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Safflower Production Tips

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Safflower Production Tips

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The 1990 Farm Bill has designated safflower as a minor oilseed crop which is permitted on "flex" and 0/92 acres. This publication describes the agronomic characteristics of safflower.

GENERAL

Safflower, an annual broadleaf plant is "thistle-like" in appearance. Soon after emergence it forms a rosette which lasts for about 4 weeks. The main stem then elongates rapidly to a 24-36" height. Thereafter, the plant branches extensively.

Safflower seed looks similar to sunflower but is white. Safflower meal is used for feed and the oil is processed and utilized as a cooking oil. Nearly all safflower is grown and sold under contract.

SEEDING

Plant safflower from about mid-April to mid-May, after the soil temperatures have reached 40 degrees F.. Soil crusting can greatly reduce stands; in some cases, therefore, no-till seeding into small grain stubble may enhance stand establishment. No-till seeding also may enhance stands by conserving moisture needed for seedling development (Table 3.).

Row spacings of 6-14 inches are common. Data for Highmore indicates 14-inch rows yielded higher than 7 or 21-inch spacings (Table 1.). In South Dakota a 20 lb/A seeding rate is suggested.

ADAPTATION

Safflower tolerates spring temperatures down to 20 degrees F. Most varieties take around 120 days from planting to maturity. In some cases safflower may not mature if planted later than mid-May. Rotation with small grains is best. If volunteer plants are a concern, plant into wheat or oats as first choice and barley as second choice. Safflower is similar to sunflower in drought tolerance. Do not plant fields to safflower in consecutive years.

HARVESTING

Safflower is generally straight combined. The combine cylinder speed should not exceed 3,000 FPM. This would be about 500 RPM for a 22-inch cylinder. Suggested concave clearances are 5/8-inch (front) and 1/2-inch (back).

Maintain high shaker speeds to prevent plant residues from clogging the combine. A clogged combine is extremely hard to unclog. During harvest a white fuzz from the seed may clog combine radiators and air intakes. Small meshed screen enclosures should minimize the problem. Monitor any buildup of white fuzz on the combine because it may create a fire hazar

Swath safflower if green weeds or uneven ripening are a problem. Harvest when the moisture is 8% or less and the leaves are dry, seeds are white, and the seed threshes easily by hand. Wet weather at harvest may cause seed sprouting in the head.

FERTILITY

Nitrogen (N) is the most limiting element on nonfallow land. Phosphorous can be limiting on fallow ground. On most recrop ground only a limited amount of N is needed. Unless a deep-rooted crop like sunflower, winter wheat, or safflower has been grown in the past 3-5 years, only about 1 lb of N is needed for each 20 lbs/acre of safflower grain.

WEED CONTROL

Safflower, during its early stages, is a poor competitor with weeds.

Few herbicides are registered by EPA for this crop. These products are effective for annual grasses, but broadleaved plants are a problem. Approved herbicides include: Trifluralin (Treflan) at .5 to 1 lb/A active preplant incorporated; EPTC (Eptam) at 3 lb/A active preplant incorporated and metolachlor (Dual) at 2 to 3 lb/A active preemergence or shallow preplant incorporated. Gramoxone Extra at .6 to .9 lb/A active can be used for burndown of emerged weeds for no-till planting. Read and follow label directions.

Avoid planting safflower where carryover from residual herbicides such as atrazine or picloram may cause injury. Drift from applications of broadleaved herbicides to adjacent fields also can cause considerable damage.

DISEASES

Bacterial blight occurs during cool wet weather but safflower often recovers in dry weather.

Alternaria may occur when heavy dew or rains persist during flowering and seed development. This disease can cause large safflower losses.

Rust is both seed and soil borne. Treating for rust is suggested. Dithane M-45 and Manzate 200 give excellent rust control on safflower.

Sclerotinia and Botrytis occur when wet weather persists during flowering.

AGRONOMIC PERFORMANCE

Seed yields and agronomic traits of safflower in South Dakota and North Dakota are in Tables 1 and 2.

Table 1. Yields of four safflower varieties at three rowspacings at Highmore in 1982.

	Rowspacing		
Variety	7"	14"	21"
	---------- lbs./acre ----------		
Hartman	1432	1604	1346
Rehbein	1379	1773	924
S-208	1377	1418	1146
S-541	1428	1876	1659
Average:	1404	1667	1268

Table 2. Yields of four safflower varieties at three locations in North Dakota, 1988-90.

	Location		
Variety	Williston	Langdon	Carrington
	-------- lbs./acre --------		
Girard	621	1358	1071
S-208	669	1591	1061
S-541	679	1483	1148
Finch	657	1429	986
Average	657	1465	1067

POSSIBLE SEED SOURCES

- SVO Enterprises, Culbertson, MT (1-800-321-8489)
- Mindak Growers Ltd., Box 1307, Dickinson, ND 58601 (701-227-4528)

INFORMATION SOURCES

Kingsley, Q and M. Volek. 1982. Safflower trials. Pl. Sci. Pam. #71: Ann. Progr. Rep., Cent. Crops & Soils Res. Stn., Highmore, South Dakota, p. 10.

Crop Production Guide 1991. NDSU Extension Service. p. 289-293.

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