

**PACKAGE OF PRACTICES OF OILSEED CROPS (KHARIF)
FOR SOUTHERN ZONE**

1. SUNFLOWER

Sunflower by virtue of its photo insensitive nature is ideally suited for successful cultivation in different seasons. Although, sunflower has emerged as an important oilseed crop under contingency planning, choice of appropriate cultivars and crop management practices have to be scrupulously followed to achieve maximum productivity.

1. Soils: Sunflower can be grown on almost all soil types viz., red, black and alluvial soils. It grows best in deep, well drained and fertile soils. Low lying, coastal soils with water stagnation and acidic soils are not suitable for sunflower cultivation. The ideal pH is around 6.5-8.0. Sunflower can tolerate moderate levels of salinity.

2. Recommended varieties/hybrids:

S. No.	Variety/ Hybrid	Duration (Days)	Yield (Kg/ac) under rainfed conditions	Oil Content (%)	Plant Height (Cm)	Special Characters
1	Morden	80-85	300-400	35-38	90-120	Suitable for intercropping
2	DRSF-108	90-95	400-500	38-42	150-160	
3	KBSH-1	90-95	500-600	42-44		
4	NDSH-1	80-85	500-600	40-42	120-130	Resistant to downy mildew, tolerant to rust and moisture stress
5	DRSH-1	90-95	500-600	42-44	150-160	Resistant to Downy mildew, tolerant to Alternaria.
6.	APSH-66	90-95	600-700	42	150-160	Tolerant to Alternaria leaf spot

3. Time of sowing: In light soils sowing can be done from second fortnight of June to first fortnight of July, while in heavy soils second fortnight of August is recommended.

4. Seed rate and spacing: Rain fed crop requires more seed (3-4 kg /ac for varieties and 2-2.5 kg for hybrids) than irrigated (2.5-3.5 and 2 kg/ac, respectively, for varieties and hybrids). Seed should be soaked for 14 hrs and shade dried prior to seed treatment with 2-3 g Thiram/Captan/ Metalaxyl or 5g Imidacloprid. Spacing of 45 x 20 cm in light soil, 45 x 30 cm in medium soil & 60 x 30 cm in heavy soils is recommended.

5. Nutritional Management: Basal application of 3 t of FYM, 16-24-12 Kg N: P₂O₅ K₂O/ha and top-dress 6 kg N at 30 DAS and 50 DAS for rainfed crop. For hybrids in black soils with irrigation, 30N-36P₂O₅-12K₂O dose is recommended.

6. Water management: The critical stages for irrigation in sunflower are bud initiation flower opening and seed filling. During *Kharif*, irrigations can be given based on soil type i.e. 1-2, 2-3 and 3-4 for heavy, medium and light soils, respectively.

7. Intercultivation: Thinning should be done at 10-15 DAS and harrowing at 20-25 DAS.

8. Plant protection:

8.1. Insects:

8.1.1. Sucking pests:

Spray Dimethoate/ Methyl Dematon (2 ml) or Monocrotophos (1.6 ml)/l for the control of Jassids. For white fly control, spray Triazophos(2.5 ml)/ Monocrotophos (1.5 ml)/ Acephate (1 g)/l. To control mites which transmit necrosis, spray Imidacloprid (6 ml/ 15 l)/ Monocrotophos (1.6 ml/l).

8.1.2. *Spodoptera*:

- * Deep summer ploughing
- * Collection and destruction of egg masses and larvae.
- * In early stages spray Neem oil (5 ml/l) or Monocrotophos (2.0 ml/l) or Chlorpyrifos (2.5 ml/l) or Acephate 1.5 g/lit or Profenophos 2 ml/lit.
- * Poison baits (5 kg rice bran + 500 g Jaggery + 500 ml Monocrotophos/500 g Carbaryl or 500 ml Chlorpyrifos).

8.1.3. Bihar hairy caterpillar:

- * Spray neem oil (5ml)/Chlorpyrifos (2 ml)/Dichlorvos/ Methyl parathion (1 ml) per l.

8.1.4. *Heliothis*: Spray HNPV (200 LE) or Chlorpyrifos/Endosulfon/Quinolphos (2 ml) or Monocrotophos (1.6 ml) or Cypermethrin/Deltamethrin/Fenvalrate/Methyl parathion (1 ml)/l or Novaluron 1 ml/lit or Spinosad 0.3 ml/lit or Indoxacarb 1 ml/lit.

