

(v) SAFFLOWER (*Carthamus tinctorius*)**CLIMATE REQUIREMENT**

| T_Max°C | T_Min°C | Optimum °C | Rainfall mm | Altitude m MSL |
|---------|---------|------------|-------------|----------------|
| 38 - 40 | 5 | 22 - 30 | 350 - 450 | up to 1000 |

Tropical and subtropical semi arid climate. Grown during rabi, primarily as a rainfed crop. Yields are lower under humid or rainy conditions due to reduced seed set and increased disease incidence. Not recommended for areas with >450 mm of annual precipitation. Tolerated very low temperature during the rosette stage, but very sensitive to frost injury after stem elongation until crop maturity. This crop does best in areas with warm temperatures and sunny, dry conditions during the flowering and seed-filling periods. Temperature for seed germination is 15°C.

CROP IMPROVEMENT**DISTRICT/SEASON****VARIETIES****A. Rainfed****1. Karthigaipattam (Nov-Dec)**

All districts

K 1, CO 1

I. DESCRIPTION OF SAFFLOWER VARIETIES

| Particulars | K 1 | CO 1 |
|------------------|--|--|
| Parentage | Pureline selection from American spiny variety | Pureline selection from CTS 7403 (Non spiny) |
| Duration (days) | 120 | 125 |
| Yield (kg/ha) | | |
| Rainfed | 700 | 800 |
| Oil content (%) | 32 | 33 |
| Special features | spiny florets, suitable for Southern districts | Non-spiny, tolerant Alternaria, moderately Resistant to wilt |

CROP MANAGEMENT

III. PREPARATION OF THE FIELD

1. FIELD PREPARATION

- a) Plough with tractor 2-3 times with a mould board plough or 5 times with a country plough.
- b) Break the clods in between the ploughings and bring the soil to a fine tilth.

2. APPLICATION OF FYM

- a) Spread 12.5 t of FYM or compost or composted coir pith per ha evenly and incorporate in the soil.
- b) If the manure is not applied before commencement of ploughing, spread the manure evenly before the last ploughing and incorporate in the soil.

NOTE: Do not leave the organic manure exposed to sunlight as nutrients will be lost.

3. APPLICATION OF FERTILIZERS

Apply N at 20 kg / ha basally.

4. SEED RATE

Adopt a seed rate of 10 kg/ha.

5. SPACING

Adopt a spacing of 45 cm between rows and 15 cm between plants.

6. SELECTION OF GOOD QUALITY SEEDS

Select mature good quality seeds, free from pest damage and fungal attack.

7. PRE-TREATMENT OF SEEDS WITH FUNGICIDES

- a) Treat with Carbendazim or Thiram at 4 g / kg of seed in a polythene bag and ensure a uniform coating of the fungicide over the seed.
- b) Treat the seeds 24 hours prior to sowing.

NOTE: Seed treatment will protect the young seedlings from root rot disease in the early stage.

8. SOWING

- a. Sow the seeds in line at a depth of 2 to 3 cm and cover with soil.
- b. Sow using gorru or country plough.

NOTE: First week of November is the best sowing time.

9. THINNING OUT SEEDLINGS

Thin out the seedlings to a spacing of 15 cm between plants on the 15th day of sowing.

10. WEED MANAGEMENT

Weeding with hand hoe on 25 and 40 days after of sowing (DAS)

11. HARVESTING

- i. Observe the crop considering the average duration of the crop.
- ii. The leaves and entire plant lose their colour and turn brown at maturity.
- iii. Cut the plants at the bottom.
- iv. Keep the plants in the threshing floor and beat the plants (heads) with sticks till the mature seeds are separated.
- v. Winnow the seed and dry in the sun.
- vi. Collect and store the seeds in gunnies.

CROP PROTECTION

Treat with Carbendazim or Thiram at 4 g / kg of seed in a polythene bag and ensure a uniform coating of the fungicide over the seed. Treat the seeds 24 hours prior to sowing.

NOTE: Seed treatment will protect the young seedlings from root rot disease in the early stage.

SAFFLOWER - VARIETAL SEED PRODUCTION

Land requirement

- Land should be free of volunteer plants. The previous crop should not be the same variety or other varieties of the same crop. It can be the same variety if it is certified as per the procedures of certification agency.

Isolation

- For certified / quality seed production, leave a distance of 200 m all around the field from the same and other varieties of the crop.

Spacing

- 60 x 20 cm.

Fertilizer

- Apply NPK @ 60:60:20 kg / ha as basal application.

Harvest

- Harvest the pods as once over harvest.

Seed grading

- Grade the seeds using BSS 6 x 6 wire mesh sieve.

Pre-storage seed treatment

- Treat the seeds with carbendazim @ 2g / kg of seed.
- Treat seeds with Halogen mixture ($\text{CaOCl}_2 + \text{CaCO}_3 + \text{arappu}$ (*Albizzia amara*) leaf powder mixed in the ratio of 5:4:1@ 3 g / kg of seed as eco-friendly treatment.

Storage

- Store the seeds in gunny or cloth bags for short term storage (8 - 9 months) with a seed moisture content of 8 - 9 %.
- Store the seeds in polylined gunny bag for medium term storage (12 - 15 months) with a seed moisture content of 7 - 8 %.
- Store the seeds in 700 gauge polythene bag for long term storage (more than 15 months) with a seed moisture content less than 7 %.