MARYLAND COOPERATIVE EXTENSION
UNIVERSITY OF MARYLAND
COLLEGE PARK•EASTERN SHORE

Fact Sheet

Fact Sheet 686

Producing Annual Sunflowers as Cut Flowers

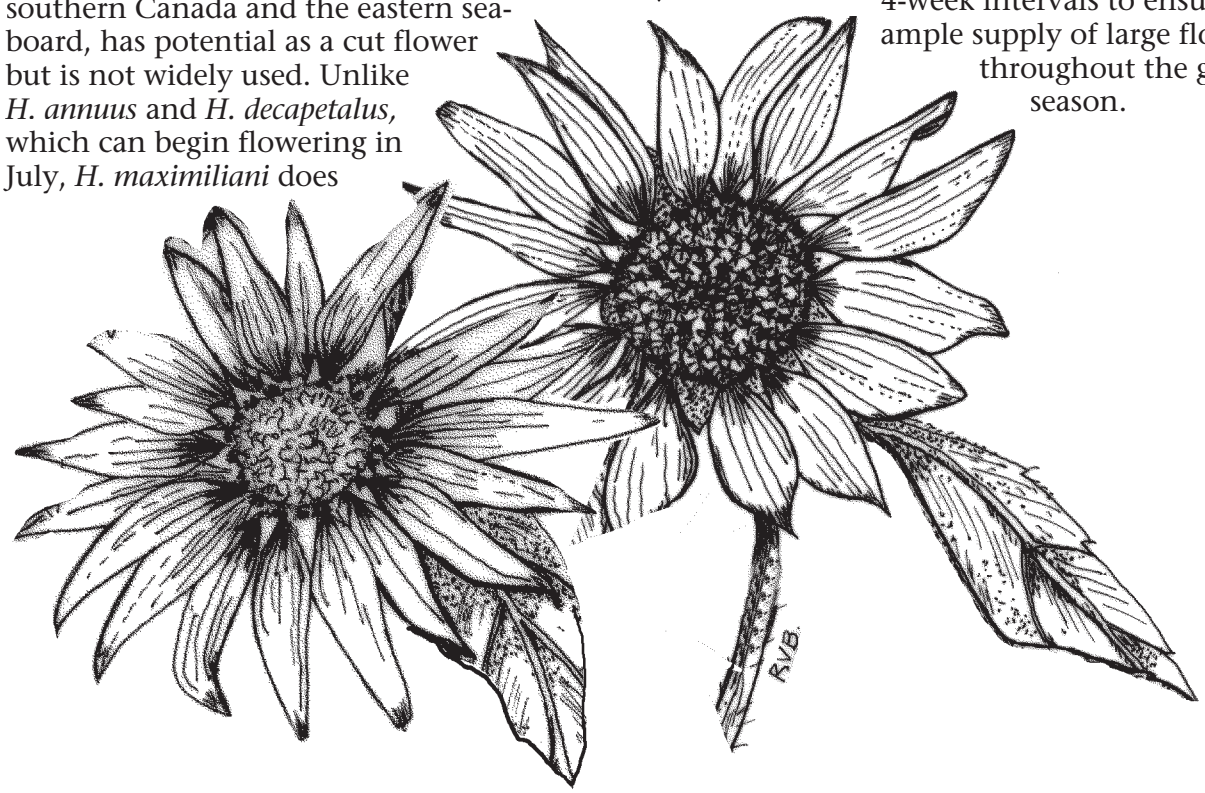
Introduction

The herbaceous annuals *Helianthus annuus* and *H. decapetalus* are popular with specialty cut growers in the United States and can be grown from southern Canada to northern Mexico. Thinleaf sunflower, *H. decapetalus,* is considered a perennial in some southern states. Its flowers are smaller than those of *H. annuus*, and there are several on one stem.

The perennial *H. maximiliani*, native to southern Canada and the eastern seaboard, has potential as a cut flower but is not widely used. Unlike *H. annuus* and *H. decapetalus,* which can begin flowering in July, *H. maximiliani* does not flower until September and October in Maryland.

Propagation

Sunflowers are produced from seed and usually are sown directly where plants are to stand. For best results, seed is sown 9 to 12 inches apart in the field after the threat of frost has passed. Sow sunflowers at 2- to 4-week intervals to ensure an ample supply of large flowers throughout the growing season.