8.2. Diseases:

8.2.1. Alternaria/rust:

- * Use tolerant varieties like BSH-1.
- * Treat the seed with Thiram or Captan @ 3 g/kg.
- * Spray Mancozeb or Zeneb 2 g/l.
- * Removal and destruction of affected plants.

8.2.2. Head Rot: Spray Metalaxyl (1g) + 3g Wettable Sulphur/l twice with 10 days interval.

8.2.3. Downy mildew:

- * Remove infected spikes and destroy.
- * Spray Metalaxyl MZ (2g) or Copper oxy chloride (3 g)/l.

8.3. Parrots: Bird scaring with reflecting ribbons.

9. Harvesting and storage:

Harvest when back side of the head turns yellow. Thresh after drying for 2-3 days and store the seed with 9-10% moisture.

2. SESAME

1. **Soils:** Low lying soils with water stagnation, acidic and saline soils are not suitable.

2. Recommended varieties/hybrids:

S. No.	Variety	Duration (Days)	Yield (Kg/ac)	Oil Content (%)	Seed colour	Special Characters
1.	Gouri	90	300	50	Dark brown	Tolerant to gall fly
2.	Madhavi	70-75	300	50-51	„	Suitable for sequence cropping
3.	YLM-11	80-85	350	52	„	Matures at a time
4.	YLM-17	75-80	300	51	„	Tolerant to powdery mildew
5.	Chandana	85	300	50-51	Dark brown	Tolerant to phyllody
6.	YLM-66	80-85	350-400	50	Dark brown	Tolerant to phyllody

3. **Sowing Season:** May- June.

4. **Seed Rate and Sowing:** Treat one-kilogram seed with 3 g Captan/ Thiram/ Mancozeb. Sow 2-4 kg/ac after 2-4 ploughings and leveling with 2 harrowings adopting 30x15 cm spacing.

5. **Nutritional Management:** Basal application of 4 t of FYM, 16-8-8 Kg N:P₂O₅ K₂O/ha and top dress 6 kg N 30-35 DAS and 60-65 DAS. For hybrids additional dose of 6 kg N as at 90-95 DAS can be given.

6. **Intercultivation:** Thinning should be done 15 DAS and harrowing at 20-25 DAS.

7. Plant protection:

7.1. Insects:

7.1.1. Sucking pests: Spray Dimethoate (2 ml) or Monocrotophos (1.6 ml)/l.

7.1.2. Semilooper and pod borer: Spray Monocrotophos (1.6 ml)/Chlorpyriphos (2.5 ml)/l.

7.1.3. Gallfly: Spray Monocrotophos (1.6 ml) or Dimethoate (2 ml)/l.

7.1.4. Bihary hairy caterpillar:

* Spray Chlorpyriphos (2.5 ml)/Acephate (1.5 g) per l.

7.2. Diseases:

7.2.1. Root and stem rot:

- * Treat the seed with Thiram or Captan or Carbendazim @ 3 g/kg.
- * Spray Copper oxy chloride or Mancozeb 3 g/l.
- * Removal and destruction of affected plants.

7.2.2. Alternaria:

- * Remove infected parts and destroy.
- * Spray 1g Carbendazim/ Mancozeb 2.5 g/l 2-3 times with 15 days interval.

7.2.3. Phyllody:

- * Remove infected parts and destroy.
- * Spray 1ml Methyl Dematon or Dimethoate 3 ml/l.

7.2.4. Powdery Mildew: Spray Wettable Sulphur 3 g/l.

8. Harvesting and storage:

Harvest when 75% pods turn yellow in a spike. Thresh after drying for 5-6 days and store the seed with 8% moisture.

3. CASTOR

1. Soils: Castor can be grown on all types of soils having good drainage. Salinity and soils with water stagnation are not suitable.

