

## Pusa Red Cherry Tomato-3 : A new promising variety for cultivation under protected and open conditions

**Pusa Red Cherry Tomato-3 is a newly developed high-yielding cherry tomato variety from ICAR-IARI, New Delhi, suitable for both open field and protected cultivation. Identified during the 43<sup>rd</sup> AICRP Vegetable Crops meeting and notified in 2025, it shows superior performance over Pusa Cherry Tomato-1 with about 15% higher yield. The indeterminate plants produce round, deep red fruits averaging 13.6 g, with high total soluble solids and lycopene content, ensuring better quality and consumer acceptability. The variety performs well across seasons in Indian plains, exhibiting continuous fruiting and adaptability. With an average yield of 35.78 t/ha, it offers significant economic benefits to farmers and meets market demand for attractive, nutritious cherry tomatoes. It is recommended for commercial cultivation under agro-climatic conditions.**

**Keywords:** Cherry tomato, High yield, ICAR-IARI, Indeterminate variety, Lycopene, Protected cultivation

**P**USA Red Cherry Tomato-3 is a promising tomato variety developed by Division of Vegetable Science, ICAR-Indian Agricultural Research Institute, Pusa, New Delhi. This variety was identified for release during 43<sup>rd</sup> AICRP-Vegetable Crops group meeting during 3-5 March 2025, held at PAU, Ludhiana for Zone I (Uttarakhand, Himachal Pradesh, Jammu & Kashmir and Ladhak). It has been notified to vide S.O. 4000(E) dated 1 September 2025. The cherry tomato growers will be benefited with this new variety because of its very high yielding ability, red and attractive fruits with better fruit quality traits. As per AICRP data, the average yield of this variety is 35.78 t/ha in open field in 6-7 months crop duration with an advantage of about 15.24% over check Pusa Cherry Tomato-1 (30.25 t/ha) which is a popular variety grown by farmers. It can be grown in Indian Plain areas during autumn-winter and spring-summer season under open field condition. Farmers have shown their interest in this variety as it is highly acceptable by the consumers and farmers based on its continuous fruiting ability,

attractive red fruit, high TSS and other quality attributes.

### Salient features of tomato variety Pusa Red Cherry Tomato-3

This variety has been developed through pedigree method:

- It is an indeterminate variety of cherry tomato suitable for cultivation under open as well as protected condition.
- The fruits are round in shape, deep red in colour and have an average weight of about 13.6 g.
- The ripe red fruits have thick pericarp (3.5 mm), 10.1 °Brix TSS and 8.0 mg/100 g lycopene content.
- It gives an average yield of 358 q/ha and suitable for cultivation from October to May under protected cultivation and open field condition.



Fruits of tomato variety Pusa Red Cherry Tomato-3 at maturity

### Package of practices for cultivation of Pusa Red Cherry Tomato-3

#### Climate

It requires a relatively

warm climate for proper growth and development. The optimum temperature for fruit set and colour development ranges between 20°C and 25°C during the day and night.

#### **Sowing time**

Tomato can be cultivated throughout the year in a fully controlled polyhouse environment. However, in low-cost or naturally ventilated polyhouses, transplanting is generally carried out during the last week of September, and the crop can continue up to April.

#### **Soil**

A well-drained sandy loam soil with a pH between 6.0 and 7.0 is ideal for optimum tomato growth and yield.

#### **Seed rate**

Approximately 100 g of seed/ha is recommended.

#### **Raising of nursery**

Nursery should be sown in the first week of September inside a polyhouse or insect-proof net house. A soilless growing medium comprising cocopeat, perlite and vermiculite in a 3:1:1 ratio is preferred for producing healthy, disease-free seedlings. After 22–25 days of sowing, when seedlings attain a height of 10–12 cm and develop four true leaves, they should be hardened for 2–3 days by withholding irrigation. Hardening minimizes transplanting shock and ensures better crop establishment.

#### **Transplanting**

Seedlings are transplanted on both sides of 10 cm high raised beds that are 0.75 m wide with 30 cm spacing between adjacent beds. Plants are spaced 45 cm apart within rows on either side of the bed. Transplanting should be done under a drip irrigation system with plastic mulch to enhance water and nutrient-use efficiency.

#### **Manure and fertilizers**

Soil testing should be conducted to assess nutrient status before planting. In general, apply 30 t/ha of well-decomposed FYM at land preparation. Incorporate 80 kg phosphorus and 90 kg potash/ha before transplanting. Apply 180 kg nitrogen/ha in split doses: one-third at transplanting and the remaining in four top dressings at 25–30 days, 50–60 days or flowering, after the first picking, and after the second picking. Foliar sprays of 1% urea after each harvest promote continued growth. During flowering, apply a 0.5% micronutrient mixture, particularly containing calcium and boron, as a foliar spray.

