Monthly Wednesday Night Demonstration

April 18, 2018

Preserving Your Flora: More than Fragrant Herbs

Resources:
- Please visit the National Center for Home Food Preservation at http://nchfp.uga.edu for detailed information about research-based methods of home food preservation.
- UC ANR Catalog (http://anrcatalog.ucanr.edu)

Should you need assistance or require special accommodations for any of our educational programs, please contact us at 916-875-6913.
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CULINARY HERB PROFILES

Basil – *Ocimum basilicum*

<table>
<thead>
<tr>
<th>a.</th>
<th>Annual</th>
<th>d.</th>
<th>Full sun</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>Rich soil</td>
<td>e.</td>
<td>Moderate water</td>
</tr>
<tr>
<td>c.</td>
<td>Space 6”; height 8” to 24”</td>
<td>f.</td>
<td>Flowers in summer</td>
</tr>
</tbody>
</table>

Basil is best started from seed sown indoors in late March or early April and moved to the garden after danger of last frost has passed. Seed germinates in 5 to 14 days. Best used fresh. Harvest before flowering. Prune basil to first leaf bud below the flower to encourage further leaf production.

Bay – *Laurus nobilis*

<table>
<thead>
<tr>
<th>a.</th>
<th>Evergreen tree</th>
<th>d.</th>
<th>Full sun to part shade</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>Moderately rich soil</td>
<td>e.</td>
<td>Low water</td>
</tr>
<tr>
<td>c.</td>
<td>Space 3’; height 5’ to 40’</td>
<td>f.</td>
<td>Spring growth period</td>
</tr>
</tbody>
</table>

Start from cuttings taken in the fall. Takes at least 6 months to develop a root system. Difficult to propagate.

Calendula - *Calendula officinalis*

<table>
<thead>
<tr>
<th>a.</th>
<th>Annual</th>
<th>d.</th>
<th>Full sun</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>Average soil</td>
<td>e.</td>
<td>Low water</td>
</tr>
<tr>
<td>c.</td>
<td>Space 12”; height 2’</td>
<td>f.</td>
<td>Blooms spring through fall</td>
</tr>
</tbody>
</table>

Sow seeds directly into garden as soon as ground can be worked, preferably early spring. Germinates in 10 days to 2 weeks. Self-sows freely.

Chamomile - *Matricaria recutita*

<table>
<thead>
<tr>
<th>a.</th>
<th>Annual</th>
<th>d.</th>
<th>Full sun to partial shade</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>Slightly alkaline soil</td>
<td>e.</td>
<td>Low water</td>
</tr>
<tr>
<td>c.</td>
<td>Space 1” to 2”; height 1’ to 2’</td>
<td>f.</td>
<td>Blooms early spring</td>
</tr>
</tbody>
</table>

Tiny seeds can be mixed with sand to ensure even distribution directly into garden. Self sows freely. Sow early in spring to prevent leggy flowers. Roman Chamomile (*Chamaemelum nobile*) is a perennial that is grown as a ground cover that prefers slightly acid soil. Harvest flowers continuously when petals begin to droop.

Chives - *Allium schoenoprasum*

<table>
<thead>
<tr>
<th>a.</th>
<th>Bulb plant</th>
<th>d.</th>
<th>Full sun to part shade</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>Prefers rich soil</td>
<td>e.</td>
<td>Moderate water</td>
</tr>
<tr>
<td>c.</td>
<td>Space 6”; height to 12”</td>
<td>f.</td>
<td>Blooms in summer</td>
</tr>
</tbody>
</table>

Can be started from seed, purchased, or from clump. Clumps should be divided every 3 to 5 years. Best used fresh.
Cilantro – Coriandrum sativum
  a. Annual  
  b. Rich soil  
  c. Space 8" to 18"; height 10" to 12"

Direct seed in warm semi-shady spot. Cut leaves during growing season to produce second harvest. Cilantro will probably go to seed after the second harvest. Cilantro does not tolerate heat above 85° and will bolt.

Dill – Anethum graveolens
  a. Biennial  
  b. Acidic soil  
  c. Space 10" to 12"; height 3' to 5'

Direct seed into garden. Self sows freely. Difficult to transplant. Fresh leaves should be harvested before flowering. Harvest seeds as seed heads become brown and dry. Good butterfly plant.

Fennel – Foeniculum vulgare
  a. Perennial  
  b. Average soil  
  c. Space 2'; height 4'

Direct seed into garden. Keep seeds moist for 2 weeks. Afterward, do not overwater. Seeds can be planted in fall.

Garlic – Allium sativum
  a. Annual  
  b. Rich, light, alkaline soil  
  c. Space 6"

Plant bulbs in the ground from early fall to early spring. Dig up bulbs in summer when leaves lose color and die to ground. Tradition says to plant garlic on shortest day of year and harvest on longest day.

Hyssop – Hyssopus officinalis
  a. Perennial  
  b. Light soil  
  c. Space 2'; height 12" to 24"

Easily grown from seed or propagated from spring or fall root division. To harvest, cut stems before flowering. Attracts bees.

Lavender – Lavandula species
  a. Perennial shrub  
  b. Sandy soil  
  c. Space 1' to 2'; height 2' to 4'

Lavenders can be grown from seed or cuttings taken in spring or fall. Harvest buds just as flowers are about to open. Prune lavender after flowering. Lightly trim lavender in spring to encourage flower production. There are numerous varieties featuring different flower colors and heights. English varieties (Lavandula angustifolia) considered premium scented variety. French hybrid (Lavandula x intermedia) varieties such as ‘Provence’ or ‘Superior’ do well in our region. Deer resistant.

Lemon balm – Melissa officinalis
  a. Perennial  
  b. Average soil  
  c. Space 2'; height 2'

Grows easily from seed sown in spring or early fall. Harvest before plant blooms. Best used fresh. Delicate lemon scent.
Lemon Verbena – *Aloysia triphylla*

- Deciduous shrub
- Rich soil
- Space 3’; height 4’
- Full sun
- Moderate water
- Blooms in summer

Propagated from stem cuttings pencil-sized or smaller. Mid and late summer stems take best. Harvest sprigs of leaves all year long. Cut back in mid summer. Fragrant shrub.

Lovage – *Levisticum officinale*

- Perennial
- Rich soil
- Space 3’; height 5’
- Full sun
- Moderate water
- Blooms in summer

Sow seeds in fall or spring. Mature plants can be divided in the spring. Requires little care. Deadhead to encourage growth. Harvest young leaves and stalks often.

Marjoram – *Origanum margorana*

- Perennial
- Average soil
- Space 12”; height 12” to 18”
- Full sun
- Low water
- Blooms in summer

Sow seeds in spring. Cut plant 6 to 8 inches from the ground before first flowering to encourage second harvest.

Mints - *Mentha* species

- Perennial
- Rich soil
- Full sun to part shade
- Moderate water
- Blooms in July/August

Propagate by stem cuttings or root division. Mint is invasive and best grown in containers. Twenty true species. There are many varieties with different scents such as apple, orange, and spearmint. Harvest new growth for best flavor.

Nasturtium – *Tropaeolum majus*

- Annual
- Average soil
- Space and height vary
- Full sun to part shade
- Low water
- Blooms in summer


Oregano – *Origanum vulgare*

- Perennial
- Alkaline soil
- Space 1’; height 2’
- Full sun
- Low water
- Blooms in summer

Propagated from seeds, stem cuttings, or root division. Seeds germinate slowly. Harvest as plant begins to bloom.

Parsley - *Petroselinum crispum*

- Annual
- Rich soil
- Space 1’; height 1’ to 2’
- Full sun to part shade
- Moderate water
- Blooms in early summer

Sow seeds in spring and fall to ensure continued harvest. Seeds take 3 to 6 weeks to germinate. Harvest leaves when they reach a height of about 8 inches and at anytime thereafter. Loses flavor when dried.
Rosemary - *Rosmarinus officinalis*

- Evergreen shrub
- Rich to average soil
- Space 2'; height 2' to 6'
- Full sun to part shade
- Low water
- Blooms in early summer

Propagate prostrate rosemary by root division. Propagate upright varieties from stem cuttings in the spring. If leaf tips droop when temperatures rise, water immediately. “Tuscan blue” is an upright, branching shrub variety. Harvest throughout the year by cutting 4 inch pieces from top.

**Salad Burnet – ** *Poterium sanguisorba*

- Perennial
- Average soil
- Space 1'; height 3'
- Full sun to part shade
- Low water
- Blooms in summer


**Sage – ** *Salvia officinalis*

- Perennial
- Rich, sandy soil
- Space 1'; height 2'
- Full sun
- Low water
- Blooms in summer

Excellent drainage is required to prevent root rot. Can be propagated by seeds, cuttings, layering, or root division of older plants. After second year, plant needs to be trimmed in spring to avoid center becoming woody. Powerful distinctive fragrance. Tricolor sage is a favorite for color in the herb garden. Berrgarten sage is preferred variety. Harvest by snipping leaves.

**Scented Geranium – ** *Pelargonium* species

- Perennial
- Rich, humus soil
- Space 2'; height 2',
- Full sun
- Low water
- Blooms in summer

Take cuttings from non-flowering shoots in summer. Not very frost hardy. Harvest young leaves. Dries brown. Best used fresh. There are numerous varieties which have wonderful scents and flowers. *Pelargonium crispum* is a lemon scented geranium. *Pelargonium cultivar ‘Attar of Rose’* has pungent rose scent. *Pelargonium × nervosum ‘Lime’* geranium has orchid like flower and strong lime scent.

**Tarragon - ** *Artemisia dracunculus*

- Perennial
- Rich, sandy soil
- Space 1'; height 8”
- Full sun to part shade
- Moderate water

Propagated by root division in spring. Leaves bruise easily. Transplant 1 inch sections of root tips with bud. Handle with care during harvest. Best used fresh.

