

## TOMATO

### *Solanum lycopersicum* L.

**Variety:** Punjab Chhuhara, S-12, Punjab Kesri, Pusa Early Dwarf, Sioux, Pusa Ruby, Arka Abha (BWR-1), Arka Alok (BWR-5) and BT-1.

**Punjab Chhuhara:** Determinate, dwarf with good foliage cover; Prolific bearer, high yielder, fruit medium, pear shaped, pericarp thick; maturity 120 days; suitable for distant transport and processing.

**S-12:** Plant dwarf, bushy, early bearing, fruit medium sized, round, juicy, highly acidic; av. yield 175-280 q/ha; suitable for growing in the plains for fresh marketing (table purpose).

**Punjab Kesri:** Determinate, dwarf, bushy, fruit small, pear shaped, less pulpy; early maturity; yield about 268 q/ha, no fruit cracking, moderate incidence of late blight and fruit borer, susceptible to root-knot nematode, less suitable for processing.

**Pusa Early Dwarf:** Determinate, typical dwarf with compact fruiting, fruit slightly flattish in shape, medium large, uniformly red ribbed, maturity in 55-60 days after transplanting, yield 200-500 q/ha.

**Sioux:** Indeterminate, spreading; fruit round, smooth, medium to large, less seeded, sub-acid in taste, medium late maturity (70-80 days), avg. yield is about 250 q/ha, good for short distance markets and suitable for hilly regions.

**Pusa Ruby:** Indeterminate, spreading, less branched and hardy; fruit flattish round, small to medium, slightly acidic, early maturity (60-65 days), yield about 330 q/ha, withstands hot and humid climate, good for fresh market and for making ketchup; tolerant to excess rain.

**Arka Abha (BWR-1):** Semi determinate, fruits oblate, light green shouldered, average fruit weight 75 g, duration 135 days, yield 250 q/ha, resistant to bacterial wilt.

**Arka Alok (BWR- 5):** Determinate; fruits square round, thick fleshed with light green shouldered, average fruit weight 100 g, duration 125 days, yield 350 q/ha, resistant to bacterial wilt.

**BT-1:** High yielder, tolerant to bacterial wilt

#### **Soil:**

Well drained sandy loam rich in organic matter with pH 5.0-7.0

#### **Nursery bed preparation and seedling raising:**

Refer “Procedure for nursery raising of transplanted vegetable crops”.

#### **Field preparation:**

The land should be prepared to a fine tilth and FYM to be applied at least 15 days ahead of transplanting. Liming should be done earlier to transplanting, to raise the soil pH to

optimum level. It is advisable to apply lime @ 10 q/ha in every three years depending upon soil testing.

**Seed Rate:**

Determinate & Semi-determinate varieties: 250 g/ha (33.3 g/bigha) Indeterminate varieties: 300 g/ha (40 g/bigha)

**Time of Sowing:** October – November.

**Spacing:** (Row to row x plant to plant)

60 cm x 45 cm (for both the determinate and semi determinate variety)

75 cm x 30 cm (for indeterminate variety)

**Time of planting for Hill Zone:**

To escape the leaf curl virus planting should be done in October.

**Manure and Fertilizer:**

- i) FYM @ 10 t, N 75 kg, P<sub>2</sub>O<sub>5</sub> 60 kg and K<sub>2</sub>O 60 kg/ha (1.3 t FYM, 22.0 kg Urea, 50.4 kg SSP and 13.6 kg MOP/bigha). Half of N and full doses of FYM, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O should be applied as basal and the remaining half of N to be top dressed in one or two splits.
- ii) Foliar application of Nitrogen in tomatoes is very effective. In that case, 40 kg/ha N should be applied as basal and 20 kg/ha N as foliar spray. The schedule for foliar spray to be followed is given below:
  - a) Spray on the 30<sup>th</sup> day after transplanting by dissolving 9.71 kg urea in 1000 litres of water for one hectare of land
  - b) Spray on the 40<sup>th</sup> day after transplanting by dissolving 14.1 kg urea in 1500 litres of water for one hectare of land
  - c) Spray on the 50<sup>th</sup> day after transplanting by dissolving 19.3 kg urea in 2000 litres of water for one hectare of land.

**Interculture:**

1. **Irrigation:** The first irrigation is to be given immediately after transplanting and subsequent irrigations at 10-15 days interval depending on soil condition.
2. **Weeding:** Pre-emergence application of Metolachlor @1 kg ai/ha followed by application of Grubber at 40 DAP is recommended. Alternatively, hoeing is to be done at 20 and 40 DAP.
3. **Growth regulator:** Spray 20 ppm of Gibberellic acid at 30 days after planting.
4. **Intercropping:** Knolkhol can be successfully grown with tomato as intercrop (1row of tomato: 2 rows of Knolkhol).

**Plant Protection:**

1. **Late blight:** (i) Against late blight, six spraying with copper oxychloride 50 WP @ 2 g commercial formulation /lit at an interval of 12 days.

OR

- (ii) Spraying with dimethomorph 50 WP @ 1g commercial formulation per lit followed by copper oxychloride 50 WP @ 2g commercial formulation per lit in alternate application (3 sprays with the dimethomorph & 3 with copper oxychloride) at an interval of 12 days give very good control if used at the following rates with high volume sprayer.

**Early stage** (1<sup>st</sup> month): 600 lit of water/ha

**Mid stage** (2<sup>nd</sup> month): 800 lit of water/ha

**Late stage** (3<sup>rd</sup> month): 1000 lit of water/ha

Use of sticker Triton (0.5 ml/ltr) will be essential in the spray solution for spraying during rainy weather.

Depending upon weather conditions, particularly in cloudy weather, copper oxychloride should be sprayed as a prophylactic measure. If disease appears, spraying should be done at an interval of 7 to 10 days depending upon weather conditions. While spraying, care should be taken to ensure wetting of the lower sides of the leaves.

- (iii). 1% Bordeaux mixture (10 g CuSO<sub>4</sub> + 10 g lime + 1 ltr water) is also effective in controlling blight in tomato.

## 2. Wilt:

### (i) Bacterial wilt:

- Drench soil with 200 ppm Streptomycin.
- Grow resistant varieties.
- Apply oil cake.
- Apply “Asafoetida – Turmeric powder mixture (1 g Asafoetida + 5 g turmeric powder in 10 ltr of water) to drench the soil 3 times i.e., at 15, 30 and 45 days after transplanting.

### (ii) Fungal wilt: Drench soil with Carboxin @ 0.2%

3. **Insect pests:** Apply Emmamectin benzoate 5 SG @220 g/ha. Flubendiamide 39.35 EC @ 0.1%. Chlorantraniliprole 18.5SC @ 40 gai/ha. Lamda-cyhalothrin 5EC@ 20 g ai/ha.

**Yield:** 350 – 400 q/ha

**Benefit: Cost ratio:** 6.41