PUDINA

GENERAL INFORMATION

Pudina also known as mentha is an energizing herb. Mint is used as mint oil, tooth pastes, mouth washes and flavoring agents in many dishes. Its leaves are used for preparing various drugs. Drugs prepared from mint are used in treatment of nasal, rheumatism, neuralgia, carminative and bronchial treatment. It is used in wide range of pharmaceutical. It is a small herb with average height of 1-2 feet with spreading root stocks. Leaves are 3.7-10cm long and have purplish small flowers. It is originated from Mediterranean basin. It is found mainly in Angola, Thailand, china, Argentina, Brazil, japan, India and Paraguay. Uttar Pradesh and Punjab are major mint growing states in India.

CLIMATE

Temperature

41°C

Rainfall

100mm

Sowing Temperature

15-19°C

Harvesting Temperature

30-40°C

SOIL

It grows in variety of soil i.e. medium to fertile deep soil having good water holding capacity. It can survive in poor water logging. It gives best result under rich humus soil. The pH ranging from 6-7.5 suited best for the crop

POPULAR VARIETIES WITH THEIR YIELD

MAS-1: It is a dwarf variety having 30-45 cm height. The variety is disease resistant and is early maturing. It contains 70-80% menthol content, @80 qtl/acre herbage and @50-60 kg/acre oil.

Hybrid-77: It is having 50-60 cm height. The variety is leaf spot and rust resistant and is early maturing. It contains 80-85% menthol content, @100 qtl/acre herbage and @50-60 kg/acre oil. It grows best in sandy loam soil and requires dry climate.

Shivalik: Selected from Chinese cultivator. The variety grows best in terai region in UP and Uttaranchal. It contains 65-70% menthol content, @120 qtl/acre herbage yield and @72 kg/acre oil yield. They are sensitive to fungal diseases.

EC-41911: Selected from Russian germplasm. The variety is water resistant and erect type. It contains 70% menthol content, @94.4 qtl/acre herbage yield and @50 kg/acre oil yield. The oil prepared from this variety is used as flavoring in food items.

Gomti: The variety is light red in color. Yield is low as compared with other varieties. It contains 78-80% menthol content.

Himalaya: The leave size is bigger than other varieties. The variety is rust, blight, mildew and leaf spot resistant. It contains 78-80% menthol content, @160 qtl/acre herbage yield and @80-100 kg/acre oil yield.

Kosi: The variety matures within 90 days. . The variety is rust, blight, mildew and leaf spot resistant. It contains 75-80% menthol content and @80-100 kg/acre oil yield.

Saksham: Developed by cv. Himalaya through tissue culture. It contains 80% menthol content and @90-100 kg/acre oil yield.

Kushal: Developed through tissue culture and gets mature within 90-100 days. The variety is disease and pest resistant. It grows best in semi-arid-subtropical areas and grows good in UP and Punjab. It contains @120-132 qtl/acre herbage yield and @70-80 kg/acre oil yield.

Punjab Spraymint 1: The oil content is 0.57% and major content of oil is Carvone. It gives an average yield of 80-100qtl/acre.

LAND PREPARATION

For Mint plantation, beds of convenient size are made. Ploughing and harrowing should be done during land preparation. Application of organic manure i.e. FYM @100-120 qtl/acre is mixed with soil. Green manuring is added after FYM.

SOWING

Time of sowing
Optimum time for sowing is from December-January.

Spacing
Suckers are planted at end to end distance of 40 cm and row to row 60 cm distance.

Sowing Depth
Depth should be 2-3 cm.

Method of sowing
Transplanting of suckers in main field.

SEED

Seed Rate
Propagation is done by stolons or branches. For good growth, use stolons at the rate of 160 kg per acre land. Stolons are obtained from previous planting and obtained in the month of December and January.

Seed treatment
To protect crop from stolon root, before sowing do stolon treatment with Captan @0.25% or Agallol solution @0.3% or Benlate @0.1% for 2-3 minutes.

NURSERY MANAGEMENT AND TRANSPLANTING

Do cutting of suckers of length 10-14 cm before sowing. Sow Mint suckers on furrows of convenient size and width. Suckers are planted at end to end distance of 40 cm and row to row 60 cm distance. After sowing, irrigation is given to moist the soil.

After transplanting take spray of Sinbar @400 g/acre for weed control.

To protect from weeding, herbicides spray of Atrazine and Simazine @400 g/acre, Pendimethalin @800 ml/acre and Oxyfluorfen @200 ml/acre are given.

FERTILIZER

Fertilizer Requirement (Kg/acre)

UREA	SSP	MURIATE OF POTASH
130	80-100	33

Nutrient Requirement (kg/acre)

NITROGEN	PHOSPHORUS	POTASH
58	32-40	20

At the time of land preparation, apply FYM @80-120 qtl/acre and mix well in soil. Apply nitrogen@58 kg/acre in the form of urea@130 kg/acre, Phosphorus @32-40 kg in the form of single super phosphate @80-100 kg/acre and Potassium @20 kg/acre in the form of MOP@33 kg/acre.