**Thyme – ** *Thymus* species

- Evergreen perennial
- Rich soil
- Space 1'; height 1'
- Full sun to part shade
- Low water

Propagate by root division every 3 to 4 years. Good ground cover or border plant. Harvest leaves before blossoms open. Second harvest may weaken some varieties.

March 2006. Written by UCCE Sacramento County Master Gardener Marina Roney.
Edited by UC Master Gardener Bill Pierce and Judy McClure, Master Gardener Program Coordinator
GROWING EDIBLE FLOWERS IN YOUR GARDEN

While gardeners love flowers for their beauty outdoors in the garden and indoors in a vase, few grow them for eating. That is unfortunate, because many flowers are edible, and eating them is not as exotic as it sounds. Edible flowers can bring lively flavors, colors, and textures to salads, soups, casseroles, and other dishes. The use of flowers as food dates back to the Stone Age with archaeological evidence that early man ate flowers such as roses.

Flowers have been used for centuries for making teas, but flower buds and petals also have been used, from China to Morocco to Ecuador, in soups, pies, and stir-fries. Rose flowers, dried daylily buds, and chrysanthemum petals are a few of the flowers that our ancestors used in cooking. In fact, many of the flowers we grow today were originally chosen for the garden based on their aroma and flavor, not their beauty.

EATING FLOWERS

Any flower that is not poisonous or that does not cause a negative reaction is considered edible. However, just because a flower is edible does not necessarily mean it tastes good. Before you go munching through the flower garden, there are a few criteria you should keep in mind.

- Be sure to positively identify a flower before eating it. Some flowers have look-alikes that are not edible.
- Do not eat flowers if you have asthma, allergies, or hay fever.
- Only eat flowers that have been grown organically so they have no pesticide residue.
- Collect flowers for eating in the cooler parts of the day, preferably early morning after the dew has evaporated or late afternoon.
- Choose flowers that are at their peak, avoiding those that are not fully open or are starting to wilt.

EDIBLE ANNUAL FLOWERS

Listed below are some common edible annual flowers and herbs that are easy to grow as well as tasty. Included are a number of herbs and vegetables that have edible flowers.

- Borage (*Borago officinalis*) – Star-shaped flowers are blue, purple, and lavender with a slight cucumber flavor. Remove the green hair sepals and serve only the blue petals.
- Calendula (*Calendula officinalis*) – Yellow, gold, or orange flowers with a tangy, peppery taste. Used more for color than flavor in recipes; adds a golden hue to foods. Only the petals are edible.
- Chamomile (*Matricaria recutita*) – Small white daisy flowers with a pleasant pineapple flavor. Only the petals are edible.
- Nasturtium (*Tropaeolum majus*) – Flowers in shades of white to red, with a watercress and peppery flavor. The flowers, leaves, and seedpods are all edible.
- Petunia (*Petunia hybrida*) – Flowers in a wide range of colors with a mild flavor.
- Pineapple sage (*Salvia elegans*) – Scarlet flowers with a distinct pineapple flavor.
- Radish (*Raphanus sativus*) – Yellow, pink, or white flowers with a spicy-hot flavor.
- Runner beans (*Phaseolus coccineus*) – Bright orange to scarlet flowers with a mild, raw bean/pea flavor and a slightly crunchy texture.
- Sage (*Salvia officinalis*) – Blue, purple, white, or pink flowers with a slightly musky flavor.
• Scented geranium (Pelargonium spp.) – White, red, pink, or purple flowers with flavors such as apple or lemon, depending on the variety. The rose- and lemon-scented varieties have the best flavor.

• Signet marigold (Tagetes tenuifolia) – Gold, yellow, or orange flowers with a citrus flavor.

• Snapdragon (Antirrhinum spp.) – Flowers in a wide range of colors with a bland to bitter flavor.

• Squash (Cucurbita spp.) – Yellow to orange flowers with a mild, raw squash flavor. Remove stamens and pistils prior to eating.

• Sunflower (Helianthus annuus) – Flowers come in white, yellow, orange, or burgundy. Flower petals are bittersweet. Only the petals are edible.

• Tuberous begonia (Begonia x tuberhybrida) – Flowers are white, pink, yellow, red, orange, or multi-colored and have a light lemon flavor and a crisp texture. **Note: Only hybrid varieties are edible.**

• Viola, pansy, and Johnny-jump-up (Viola spp.) – Violet, white, pink, yellow, or multi-colored flowers with a sweet lettuce flavor.

**EDIBLE PERENNIAL FLOWERS**
Flowers of these perennials and herbs offer a broad range of flavors.

• Baby's breath (Gypsophila sp.) – White or pink flowers with a mild, slightly sweet flavor.

• Bee balm (Monarda didyma) – Red, pink, white, or lavender flowers with a strong, spicy, mint flavor.

• Chives (Allium spp.) – Onion chives, also known as garden chives (A. schoenoprasum) have lavender flowers with a mild onion flavor. Garlic chives (A. tuberosum) have white, star-shaped flowers with an onion/garlic flavor.

• Daylily (Hemerocallis spp.) – Flowers come in a wide range of colors. The flower buds have a slight asparagus or green bean taste. Flower petals are crunchy (like a crisp lettuce leaf) with a flavor that ranges from slightly metallic to sweetly floral or faintly of chestnuts/beans.

• Dianthus/Pinks (Dianthus spp.) – Pink, rose, white, or red flowers with a spicy, clove-like flavor.

• Hollyhock (Alcea rosea) – Flowers come in a wide range of colors and have a bland to slightly bitter flavor.

• Red clover (Trifolium pretense) – Sweet-tasting pink or red flowers.

• Tulip (Tulipa spp.) – Come in a wide range of colors and have a mild, slightly sweet pea-like flavor and a tender, crisp texture. **Note: Some people are allergic to tulips, so take precautions when trying them initially. Look for numb hands or an upset stomach.**

• Violet (Viola odorata) – Small purple, yellow, or blue flowers with a strong, sweet, very floral flavor.

**TREE AND SHRUB FLOWERS**
Even trees and shrubs produce edible flowers. Here are a few of the best.

• Apple (Malus spp.) – White to pink flowers with a floral to slightly sour taste.

• Elderberry (Sambucus spp.) – Sweet cream-colored flowers. **Note: Some of the wild, red-berried varieties are poisonous, so be sure to get the cultivated edible varieties. Use only the florets, as all other parts of the plants, including the stems, are poisonous.**

• Hibiscus (Hibiscus rosa-sinensis) – Flowers are orange, red, or purplish-red with cranberry and citrus overtones. Makes a nice beverage when boiled.

• Lavender (Lavandula angustifolia) – English lavender has tiny purple flowers with a strong lemon-perfume taste.

• Lilac (Syringa spp.) – Fragrant lavender, white, or pink flowers with a slightly bitter, lemony flavor.

• Rose (Rosa spp.) – Flowers come in a range of colors from white and yellow to pink, orange, and red. Most varieties have a strong floral taste; however, some of the dark red varieties may have a strong metallic taste. Remove the bitter white portion of the petals. Rose hips are also edible.

• Rosemary (Rosmarinus officinalis) – Flowers are light blue, dark blue, or pink and have a slightly pine-like, resinous flavor.
**HOW TO GATHER EDIBLE FLOWERS**

- Like any fruit or vegetable, when and how you harvest can influence the quality of the food. Harvest early or late in the day when the blossoms are cool. Sugars and volatile oils, the basis for aroma and flavor, are highest before heat and photosynthesis converts them into starch.

- Pick flowers and place them in a shaded basket without crushing them. Most blossoms should be harvested at or near opening. Discard blemished blossoms. Gently clean off any dirt or insects and store clean blossoms in a hard container in the refrigerator to prevent crushing.

- Before using, gently wash the flowers and remove the stamens and styles (reproductive parts inside the flower) before eating. Flower pollen can detract from the flavor, and some people are allergic to it.

- Not all parts of all flowers are edible. While flowers such as violas, violets, scarlet runner beans, and clover are entirely edible, some flowers have only edible petals. These include calendula, chamomile, roses, sunflower, and tulip. Pluck the petals of these flowers for use in salads and cooking. For most flowers (except violas and pansies), the sepals (parts below the petals) are not tasty and should be removed before eating. In addition, some flowers, such as roses, dianthus, and signet marigolds have a bitter white portion at the base of the petals where they attach to the flower that should be removed.

- Have fun experimenting with beautiful and tasty flowers that can dazzle your friends and family at mealtimes.

**SOME FLOWERS TO AVOID**

While exploring different ways of using edible flowers, be careful. There are a number of poisonous plants containing substances that can cause symptoms such as upset stomachs, rashes, and headaches. Be very careful when tasting flowers, because even if they do not make you sick or cause any of the other symptoms listed above, some toxic reactions take time to manifest themselves. It is important to make sure that you properly identify the flowers before eating them. And remember…even edible flowers should be eaten in moderation.

