

SUNFLOWER

1. Soils : The crop performs well on a wide range of soils such as sandy loams, black soils and alluvials. Fertile, well drained neutral soils are best. Ideal pH 6.5 – 8.0. It can tolerate slight alkalinity but not acidity. Water logging areas should be avoided.

2. Recommended hybrids / varieties

S. No.	Hybrid/ Variety	Duration (Days)	Yield (kg/ha) under rainfed conditions	Oil Content (%)	Special Characters
1	NDSH 1012	90 - 95	1500 - 2000	40 – 41	High yield, high oil content, moderately resistant to downy mildew.
2	LSFH 171	90 - 95	1600-1800	34 - 35	High yield, resistant to downy mildew
3	DRSH-1	90-95	1500	42 - 44	High oil content.
4	KBSH -44	95-98	1400	36-38	High yield
5	DRSF-113	90-95	1200	40	High oil content.

3. Time of sowing

Kharif

Light soils : June II FN-July II FN

Heavy soils : Upto end of August

Rabi

Rainfed : September to First fortnight of October

Irrigated : November

Summer irrigated : 15th January to first week of February

4. Seed rate and spacing: Rain fed crop requires more seed (7.5-10 kg /ha for varieties and 5-6.25 kg for hybrids) than irrigated (6.25-8.75 and 5

kg/ha), respectively, for varieties and hybrids). In light soils, 45 x 20-25 cm and in heavy soils 60 x 30 cm is recommended.

5. **Seed treatment** Seed should be treated with quintal (iprodione 25 % + carbendazim 25 %) @ 2 g/kg for managing *Alternaria* leaf spot. In the necrosis prone areas treat the seed with imidacloprid 600 FS 5 ml /kg or thiamethoxam 4 g/kg seed. Seed should be treated with metalaxyl @ 3 g/kg seed for managing downy mildew.
6. **Thinning:** Maintain a single seedling per hill by thinning out other seedlings in a hill, 10-15 days after germination for obtaining higher yields.
7. **Fertilizers:** Apply FYM 7.5 t/ha 2-3 weeks prior to sowing.

	N* (kg/ha)	P	K
Rain fed	60 (30+30)	60	30
Irrigated (Black soils)	75 (25+25+25)	90	30

- First dose as basal and second and third as top dressing at 30 and 50 days after sowing. Prefer single super phosphate as source of P

8. **Water management:** During *rabi*/summer irrigations can be given based on soil type. In light soils irrigation can be given 6-10 days interval while in heavy soils 15-20 days interval. Flower bud initiation, flowering and seed set are sensitive stages for irrigation.

9. Intercultivation

Use of pendimethalin @ 1.5 kg a.i/ha in 600 liters of water as pre-emergence spray followed by hand weeding at 35 DAS provides effective control of weeds. In case of incessant rainfall to manage grassy weeds spray Fenoxypop ethyl or Quizalofopethyl @ 1.25 ml/l 25 DAS.

10. Plant protection


10.1 Insects

Sucking pests

Leafhoppers: Spray with monocrotophos 36 % SL @ 1.6 ml/l or dimethoate 30 % EC @ 2 ml/l or methyl demeton 25 EC @ 2 ml/l

Whitefly: Spray with diafenthiuron 50 % WP @ 1.25 ml/l or acephate 75 % SP @ 1 g/l or thiamethoxam 25 % WG @ 0.2 g/l

Thrips: Spray with monocrotophos 36 % SL @ 1.6 ml/l or imidacloprid 17.8 % SL @ 0.4 ml/l or thiamethoxam 25 % WG @ 0.2 g/l



Mealybug: Spray profenophos 50 EC @ 2 ml/l or quinalphos 25 EC @ 2 ml/l or acephate 75 SP @ 1.5 g/l two times at 10-15 days interval

Tobacco caterpillar

Poison bait preparation with rice bran 10 kg + jaggery 1 kg + 1 litre monocrotophos 36 % SL and distribution in the field at base of the plant in the evening hours or spraying with spinosad 45 SC @ 0.3 ml/l

Bihar hairy caterpillar

For management of early instars, sprays with NSKE 5 % and for grown up larvae, spray with chlorpyrifos 20 % EC @ 2.5 ml/l.

Gram pod borer

Spray with Ha NPV @ 250 LE/acre or thiodicarb 75 % WP @ 1 g/l or spinosad 45% SC @

0.3 ml/l or novaluron @ 1 ml/l quinalphos 25 % EC @ 2ml/l or chlorpyrifos 20 % EC @ 2.5 ml/l or monocrotophos 36 % SL @ 1.6 ml/l

Diseases

10.2.1 *Alternaria* leaf spot/blight

For managing *Alternaria* along with seed treatment spray quintal (iprodione 25 % + carbendazim 25 %) @ 2 g/l or saaf (carbendazim 12 % + mancozeb 63 %) @ 2 g/l or propiconazole @ 1 ml/l

Head Rot: Spray wettable sulphur 80 % WP @ 3g /l twice within 10 days interval.

Downy mildew

Remove infected plants and destroy.

Spray metalaxyl 8 % MZ @ 2 g + mancozeb 64 % WP @ 2 g or copper oxy chloride 50 % WP @ 3 g/l.


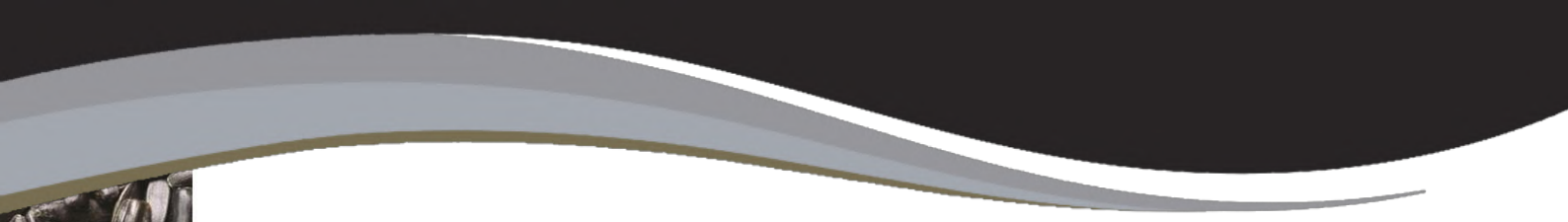
Necrosis

Summer ploughing should be done.

Plant four rows of either sorghum or pearl millet or maize as border crop. Treat the seed with imidacloprid 5 g/kg or thiamethoxam 4 g/kg seed.

Remove the parthenium weed around the bunds and also necrosis affected sunflower plants before flowering.

To control the vectors, thrips methyl o demeton 25 % EC @ 2 ml/l or imidacloprid 17.8 % SL @ 0.4 ml/l or thiamethoxam 25 % WG @ 0.2 g/l



twice within 15 days interval.

Leaf curl : White fly acts as a vector. For managing whitefly, spray diafenthuron 50 % WP @ 1.25 g/l or Flonicamide 50 WG @ 0.25 g/l.

10.2.6. Powdery mildew

Spray Wettable sulphur 80 % WP @ 3 g/l or dinocap @ 1 ml/l or propiconazole @ 1 ml/l or difenconazole 0.5 g/l twice within 15 days interval.

11. Parrots: Bird scaring with reflecting ribbons.

12. 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.

