Package of Practices of TOMATO

Tomato is one of the most popular and widely grown vegetables in Ri-Bhoi district of Meghalaya. It is an important source of vitamins such as A, B, C and antioxidant lycopene.

**Soil and Climate:** Sandy loam rich in organic matter is ideal for tomato cultivation. The optimum temperature required for its cultivation is 15–27 °C excessive and continuous rain during flowering and fruiting stages adversely affect fruit setting and yield.

**Seed Sowing Time:** It is grown in high hills from February to June (Spring-Summer), while in mid and low hills two crops can be raised, one from February to June and another from September to December.

**Suitable varieties/Hybrids:**

- **Rice based cropping system:** Manikhamnu, Manileima, Manithoibi, Pusa Ruby and Punjab Chhuhara.

- **High Yielding Hybrids:** Avinash-2, Rocky, Suraksha, Vaishali.

- **Bacterial Wilt Tolerant Varieties:** BT-10, BT-12, Arka Alok, Arka Abha, Suraksha (Hybrid).

**Field Preparation:** Soil is ploughed 2-3 times with power tiller or though digging with spade. Planking is done during the last ploughing to make friable soil bed before planting.

**Nursery raising:** Seedlings are grown on raised nursery bed. The width of the nursery bed should not be kept more than one meter and length as per the need/availability of space. The beds are dug and mixed with FYM @ 4 kg/m² and leveled. Before sowing, the nursery beds are drenched with Dithane M-45 (3 g/m²) or Bavistin (2 g/m²) to reduce the incidence of damping off. Make the rows at 5 cm distance along with width of bed with the help of bamboo stick. Apply sieved FYM on prepared bed and seeds are sown in line and covered with sieved FYM or sand. Sevin dust is mixed with seed to control ants. Nursery bed is covered with paddy straw/polythene for 3-5 days to induce early germination of seeds. Soon after sowing, the bed is irrigated with hazara and beds should be irrigated every day morning and evening. The cover is removed immediately as soon as sprouts are come out.

**Seed Rate:** Open pollinated variety: 400 g/ha and Hybrids: 200 g/ha.

**Transplanting and Spacing:** The nursery is ready for transplanting after 25-30 days of sowing. The seedlings are planted at the spacing of 60 x 45 cm for open pollinated variety and 75 x 45 cm for hybrids. Sevin dust at the rate of 2.5 – 5 g per hill is applied at the time of transplanting to protect seedlings from caterpillars or cutworm. Planting is done preferably in the evening or rainy day or during cloudy weather. Irrigation is done immediately after transplanting if the rainfall is not at the day of transplanting.

**Manures are Fertilizers:** FYM or compost @ 25 t/ha is incorporated in the soil during land preparation. NPK @ 120:80:60 kg/ha is applied for open pollinated variety and 180:100:100 kg/ha for the hybrids. Half dose of nitrogen and full dose of phosphorous and potash is applied at the time of transplanting. Rest amount of nitrogen is applied in two equal splits, first at 30 days after transplanting and next dose at 50-60 days after transplanting at 10-15 cm around the plant in ring. After application of fertilizers, it is mixed in the soil by light hoeing and irrigates the field.

**Weeding, Hoeing and Staking:** Four weeding and hoeing are sufficient for optimum growth and yield.Staking is very essential operation for indeterminate group of open pollinated varieties or hybrids for getting high yield and good quality fruits. Staking is done either by using bamboo stick or trained on wire.

**Plant Protection Measures:**

- **Late Blight and Early Blight:** Spray any one of the fungicide i.e. Difolatan (2 g/l) or Dithane M-45 (2 g/l) or Ridomil MZ (2g/l) or Bavistin (1 g/l) for controlling early and late blight diseases.
**Bacterial Wilt:** Application of bleaching powder @ 15 kg/ha before planting is found to be effective for controlling bacterial wilt disease.

**Fruit Borer:** Spray Malathion (3 ml/l) or Rogor (1 ml/l) at 10-15 days interval for controlling of fruit borer. Avoid tomato fruits for consumption upto 7-10 days after spraying of the chemicals.

**Harvesting and Picking:** Fruits are picked up at proper stage of maturity depending upon the purpose for which they are used and distance over which they are to be transported. There are following six stages of maturity for harvesting tomato.

- **a) Immature:** Before the seeds have fully developed and before the jelly like substance surrounding the seeds have formed.
- **b) Mature Green:** The fully grown fruit shows a brownish ring at stem scar, removal of calyx, light green colour at blossom end has changed to yellowish green and seeds are surrounded by jelly like substances filling the seed cavity.
- **c) Turning:** ¼ of the surface at blossom end shows pink (breaker stage).
- **d) Pink:** ¾ of the surface shows pink.
- **e) Hard Ripe:** Nearly all red or oink but flesh is firm.
- **f) Ripe:** Fully coloured and soft.

**Yield:** A normal crop of tomato yields 250 q/ha in open pollinated varieties and 500 q/ha in hybrids.