Some common landscape and flowering plants that you should avoid eating include:

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Part of Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amaryllis</td>
<td><em>Hippeastrum puniceum</em></td>
<td>Bulb</td>
</tr>
<tr>
<td>Anemone</td>
<td><em>Anemone tuberosa</em> and other spp.</td>
<td>All</td>
</tr>
<tr>
<td>Autumn Crocus</td>
<td><em>Colchicum autumnale</em></td>
<td>All</td>
</tr>
<tr>
<td>Azalea</td>
<td><em>Rhododendron</em> spp.</td>
<td>All</td>
</tr>
<tr>
<td>Belladonna Lily (Naked Lady)</td>
<td><em>Amaryllis belladonna</em></td>
<td>Bulb</td>
</tr>
<tr>
<td>Bird-of-Paradise</td>
<td><em>Strelitzia reginae</em></td>
<td>Seeds and pods</td>
</tr>
<tr>
<td>Buckeye (Horse Chestnut)</td>
<td><em>Aesculus arguta; A. hippocastanum; other spp.</em></td>
<td>Seeds, flowers, leaves</td>
</tr>
<tr>
<td>Buttercup</td>
<td><em>Ranunculus</em> spp.</td>
<td>All</td>
</tr>
<tr>
<td>Caladium</td>
<td><em>Caladium bicolor</em> and other spp.</td>
<td>All</td>
</tr>
<tr>
<td>Cardinal Flower</td>
<td><em>Lobelia cardinalis</em></td>
<td>Bulb</td>
</tr>
<tr>
<td>Castor Bean</td>
<td><em>Ricinus communis</em></td>
<td>Seeds</td>
</tr>
<tr>
<td>Clematis</td>
<td><em>Clematis</em></td>
<td>All</td>
</tr>
<tr>
<td>Daffodil</td>
<td><em>Narcissus pseudonarcissus</em></td>
<td>Bulb</td>
</tr>
<tr>
<td>Datura</td>
<td><em>Datura meteloides</em></td>
<td>All</td>
</tr>
<tr>
<td>Delphinium</td>
<td><em>Delphinium</em> spp.</td>
<td>All</td>
</tr>
<tr>
<td>Four O’Clock</td>
<td><em>Mirabilis</em></td>
<td>Seeds, roots</td>
</tr>
<tr>
<td>Foxglove</td>
<td><em>Digitalis purpurea</em></td>
<td>All</td>
</tr>
<tr>
<td>Gloriosa Lily</td>
<td><em>Gloriosa</em> spp.</td>
<td>All</td>
</tr>
<tr>
<td>Hydrangea</td>
<td><em>Hydrangea</em> spp.</td>
<td>All</td>
</tr>
<tr>
<td>Iris</td>
<td><em>Iris</em> spp.</td>
<td>Leaves, rootstock</td>
</tr>
<tr>
<td>Jessamine</td>
<td><em>Gelsemium sempervirens</em></td>
<td>All</td>
</tr>
<tr>
<td>Lantana</td>
<td><em>Lantana</em> spp.</td>
<td>All</td>
</tr>
<tr>
<td>Flower</td>
<td>Scientific Name</td>
<td>Type</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Larkspur</td>
<td><em>Delphinium spp.</em></td>
<td>All</td>
</tr>
<tr>
<td>Lily-of-the-Valley</td>
<td><em>Convallaria majalis</em></td>
<td>All</td>
</tr>
<tr>
<td>Lupine</td>
<td><em>Lupinus spp.</em></td>
<td>All</td>
</tr>
<tr>
<td>Monkshood</td>
<td><em>Aconitum spp.</em></td>
<td>All</td>
</tr>
<tr>
<td>Narcissus</td>
<td><em>Narcissus spp.</em></td>
<td>All</td>
</tr>
<tr>
<td>Oleander</td>
<td><em>Nerium oleander</em></td>
<td>All</td>
</tr>
<tr>
<td>Poinsettia</td>
<td><em>Euphorbia pulcherrima</em></td>
<td>All</td>
</tr>
<tr>
<td>Rhododendron</td>
<td><em>Rhododendron spp.</em></td>
<td>All</td>
</tr>
<tr>
<td>Star-of-Bethlehem</td>
<td><em>Ornithogalum spp.</em></td>
<td>All</td>
</tr>
<tr>
<td>Sweet Pea (not edible pea flowers)</td>
<td><em>Lathyrus spp.</em></td>
<td>All</td>
</tr>
<tr>
<td>Tansy</td>
<td><em>Tanacetum vulgare</em></td>
<td>All</td>
</tr>
<tr>
<td>Wisteria</td>
<td><em>Wisteria floribunda</em> and <em>W. sinensis</em></td>
<td>Pods, seeds</td>
</tr>
</tbody>
</table>

This is by no means an exhaustive list of non-edible flowers. If a plant is not on this list, do not assume that it is edible or non-poisonous. You should thoroughly research any flower before eating it.

**Sources**

- National Gardening Association, [http://www.garden.org/ediblelandscaping/?page=edible-flowers](http://www.garden.org/ediblelandscaping/?page=edible-flowers)
- *The Edible Flower Garden*, Rosalind Creasy, 1999, Periplus Editions
- Publication: “Edible Theme Gardens to Enjoy”, Rosalind Creasy, 2009
LANDSCAPING WITH HERBS

Definition of an Herb: The word “herb” comes from the Latin word “herba”, which means grass or green plant. Most herbs are herbaceous, which means a plant without a permanent woody stem. However, the broad term of “herb” often includes flowers, vegetables, grasses, and even trees.

BASIC LANDSCAPING GUIDELINES TO CONSIDER PRIOR TO PLANTING

- Plan according to your lifestyle. Take into consideration the amount of time you have to devote to your garden, what you want to use your yard for – children playing, entertaining, etc.
- Consider the type of garden you desire: formal, informal, perennial, rock, knot garden, container, woodland setting, erosion control, as companion to vegetables, etc.
- Consider whether the plant will attract bees (if so, don’t plant near a pool or play yard), and whether the garden will harmonize with your home’s architecture.
- Consider shape and use of plants. Some herbs can be used as hedges or fencing. Consider garden type – raised beds, pathways, Japanese gardens, formal gardens, rock gardens, etc.
- Gather information about specific herbs to ensure that the variety you desire is obtained. There are many varieties of common herbs. For example, there are twenty true mint species and over 500 sage species.

DEVELOP A LANDSCAPE PLAN ON PAPER AND CONSIDER THE FOLLOWING

- Tree roots – area of root space a tree requires versus where herbs are located.
- Irrigation systems – different watering requirements of different herbs.
- Annuals, Perennials – dormancy period of perennials and replanting of annuals.
- Height and width of plants – avoid hidden plants and realize growth size of mature plants.
- Soil and water preferred by plant – some herbs require sandy soil and others a rich, moist soil.
- Hours of sunlight – most herbs need 5 to 8 hours minimum.
- Soil drainage – some herbs require a drier soil and others a moist soil.
- Colors and styles you wish to create.

INDOOR HERB GARDENING

- Herbs indoors prefer a south facing window and a minimum five hours of sunlight.
- Florescent lights can be used 6 inches above the plants and the lights must be on for 14 to 16 hours a day.
- Lighting systems or grow lights are optional.
- Good drainage is required. Use appropriate pot size for each individual plant. Indoor herb plants can be rotated with plants in containers outdoors. Monitor for insects before returning plants to indoor area.

GATHERING AND USING HERBS

Harvest each herb according to their specific requirements for optimal flavor. Best harvest times are in the late morning after dew is gone. This ensures that the essential oils of the plant are at the optimal level and the scent is maintained. Herbs do not particularly need to be cleaned once harvested. If insects or dirt is present on the herbs, you can rinse the herbs under the tap. Herbs can also be soaked in a container of cool water and this water changed until there is no sign of dirt and/or insects. Remove distorted or chewed leaves. Herbs can be used fresh or dried. Pat herbs dry and hang in a non-ventilated space upside down to dry. Dry herbs in small bundles. Herb drying racks or baskets can be used to dry herbs. It is crucial to provide air circulation.
for herbs to dry and maintain their color. Some herbs can turn brown when proper drying methods are not observed. Be particularly careful with peppermint and lemon balm. These herbs will turn brown if exposed to moisture during the drying process.

Pesticides can be avoided by following proper Integrated Pest Management strategies. For information on Integrated Pest Management, call the Sacramento County UC Master Gardener office at (916) 875-6913.

**SHADE**
- Sweet Woodruff
- Mints
- Violets

**PARTIAL SHADE**
- Angelica
- Bee Balm
- Catnip
- Chamomile
- Chervil
- Chives
- Costmary
- Feverfew
- Geraniums
- Lemon Balm
- Lovage
- Parsley
- Bay
- Sweet Cicely
- Tarragon
- Yarrow

**DROUGHT TOLERANT**
- Artemesia
- Germander
- Horehound
- Lambs ears
- Lavender
- Old roses
- Rosemary
- Sage
- Santolina
- Thyme
- Yarrow

**FRAGRANT**
- Bee Balm
- Costmary
- Lavender
- Lemon Balm

**FRAGRANT (cont.)**
- Lemon Thyme
- Marjoram
- Mints
- Oregano
- Old Roses
- Rosemary
- Scented Geraniums

**TEA GARDEN**
- Bee Balm
- Borage
- Catnip
- Chamomile
- Costmary
- Lemon Balm
- Lemon Thyme
- Mints
- Parsley
- Rosemary
- Sage

**GRAY AND SILVER GARDEN**
- Artemesia
- Catmint
- Germander
- Gray Santolina
- Horehound
- Lambs ear
- Lavender
- Sage
- Silver Thyme
- Wormwood
- Yarrow

**FLOWERS**
- Bee Balm
- Calendula
- Chamomile
- Feverfew
- Lavender
- Old Roses
- Yarrow

**EDGING**
- Chives
- Dwarf Rosemary
- Dwarf Sage
- Hyssop
- Santolina
- Thyme

**HERBS FOR BEEKEEPERS**
- Basil
- Bee balm
- Borage
- Catnip
- Chamomile
- Chicory
- Fennel
- Germander
- Hyssop
- Lavender
- Lemon Balm
- Marjoram
- Rosemary
- Sage
- Savory
- Thyme

**HANGING BASKETS**
- Catnip
- Marjoram
- Mints
- Rosemary
- Thyme

**INDOOR PLANTS**
- Aloe Vera
- Basil
- Catnip
- Chives
- Garlic Chives
- Lavender
- Lemon Balm
- Marjoram
- Oregano
- Parsley
- Rosemary
- Sage
- Scented Leafed Geraniums
- Winter Savory
- Thyme

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Lavenders for California Gardens

PAMELA M. GEISEL, University of California Cooperative Extension Farm Advisor, Fresno County; CAROLYN L. UNRUH, University of California Cooperative Extension staff writer, Fresno County; PATRICIA M. LAWSON, illustrator

Lavender is a delightful and useful garden plant. It can be used as a drought-tolerant low hedge, a specimen plant, a cut flower, and an herb that provides a fragrant addition to many herbal projects. As garden ornamentals, lavenders have attractive gray-green foliage and eye-catching, long lasting blooms.

