Agri Articles
(e-Magazine for Agricultural Articles)
Volume: 05, Issue: 01 (JAN-FEB, 2025)
Available online at http://www.agriarticles.com
©Agri Articles, ISSN: 2582-9882

Dolichos Bean – *Lablab purpureus* (L.) Sweet

(*Amoolya T R)
Ph.D. Scholar in Vegetable Science, Department of Horticulture, College of Agriculture, Dharwad, Karnataka-580005, India
*Corresponding Author's email: amoolyatr06@gmail.com

Dolichos Bean belongs to the Fabaceae (Leguminosae) family, the Dolichos lablab bean (*Lablab purpureus* (L.) Sweet), also called the hyacinth bean, common bean, field bean, Egyptian bean, bonavist bean or Indian bean. It is a significant leguminous crop having chromosome number (2n = 22). There are two common botanical types of the Dolichos bean crop. Due to their soft and delicious pods, *Lablab purpureus* var. *typicus* is utilized for fresh pods, whereas *Lablab purpureus* var. *lignosus* is used for pulse and dry seeds. India is the origin of the Dolichos bean, and there are many different native strains there. Hay, silage and green manure are produced from the crop's leaf. As an underutilized crop, it is frequently called "orphan legume crop" (Varshney et al., 2009). Being a legume, it can fix 170 kg/ha of atmospheric nitrogen in addition to providing enough crop residue to enrich the soil with organic matter.

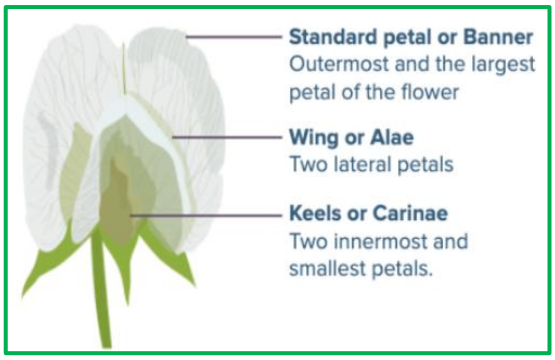
Plant Description

Dolichos beans are classified into two categories based on their plant morphology: bush types, also known as dwarf or determinate types, and pole types, also known as indeterminate types. The pole varieties are short-day plants that are photosensitive. Pole varieties are climbing plants that need trellis or a pendal for support during cultivation, which adds to the expense. Due to their pod shape, the bush type Dolichos beans are mostly photo insensitive and are grown as a highly profitable off-season crop throughout the summer and rainy season. Bush varieties are small plants that can be grown without the use of a support structure.

POLE TYPE	BUSH TYPE
Climbing beans, usually trained to grow upright	Beans with a bushy growth habit
Grow long up to 6-10 feet	Only upto 1-2 feet
Requires a pole for support	Do not require any support
Matures late (80-90days)	Matures quickly (within 60-65 days)
Produce fruits several times	Produce fruits 2-3 times in a season
Easy to handle into some shade	Better for low growing gardens
Ex: Pusa Early Prolific, Arka Krishna , Arka Bold.	Ex : Arka Jay, Arka Vijay, Konkan Bhusan, CO-8.

The majority of Dolichos beans are self-pollinated. The flower has a unique morphology, with two central petals (wing), two anterior pairs of petals (keel), an odd petal posterior, and a huge single(standard). The essentials organs are enclosed by joined (boat-shaped) keel petals. Insects can occasionally pollinate them as well.

