

PRODUCTION OF SATIN FLOWER OR GODETIA

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Satin flower, or godetia, has been a seldom-used garden flower for many years. Satin flower is grown as a greenhouse cutflower in Japan and has received renewed interest as a field grown cutflower in California with the recent introduction of the 'Grace' hybrids by Sakata Seed Company. Trials concerning field and greenhouse cutflower production and pot plant production have occurred over the last four years at the University of Kentucky.

Satin flower is generally called *Godetia whitneyi* in seed catalogs. However, Hortus III does not split the genus *Godetia* from *Clarkia* and uses *Clarkia amoena* ssp. *whitneyi* as the correct scientific name for these cultivated satin flowers. The genus *Clarkia* has over ten species that are wildflowers on the West Coast from California north to British Columbia. Other species, *C. concinna* and *C. unguiculata*, are often found in wildflower seed mixes for wildflower gardens.

The 'Grace' series of satin flower offers outstanding flower color patterns. Flowers are three inches in diameter and composed of four somewhat triangular petals with a distinct satiny texture. 'Grace Shell Pink', 'Grace Rose Pink', 'Grace Salmon',

and the newly released 'Grace Lavender' and 'Grace Lavender with Eye' are similar in plant form and time to flower. 'Grace Red' has a somewhat different color pattern in the petals, narrower leaves, longer stems and requires one to two weeks longer to flower. 'Grace Red' is similar to 'Furora' and 'Duke of York', cultivars available from Vaughan Seed Company, but flowers faster and has more uniform growth. Sakata's new dwarf cultivar, trialed in the All America pack trials this year, may lead to an easier way to grow satin flower pot plants.

Satin flower plants are relatively large and have a free branching habit. The plants are vigorous and quite easy to grow. Typical greenhouse or field production practices are adequate for success with these plants.

At flowering, a typical, non-pinched, field-grown plant is 30 to 40 inches tall with 30-50 lateral branches, 6 to 30 inches long. Twenty-five to forty petunia-like flowers are borne at the tip of the main stem with 4 to 10 flowers at the tips of lateral branches. Flowers on the primary stem are open 4-7 days before the laterals; flowers on all lateral

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In 1989, the effects of photoperiod and light intensity were evaluated. Potted satin flower plants were treated with the following supplemental and photoperiodic lighting treatments with the following results:

Short Day Treatment (ambient day, black cloth from 4 p.m. to 8 a.m.) - Plants required 21 weeks to flower, had 75 nodes at flowering and were marginally acceptable as commercial cutflowers.

Long Day Treatment (ambient day, supplemental incandescent light from 4 p.m. to 4 a.m.) - Plants required 13 weeks to flower, had 37 nodes at flowering and plants had weak, spindly stems with only a few flowers.

Short Day Supplemental Light Treatment (ambient day supplemented with 800 foot candles of high pressure sodium (HPS) light from 8 a.m. to 4 p.m., black cloth from 4 p.m. to 8 a.m.) - Plants required 17 weeks to flower, had 70 nodes at flowering and were marginally acceptable as commercial cutflowers.

Long Day Supplemental Light Treatment (ambient day supplemented with 800 foot candles of HPS light from 8 a.m. to 4 a.m.) - Plants required 10 weeks to flower, had 32 nodes at flowering and produced exceptional cut stems 24 to 32 inches long with 10 to 25 flowers.

stems open within 1-2 days of each other. Individual flowers last 5 to 7 days; individual inflorescences have flowers open for over 3 weeks. Cut stems can last 2 weeks in tap water because lateral flowers continue to open normally.

Environmental Requirements

Satin flower requires cool temperatures and high light intensities for optimum growth. It is native to the cool Pacific Coast of California and naturally flowers in late spring and summer during high light intensities and long days. It has been successfully introduced into Colombia, South America for cutflower production where it flowers about 12 weeks after seed germination. Overall plant form and environmental requirements for satin flower are similar to snapdragon, even though the plants are not related.