The name “lavender” comes from the Latin lavare, meaning “to bathe.” Hence it has a strong association with cleansing, with pleasures of the bath, and burning of incense to clean the air in places such as hospitals and public buildings.

In terms of its herbal uses, the flower consists of 0.5 to 2 percent by weight volatile oil that contains constituents such as linalyl acetate, linalol, geraniol, cineole, limonene, and sesquiterpenes. Medicinally, these chemicals act to aid digestion, increase superficial blood circulation, and have been used as antispasmodics and antidepressants. Lavender is also used, especially combined with other herbs, as a natural sleep aid. It has a cool, relaxing scent and may be restorative when one is mentally or physically exhausted.

In culinary use, flowers from the English lavenders can be used in herbal teas, cookies, lavender ice cream, as a flavorful addition to wine, and even as a spice rub for beef and lamb. Lavender’s best uses, however, are in cosmetics and fragrances. It is this use that has provided the foundation of a very successful industry. Lavender is used in aromatherapy, as a relaxant, and as an antiseptic. Its oils are prized for soap fragrances, aromatic baths, potpourri and sachets, facial oil, massage oil, floral water, compresses, perfume, facial steam, and inhalation.

TAXONOMY

Lavender is in the mint family (Labiatae). Its genus (Lavandula) is divided into three sections: Spica, Stoechas, and Pterostoechas. Most of the lavender species with commercial significance belong to the Spica and Lavandin groups. They include the English lavenders (known synonymously as L. angustifolia, L. latifolia, L. officinalis, and L. spica) and interspecific hybrids of L. angustifolia and L. latifolia, which are called the Lavandins. Lavandins generally bloom later than English lavenders and are widely cultivated for both commercial oil and for garden plantings. Some of the cultivars of Lavandins used for oil production include Grosso, Standard, Super, and Abrialii. Other Lavandins used in the garden include Grappenhall, Goodwin Creek Gray, Provence, and Silver Grey. The Lavandin hybrids are seed-sterile and must be vegetatively propagated.

The numerous cultivars of English lavenders include dwarf forms (Compacta and Compacta Nana), pink-flowered (Jean Davis or Lodden Pink), blue-flowered (Graves, Grey Lady and Irene Doyle), and the large purple-flowered selections (Twinkel Purple, Hidcote, Munstead, and Vera). Lavender Lady is excellent for garden use. It is unique because it can be grown fairly quickly from seed and will bloom in the first year.

Lavender cultivars grown for cut flower production should be selected for traits such as flower color, length of stem, and fragrance. The hybrid Lavandins produce
good-quality long-stemmed flowers, but they tend to turn grayish in color upon drying. English lavenders (L. angustifolia) yield shorter-stemmed flowers but retain an excellent blue color when dried. Specifically, Hidcote and Royal Velvet hybrids hold their color well when dried. Temperatures during the drying period have a significant effect on the final flower color, since higher ambient temperatures can cause a bleaching effect.

Garden varieties and less-hardy Mediterranean species abound. Most are not used for oil production but are lovely in the garden. They include species such as French lavender (L. dentata). Lavandula dentata candicans has larger leaves than traditional French lavender, with a grayish-white down on the leaves. Spanish lavender (L. stoechas), Spanish white lavender (L. stoechas ‘Alba’), pinnata lavender (L. pinnata), yellow lavender (L. viridis), wooly lavender (L. lanata boiss), and sweet lavender (L. heterophylla) are also familiar garden varieties.

The nomenclature of lavenders is confusing. In the nursery trade, invalid names from the past are sometimes still used. For example, English lavender (now known as L. angustifolia) was previously referred to in the literature as L. officinialis, L. vera, and L. spica; L. latifolia is also known as L. spica. The correct names now in use describe the leaf shape. In Latin, angustifolia means “narrow-leafed,” while latifolia means “broad-leaved.” When you see “L. × intermedia,” it means the plant is a hybrid between L. angustifolia and L. latifolia and has intermediate leaf characteristics, hence its botanical name intermedia.

New varieties for all uses are frequently introduced. The varieties specifically listed in this publication should be considered suggestions only and not endorsements of specific varieties.

Most of the lavender grown worldwide is used for the production of essential oils. The hybrids or cultivars of lavender predominate because they produce great quantities of high-quality oil. However, selected forms of L. angustifolia are also grown for essential oil and provide a very high-quality oil used for perfumes. About 1,000 tons (907 T) of oil is produced annually worldwide—mostly in Europe, particularly eastern Europe, and Australia. Additionally, English lavender and its cultivars are grown for the production of dried flowers in bunches or loose for potpourri, scented sachets, and craft products.

Although the garden species contain essential oils, they are not used for production because they have very strong-smelling oils that do not meet the quality requirements for commercial use. They can, however, be used for drying, potpourri, or craft purposes.

**GROWING**

Lavenders that are of commercial importance are native to the Mediterranean areas of Europe, which experience warm, dry summers and cool, rainy winters. They are adapted to very well-drained soils and require a soil pH of 6.5 to 7.5 to grow well. They will not tolerate wet, poorly drained soils. In soils that have slower drainage, consider planting on mounds to drain excess water away from the root crown.

Irrigation, however, is needed in dry areas while the plants are being established. Proper irrigation while the flower heads are developing is also very important, since water stress during this time may decrease the number of flowers and oil yield. Drip irrigation systems are recommended, since overhead watering tends to break the plants apart and promotes disease.

Lavenders grow best in full sun in well-drained gravelly soils with low fertility. Excessive nitrogen encourages soft, succulent growth that is low in oils. Plants tend to break apart in the center under high fertility, although fertilizers may need to be
applied early in the development period. If necessary, incorporate a balanced fertilizer such as 10-10-10 at a rate of 1/2 to 1 pound per 100 square feet (244 to 488 g per 10 sq m) prior to planting. If plants seem slow to develop, side-dress with 10-10-10 once during the early growing season to encourage growth. Avoid fertilizing during flower development.

Prune lavenders as you harvest the flower stalks. In a garden situation, even if you are not planning to harvest the crop, the best time to prune is just after the plants have completed their flowering cycle.

PEST CONTROL

The most frequent problems associated with lavenders are related to root and crown rots, usually the result of too much water or poor drainage in heavy soils. Excessive irrigation during the summer months, overhead watering, and too much moisture near the main stem can also lead to root, stem, and crown rot. When using drip irrigation, place the emitters several inches away from the stem. Practice crop rotation and avoid replanting lavender in areas where it was previously grown.

Lavenders are not often bothered by insect pests, although they may occasionally attract spittlebugs (*Philenium spumarius*). These insects are not usually a problem unless the plants are being grown for cut flowers and the spittle is in the flower heads.

PROPAGATION

Lavenders can be propagated from seed, by cuttings, or by division from a mother plant. Except for a few selected varieties, growing from seed can be a slow process. Seed should be started indoors using bottom heat. Optimal temperatures for germination range from 75° to 80°F (23.9° to 26.7°C). Seed is available for named cultivars, including Hidcote, Munstead, Lavender Lady, and Mr. Thompson’s Blend. Lavender Lady is an All American Selection and a very fine garden variety.

Make softwood cuttings in the early spring or semihardwood cuttings in late summer to autumn before the first frost, using the past season’s growth with the “heel” attached (fig. 1). Dip the heel end in a rooting hormone (for example, Rootone or Hormex), and place the cuttings in a soilless medium such as coarse sand, perlite, or vermiculite. Root under mist or high humidity. The cuttings should develop roots in 4 to 6 weeks. Some cultivars root more successfully than others.

As soon as the cuttings have rooted and hardened off, plant them directly into the garden. Space about 3 feet (1 m) apart in the row and 4 to 5 feet (1.2 to 1.5 m) between rows. The rows should be spaced far enough apart to facilitate irrigation and weed control and minimize diseases that result from insufficient aeration. In the home garden, spacing depends on the size of the plants and how they are being used. Plants should be productive for 6 to 8 years, though some can continue to produce for up to 20 years.

The seeded varieties of lavenders are somewhat short-lived and are often grown as annuals. Most of them will usually produce well only the first year.


**HARVESTING AND PROCESSING**

Harvesting is usually done by hand for flower production; for oil, mechanical harvesting is appropriate. For dried use, the flowers should have only a few of the florets open. The stem should be cut back to just below the first set of leaves. For essential oil, delay cutting the spikes until \( \frac{1}{3} \) to \( \frac{1}{2} \) of the florets are open.

Essential oil of lavender is obtained by steam distillation of the fresh or wilted flower heads. However, some growers distill the oil using the dried flower buds. English lavender may yield only \( \frac{1}{4} \) teaspoon of oil per pound (1.25 ml/kg) of fresh flower heads, since the oil content is just 0.1 to 0.5 percent, while Lavandin cultivars yield significantly more oil. Oil yield is quite variable, depending upon the cultivar, production, and distillation methods. Essential oil is difficult to process at home, since large quantities of flowers and special equipment are required. Small-scale steam distillation units are available for sale, as are larger commercial models from sources such as Floragenics Distillation Systems, Pescadero, California.

