SAFFLOWER

Safflower (*Carthamus tinctorius* L.) is an annual, broadleaf oilseed crop. There are two types of safflower varieties, the type that produces oil which is high in monounsaturated fatty acids (oleic acid), and those with high concentrations of polyunsaturated fatty acids (linoleic acid).

Varieties that are high in oleic acid may serve as a heat-stable, but expensive cooking oil used to fry potato chips and French fries. As an industrial oil, safflower is used in manufacturing paints and other surface coatings. The oil is light in color and will not yellow with age, hence it is used in white and light-colored paints.

Safflower was originally grown for the flowers that were used in making red and yellow dyes for clothing and food preparation. Today this crop supplies oil, meal, birdseed, and feet (residue from oil processing) for the food and industrial products markets, although this crop is now primarily grown for the oil.

Safflower oil can also be used as a diesel fuel substitute, but like most vegetable oils, is currently too expensive for this use.

The meal that remains after oil extraction is used as a protein supplement for livestock. The meal usually contains about 24% protein and much fiber.

The birdseed industry buys a small portion of the seed production. The high fat, protein and oil content of safflower makes it a valuable nutritional food source for wild birds and is widely known as the cardinal’s favorite food of choice.

In addition to cardinals, chickadees, titmice, nuthatches, grosbeaks are also attracted to safflower seed, among others. More important, however, is the fact that grackles and starlings – species known as "feeder hogs" that keep other, more desirable birds away from backyard bird-feeders – are not attracted to it.

The only birds listed as being attracted to safflower in a 2004 Cornell University study included cardinals, titmice, nuthatches, finches and grosbeaks.

Safflower is an annual species in the same plant family as sunflower. After germination the plant produces a central stem that does not elongate for two to three weeks, and develops leaves near the ground in a rosette, similar to a young thistle. The slow growth of seedlings in early spring often results in a weedy crop.

This crop is more drought tolerant than small grains since it has a taproot that can grow to 8 to 10 feet if subsoil temperature and moisture allow. Stiff spines develop on leaf margins of most varieties at about the flower bud stage and make it difficult and even dangerous to walk through the fields.

Each flower head produces 15 to 30 seeds with a seed oil content usually between 30 to 45%. Seeds are enclosed in the head at maturity, which prevents shattering before harvest and delays somewhat the feeding loss from birds.

David D. Rubis, professor emeritus of the plant sciences department at the University of Arizona, was honored in 2001 for his significant contributions in safflower breeding and genetics in Arizona, extending over a 50-year period. Probably the most important character has been the development of day-length neutral safflower.
Safflower is one of humanity’s oldest crops. Chemical analysis of ancient Egyptian textiles dated
to the 12th century identified dyes made from safflower, and garlands made from safflowers were
found in the tomb of the pharaoh Tutankhamun.

Safflower has been grown commercially in Arizona only since the 1940’s and Yuma is the main
location for safflower production in Arizona, where approximately 1,000 acres are grown in a
summer rotation with vegetable crops. While much of this Arizona crop is currently used in the
production of birdseed, safflower is a very important source of food-grade oil.

In traditional Chinese medicine, safflower petals are regarded as a stimulant for blood circula-
tion and phlegm reduction, the healing of fractures, contusions, and strains, and for various fe-
male maladies.

Worldwide, India is the largest producer of safflower for oil, but most of its production is con-
sumed internally. California has been the second largest producer of safflower and exports
much of the oil to Japan.

Safflower oil is polyunsaturated and therefore is useful in lessening the threat of human arterio-
sclerosis.

Safflower was particularly important as an oil and pigment in southern Asia (Iran, Afghanistan,
and India), and early carpets from these regions used safflower dye.

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