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Abstract: Edible flowers can be part of a diversification strategy for market gardeners, especially organic growers. This publication discusses some of the basic production and marketing concerns for edible flowers and offers some cautions on non-edible or toxic flowers. Also included are sources of additional information on edible flowers, in print and on the Internet.

Related ATTRA publications

Sustainable Cut-Flower Production
Woody Ornamentals for Cut Flower Growers
Lavender Production, Products, Markets, and Entertainment Farms
Considerations for Organic Herb Production
Selling to Restaurants
Season Extension Techniques for Market Gardeners
Specialty Lettuce and Greens: Organic Production
Entertainment Farming and Agri-tourism
Organic Marketing Resources
NCAT's Organic Crops Workbook

ATTRA is the national sustainable agriculture information service operated by the National Center for Appropriate Technology, through a grant from the Rural Business-Cooperative Service, U.S. Department of Agriculture. These organizations do not recommend or endorse products, companies, or individuals. NCAT has offices in Fayetteville, Arkansas (P.O. Box 3657, Fayetteville, AR 72702), Butte, Montana, and Davis, California.



Introduction

It is important to remember that edible flowers are only part of a diversification strategy. Most growers cannot make a living growing only edible flowers. Edibles are usually grown in conjunction with cut flowers, herbs, and specialty lettuces, in order to complement them and create opportunities for value-added products.

Another thing to keep in mind when producing edible flowers is the importance of growing without chemicals, since the flowers should be free of any chemical residue. Organic growers have an edge, because the flowers—usually imported—available from commercial florists are often grown with heavy applications of pesticides. In fact, many imported cut flowers contain residues from pesticides ruled unacceptable for food production in the U.S. Even flowers growing along the roadside may have been sprayed with pesticides and are not safe to eat. (Rindels, 1997) Additional information on organic flower production is available in *The Flower Farmer: An Organic Grower's Guide to Growing and Selling Cut Flowers* (see **Further Resources: Books**) and NCAT's *Organic Crops Workbook*.

Production

Cultural requirements for edible flowers are similar to those of other floral crops. The ATTRA publication *Sustainable Cut Flower Production* gives references that may be useful in the culture of edible flowers.

There are perhaps 100 types of common garden flowers that are both edible and palatable. For more complete listings, see the enclosures and **Further Resources**. Many seed catalogs offer edible flower selections, complete with descriptions and recipes. Some of the more popular edible flowers include:

Bachelor button	Bee balm	Borage
Calendula	Chamomile	Chive flowers
Dandelion	Daylily	Dianthus
Hibiscus	Hollyhock	Impatiens
Lilac	Marigold	Mint
Nasturtium	Pansy	Roses
Sage	Squash blossom	Violet

Flowers are rich in nectar and pollen, and some are high in vitamins and minerals. For instance, roses—especially rose hips—are very high in vitamin C, marigolds and nasturtiums contain vitamin C, and dandelion blossoms contain vitamins A and C. Flowers are also nearly calorie-free.

However, as Ann Lovejoy reported in a Seattle *Post-Intelligencer* article, “for some people, eating pollen can trigger allergies or even asthma. To be safe, remove the pollen-bearing parts of each edible flower (the pistils and stamens). The sepals or calyx also should be removed except for the viola-violet clan (pansies, Johnny-Jump-Ups, violets and violettas).” (Lovejoy, 2002)

Edible flowers should be picked as fully open flowers in the cool of the day, after the dew has evaporated. It is best to sample several flowers before harvesting. Flowers grown in different locations can have different tastes, because of different soil types, fertilization, and environmental conditions. Flowers may taste different at the end of the growing season and can vary from year to year. (Rindels, 1997)

After picking, place long-stem edible flowers in water and store in a cool place. Layer short-stem flowers between damp towels or store loosely in a plastic bag and refrigerate. Wash and check for insects before using. It is best to wash just a few flowers first to make sure they don't discolor.(Rindels, 1997) Never use floral preservatives on edible flowers. Many floral preservatives contain toxic chemicals, but the exact components are considered trade secrets.(Anon., 1994)

Researchers at Pennsylvania State University and Michigan State University studied five species of edible flowers (viola, pansy, borage, nasturtium, and scarlet runner bean) for cold storage shelf life and sensitivity to chilling injury. They stored fully expanded blooms in heat-sealed, low-density polyethylene film bags with four 0.4 mm holes to allow oxygen and carbon dioxide exchange. The bags were stored in the dark at six different temperatures ranging from 68° to 28.5° F. Viola, pansy, and nasturtium showed no visual damage after two weeks of storage at 32° and 36.5°, but were marketable for only one week at higher temperatures. Borage flowers and scarlet runner bean flowers had shorter shelf life at all temperatures. It was noted that all flowers, except for borage, can be stored at the mean temperatures of refrigerated cases in grocery stores (45.7° in winter and 47.1° in summer) for 1 week without becoming unmarketable.(Bame, 2004)