Dried flowers are sold either by stems or by the separated flower heads. The flowers should be dried rapidly and under low-light conditions to reduce flower discoloration. Hang the bunches upside down to maintain straight stems in areas with good air circulation. Bunches take approximately 1 to 2 weeks to dry. The yield for cut flowers from mature plantings is also variable, but conservatively, 4 bunches of 50 stems each per plant can be expected.

To determine crop maturity, visually assess the degree of maturity on at least 50 individual flower heads using the following scale developed by the Redbank Research Station in New Zealand. Rate each flower stalk from the list below, based on maturity. An average score of 2 for the 50 flower heads is the optimal time to cut the crop for dried flower production. Essential oil crops should be harvested when the average score is between 5 and 6.

- Flower heads with no open flowers
- First one or two florets open
- Several florets open but none withered
- Several florets open, a few beginning to wither
- Approximately one-third of the florets open, one-third withered, and one-third remaining as buds
- Very few buds left, few open florets, most florets withered
- No buds left, few open florets, most florets withered
- All florets withered
- Capsules starting to open and shed seed
FOR MORE INFORMATION


McCoy, J. Lavender: *History, taxonomy and production*. North Carolina State University Research and Extension Center Website: http://fletcher.ces.state.nc.us/staff/jmdavis/lav.html.

New Zealand Institute for Crop and Food Research Limited. Private Bag 4704, Christchurch, New Zealand.


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To simplify information, trade names of products have been used. No endorsement of named or illustrated products is intended, nor is criticism implied of similar products that are not mentioned or illustrated.
DEHYDRATING FOODS

The overall objective in dehydrating foods is to remove moisture before the food spoils. To maintain safety and quality, several factors must be considered when drying fruits, vegetables, and herbs. Keep in mind that specific food products often have recommendations that are unique to them. Drying removes the moisture from food so that microorganisms such as bacteria, yeasts, and molds are less likely to grow; however, drying does not effectively destroy them. Because there is not a heat treatment that effectively destroys disease-causing microorganisms, it is critical to use safe food-handling practices when growing and handling fruits, vegetables, and herbs for drying.

- The optimum drying temperature is 140°F. If higher temperatures are used, the food will develop “case hardening” and moisture will not be able to escape from the food; this, in turn, will lead to a moldy food product. Therefore, do not rush the drying process.
- Low humidity is also needed when drying foods. If the surrounding air is humid, the foods will not dry effectively. Increasing the air movement away from the food will assist in the drying process.
- Foods can be dried in the oven, under the sun, on the vine, or indoors using a dehydrator. If using a vertical fan & heat source, rotate trays to help dry food evenly. If drying in an oven, make sure it can heat at 140°F and prop open the door 2-6 inches to allow air flow.

Just as with freezing, you must blanch vegetables to deactivate enzymes that cause flavor and color deterioration during the dehydration process. Blanch young tender leaves of Greens (chard, kale, turnip, spinach) with hot water for 1 1⁄2 minutes. It takes about 8-10 hours in a dehydrator set at 140°F to dry. Drying in an oven takes longer.

Testing for Dryness: Vegetables may dry unevenly and some pieces may need to be removed before others. Most vegetables will be hard and brittle when dried, with only 10% moisture remaining.

Garden Meat Rub

1/2 cup sea salt
3 tablespoons powdered rosemary
3 tablespoons powdered orange peel
2 tablespoons powdered thyme
1 tablespoon powdered sage
1 tablespoon powdered black pepper
1 teaspoon powdered horseradish

Mix together and store in airtight container.
Italian Herb Blend
*Source: A Country Garden Cookbook by Rosalind Creasy and Carol Saville*
*(Enhance pizzas, frittatas, ravioli fillings and tomato sauces)*

1 tablespoon dried oregano  
1 tablespoon dried sweet marjoram  
1 tablespoon dried chives  
2 teaspoons dried rosemary  
1 tablespoon dried fennel leaves  
1 teaspoon dried sage  
1 teaspoon dried mint

Mix together and store in an airtight container.

Fines Herbs (“Thousand Herbs”)
*Source: Edible Herb Garden by Rosalind Creasy*
*(Add to soups, sauces, and savory egg dishes)*

2 tablespoons dried tarragon  
2 tablespoons dried parsley  
2 tablespoons dried chervil

Mix together and store in an airtight container.

Salt Substitute

| 3 tablespoons powdered chives | 2 teaspoons powdered rosemary |
| 2 tablespoons powdered parsley | 2 teaspoons powdered thyme |

Mix thoroughly and fill shakers. A little goes a long way.

Spice of Life Salt Substitute
*Source: Cooks.com*

| 1/2 teaspoon cayenne pepper | 1 teaspoon ground parsley |
| 1 tablespoon garlic powder | 1 teaspoon ground mace |
| 1 teaspoon ground basil | 1 teaspoon onion powder |
| 1 teaspoon ground marjoram | 1 teaspoon ground black pepper |
| 1 teaspoon ground thyme | 1 teaspoon ground sage |

Mix thoroughly and fill shakers. A little goes a long way.
Simple Kale Chips - Dehydrator Method

There are two methods for making kale chips with a food dehydrator and both very easy. Raw food enthusiasts take note: the low-temperature method yields a raw food product.

What You'll Need
1 large bunch kale, any variety
2 to 3 teaspoons extra-virgin olive oil
3/4 teaspoon salt

How to Make It
Strip the leaves away from the leaf stalks and tough midribs. Don't dry the whole leaves as the midribs end up with the consistency of twigs, and are not tasty. Compost the leaf stalks or save for soup stock. Wash the kale leaves; dry them well in a salad spinner or by gently rolling the leaves in a clean dish towel. Tear the washed and dried leaves into just slightly larger than chip-sized pieces; they will shrink slightly as they dry.

Mixing the Ingredients
Toss the kale in a large bowl with the extra-virgin olive oil and the salt. Massage the leaves well with your clean hands. All the leaves should be more or less evenly coated with the oil. If you like spicy flavors, add a dash of cayenne pepper. You could also add nutritional yeast for a cheesy flavor.

Loading the Dehydrator Trays
Spread the leaves on the dehydrator trays in single layers. Do not crowd the leaves or they will not dry evenly. It is alright if the leaves touch, but they shouldn't overlap too much.

Drying Method #1: "Quick" Dehydrator Method
This method doesn't result in chips that qualify as a raw food, but the result is still very good and ready in half the time of the low-temperature method below.
Dry the kale at 145°F/63°C for 1 hour. Reduce the heat to 115°F and dry for an additional 3 to 4 hours until crispy dry. Transfer to airtight containers, or vacuum seal for longer storage.

Drying Method #2: Low-Temperature Raw Food Method
Dry the kale at 110°F/43°C for about 8 hours (overnight or while you're at work). Transfer to airtight containers, or vacuum seal for longer storage.

Tips for Dehydrated Kale Chips
• Lactinato kale, also called dinosaur kale, is a bit harder to coat evenly with the oil but seems to keep its crunch longer once dehydrated.
• If your kale chips lose their crunch in storage, you can re-crisp them in a low (200°F) oven for 10 minutes, or in the dehydrator at 110°F for an hour.
Fragrant Herb Salt
Yield: 3/4 cup

4 to 5 garlic cloves, peeled
1/2 cup kosher salt
About 2 cups loosely-packed, pungent fresh herbs such as:
  Sage, rosemary, thyme, savory, basil, oregano, ...

1. Cut garlic cloves lengthwise through the center, remove the sprout in the center and discard.
2. Mound the salt and garlic on a cutting board. Use a chef’s knife to mince the garlic, blending it with the salt as you work.
3. Place herbs in a mound and coarsely chop them. Add the herbs to the garlic salt and chop them together to the texture of coarse sand.
4. Spread the salt on a baking sheet or in wide flat bowls and leave near an open window for a couple of days to dry. Store in clean, dry jars.

Herb Soup Rings

Herb wreaths can add delicious flavor to your favorite soup recipe. These wreaths, around five inches in diameter, combine five to seven herbs from your garden. Added to your soup during the last ten minutes of cooking, these wreaths will enliven the flavors in any soup.

The contents of your wreath will depend on the season of the year. During November rosemary, thyme, oregano, French tarragon, onion tops, parsley, sage, sweet marjoram, winter savory, bay leaves, and lemon grass are available.

The foundation of your wreath is best with an herb with sturdy stems such as rosemary or winter savory. Use electrical clips to fasten your foundation herb in a circle, then slowly add three or four sprigs of some of your favorite herbs and gently wrap with parsley stems, onion tops, lemon grass, or chives. Remember that some herbs like rosemary and oregano are more overpowering than others. Once you’ve added your choice of herbs, remove clips and set in a cool, dark place to dry. Once completely dry, wrap loosely in tissue paper and place in a plastic bag. Include a card with the herbs used and a favorite soup recipe and give as gifts to friends and family.
**RECIPEs THAT USE DRIED HERBS**

**Herb Butter**  
*Source: Cooks.com*  
(Add to vegetables or use as a sandwich spread)

4 tablespoons salt-free butter  
1 tablespoon fresh herbs, chopped, or ½ tablespoon dried herbs (good choices are parsley, sage, or a combination of parsley, chives, basil, thyme, and tarragon)

Cream butter and herbs together. Store in small container, covered, and refrigerate. Will keep up to 3 months in freezer.

**Herb and Yogurt Salad Dressing**  
*Source: Rodale’s Successful Organic Gardening “Herbs”*

2 tablespoons minced fresh herbs, washed and dried well  
1 cup (8 ounces) plain yogurt

Mix ingredients together 30 minutes prior to serving.