Outstanding Cultivars

Name	Measurements and Flower Colors
Helianthus annuus	
'Bronze King'	Masses of long-stemmed, deep coppery-red flowers, 5 to 7 inches in diameter, on free-branching plants up to 5 feet tall
'Floriston'	Flowers have variable amounts of bronze, yellow, and gold, and plants grow up to 3 feet tall; can be pinched early in the season to produce multi-stemmed plants
'Full Moon'	Deep sulfur-yellow flowers, 5 to 8 inches in diameter, on free-branching plants 5 to 7 feet tall
'Full Sun'	Golden-yellow, daylength-neutral, pollenless flowers, 5 to 7 inches in diameter, on plants 3 to 4 feet tall; good vase life
'Goldburst'	Golden, double flowers, approximately 3 to 4 inches in diameter, on plants 4 to 6 feet tall
'Golden Nigra'	Medium-sized, golden-yellow, dark-centered flowers, 4 to 6 inches in diameter, on well-branched plants that grow up to 5 feet tall
'Golden Queen'	Medium-sized, golden-yellow, dark-centered blooms that are daylength neutral, early flowering, and have a long vase life; an outstanding cultivar for mass production
'Sonja'	Medium-sized, golden-orange, dark-centered flowers on plants that grow to 3 feet tall; can be pinched for multiflowered harvest or grown single-stem
'Sunbright'	Yellow, dark-centered daylength-neutral flowers, approximately 4 to 5 inches in diameter; bloom heaviest under cool short days; flowers are pollenless, increasing vase life to 7 to 10 days
'Sunrich Lemon'	Yellow, dark-centered, daylength-neutral flowers that bloom heaviest under cool, short days; pollenless, increasing vase life
'Valentine'	Lemon-yellow, dark-centered flowers on floriferous, free-branching plants
'Zebulon'	Dwarf variety that reaches 2 $^1/_2$ feet tall; flowers are yellow with golden centers
Helianthus decapetalus	
'Italian White'	Produces masses of 3- to 5-inch flowers, cream colored with dark centers, on strong stems; grows 4 to 6 feet tall; thrives in dry soils without additional irrigation; flowers have a relatively short vase life
H. decapetalus* var. *multiflorus	Produces numerous light yellow flowers, 3 to 5 inches in diameter, on plants 4 to 6 feet tall
Helianthus maximiliani	
'Maximilian'	Deep-yellow flowers, approximately 2 to 3 inches in diameter; flowers well under cool, short days; flowers heavily September to October; holds well in the vase

Culture

Sunflowers grow best in well-drained, slightly acidic soil. The growing site should be protected from the wind; if it is not protected, support netting will be required for cultivars more than 4 feet tall.

Sunflowers are heavy feeders and should be fertilized. Soil fertility should be determined by a soil test before the field is planted, and recommended rates of fertilizer should be applied during the growing season. Growers can sidedress with a 1-1-1 ratio fertilizer, such as 10-10-10, or a 3-1-2 ratio fertilizer, such as 12-4-8. If you are using a trickle irrigation system with a fertilizer injector, apply a liquid feed with 20-20-20 supplying 100 to 200 ppm based on nitrogen with every watering.

Photoperiod and Temperature

Sunflowers show a strong cultivar-dependent response to photoperiod, but most are daylength neutral or flower faster under short days. They perform best when ambient temperatures are 65 to 75°F. Soil temperatures below 50°F slow development.

Pests

When a sunflower crop is grown near corn fields, the corn borer can be a pest. The corn borer moth lays eggs on sunflower stems, and the hatching larvae bore into the plant, causing it to collapse. There are few biorational (short residual, relatively nontoxic) or biological pesticides that control this pest. If corn borers are causing major damage, apply insecticides such as carbaryl to the base of sunflower stems. Contact local Extension offices to find out the best time for a pesticide application.

Adult spotted and striped cucumber beetles feed on the sunflower ray flowers. The feeding does not kill the plant, but does destroy the value of the bloom as a cut flower. Synthetic pyrethroid insecticides are labeled for use on sunflowers and will reduce the damage from cucumber beetles and other chewing insects.

Major Diseases

Many diseases attack field-grown sunflowers. This fact sheet will concentrate on the most important diseases in the mid-Atlantic region with an emphasis on weather and other factors that affect disease incidence and severity.

Charcoal rot, *Macrophomina phaseolina*, is the most important fungal disease of sunflowers. Infected plants are stunted, ripen prematurely, exhibit a dark brown-to-black discoloration at the stem base, and produce smaller-than-normal heads. Hot, dry summers coupled with drought stress predispose plants to charcoal rot. The fungus has a wide host range, which includes corn and soybeans, and can remain dormant in soil for many years. If the field in which sunflowers are planted has a history of corn or soybeans, it may contain this fungus. Regular irrigation greatly reduces charcoal rot and is the single most important control measure.

