

## Edible Flowers

### Introduction

Edible flowers, which have been used in the culinary arts for centuries, are experiencing renewed popularity. Flowers can serve as an essential ingredient in a recipe, provide seasoning to a dish, or simply be used as a garnish.

### Marketing and Market Outlook

Edible flowers can complement a cut flower or herb business, providing additional opportunities for value-added products. However, edible flowers require a specialized niche market that may take some time to develop. Flowers intended for human consumption must be grown without pesticides, providing organic growers a production edge. Plant material obtained from most commercial florists, garden centers, and nurseries is not pesticide-free and, therefore, is **not** suitable for consumption.

Flowers may be marketed fresh, dried, candied, or in prepackaged salads. Market research conducted in Michigan indicates that packaging different colors and varieties of fresh edible flowers in the same container appeals the most to consumers. Including varieties with more appealing fragrances in the mix also encourages positive consumer reaction.

Value-added products that feature edible flowers offer additional marketing opportunities. Minced flowers make a colorful and flavorful addition to herbal butters, cheese spreads, jellies, and jams. Dried flowers could be used in teas or to add flavor to wines. Fresh flowers



can be included in cooking oils, vinegars, salad dressings, and marinades.

Potential growers could talk to up-scale restaurant chefs and caterers. Because edible flowers are highly perishable, growers must be willing to frequently (usually daily) deliver smaller quantities to restaurants. Fine bakeries may be interested in candied flowers. Growers will need to be able to demonstrate an ability to provide a dependable supply of consistently high quality product to meet buyer demand. Producing a colorful and diverse range of edible flower varieties is a way for a producer to expand their offerings to existing customers.

Retail marketing through farmers markets is also a viable option. Fresh edible flowers or value-added edible flower products have the potential to perform quite well in some markets. Interested growers should visit local farmers markets and consult with their County Extension Service to determine the market potential of edible flowers in their area.



## **Production Considerations**

### *Plant selection, site selection, and planting*

Many commonly cultivated annuals and perennials can be raised for their edible flowers. Because some flowers are edible but not palatable and others may be poisonous, it is important that only those known to be edible should be grown for this purpose. Common garden plants with poisonous flowers include anemone, autumn crocus, calla lily, daffodil, delphinium, foxglove, hyacinth, hydrangea, iris, lily-of-the-valley, morning glory, sweet pea, and wisteria. Some popular edible flowers include chrysanthemum, daylily, nasturtium, pansy, rose, and violet. Blossoms from various vegetable and fruit crops are also popular for culinary purposes. Refer to Tables 1 and 2 for additional edible flower species.

The cultural requirements for edible flowers are very similar to those of ornamental flowers. In general, edible flowers prefer fertile, well-drained soil and full sun throughout the day. Many producers prefer growing plants in 4 to 6 inch raised beds to improve drainage and increase ease of harvest. Whether using a raised bed or standard flower bed, a soil test is recommended before planting. The soil should be adjusted to a pH of 5.5 to 6. A layer of mulch 2 to 3 inches deep will help to reduce weed pressure, maintain soil moisture and temperature, as well as reduce soil splashing in heavy rains. A source of water for irrigation is essential to production. Trickle or drip irrigation is preferred to overhead irrigation as keeping the foliage dry reduces the incidence of fungal and bacterial diseases.

Planting dates depend on the market and type of plant being grown. Annuals are planted as soon as danger of frost has passed in the spring and staggered plantings are common. Because transplants come into flower sooner than direct-seeded plants, growers may choose to use transplants to capture the early market and then direct-seed later plantings. Transplants can be started in a greenhouse or cold frame. Perennials, such as daylily, should be planted in late summer or fall for the best yield of blooms.

### *Pest management*

Buyers of edible flowers will want their product to be free of diseases and insect pests. This could present a challenge since edible flowers must be grown without the use of any chemical pesticide. Insect control consists of hand picking harmful insects and the use of beneficial insects to help decrease insect populations. Following good cultural practices and diversifying plantings will aid in the control of both insect and disease problems. Weed control is critical since weed competition not only reduces plant quality and quantity, but also raises labor costs by increasing the time needed for harvest.

### *Harvest and storage*

Edible flowers are harvested in the cool of the day during the peak of bloom. Only flowers free of insect and disease problems should be selected. Generally, unopened flowers or those past their prime are not suitable. To maintain freshness, flowers should be cooled immediately after harvest.