2. Recommended varieties/hybrids:

S. No.	Variety / Hybrid	Duration (Days)	Yield (q/ac)	Special Characters
1.	Kranthi	90-150	5.50-6.50	Bold seed, early maturing and tolerant to drought
2.	Haritha	90-180	5.50-6.50	Resistant to wilt
3.	Kiran	90-150	5.00-6.00	Tolerant to drought and to grey rot due to non spiny capsules
4.	Jyothi	90-150	5.00-6.00	Drought tolerant
5.	Jwala	90-180	4.00-5.00	Tolerant to wilt and grey rot
6.	PCH-111	90-180	7.00-8.00	High yielding and wilt resistant hybrid
7.	GCH-4	90-180	5.50-7.00	Tolerant to wilt and root rot
8.	DCH-32	90-180	5.50-7.00	
9.	DCH-177	90-180	6.00-7.50	Resistant to wilt and tolerant to drought
10.	PCH-222	90-180	6.0-7.0	Resistant to wilt

3. Sowing Season: 15th June to end of July.

4. Seed Rate and Sowing:

Situation	Seed rate (kg/ac)*	Spacing (cm)*
Heavy soils, high rain fall	2-2.5/1.5-2.0	90 x 60/ 90 x 90 or 75 x 75
Light soils, low rain fall	4/2-3	90 x 30 or 90 x 45/90 x 60
Late sowing	4-5/4-5	60 x 45/60 x 60

* Varieties/hybrids

Treat one-kilogram seed with 3 g Captan/ Thiram or 1 g Carbendazim.

5. Nutritional Management: Basal application of 2 t of FYM, 12-16-12 Kg N:P₂O₅:K₂O/ha and top dress 6 kg N 30-35 DAS and 60-65 DAS. For hybrids additional dose of 6 kg N as at 90-95 DAS can be given.

6. Intercultivation: Thinning should be done 15-20 DAS and harrowing at 20 and 40 DAS.

7. Plant protection:

7.1. Insects:

7.1.1. Red hairy caterpillar:

- * Arrange bon-fires between 7-10 p.m. one day after the receipt of soaking monsoon rain. Repeat 2, 3 times after each rain.
- * Apply 1 kg of 2% Methyl parathion/4% Quinolphos per 70 m furrow around the field to prevent migration.
- * Spray Monocrotophos (1.6 ml/l of water).
- * For the grown up larvae use poison bait (5 kg Rice bran + 500 g Jaggery + 500 ml Quinolphos)

7.1.2. Semilooper:

- * In early stages spray neem oil (5 ml/l) or NSKE (5%) twice with an interval of 10-15 days.
- * Collection and destruction of larvae.
- * Release 50, 000 Trichogramma/ac.
- * Arrange 10 bird perches /ac.
- * Spray Monocrotophos (1.5 ml)/ Carbaryl (3 g)/l.

7.1.3. Spodoptera:

- * Deep summer ploughing
- * Collection and destruction of egg masses and larvae.
- * In early stages spray Neem oil (5 ml/l) or Monocrotophos (2.0 ml/l) or Chlorpyrifos (2.5 ml/l) or Acephate 1.5 g/lit or Profenophos 2 ml/lit.
- * Poison baits (5 kg rice bran + 500 g Jaggery + 500ml Monocrotophos/500 g Carbaryl or 500 ml Chlorpyrifos).

7.1.4. Shoot and capsule borer:

- * Spray Dimethoate/ Methyl-o-demeton/Monocrotophos (2 ml/l) or Acephate 1.5 g/lit or Indoxacarb 1 ml/lit at flowering stage and 20 days later.

7.1.5. Bihar hairy caterpillar:

- * Spray neem oil (5 ml)/Chlorpyrifos (2 ml)/Dichlorvos (1 ml) per l.

7.1.6. Jassids:

- * Spray Dimethoate (2 ml)/ Monocrotophos (1.5 ml/l) per l.

7.2. Diseases:

7.2.1. Fusarium Wilt:

- * Use tolerant varieties like Haritha, 48-1, GCH-4, and Jyothi, PCH-111, PCH-222
- * Treat the seed with Thiram or Carbendazim @ 3 g/kg.

- * Intercropping with Redgram and crop rotation with Bajra.
- * Spray Carbendazim 1 g/l.
- * Removal and destruction of affected plants.

7.2.2. Botrytis Grey Rot:

- * Soon after cyclone warning is given in Radio/T.V., spray Carbendazim (1.0 g/l).
- * Remove infected spikes and destroy.
- * Spray Carbendazim after the rains.
- * Apply 20 kg urea and 10 kg potash/ac.

8. Harvesting and storage:

Harvest when 80% capsules turn yellow in a spike. Thresh after drying and store the seed with 9-10% moisture.