

# Pigeon Pea

Sustainable Solutions for  
Modern Farming



**RESIDUE FREE  
FARMING**  
with  
**rupiya.app**



It is a popular pulse crop and it is a rich source of Protein. It is cultivated in tropical and semitropical regions. It is an important legume crop of rain-fed and semi-arid tropics and it can grow as a single crop or intermixed with cereals. It enriches soil through symbiotic nitrogen fixation.

Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, and Uttar Pradesh are major Pigeon pea-producing states in India.

### Ideal Climate:

Pigeon pea cultivation thrives in temperatures ranging from 30°C to 35°C during peak growth, complemented by cooler nights between 15°C to 18°C. With an annual rainfall of 600-650 mm, the perfect balance of moisture ensures optimal growth without excess water.

Seeds are sown when temperatures range from 25°C to 33°C, while harvesting occurs

in temperatures reaching 35°C to 40°C. This timely cycle ensures a bountiful harvest under the nurturing embrace of the climate.

### Soil

It grows on a variety of soil. It gives the best result on fertile and well-drained loamy soils. The saline-alkaline or waterlogged soils are unfit for its cultivation. It can grow successfully on soils having pH ranges from 6.5 to 7.5.

### Sowing

- Timely sowing of crops is important as delay in sowing leads to yield loss. Sow crop in the second fortnight of May to obtain high grain yield
- For sowing use spacing of 50 cm between the rows and 25 cm between the plants.
- Seeds are sown with the help of a seed drill at a depth of about 7-10 cm.
- Seeds can be sown by broadcasting method but line sowing with the help of a seed drill is a more efficient way of sowing for good yield.

For good yield use a seed rate of 6 kg per acre.

Select healthy seeds and bold seeds for sowing. Treat seeds with Carbendazim or Thiram@2gm per Kg of seeds. After chemical treatment, treat the seed with Trichoderma viride@4gm/kg of seeds or Pseudomonas Fluorescens@10gm/Kg of seeds. For better germination and growth, we suggest the use of Rupiya Soil Shakti + Rupiya Bio N.

### Fertilizer Doses kg/acre.

DAS	DAP / 10-26-26 / 20:20:0:13	NEEMOCIN	ORGO
Day 20 -25	25 kg	5 kg	50 kg
Day 60- 70	30 kg	0	0

## Weed control

Take one hoeing, about three weeks after sowing and another hoeing about six weeks after sowing. Apply Pendimethalin @ 1Ltr/acre in 150-200ltr of water as pre-emergence herbicide within 2 days after sowing, followed by hand weeding six to seven weeks after sowing.

## Irrigation and Drainage:

Being a deep-rooted crop, it can tolerate drought. But in case of prolonged drought there is a need for three irrigation (critical stages)

- 1st at branching stage (30 DAS)
- 2nd one in the flowering stage (70 DAS) and
- 3rd at the time of the podding stage (110 DAS).

A pre-requisite for the success of pigeon peas is proper drainage. Ridge planting is effective in areas where sub-surface drainage is poor. This provides enough aeration for the roots during the period of excess rainfall.

## Crop Care:

Pigeon pea requires minimal care once established. Weeding is essential during the early stages to prevent competition for nutrients and moisture. The application of organic manure and balanced fertilizers can enhance yield.

## Pest and Disease Management:

Pigeon pea are susceptible to various pests and diseases, including pod borers, pod flies, Fusarium wilt, and sterility mosaic virus.

Integrated pest management (IPM) strategies involving cultural, biological, and chemical control methods are employed to manage these threats.



## Harvesting:

Pigeon pea plants typically mature within 5-7 months after planting, depending on the variety and growing conditions. Harvesting is done manually by handpicking the mature pods. Pods should be harvested when they turn brown and dry.

## Yield:

Pigeon pea yields vary depending on factors such as variety, soil fertility, and management practices. On average, yields range from 800 to 1200 kg per hectare, but higher yields can be achieved under optimal conditions.

**Post-Harvest Handling:** After harvesting, pigeon pea pods are threshed to separate the seeds. The seeds can be stored in dry conditions for extended periods or processed for various culinary purposes.



# PLANT PROTECTION

## Insects and Pests



### Blister beetles:

Also known as flower beetles, they feed on flowers and thus reduce pod numbers. Adults are black beetles with bright red coloration on the forewings.

