

Growing Herbs



NC COOPERATIVE EXTENSION
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Growing Herbs Contents

All of the leaflets in this booklet can be found via the internet. The link for each leaflet is listed beside the title. Horticulture Information Leaflets can be found at <http://www.ces.ncsu.edu/Publications/lawngarden.php> There are many more leaflets and useful information found on our State Urban Horticulture Site at <http://www.ces.ncsu.edu/depts/hort/consumer/>
Or on our local county websites at <http://www.forsyth.cc/ces> or <http://forsyth.ces.ncsu.edu> .

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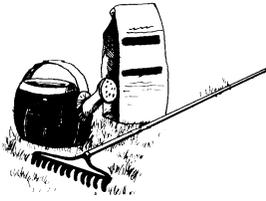
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GROWING HERBS FOR THE HOME GARDENER

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An herb is any plant used whole or in part as an ingredient for health, flavor, or fragrance. Herbs can be used to make teas; perk up cooked foods such as meats, vegetables, sauces, and soups; or to add flavor to vinegars, butters, dips, or mustards. Many herbs are grown for their fragrance and are used in potpourris, sachets, and nosegays; or to scent bath water, candles, oils, or perfumes. More than 25% of our modern drugs contain plant extracts as active ingredients, and researchers continue to isolate valuable new medicines from plants and confirm the benefits of those used in traditional folk medicine.

Herbs as a group are relatively easy to grow. Begin your herb garden with the herbs you enjoy using the most. For example, choose basil, oregano, and fennel for Italian cooking; lavender and lemon verbena for making potpourri; or chamomile, peppermint, and blue balsam mint if you plan to make your own teas.

The optimum growing conditions vary with each individual herb species. Some of the herbs familiar to North Americans—such as lavender, rosemary, thyme, bay laurel, marjoram, dill, and oregano—are native to the Mediterranean region. These herbs grow best in soils with excellent drainage, bright sun, and moderate temperatures.

When growing herbs follow these basic guidelines:

- Plant herbs in average garden soil with organic matter added to improve texture and drainage.
- Choose a site that receives at least 6 hours of direct sun each day.
- Avoid ground where water stands or runs during heavy rains.
- Compensate for poor drainage with raised beds amended with compost.
- Apply balanced fertilizers sparingly to leafy, fast growing herbs. Heavy applications of fertilizer, especially those containing large amounts of nitrogen, will decrease the concentration of essential oils in the lush green growth.

Plan your herb garden by grouping herbs according to light, irrigation, and soil requirements. Most herbs enjoy full sun, but a few tolerate shade. Herbs can be classified as either annual, biennial, or perennial. Be aware of the growth habits of the plants before you purchase them. Some herbs, such as borage, anise, caraway, chervil, coriander, cumin, dill, and fennel, should be direct-seeded, because they grow easily from seed or do not transplant well. Other herbs, such as mints, oregano, rosemary, thyme, and tarragon, should be purchased as plants and transplanted or propagated by cuttings to ensure production of the desired plant (do not come true from seeds). Additional information on specific herbs can be found in Tables 1 and 2.

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Table 1. Growing Requirements, Propagation and Uses of Annual Herbs

