

French bean

Scientific name : *Phaseolus vulgaris*

Mizo : Sap bete

Hindi : Pharas bean

English : French bean

Climate:

- It is a tender, warm season vegetable that cannot tolerate frost
- Cannot tolerate heavy rain and stagnation
- Seed don't germinate below 15⁰C
- Plant drop blossom in hot or rainy weather.
- Mean air temperature of 20⁰C - 25⁰C is optimum for its growth and high pod yield.
- High temperature (>35⁰C) and severe cold interfere with pod filling.
- Low temperatures are unfavorable for vegetative growth.

Soil:

- Grow best on well drain friable alluvial soil
- Clay soil impede the emergence of seed growth leading to uneven or poor stand.
- It cannot withstand extreme acidic or alkaline soil.
- The optimum soil pH is 5.5 – 6.8. Liming is needed below pH of 5.5.
- For optimum nitrogen fixation, good soil aeration is required.

Fertilizer: The requirement of fertilizers depends upon the types and condition of the soil. How ever the general recommendations are the following:

FYM : 20-50t/ha

N : P : K : : 40 : 50 : 40

Urea – 46 Kg/ha

DAP – 108 Kg/Ha

MOP – 67 Kg/Ha

- Apply full dose of P&K and half dose of N as basal dose.
- The remaining N at the time of flowering.

Sowing: Winter crops - September to November

Spring summer crops -February to April

In hills - June- July

Seed requirement:

Bush type - 50 – 60kg/ha

Pole type - 25 – 30kg/ha

Spacing:

Bush type - 30cm x 5cm

Pole type - 90cm x 7.5cm.

After care:

- Bean germinates within 3-4 days.
- It starts flowering after 45 days.
- It should be weed free.
- Cultivation or working among plants should be avoided, because spores of Anthracnose and Angular leaf spot easily spread under wet condition.
- Provide support fro pole type.
- In temperate climate, pole beans are intercrop with corn or okra.

Irrigation :

- It is shallow rooted and sensitive to both water excess and water stress condition.
- Good crop can be obtained if a little moisture remains even in the rainy seasons.
- The plants are susceptible to water stress at critical period of growth- pre- blooming, flowering and pod filling.
- Deform pods can result from water stress due to low moisture or excessive evaporation loss.

Harvesting:

- Bush bean matures in 50 days requiring 2-3 picking.
- Pole bean takes 60 – 75days for maturity and 3-5 picking.
- Pods can be harvested 7 – 12 days after flowering.
- Generally harvested by hand.
- Delayed harvesting reduces the quality of pods as they fibrous.

Yield:

Bush type	: -	50 - 60q/ha
Pole type	:-	110 - 140q/ha

Post harvest Management:

French beans are highly perishable and rapid cooling after harvesting is important to maintain quality. After harvesting, beans are washed and culled and diseased, inferior pods are destroyed. Before these are placed in storage or transit the beans should be cooled as rapidly as possible. Optimum storage and transit temperature are 5-7⁰C. Under these conditions storage life are increases up to 20-25days. At temperature below 1-2.5⁰C, chilling injury occurs 10-12 days after storage.

Plant Protection

Insect pest:

Pod borer:

Light brown and tiny greenish caterpillars make holes in the pods and feeds on the seeds within.

Control Measure:

1. Spray the crops with malathion 50Ec @ 2ml /lit of water or quinalphos 25 EC @ 1.5ml /lit of water or dust the crop with Fenvelerate dust @ 20-25 kg /ha.
2. Remove all damaged pods

Leaf eating caterpillar:

Green caterpillar feed on leaves and tender plant parts

Control Measure:

1. Remove egg masses and cluster of affected leaves and destroy them.
2. Spray quinalphose 25 EC 1.5ml/lit of water or Endosulphan 1 ml/lit of water.

Aphids:

Small soft bodies insect suck sap from the leaves, tendershoot & flower buds which curl, deform and dry up

Control Measure:

1. Spray Dimethoate 30 EC @ 1.5ml/lit of water or Chlorpyrifose @ 1 ml/lit of water.

Disease:

Anthracnose:

Black sunken spots with reddish or yellow margins on all portion above ground lesions on hypocotyls cause death. Seeds inside the pod also infested.

Control Measure:

1. Treat the seed with carbendazim, Mancozeb @3 g/kg of seed
2. Spray the crop with carbendazim @ 1g/lit of water or Mancozeb 2g/lit of water as soon as symptoms is observed.
3. Remove affected parts and burn

Rust:

The yellow spots in cluster are earlier symptoms. Later no they convert in dark brown to black longitudinal lesions. In severe case entire plants may be killed

Control Measure:

1. Treat the seed with carbendazim, Mancozeb @3 g/kg of seed.
2. Spray the crop with Mancozeb 2g/lit of water

Leaf spot:

Small circular or irregular spot

Control Measure:

1. Treat the seed with carbendazim, Mancozeb @3 g/kg of seed
2. Spray the crop with carbendazim @ 1g/lit of water or Mancozeb 2g/lit of water as soon as symptoms is observed.
3. Remove affected parts and burn

Common bean mosaic:

Severe mosaic molting with slight puckering and swelling of leaves and stipules, plants stunted and produce fewer pods.

Control Measure:

Rogue out infested plants and burn them. Select disease free seed. Adopt crop rotation if infestation is severe