PACKAGE OF PRACTICES - BRINJAL

- **Introduction:**

Brinjal is one of the most commonly grown vegetable crop of the country. India produces about 9.596 M mt of brinjal from an area of 0.566 M ha with an average productivity of 16.9 mt/ha. The leading Brinjal growing states are West Bengal, Orissa, Bihar, Gujarat & Maharashtra. Brinjal has ayurvedic medicinal properties and white brinjal is good for diabetic patients. It is also a source of vitamins A, C and minerals.

- **Crop varieties:**

Nichindapur barrot, Pant Rituraj, Mukatakeshi, Pusa Kranti, Arka Sheel, and Arka Navneet (F_1).

- **Conventional practices:**

Generally farmers grow local varieties and use check basin method of irrigation. Standard practices of nutrient application and plant protection are rarely adopted.

- **Suitable agro-climatic conditions:**

Brinjal requires a long warm growing season. Daily mean temperature in the range of 13^0 C to 21^0 C is favourable for its successful production.

- **Suitable soils:**

A well-drained fertile soil is desirable for the brinjal crop. It is a hardy plant and may be grown on different soils. However, it grows best on soils with silt loam and clay loam texture. Sandy or sandy loam soil is preferred for the early crop.

- **Preparation of land:**

The soil is deep ploughed and leveled by planking. FYM is mixed with the soil at the time of field preparation. All the weeds should be cleaned. Proper drainage is essential for development of crop.

- **Soil sterilization:**

The sterilization of the soil can be achieved by both physical and chemical means. Physical control measures include treatments with steam and solar energy. Chemical control methods include treatments with herbicides and fumigants. Soil sterilization can also be achieved by using transparent plastic mulch film, which is termed as soil solarization. During soil solarization, the incoming solar radiation penetrates the transparent plastic film (150 micron) and is absorbed in the soil. The absorbed radiation converts into heat energy, which raises the soil temperature and kills many soil-borne organisms including plant pathogens and pests.

- **Planting:**

Planting of brinjal is done at the end of April, end of July and end of September. Brinjal seeds are sown in rows 5 cm apart on 6-12 mm raised nursery beds. The nursery bed is covered with plastic or straw mulch till seeds germinate. Poly-house may be utilized to provide favourable micro climatic conditions to raise nursery. The seedlings of 4 to 6 weeks old are transplanted in a well-prepared field of which the surface soil is mixed thoroughly with FYM and a small quantity of super phosphate. The planting distance depends on soil fertility, season and variety. Usually, for the bushy, non-spreading type variety, the spacing should be 50 to 60 cm from row to row and from plant to plant. However, for spreading type varieties, the row-to-row distance should be 75 to 90 cm and plant-to-plant distance of 60-70 cm.

- **Drip system requirement:**

Area	1 ha
Planting geometry	75cm x 60cm
Variable items	75 mm Φ PVC/HDPE pipe-54 m, 75 mm Φ PVC/HDPE pipe-102 m, 12 mm Φ LLDPE Lateral-6700 m, Online drippers (2 l/h- 5628 Nos., Control valve -2 Nos., Flush valve -2 Nos. and Tees/bends-1 No. Accessories
Fixed items	Screen filter ($15m^3$/h)-1 No., Bypass assembly -1 No., Fertilizer applicator-1 No., Accessories.

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- **Irrigation scheduling:**

  The crop requires adequate moisture during the initial 70 days of its growing season. It can withstand drought in the later part of the growing season. Drip irrigation is ideal for the irrigation of brinjal crop. The daily water requirement of one plant is 0.75 liter at the initial growth stage and 3.25 liters at the peak growth stage. This water requirement of brinjal can be met by applying irrigation on alternate days or at 3 days interval with drip.

- **Application of fertilizers:**

  Application of 25 t/ha FYM along with 60 kg/ha each of P_2O_5 and K_2O has been recommended. Nitrogen is applied @ 100 kg/ha in 5 to 6 split doses during the crop growing season through fertigation.

- **Weed control:**

  Hand weeding and hoeing are done to control weeds. Black plastic mulch (150 micron) is also an effective method to control weeds. Black polythene mulch prevents entry of light, which restricts germination of weed seeds and growth.

- **Plant protection:**

  The control measures of the main pests and diseases of brinjal are described below –

- **Shoot and Fruit Borer:**

This is the most serious pest of brinjal. In the initial stages it attacks the terminal shoots and bores inside. Later, it also bores into the young fruits as soon as fruits start setting. This can be controlled by spraying of 20 % Lindane.

- **Damping off:**

This disease which is caused by soil borne *Phytophthora* or *Pythium* species occurs generally during the nursery stage. The affected seedlings dry up at the ground level and topple over. This can be controlled by sterilization of the nursery bed soil and treating the seeds with fungicide before sowing.

- **Wilt:**

This is caused by fungi and characterized by yellowing of the foliage. The lower leaves turn yellow and then brown between the veins. The control measures include use of resistant varieties, long crop rotations and periodic spraying of fungicide.

- **Harvesting, yield and quality control :**

  Brinjal is harvested when it attains good size and colour. It starts yielding after 2 months of planting. The surface of fruit should not lose its brightness and glossy colour. A short piece of the stalk is left attached to the fruit. The average yield varies from 45 to 50 t/ha.

- **Post harvest handling and storage :**

  The Indian Standards Institution has recommended three grades of Brinjal. Viz Super, Fancy and Commercial. The harvested fruits can be kept for 7 to 10 days in good condition at 10^0 to 13^0 C temperature and 85 to 90 % relative humidity.

- **Cost economics :**

Area	1 ha
Planting geometry	75cm x 60cm
Fixed cost of drip system	Rs. 75,263
Rate of interest	10.5%
Life of drip system	7.5 years
Annual cost of drip system	Rs. 10,822
Cost of cultivation	Rs. 12,750
Expected yield	47 t/ha
Expected Benefit-Cost ratio	3.2

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