Plant	Height	Spacing	Light Requirement	Propagation	Uses
Anise <i>Pimpinella anisum</i>	24"	10"	Sun	Grow from seed.	Leaves in soups, sauces, and salads; oil for flavoring; seeds for seasoning cakes, breads, and cookies.
Basil, sweet <i>Ocimum basilicum</i>	20 to 24"	6 to 12"	Sun	Grow from seed; grow transplants for early-season harvest.	Leaves in soups, stews, pasta sauce, poultry and meat dishes; flavors vinegar; teas.
Borage <i>Borago officinalis</i>	1 to 3'	12"	Sun	Grow from seed; self-sowing.	Edible flower; leaves in salads, teas, and sandwiches; attracts bees.
Calendula (Pot Marigold) <i>Calendula officinalis</i>	12"	12 to 18"	Sun, partial shade	Grow from seed.	Flower petals give color to soups, custards, and rice; cookies; vinegars; crafts.
Caraway <i>Carum carvi</i>	12 to 24"	10"	Sun	Grow from seed; biennial seed bearer, some cultivars are annual seed bearers.	Leaves in salads, teas, stews, and soups; seeds for flavoring cookies, breads, salads, and cheeses; roots can be cooked.
Chamomile, sweet false <i>Matricaria recutita</i>	1 to 2 ½'	4 to 6"	Sun	Grow from seed.	Tea, potpourris, garnish, crafts.
Chervil <i>Anthriscus cerefolium</i>	1 ½ to 2'	15"	Partial shade	Sow seeds in early spring; does not transplant well, not heat tolerant; needs light to germinate.	Leaves in salads, soups, and sauces; teas; butters.
Coriander (cilantro) <i>Coriandrum sativum</i>	24" to 36"	12 to 18"	Sun, partial shade	Grow from seed; goes to seed quickly, so plant frequently.	Entire plant is edible; leaves in stews and sauces; stems flavor soups and beans; seeds in sauces and meat dishes, potpourris, and sachets.
Dill <i>Anethum graveolens</i>	3 to 5'	3 to 12"	Sun, partial shade	Sow seed early spring.	Teas; seasoning for butter, cakes, bread, vinegars, soups, fish, pickles, salads, etc.; flowers in crafts.
Nasturtium <i>Tropaeolum spp.</i>	15"	6"	Sun	Grow from seed; does not transplant well.	Leaves, stems, and flowers have a peppery taste; use in salads.
Parsley <i>Petroselinum crispum</i>	6 to 18"	6"	Sun	Sow seed early spring; slow to germinate; soak in warm water; is a biennial grown as an annual.	Garnish; flavoring for salads, stews, soups, sauces, and salad dressings.
Perilla <i>Perilla frutescens</i>	36"	3 to 6"	Sun	Grow from seed.	Decorative plant; flavoring oriental dishes.
Summer savory <i>Satureja hortensis</i>	12 to 18"	10 to 12"	Sun	Sow seed in early spring, cuttings.	Mild peppery taste; used with meat, cabbage, rice, and bean dishes, stuffings, teas, butters, vinegars.

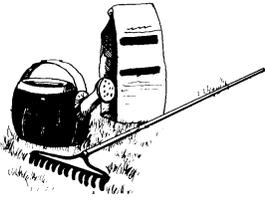
Common name/ Scientific name	Height	Spacing	Light Requirement	Propagation	Uses
Angelica <i>Angelica archangelica</i>	2 to 3'	3'	Partial shade	Grow from seed.	Stems raw or in salads; leaves in soups and stews; teas; crafts; closely resembles poisonous water hemlock.
Anise hyssop <i>Agastache foeniculum</i>	3 to 5'	12 to 24"	Sun, light shade	Grow from seed or division.	Attracts bees; edible flowers; leaves for flavoring or teas; crafts; seeds used in cookies, cakes, and muffins.
Artemisia <i>Artemisia spp.</i>	2 to 3'	24"	Sun, partial shade	Division.	Wreaths and other crafts; aromatic foliage.
Bee balm <i>Monarda didyma</i>	2 to 3'	12 to 15"	Sun, partial shade	Grow from seed or division; invasive rhizomes.	Attracts bees, butterflies, and hummingbirds; teas; flavors jellies, soups, stews, and fruit salads; edible flowers; dried flowers in crafts.
Burnet, salad <i>Poterium sanguisorba</i>	12"	18 to 24"	Sun, well-drained soil	Grow from seed or division.	Cucumber-flavored leaves used in salads, vinegar, butter, cottage cheese, and cream cheese; garnish.
Clary sage <i>Salvia sclarea</i>	5'	24"	Sun	Grow from seed; biennial.	Leaves in omelets, fritters, and stews; flavoring of beers and wines; oil.
Chamomile <i>Chamaemelum nobile</i>	2 to 8"	18"	Sun, partial shade; well-drained soil	Grow from seed, division, or stem cuttings.	Dried flowers for tea; potpourris; herb pillows.
Catnip <i>Neptea cataria</i>	3 to 4'	12 to 18"	Sun or shade	Grow from seed or division.	Teas; fragrance for cats.
Chives <i>Allium schoenoprasum</i>	12"	12"	Sun, partial shade	Grow from seed or division.	Edible flowers; leaves for flavoring, eggs, soups, salads, butter, cheese, dips, spreads, etc.
Comfrey <i>Symphythum officinale</i>	3 to 5'	3'	Sun	Grow from seed, cuttings, root division.	Safety of ingestion is highly questionable. Large, rambling plant; dyes, cosmetics.
Costmary <i>Chrysanthemum balsamita</i>	2 to 4'	12"	Sun, light shade	Division.	Garnish; fragrance.
Echinacea <i>Echinacea angustifolia</i>	1 to 2'	18"	Sun	Grow from seed or crown division.	Ornamental plant; used medicinally.
Fennel <i>Foeniculum vulgare</i>	4 to 5'	4 to 12"	Sun	Grow from seeds, difficult to transplant.	Entire plant edible; seeds in sausage and baked goods; leaves used with fish, vegetables, cheese spreads, and soups.
Feverfew <i>Tanacetum parthenium</i>	2 to 3'	12"	Sun, partial shade	Grow from seed or division.	Tea, crafts, dyes.
Geranium, scented <i>Pelargonium spp.</i>	12 to 24"	12 to 24"	Sun	Grow from stem cuttings.	Teas, potpourris, sachets, jellies, vinegars, desserts.
Germander <i>Teucrium chamaedrys</i>	10 to 12"	8 to 10"	Sun, partial shade	Slow to germinate from seed. Stem cuttings, layering, division.	Attracts bees, decorative plant.

