

Land:

Loam and light loam soil is suitable for peas.

Preparation of Land:

First plough should be done by disc harrow and subsequent 2 - 3 plough by local plough or cultivator.

Recommended variety :

Description of different varieties of peas:

SN	Varieties	Productivity (quital/ hectare)	Duration for ripening	Suitable Areas	Features
1	Rachana	20-25	130-135	Whole of UP	Long, white, powdery, barrier
2	Indra (K.P.M.R - 400)	30-32	125-130	Bundelkhand Central UP	Dwarf Plants, White granule powdery, barrier
3	Shikha (K.F.P.D -103)	25-30	125-130	surplus	Plants tall, White granule
4	Malviya Peas 2	20-25	125-130	Eastern UP	Plants tall White granule, Foliar ailment disease resistant
5	Malviya Peas 15	22-25	120-125	Whole of UP	Medium Dwarf Plants, powdery and Ratua barrier
6	J.P - 885	20-25	130-135	For Bundelkhand	-
7	Pusa Prabhat (D.D.R -23)	15-18	100-105	Eastern UP	powdery, barrier
8	Pant Peas 5	20-25	130-135	Plains Area	Plants tall, Light green, powdery, barrier
9	Aadarsh (IPF 99 - 15)	23-25	130-135	बुंदेलखण्ड हेतु	Long, white, powdery, barrier
10	Vikas (IPFD 99 - 13)	22-25	100-105	surplus	Dwarf, white, powdery, barrier
11	Jai (K.P.M.R - 522)	32-35	125-130	Western UP	Dwarf, white, powdery, barrier

12	Sapna (K.P.M.R 144 - 1)	30-32	125-130	Whole of UP	Dwarf, white, powdery immune system.
13	Prakash	28-32	110-115	Bundelkhand	Dwarf, white, powdery immune system.
14	Hariyal	26-30	120-125	Western UP	Dwarf, Green Round Grain, White Bucket Blocker
15	Palthi Peas	22-30	125-130	Eastern UP	Plants tall, round granules, white powdery and rust resistant
16	I.P.F.D 10 - 12	25-30	106-109	Bundelkhand	green colour
17	Pant P. - 42	24-25	130-140	Western UP	
18	Aman (2009)	28-30	120-125	Western UP	

Quantity of Seed

80-100 kg seed per hectare for long variety and 125 kg seed for dwarf variety is required.

Seed Treatment

Rhizobium leguminosorum culture is used for pea.

Sowing

Sowing should be done at a distance of 20cm (dwarf) and 30 cm for long variety behind the plough from mid October to mid November. Pea is sown by Pant Nagar Zero Till Drill.

Seed Treatment

For protection from seed borne diseases, treat the seed before sowing with thiram 2 gm or mancozeb 3 gm or 4 gm trichoderma or thiram 2 gm + carbendazim 1gm per kg seed.

Seed should be treated before its treatment with culture. Sow the seed after treatment of 10 kg seed with 1 packet (200 gm) rhizobium culture. PSB culture must be used.

Fertilizer

Nitrogen	Phosphorous	Potash	Sulphur	Molybdenum	Manure
20 kg/ hectare	60 kg/hectare	40 kg/ hectare	20 kg/ hectare	1 kg	60 kg/ hectare

For dwarf variety, give 20 kg extra nitrogen at the time of sowing.

Irrigation

If there is no rain in winter, apply 1 irrigation at the time of flowering. Second irrigation is beneficial at the time of grain formation. Sprinkler irrigation will be beneficial in Bundelkhand.

Crop Protection

(A) Main Insect

- **Shoot Fly:**

The maggot of this insect lives in the stem and eat it as a result the stem swells. In case of intense menace, the plant turns yellow and dry.

- **Semilooper Insect:**

The maggot of this insect is green in color which moves in loop. The maggots eat leaves, soft twigs, buds, flowers and pod and harm it.

- **Leaf Borer Insect:**

The maggot of this insect bores the leaves and eats the green part as a result the leaves become irregular shaped and white lines appears on it.

- **Pod Borer Insect:**

The maggots of this insect are flat and green in color which enter the pod by boring it and eats the grain inside. In case of intense menace, the pods become hollow and production falls.

