



Greenhouse-grown Specialty Cut Flowers

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Introduction

“Specialty cut flowers” generally refers to cut flower species other than roses, carnations and chrysanthemums. Some of the specialty cut flowers that can be grown successfully in Kentucky greenhouses, or other protected environments such as high tunnels, include anemone (*Anemone* spp.), Asiatic or oriental lilies (*Lilium* spp.), bachelor button or cornflower (*Centaurea* spp.), celosia or cockscomb (*Celosia* spp.), coral bell (*Heuchera* hybrids), freesia (*Freesia* hybrids), larkspur (*Delphinium* spp.), lisianthus (*Eustoma* spp.), snapdragon (*Antirrhinum* spp.), pollenless sunflowers (*Helianthus annuus*), zinnias (*Zinnia* spp.), ranunculus (*Ranunculus* spp.) and sweetpea (*Lathyrus odoratus*).

Marketing

The specialty cut flower market shifts as consumer preferences change; growers must be willing to adjust production to meet changing consumer preferences. Potential retail outlets include farmers markets, roadside stands, on-farm sales and community supported agriculture (CSA) subscriptions. Some growers sell and arrange flowers for special events, such as weddings. Wholesale options include wholesale florists, retail florist shops, supermarkets, garden centers and craft stores. Hotels, restaurants and the internet may offer other marketing opportunities. Developing several marketing avenues when considering specialty cut flowers can help reduce the risk of losing any one market. Securing purchase agreements or contracts for purchase of cut flower crops prior to production is highly recommended, and may be more common for large-volume producers, due to the extremely perishable nature of these products.



Market Outlook

The U.S. cut flower market is substantial; however, much of the greenhouse cut flower industry has shifted to Central and South America where labor costs are considerably cheaper and the flowers can be produced outdoors throughout the year. It can be difficult for local growers to break into cut flower markets, particularly with wholesale florists. However, there is a niche for uncommon cut flowers grown in Kentucky, including those that are difficult-to-ship and/or hard-to-find. Additionally, local growers will have the market advantage of being able to supply fresher flowers with a longer vase-life than those shipped from distant markets. For example, cut lilies must be shipped with the buds tightly closed in the international market chain; these tight buds often fail to open. Local growers have the ability to ship lilies with buds beginning to open, which produces a superior floral display. Upscale florist shops will recognize the higher quality and be willing to pay for



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this premium product. Dahlias are even more perishable in shipping. Most florists will only buy dahlias that are grown locally.

Tight profit margins for cut flowers require that growers maximize production and distribution efficiency as well as achieving a marketing strategy that ensures all crops are sold at peak freshness. While field production has become popular, greenhouse production offers the advantage of an extended season and year-round income. In addition, early cuts and winter cuts may bring higher market prices.

Organic certification may be a way to add value to cut flowers, if organic production is valued by potential customers. As an alternative to organic certification, cut flower growers can also have their products certified as sustainably grown through the Veriflora program administered by Scientific Certification Systems. Both the USDA organic and Veriflora programs require considerable investment of time and resources to achieve and maintain certification. Beginning cut flower growers may want to consider pursuing one or both forms of certification once the business is well established in the market.

Production Considerations

Plant selection

There are hundreds of herbaceous annuals and perennials that can be grown commercially for cut flower markets. Each potential crop/cultivar should be evaluated in light of intended market, consumer demand, and sales potential. Ease of production, harvest and handling are also critical concerns. In addition, consider the crop's resistance to diseases and pests, storage and vase-life, and flowering season. Producing new introductions, as well as old favorites, increases the market appeal. Take into account the crop's production expenses, especially labor costs, and compare those estimates with the flower's market value and expected revenue. Foliage plants such as *Eucalyptus* spp. or ferns may be of interest for high tunnel and greenhouse growing. They are typically less fussy and offer a longer harvest window.

Planting

The grower will need to be familiar with the different production and harvest requirements of a diverse



group of plant material. In general, cut flowers prefer fertile, well drained field soil or soilless mix. Growers may choose to use transplants, or direct seed into containers or greenhouse production beds. Transplants may be grown in-house or purchased as plugs. Most cut flowers require support such as netting to prevent lodging and to ensure straight stems. Sequential plantings can ensure a continuous supply of the cut flowers that are in demand year-round. A precise flowering schedule is necessary to market cut flowers through any wholesale chain. Wholesalers will expect the number of stems under contract to be provided at the designated time or the contract may be terminated.

Pest management

Greenhouse conditions that favor plant growth also favor the rapid build-up and spread of insects and diseases. Potential disease problems include damping-off, root rots, powdery mildew, fungal leaf spots, and impatiens necrotic spot virus (INSV). Growing resistant cultivars and following good cultural practices are the best means of controlling these problems. The most common greenhouse insect pests are thrips, aphids, mites and whiteflies. Other pests that may be encountered during cut flower production either under protection or outdoors include caterpillars and Japanese beetles. Prevention and careful monitoring are the keys to insect and disease control. Weed control in and around the greenhouse will also help reduce insect pests and disease problems.

