

## Nutritional and Health Benefits of Lablab Bean

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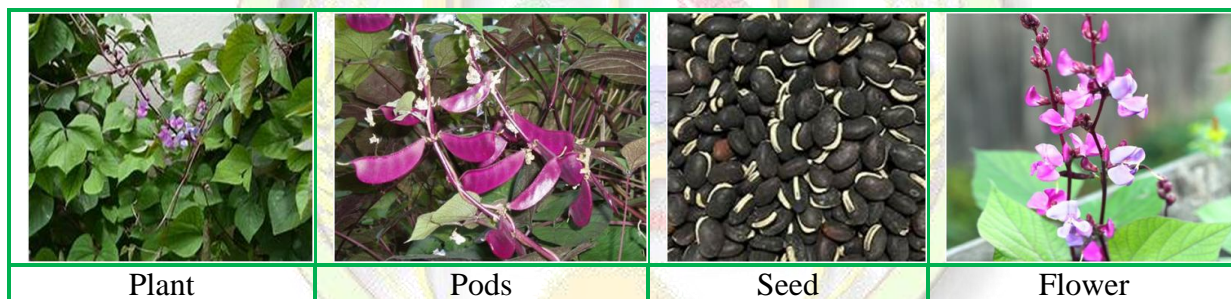
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Lablab Bean (*Dolichous lablab L.* or *Lablab purpureus L. Sweet*) is an Arabic or Egyptian name describing the dull rattle of the seeds inside the dry pod. It is a twining vine with leaflets in threes and showy bright purple flowers and pods. Its green pods are used as vegetables and dry seeds as pulse. The foliage of the crop provides hay, silage and green manure. Belongs to the family leguminosae. Lablab bean is a summer – growing plant, a rampant and vigorously twining herbaceous annual or short – lived perennial. The plant is variously known as field bean, country bean, Indian bean and Egyptian bean; in Indian legumes, the plant is also known as sem, wal, avare, avarai. The inflorescence is lax, fascicled, with many – flowered racemes on elongated peduncles. Flowers white or blue or purple on short pedicels. It is an important leguminous vegetable of India. The plants are of two types, determinate and indeterminate. The determinates are bushy and indeterminate are vining or twining pole types.



### Composition of seeds pod and seed

Items	Seed pod (Fresh Weight)	Seed (Fresh Weight)	Items	Seed pod (Fresh weight)	Seed (Fresh weight)
g/100 g of fresh weight			Mg/100 g of fresh weight		
Water	87.5	12.1	Calcium	75	98
Calories	30	334	Phosphorus	50	345
Protein	3.1	21.5	Potassium	279	-
Fat	0.3	1.2	Vitamin A	160	-
Carbohydrate	8.2	61.4	Thiamine	0.08	-
Fiber	1.9	6.8	Riboflavin	0.13	-
Ash	0.9	3.8	Vitamin C	16	-

Source: Schaaffhausen, 1963

### Cultivars

- ✓ **Pusa Early Prolific (Pole type)** – It bears early long thin pods in bunches. It is suitable for sowing in early autumn and early spring in the northern plains.
- ✓ **Pisa sem-2** – Pods dark green, very tender, strigless, semi round, 16 to 17 cm long with 5-6 seeds per pods. Highly tolerant to viruses, anthracnose disease, insect like aphids, jassid, pod borer and frast.
- ✓ **Pusa sem- 3** – Pods green, meaty, very tender, stringless, flat, 15 cm long with 5-6 seeds/pod. Tolerant to viruses, anthracnose disease and insect like aphid, pod borer.
- ✓ **Co. 1 (Pole type)** – Plant height of the cultivar is 60-70 cm, pods flat, green when tender and tan coloured at maturity. It is local pure line selection from Coimbatore released in 1980 in Tamil Nadu.
- ✓ **Co. 2 ( Pole type )** – Plant height is 60 cm, photo insensitive, erect, bushy with 5-6 branches. The cultivar has been developed from cross Co8 Co1 and released in Tamil Nadu in 1984.
- ✓ **Swarna Utkrisht (Pole type)** – This variety is developed by Horticulture and Agroforestry Research programme, Plandu, Ranchi, through pure line selection from CHDB-1. Matued seeds are light brown. First picking can be done after 120 days.
- ✓ **Arka Jay and Arka Vijay** – These varieties are developed by IIHR, Bangalore. These are bush type and tolerant to drought.
- ✓ **Konkan Bushan** – Released from KVK, Dapoli, Maharashtra. Bush type, pods are tabular and green in colour, photo insensitive.

**Climate and soil:** Lablab bean is capable of growing in a wide range of climatic conditions and soil types, depending upon the variety chosen. It is sensitive to photoperiods and both short day and long day types are available. It is adapted to tropical and subtropical regions. High temperature does not affect its development. It is susceptible to frost and extreme hot weather. Lablabs prefer well drained soils with a pH range from 4.4-7.8. LabLab has been grown both in nutrient – poor soils and those high in some nutrients such as aluminum (Nath, 1976). It is cannot stand water logging. Soils should be rich in organic matter with good water holding capacity.

**Seed rate:** About 20-30 kg seed is required for sowing one hectare of bush type varieties while 5-6 kg is sufficient for pole type. In kitchen garden plants can be retained for 2-3 years.

