



## Sunflower Cultivation: A Method of Systematic Farming

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Sunflower is a perennial blooming plant of the daisy family Asteraceae. Sunflower is a high-yielding crop planted mostly in spring and summer. It produces a lot of oil and has a high yield; therefore, farmers make a lot of money. The most significant districts for sunflower production in Punjab are Ropar, Jalandhar, Kapurthala, and Ambala.

**Origin:** Sunflowers were initially grown in America. Now, it is cultivated in a variety of nations, including Denmark, Sweden, Russia, Egypt, India, and Britain.

**Climate and soil:** Sunflower thrives in temperatures ranging from dry under irrigation to temperate under rainfed circumstances, but is vulnerable to frost. The average daily temperature for healthy growth is between 18 and 25. Sunflower flourish in well-drained, loamy soil with a pH range of 6.0-7.5. Perform a soil test to evaluate the pH and nutrient content of the soil. Choose a site where sunflowers will receive at least 6-8 hours of direct sunshine every day.

### Selection of Varieties

Before planting, choose the correct sunflower variety for your needs. Sunflowers vary in size, color, and development habits:

- **Confectionery Varieties:** These are planted for their huge seeds, which may be eaten as snacks or baked. They often have bigger seeds and a shorter growth season.
- **Ornamental Varieties:** These are grown for their ornamental qualities and appear in a variety of hues, including orange, maroon and red. They are generally smaller and may exhibit branching behaviors.
- **Oilseed Varieties:** These seeds contain a high oil content and are commonly used to produce sunflower oil. They are often taller and have smaller, more frequent seeds.

**List of Varieties:** Here are some Punjab Popular & Hybrid Varieties mentioned in the Table

Punjab popular sunflower varieties	Hybrid varieties
Jwalamukhi	CO -2
SK- 3322	CoH-3
GKSFH-2002	PSH-1962
DK-3849	PSH-208
PSFH-118	

### Planting method of Sunflowers

Timing and planting practices are critical for effective sunflower production.

- **Spacing:** Sunflower seeds should be spaced 1 to 2 inches apart in rows, with each row around 24 to 36 inches apart. For bigger kinds, allow enough space to accommodate their mature size.

- **Depth:** Plant seeds 1-2 inches deep. This depth strikes a decent balance between soil covering and ease of germination.
- **Timing:** Sunflowers are vulnerable to frost. Plant them after the last frost date, when the soil temperature is regularly higher than 50°F (10°C).

**Dietary Importance:** - The polyunsaturated fatty acids and vitamins included in its oil help with heart issues, while the antioxidants keep it away from cancer. Sunflower contains 45-50% oil. In the Table, some other Nutrients along with their content percentage are mentioned below.

Linoleic acid	64%
Protein	20.8g
Carbohydrates	20g
Fats	51.5g
Dietary fiber	8.6g
Water	4.73g

**Nutrient and weed management:** - Sunflower reacts to calcium, sulfur, and boron. Calcium promotes seed filling and increases seed weight. Boron enhances pollen viability, stigmatic receptivity, and seed set. Fertilizer nitrogen phosphorus potassium (NPK) is advised for rainfed and irrigated crops at 20:30:20 and 40:60:40 kg (NPK) per hectare.

**Irrigation and methods:** -The most three critical periods for irrigation in sunflower

- bud (button) stage
- flowering
- grain formation stages

Drip irrigation is usually the best irrigation option for sunflower farming. Irrigation systems vary according on the area and soil conditions.

1. Drip irrigation: - mostly use of the sandy soil
2. Sprinkler irrigation: - mostly use of the clay soil.
3. Flood irrigation: - suitable of flat field and soil with good water holding capacity.

**Inter cultivation method used in sunflower:**

Single crop

G.nut+ sunflower – 4:2

Red Gram+ sunflower -1:2

**List of some Pest, disease and weeds which affects the growth of sunflower: -**

Pest

- Capitulum borer (head borer)
- Bihar hairy caterpillar
- Shield bug
- Green jassid

Disease

- Alternaria leaf spot
- Sunflower necrosis disease
- Downy mildew

Weeds

- Rabbit /crow foot grass
- Red root pig weed
- Lambsquarter

**Pest and diseases management:**

1. **Insecticide** – To suppress sucking pests, spray with phosphamidon (0.03%), dimethoate (0.03%), or monocrotophos (0.05%) in 650-700 mL of water per acre.
2. **Neem seed kernel extract** – To suppress leafhoppers, spray with 2% neem seed kernel extract.

**Supporting Growth**

Sunflowers may require assistance as they develop, especially taller types.

- **Staking:** Consider staking exceptionally tall sunflowers or those cultivated in windy places to keep them upright. Use pegs or supports that are securely fastened to the ground.
- **Pruning:** Although not always necessary, cutting side branches can assist concentrate the plant's energy into the primary flower head, resulting in a bigger bloom.

**Harvesting and yield:** Harvest time is critical for optimizing seed quality and production.

- **Maturity:** Sunflowers are ready to harvest when the backs of the flower heads turn yellow and the seeds become solid. When gently massaged, the seeds should readily come out from the flower head.
- **Harvesting:** Cut off the blossom heads with a sharp knife or pruning shears. Let them dry in a well-ventilated, shady location before extracting the seeds. This method lowers the danger of mold and protects seed quality.
- **Yield:** - Most sunflower crop cultivars have varying yields. Maximum hybrid types produce 1500-2500 kg per acre. When the moisture content of the seeds reaches 20%, the sunflower crop is ready for harvest.

**Conclusion**

Cultivating sunflowers may be a delightful activity, providing both aesthetic and practical advantages. You may have a successful sunflower harvest by selecting the right type, preparing the soil, and caring for it properly. Sunflowers are a flexible and important addition to any garden, whether grown for seeds, oil, or just to liven it up.