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BIOMETRICS AND YIELD PARAMETERS OF GREENGRAM (*VIGNA RADIATA* L.) AS INFLUENCED BY COIR WASTE

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Using greengram as the test crop, pot culture study was conducted in black cotton soil to reveal the influence of coir waste on the biometrical and yield parameters of the crop. Composted coirpith at the rate of 12.5 t/ha and raw coirpith + Neem cake treatments significantly increased the biometrical and yield parameters of green gram. The soil temperature was reduced markedly, due to the raw coirpith mulchs and it also increased the yield.

Keywords : Coirpith, Organic manure; Yield.

Organic manures have been successfully used in enhancing the productivity of the soils and maximising the yield of various agricultural crops, they have immense effect in supplementing the deficient nutrients to the crops by rendering them in more available form in the soil.

In Tamil Nadu more than 500 coir fibre extracting industries are in operation. The coirpith is obtained during the fibre extraction process. Among the non-edible by products of the coconut, the coirpith has gained importance owing to its properties to use as a growth medium in agriculture[1].

This research was carried out to brighten the possibilities of using coirpith in increasing the productivity of green gram *Vigna radiata* L. in black cotton soil and to reveal the influence of coir waste on the biometrical and yield parameters of the crop. A pot culture experiment involving greengram, as test crop was conducted in black cotton soil at Coimbatore.

The treatment details are:

T_1 Absolute Control, T_2 Control with fertilizers, T_3 Raw Coirpith + Full NPK, T_4 Raw Coirpith + Half NPK, T_5 Composted Coirpith + full NPK, T_6 Composted Coirpith + half NPK, T_7 Coir Mulch, T_8 Raw Coirpith + Neem Cake.

The design of the experiment is a randomised block design with 8 treatments and 4 replications. The raw coirpith was composted with *Pleurotus* and urea for obtaining composted coirpith.

The raw and composted coirpith were applied at the rate of 12.5 t/ha and neem cake at the rate of 4 t/ha. The raw coirpith was applied as a surface mulch in T_7 to a height of 2 cm above the soil and soil thermometers were embedded both in the control (T_1) and in the mulch (T_2). The NPK were applied to all the treatment except T_1 in calculated amounts, recommended by TNAU, Coimbatore.

The results were observed and recorded at vegetative, flowering and at harvest stages. The soil temperature was noted regularly both in the morning and in the evening till harvest.

Significant results were observed in the plant height and plant dry weight during vegetative and at flowering stages. The plant height has an appreciable influence in all the treatments which ranges from 37 cm (T_1), 39.1 cm (T_2) 43.7 cm (T_3), 46.7 cm (T_4), 48.5 cm (T_5), 44.5 cm (T_6), 41 cm (T_7) and 42.5 cm (T_8) at the vegetative stage.

There had been a marked influence of the treatments with coirpith on the total plant dry weight at the vegetative stage. It varies from 0.31g (T_1), 0.32g (T_2), 0.38g (T_3), 0.42g (T_4), 0.66g (T_5), 0.37g (T_6), 0.35g (T_7) and 0.24g (T_8).

During the flowering stage, there had been a significant difference in the plant height and plant dry weight which were in the order

of 43.7 cm (T_1), 37 cm (T_2), 53.2 cm (T_3), 49.7 cm (T_4), 59 cm (T_5), 53 cm (T_6), 66 cm (T_7) and 57.7 cm (T_8) and 0.4g (T_1) 0.3g (T_2), 0.3g (T_3), 0.5g (T_4), 0.9g (T_5), 0.7g (T_6), 0.9g (T_7) and 1.2 (T_8).

The data showed an appreciable increase in the pods per plant, grains per pod, 50 grains weight and haulm weight.

Pod length and pods per plant of greengram at harvest were increased as in the order of 4.1 cm (T_1), 4.9 cm (T_2), 4.5 cm (T_3), 5.1 cm (T_4), 6 cm (T_5), 5.9 cm (T_6), 4.6 cm (T_7) and 4.3 cm (T_8) and 8.5 (T_1), 13.3 (T_2), 13.7 (T_3), 15.5 (T_4), 17.3 (T_5), 21.8 (T_6), 26.0 (T_7) and 24.5 (T_8) respectively. All the treatments increased markedly the pod length of greengram than control. The composted coirpith application strongly influenced the pod length of greengram.

There was an increase in the 50 grains weight with the values ranging from 1.8g (T_1), 1.8g (T_2), 1.9g (T_3), 2.1g (T_4), 2.5g (T_5), 2.1g (T_6), 2g (T_7) and 2g (T_8).

Though all the treatments positively influenced this parameter, the composted coirpith greatly increased the grain weight than the control.

The neem cake and coir waste treatment being on a par with control failed to influence strongly the number of grains per pod. All the other treatments showed a slight influence in increasing this parameter with the values ranging from 9 (T_1), 10.5 (T_2), 11 (T_3), 11.5 (T_4), 13.5 (T_5), 12 (T_6), 10.5 (T_7) and 9.7 (T_8).

Haulm weight was not strongly influenced by all the treatments (0.20 gm T_1 - T_4, T_7, T_8), except the composted coirpith (0.36 and 0.35 gm T_5 and T_6 respectively).

An increase in the growth of sorghum plant was reported when coirpith was applied with poultry litter[2]. The effect of mulching on the growth of corn was evidenced by Chaudary and Prihar[3] and that of coirpith on the growth of groundnut by Singh *et al*[4].

Thus coirpith has gained importance due to its properties for use as a growth medium in agriculture[1].

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