Table 2. Growing Requirements, Propagation and Uses of Biennial and Perennial Herbs

Common name/ Scientific name	Height	Spacing	Light Requirement	Propagation	Uses
Horehound <i>Marrubium vulgare</i>	24"	15"	Full sun	Grow from seed, cuttings, or division.	Attracts bees; tea; flavoring in candy, crafts.
Hyssop <i>Hyssopus officinalis</i>	24"	15"	Sun or division	Grow from seed, stem cuttings, usage, potpourris.	Attracts bees and butterflies; mostly decorative.
Lavender <i>Lavandula angustifolia</i>	24 to 36"	18"	Sun	Grow from seed or stem cuttings.	Potpourris; herb pillows; crafts, vinegars and jellies.
Lemon balm <i>Melissa officinalis</i>	3'	2'	Sun, light shade	Grow from seed, stem cuttings, or division.	Teas; flavors soups, stew, fish, poultry, vegetables, and meat dishes; garnish; potpourris
Lemon verbena <i>Aloysia triphylla</i>	2 to 5'	12 to 24"	Sun	Grow from stem cuttings	Potpourris; herb pillows; lemon flavoring , for drinks.
Lovage <i>Levisticum officinale</i>	3 to 5'	2'	Sun, partial shade	Sow seeds late summer; division.	Seeds in breads, butters, and cakes; teas; leaves in soup, stew, cheese, cookies, and chicken dishes; root edible.
Marjoram <i>Majorana hortensis</i>	1 to 2'	12"	Sun	Grow from stem cuttings, division, or seed.	Flavoring for meats, salads, omelets, vinegars; jellies; teas; flower head for crafts.
Oregano <i>Origanum vulgare</i> and <i>O. vulgare subsp. hirtum</i>	24"	8 to 12"	Sun	Grow from cuttings or division.	Flavoring for tomato dishes, meat, poultry and pork stuffings; vegetables and sauces, etc.
Peppermint <i>Mentha x piperita</i>	36"	18"	Sun, light shade	Cuttings and division recommended; invasive rhizomes.	Teas, fragrance.
Rosemary <i>Rosemarinus officinalis</i>	3 to 6'	12"	Sun	Seeds slow to germinate; use stem cuttings, layering, or division.	Teas; flavoring for vinegar, jam, bread, butters, stuffing, vegetables, stew, and meat dishes.
Rue <i>Ruta graveolens</i>	3'	12 to 18"	Sun	Grow from seed, stem cuttings, or division.	Decorative plant
Sage <i>Salvia officinalis</i>	18 to 30'	12"	Sun	Grows slowly from seed; stem cuttings, division, layering.	Seasoning for meat, vegetable and egg dishes; stuffings.
Sage, pineapple <i>Salvia elegans</i>	2 to 3'	24"	Sun	Stem cuttings.	Attracts hummingbirds and butterflies; teas; potpourri; cream cheese; jams, jellies.
Santolina <i>Santolina chamaecyparissus</i>	24"	2 to 3'	Sun, needs good drainage	Slow to germinate from seeds..	Dried arrangements and potpourris; accent plant.
Sorrel <i>Rumex spp.</i>	3 to 4'	12"	Sun	Grow from seed.	Flavoring of soups, butters, omelets; some species of sorrel are toxic.
Southernwood <i>Artemisia abrotanum</i>	4'	18"	Sun, well-drained soil	Stem cuttings, division.	Teas; sachets; potpourris.
Spearmint <i>Mentha spicata</i>	18"	18"	Sun, partial shade	Cuttings or division recommended; invasive rhizomes.	Teas; flavors sauces, jellies, and vinegars; leaves in fruit salad, peas, etc.