**Seasoned Breadcrumbs**  
*Source: Cuisine at Home, Cuisine Tonight 2008*  
(Top pasta dishes or vegetables for added flavor and texture)

3 large crusty bread slices, cut into cubes and processed into coarse bread crumbs  
2 teaspoons dried parsley  
1 tablespoon fresh lemon zest  
1 teaspoon red pepper flakes  
2 tablespoons olive oil

1. In small non-stick pan over medium heat, add 2 tablespoons olive oil, heat and add bread crumbs.  
2. Sauté until crisp, about 3 to 4 minutes.  
3. Add parsley, lemon zest, and red pepper flakes and sauté for 1 minute.  
4. Use as a topping for hot pasta or vegetables.  
5. Leftovers may be stored in refrigerator for up to one week.
Mixed Herb Dressing

Source: Rodale’s Successful Organic Gardening “Herbs”

Dry Herb Mix:
1 cup dried parsley
1/2 cup dried basil
1/2 cup dried thyme
1/2 cup dried savory
1/2 cup dried marjoram

Mix together the dry ingredients and store in an air-tight container.

Ingredients (Mixed Herb Dressing):
3/4 cup olive oil
1/4 cup vinegar
1 tablespoon of the Dry Herb Mix (above)

Thirty minutes before you need a dressing, shake together the Dry Herb Mix with the olive oil and vinegar. Store in refrigerator until ready to use.
CANNING WITH HERBS

Boiling Water Canning Process

1. Before you start preparing your food, fill the canner halfway with clean water. This is approximately the level needed for a canner load of pint jars. For other sizes and numbers of jars, adjust the amount of water in the canner so it will be 1 to 2 inches over the top of the filled jars.

2. Preheat water to 140°F for raw-packed foods and to 180°F for hot-packed foods. Food preparation can begin while this water is preheating. Do not have the water boiling when you add the jars.

3. Fill, fit with lids, load onto the canner rack and use the handles to lower the rack into the water; or fill the canner with the rack in the bottom, one jar at a time, using a jar lifter. When using a jar lifter, make sure it is securely positioned below the neck of the jar (below the screw band of the lid). Keep the jar upright at all times. Tilting the jar could cause food to spill into the sealing area of the lid.

4. Add boiling water, if needed, so the water level is at least 1 inch above jar tops. Pour the water around the jars, not on them. For process times over 30 minutes, the water level should be at least 2 inches above the tops of the jars.

5. Turn heat to its highest position, cover the canner with its lid, and heat until the water in the canner boils vigorously.

6. Set the timer for the total minutes required for processing the food, adjusting for altitude.

7. Keep the canner covered and maintain a boil throughout the process schedule. The heat setting may be lowered a little as long as a complete boil is maintained for the entire process time. If the water stops boiling at any time during the process, bring the water back to a vigorous boil and begin the timing of the process over, from the beginning.

8. Add more boiling water, if needed, to keep the water level above the jars.

9. When the jars have boiled for the recommended time, turn off the heat and remove the canner lid. Wait no more than 5 minutes before removing jars.

10. Using a jar lifter, remove the jars without tipping and place them on a towel, leaving at least 1 inch spaces between the jars during cooling. Let jars sit undisturbed to cool at room temperature for 12 to 24 hours.
Atmospheric Steam Canning Process

1. Use a research tested recipe and processing time developed for a boiling water canner when using an atmospheric steam canner. An atmospheric steam canner may be used with recipes approved for half-pint, pint, or quart jars.

2. Add enough water to the base of the canner to cover the rack. (Follow manufacturer recommendations.)

3. Preheat water to 140°F for raw-packed foods and to 180°F for hot-packed foods. Food preparation can begin while this water is preheating. Do not have the water boiling when you add the jars.

4. Heat jars prior to filling with hot liquid (raw or hot pack). Do not allow the jars to cool before filling.

5. Load filled jars, fitted with lids, onto the canner rack and place the lid on the canner base.

6. Turn heat to its highest position to boil the water until a steady column of steam (6-8 inches) appears from the vent hole(s) in the canner lid. Jars must be processed in pure steam environment.

7. If using a canner with a temperature sensor, begin processing time when the temperature marker is in the green zone for your altitude. If using a canner without a temperature sensor, begin processing time when a steady stream of steam is visible from the vent hole(s).

8. Set the timer for the total minutes required for processing the food, adjusting for altitude. Processing time must be limited to 45 minutes or less, including any modification for elevation. The processing time is limited by the amount of water in the canner base. When processing food, do not open the canner to add water.

9. Monitor the temperature sensor and/or steady stream of steam throughout the entire timed process. Regulate heat so that the canner maintains a temperature of 212°F. A canner that is boiling too vigorously can boil dry within 20 minutes. If a canner boils dry, the food is considered under-processed and therefore potentially unsafe.

10. At the end of the processing time, turn off the heat and wait 2 to 3 minutes. Carefully remove the lid, lifting the lid away from you.

11. Using a jar lifter, remove the jars without tipping and place them on a towel, leaving at least 1 inch spaces between the jars during cooling. Let jars sit undisturbed to cool at room temperature for 12 to 24 hours.
Fresh Herb Jelly
*Source: Ball Complete Book of Home Preserving, 2012*

Makes about 5 (8 oz) half pints

You can customize the flavor of this versatile yet easy-to-make jelly by using different fresh herbs or herb combinations. Herb jelly is a tasty companion to cheese and crackers and makes a delicious glaze for roast and grilled meat.

2 cups loosely packed coarsely chopped herbs  
1-1/2 cups unsweetened apple juice or dry white wine  
1 cup water  
1 cup white wine vinegar  
6 tablespoons Ball® RealFruit™ Classic Pectin  
5-1/4 cups sugar

1. COMBINE herbs, apple juice, water and vinegar in a large stainless steel saucepan. Bring to a boil over medium heat. Remove from heat, cover and let steep for 15 minutes. Stir well, pressing herbs to extract flavor.
2. TRANSFER herb mixture to a dampened jelly bag or a strainer lined with several layers of dampened cheesecloth set over a deep bowl. Let drip, undisturbed, for 30 minutes. Measure 3 1/4 cups herbed juice.
4. TRANSFER herb juice to a clean large, deep stainless steel saucepan. Whisk in pectin until dissolved. Bring to a boil over high heat, stirring frequently. Add sugar all at once and return to a full rolling boil, stirring constantly. Boil hard, stirring constantly, for 1 minute. Remove from heat and quickly skim off foam.
5. LADLE hot jelly into hot jars leaving 1/4 inch headspace. Wipe rim. Center lid on jar. Apply band and adjust until fit is fingertip tight.
6. PROCESS filled jars in a boiling water canner for 10 minutes at 0-1,000 feet, 15 minutes at 1,001-6,000 feet, and 20 minutes above 6,000 feet. Remove jars and cool. Check lids for seal after 24 hours. Lid should not flex up and down when center is pressed.
Lime Mint Jelly
*Source: Ball Complete Book of Home Preserving, 2012*

Makes about 10 (8 oz) half pints

- 4 to 5 limes
- 3.5 oz mint leaves and stems
- 4-1/4 cups water
- 7 cups granulated sugar
- 3 pouches Ball® liquid pectin
- 4 tablespoons Crème de menthe liqueur

2. WITH vegetable peeler, sharp knife of zester, remove zest from limes; measure 3 1/2 tbsp. Cut limes in half, squeeze juice; measure 1/2 cup.
3. WASH mint, removing any brown leaves; discard stems and bottoms. Chop mint, by hand or in blender, until it resembles tea leaves. Combine lime zest, mint and water in a stainless steel saucepan.
4. BRING to a boil, reduce heat and simmer 15 minutes. Turn off heat, cover and let steep 20 minutes.
5. POUR mint infusion through a jelly bag or cheesecloth-lined sieve to collect juice. For clear jelly, strain 2 to 3 times through dampened triple-layer cheesecloth to remove mint particles.
6. COMBINE mint juice, sugar, mint liqueur and lime juice in a deep stainless steel saucepan; bring to a rolling boil; boil very hard 1 minute. Remove from heat, add liquid pectin and stir 1 minute.
7. POUR jelly into hot jars leaving 1/4 inch headspace. Remove air bubbles. Wipe rim. Center lid on jar. Apply band until fit is fingertip tight.
8. PROCESS jars in a boiling water canner for 10 minutes at 0-1,000 feet, 15 minutes at 1,001-6,000 feet, and 20 minutes above 6,000 feet. Remove jars and cool. Check lids for seal after 24 hours. Lid should not flex up and down when center is pressed.
Fig, Red Wine and Rosemary Jam
Source: www.freshpreserving.com, 2016
Yield: about 4 half-pint jars

1-1/2 cups merlot or other fruity red wine
2 tablespoons fresh rosemary leaves
2 cups finely chopped fresh figs
3 tablespoons Ball® Classic Pectin
2 tablespoons bottled lemon juice
2-1/2 cups sugar

1. Bring wine and rosemary to a simmer in a small stainless steel or enameled saucepan. Turn off heat; cover and steep 30 minutes.
2. Pour wine through a fine wire-mesh strainer into a 4-quart stainless steel or enameled saucepan. Discard rosemary. Stir in figs, pectin, and lemon juice. Bring mixture to a full rolling boil that cannot be stirred down, over high heat, stirring constantly.
3. Add sugar, stirring to dissolve. Return mixture to a full rolling boil. Boil hard 1 minute, stirring constantly. Remove from heat. Skim foam, if necessary.
4. Ladle hot jam into a hot jar, leaving 1/4-inch headspace. Remove air bubbles. Wipe rims. Apply lids and rings.
5. Process half-pint jars in a boiling water or atmospheric steam canner for 10 minutes at 0-1,000 feet, 15 minutes at 1,001-6,000 feet, and 20 minutes above 6,000 feet.
Lemon-Sage Wine Mustard  
*Source: Ball Complete Book of Home Preserving, 2012*