#### **Irrigation**

Maintaining uniform soil moisture is critical, especially during flowering and fruiting. Irrigation intervals vary with season, every 8–10 days in winter and every 4 days in summer, depending on weather conditions. Drip irrigation is recommended for efficient water and nutrient management. Black polyethylene mulch helps conserve soil moisture and suppress weeds.

## **Pusa Red Cherry...**

#### **Intercultural operations**

Weed management is crucial as weeds compete for nutrients, light and moisture, and harbour pests and diseases. Frequent hoeing should be carried out as needed. Before mulching and transplanting, beds can be treated with Stomp @ 2 ml/L water to control pre-emergence weeds.

#### **Training, pruning and trellising**

Staking should be initiated 20–25 days after transplanting. Plants are tied loosely to vertical stakes using soft ties. All lateral shoots are removed early to maintain a single or double stem system. Plants are supported with plastic twine or clips attached to overhead support wires placed 8–10 feet above ground level. Continuous pruning of side shoots throughout the crop duration improves fruit quality. After the first harvest, lower leaves up to one foot above the ground should be removed to enhance ventilation and reduce disease incidence.



Plant of tomato variety Pusa Red Cherry Tomato-3 in fruiting stage

### **Pollination**

Tomato is a self-pollinated crop, and normal fruit set occurs under sunny conditions. However, during cloudy or foggy weather, electric vibrators, air blowers or manual shaking can be used between 10–11 a.m. and 2–3 p.m. to ensure effective pollination.

### **Harvesting**

Harvesting of tomato begins about 70–75 days after transplanting. The stage of harvest depends on the intended purpose and the distance of transportation. For long-distance marketing, fruits are harvested at the mature green stage; for short-distance transport, harvesting is done at the pink stage; and for processing purposes, fully ripe red fruits are preferred.

### **Average yield**

Yield varies with environmental and cultural conditions. On average, tomato produces about 6 quintals/100 sq. m in polyhouse conditions and over 350 quintals/hectare under open field cultivation.

### **Plant protection**

Warm and humid conditions in protected structures favours pest development. Sanitation, soil solarization, mulching and fumigation are key preventive measures. Common pests include whiteflies, mites and nematodes,

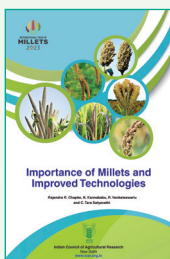
which often enter the polyhouse through frequent human movement. Nematode is also a major problem in polyhouse. To minimize infestation, use UV-stabilized 200-micron polythene as cladding material. Install 40-mesh insect-proof nets and a double-door foyer to restrict insect entry. Raise seedlings in a protected nursery. Remove lower or diseased leaves to improve ventilation. For monitoring and control, whiteflies, aphids and leaf miner adults, place yellow sticky traps (8" × 12") @ 5/100 sq. m about 4-6 inches above the plant canopy. Replace traps once they are over 70% covered with insects. For effective management of pests and diseases, Integrated Pest Management (IPM) practices should be followed. If chemical control is required, Propargite at 2 ml/L of water or Spiromesifen at 1 ml/3L of water can be used to control mites. For managing whiteflies, Triazophos or Flonicamid at 1 ml/ 3L of water is recommended. In the case of fungal diseases, a mixture of Carbendazim (1 g/L of water) and Mancozeb (1 g/L of water) can be applied as a foliar spray.

*For further interaction, please write to:*

<sup>1</sup>Principal Scientist <sup>2</sup>Scientist, Division of Vegetable Science, ICAR-Indian Agricultural Research Institute, Pusa New Delhi-110 012. \*Corresponding author email: rkyadavneh@gmail.com



## **Importance of Millets and Improved Technologies**



**“Importance of Millets and Improved Technologies”** this book is an excellent compilation of knowledge of importance of Millets and improved production technologies which is essential to create awareness among the end users for their promotion. Millets are being utilized for various purposes such as food, feed, fodder and more recently, as bio-fuel.

For this information, importance of different millet crops in our livelihood and their technological advancement has been compiled in this monogram. It will be of immense value to the researchers, academicians, end-users and policymakers alike to promote millets farming.

### **TECHNICAL ASPECTS**

Pages: v + 183; Price: ₹ 700.00, US\$ 90.00; Postage: ₹50

ISBN No.: 978-81-7164-272-4

*For obtaining copies, please contact:*

#### **Business Unit**

ICAR-Directorate of Knowledge Management in Agriculture

Krishi Anusandhan Bhawan – I, Pusa, New Delhi | 110012

Tel: 011-25843657; email: businessuniticar@gmail.com

website: www.icar.org.in