Table 2. Growing Requirements, Propagation and Uses of Biennial and Perennial Herbs

Common name/ Scientific name	Height	Spacing	Light Requirement	Propagation	Uses
Sweet marjoram <i>Origanum majorana</i>	8"	12"	Sun	Grow from seed, division, or cuttings.	Flavors tomato sauces, eggs, etc. Leaves in salads, sauces, pizza, and meats.
Sweet rocket <i>Hesperis matronalis</i>	3 to 4'	24"	Sun	Grow from seed.	Salads.
Sweet woodruff <i>Galium odoratum</i>	8"	12"	Partial shade	Division.	Tea; sachets, dyes.
Tansy <i>Tanacetum vulgare</i>	3 to 4'	2 to 3'	Sun	Grow from seed or division	Toxic oil in leaves; decorative plant; crafts.
Tarragon <i>Artemisia dracunculus</i>	24"	12"	Sun	Division or root cuttings, stem cuttings are slow to root.	Sauces, salads, soups, omelets, meat, vegetable, and fish dishes.
Thyme, common <i>Thymus vulgaris</i>	4 to 12"	6 to 12"	Sun	Cuttings, seeds, or division.	Teas; attracts bees; sachets; potpourris; flavoring for poultry, fish, stews, soups, tomatoes, cheese, eggs, and rice.
Valerian <i>Valeriana officinalis</i>	2 to 5'	12 to 24"	Sun	Division is recommended over seeding.	Roots for flavoring; ornamental plant.
Yarrow <i>Achillea millefolium</i>	8" to 5'	12"	Sun	Seeds or division.	Crafts.
Winter savory <i>Satureja montana</i>	24"	18"	Sun	Grow in light, sandy soil from cuttings or seed; cut out dead wood.	Leaves used to flavor meat, fish, salads, soup, stew, and sausage.
Wormwood <i>Artemisia absinthium</i>	36"	12 to 36"	Sun	Seed germinate slowly; use stem cuttings or division.	Bitter flavor; toxic if large quantity consumed; ornamental plant, dried arrangements; repels insects



HARVESTING AND PRESERVING HERBS FOR THE HOME GARDENER

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Harvesting Herbs

Herbs should be harvested when the oils responsible for flavor and aroma are at their peak. Proper timing depends on the plant part you are harvesting and the intended use. Herbs grown for their foliage should be harvested before they flower. While chives are quite attractive in bloom, flowering can cause the foliage to develop an off-flavor. Harvest herbs grown for seeds as the seed pods change in color from green to brown to gray but before they shatter (open). Collect herb flowers, such as borage and chamomile, just before full flower. Harvest herb roots, such as bloodroot, chicory, ginseng, and goldenseal, in the fall after the foliage fades. Some general guidelines to use include:

- Begin harvesting the herb when the plant has enough foliage to maintain growth. Up to 75% of the current season's growth can be harvested at one time.
- Harvest early in the morning, after the dew dries, but before the heat of the day.
- Harvest herbs before flowering, otherwise, leaf production declines.
- Herb flowers have their most intense oil concentration and flavor when harvested after flower buds appear but before they open.
- Herb flowers harvested to dry for craft purposes should be picked just before they are fully open.
- Annual herbs can be harvested until frost.

Perennial herbs can be clipped until late August. Stop harvesting about one month before the frost date. Late pruning could encourage tender growth that cannot harden-off before winter.

Harvest tarragon or lavender flowers in early summer and then shear the plants to half their height to encourage a second flowering period in the fall.

Preserving Herbs

Herbs acquire their fragrance and flavor from oils that evaporate into the air when the leaves are crushed. Ideally, you should use fresh herbs for cooking, but it is possible to retain some quality for later use. There are several methods to preserve herbs.

Freezing is one of the easiest methods to preserve herbs. Rinse the herbs quickly in cold water, shake off the excess, then chop coarsely. Place generous pinches of herbs in water-filled ice cube trays and freeze. Transfer herb-cubes to plastic bags or air tight plastic containers. Another method for freezing is to spread the herbs loosely onto a cookie sheet to freeze, then transfer the herbs into a large plastic bag and seal. When they thaw, herbs will not be suitable for garnish, but can be used in cooking. Do not re-freeze herbs after thawing.

Drying is the traditional method of herb preservation. If the herbs are clean, do not wet them. Otherwise, rinse dust and dirt from

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the foliage, shake off the excess water, and spread the herbs out to dry on paper towels or dishcloths until all surface moisture has evaporated. Remove any dead or damaged foliage. Then, tie the stems into small bundles with twine or string and hang them upside down in a warm, dry, airy place out of the sun. Be sure to make small, loose bundles and allow for good air circulation around each bunch.

