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S. K. Joshi  
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## C O N T E N T S

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## Thar Bhadavi - new cluster bean

The tender pods of cluster bean are nutritious and used extensively as vegetable in the country. The performance of vegetable type varieties under rainfed conditions of the hot arid region of Rajasthan is very poor. Thus, Thar Bhadavi as a new variety with thin and medium long pods of high quality. Its production technology for better yield potential under rainfed (250 - 350 mm rains) conditions of the desert agroclimate has been developed.

**C**LUSTER bean (*Cyamopsis tetragonoloba*) is grown in rainy season in northwestern part of India for guar grains and gum industry. The tender pods of grain type varieties are used extensively as vegetable (fresh and dehydrated) even after its poor quality and is most common poor man's vegetable of desert dwellers. The existing genotypes of vegetable pod quality do not perform well and therefore is not suitable for cultivation under rainfed conditions of western Rajasthan. The reason is uneven, uncertain and scanty rains (250 - 350 mm) during July-September and extremes of high temperature and drought conditions. Thar Bhadavi is recommended.



Thar Bhadavi in bearing stage

### Thar Bhadavi

The Thar Bhadavi is a selection from the indigenous germplasm collected from arid region of Rajasthan. It is developed for thin and medium long pods of high quality at tender stages for vegetable uses and cultivation as a rainfed crop under hot arid agroclimatic conditions. The first picking of tender pods starts 55 days after sowing as a rainfed crop. Bearing starts from the plant base at 2-3 nodal positions. The light green colour tender pods at marketable stages are 6.5 - 8.5 cm in length, 0.38 - 0.45 cm in width and 0.98 - 1.87 g in weight.

The number of clusters/plant and number of pods/cluster range from 9 to 21 and 7 to 15, respectively. The pod yield/plant is 58.8 - 81.7g under normal rainfed situations as compared to a field with life saving irrigations (116.7 - 210.5 g) during long dry spells or with excess rains. The plants can attain a height of 75 - 150 cm and average pod yield potential being 65 - 125 q/ha under varying situations of crop production.



Tender pods of Thar Bhadavi

## PRODUCTION TECHNOLOGY

The production sites should be developed in accordance to the topography of sand-dune landscape and soil conditions. Fencing of production site and development of multi tier row seedling plantations of native species such as *khejri*, *lasora*, *rohida* and *bordi* with desert shrub floras all around the block fencing are done for creation of favourable microclimate and protection of production site. Based on potential, desert horticultural crop production diversification has been suggested for better resource utilization and regular income to farmers. The important ones are organic *Panchkuta* production (*khejri*, *ker*, *lasora*, *kumat* and *kachri*) and vegetable (cucurbits and cluster bean) production under *khejri* based single (24m × 4m or 48m × 4m) or paired rows (24m × 4m × 4m × or 48m × 4m × 4m) planting models.

Thar Bhadavi under rainfed or with crop saving irrigations adopting HBCPSMA has been recommended. The technological advancement includes selection and development of *khejri* based production sites to create favourable micro sites for cultivation and protection, preparation and maintenance of production sites for *in situ* rain water harvesting and soil moisture conservation. Besides, seed selection, sowing time and techniques, maintenance of plant population and crop protection measures are good management practices. Regular harvesting of tender pods and marketing and also on-farm value addition for dehydration of pods and seed

**Table 1. Performance of Thar Bhadavi under varying production situations over the years (plot size being 5m × 5m)**

Character	S-1	S-2	S-3	S-4	Mean
Days to first harvesting	56.33	58.13	57.83	62.93	58.80
Plant height (cm)	68.00	106.90	117.90	137.33	107.53
Number of clusters/plant	6.90	11.56	14.96	11.23	11.16
Number of pods/cluster	8.66	11.93	13.46	8.30	10.59
Pod yield/plant (g)	51.80	152.26	182.76	95.13	120.49
Pod yield/plot (kg)	3.18	11.52	18.02	13.42	11.53
Grain yield/plot (kg)	0.45	1.34	2.84	1.90	1.63
Fodder yield/plot (kg)	0.62	3.01	5.33	6.62	3.90

S-1, absolute rainfed with long dry spells in August or September; S-2, rainfed with one or two life saving irrigations in August or September; S-3, absolute rainfed with normal distribution of rains from July–September and S-4, absolute rainfed with excesses rains in July–August and dry spells in September. Plot size (5m x 5m).



Preparation of production site for rain water harvesting and crop sowing

production techniques for the maintenance of variety are technological considerations for better economic returns.

Thar Bhadavi can be grown successfully and harvested under absolute rainfed conditions with evenly distributed rainy days (June-end to September) in *kharif* season. With irregular rains, however, better yield can be obtained with one or two supplemental irrigations during long dry spells in normal monsoon year. Field preparation is done only from June-end in accordance to pre monsoon rains during 2005 - 2011 and sowing is done in July after good rains. Sowing should be done within 24 hours form rains and about 15kg seed is sufficient for a hectare sowing in lines or broadcasting.

Pre-monsoon field ploughing and harrowing in June prior to crop sowing and post-monsoon field ploughing in November after harvesting result in more *in situ* rain water harvesting, moisture conservation and weed-free field in production site. A complete crop cultivation scheduled has been developed and maintained for field operations, records on occurrences of rains, its quantity and intervals, water requirement and crop growth performance in the production site. Out of six crop years, five good crops are harvested under absolute rainfed or with life saving sprinkler irrigations.

The crop is irrigated for 2.0-2.5 hours which delivers water equivalent to 20–25 mm of rains in each irrigation. Under sprinkler irrigation, an interval of 18–21 days from the day of preceding rainy day is the best in normal year (3–4 good rainy days within 35 days from sowing) to save crop due to irregular monsoon rains during August or September, and considered that it is the critical stages for life saving irrigation and to have good harvest.

For further interaction, please write to:

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