Health Benefits of Dolichos Bean



According to Ananth and Kumar (2018), the Dolichos bean is a great source of proteins, minerals and vitamins. The crop is known for having a high protein content, with the pods and seeds having protein contents ranging from 9 to 17% and 16 to 24%, respectively. Mature seeds provide a more economical source of protein that can be eaten cooked or fried. It also has a high fiber content (1.8%) and contains iron, salt, potassium, sulphur, vitamin C, and riboflavin as stated by Rai and colleagues (2014). Phenol (1.8–9.68 mg/100 g) is also abundant in the pods and may have antioxidant qualities. It has been demonstrated that the flavonoids in lablab beans contain anti-cancer qualities and work well as a chemotherapeutic and cancer prevention agent. Diuretic, antibacterial, laxative, anthelmintic, anti-spasmodic, aphrodisiac, gastrointestinal, carminative, febrifuge and stomachic properties have also been discovered in Indian bean seeds (Chopra et al., 1986, Kirtikar and Basu, 1995). Polyphenol oxidase, which is present in lablab bean tissue and functions similarly to tryrosinase, may be used to treat hypertension in humans.

Uses of Dolichos Bean crop

- Consumption by humans: Dolichos beans are a good source of fiber, vitamins, minerals, and plant-based protein. They can be consumed in curries, salads, and as a vegetable.
- Dolichos beans are suitable for use as animal feed.
- Traditional medicine: Dolichos beans have been used to treat a number of ailments, such as rheumatism, diarrhoea and cholera.
- Antioxidants: Flavonoids and polyphenols, which are antioxidants, are found in Dolichos beans.
- Cover crop: Dolichos beans can be used as a cover crop to give green manure, reduce erosion, and suppress weeds.
- Fixation of nitrogen: Dolichos beans are legumes that fix nitrogen.
- Dolichos beans have been used as an aphrodisiac.
- Dolichos beans have been used as an anti-inflammatory.

Limitations of Dolichos bean crop

- Low production: Dolichos beans are difficult to grow and yield little.
- Unpredictable growth: The development and flowering patterns of Dolichos beans can be unpredictable.
- Consumer preferences: The popularity of dolichos beans may be constrained by consumer preferences for color, size, pod form, and aroma.
- Limited breeding initiatives: Dolichos bean breeding initiatives are scarce.

Varieties of Dolichos Bean Crop

Arka Adarsh	**Photo-insensitive and pole types. Pods are dark green, medium in length, and slightly thick. In 120 days, the pod yield was 41.0 t/ha.**
Arka Krishna	Early variety, pole type, and photo-insensitive. Pods are dark green in color and are clustered. 30.0 t/ha in 120 days is the pod yield.
Arka Pradhan	Pods of this Pole type and photo-insensitive variety are green, smooth, shiny, and have an undulating surface. Their yield is 35.0 t/ha in 120 days
Arka Visthar	Pods of this Pole type and photo-insensitive variety are long, thick, very broad, and dark green in color. Their yield is 37.0 t/ha in 120 days.
Arka Bhavani	Pods of this Pole type and photo-insensitive variety are slender, wavy, and dark green in color. Their yield is 32.0 t/ha in 120 days.
Arka Prasidhi	These pods are dark green, long, flat, and slightly curved, and they are resistant to rust.