The stems, sepals, pistils, and stamens of most flowers are removed prior to use. Pollen may detract from the flower's flavor and may cause allergies in some people. The sepals should be removed from all flowers except violas, pansies, and johnny-jump-ups. In many flowers (including rose, lavender, tulip, calendula, and chrysanthemum) only the petals are edible. If the petals have a white base, this area should be removed as it may have a bitter taste. For example chrysanthemum, dianthus, marigold, and rose have bitter leaf bases.

To produce value-added flower products, the flowers must be dried or utilized immediately after harvest. Flowers can be used in a number of products to add aesthetic value in addition to flavor. As a general rule, flowers from herbs have a flavor similar to the leaves and may be used in the same way. Candied flowers are prepared by painting each petal with egg white, then sprinkling with granulated sugar. Once the sugar has crystallized, flowers are stored in an airtight container.

### Labor requirements

Edible flower production is labor and management intensive. Planting, weeding, and harvesting all require trained labor. Since an edible product is being handled, extra time and care will be needed to transport the product from field to market. Packaging different edible flower varieties and/or colors together will require additional packing labor.

### Economic Considerations

Edible flower market research conducted in Detroit in 2004 showed consumers and chefs were interested in purchasing a well-packaged product. Consumers were most willing to pay \$2.99 for an 8 ounce plastic container with varying colors of 6 nasturtiums and 14 violas. The addition of other edible varieties to a mix, especially those with desirable fragrance, enhanced consumer interest.

A package of 20 flowers sold at \$3 would require growers to be able to harvest and package 20 flowers in 10 minutes or less in order to generate a \$1.50 return to pre-harvest costs of production. Considering the cost of an 8 ounce plastic container (about \$0.20) and the minimal cost of material to produce flowers, a \$3 per 8 ounce retail price would return \$0.90 to \$1.15 to land,

labor, and management per 20 flowers. Due to uncertainties in quantities of edible flowers demanded, producers should target markets that are willing to pay \$6 per pound or more for an edible flower mix to generate reasonable returns to land and management.

### Selected Resources

- Edible Flowers (University of Kentucky School of Human Environmental Sciences, 1997) <http://www.ca.uky.edu/hes/fcs/factshts/FN-SSB.025.pdf>
- Association of Specialty Cut Flower Growers (ASCFG) <http://www.ascfg.org>
- Edible Flowers (ATTRA, 2004) <http://attra.ncat.org/attra-pub/edibleflowers.html>
- Edible Flowers (North Carolina State University, 1999) <http://www.ces.ncsu.edu/depts/hort/hil/hil-8513.html>
- Specialty Cut Flower Production and Marketing (ATTRA, 2006) <http://attra.ncat.org/attra-pub/cutflower.html>
- Specialty Flowers (Small Farm Center, University of California-Davis, 1990) <http://www.sfc.ucdavis.edu/pubs/brochures/specialtyflo.html>

TABLE 1. EDIBLE FLOWERS FROM FRUIT, VEGETABLE, AND OIL CROPS

Common Name(s)	Latin Name	Color(s)	Flavor	Notes
Apple	<i>Malus spp.</i>	White to pink	Floral	Tree—Eat in moderation; contains cyanide precursors
Beans (runner)	<i>Phaseolus coccineus</i>	Pink to red	Sweet, nectar-like	Annual
Okra	<i>Abelmoschus esculentus</i>	Yellow	Mild	Annual
Pea (garden)	<i>Pisum sativum</i>	White to lavender	Sweet	Annual—Ornamental sweet peas are poisonous
Peach & Plum	<i>Prunus spp.</i>	White to pink	Mild to sweet	Tree
Radish	<i>Raphanus sativus</i>	White to pink	Mild radish	Annual—May trigger allergies
Safflower	<i>Carthamus tinctorius</i>	Yellow to orange	Mildly spicy	Annual—Eat in moderation
Squash	<i>Cucurbita pepo</i>	Yellow	Sweet, nectar-like	Annual—Any type of squash can be used

TABLE 2. EDIBLE FLOWERS FROM HERBS AND ORNAMENTAL PLANTS.