To control it, spray Deltamethrin 2.8EC @ 200ml or Indoxacarb 14.5SC @ 200ml per acre using 100-125 liters of water per acre. Take spray in evening hours and if necessary repeat the spray after 10 days.



1 POD BORER MOTH

2 POD BORER

LARVA

### Pod Borer:

This is the most serious pest and causes damage up to 75% reduction in yield. It feeds on leaves causing skeletonization of leaves also feeds on flower and green pods. On pods, they make circular holes and feed on grains. Install Pheromone traps for *Helicoverpa armigera* @ 12/ha. In case of low infestation, handpicked grown-up larvae. At the early stage use HNPV or Neem extract @ 50gm/Litre of water. The use of chemicals is necessary after the ETL level. (ETL: 2 early instar larvae/plant or 5-8 eggs/plant).

If the incidence is observed, spray the crop with Vegishield or Profenophos 35% or Emamectin Benzoate 5 % WG 100-125 liters of water per acre using a sprayer. Take spray in the evening hour.

## Aphids



Among the various aphid species affecting pigeon pea, *Aphis craccivora* stands out due to its broad host range. It colonizes young shoots, flowers, and pods, feeding on sap. Immatures have a light brownish hue with a dusting of wax, while adults are black, shiny, and up to 2 mm long, some with wings. They can reproduce rapidly, with females capable of producing about 100 nymphs in a lifespan of up to 30 days, even without mating. However, aphids rarely reach economic pest levels in pigeon pea fields, often controlled by natural enemies like ladybird beetles and chrysoperla bugs. Rainfall also helps reduce infestations. While systemic insecticides like dimethoate can effectively control aphids, if necessary, chemical pesticide application may be unnecessary due to the presence of natural predators.

## Termites



Termites, common in tropical areas, can damage young pigeon pea plants, especially when weakened by disease or injury. They form colonies underground and feed on plant material. Management involves seed treatment with chlorpyrifos and nest poisoning in severe cases. However, with healthy plant growth, termite damage usually doesn't cause significant crop loss.

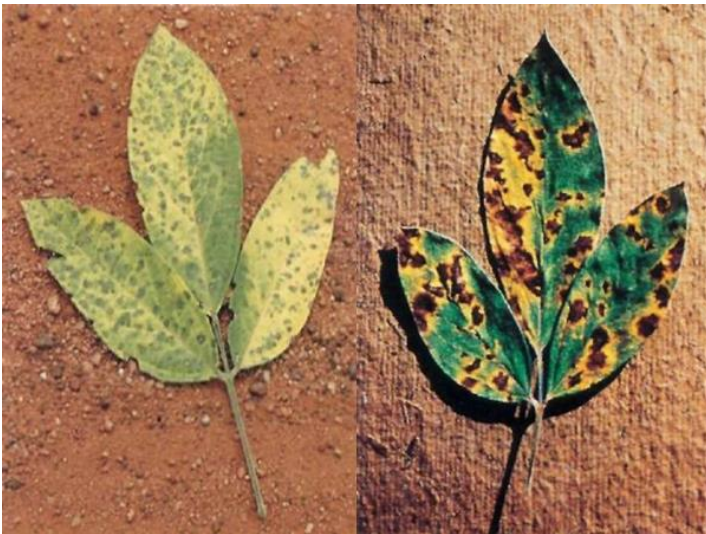




# Disease and their control

breaking of plants at the affected place.  
Follow suitable crop

## Cercospora leaf spot:



Greyish-brown to dark spots are observed under the surface of leaves. In severe conditions, spots are observed on petioles and stems along with leaf drops.

To control this disease, use disease-free seeds, and before sowing treat seeds with Soil Shakti or Thiram@3gm per kg seed.

