

Further Studies on Guar as Green Manure Cum Vegetable Crop

by

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Introduction: Guar or Clusterbeans (*Cyamopsis tetragonaloba*) is a leguminous crop which can be successfully grown as green manure in gardenlands. The crop grows quickly putting up luxuriant growth and can be incorporated into the soil in 60 days. The plants are succulent at this stage and decompose readily in the soil. This being a leguminous crop, the fixation of atmospheric nitrogen in its root nodules also contributes to the soil fertility. Compared to other green manure crops, Guar has a distinct advantage in that it provides an additional income to the farmer in the shape of vegetable pods that could be harvested before the crop is used as green manure. Previous studies conducted at the Millets Breeding Station, Coimbatore indicate that an extra income of Rs. 39/- per acre is obtainable from the crop by sale of pods picked before ploughing it *in situ*.

Further studies on the optimum seed rate and selection of the most economic type of Clusterbeans as a green manure crop were continued during 1959, at the Millets Breeding Station, Coimbatore and the results are presented in this paper.

Materials and methods: In the first set of trial, C. P. 78, the standard type of Clusterbean was sown in randomised plots, replicated five times, using seed rates of 10, 20, 30, 40, 50 and 60 lb. per acre. The seeds were sown broadcast in plots (15 × 15 link size) and irrigated. The crop was given a hoeing when the plants were three weeks old. One more irrigation was given soon after hoeing. Sixty days after sowing, the green pods set in the plants were picked and the plants were cut and weighed plot-wise.

In the second set of trial, eight economic types of Clusterbeans were sown at a seed rate of 30 lb. per acre, with five randomised replications. Other cultural operations were the same as for the first set of trial. The yield of pods and whole plants were recorded plotwise. The data from both the trials were analysed statistically.

Experimental data and Discussion :

The data obtained from the trials are presented below.

TABLE I.

Yield data of the seed rate trial with type C. P. 78.

Seed rate per acre	Yield of green pods per acre in lb.	Yield of green plants per acre in lb.	Total money value per acre in rupees
1. 10 lb.	500	4683	77
2. 20 lb.	656	5806	98
3. 30 lb.	758	6425	113
4. 40 lb.	801	7361	121
5. 50 lb.	914	7906	135
6. 60 lb.	889	7036	129
Whether significant or not	No.	Yes.	Yes.
Critical difference ($P = 0.05$)	—	881	37

Note: 1. Clusterbean plants contained 0.72 lb. of Nitrogen for every 100 lb. of green matter. One pound of Nitrogen is valued at 80 nP.
2. The green pods are valued at 10 nP. per lb.

TABLE II.

Yield data of the Clusterbean type.

Selection number	Origin	Yield of green pods per acre in lb.	Yield of green plants per acre in lb.	Total money value in Rupees
1. C. P. 40	Mettupalayam	522	2417	67
2. C. P. 59	Tiruchirapally	622	3261	80
3. C. P. 66	Pollachi	961	1900	107
4. C. P. 78 (c)	Mylapore	828	2767	98
5. C. P. 177	Palani	283	4367	53
6. C. P. 380	Extracted type	906	3028	107
7. ECR. 67	Sudan	911	1606	102
8. Guar American	United States of America	933	2028	106
Significant or not		Yes.	Yes.	Yes.
Critical difference ($P = 0.05$)		144	494	0.98

The results from the seed rate trial (Table I) show that 50 lb. seed rate is the best for yield of pods and green matter and also money value. Though, in yield of pods the differences among the treatments were not significant, the seed rates of 40 lb. to 50 lb. recorded significantly higher yields of green matter compared to other seed rates.

The data presented in Table II shows that type C. P. 380, C. P. 66 and ECR. 67 are the best in total money value. In choosing the most preferable one among the three types, C. P. 380 is to be favoured because of its fairly good yield of whole plants and soft green pods which are of superior quality. For yield of green matter alone, C. P. 177 was the best among the types but the total income obtained from it was the lowest due to poor yield of pods.

Summary: Previous trials at the Millets Breeding Station, Coimbatore have shown that Guar (Clusterbeans) is best suited as short duration green manure crop in lighter soils under gardenland conditions. The present study has indicated that for obtaining maximum return from this crop as a green manure, a seed rate of 40 lb. to 50 lb. per acre is to be recommended and that type C. P. 380 may be preferred which can be harvested in 60 days.

Acknowledgment: The authors wish to express their thanks to Sri S. G. Aiyadurai, B. Sc. (Ag.), Millets and Pulses Specialist for the help and guidance given in conducting these trials.

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