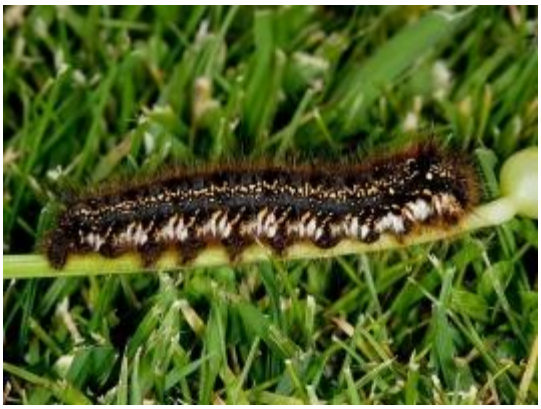
WEED CONTROL

Do frequent hand weeding and hoeing after the first harvest to keep field weed free. Application of Sinbar@400 g/acre is used to control weeds. Application of organic mulch with oxyfluorfen @200 ml/acre or application of pendimethalin herbicide @800 ml/acre is done to control weeds. If weed intensity is high, take post emergence spray of Dalapon @1.6 kg/acre or Gramoxone @1 ltr/acre and pre emergence spray of Diuron @ 800 g/acre or Terbacil @800 g/acre.

IRRIGATION

In summers before monsoon depending upon climate and soil 6-9 irrigations must be done. After monsoon crop requires 3 irrigation i.e. one irrigation in each month (September, October and November). In winters, crop does not require too much irrigation but if no rains occur in winter then single irrigation should be given.

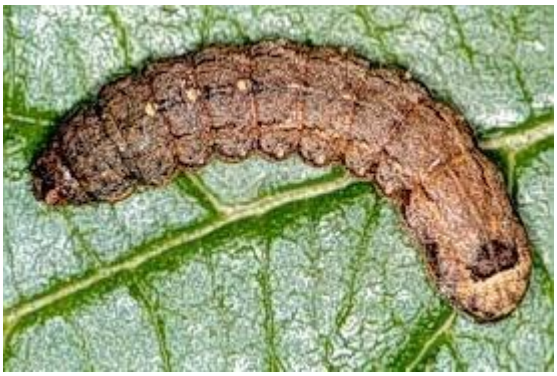
PLANT PROTECTION



- **Pest and their control:**

Hairy caterpillar: Caused by Dicarsia obliqua. They feed on green leaves and damage the whole plant.

To control this pest application of Malathion or Thiodan @1.7ml in litre of water is done.



Cutworms: Caused by Agrotis flammatra. It damages the collar region of the plant during spring season.

To control this disease soil is treated with Phorate @10gm before planting is done.

Red Pumpkin Beetle: Caused by Aulocophora foevicollis. It feeds on fresh greeny leaves and buds.

To control this disease application of Thiodan @1ml in 1 lire of water is given.

Mint Leaf Roller: Caused by Syngamia abrupatalis. The pest folds the leaf and feed themselves inside the leaf mainly in August-September.

To get rid of this disease application of Thiodan @1.5ml in 1 litre of water is given 2-3 times at weekly intervals.

- **Disease and their control:**

Stolon Rot: Caused by Macrophomina phaseoli. It occurs on underground parts of the plant causes visible brown lesions resulting in decay.

To control this disease application of Captan @0.25% or Agallol solution @0.3% or Benlate @0.1% are given for 2-3 minutes on the stolons is given.

Fusarium Wilt: Caused by Fusarium oxysporum. It caused yellowing, curling and drying of leaves.;

To get rid of this disease application of Bavistin, Benlate and Topsin is given.

Leaf Blight: Caused by Alternaria sp. It causes damage of foliage in summer season.

To control this disease application of copper fungicide is done.

HARVESTING

Plants are ready for harvesting after 100-120 days. Harvesting is done when yellowing of lower leaves starts. Harvesting is done with the help of sickle and herbs are removed 2-3cm above ground. Next harvesting is done at the interval of 80 days after first harvesting. For processing fresh leaves are used.

POST-HARVEST

After harvesting, distillation is done by stem distillation method. Then mint oil is packed in large steel or aluminum containers. Quick transports are done for less spoilage of crop. From mint leaves several products like mint oil and chutneys are made after processing.

REFERENCES

1.Punjab Agricultural University Ludhiana

2.Department of Agriculture

3.Indian Agricultural Research Instittute, New Delhi

4.Indian Institute of Wheat and Barley Research

5.Ministry of Agriculture & Farmers Welfare