Temperature: Little information regarding the effects of different temperatures on satin flower is available. Satin flower is cold-temperature tolerant. Acclimated plants transplanted to the field on April 5, 1990 tolerated 26 F (-3 C) five days later, with no visible damage. Plants transplanted to the field early (April 1-15) in Lexington, KY produced larger more vigorous plants with many more cut stems than those transplanted in mid-May. In our trials, greenhouse temperatures of 62 F were used for all experiments; lower temperatures will be evaluated this winter.

Light Intensity and Photoperiod: In preliminary winter trials, satin flower plants required 10-11 weeks to flower when grown under 24hr supplemental high intensity discharge (HID) lighting. Plants required 20-22 weeks to flower under light conditions typical of a normal winter.

Current and Potential Production

Cut satin flower is usually available at wholesale florists from late spring through much of the summer from field production in California. Acreage has increased significantly over the last three years. Little field production occurs elsewhere in the U.S., however, field production of satin flower has been evaluated at the University of Maryland by Will Healy and at the University of Georgia by Allan Armitage. Two Kentucky growers of field grown cutflowers have grown godetia successfully the last two years.

Early in our evaluations, it was clear that satin flower's unique flower colors and patterns and

flexible growth forms gave this crop significant potential as a cutflower and pot plant. The plant's free branching leads to well branched pot plants as well as many cut stems per plant.

Field Grown Cutflower: General field production practices in California use an unpinched transplant moved to the field in late winter/early spring. There is no stem support system and in-row spacing is 30-36 inches. Flowering stems are harvested in June, July and August with the longest stems (18-24 inches) from the primary stem, while secondary stems (14-18 inches long) are the bulk of cutflowers harvested.

An early pinch, when plants are 3-4 inches tall, allows the secondary stems to develop. The secondary stems spread and tertiary branches become the harvestable flowering stems. With this plant form, 30-70 cut stems can be harvested per plant, depending upon the cultivar used. These stems are 12-16 inches in length.

Our trials have also used field spacing of 6" x 6" for a plant density of 4 plants per square foot. Relatively uniform, longer stems (18-26 inches) can be produced in this fashion, but the stems require an excellent stem support system.

Field cutflower production of satin flower MUST be done during cool weather or in cool parts of the Midwest or Northeast. In Kentucky, satin flower seed sown in late February, transplanted to the field in early April (or under row covers in mid to late March), grow vigorously during the cool temperatures and flower in mid June. Plant performance in other areas of the Midwest and Northeast has not been reported.

Bedding Plant: Satin flower should make a striking bedding plant for 3 to 4 weeks in cooler areas of the country. The plants will produce a large plant with hundreds of flowers, but flowering does not continue throughout the summer. Sakata's dwarf cultivar may be used as a bedding plant as well.

Greenhouse Cutflower: Satin flower requires high light intensities and long days for winter greenhouse cutflower production. Plants grown under 18 hours of supplemental HID lighting (800 foot candles) from HPS lamps, flowered 10-11 weeks after seed was sown. The cut stems were 24-32 inches long with 10-25 flowers per stem and were grown at 6-8 stems per square foot. The plants were not pinched, but most lateral branches were removed.

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Satin flower plants grown as cutflowers require support. Stems are weak and fall easily when carelessly watered from above. Stem strength is not a problem when flowering occurs; stems become very stiff just before flowers open. Plants grown under the normal short days of winter are hard to support because they are tall, 30-48 inches, and require at least 20 weeks to flower. HPS lighting improves stem strength markedly.

Pot Plant: The excellent branching characteristic of satin flower makes it a good candidate for pot plant production. Pot plants of 12-14 inches for six-inch pots and 8-10 inches for four-inch pots have been produced. Unfortunately, plants require supplemental HPS lighting for normal growth in pots during the winter.

Growth retardants can reduce total plant size of godetia for pot plant production but they also delay flowering. Two to three applications at 2-3 week intervals of a B-Nine spray or drench at 3000 ppm, Cycocel drench at 4000 ppm, or Bonzi drench at

20-30 ppm are effective; A-rest is not effective. Height control varies depending on cultivar and light level used for plant production. Growth retardant treatments delay flowering 2-4 weeks but do not effect flower size.

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Robert L. Geneve, Gwendolyn Hartley, Liliak Utami and Sharon Kester have contributed to the research on satin flower at the University of Kentucky.

