

How to grow Cluster beans?

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Guar (*Cyamopsis tetragonolobus*) beans also known as Cluster bean is an important legume crop. Guar beans mostly grown on dry and semi arid zones of India & Pakistan. Cluster bean is one of the vegetable crop and also a drought tolerant typical legume vegetable, which is grown for vegetable and gum extract purposes. In green manuring we use this vegetable crop. It is locally known as guar. Among pulses crops guar bean has a special contribution. In India it is grown in majorly Rajasthan, Gujarat, Haryana, Uttar Pradesh but Rajasthan stands first in the area and production of Cluster bean. The crop also known as for gum produce which is exported in foreign countries. Cluster bean seeds contain 18-19 % protein, 32-35 % fibre and 30-32 % gum which is present in endosperm.

Cluster bean which is also known as guar bean mainly belongs to West Africa and India region. Cluster bean contains mucilaginous substance in seed is known as glectomannas. The guar bean seeds contain

68-70 % glectomannas polysaccharide also known as guar gum, Using in textile industries, paper industries, cosmetic and oil industries. Young plants have hydrocyanic acid (HCN) which causes toxicity in

animals. It's a tropical plant which requires warm climate. It is not only vital food but also has beneficial industries, this crop used in diabetic therapy. If we talk about the traditional purpose, the main use of cluster bean plants was as a green manure



and soil conserving crop. In Rajasthan it's mainly used for vegetable purpose. Cluster bean is less disease and pest resistant crop, it requires less water for irrigation also a low cost crop with high input.

Climate and Soil

Climate

Cluster bean is well suited for warm, arid and semi arid zones. It's a warm season crop and short day plant.

Temperature

Optimum temperature required 25-35°C

Soil

Well drained, sandy loamy, sandy clay loam soil

Soil pH

ideal pH for crop is 6.5 - 7

Land preparation

After harvesting of Rabi crop deep ploughing should be done as a field preparation, cluster bean is well drained sandy loamy, sandy clay loam soil. Before sowing land should be prepared properly. 1-2 ploughing and harrowing can be done because properly leveled field is required for good drainage system.

Seed and Sowing

1. Seed rate: 30-40 kg/ha.

2. Sowing time: Rainy season the crop is sown in the first week of July to last week of July

Summer season: February to March

Row to Row spacing: 45×45 cm

Plant to plant Spacing: 10 to 15 cm

Seed treatment - Seed treatment with Carbendazim 1g per kg and Thiram 2 g per kg of seeds. Seeds can be treated 3-4 Days before sowing.

Fertilizer application: proper nutrient management is play major role to minimize crop losses. Before sowing can be apply well rotten organic compost to improve soil fertility and microbial activity in soil, NPK is essential nutrients for guar bean plants, always apply fertilizers at the recommendation rates, do not use of access nitrogen fertilizer because cluster bean is sensitive for excessive nitrogen.

Irrigation: Cluster bean is warm season crop, so it's required regular intervals irrigation, for good production one irrigation can be done in the stage of flowering and pod formation if crop suffer moisture

stress. Crop cannot tolerate water logging condition therefore proper drainage is required in the field.

Weed management: Weed competition can significantly reduce cluster bean yield. Two manual weeding required in this crop

- First at 20 to 27 days
- Second at 40 DAS (day after sowing)

Mulching or the use of post and pre-emergence herbicides can help control weed in the field. Sometimes due to non availability of labour, chemical weed control can be done. Care should be taken to avoid damaging the Guar bean plants during weeding operations.

Pest and Disease Management: Integrated Pest Management (IPM) practices can be done to protect the crop from pest and diseases, for insect use well decompose FYM and seed treatment and for controlling diseases use resistant/tolerant varieties and certified seeds

- **Common Pest:** Aphid, whitefly, sucking insects and termites.
- **Diseases:** Powdery mildew, phytophthora, pod rot and rust.

Harvesting and Yield: Harvesting can be done in the basic of maturity index, for grain purpose crop, Harvesting is done when leaves become dry and pod turning into brown upto 50 % and dry. Threshing done by manually or thressure. For fodder crop cut the leaves when the crop at flowering stage.

- **Green Pod:** 40-45 DAS, harvest tender pod for curry purpose, yield upto 60 to 80 q/ha

- **Seeds:** Harvest when plants dry and pod turn brown for gum extraction, yield upto 10 to 12 q/ha

Advantages

- Atmospheric Nitrogen fixation is done by cluster bean plants
- Green pod use as vegetable
- Nutrient enrich fodder crop for livestock and cattle
- Increase soil fertility and reduce soil erosion
- Gum can be produce from seeds of guar
- It' is also use in green manure

Conclusion

Cluster bean cultivation steps that, when followed can be successfully lead to a sustainable cultivation process. From selecting the right varieties, best land preparation, irrigation, nutrient management, pest and disease management and harvesting. Cluster bean requires proper attention and care it's low cost with high beneficiary, proper irrigation can enhance the yield and quality of crop. Beneficial for both food consumption and industrial applications.