

## Cluster bean

Among Pulse crops cluster bean has a special contribution. It is grown in Rajasthan, Gujarat, Haryana, Uttar Pradesh. In India Rajasthan stands first in terms of area and production of Cluster bean. The crop produces gum which is called guar gum and is exported in foreign countries. Its seeds contain protein-18% and Fibre-32 % and about 30-33 % gum in the endosperm.



### Climate

Clusterbean is a tropical plant. It requires warm growing season. The crop requires 30 to 35<sup>0</sup>C temperatures at the sowing time for proper germination and 32 to 38<sup>0</sup>C temperatures encourages good vegetative growth, but high temperature at flowering stage photosensitive and indeterminate crop. Atmospheric humidity encourages the infestation of many diseases like bacterial leaf blight, root rot etc.

### Soil

The Cluster bean is grown in medium to light textured soil having a pH of 7.0 to 8.5. Water logged conditions affects the crop growth. Heavy loam soils are not suitable for cultivation of cluster bean. Also the crop growth is affected in the high moisturized area.

### Land Preparation

After harvesting of rabi crop one deep ploughing from mould board plough or disk harrow followed by 1-2 harrowing or ploughing and planking. Properly leveled field is required for good drainage.

### Improved Varieties

**For seeds and Gum-** HG-365, HG-563, RCG- 1066, RCG- 1003

**For vegetables-** Durga Bahaar, Pusa Navbahaar, Pusa Sadabahar

**For Fodder-** HFG-119, HFG- 156

### State wise recommended varieties

S.No.	State	Varieties
1	Andhra Pradesh	RGM-112, RCG-936, HG-563, HG-365
2	Gujarat	GC-1, GC-2
3	Haryana	HG-75, HG-182, HG-258, HG-365, HG-563, HG-870, HG-884, HG-867, HG-2-20
4	Madhya Pradesh	HG-365, HG-563
5	Maharashtra	HG-365, HG-563, RCG-936
6	Punjab	AG-112 and varieties from Haryana
7	Rajasthan	RCG- 1033, RCG-1066, RCG-1055, RCG-1038, RCG-1003, RCG-1002, RCG-986, RGM-112, RCG-197
8	Uttar Pradesh	HG-563, HG-365

*Source: Seednet GOI, Min. of Agri. & FW, & ICAR-CAZRI, Jodhpur*

### Potential Yield (FLD Result)

It is observed that in general average potential yield gap between FLD and farmer's local check yield is about 39%. The potential yield level could be obtained by adoption of improved package of practices.

### State-wise major varieties for front line demonstration

State	Varieties		Yield (kg/ha)		% Increased over Local
	Improved	Farmers Local Check	Improved	Farmers Local Check	
<b>Rajasthan</b>	RCG-1002	<b>Local</b>	1087	833	30.49
	RCG-1003	----,,----	904	747	21.01
	RCG-1017	----,,----	695	469	48.18
	RCG-1066	----,,----	1058	787	34.43
	RCG-1033	----,,----	1028	704	46.02
	RCG-1055	----,,----	1250	1000	25.00
	RCG-1038	----,,----	1070	776	37.88
	RCG-6	----,,----	1233	720	71.25
<b>Gujarat</b>	GG-2	----,,----	658	814	19.16
	RCG-1002	----,,----	1295	718	80.36
<b>Madhya Pradesh</b>	HG-563	----,,----	1721	1217	41.41
<b>Haryana</b>	HG-2-20	----,,----	546	481	13.51

### Time of Sowing

The crop is sown in the first week of July to 25<sup>th</sup> July. Where irrigation facility is there the crop can also be grown in the last week of June or after the onset of monsoon. During summer it can be grown in the month of March.

### Seed Treatment

To prevent crop from soil borne disease seed can be treated by 2 g Thiram and 1 g Carbendazim /kg seed. Seeds can be treated 2-3 day before sowing. After fungicide seed treatment the seed is inoculated with suitable Rhizobium culture @ 600g / 12-15 kg seed.

