



Scientific Cultivation of Pointed Gourd

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Pointed Gourd (*Trichosanthes dioica* Roxb.) also known as Parwal is one of the important vegetables of India. It is mainly cultivated in the states of Uttar Pradesh, Bihar, Assam, West Bengal, Odisha, Madhya Pradesh, Maharashtra, Gujarat, Kerala and Tamil Nadu. The fruits of pointed gourd are rich in proteins and vitamin A. Additionally it possess medicinal properties that can help to lower blood sugar and serum triglycerides. In India, it is cultivated in an area about 20000 ha with production of 310000 metric tons and productivity of 14.89 t/ha (NHB 2018-19).

Climate and Soil: It is a day-neutral, perennial plant, thrives well in regions with moderately warm to hot humid climates (Peter *et al.*, 1998). It is sensitive to frost and severe cold (Anon. 2005). The ideal temperature for this plant growth is between 30-35°C. It cannot survive in waterlogged conditions. Sandy loam soil with a pH level of 6.0–6.5 is best suited for the cultivation of Parwal.

Manures and Fertilizers: Basal application of well-rotten farmyard manure (20–25t/ha) and top-dressing of 60–80 kg Nitrogen, 40 Kg Phosphorus (P₂O₅), and 40–50 Kg Potassium per hectare.

Planting Time: The appropriate time for the planting of Parwal in the plains is from mid-July to October while in the Diara area, the ideal time for planting is from September to October.

Propagation: Parwal can be propagate through various methods, with seeds, root cuttings and vine being the primary methods.

Propagation through Seeds: Seeds are extracted from the ripe Parwal fruits. These seed should be sown in nursery beds. After 2-3 months the plants are ready to be planted in the field. However, it's worth nothing that this method tends to result in a higher male plants ultimately leading to lower yields. As a result this method is not particularly popular.

Propagation through Root cutting: In this method, 1 to 2 inch part of the stem along with the roots, containing 5-6 nodes, is planted. This method results in rapid plants growth, and fruits start appearing earlier than usual.

Propagation through Vine Cutting: In this method, planting is done by vine cuttings, and the length of the vines should be 120-150 cm and one year old. Commercial cultivation of pointed gourd is carried out on a large scale in Uttar Pradesh and Bihar using this methods. Approximately, 10,000 vines are needed to plant one hectare of pointed gourd.

Improved Varieties /Cultivar of Parwal : Rajendra Parwal-1, Rajendra Parwal-2, Faizabad Parwal-1, Faizabad Parwal-2, Faizabad Parwal-3, Faizabad Parwal-4, Kashi Alankar, Kashi Amulya, Kashi Sufal, Swarna Alokik, Swarna Rekha are the important varieties of Parwal.

Spacing

For Flat-bed Method: Plant to plant distance is 1.0 meter and row to row distance is 2.0 meters.

For Trellis Method: Plant to plant distance is 1.0 meter and row to row distance is 1.5 meters.

Ratio of male and female plants: Parwal has separate male and female flower on different plant. It is important to plant male and female plants in the right proportion. To get higher yield the male female plant ratio should be 1:9.

Harvesting and yield: Fruiting starts in the middle of March. Fruits become ready for plucking after 10 to 12 days of setting. Thus, harvesting should be done once per week in the month of March and April and twice per week in May. The fruits should be plucked before sunrise. This keeps the fruits fresh for a longer time. The yield of Parwal may range from 200 to 250 quintals per hectare, contingent on the specific varieties cultivated.

Important Insects and Diseases

Important Insects:

(i) Fruit fly (*Bactrocera cucurbitae* Coquillett)

Fruit fly is the most serious and destructive insect pest, causing severe damage to the developing fruits. During the rainy season, when the humidity is high, the adult flies lay eggs below the skin of ovaries. These eggs subsequently hatch into maggots that voraciously consume the developing fruits, ultimately resulting in decay and spoilage of Parwal.

Management:

- Use of pheromone traps @ 10 traps/hectare
- Spray Malathion (2 ml) + Jaggery (crude sugar, 10 g) mixed in water (1,000 ml) and sprayed at weekly intervals for the management of fruit fly.
- Spray Dimethoate 30 EC @1ml/liter water

(ii) Red pumpkin beetle

The Red Pumpkin Beetle is known to attack parwal plants during the period of leaf formation, causing extensive damage by consuming the leaves and eventually leading to the death of the plants. The outbreak of this insect occurs between February and April.

Management

- To manage this insect cow ash should be mixed with Kerosene oil and sprinkled on the leaves in the morning.
- Spray Nuvan @3 ml/liter water.

Important Diseases

(i) Vine and Fruit Rot

This is a soil borne complex disease. The affected fruits exhibit the development of wet, dark green spots, which subsequently expand and cause the fruit to rot, emitting an unpleasant odour. Fruits that are in close proximity to the ground are more susceptible to this disease. The primary characteristic feature of this disease is the rotting of both vines and fruits. These diseases are considered limiting factors in the cultivation of pointed gourd, particularly during the rainy season.

Management

- Preventing the fruits from making contact with the ground is crucial for effective management.

- Three sprays of Metalaxyl 8% + Mancozeb 64% WP @ 2 g/ liter water.

(ii) Powdery mildew

Symptoms of the disease have appeared on all the green parts of the plant, with a white, powdery substance appearing on the surface of these parts. As a result of the disease, the leaves have become dry, and the plant's growth has been stunted. The disease spreads rapidly during the wet season.

Management

- Spray Sulfex @2.5 g/liter water or Karathane @ 1ml /liter water

(iii) Downy mildew

The main symptoms of the disease appeared as Yellow spot on the upper surface of the leaves .Just below these spots dust colour fungal webs are visible on the lower surface of the leaf. The infected leaves die and plant stop growing.

Management

- Spray Indofil M-45 @ 2.5 gm/ liter water

(ii) Root-knot Nematode

Formation of Root gall due to *Meloidogyne incognita* is the characteristic symptoms. The incidence of the disease depend upon cultivar, soil type, and inoculum load. During severe nematode attack, plants remain stunted and may even die.

Management

- Soil solarisation is effective in reducing the incidence of root-knot nematode
- before planting
- Application of Neem Cake @ 2.5 q/ha before planting.
- Soil application of Carbofuran 3G at 2.5 g around/plant at 45 days after planting

References

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