Yield: About 5 four ounce jars

1 bunch fresh sage  
3/4 cup dry white wine  
3/4 cup yellow mustard seeds  
1 cup white wine vinegar  
Grated zest and juice of 2 large lemons  
1/2 cup liquid honey  
1/4 teaspoon salt

1. Finely chop enough sage leaves to measure 1/3 cup and set aside. Coarsely chop remaining sage leaves and stems to measure 1/2 cup and place in a small non-reactive saucepan with white wine.
2. Bring to a boil over medium heat, stirring and pressing sage to release flavor.
3. Remove from heat. Cover tightly and let steep for 5 minutes.
4. Transfer sage infusion to a sieve placed over a non-reactive bowl and press leaves with the back of a spoon to extract all the liquid.
5. Discard solids and return liquid to saucepan. Add mustard seeds. Cover and let stand at room temperature until seeds have absorbed most of the moisture, about 2 hours.
6. In a blender or food processor, combine marinated mustard seeds (with liquid) and vinegar. Process until blended and most of the seeds are well chopped.
7. Transfer mixture to a non-reactive saucepan; add lemon zest and juice, honey, salt and reserved finely chopped sage leaves.
8. Bring to a boil over high heat, stirring constantly. Reduce heat to low and boil gently, stirring frequently, until volume is reduced by a third, about 20 minutes.
9. Ladle hot mustard into hot jars, leaving ¼ inch headspace. Remove air bubbles; adjust headspace if necessary.
10. Wipe rims; place lids and rings on jars. Process 4-oz jars in a boiling water or atmospheric steam canner for 10 minutes at 0-1000’, 15 minutes at 1,001-6,000’, and 20 minutes above 6,000’.
FREEZING FOODS

Freezing retains natural color, flavor and nutritive value of foods and is quick and simple to do. Freezing slows down the enzymes in herbs and vegetables that cause them to ripen and then decay.

**Freezing Pointers**
- Freeze foods at 0°F or lower. For rapid freezing of large quantities of foods, set the freezer temperature to -10°F 24 hours in advance.
- Freeze foods as soon as they are packed and sealed.
- Pack foods tightly in freezer approved containers, leaving as little air as possible in the package.
- Water in food freezes and expands creating ice crystals, which rupture cell walls of herbs and vegetables, making them softer when thawed. Large ice crystals do more damage to food cells and cause softer, mushier textures. Minimize the size of ice crystals by keeping the temperature consistent, removing air from the container, and freezing the food quickly.

** Blanching Vegetables**
- Blanching (scalding vegetables in boiling water for a short time) is a must for almost all vegetables to be frozen. It stops enzyme actions, which can cause loss of flavor, color and texture.
- Blanching cleanses the surface of dirt and organisms, brightens the color and helps retard loss of vitamins. It also wilts or softens vegetables and makes them easier to pack.
- Blanching time is crucial and varies with the vegetable and size. Under-blanching stimulates the activity of enzymes and is worse than no blanching. Over-blanching causes loss of flavor, color, vitamins and minerals.

**Water Blanching**
- Use one-gallon water per pound of prepared vegetables.
- Put the vegetables in a blanching basket and lower into vigorously boiling water.
- Place a lid on the blancher. The water should return to boiling within 1 minute, or you are using too much vegetable for the amount of boiling water.
- Start counting blanching time as soon as the water returns to a boil. Keep heat high for the time given in the directions for the vegetable you are freezing.
Cooling Vegetables
As soon as blanching is complete, cool vegetables quickly and thoroughly to stop the cooking process.

- Plunge the basket of vegetables immediately into a large quantity of cold water, 60°F or below.
- Change water frequently or use cold running water or ice water. If ice is used, about one pound of ice for each pound of vegetable is needed.
- Cooling vegetables should take the same amount of time as blanching.
- Drain vegetables thoroughly after cooling. Extra moisture can cause a loss of quality when vegetables are frozen.

Freezer Shelf Life

- Freezing cannot improve the flavor or texture of any food, but when properly done it can preserve most of the quality of the fresh product.
- Frozen herbs and greens last 8-12 months, assuming the food has been prepared and packaged correctly and stored in the freezer at or below 0°F. For best quality use the shorter storage times. After these times, the food should still be safe, just lower in quality.

Freezing Fresh Herbs

- Wash, drain and pat dry with paper towels. Wrap a few sprigs or leaves in freezer wrap and place in a freezer bag. Remove air from bag, seal and freeze.
- Frozen herbs can be chopped and used in cooked dishes. These usually are not suitable for garnish, as the frozen product becomes limp when it thaws.

Freezing Greens (Including Spinach)

- Select young, tender green leaves. Wash thoroughly and cut off woody stems. Water blanch collards 3 minutes and all other greens 2 minutes.
- Cool, drain and package, leaving 1/2-inch headspace. Seal and freeze.

Source: National Center for Home Food Preservation
Poultry Seasoning
https://www.freshpreserving.com/poultry-seasoning---ball-recipes-br1820.html
Makes about 2 cups seasoned butter or 9 Herb Starter Cubes

1-1/2 cups salted butter
2/3 cup finely chopped fresh herbs, such as sage, thyme and/or rosemary.
Ball® Frozen Herb Starters for freezing

1. MELT butter in small saucepan.
2. DIVIDE chopped herbs between Ball Herb Starter Cubes and pour melted butter over herbs to cover; freeze.
3. THAW and rub over poultry before roasting, or use to season stuffing, rice or vegetables.

Quick Tip: To thaw cubes, remove from tray and defrost in refrigerator or at room temperature. To quickly thaw, place in a microwave-safe measuring cup and microwave on HIGH 15-20 seconds until softened.

Lemon Dill Sauce
https://www.freshpreserving.com/lemon-dill-sauce---ball-recipes-br1819.html
Makes about 2 cups sauce or 9 Herb Starter Cubes
Great, easy way to add a little spice to your fresh fish or veggies.

2 sticks salted butter
1/4 cup olive oil
3/4 cup finely chopped shallot
3/4 cup dry white wine
1/4 cup Dijon mustard
1/4 cup lemon juice
1/4 cup chopped fresh dill
Ball® Frozen Herb Starters

1. MELT butter with olive oil in large skillet and sauté shallot until softened. Add wine and simmer on low heat until reduced by half. Stir in mustard and lemon juice and simmer 2 minutes or until slightly thickened. Remove from heat and stir in dill.
2. POUR sauce into the Ball Frozen Herb Starter tray, cover until ready to use. Serve with salmon, potatoes, asparagus and/or your favorite seafood and veggies.
Carrot Greens Chimichurri
Makes: about 1 cup
Serve with roasted carrots, other veggies, toasted bread, or over grilled fish or meat.

1 cup finely chopped carrot greens (preferably organic)
2 teaspoons dried oregano
1/4 teaspoon cumin
1 teaspoon ground sweet paprika
1/2 teaspoon crushed red pepper flakes
1 garlic clove, minced
1 teaspoon salt
a few grinds of pepper
1/4 cup white wine vinegar
1/4 cup olive oil (a good fruity one)

1. Wash and dry your carrot greens well. Roast in a 450 degree oven for 10-15 minutes (or until tender but not mushy).
2. Finely chop the carrot greens, mix with all of the dried spices and minced garlic.
3. Stir in the vinegar and olive oil. Taste and adjust seasonings. (tip: taste it with a carrot or a piece of bread rather than by the spoonful)
4. Store in an air tight container at room temperature. It'll keep for quite awhile, but will not look as vibrant green after a few days.

If you find this too oily or vinegary, dilute it with 1/4-1/2 cup of lukewarm water. Mix well and spoon it onto whatever you're serving it with, rather than dipping into it.

Variation: Use parsley instead of carrot tops, an additional 1/4 cup of olive oil, 1/2 cup water, 1 additional clove of garlic, and 1 additional teaspoon of sweet paprika. Adapted from Fernando’s Mom’s Chimichurri recipe, loveandlemons.com

Herb Butter Cubes
https://www.freshpreserving.com/herb-butter-cubes-br1701.html

Your choice of herbs:
1. PUREE chopped herbs and garlic (if using) in the bowl of a food processor. Add softened butter and blend to combine.
2. SPOON herb butter puree into the Ball Frozen Herb Starter tray, cover and freeze until ready to use.
Italian Supreme Herb Combination

1/4 cup chopped fresh basil
2 tablespoons chopped fresh oregano
2 tablespoons chopped fresh fennel
3 large minced garlic cloves

1. COMBINE ingredients. Divide between herb cubes.
2. ADD enough water to cover.
3. FREEZE.

Chimichurri
https://www.freshpreserving.com/chimichurri---ball-recipes-br3549.html#q=chimicurri&start=2
Makes about 4 four oz. jars

Full of herbs and spices, this vinegary sauce hails from Argentina, known for their perfect grilled meats, and is an essential condiment on every table.

3 garlic cloves
4 cups fresh parsley leaves
1 cup chopped fresh cilantro
1 cup olive oil
1/3 cup red wine vinegar
1 teaspoon lemon zest
1/4 cup fresh lemon juice (about 2 large lemons)
3/4 teaspoon salt
1/2 teaspoon freshly ground black pepper

1. With processor running, drop garlic through food chute; process until minced. Add parsley and remaining ingredients; process until smooth.
2. Use immediately, or spoon into jars, leaving 1/2-inch headspace. Center lid on jars. Apply bands, and adjust loosely.
3. Once sauce is frozen, adjust bands to fingertip-tight.
4. Store in freezer 6 months.
5. Thaw in refrigerator. Refrigerate after thawing, and use within 3 weeks.
Preserving Food: Flavored Vinegars

Vinegars garnished with sprigs of herbs or a layer of berries are a hot "splash" right now. They are favored by chefs for adding excitement to special dishes. Cooking at home is also enlivened by tantalizing tastes from the blending of flavors with vinegar. Flavored vinegars are easy and fairly safe to make at home, provided some simple precautions are followed.