Poisonous Flowers

Do not eat any flower unless you are certain about its identity. Even edible flowers can cause indigestion or allergic reactions if eaten in large amounts. In her article, Ann Lovejoy explains:

It is very hard to know which flowers are safe to eat and which are not when your only guide is what you see in recipe books and food magazines. These handsome publications are full of pretty pictures in which food and flowers are combined. On occasion I have been horrified to see quite toxic flowers, such as angel's trumpet (*Datura* or *Brugmansia*), spilling over with chicken salad, and daffodils and lily-of-the-valley trimming cakes. Some flowers are not dangerously toxic for most people yet can cause irritation even in the less-sensitive. Thus, when you see a calla lily loaded with peeled shrimp in a lush photo spread, try the recipe but choose another garnish, please (Lovejoy, 2002).

Some of the highly toxic flowers are azaleas, belladonna, calla lily, castor bean, crocus, daphne, foxglove, larkspur, lily-of-the-valley, nightshade, and rhododendron. See **Further Resources: Web Sites** for lists of toxic or poisonous flowers.

Poison Control Centers

Call **1-800-222-1222** if you think someone has been poisoned or if you have questions about poisons. Specially trained nurses, pharmacists, and doctors will provide emergency treatment advice for all kinds of poison exposures, as well as on poison prevention. All services are free and confidential. This is the American Association of Poison Control Centers nationwide number for reaching the 62 poison control centers in the United States, Virgin Islands, and Puerto Rico. This number is routed to the nearest local poison center based on the area code and exchange of the caller.

Marketing

As with any crop, it is extremely important to decide on a marketing strategy before you plant. Edible flowers are produced and marketed in much the same way as fresh herbs, although the edible flower market is not as large. Edible flowers are used by chefs as garnishes, in salads and desserts, and for drink and candy adornment. Do a careful market assessment before proceeding, concentrating on upscale restaurants in the largest urban center nearest you.

To recognize the unique opportunities that may provide entry into this market, the grower must keep up with food trends. Talking to local chefs will acquaint you with their needs. Most restaurants demand a consistent supply of any crop, but many edible flowers can be used interchangeably. Get in touch with a local chefs association or state restaurant association. Reading magazines such as *Gourmet*, *Bon Appetit*, and *Food and Wine* is another way to gauge the competitive environment. The ATTRA publication *Selling to Restaurants* has additional information on successful strategies for marketing to restaurants.

Since many people are unfamiliar with using edible flowers, it is always a good idea to provide free samples and recipes. Remind your customers that edible flowers mixed in summer salads create unique colors and tastes. Often, customers will use these flowers for special events, placing crystallized violets on wedding cakes, for example. It is up to the grower to remind consumers of these special uses. As for pricing, the grower must decide what the market will bear.

Value-added products, like mesclun mixed with calendula flowers, can generate excitement in the consumer and added income for the grower. For information on specialty lettuces, see ATTRA's *Specialty Lettuce and Greens: Organic Production*. Other examples of value-added products are gift baskets, pre-packaged salads, and processed products (such as teas).

ATTRA's *Considerations for Organic Herb Production, Entertainment Farming and Agri-tourism*, and *Lavender Production, Products, Markets and Entertainment Farms* include extensive resource lists and may help you generate ideas for marketing edible flowers.

References

Anon. 1994. Be cautious with floral preservatives. *Growing for Market*. July. p. 10.

Bame, Megan. 2004. Optimal storage temperature and duration of edible flowers. *The Cut Flower Quarterly*. Spring. p. 14.

Lovejoy, Ann. 2002. Choose your edible flowers very carefully. *Seattle Post-Intelligencer*. May 23. 2 p.
http://seattlepi.nwsource.com/nwgardens/71472_lovejoy23.shtml

Rindels, Sherry. 1997. Ten rules of edible flowers. *Horticulture and Home Pest News*. Iowa State University Department of Horticulture. 2 p.
www.ipm.iastate.edu/ipm/hortnews/1995/7-21-1995/eatflow.html

Enclosures

Badertscher, K. B., and S. E. Newman. 2004. Edible flowers. Colorado State University Cooperative Extension. No. 7.237. 6 p.
www.ext.colostate.edu/PUBS/GARDEN/07237.html

Reynolds, Gail. 2003. Growing and marketing edible flowers. Countryside & Small Stock Journal. July-August. p. 44, 46-48.
www.countrysidemag.com