Economic Loss level

SN	Insect name	Stage of Crop	Economic Loss level
1	Shoot Fly	Within 1-1.5 month of crop grown	5% Infested plants
2	Semilooper Insect	At the time flowering and pod formation.	2 maggot per 10 plant
3	Pod Borer insect	When the pod is formed	5% Infested plants

Control Measure

- Sow in time because possibility menace of shoot fly in early sown crop and pod borer insect in late sown crop is increased.
- If the insect menace has crossed economic loss level, use any one of the following insecticides:-
- For control of shoot fly and leaf borer insect, mix in the soil carbofuran 3 CG 15 kg or forret 10 G at the rate of 10 kg per hectare before sowing. For insect control in standing crop, spray dimethoate 30% EC or methyl-o-dematon 25% EC at the rate of 1 liter per hectare dissolved in 500-600 liter water. Azadirechitin (Neem Oil) 0.15% EC at the rate of 2.5 liter per hectare can also be used.
- For control of pod borer insect and semilooper insect, spray any one of the following bio/chemical insecticides or dissolved it in 500-600 liter water and spray it.
 - Bacillus thuringiensis(BT)- Kistkey variety 1.0 kg.
 - Azadirechitin 0.03 WSP 2.5-3.0 kg.

- NPV (H) 2% AS.
 - Fenvalrate 20% EC 1 liter.
 - Quinolfos 25% EC 2.0 liter.
 - Monochrotofos 36% solution 1.0 liter.
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 - Fenvalrate 20% EC 1 liter.
 - Quinolfos 25% EC 2.0 liter.
 - Monochrotofos 36% solution 1.0 liter.

Keep watch on the field. Spray at an interval of 15 days if needed. Do not repeat an insecticide.

(B) Critical Disease

- **Ukatha:**
The plants slowly start wilting and dry. If the plant is uprooted and seen, its root and stem is found well. The bark becomes brown in color and if the root is cut vertically, black colored veins are seen. Ukatha can infest the plant at any stage.
- **Alternaria Leaf Blight Disease:**
In this disease, ring shaped spots appear on the leaves. In favorable conditions, the spots join together as a result the whole leaf is burnt.
- **Powdery Mildew (Bukni):**
In this disease, white powder is seen on leaf, stems and pods. The leaves dry and fall afterward.
- **Mradul Romil(Tulasita):**
In this disease, small spots on the upper side of leaf and white furred fungus on below the spots on the lower side of the leaves grow. Slowly the leaves turn yellow and fall. In the same way, the spot appears on the pods also and fungus similar to cotton grows below that spot as a result, grain is not formed in the pods.

Control Measures

- **Cultivation Activities**
- In summers, plough by disc harrow helps in control of soil borne diseases.
- Do not take the pea crop in the field for 3-4 years which is often infested by Ukatha.
- For protection from Ukatha disease, sow disease resistant variety.
- For protection from Powdery Mildew (Bukni) disease, sow disease resistant variety such as Rachna, Pant matar-5, Malviya matar-2 etc.
- **Seed Treatment**

For control of seed borne diseases, sow the seed after treatment with thiram 75%+carbendasim 50% (2:1) 3.0 gm or trichoderma 4.0 gm per kg seed.

- **Soil Treatment**

For control of seed and soil borne diseases, mix the bio pesticides trichoderma viridi 1% WP or trichoderma harzianum 2% WP at the rate of

2.5 kg per hectare with 60-75 kg decomposed dung manure, sprinkle light water on it and keep it for 8-10 days in the shade. Spread the mixture at the time of last plough before sowing. This controls the seed/soil borne diseases in peas.

- **Foliar Treatment**

- For control of alternaria leaf blight and tulasita disease, spray mancozeb 75% WP 2.0 kg or zineb 75% WP 2.0 kg or copper oxy chloride 50% WP 3.0 kg per hectare dissolved in approximately 500-600 liter water.
- For control of powdery mildew, spray soluble sulphur 80% 2 kg or tridemorph 80% EC 500 ml per hectare dissolved in 500-600 liter water.

(C) Important Weeds

Bathua, Santhi, Krishna neel, Hiran khuri, chati-matri, Akra, forest carrot, gajri, pyaji, khartua, satyanaashi etc.

Control Measures

- For weed control by weed herbicide chemicals, spread in the soil fluchloralin 45% EC, 2.2 liter per hectare dissolved in approximately 800-1000 liter water before sowing or spray pendimethylene 30%, 3.30 liter or alochlor 50% EC uniformly at the rate of 4.0 liter per hectare dissolved in water as above through flat fan/nozzle within 2-3 days of sowing.
- If weed herbicides has not been used, hoe by hand hoe to control the weeds.

Harvesting and Storage

Harvest the crop when it is fully ripened. Thresh it in a clean field and take out the grains. Use aluminium phosphide at the rate of 3 tablets per ton for protection from storage insects.

Important Points

- Select the variety as per regional adoptability and sow certified seed.
- Sow in time.
- Use single super phosphate for phosphorous and sulphur.
- Spray 0.1% zinc sulphate for control of Ratua.
- For early ripening variety, ensure 6.6 lakh(15x10 cm) per hectare plants for more yield.