SERVICE IN ACTION

COLORADO STATE UNIVERSITY COOPERATIVE EXTENSION

# Sesame production

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no. .100

## Quick Facts

Sesame is among the ten top oil seed crops in the world.
Sesame is adapted to warm, dryland regions in Colorado.
Shattering can be a problem at harvest time.
Sesame is a high value crop and must be grown under contract.

Sesame, a newcomer to Colorado, has received only initial studies but has shown a great deal of promise as an alternative crop. Production in the United States has been hampered by excessive shatter problems, however, there are non-shatter -ing types currently available and adapted to the warm southeastern section of Colorado.

Disease and insect problems appear minimal and the relatively dry summer weather makes sesame production possible. Sesame ranks sixth in the world production of edible oil seeds—1,948,000 tons—and tenth in vegetable oil produced—703,000 tons. (Based on 1982 estimates, R.D. Brigham and J. K. Young, 1983; Sesame Performance Test, Lubbock, TAES, PR-4131.)

## Description

Sesame (*Sesamum indicum*) belongs to the plant family pedaliaceae having bell-shaped flowers and opposite leaves. It is an erect annual plant growing 3 to 5 feel tall. The flowers appear about 60 to 75 days after planting and the plants are indeterminate and will bloom until frost.

The upright pods split open at maturity and the seeds drop out when the plant is inverted except with varieties having indehiscent pods (non-shattering types). See Figure 1.

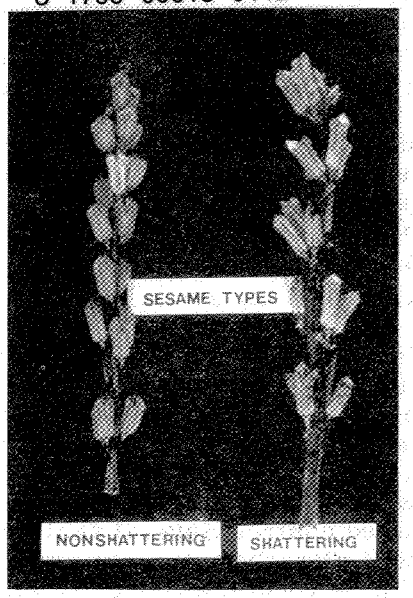


**Figure 1: Shattering and nonshattering types of sesame inflorescence.**

## Adaptation

Sesame performs best where temperatures are high throughout the growing season of 150 frost-free days or more. Medium textured soils are most favorable. Sesame is very sensitive to high pH soils and irrigation water containing high concentrations of salt. For example, a salt conductivity of 2.7 mmhos/cm has reduced yields by 26 percent.

## Cultural Practices

Always plant pure seed of the same variety and type. Mixing will result in stands of uneven height, maturity and seed quality. Planting treated seed is recommended. Hybrids, though not currently available, have yielded up to 77 percent more than conventional varieties. Your contractor should assist in variety selection on your farm.

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## Planting

Sesame is small seeded and can be drilled or row planted. Planters adapted for vegetable seeds may work best while small grain planters must be adapted for low planting rates. Stand establishment is sensitive and a good firm moist, seedbed is best.

A seeding rate of 1 lb/A is recommended for 30-inch rows. Other row spacings will require adjustments in seeding rate. Ideal populations will be 250,000 to 300,000 plants/A. Sesame should be planted 1 to 1½ inches deep when soil temperatures reach 70°F.

At Walsh, Colorado, early June plantings were most successful. Given space, sesame will branch excessively, which is a trait that delays maturity and is less effective in compensating for poor stands.

## Weed Control

Herbicides such as trifluralin (Treflan) are commonly used and incorporated prior to planting. Rates of 0.75 ai/A, 0.50 ai/A and 0.35 ai/A are recommended for trifluralin on clay, silt and sandy-loam soils.

Shallow cultivation may be an acceptable method of weed control. Several shallow tillage operations will kill early germinating weeds before planting with between the row cultivation after emergence.

## Fertilization

Sesame will require approximately 60 lbs/A of nitrogen. Phosphorus and potash should be applied according to soil test. High phosphorus levels in saline soils may decrease sesame yields.

## Moisture Requirements

Sesame is drought-tolerant and should do well in areas of 16 to 18 inches annual precipitation. It will respond to irrigation especially during crop establishment and early growth periods. Yields are highly correlated with plant height and main stem length.

Excessive moisture is not beneficial and extended periods of rainfall and/or high humidity may cause leaf diseases. Plants standing in water for more than a few hours will be killed.

## Pests

Some sesame varieties are susceptible to leaf spot diseases but usually don't cause problems in dry areas, but in humid high rainfall areas, severe losses may occur. Other diseases that may infect sesame include fusarium wilt, charcoal rot and verticillium wilt.

Aphids, stink bugs, red spiders, grasshoppers and cutworms are commonly observed on sesame and may cause economic loss.

## Harvest

Sesame is a crop requiring a minimum of 90 days of growing season. Early fall frosts may discolor the seed or produce shrunken seed of unacceptable quality.

Harvest is done in one of two ways: shattering types are usually swathed green and combined using a low cylinder speed (450-500 rpm). Non-shattering types can be combined directly. An air reel or sorghum header with pans attached are recommended. Screens may need to be adjusted to suit the small seed size. Yields of 800-1,000 lbs/A should be possible in the lower Arkansas Valley.

## Seed Quality and Marketing

Oil content and seed condition are important in the sesame industry. Oil percentages of less than 50 percent are not acceptable. Most sesame varieties today yield 55 to 58 percent oil. The seed coat color is not important since most sesame is dehulled prior to use. Some varieties are grey or brown and a specialized sesame, black in color, is sold hulled in the health food industry. The other use is in condiments for bakery goods.

Sesame oil from Colorado is expected to be high in oleic acid—a very stable, saturated oil, but under warm weather conditions, will be less saturated and must compete with other oilseeds.

Currently, contract prices to growers vary between $30-75/cwt with the general trend being $30-40/cwt. Two buyers are known at this time: Sesame Products, Inc., Paris, TX (214) 784-7419; and Pacific Southwest Seeds, Yuma, AZ (602) 782-2571.