Subscriptions are \$18.00 per year.
Countryside & Small Stock Journal
W11564 Hwy. 64
Withee, WI 54498

Further Resources

Association

Association of Specialty Cut Flower Growers (ASCFG)
M.P.O. Box 268
Oberlin, OH 44074
440-774-2887
440-774-2435 FAX
ascfg@oberlin.net
www.ascfg.org

Though the focus of the organization is cut flower production, the members typically produce a wide variety of field-grown floral crops, and some cultivate edible flowers as well. The group produces a number of publications, a newsletter, sponsors a national conference each year, and provides information specific to local conditions through the assistance of the associations' regional directors. The ASCFG membership directory gives a thumbnail description of each member's operation, along with the crops they grow. It also lists cut flower buyers, suppliers, consultants, and educators.

Web Sites, Publications, and Articles

North Carolina State University
www.ces.ncsu.edu/hil/hil-8513.html

Provides on-line publication Edible Flowers and an excellent list of poisonous plants and flowers.

Cornell University Poisonous Plants Information Database
www.ansci.cornell.edu/plants/index.html

Has excellent listing of poisonous plants, including color pictures of plants and descriptions.

Canadian Poisonous Plants Information System
www.cbif.gc.ca/pls/pp/poison

Has excellent listing of poisonous plants, including color pictures and descriptions.

Home Cooking About, Inc.

<http://homecooking.about.com/library/weekly/blflowers.htm>

Has article "Incredible Edible Flowers," has chart "Edible Flowers" with color pictures, and has chart "Non-edible Poisonous Flowers."

Our Garden Gang, by Gardner's Supply Company

<http://ourgardengang.tripod.com/edibleflowers.htm>

Has chart of edible flowers with color pictures.

Edible Flowers: A Long Standing Tradition Can Prove Profitable for Farmers

Ag Opportunities Newsletter of the Missouri Alternative Center

<http://agebb.missouri.edu/mac/agopp/arc/agopv4n1.txt>

Article.

Edible Flowers

Iowa State University Extension

www.extension.iastate.edu/Publications/RG302.pdf

Publication.

Organic Flower Farming

<http://doityourself.com/flowers/organicflowerfarming.htm>

Article.

Books

The following books are just some of the many available from bookstores and on-line booksellers on edible flowers. I haven't personally reviewed all of these books and, therefore, cannot make recommendations. Books may also be available through Interlibrary Loan; check with your local librarian. You may be able to buy an out-of-print copy through an on-line used-book search site, such as www.bookfinder.com/.

Edible Flowers: Desserts & Drinks. 1997. By Cathy Wilkinson. 84 p. Fulcrum Publishing. Golden, Colorado.

Edible Flowers: From Garden to Kitchen: Choosing, Growing and Cooking Flowers. 2003. By Kathy Brown and Michelle Garrett. 160 p. Lorenz Books, Anness Publishing Ltd., London.

The Edible Flower Garden. 1999. By Rosalind Creasy. 106 p. Periplus Editions. Boston, Massachusetts.

Edible Flowers: From Garden to Palate. 1993. By Cathy Wilkinson. 250 p. Fulcrum Publishing. Golden, Colorado.

Herbs and Edible Flowers. 2000. By Lois Hole. 256 p. Lone Pine Publishing. Auburn, Washington.

Taylor's 50 Best Herbs and Edible Flowers: Easy Plants for More Beautiful Gardens. 1999. By Frances Tenenbaum (editor). 128 p. Houghton Mifflin. Boston, Massachusetts.

The Flower Farmer: An Organic Grower's Guide to Growing and Selling Cut Flowers. 1997. By Lynn Byczynski. 224 p. Chelsea Green Publishing. White River Junction, Vermont.

Cornell Book of Herbs and Edible Flowers. 1993. By Jane Mackin. 132 p.

Order from:

The Resource Center
Cornell University
P.O. Box 3884
Ithaca, NY 14850-3884
607-255-2080
607-255-9946 FAX
resctr@cornell.edu
www.cce.cornell.edu/store/customer/home.php

Dried, Cut and Edible Flowers for Pleasure, Food and Income. 1990. By Lenz Louisa. 60 p. Booklet # 18. Ecology Action of the Midpeninsula, Inc. Willits, California.
Available for \$9.25 plus \$2.95 shipping. Free catalog also available.

Order from:

Bountiful Gardens
18001 Shafer Ranch Rd.
Willits, CA 95490
707-459-6410
707-459-1925 FAX

Edible Flowers
Current Topic
By Lance Gegner
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November 2004
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CT145
Slot# 73
Edited by Paul Williams
Formatted by Cynthia Arnold
Version 120604

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