Harvest and storage

The proper stage of harvest will depend on a number of factors, including type of market, cultivar, distance

to market, and intended use. Flowers are hand-harvested with a sharp knife. Once harvested, stems are placed in a bucket of water sometimes containing floral preservative. Harvested flowers should then be placed in a cooled area or cooler until sold. Floral preservative and refrigeration are essential to keeping flowers fresh and extending their shelf life and vase life. Do not store cut flowers with ethylene-producing fruits and vegetables since it can have an adverse affect on the buds and blooms of sensitive plants.



Depending on the market, cut flowers are commonly sold individually, in bunches of five or 10 stems, or in mixed arrangements. Bunches should contain uniformly sized flowers of the same developmental stage. Packaging requirements will vary with the market and product, ranging from 5-gallon plastic buckets to clear cellophane sleeves.

All tools used for harvesting and arranging, and all buckets should be sanitized between uses. These practices will help prevent disease spread and maintain high-quality cut flowers.

Labor requirements

Cut flower production is highly labor- and management-intensive. Trained labor is required for all aspects of production and harvest.

Economic Considerations

Greenhouse cut flower production is a high-risk business with significant start-up costs, as well as demanding labor and management. Initial investments include greenhouse or high tunnel construction, production system costs, and equipment. The cost of production-ready greenhouses ranges widely, according to type. Quonset-style poly houses with no heating, e.g. high tunnels, may cost less than \$5 per square foot; retractable roof styles can cost several times that amount.

Production costs and returns vary greatly depending on crops grown, greenhouse size, production system, and marketing strategy. Typically, the profit margin for growing cut flowers is \$1 to \$2 per square foot. Worksheets that help a grower determine their costs of production, such as those in the “Pricing Specialty Cuts” article in the *Southeast Outdoor Cut Flower*

Manual, will be critical to helping a grower gauge economic profitability.

For small-scale greenhouses, greenhouse cut flowers may be most profitable as ways of generating additional income from existing greenhouse space. Growers should always verify that production costs, including labor costs, are generating similar profits as alternative greenhouse crops.

Selected Resources

On the web

- Center for Crop Diversification cut flower resources (University of Kentucky) <https://www.uky.edu/ccd/production/crop-resources/nursery-ornamental/cut-flowers>
- Virtual Cut Flower Short Course – Perennial Cut Flowers for Kentucky (University of Kentucky webinar recording) <https://www.youtube.com/watch?v=F41Z1uM6B84>
- Brazilian Snapdragon (*Otacanthus azureus*) for the Cut Flower Market (University of Kentucky, 2004) <http://www.uky.edu/hort/sites/www.uky.edu/hort/files/documents/otacanthus.pdf>
- Greenhouse Business in Kentucky – A Review of Crops and How to Begin a Business (University of Kentucky, 2002) <http://www.uky.edu/hort/sites/www.uky.edu/hort/files/documents/greenhousesinkentucky.pdf>
- Greenhouse Production of Bachelor Button (University of Kentucky) <http://www.uky.edu/hort/sites/www.uky.edu/hort/files/documents/bachelorbutton.pdf>
- Association of Specialty Cut Flower Growers <http://www.ascfg.org>
- Care and Handling of Cut Flowers (Oklahoma

State University) <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1115/HLA-6426web.pdf>

- Cut Flowers (Cornell Greenhouse Horticulture) <http://www.greenhouse.cornell.edu/crops/cutflowers.html>
- Interactive Greenhouse Crop Budget with Five Crops (Rutgers University) <http://farmmgmt.rutgers.edu/green-house/greenhouseinteractiveform.html>
- Performance of *Angelonia* Cultivars as a Summer Greenhouse Cut Flower (University of Kentucky, 2004) <http://www.uky.edu/hort/sites/www.uky.edu/hort/files/documents/angelonia.pdf>
- *Southeast Outdoor Cut Flower Manual* https://cutflowers.ces.ncsu.edu/wp-content/uploads/2017/11/se_cut_flwr.pdf?fw=no
- Specialty Cut Flower Production and Marketing (ATTRA, 2006) <https://attra.ncat.org/product/specialty-cut-flower-production-and-marketing/>

- Veriflora Certified Sustainably Grown <https://www.scsglobalservices.com/services/veriflora-certified-sustainably-grown>
- Virtual Grower (USDA) <http://www.ars.usda.gov/Research/docs.htm?docid=19961>

In print

- *Specialty Cut Flowers* by A.M. Armitage and Judy M. Laushman, 2nd edition. 2003. Timber Press. Portland, OR

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