UV rays from the sun and moisture from dew and frost can discolor and severely reduce the quality of many herbs. Thus, it is best to dry herbs indoors in a large empty closet, attic, or unused corner of a room. Drying herbs look quite attractive drying in a kitchen or pantry. If none of these places are practical, herbs can be dried in a barn, shed, or (least desirable) under the cover of a porch. Sage, thyme, summer savory, dill, and parsley are easy to dry. Basil, tarragon, and mints may mold and discolor if not dried quickly.

An alternative to hanging herbs to dry in bunches is to spread the herbs out on window screens. Suspend the screens over sawhorses or the backs of chairs. Turn the leaves often to ensure even drying.

To air dry herbs with seeds, tie the herbs in small bundles and suspend inside a paper bag with holes punched in the sides. Suspend the bag in a dark area with good air circulation. Collect the seeds when they are dry, and store in rigid light-proof containers.

Microwave drying is a quick and easy method to dry small amounts of herbs. Lay a single layer of clean, dry leaves between dry paper towels and place them in the microwave for 1 to 2 minutes on high power. Drying will vary with the

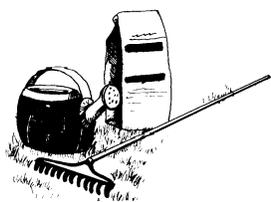
moisture content of the herb and the wattage of the microwave oven. Let the leaves cool. If they are not brittle, reheat for 30 seconds and retest. Repeat as needed. Thick leaved herbs may need to be air dried for several days before microwaving.

Conventional ovens can also be used to dry herbs. Spread the herbs on cookie sheets and dry at the lowest temperature setting possible. Home food dehydrators also do an excellent job of drying herbs. Follow the directions provided with the dehydrator.

Herbs are sufficiently dry when they are brittle and crumble easily. When the leaves are dry, separate them from their stems and package the leaves in rigid containers with tight fitting lids. Glass or hard plastic are best, although heavy-duty zip-lock plastic bags can be used. To preserve full flavor, avoid crushing the leaves until you are ready to use them. Store dried herbs in a cool, dry place away from sunlight, moisture, and heat. Many herbs can be kept for a year if stored properly.

For Further Reading

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WINTERIZING THE HERB GARDEN

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If treated properly, many herb plants will survive in the garden for a number of years. Others are sensitive to frost or severe cold weather and must be brought indoors, protected, or replanted each year. Annual herbs will be killed with the first hard frost in the fall. Remove dead plants in order to minimize overwintering insects and disease problems. Some frost sensitive herbs, such as basil and geranium, can be brought indoors for the winter. Take cuttings to root or pot the entire plant.

Many perennial herbs are winter hardy in all or parts of North Carolina and can be left in the garden. A few plants are

marginally winter hardy; in a mild winter they survive but may die during a severe winter. They can be brought indoors to overwinter. Unless they receive adequate light indoors they may drop some of their leaves. Lemon verbena is a deciduous plant; it will lose all of its leaves indoors.

After a severe winter, some outdoor plants such as rue, sage, thyme, and southernwood, may appear brown and dead. The leaves may simply be dehydrated or the plant may be dead almost to the ground. Scrape the bark of a few stems to determine the extent of damage. If the stem is green, delay pruning until after new growth begins. Additional information on winter hardiness of specific herbs can be found in Table 1.

Table 1. Hardiness and winter care of select herbs.

Common Name	Scientific Name	Hardiness*	Comments
Angelica	<i>Angelica archangelica</i>	M, P, C	
Artemisia	<i>Artemisia</i> spp.	M, P, C	Requires good drainage
Basil	<i>Ocimum basilicum</i>	—	Tender annual
Beebalm	<i>Monarda</i> spp.	M, P, C	
Caraway	<i>Carum carvi</i>	M, P, C	Biennial; lightly mulch
Cardamon	<i>Elettaria cardamomum</i>	—	Tender annual
Chamomile	<i>Chamaemelum nobile</i>	M, P, C	Lightly mulch; provide wind protection
Chives	<i>Allium schoemoprasum</i>	M, P, C	Lightly mulch
Comfrey	<i>Symphytum uplandicum</i>	M, P, C	Lightly mulch
Coriander (cilantro)	<i>Coriandrum sativum</i>	—	Tender annual
Costmary	<i>Chrysanthemum balsamita</i>	M, P, C	Lightly mulch
Dill	<i>Anethum graveolens</i>	—	Tender annual
Echinacea	<i>Echinacea purpurea</i>	M, P, C	
Fennel	<i>Foeniculum vulgare</i>	M, P, C	
Feverfew	<i>Chrysanthemum parthenium</i>	M, P, C	Lightly mulch