White mold, *Sclerotinia sclerotiorum*, is most severe during prolonged cool, wet weather in the spring or fall. The fungus is not host specific, so spores produced on one crop will easily infect others. Alfalfa, clover, and mustard fields commonly have *Sclerotinia*, thus the disease may be worse in cut-flower fields located near these crops. The most obvious symptom of white mold is a white, cottony mycelium produced at the base of plants. Sunflowers infected with white mold wilt and die. *Sclerotinia* also causes a head rot. Black sclerotia, about the size of a small lumpy sunflower seed, may be found on the surface of stem cankers, on blighted heads, and inside the pith of stems. These sclerotia are the overwintering structures for the fungus and provide the infective spores for the next disease cycle. Growers should promptly remove diseased plants from the field and burn or bury the debris to destroy the sclerotia; do not add infected sunflower debris to compost or chip it for mulch.

Southern blight, *Sclerotium rolfsii,* can be a troublesome disease during hot summers. The first symptoms are the wilt and death of plants following several weeks of hot weather. Upon close inspection, growers will find a white cottony mycelium on the base of the

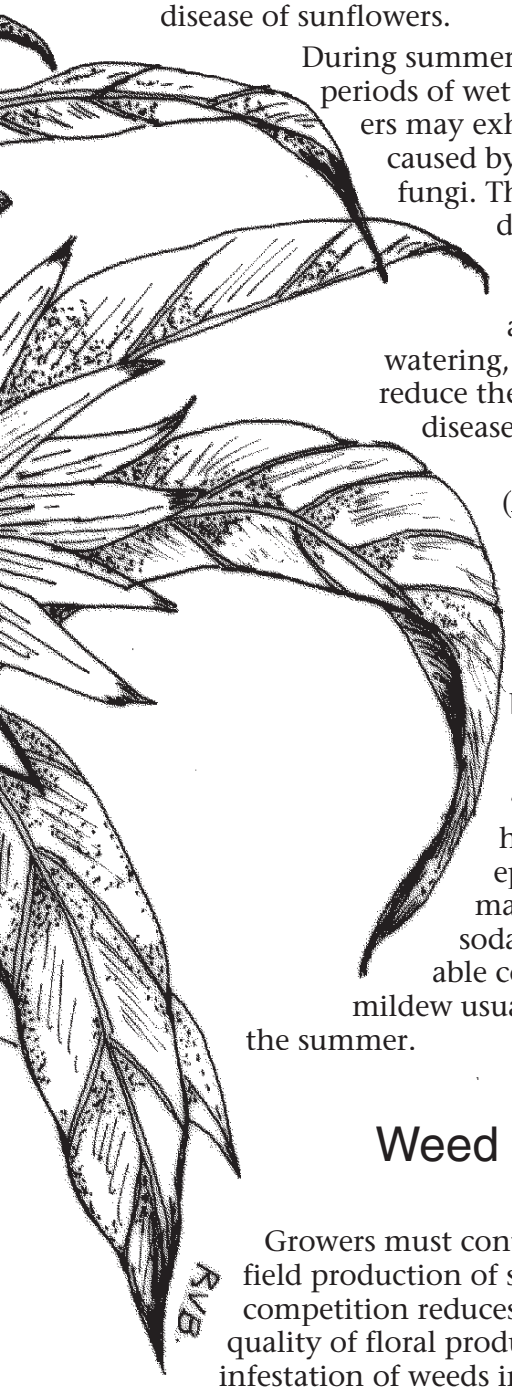
plant and small, round, tan sclerotia that resemble mustard seeds on blighted tissue and at the soil surface. The fungus can be introduced to your field by infected plants, plant debris, such as compost or municipal leaves, or soil. Once established, *S. rolfsii* will come back year after year in hot weather. Control is difficult, but prompt removal of diseased plants and destruction of the sclerotia will help. Deep plowing is recommended to bury the sclerotia; they need to be in the upper few inches of the soil to cause disease. Check with your Extension agent for fungicides registered to control southern blight. Apply a fungicide drench to infested areas after the weather has become hot but before severe symptoms appear.

Sunflowers are susceptible to several species of the root-knot nematode (*Meloidogyne spp.*). The nematodes enter plant roots and cause lumps or galls. Symptoms of nematode damage to roots include poor plant growth, stunting, wilting in hot weather, premature ripening, and poor yields. There is no cure for infected plants. Nematode damage can be prevented only by detection of the problem through soil testing and application of cultural or chemical controls prior to planting, if necessary. Because root-knot nematodes have a very wide host range that includes crops and weeds, it is wise to periodically test planting beds for infestation. The end of the summer is a good time to test because the nematode population is at its highest level and detection is more reliable. Late summer detection of problems will also give growers time to consider and arrange management strategies before the next planting season.

