

In-Depth Guide on Cotton Cultivation

1.Introduction

Cotton (*Gossypium* spp.) is an essential fiber crop known as the "White Gold" of India. Grown in Kharif season, it is primarily cultivated in Gujarat, Maharashtra, and Telangana for textiles and by-products like cottonseed oil.

2.Climate and Soil Requirements

- Temperature: 21–30°C.
- Rainfall: 50–120 cm; excessive rain can harm the crop.
- Soil:
 - Deep black soil or sandy loam with good drainage.
 - Soil pH: 5.8–8.0.

3.Seed Selection and Preparation

- Varieties:
 - Bt Cotton: Resistant to Bollworm.
 - High-Yielding: LRA-5166, Anjali.
- Seed Rate: 2–3 kg/ha for hybrids; 15–20 kg/ha for straight varieties.
- Seed Treatment: Treat seeds with fungicides like Thiram to prevent soil-borne diseases.

4.Sowing Techniques

- Time of Sowing: June–July after the onset of monsoon.
- Methods: Ridge and furrow planting.
- Spacing: 90 cm between rows; 45–60 cm between plants.

5.Fertilizer Management

- Base Fertilizers:
 - Nitrogen (100–120 kg/ha), Phosphorus (60 kg/ha), Potassium (60 kg/ha).
- Application: Apply Nitrogen in three splits—at sowing, square formation, and boll formation.

6.Irrigation Management

- Critical Stages: Flowering, boll development.
- Avoid waterlogging and ensure drainage during heavy rains.

7.Pest and Disease Management

- Pests:
 - Bollworm: Use Bt cotton or spray Spinosad (0.015%).
 - Aphids: Spray Neem oil or Imidacloprid (0.03%).
- Diseases:
 - Wilt: Use Trichoderma-based fungicides.
 - Leaf Curl Virus: Manage whiteflies with systemic insecticides.

8. Weed Control

- Apply pre-emergence herbicides like Pendimethalin (1 liter/ha).
- Perform intercultural operations 30–45 days after sowing.

9. Harvesting and Post-Harvest Management

- Harvesting: When 70–80% of the bolls open. Avoid delays to prevent lint damage.
- Post-Harvest: Ginning separates seeds from lint. Proper storage prevents contamination.

10. Yield and Economics

- Yield: 15–25 quintals per hectare.
- Cost of Cultivation: ₹40,000–₹60,000 per hectare.
- Market Price: ₹5,000–₹8,000 per quintal.