

Guar or Clusterbean (*Cyamopsis tetragonoloba*) and its Scope as a Short Duration Green Manure Crop.

by

R. VEERASWAMY and Miss V. K. KUNJAMMA
Agricultural College and Research Institute, Coimbatore

Introduction : Guar or cluster bean (*cyamopsis tetragonoloba*) is a common member of the kitchen and small gardens. Though in many parts of this country it is grown on an extensive scale to serve both as a vegetable and fodder, it is, however, not much known outside India. This plant appears to be a native of this country, brought into cultivation at a very early period. Tall and robust wild forms are found growing in the northern parts of India. The crop is drought resistant and yields well even with moderate irrigations, being particularly suited to light sandy loams.

Though it was known that Guar (cluster bean) which belongs to the family *Leguminosae* may be well suited as a green manure crop, no experiment has been conducted so far to ascertain this useful aspect. If Guar proves to be a dual purpose crop which yields not only a heavy tonnage of green matter but also a sizeable quantity of marketable vegetable within a short period, it would be a welcome recommendation to the farmers, who are reluctant to grow green manure in preference to an economic crop.

Materials and methods : To find out the utility of Guar as a green manure crop, a replicated and randomised trial was conducted at Millets Breeding Station, Coimbatore during 1957 summer season under irrigation. Guar C. P. 78 was compared with the popular green manure crops like *Sesbania speciosa* (Sesbania), *Crotalaria juncea* (Sunnhemp) and *Phaseolus trilobus* (Pillipesara), using the following seed rates :

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|-----------------|-----|------------------|
| (1) Guar | ... | 30 lb. per acre. |
| (2) Pillipesara | ... | 40 lb. per acre. |
| (3) Sunnhemp | ... | 40 lb. per acre. |
| (4) Sesbania | ... | 60 lb. per acre. |

The three green manure crops along with Guar were sown during the month of April, replicated twelve times and four replications in each crop were harvested at the end of 30 days, 60 days and 90 days of sowings and the estimation of green matter was done, so as to assess the productive capacity of each variant at the different stages of growth.

Results and discussion: The yield of green matter obtained from each of the four crops, in pounds per acre with relevant critical differences is furnished below:

Table of means with relevant critical difference

Name of crop	Period in days				Critical difference at 5% for green manure means
	30 days	60 days	90 days	Mean	
	(Green matter in lb. per acre)				
1 Sunnhemp	7,333	17,722	14,556	13,204	1406.6
2 Guar	4,112	20,000	22,333	15,482	
3 Sesbania	4,250	18,694	24,333	15,759	
4 Pillipesara	1,694	20,277	23,222	15,064	
Mean	4,347	19,173	21,111		

Critical difference at 5% for period means — 1213.3

Critical difference at 5% for interaction means — 2442.2

From a statistical scrutiny of the yield data, the indications which become clear are:

(a) At 60 days cutting Guar is the second best in the output of green matter, with an acre yield of 20,000 lb. which is, however, statistically on a par with the yield of Sesbania and Pillipesara.

(b) Even at 90 days level Guar is on a par with Sesbania and Pillipesara in the yield of green matter.

(c) In the case of Guar, no significant difference in yield exists between 60 and 90 days and as such cutting at 60 days is more economical than cutting at 90 days level.

An additional economic advantage, which is exclusively found in Guar is, that in addition to the green matter, it produces an average acre yield of 592 lb. of tender pods within 60 days, the money value of the vegetable being Rs. 37/- calculated at the market rate of an anna per pound.

The results of the chemical analysis of the four crops prove that Guar possesses the highest percentage of nitrogen namely 3.86 percent and hence eminently suited as manure. The results are as follows:

Name of crop	Guar	Pillipesara	Sunnhemp	Sesbania
Percentage of nitrogen (on dry basis)	3.86	2.90	2.63	2.36

Another interesting observation, a point in favour of Guar is, that 60 days old Guar plants are quite succulent and hence easily decomposable when applied to the fields as green manure.

Judging from the above findings, it can be concluded that in lighter soils, under gardenland conditions where a green manure crop is to be raised within 60 days, Guar is best suited. The ease with which this crop can be grown offers considerable scope for its introduction as a new green manure crop for the garden lands.

Summary : Guar was compared with three other popular green manure crops. viz., (1) Sesbania, (2) Sunnhemp and (3) Pillipesara, during 1957 summer season. At 60 days of growth, Guar produces an economical acre yield of 20,000 lb. of easily decomposable green matter rich in nitrogen. Besides the green matter, it yields 592 lb. of saleable vegetable per acre. Based on these findings, it can be concluded that Guar is an economical short term green manure *cum* vegetable crop suitable for the gardenlands, where the interval from crop to crop is short.

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