Minor Diseases

Several species of rust fungi attack sunflowers. These fungi are very easy to diagnose because the spots and pustules they produce on plants have bright-orange or brown powdery spores. Plant breeders have worked diligently to produce species that are rust

resistant; consequently, rusts are only a minor disease of sunflowers.



During summers with extended periods of wet weather, sunflowers may exhibit leaf spots caused by several different fungi. These spots are seldom so damaging that controls are needed, but by avoiding overhead watering, growers can greatly reduce the incidence of these diseases.

Powdery mildew (*Erysiphe cichoracearum*) causes white spotting on sunflower foliage and, if severe, can reduce quality by distorting flowers and foliage. Fungicides or such "soft" chemicals as horticultural oils, epidermal coating materials, and baking soda all provide acceptable control. Powdery mildew usually appears late in the summer.

Weed Control

Growers must control weeds during field production of sunflowers. Weed competition reduces the quantity and quality of floral production. A heavy infestation of weeds increases the time required to harvest sunflowers, which raises labor costs. Herbicides, barriers, mulches, hoeing, and pulling by hand are options for weed control. Contact your local Extension agent for herbicides currently labeled for sunflower production.

Harvesting

Harvest sunflower stems in the morning or the evening when it is coolest. The plants and flowers should be free from dew and moisture. Harvest when the flowers are almost completely open. Cut stems as long as possible using clean, disinfected cutting utensils. Strip lower leaves and any damaged foliage, and then place cut stems in a sterile container with a commercial floral preservative or acidified, clean water. Place harvested stems in cold storage or in a cool, shady place until the flowers can be graded and processed.

Grade flowers by stem length and flower size, and bunch them by buyer's specifications. Recut stems underwater to a uniform length. Store graded and bunched stems in clean, disinfected containers at 36 to 40°F and 85 to 90 percent relative humidity. Vase life is 7 to 10 days. Varieties that are pollenless have the longest vase lives.

Summary

Sunflowers sell well in locations where fresh local produce is marketed directly to the public. Blooms can be sold singly or in mixed bouquets; the small flowering varieties have the strongest market appeal.

References

Armitage, A. 1993. *Specialty Cut Flowers*. Portland: Variety Press, Inc./Timber Press.

Bailey, L.H. and E.Z. Bailey. 1976. *Hortus Third*. New York City: Macmillan Publishing Company.

Nyvall, R. F. 1979. *Field Crop Diseases Handbook*. Westport, CT: Avi Publishing Company, Inc.

Sackston, W. E. 1981. "The Sunflower Crop & Disease: Progress, Problems & Prospects." *Plant Disease*. 8:643–648.

Shuster, W. H. 1985. "Helianthus annuus." In Volume 3 of *The Handbook of Flowering*, edited by A. H. Havely. Boca Raton, FL: CRC Press.

Wyman, D. 1986. *Wyman's Gardening Encyclopedia*. New York City: Macmillan Publishing Company.

Illustrations by

Raymond Bosmans, Regional Specialist
CES Home & Garden Information Center

Reviewed by

Dr. Doug Bailey, North Carolina State University
Dr. John Dole, Oklahoma State University
Dr. Will Healy, Ball Seed Company

RVB

Producing Annual Sunflowers as Cut Flowers

by

Stanton Gill
Extension Regional Nursery and Greenhouse Specialist
Central Maryland Research and Education Center

Ethel Dutky
Extension Plant Pathologist
Department of Plant Biology
University of Maryland, College Park

Russell Balge
Extension Regional Commercial Horticulture Specialist
Western Maryland Research and Education Center

Wanda MacLachlan
Extension Area Commercial Horticulture Agent
Montgomery County Office

Suzanne Klick
Extension Commercial Horticulture Technician
Central Maryland Research and Education Center

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, University of Maryland, College Park, and local governments. Thomas A. Fretz, Director of Maryland Cooperative Extension, University of Maryland.

The University of Maryland is equal opportunity. The University's policies, programs, and activities are in conformance with pertinent Federal and State laws and regulations on nondiscrimination regarding race, color, religion, age, national origin, gender, sexual orientation, marital or parental status, or disability. Inquiries regarding compliance with Title VI of the Civil Rights Act of 1964, as amended; Title IX of the Educational Amendments; Section 504 of the Rehabilitation Act of 1973; and the Americans With Disabilities Act of 1990; or related legal requirements should be directed to the Director of Human Resources Management, Office of the Dean, College of Agriculture and Natural Resources, Symons Hall, College Park, MD 20742.

R2003