



## GENERALIZED MANAGEMENT AND CULTIVATION PRACTICES FOR OIL SEEDS:

### GROUNDNUT

Groundnut, also known as peanut, is an important oilseed crop grown widely in Tamil Nadu. It is cultivated for its edible oil, protein-rich kernels, and fodder. Groundnut plays a significant role in the agricultural economy and improves soil fertility through nitrogen fixation.

#### **1. Climate Requirements**

Groundnut grows well in warm tropical climates.

- Optimum temperature: **25–30°C**
- Requires **moderate rainfall (500–1000 mm)**
- Sensitive to **frost and waterlogging**
- Suitable for both **rainfed and irrigated conditions**

#### **2. Soil Requirements**

Groundnut grows best in light and well-drained soils.

- Suitable soils: **Sandy loam and red loam soils**
- Soil pH range: **6.0–7.5**
- Avoid **heavy clay and waterlogged soils**

#### **3. Land Preparation**

- Plough the field **2–3 times** to obtain a fine tilth.
- Break soil clods and remove weeds.
- Level the land properly.

- Apply **Farmyard Manure (FYM) 10–12 tons per hectare** during the last ploughing.

#### 4. Season of Sowing in Tamil Nadu

Groundnut is grown in different seasons in Tamil Nadu:

- **Kharif:** June – July
- **Rabi:** September – October
- **Summer:** January – February

#### 5. Seed Rate and Sowing

- **Seed rate:** 100–125 kg per hectare (depending on variety)
- **Spacing:**
  - Row spacing: **30–45 cm**
  - Plant spacing: **10–15 cm**
- **Sowing depth:** 5–6 cm

Seeds are usually sown using **dibbling or seed drills**.

#### 6. Seed Treatment

Seed treatment helps prevent diseases and improves plant growth.

- Treat seeds with **Thiram or Carbendazim at 2–3 g/kg seed**.
- Inoculate seeds with **Rhizobium culture** for better nitrogen fixation.

#### 7. Manure and Fertilizer Management

Recommended fertilizer dose:

- 25 kg Nitrogen (N)
- 50 kg Phosphorus ( $P_2O_5$ )
- 75 kg Potassium ( $K_2O$ ) per hectare

Application of **gypsum (400 kg/ha)** during flowering improves pod formation.

## 8. Irrigation Management

Groundnut requires proper irrigation at critical stages:

- **Flowering stage**
- **Peg formation stage**
- **Pod development stage**

Avoid excess irrigation to prevent fungal diseases.

## 9. Weed Management

Weeds should be controlled during early crop growth.

- **First weeding:** 15–20 days after sowing
- **Second weeding:** 30–35 days after sowing

Pre-emergence herbicide like **Pendimethalin** can be used for weed control.

## 10. Pest and Disease Management

**Common pests:**

- Aphids
- Leaf miner
- Hairy caterpillar

**Major diseases:**

- Tikka leaf spot
- Rust
- Collar rot

Use resistant varieties and integrated pest management practices for effective control.

**11. Harvesting**

- Crop duration: **100–120 days**
- Harvest when **leaves turn yellow and pods mature.**
- Plants are **uprooted, dried, and pods are separated.**

**12. Yield**

Under proper management practices in Tamil Nadu:

- **Average yield: 2000–2500 kg per hectare**

**SUNFLOWER**

Sunflower (*Helianthus annuus*) is an important oilseed crop cultivated in many parts of Tamil Nadu. It is valued for its high-quality edible oil and adaptability to different climatic conditions. Sunflower is a short-duration crop and can be grown in all seasons under both irrigated and rainfed conditions.

**Climate**

Sunflower grows well in warm climates. The crop requires bright sunshine for good growth and seed development. The optimum temperature for sunflower

cultivation ranges between **20°C and 30°C**. It can tolerate mild drought but is sensitive to waterlogging and frost.

## Soil

Sunflower can be grown in a wide range of soils but performs best in **well-drained loamy soils**. Sandy loam and red soils are also suitable. The ideal soil pH ranges from **6.5 to 7.5**. Good drainage is essential to avoid root diseases.

## Land Preparation

The field should be ploughed **2–3 times** to obtain a fine tilth. All weeds, crop residues, and stones should be removed. The land should be well leveled to ensure proper irrigation and drainage. **Farmyard manure (FYM) at 10–12 tons per hectare** should be incorporated during the final ploughing.

## Season of Sowing in Tamil Nadu

Sunflower can be cultivated throughout the year in Tamil Nadu:

- **Kharif season:** June – July
- **Rabi season:** September – October
- **Summer season:** January – February

## Seed Rate and Sowing

The recommended **seed rate is about 5–8 kg per hectare**. Seeds are usually sown by **dibbling or using seed drills**. The recommended spacing is **60 cm between rows and 30 cm between plants**. Seeds should be sown at a depth of **3–5 cm**.

### Seed Treatment

Seeds should be treated with fungicides to prevent seed-borne diseases. Seed treatment with **Thiram or Carbendazim at 2–3 g per kg of seed** is recommended. This helps protect the seedlings from fungal infections during early growth stages.