(continued on the next page)

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Table 1. Hardiness and winter care of select herbs. (continued)

Common Name	Scientific Name	Hardiness*	Comments
Garlic	<i>Allium sativu</i>	M, P, C	Plant cloves in fall; lightly mulch
Garlic chives	<i>Allium tuberosum</i>	M, P, C	
Garlic, elephant	<i>Allium ampeloprasum</i>	M, P, C	Plant cloves in fall; lightly mulch
Geranium	<i>Pelargonium</i> spp.	—	Tender annual; bring indoors
Lemon grass	<i>Cymbopogon citratus</i>	—	Tender annual
Hops	<i>Humulus lupulus</i>	M, P, C	
Horehound	<i>Marrubium vulgare</i>	M, P, C	Lightly mulch
Hyssop	<i>Hyssopus officinalis</i>	C	Tender perennial
Lavender	<i>Lavendula angustifolia</i>	M, P, C	Hardiness varies with cultivar; mulch; provide wind protection; requires good drainage
Lemon balm	<i>Melissa officinalis</i>	M, P, C	Lightly mulch
Lemon verbena	<i>Akitsu truogtkka</i>	C	Tender perennial; bring indoors or heavily mulch
Lovage	<i>Levisticum officinale</i>	M, P, C	
Marjoram	<i>Origanum majorana</i>	C	Tender perennial; bring indoors or heavily mulch
Mints	<i>Mentha</i> spp.	M, P, C	Lightly mulch; provide wind protection
Oregano	<i>Origanum</i> spp.	M, P, C	Hardiness varies with species
Parsley	<i>Petroselinum crispum</i>	—	Biennial; treat as annual
Pennyroyal	<i>Mentha pulegium</i>	P, C	Provide wind protection
Rosemary	<i>Rosmarianum officinalis</i>	P, C	Tender perennial; bring indoors or heavily mulch; requires good drainage
Sage	<i>Salvia officinalis</i>	M, P, C	Lightly mulch; provide wind protection
St. John's wort	<i>Hypericum perforatum</i>	M, P, C	
Sweet cicely	<i>Myrrhis odorate</i>	M, P, C	
Tansy	<i>Tanacetum vulgare</i>	M, P, C	Lightly mulch
Tarragon	<i>Artemisia dracunculus</i>	M, P, C	Provide wind protection; requires good drainage
Thyme	<i>Thymus vulgaris</i>	M, P, C	Hardiness varies with cultivar; lightly mulch; provide wind protection; requires good drainage
Valerian	<i>Valeriana officinalis</i>	M, P, C	Lightly mulch
Verascum	<i>Verebasicum</i> spp.	M, P, C	

*Normally hardy in: M = Mountains, P = Piedmont, C = Coastal Plain

Improving Winter Survival

Most herbs benefit from a 2- to 3-inch layer of organic mulch (pine straw, coco bean hulls, hardwood bark, bark and sawdust mixture) during the growing season. Mulch is an adequate winter protection for herbs such as mint, chives, and fennel providing protection to minus 20 oF. A winter mulch helps maintain uniform soil temperatures around the root system and provides protection against heaving cause by frequent freezing and thawing of the soil.

Some herbs require a thicker layer of mulch to protect their roots during extended freezing weather. Heavy mulching before cold weather occurs should be avoided since it will keep the soil warmer and

may actually decrease winter hardiness. After the first hard freeze, apply a 3- to 6- inch layer of organic material such as straw, pine needles, or chopped leaves. Most of the mulch should be removed in the spring as new growth begins.

Rosemary, lemon verbena, and a few other perennial herbs are not reliably winter hardy. Extra winter protection can be provided by cutting plants back to within a couple inches of the ground after the first hard frost and covering the remaining stub with soil. Then cover the soil with a 4- to 5-inch layer of mulch. For lemon verbena, the use of a microfoam ground cover (the packing material used around fragile items also works) held down with soil works very well providing over 95% survival in most years. An

alternative method is to encircle the plant with a cage of hardware cloth or chicken wire. The cage diameter should be about 12 inches larger than the plant (6 inches on each side). Fill the cage with mulch.

Harsh, drying winds can prove as fatal as cold temperatures to some of the less cold tolerant herbs. Wind breaks can aid the survival and appearance of herbs such as French tarragon, germander, English lavender, Roman chamomile, and winter savory. Covering with a few evergreen boughs will prevent drying out of silver and lemon thyme foliage. The more cold-sensitive herbs have a better chance of survival if grown in a protected location.

