

GRAM/CHICK PEA

B.N.: *Cicer arietinum*

Family : Leguminosae

Origin: South West Asia

Economic Importance:

1. Gram is mainly used for human consumption as well as feeding to animals.
2. It is eaten both whole fried or boiled and salted, or generally in the form of the split pulse which is cooked and eaten.
3. Both husks and bits of the dal are valuable cattle feed.
4. Fresh green leaves are used as a vegetable.
5. Straw of chick pea is excellent fodder for cattle.
6. Chick pea flour is used in the preparation of various types of sweets.
7. It is an important source protein and calories also rich in calcium, iron and niacin.
8. It contains 21.1 per cent protein, 61.5 per cent Carbohydrates, 4.5 per cent fat.

Area and Distribution:

Chick pea is one of the important pulse crops of the world. The important gram growing countries are India, Pakistan, Ethiopia, Burma, Mexico and Turkey. India ranks first in respect to both area and production followed by Pakistan.

It is the most important pulse crop of India. The major chick pea growing producing areas are Madhya Pradesh, Rajasthan, Uttar Pradesh, Haryana, Maharashtra and Punjab. Madhya Pradesh rank first in area and production in the country. However, average production is highest in west Bengal.

Classification:

Desi or brown Gram (*Cicer arietinum* L.)

1. Colour of seed : dark brown
2. Size of seed: Small
3. Plant height: Small with good branching habit
4. Chromosome no. $2n=14,16$

Kabuli or White Gram (*Cicer kabulium* L.)

1. Colour of seed : White
2. Size of seed: Bold
3. Plant height: Taller than deshi.
4. Chromosome no. $2n=16$

Climatic requirement:

Chick pea is a winter season crop but severe cold and frost are injurious to it. Frost at the time of flowering, results in failure of the flowers to develop seeds or

killing of the seeds inside the pods. Excessive rains soon after sowing or at flowering cause heavy loss. It is best suited to areas having moderate rainfall of 60-90 cm per annum.

Soil requirement:

Chick pea is grown in wide range of soils, from light to heavy soils. Though Gram is grown on all kinds of soils, **sandy loam to clay loam** is considered to be most suitable for cultivation. The soil should be well drained not to very heavy in neutral in reaction. The soil should be free from excessive salts.

Cropping System:

Kharif fallow - chick pea, Rice - chick pea, Maize - Chick pea, Pearl millet - chick pea, Sorghum - chick pea.

Field Preparation:

Chick pea is highly sensitive to soil aeration. It requires a loose and well aerated seedbed. A rough seedbed is required and very fine and compact seedbed is not good for chick pea. One ploughing followed by two cross harrowing and manure mixing should be done at the time of last harrowing.

Seed & sowing:

- 1. Seed treatment:** a. Seeds should be treated with Thiram or Carbendazim @ 2.5 to 3 gm./kg of seeds to controlling wilt and root rot disease. b. Seeds should be treated with Rhizobium and PSB @ 250 gm./10 kg of seeds.
- 2. Time of sowing:** 15 Sept to 15 Nov. Early sowing of chick pea results in excessive vegetative growth and poor setting of pods. The early sown crop suffers more from wilt owing to high temp at that time.
- 3. Method of sowing:** Dibbling, Drilling, Broadcasting or Putting the seeds behind country plough.
- 4. Seed rate:** 75-100 kg per ha. depending upon size of seeds.
- 5. Depth:** The seed should be placed 8-10 cm deep because the shallow sown crop is more liable to be damaged by wilt.
- 6. Spacing:** 30x10 cm or 45x15 cm In case of drilling method 30-45 cm. in between two rows.

Manures & Fertilizers:

Chick pea being a leguminous crop fulfills the major part of its nitrogen requirement through process of symbiotic nitrogen fixation so apply only 25 kg of nitrogen as a starter dose which can meet plant requirement before the formation of nodules. 50 kg P₂O₅ Apply 5-10 tons of FYM or Compost/ha, Apply fertilizer dose according to soil test value In absence of soil test apply 25 kg N as a starter dose, 50 kg P₂O₅ and 20 Kg K₂O/ha.

Water management:

Chick pea is mostly sown as a rainfed crop. However, if irrigation facilities are available give a pre-sowing irrigation after that give one irrigation at pre flowering and one at pod development stage. No irrigation should be given at flowering time of crop. A light irrigation should be given because heavy irrigation is always harmful to gram. Excess of irrigation enhance vegetative growth and reduces chick pea yield.

Weed control:

One hand weeding or inter-culture with hand hoe after 25-30 DAS and second if needed 6 DAS is sufficient to weed control. or Use of herbicides such as **Fluchloralin** (Basalin): PPI @ 1 Kg a.i./ha -or **Metribuzin** (Sencor) PE @ 1 kg a.i./ha is very effective herbicide.

Pest & Diseases: Cutworm, Gram pod borer and Wilt, Sclerotia blight, Grey mold, Rust etc.

Harvesting & threshing:

Crop becomes ready for harvest when **leaves turn reddish brown and start shedding**. Plants are either pulled out by hand or cut with sickle. The crop is allowed to dry in sun on threshing yard for about five to six days. Thereafter threshing is done either by beating the plants with sticks or by trampling under the feet of bullock.

Yield:

By adopting above mentioned improved technology, **20-25 quintals** of grains per hectare.

Varieties:

Deshi: Vijay, Vikram, Vishal, Gaurav, Avrodhi Phule G-5, BDN 9-3, ICCV-10, Pusa 1053, Chafa-816

Kabuli: Virat, Sadabahar, ICCV-2, PKV Kabuli-2, PKV Kabuli-4, C-104, Pusa 1003