**Sowing method:** Like other beans, it also requires a good seedbed for sowing. It is sown in July – August with the onset of monsoon. Seeds are sown in rows 1-1.5 m apart. It is dibbled or drilled behind the ploughed at a distance of 10-15 cm. it climbs on the roof tops.

**Rhizobial treatment:** Treat the seeds with three packets ( 600 g) of rhizobial culture per ha. Using rice gruel as binder. Dry the treated seeds in shads in shade for 15 -30 minutes before sowing.

**Manure and fertilizers:** Dolichos bean is a legume crop it responds well to the application of fertilizers, about 25t of FYM is applied to the soil at the time of final preparation of land. Application of 25 kg of N, 50 kg of P and 25 kg of K per hectare is recommended.

**Staking:** In pole type, staking of the vines should be done for proper spread of vines. Staking is done at using bamboo. The tendril is clipped off during flowering to improve the flower formation.

**Irrigation:** It is a hardy crop comes up well under rainfed conditions. Flowering and pod development period are the critical stages. Depending on the atmospheric conditions 2 to 3 protective irrigations are needed.

**Weed control:** Shallow cultivation during the early stages of crop is necessary to check the weeds and to facilitate earthing up. A pre sowing application of fluchloralin @ 2 l/ha checks the weed growth for 2-25 days.

**Harvesting and yield:** Pods are harvested when they are green and succulent and have not become fibrous.

- **For fresh pods** – harvest when pods are tender and green (usually 60-90 days after sowing).
- **For dry seeds** – harvest when pods turn brown and seeds are fully mature (120-150 days after sowing).
- **For forage/fodder** – harvest during flowering for high-quality fodder, before the pods become hard.

Lablab bean yield vary based on variety, management, and environmental factors:

- ✓ **Fresh pods** – 10-15 tons per hectare.
- ✓ **Dry seeds** – 1-2 tons per hectare.
- ✓ **Fodder** – 10-15 tons per hectare.

**Post harvest handling –**

- **Threshing** – if growing for seed, threshing can be done manually or mechanically.
- **Drying** – dry the seeds thoroughly (to about 12-14% moisture content) to avoid mold during storage.
- **Storage** – store in cool, dry, and airtight containers to prevent insect damage and fungal infections. Treat seeds with neem oil or insecticide if storage pest are as concern.

**Disease and insect**

1. **Leaf spot** – It is a fungal disease caused by *Cercospora dolichi*.

**Symptoms –**

- Circular to angular spots with gray center ,
- Reddish border appear on leaves,
- They gradually cover the entire leaf surface as more number of spots appear.

**Control** – Spraying copper fungicide @ 3-4 g/l. or Thiram @ 2 g/l at 12-15 days interval.

2. **Powdery Mildew** – It is caused by the fungus *Erysiphe polygoni*.

**Symptoms –**

- White powdery patches appear on the leaves.
- Spread to stems and green pods.
- The disease generally appears late in the season.

**Control** – It can be controlled by spraying of sulphur fungicide like wateble sulphur.



3. **Ashy stem blight** – This is also a fungal disease caused by *Macrophomina phaseolina*.

**Symptoms -**

- It cause brown lesions at the collar portion.
- The lesions spread rapidly covering the entire stem portion and killing the growing point.
- Vascular portion of the roots turns brown, rootlets rot, causing the plants to dry up.
- The disease is seed borne.

**Control –**

1. Seed treatment with fungicides before planting.
2. Crop rotation with non leguminous crop ( cereals).
4. **Yellow mosaic** – It is a viral disease.

**Symptoms –**

- The leaves of the diseased plants develop bright yellow patches interspersed with green area.
- It is spread in the nature by an insect vector white fly, *Bemisia Tabaci*.

**Control** – This disease is difficult to control.

## Pests

### 1. Aphid (*aphis* sp.)

#### Symptoms -

- The tiny insects are grey or black in colour which suck the cell sap of the tender parts of the plant mostly the leaves.
- Aphid excrete a sugary substance called honeydew.
- Curling of leaves, twisting of twigs and developing frits and sometime shedding of flowers.

#### Control –

1. Fungal Pathogens – Entomopathogenic fungi like *Beauveria bassiana* can infect and kill aphids under moist conditions.
2. Insecticidal soap or neem oil can be used to control aphids.
3. Field sanitation.



### 2. Pod borer (*Helicoverpa armigera*)

#### Symptoms –

- Young larva feeds on flower and flower buds and then attacks pods.
- Infested pods can be easily be identified by bores with round holes.
- Seed damage – inside the pods, larvae consume seeds, reducing the quantity and quality of harvested seeds.

#### Integrated pest management

##### 1. Cultural Practices –

- **Early Sowing** – early in the season can help avoid peak pod borer infestation periods.
- **Crop Rotation** – Rotating lablab bean with non – leguminous crops can disrupt the pests lifecycle.

##### 2. Biological Control –

**Natural Predators** – Ladybird beetles and parasitic wasps ( eg. *Trichogramma* spp.), *Bacillus thuringiensis*.

**Nuclear Polydrosis Virus (NPV)** – this virus, particularly against *Helicoverpa armigera*, can be used as a biological control agent.



## References

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