Other cultural practices that influence winter hardiness include: fertilization, pruning, soil drainage, and watering.

Fertilizing - Herbs should not be fertilized after early August. Late summer applications of nitrogen fertilizer will promote new growth that may not have time to mature before frost. The herbs will remain actively growing instead of becoming acclimated for cold weather.

Pruning - Avoid significant pruning (light harvesting is acceptable) in August which will stimulate new growth that will not have time to mature before frost. Also, avoid severe pruning in late fall since winter

hardiness is reduced until the cuts have healed. Woody plants should not be severely pruned within 4 to 6 weeks of the first severe freeze. In western North Carolina, the last severe cutting on sage, lavender, or oregano should be made before early September. Light pruning after frost is acceptable.

Soil drainage - Excessively wet soil or sites with standing water can decrease winter hardiness of some plants. This is especially true for Mediterranean plants such as rosemary, thymes, lavenders, and French tarragon that are adapted to dry climates. Provide adequate drainage by incorporating pine bark mulch or planting in raised beds.

Watering - Keep plants adequately watered during late summer and fall. Drought stressed plants are weaker and are often less cold hardy. Water during a dry winter, especially before a severe freeze. This is especially true for evergreen plants that will lose water from their foliage on bright, sunny days even when the ground is frozen.

For Further Reading

- *Growing Herbs in the Home Garden*, Horticultural Information Leaflet 8110.
- *Harvesting and Preserving Herbs*, Horticultural Information Leaflet 8111.

College of Agriculture & Life Sciences
 Department of Horticultural Science

**SUPPLIERS OF CULINARY AND ORNAMENTAL HERB SEEDS
 AND/OR PLANTS**

Jeanine M. Davis, Extension Horticultural Specialist

The following are some of the companies that supply herb seeds and/or plants by mail-order in the United States. Inclusion of a company does not constitute an endorsement of the products offered. Exclusion does not imply inferior products.

If you would like your company included on this list please contact Dr. Jeanine Davis, Mountain Horticultural Crops Research and Extension Center, 2016 Fanning Bridge Road, Fletcher, North Carolina 28732.

Abundant Life Seed Foundation

P.O. Box 772
 Port Townsend, WA 98368
 Phone: 360-385-5660
 Fax: 360-385-7455
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 Website: www.abundantlifeseed.org
 Preserving the genetic diversity of plants by saving rare and heirloom open-pollinated seeds.

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 Canada
 Phone: 905-727-8344
 Fax: 905-727-1415
 E-mail: info@kettlebyherbfarms.com
 Website: www.kettlebyherbfarms.com
 Seeds, plants (Canada only), dried herbs, herbal products & supplies, educational programs.

Companion Plants

7247 N. Coolville Ridge
 Athens, OH 45701
 Phone: 740-592-4643
 Fax: 740-593-3092
 E-mail: complants@frognet.net
 Website: www.companionplants.com
 Catalog: \$3.00

Pinetree Garden Seeds

Box 300, 616A Lewiston Road
 New Gloucester, ME 04260
 Phone: 207-926-3400
 Fax: 888-52-SEEDS
 E-mail: pinetree@superseeds.com
 Website: <http://www.superseeds.com>

Elk Mountain Nursery

P.O. Box 599
 Asheville, NC 28802
 Phone: 828-583-9330
 E-mail: craig@elk-mountain.com

Redwood City Seed Company

Box 361
 Redwood City, CA 94064
 Phone: 650-325-7333
 Website: <http://www.ecoseeds.com>

Garden Medicinals and Culinaries

P.O. Box 320
 Earlysville, VA 22936
 Phone: 434-973-4703
 Fax: 434-973-8717
 E-mail: herbs@gardenmedicinals.com
 Website: <http://www.gardenmedicinals.com>
 Catalog: \$2.00 refundable with order

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Sandy Mush Herb Nursery

316 Surrett Cove Road
Leicester, NC 28748-5517
Phone: 828-683-2014
E-mail: sandymushherbs@mindspring.com
Catalog: \$4.00

Hillcrest Nursery

21029 Gunpowder Road
Millers, MD 21102
Phone: 410-239-7781 or 800-452-4032
Fax: 410-239-4396
E-mail: steve@herbcell.com
Website: <http://www.herbcell.com>

Sunnyboy Gardens, Inc.

