.40	1.30	0.096
T_{10}	14.3	16.1	6.7	0.42	1.32	0.109
T_{11}	14.5	16.4	6.3	0.40	1.41	0.110
T_{12}	14.9	16.5	7.0	0.42	1.45	0.115

Table 2. Vegetatie parameters of cluster beans as influenced by sagowaste and pressmud (60 days)

Treat-ments	Shoot Length (cm)	Root Length (cm)	Number of nodules	Nodule index	Plant fresh weight (g)	Plant dry weight (g)
T_1	11.4	10.3	3.7	0.34	2.05	0.086
T_2	15.9	15.6	4.0	0.26	2.12	0.104
T_3	13.8	12.6	5.7	0.45	2.09	0.092
T_4	14.4	12.8	5.0	0.39	2.10	0.097
T_5	14.5	12.8	5.3	0.42	2.12	0.099
T_6	14.9	13.2	6.7	0.50	2.14	0.099
T_7	15.8	13.2	7.7	0.58	2.20	1.102
T_8	15.8	13.3	7.3	0.55	3.05	0.106
T_9	15.8	13.7	7.3	0.53	3.08	0.110
T_{10}	15.9	14.1	7.7	0.54	3.10	0.112
T_{11}	16.5	14.2	7.3	0.52	3.20	0.114
T_{12}	16.5	14.8	8.0	0.54	3.24	0.125

inoculation respectively.

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