### Planting distance

**Row to Row-** 45 cm (normal), 30 cm (single stem variety)

**Plant to Plant-** 15-20 cm

**Intercropping-** Cluster bean can be grown with Bajra in intercropping system

**Crop rotation** - 1. Guar-Wheat; 2. Guar- Chickpea; 3. Guar- Mustard

### Irrigation and Drainage

For good production of the crop one irrigation can be given at the time of flowering and pod formation if crop suffers moisture stress. Cluster bean cannot tolerate water logging condition therefore proper drainage is required in the field

## **Weed Management**

In cluster bean two manual weeding given at 20-25 and 40-45 days after sowing are sufficient to keep the crop weed free. However, sometimes due to non –availability of labour chemical weed control can be done. Before germination of the crop application of Pendimethalin 0.75 kg/ha a.i. as pre emergence and for post emergence application Imazehtapyr 40g/ha a.i. in 600 litres of water is applied at 20-25 DAS is suitable for weed control. Wheel hoe and Hand Hoe is used for Inter Culture operation to reduce the expenditure. Flat Fan Nozzle should be used for spraying.

## **Crop Protection**

### **a) Insect**

1. **Sucking insect:** Jassids, Aphids and White fly are sucking insect. For controlling these insect apply Imidacloprid @ 0.2 ml/liter or Dimethoate @ 1.7 ml/liter of water.
2. **Termite:** Termites damage plants by eating away root and stem, which cause poor plant stand.

### **Control Measures**

- i) Use well decompose FYM; ii) Seed treatment with Chlorpyrifos @ 2 ml/kg seed; iii) Application of Chlorpyrifos dust @ 20kg/ha at the time of last ploughing before sowing.

### **b) Disease**

#### **1. Bacterial blight**

##### **Control measure**

- i) Use resistant/tolerant varieties and certified seed; ii) Seed treatment with Streptocycline for that soak the seed in 200 ppm (0.2g/liter) solution of Streptocycline for 3 hours; iii) In standing crop spray of Copper oxychloride @2.5g/liter of water can be use for controlling disease.

#### **2. Anthracnose & Alternaria leaf spot**

##### **Control measure**

For controlling these disease foliar sprays of Mancozeb 75 WP @2g/liter of water can be used and repeat the spray at 15 days interval if needed.

## **Harvesting & Threshing**

For grain purpose crop, harvesting is done when leaves become dry and 50% pod turn brown & dry. After harvesting crop should be sun drying then threshing is done by manually or thressure. For fodder crop, crop cut when crop at flowering stage.

## **Yield**

By adopting improved package of practices, crop can produce 10-15 q seed yield/ha. If crop grown for fodder purpose 250- 300 q green fodder/ha can be achieved.

## **Utility of the Cluster Bean**

- Green pods can be used as vegetables.
- Green nutritious fodder for animals.
- It is also used as green manure (40-50 kg/ha Nitrogen).
- N- Fixation (25-30 kg/ha) is done by guar.
- Increase soil fertility.
- Gum can be produced from the crop.

## **Recommendation to achieved higher production**

- i) Deep summer ploughing once in 3 years.
  - ii) Seed treatment should be done before sowing.
  - iii) Application of fertilizer should be based on soil test value.
  - iv) Weed control should be done at right time.
  - v) Adopt integrated approach for plant protection.
- For technical information of crop production please contact to district KVK/ nearest KVK.
- To avail benefit from Centrally and State Government running schemes for crop production (ploughing, fertilizers, micronutrient, pesticide, irrigation equipment), agricultural implements, storage infrastructure etc., please contact to your DDA/SADO office.

### **For more information also visit**

- **M- kisan portal** - <http://mkisan.gov.in>
- **Farmers portal** - <http://farmer.gov.in>
- **Kisan Call Centre (KCC)-Toll Free No.- 1800-180-1551**