3314 Earlysville Road
Earlysville, VA 22936
Phone: 804-974-7350 or 804-973-5690
Fax: 804-974-9895
E-mail: sunnboy@mindspring.com
Website: <http://www.sunnyboygardens.com>

Horizon Herbs

P.O. Box 69
Williams, OR 97544
Phone: 541-846-6704
E-mail: herbseed@chatlink.com
Website: www.chatlink.com/~herbseed
Catalog: no charge

The Thyme Garden

20546 Alsea Hwy
Alsea, OR 97324
Phone: 541-487-8671
E-mail: herbs@thymegarden.com
Website: <http://www.thymegarden.com>

Johnny's Selected Seeds

184 Foss Hill Road
Albion, ME 04910
Phone: 207-437-9294
Fax: 207-437-2165
E-mail: research@johnnyseeds.com
Website: <http://johnnyseeds.com>

Well-Sweep Herb Farm

205 Mt. Bethel Road
Port Murphy, NJ 07865
Phone: 908-852-5390
Fax: 908-852-1649
Website: <http://www.wellsweep.com>

Shelton Herb Farm

340 Goodman Road
Leland, NC 28451
Phone: 910-253-5964
E-mail: herbandflora@atme.net
Website: <http://www.sheltonherbfarm.net>

College of Agriculture & Life Sciences
Department of Horticultural Science

**SEED AND PLANT SOURCES FOR MEDICINAL HERBS
 AND BOTANICALS**

Jeanine M. Davis, Extension Horticultural Specialist

The following are some of the companies that supply medicinal herbs and botanicals by mail-order in the United States. Inclusion of a company does not constitute an endorsement of the products offered. Exclusion does not imply inferior products.

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Abundant Life Seed Foundation

P.O. Box 772
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 Phone: 360-385-5660
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Companion Plants

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 Athens, OH 45701
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 Fax: 740-593-3092
 E-mail: complants@frognet.net
 Website: <http://www.companionplants.com>
 Catalogue: \$3.00

J.L. Hudson, Seedsman

Star Rt 2, Box 337
 La Honda, CA 94020-9733
 Website: <http://www.jlhudsonseeds.net>

Elixir Farm Botanicals, LLC

General Delivery
 Brixey, MO 65618
 Phone: 417-261-2393
 Fax: 417-261-2355
 E-mail: info@elixirfarm.com
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 Certified organic roots. Order online.

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 Fax: 207-437-2165
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 Website: <http://johnnyseeds.com>

Elk Mountain Nursery

P.O. Box 599
 Asheville, NC 28802
 Phone: 828-251-9622
 E-mail: craig@elk-mountain.com

Kettleby Herb Farms Ltd.

15495 Weston Road, RR#2
 Kettleby, Ontario L0G1J0
 CANADA
 Phone: 905-727-8344
 Fax: 905-727-1415
 E-mail: kettlebyherbfarms.com
 Website: <http://www.kettlebyherbfarms.com>
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Fax: 434-973-8717
E-mail: herbs@gardenmedicinals.com
Website: <http://www.gardenmedicinals.com>
Catalog: \$2.00 refundable with order

Mountain Gardens

3020 Whiteoak Creek Road
Burnsville, NC 28714
E-mail: joehollis@mailexcite.com
Website: <http://webpages.charter.net/czar207196/garden.htm>

Horizon Herbs

P.O. Box 69
Williams, OR 97544
Phone: 541-846-6704
E-mail: herbseed@chatlink.com
Website: <http://www.chatlink.com/~herbseed>
Catalog: no charge

Richters Herbs

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Goodwood, ON, Loc 1A0
Canada
Phone: 800-668-4372 or
Phone: 905-640-6677
Fax: 905-640-6641
E-mail: catalog@richters.com
Website: <http://www.richters.com>

Sunnyboy Gardens, Inc.

3314 Earlysville Road
Earlysville, VA 22936
Phone: 804-974-7350
Fax: 804-974-9895
E-mail: sunnboy@mindspring.com
Website: <http://www.sunnyboygardens.com>

Sandy Mush Herb Nursery

316 Surrett Cove Road
Leicester, NC 28748-5517
Phone: 828-683-2014
E-mail: sandymushherbs@mindspring.com
Catalog: \$4.00

The Flowery Branch Seed Company

P.O. Box 1330
Flowery Branch, GA 30542
Phone: 770-536-8380
Fax: 770-532-7825

Well-Sweep Herb Farm

205 Mt. Bethel Road
Port Murphy, NJ 07865
Phone: 908-852-5390
Fax: 908-852-1649
Website: <http://www.wellsweep.com>

The Thyme Garden

20546 Alsea Hwy
Alsea, OR 97324
Phone: 541-487-8671
E-mail: herbs@thymegarden.com
Website: <http://www.thymegarden.com>

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Leland, NC 28451
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E-mail: herbandflora@atme.net
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