



Broad Bean (*Vicia faba L.*) Cultivation in India

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The Broad bean (*Vicia faba L.*) also known as faba bean or horse bean is a minor leguminous crop grown in localized areas in India but is an important food crop of South America. It is the only bean grown as a winter crop. Broad bean is used as green, shelled and dry beans and as a feed for livestock. Plants have distinguishing features like square and erect growing stems which grows up to 30cm (dwarf varieties) to 100 cm (tall varieties). It is pollinated by insects. Clusters of white black branched flowers arise in the axils of the leaves. The pods are borne upright in clusters of 3-5 or more fleshy beans. Broad bean is being grown on small scale in Utter Pradesh, Punjab, Haryana, Kashmir, Rajasthan, Karnataka, Madhya Pradesh and Bihar. The pollen grains and green pods cause allergy to some people which is known as favism (Haemolytic anaemia).

Climatic Requirements

Broad bean is a hardy plant. It is grown mainly at higher altitudes where the climate is relatively cool. It is the only bean, which can withstand cold (up to 4°C), therefore, it is grown as winter crop.

Soil Conditions

It prefers rich, well drained loamy soil with pH range of 5.5 to 6.0. Acidic soils are not good for broad bean. It can tolerate salinity up to some extent. Land should be prepared thoroughly by giving repeated ploughings to get fine tilth.

Seed Rate and Sowing

Sowing is done in the month of September-October and February-March. About 70-100 kg/ha seed is required for cultivation. The seeds are sown in shallow furrows of 15cm width with a spacing of 75cm. In each furrow, two rows of seeds are sown at a spacing of 25cm in a zigzag manner along the furrows. It can be sown in a single row system with spacing of 45x15cm.

Varieties

SWS 1 (Suttan White Seeded), BR 1 (Bihar Black Seeded) and BR 2 (Bihar Yellow Seeded).

Nutrient Management

The field is given deep digging and farmyard manure is applied at the rate of 10 tonnes/ha along with NPK at the rate of 20:50:40kg/ha, respectively. Entire quantity of phosphorus, potash and half quantity of nitrogen is to be thoroughly mixed in the soil at the time of field preparation. The remaining nitrogen is to be top dressed at flowering time along with irrigation.

Use of PGR

In beans, the success of pollination, fertilization and fruit set depends on the prevailing weather conditions. Certain plant growth regulators like PCPA @ 2ppm, alpha-naphthyl acetamide @ 2-25ppm or beta-naphthoxy acetic acid @ 5-25ppm, when sprayed at prevailing temperature or when normally pods do not set, induce fruit set. Thus by spraying some plant growth regulators, early, higher and total yield can be obtained.

Irrigation and Cultural Practices

Immediately after sowing, the field has to be irrigated. This is followed by light irrigation on the third day. Thereafter, light irrigation should be given at regular interval of 12-15days. Regular intercultural operations should be carried out by hand weeding and hoeing to keep the weeds under check and to provide a good environment for crop growth. Tall varieties may be given support with wooden sticks or twigs against wind. Place stakes or canes at one meter interval on both sides of the double rows close to the beans. Then tie around the stakes with twine 30-60cm above the ground.

Diseases and Parasites that Attack Broad Beans

Even though they are easy to grow and care for, it is important to watch over your broad beans for their main enemy: black aphids.

They can be seen attacking stems, and even pods, forming colonies of small black insects that compromise broad bean harvests.

- Treat against aphids as soon as they appear.
- If the colony is large and concentrated on a certain area, remove infested stems.

Watch for possible fungus attacks as well, such as downy mildew or rust on broad beans.

Harvesting, Yield and Storage

The pods are ready for harvesting in 3-4months for spring sowing and 6-7months for autumn sowing. Very young pods are preferred by most people. The beans are harvested at the green shell stage as needed for home use or for market and those remaining on the plant are used as dry shell beans. A pod yield of 7-10tonnes/ha and green bean yield of 1.8-2.0q /ha is expected.