## Cankers:



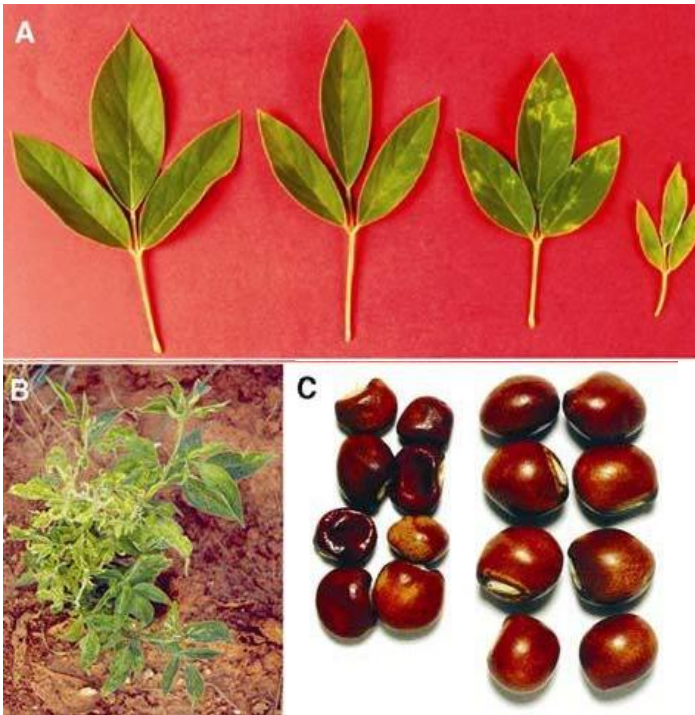
It is caused due to various fungi. Cankers are developed on stems and twigs. It causes the

## Wilt:



This disease causes considerable loss in yield. It can affect the seedling stage as well as in an advanced stage of plant growth. Initially affected plant shows a dropping of petioles and gives a dull green color. Afterwards, all leaves turn yellow and become straw-colored. Grow resistant varieties. In the primary stage of wilt, to control mix 1 liter of Soil Shakti in 200 kg well well-decomposed cow dung and keep it for 3 days, then apply it in wilt affected area. If wilt is observed in fields, spray 300 ml Propiconazole or (Saaf) Carbendazim & Mancozeb with 200 liters of water per acre. Also, use the Soil Shakti 1 liter per acre for better protection of the plant

## Sterility Mosaic:



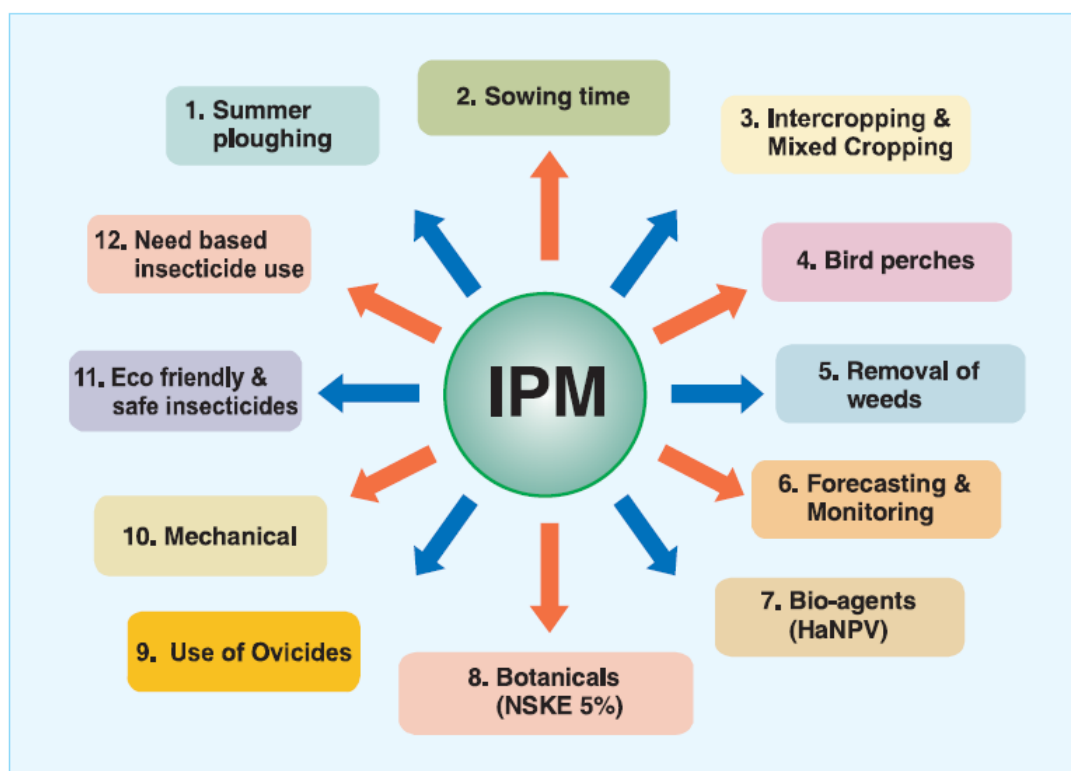
It is caused due to eriophyid mites. Due to infection of this disease, either no flowering or little flowering is observed. Leaves are of pale color. The plant gives a bushy appearance. Grow resistant variety. For mite control Spray Fenazaquin 10% EC @ 300 ml/acre with 200 Ltr water.