Getting Ready

Jars and Bottles - Only glass containers are recommended for your flavored vinegars. Use glass jars or bottles that are free of cracks or nicks and can be sealed with corks, screw-band caps or two-piece canning lids. Wash containers thoroughly in warm, soapy water and rinse well. (A good bottle brush is a big help for narrow containers.) Then sterilize the clean, warm jars or bottles by completely immersing them in water and boiling for 10 minutes. Prepare the sterilizing bath before you wash the jars, or keep the clean jars in warm water until you are ready to put them in for sterilizing.

The best way to prevent breakage is to use a deep pot with a rack in the bottom, such as a boiling water canner. Fill the canner or pot at least half full with warm water. Place the empty, warm jars or bottles upright on the rack and make sure the water level is 1 to 2 inches above the tops of the jars. Bring the water bath to a boil, and continue boiling for 10 minutes. The jars should stay below the boiling water the entire time.

After 10 minutes of boiling, remove the jars or bottles from the water and invert on a clean towel. Use canning jar lifters or tongs that grab the containers without slipping. Fill the jars with your vinegar while they are still warm.

Lids and Caps - If using screw caps, wash in hot soapy water, rinse and scald in boiling water. (To scald, follow manufacturer’s directions, or place caps in a saucepan of warm water, heat to just below boiling and then remove from the heat source. Leave caps in the hot water until ready to use.) Use non-corrodible metal or plastic screw caps. If using corks, select new, pre-sterilized corks. Use tongs to dip corks in and out of boiling water 3-4 times. Prepare two-piece metal home canning jar lids according to manufacturer’s directions for canning. If using these lids, allow enough headspace between the lid and the vinegar so that there is no contact between them. Plastic storage screw caps that are made for canning jars are also now available and would work well for flavored vinegars.

Herbs - Allow 3 to 4 sprigs per pint (2 cups) of vinegar. Use very fresh herbs, picked before blossoming, for best flavor. It is best to pick fresh herbs soon after the morning dew has dried. Use only the best leaves or stems, discarding discolored, nibbled, crushed or dried out pieces. Wash the fresh herbs gently but thoroughly. Blot dry on clean paper towels. After herbs are washed and dried, dip them in a sanitizing bleach solution of 1 teaspoon of household chlorine bleach in 6 cups of water. Rinse thoroughly under cold water and pat dry with clean paper towels.
Dried herbs may be substituted if necessary; allow 3 tablespoons dried herbs per pint of vinegar.

**Fruits, Vegetables and Spices** - Favorite fruits for flavoring vinegars are usually raspberries, blackberries, strawberries, peaches, pears and the peel of lemons and oranges. Sometimes they are combined with herbs or spices such as mint or cinnamon. Other popular flavorings include peeled garlic cloves, jalapeno or other peppers, green onions, peppercorns or mustard seed.

Thoroughly wash all fruits and vegetables with clean water; peel if necessary before use. Small fruits and vegetables may be left whole or halved. Larger ones, such as peaches, may need to be sliced or cubed. Allow 1 to 2 cups of fruit per pint of vinegar, or the peel of one orange or lemon per pint of vinegar. Garlic cloves, peppers and chunks of firm fruit may be threaded on clean, thin bamboo skewers for easy insertion and removal.

**Vinegar** - Several types of vinegar may be used, but not all give the same results. Distilled white vinegar is clear in color and has a sharp acidic taste by itself. It is the best choice for delicately flavored herbs. Apple cider vinegar has a milder taste than distilled white vinegar, but the amber color may not be desirable. Apple cider vinegar blends best with fruits. Wine and champagne vinegars are generally more expensive than distilled and cider vinegars, but are more delicate in flavor. White wine and champagne vinegars work well with delicate herbs and lighter-flavored fruits. Red wine vinegar would work well with spices and strong herbs like rosemary, but will mask the flavor of most herbs. Rice vinegar is a mild, slightly sweet vinegar used occasionally for flavoring. Be aware that wine and rice vinegars contain some protein that provides an excellent medium for bacterial growth, if not handled and stored properly. For added safety, use only commercially produced vinegars.

**Flavoring the Vinegar**

Place the prepared herbs, fruits and/or spices in the sterilized jars. Avoid overpacking the jars; use 3 to 4 sprigs of fresh herbs, 3 tablespoons of dried herbs, 1 to 2 cups of fruit or vegetables, or the peel of one lemon or orange per pint of vinegar to be flavored. If using basil, 1/2 cup of coarsely chopped leaves may also be used.

Often it is preferred to "lightly bruise" mint leaves or the sprigs of fresh herbs to release the flavors and shorten the flavoring process a little. If using dried bay leaves, leave whole for easy removal. A small slit may be cut in whole jalapeno peppers or peeled garlic cloves; wear plastic gloves when working with peppers.

Berries may also be "lightly bruised" as they are put in your container. When using orange or lemon peel, thinly cut off only the colored portion, avoiding the thick white underside. Try to cut the peel in a continuous or long spiral for easy removal later on.

Heat the vinegar to just below the boiling point, or at least 190-195° F. Pour over the flavoring ingredients in jars, leaving 1/4 inch headspace. Wipe rims of jars with a clean, damp cloth. Attach lids, corks or screw caps tightly. Let sit to cool undisturbed.

Store in a cool, dark place. Let sit undisturbed for 3 to 4 weeks to develop flavors. Strain the vinegar through a damp cheesecloth or coffee filter one or more times until the vinegar shows no cloudiness. (Skewers of vegetables may be removed first.) Discard the fruit, vegetables and/or herbs.

Prepare jars and lids as before for final bottling steps. Pour the strained vinegar into clean sterilized jars and cap tightly. A few clean berries or a washed and sanitized sprig of fresh herb may be added to the jars before closing, if desired.

* A Note About Checking Flavors: It takes at least 10 days for most flavors to develop and about 3 to 4 weeks for the greatest flavor to be extracted. However, desired flavors are a matter of personal taste. Crushing, "bruising", or chopping fruits, herbs and vegetables before adding them to jars can shorten the flavoring process by about a week or so. To test for flavor development, place a few drops of the vinegar on plain white bread and taste. If the flavor has developed to a pleasing point for you, strain the vinegar and continue as above. If flavors seem too strong after the standing time and straining, dilute the flavored vinegar with more of the base vinegar that was used in preparing the recipe.
**Storing the Vinegar**

Store the flavored vinegars in a cool, dark place. Refrigeration is best for retention of freshness and flavors. Date the bottles or jars when they are opened. If properly prepared and bottled, flavored vinegars should keep for up to 3 months in cool storage. Fruit vinegars in particular may start to brown and change flavor noticeably after that. Refrigeration of all flavored vinegars may extend the quality for 6 to 8 months. Always keep vinegar bottles tightly sealed. After six months, even if there is no sign of spoilage, taste the vinegar before using to make sure the flavor is still good. If a flavored vinegar ever has mold on or in it, or signs of fermentation such as bubbling, cloudiness, or sliminess, throw it away without using any of the vinegar for any purpose.

Herbed and fruited vinegars are often displayed on sunny window sills and shelves as decorative room additions. If stored in this manner for more than a few weeks, these bottles should be considered as permanent decorations and not used in food preparation.

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**Significance of Safety Concerns**

As long as clean and high-quality ingredients (vinegar and herbs, vegetables or fruits) are used, the greatest concern with homemade flavored vinegars should be mold or yeast and then having to throw out your product. If your flavored vinegar starts to mold at any time, or show signs of fermentation such as bubbling, cloudiness or sliminess, discard the product and do not use any of it that is left.

Some harmful bacteria may survive and even multiply slowly in some vinegars. It is important to follow directions carefully, store flavored vinegars in the refrigerator or cool places, and work in a very clean area with sanitary utensils. Also be sure hands are very clean while you work!

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**References:**


**Suggested Flavorings**

**Herbal-Mix Vinegar**
For each pint jar of distilled white or wine vinegar to be flavored, make a bouquet from 3 sprigs each of fresh parsley, rosemary and thyme. Lightly crush before placing in jars.

**Fresh Tarragon Vinegar**
For each pint jar of distilled white or white wine vinegar to be flavored, use 3 (3 inch) sprigs of fresh tarragon, or 1 cup of fresh tarragon leaves and stems. Lightly crush before placing in jars.

Variation: Also add 1/3 cup minced fresh chives to each pint of vinegar, along with the tarragon.

**Lemon-Dill-Peppercorn Vinegar**
For each pint jar of distilled white vinegar to be flavored, use the spiral peel (colored part only) of 1 lemon, 4 sprigs of fresh dill, and 1/2 teaspoon whole black peppercorns. (This is especially good in marinades for fresh seafoods or salad dressings.)

**Spicy Parsley Vinegar**
For each pint jar of distilled white vinegar to be flavored, use 3 to 4 sprigs of fresh parsley, 1/2 teaspoon whole mustard seeds, and 1/2 teaspoon whole allspice.

**Raspberry Vinegar**
Wash 2 cups fresh raspberries gently but thoroughly. Bruise slightly with the back of a spoon or by rolling gently in waxed paper. Place in a sterilized quart glass canning jar. Heat 3 cups of vinegar to just below the boiling point and pour over the raspberries. Cap tightly and allow to stand 2 to 3 weeks in a cool, dark place. Strain vinegar through damp cheesecloth and discard fruit. Pour vinegar into clean, sterilized glass jars or bottles. Seal tightly. Store in the refrigerator for best quality and flavor. (This is especially good in dressings for mixed greens or fruit.)