Common Name(s)	Latin Name	Color(s)	Flavor	Notes
Anise hyssop	<i>Agastache foeniculum</i>	Lilac, pink, orange	Anise	Self seeding perennial
Basil	<i>Ocimum basilicum</i>	White to lavender	Herbal	Annual
Bachelor buttons	<i>Centaurea cyanus</i>	White, pink, blue	Mild, lettuce-like	Annual—Perennial bachelor buttons ( <i>Centaurea montana</i> ) are not considered edible; may trigger allergies
Bee balm, Bergamot	<i>Monarda didyma</i>	Wide range	Minty, sweet	Perennial—Prone to powdery mildew
Borage	<i>Borago officinalis</i>	Blue	Herbal	Annual
Calendula	<i>Calendula officinalis</i>	Yellow, orange	Slightly bitter	Annual—Mostly used as a garnish; may trigger allergies
Chamomile	<i>Chamaemelum nobile</i>	White	Sweet apple	Perennial—May trigger allergies in those allergic to ragweed
Chervil	<i>Anthriscus cerefolium</i>	White	Herbal	Annual
Chicory	<i>Cichorium intybus</i>	Blue	Herbal	Perennial—May trigger allergies
Chives	<i>Allium schoeonoprasum</i>	Lavender to pink	Onion	Perennial
Chrysanthemum	<i>Chrysanthemum spp.</i>	Wide range	Strong	Perennial—Use only florets; may trigger allergies
Dandelion	<i>Taraxacum officinale</i>	Yellow	Sweet	Perennial—Use young flowers, flavor bitters as flower ages
Daylily	<i>Hemerocallis spp.</i>	Wide range	Sweet	Perennial
Dianthus	<i>Dianthus spp.</i>	Wide range	Sweet clove	Perennial—Remove the narrow petal base (bitter)
Dill	<i>Anethum graveolens</i>	Yellow	Herbal	Annual
Elderberry	<i>Sambucus canadensis</i>	White	Sweet	Perennial—Do not wash (removes flavor)
Fennel	<i>Foeniculum vulgare</i>	Yellow	Mild anise	Annual or Perennial
Geranium (scented)	<i>Pelargonium spp.</i>	Wide range	Varies	Annual—Flavor is usually similar to the scent of the leaves
Hibiscus (tropical)	<i>Hibiscus rosa-sinensis</i>	Wide range	Mild citrus	Annual—Edible garnish
Hollyhock	<i>Alcea rosea</i>	Wide range	Mild	Perennial—Showy edible garnish
Honeysuckle	<i>Lonicera japonica</i>	White to yellow	Sweet	Perennial vine—Do not use other honeysuckle flowers such as bush honeysuckle

TABLE 2. EDIBLE FLOWERS FROM HERBS AND ORNAMENTAL PLANTS (CONT'D).

Common Name(s)	Latin Name	Color(s)	Flavor	Notes
Johnny jump-up	<i>Viola tricolor</i>	Purple and yellow	Wintergreen	Annual—Include green sepals for better flavor
Lavender	<i>Lavendula spp.</i>	Lavender	Sweet	Perennial—Flavor is intense, use sparingly
Lilac	<i>Syringa vulgaris</i>	Lavender to white	Varies	Perennial shrub—Flavor varies from almost no flavor to sweet
Lovage	<i>Levisticum officinale</i>	White	Celery	Perennial—May trigger allergies
Mallow	<i>Malva sylvestris</i>	Wide variety	Sweet	Perennial—Use petals only
Marigold	<i>Tagetes patula</i>	Yellow	Bitter	Annual—‘Lemon Gem’ and ‘Tangerine Gem’ have the best flavor; may trigger allergies
Mint	<i>Mentha spp.</i>	Purple	Minty	Perennial—Each variety has a unique flavor
Nasturtium	<i>Tropaeolum majus</i>	Wide range	Spicy, peppery	Annual
Pansy	<i>Viola x wittrockiana</i>	Wide range	Mild	Annual—Slightly sweet; petals are mild; whole flower has a wintergreen flavor
Passion flower	<i>Passiflora spp.</i>	Purple	Mild	Perennial vine—Best used as garnish
Pineapple sage	<i>Salvia elegans</i>	Red	Sweet, fruity	Tender perennial
Red clover	<i>Trifolium pratense</i>	Red	Sweet	Annual
Rose	<i>Rosa spp.</i>	Wide range	Sweet, perfumed	Perennial—Remove petal base (bitter)
Rosemary	<i>Rosmarinus officinalis</i>	Blue	Herbal	Perennial
Sage	<i>Salvia officinalis</i>	Purple	Herbal	Perennial
Snapdragon	<i>Anthirrhnum majus</i>	Wide range	Bitter	Annual—Use as a garnish
Thyme	<i>Thymus spp.</i>	White	Herbal	Perennial
Violet	<i>Viola odorata</i>	Purple to white	Sweet	Perennial—Good candied

Photo courtesy of Robert Anderson, University of Kentucky

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For additional information, contact, your local [County Extension](#) agent