## Phytophthora stem blight



If it occurs at the seedling stage, the young seedling dies after emergence. Brown or black necrotic lesions are observed on the stem. On the leaflet, circular or irregular lesions form and the whole foliage becomes blighted.

If an Infestation of Phytophthora blight is observed, control spray with Metalaxyl 8%+Mancozeb 64% @ 2gm/Ltr of water.



Integrated Pest Management Strategies



## Crop production

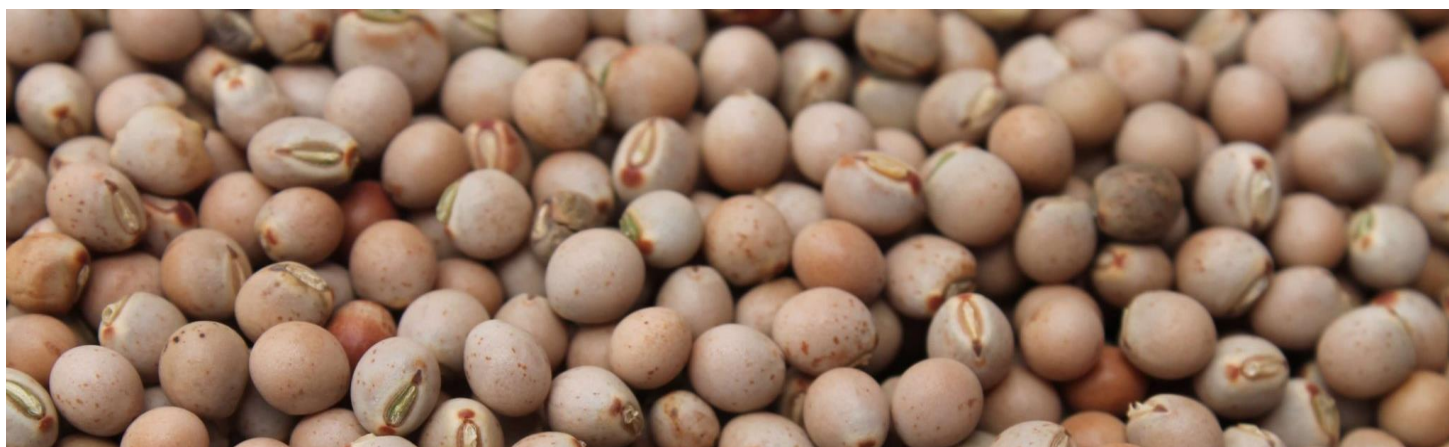
Particulars	Calculations
Crop	Pigeon Pea
Soil	Medium black
Area	1 acre
Planting distance	50 cm X 25cms
Variety	Rupiya Specified

### Cost of cultivation per acre

Particulars	Single Pigeon pea only	With inter cropping
Input	10723	5575
Seed	1500	1500
Manpower	7000	2000
Harvesting	5000	5000
Rent	5000	2500
Land preparation	3500	2500
IPM material	500	500
<b>Cost per acre</b>	<b>32450</b>	<b>19575</b>

### Income per acre

Details	For single crop pattern	For Inter cropping
Total Production per acre	8 QTLs	6 QTLS
Rupiya offered Rate of Rs. <b>7500</b> /QTL	60000 Rs	45000 Rs
Net Profit	29550 Rs	25425 Rs
<b>Cost-benefit ratio</b>	<b>1:2</b>	<b>1:2.3</b>



**Note:** The above given figures are for educational purposes only actual figures may vary depending upon the climate, soil, variety of seed, season & agronomical practices.



# CONTACT INFORMATION

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