### Manure and Fertilizer Management

Sunflower responds well to balanced fertilization. The recommended fertilizer dose is:

- **60 kg Nitrogen (N)**
- **90 kg Phosphorus (P<sub>2</sub>O<sub>5</sub>)**
- **60 kg Potassium (K<sub>2</sub>O) per hectare.**

Organic manures such as FYM or compost improve soil fertility and crop growth.

### Irrigation Management

Sunflower requires moderate irrigation. Critical stages for irrigation include:

- **Flower initiation stage**
- **Flowering stage**
- **Seed filling stage**

Over-irrigation should be avoided as it may cause root rot.

### Weed Management

Weeds should be controlled during the early growth period of the crop. The **first weeding should be done 15–20 days after sowing**, followed by a **second weeding at**

**30–35 days after sowing.** Pre-emergence herbicides like **Pendimethalin** can be used to control weeds effectively.

### **Pest and Disease Management**

Common pests affecting sunflower include **aphids, caterpillars, and head borers.** Major diseases include **downy mildew, rust, and leaf spot.** Proper crop rotation, resistant varieties, and timely plant protection measures should be followed.

### **Harvesting**

The sunflower crop matures in about **90–100 days.** The crop is ready for harvest when the **back of the flower head turns yellow and the seeds become hard.** The heads are cut, dried, and then threshed to separate the seeds.

### **Yield**

Under good management practices in Tamil Nadu, sunflower yields about **1200–1500 kg per hectare.**

Sunflower is an important oilseed crop suitable for cultivation in Tamil Nadu. Adoption of proper management practices such as timely sowing, balanced fertilization, efficient irrigation, and pest control can significantly increase sunflower productivity.

### **CASTOR**

Castor (*Ricinus communis*) is an important oilseed crop cultivated in Tamil Nadu for its high-quality oil. Castor oil is used in pharmaceuticals, cosmetics, lubricants, and industrial applications. Castor is a hardy crop that tolerates drought and poor soils, making it suitable for semi-arid regions of Tamil Nadu.

## Climate

Castor grows well in **tropical and subtropical climates**.

- Optimum temperature: **20–35°C**
- Drought-tolerant but sensitive to waterlogging
- Requires **moderate rainfall (500–700 mm)**
- Grows well under **rainfed and irrigated conditions**

## Soil

Castor is adaptable to various soils but performs best in:

- Well-drained **loamy, sandy loam, or red soils**
- Soil pH: **6.0–7.5**
- Avoid **waterlogged or saline soils**

## Land Preparation

- Plough the field **2–3 times** to obtain a fine tilth
- Remove weeds, stubbles, and crop residues
- Level the field properly for uniform irrigation
- Incorporate **Farmyard Manure (FYM) 10–12 tons per hectare**

during final ploughing

## Season of Sowing in Tamil Nadu

Castor is generally grown in:

- **Kharif season:** June – July
- **Rabi season:** September – October

### Seed Rate and Sowing

- **Seed rate:** 5–6 kg per hectare for hybrid varieties
- **Row spacing:** 90 cm
- **Plant spacing:** 60–75 cm
- **Sowing depth:** 3–5 cm

Seeds are sown by **line sowing or dibbling method**.

### Seed Treatment

Seed treatment protects seedlings from diseases:

- Treat seeds with **Thiram or Carbendazim at 2–3 g/kg seed**
- Pre-sowing treatment is recommended for **enhanced germination and early growth**

### Manure and Fertilizer Management

Recommended fertilizer dose:

- **Nitrogen (N): 25–30 kg/ha**
- **Phosphorus (P<sub>2</sub>O<sub>5</sub>): 50 kg/ha**
- **Potassium (K<sub>2</sub>O): 25 kg/ha**

Application of FYM improves soil structure and plant growth.

### Irrigation Management

- Castor is drought-tolerant, but irrigation improves yields
- Critical stages for irrigation:

- **Flowering stage**
- **Fruit setting stage**
- Avoid waterlogging to prevent root rot

### **Weed Management**

- First weeding: **15–20 days after sowing**
- Second weeding: **30–35 days after sowing**
- Pre-emergence herbicides like **Pendimethalin** may be applied

### **Pest and Disease Management**

#### **Common pests:**

- Shoot and fruit borer
- Aphids
- Whiteflies

#### **Major diseases:**

- Leaf spot
- Powdery mildew
- Root rot

Control measures include **resistant varieties, crop rotation, and timely pesticide application.**

### **Harvesting**

- Crop duration: **150–180 days** depending on variety
- Harvest when **bolts turn brown and seeds mature**

- Plants are cut and allowed to **dry before threshing**

### **Yield**

Under proper management in Tamil Nadu:

- **Average yield:** 800–1200 kg per hectare

Castor is a hardy, drought-tolerant oilseed crop suitable for semi-arid regions of Tamil Nadu. Proper land preparation, seed treatment, balanced fertilization, weed and pest management, and timely harvesting significantly improve productivity and profitability.