Arka Swagath	Pole type, a photo-insensitive kind that can be grown all year round. The medium-length, light-green pods are appropriate for Karnataka. Pod Yield: 120 days at 26.0 t/ha.
Arka Amogh	Photo-insensitive Bush type. In 55 days, the medium-length, wavy, green pods will be ready for harvest. Pod Yield: 75 days at 19–20 t/ha.
Arka Sambhram	Photo-insensitive Bush type. The medium-length, flat, light-green pods are ready for harvesting in 55 days. Pod Yield: 75 days at 19–20 t/ha.
Arka Soumya	Bush type, insensitive to light. The medium-length, wavy, slender pods are ready for harvesting in 55 days. It is appropriate for Andhra Pradesh.
Arka Jay	Bush type, insensitive to light. Long, softly curved, bright green pods without parchment. sort of vegetable that cooks quite well. tolerant of stress from low moisture levels. In 90 days, the pod yield is 12 t/ha.
Arka Vijay	Upright, bushy, dwarf, and insensitive to light. The pods have a distinct scent, are short, dark green in color, and lack parchment. The seeds inside the pods are brash. Potential yield is 12 t/ha.
Pusa Sem 2	A pole type cultivar with semi-flat, dark green, fleshy & stringless pod
Pusa Sem 3	• A pole type cultivar with semi-flat, dark green, fleshy & stringless pod
Pusa Early Prolific	9.3 cm long by 1.5 cm wide, flat, green, narrow, and cycle-shaped; yield: 14 tonnes per hectare in 200–215 days; maturity: 70–80 days
Hebbal Avare-1	A sensitive version of Bush with the photo. The pod is delicate and tiny in nature. In 100 days, the yield potential is 8 t/ha.
Hebbal Avare-3	A sensitive version of Bush with the photo. White is the color of flowers. Pods have a green hue. The pod contains two or three seeds. Seeds are brownish, spherical and small in nature. In 90–100 days, yield potential is 8–10 t/ha.
Hebbal Avare-4	A sensitive version of Bush with the photo. Pods are soft and harvested in 2-3 pickings. Yield potential is 7-15t/ha.
Wal Konkan 1	Bushy, resistant to the yellow vein mosaic virus, and insensitive to light. Potential yield in 100–115 days is 9–10 t/ha.
Konkan Bhushan	Bushy, photo-insensitive Dolichos bean cultivar. The yellow vein mosaic virus does not harm this cultivar. In 100–115 days, the yield potential is 9–10 t/ha.
Thar Ganga	A plant that can support a lot of weight and has long green pods. Proteins, vitamin C, β-carotene, and antioxidants are abundant in it.
CO-6	A bush variety was chosen from DL 3169 x CO-5. Pods are naturally swollen and slightly bent. Potential yield in 220 days is 12t/ha.
CO-7	The bush variety was chosen from a cross between DL 3169 and CO-6. The long, succulent pods are flat, broad, greenish, and white. Potential yield in 220 days is 12 t/ha.
CO-8	Dwarf growth pattern. The green pods are meaty and have a tubular form. 6–8 t/ha is the probable yield.
CO-9	Bushy growth in the environment. Pods are used as grains. In 120 days, yield potential is 7-8 t/ha.
CO-10	Gamma-ray (24 krad)-induced mutant variant of CO-6 that is photoinsensitive. The tubular, curving pods are white. In 130 days, yield potential is 5–6 t/ha.
CO-11	CO-9 x a pole hybrid that is photoinsensitive. This kind of plant is compact. Pods are bright green with a purple border and are flat in shape. 9–10 t/ha is the potential yield.
CO-12	Bushy hybrids are produced by crossing CO-9 and CO-10. The pods have a deep purple hue. In 100 days, yield potential is 10–12 t/ha.
CO-13	The bushy variety is a cross between a training type and CO-9. Pods have a green hue. In 110–120 days, yield potential is 10 t/ha.

References

1. Ananth R A and Kumar S R. (2018). Screening of dolichos bean *Lablab purpureus* L. Sweet genotypes for growth and yield in coastal region of Tamilnadu. *Progressive Agriculture*, **45**(7) :45-49.

2. Chopra R N, Nayar S L and Chopra I C. (1986). Glossary of Indian Medicinal Plants. *Council of Scientific and Industrial Research*. New Delhi.
3. Kirtikar K R and Basu B D. (1995). Indian Medicinal Plants Sri Satguru Publications New Delhi, **1** (3): 56-63.
4. Rai N, Rai K K, Tiwari G and Kumar S. (2014). Nutritional and antioxidant properties and their inter-relationship with pod characters in an under-exploited vegetable Indian bean *Lablab purpureus*. *Indian Journal of Agricultural Sciences*, **84**(9): 1051-1055.
5. Varshney R K, Close T J, Singh N K, Hoisington D A and Cook D R. (2009). Orphan legume crops enter the genomics era. *Plant Biology*, **12**(2): 202-210.