



CMG GardenNotes #731

Herb Gardening

Outline: Ground Production, page 2
Light, page 2
Soil, page 2
Water, page 2
Pruning, page 2
Harvesting, page 2
Container Production, page 3
Container Type, page 3
Light, page 3
Soil, page 3
Water, page 3
Common Herbs, page 4
Chervil – *Anthriscus cerefolium*, page 4
Chives – *Allium schoenoprasum*, page 4
Cilantro/Coriander – *Coriandrum sativum*, page 5
Dill – *Anethum graveolens*, page 5
Fennel – *Foeniculum vulgare*, page 6
Horseradish – *A Armoracia rusticana*, page 6
Mint – *Mentha* spp., page 7
Oregano – *Origanum vulgare*, page 7
Parsley – *Petroselinum crispum*, page 8
Rosemary – *Rosmarinus officinalis*, page 8
Sage – *Salvia officinalis*, page 9
Sweet Basil – *Ocimum basilicum*, page 9
Sweet Bay – *Laurus nobilis*, page 10
Sweet Marjoram – *Origanum majorana*, page 10
Tarragon – *Artemisia dracunculus*, page 11
Thyme – *Thymus vulgaris*, page 11

From every lifestyle and corner of the globe, humans and herbs have shared history. Throughout ancient Egypt, Mesopotamia, Africa, India, and China, some of the earliest herb gardens have served us with medicinal, religious, and culinary staples; they have perfumed bodies, disinfected houses, and repelled insects. Herb gardens as we conceive them today began in places such as monasteries and Islamic gardens: the habit of growing similar plants in symmetrical blocks.

[Figure 1]

Herbs are defined as any plants or plant parts valued for “medicinal, savory, or aromatic qualities.” By this definition, herbs can be trees, shrubs, herbaceous perennials, annuals, vines, or lower plants. The method of use is one of the most common classifications including: culinary, ornamental, medicinal, aromatic, and



Figure 1. Herb Garden at Government House, Victoria, BC.

economic/industrial (dyes, cosmetics, pesticides, etc.). They can also be grouped by length of growing period, and whether they are annuals or perennials.

Herbs can be grown directly in the ground or in containers. Containers can be placed outdoors, indoors, or moved back and forth based on the season and plant needs.

Ground Production

Light

Light is the most important consideration when choosing the placement of herbs in a garden. In general, herbs need a minimum of six hours of full/direct sunlight daily. In Colorado, west and south exposures are ideal for growing herbs. Some herbs may need protection from hot afternoon and evening sun to preserve the flavor/intensity of the plant.

Soil

Most herbs prefer well-draining soil. Colorado soils tend to be low in organic matter and therefore will likely need amending with plant-based compost. Mix the organic matter in with the soil as deep as the expected root depth, usually twenty-four inches or more. All soil amendments need to take place before planting.

Soil pH level is also important. Many herbs thrive in a pH of 6-6.5, just below neutral. However, the pH of most soils in Colorado tends to be high or alkaline, which is difficult to correct. This is when container growing may prove beneficial.

Before the first frost, plants should be covered with a layer of straw for extra protection from winter damage and winter kill. Periodic watering throughout the winter season will aid in plant root health.

Water

Many herbs originate from around the Mediterranean. Most herbs, like fennel, prefer warm and dry locations. Some exceptions, such as mints, parsley, cress, or chervil, thrive in higher moisture levels. Most plant tags provide watering information or can be investigated online.

Diseases are common on many herbs and spread by splashing water, especially onto plant leaves. Therefore, drip irrigation is recommended, as it prevents disease and conserves water. Water plants at the base, not the top of the plant. Ensure plants get regular water but allow the soil to dry before watering again.

Pruning

Most herbs need to be pruned in early spring to control growth, especially woody herbs. Make sure to remove all dead and damaged branches and stems. A mid-summer pruning can also be beneficial. However, at that time, only shorten the branches by one-third to one-half their length, making sure to leave some greenery and growth nodules (nodules look like bumps or scars) on the stems. Some herbs have more detailed or special pruning needs.

Harvesting

The best time to harvest is in the morning, after the dew has dried, on a day with no rain. Harvest no more than one-third of perennial plants at a time. Harvest annuals to about four inches tall, allowing for a second growth that can be harvested later that season.

Container Production

Container Type

Take into consideration what material the container is made of: ceramic, clay, plastic, or wood. There are good and bad aspects to all types. Plastic containers work well during the summer in hot environments but need a heavier potting media to provide support for the plants. Plastic holds water in, is lightweight, and restricts air movement. Clay pots are good for support and air movement, but can be heavy, hard to move, and require more frequent watering and may break down over time. Wood containers have better air movement, but also need more frequent watering. Ceramic pots typically have glazing on the outside, so they restrict air movement but hold water well. For more information view Colorado Extension Fact Sheet #7.238, *Container Gardens*, <https://extension.colostate.edu/topic-areas/yard-garden/container-gardens-7-238/>.

Light

Herbs need the same amount of direct sunlight in containers as when planted in the ground. Place containers appropriately for this consideration. Inside the house, they should be placed by west and/or south facing windows. If they still cannot get the correct amount of light indoors, supplemental lighting can be used. Growing lights can be purchased at garden centers and most major hardware stores. Modern LED grow lights can provide the required lighting needs of fourteen to sixteen hours a day.

Rotate containers periodically to allow the light to reach all sides of the plants equally. This will enable healthy and balanced growth.

Soil

Soiless media is common for container use; it looks like soil but is lighter weight and holds water and nutrients well. Soil mixes are also available but need to be free of weed seeds, insects, and diseases. Putting soil directly from the ground into a container does not work well because it will not provide adequate drainage and air movement.

Mix controlled-release fertilizer into the media at planting time, then fertilize every week or two with a water-soluble fertilizer to maintain fertility.

Water

Containers tend to dry out more quickly than ground soil. Therefore, containers require more frequent watering. Frequency of watering is dependent on whether the pot is porous, like wood and clay, or not. Herbs that have similar water requirements can be placed together. Dill, cilantro, and parsley like similar amounts of water, so they can be planted together.

Outdoors, containers need more water more frequently. Containers indoors should be monitored to make sure they are not overwatered and that they don't attract pests or develop diseases like powdery or downy mildew. In the peak heat of the season watering may need to happen several times a day, less in cooler shoulder seasons.

Water container plants at the base, not the top of the plant.

Common Herbs

Chervil – *Anthriscus cerefolium*. [Figure 2]

Part of the Carrot family, chervil is a short-lived, cold hardy **annual**. The foliage is aromatic, and the leaves have culinary uses. Chervil grows between twelve to twenty-eight inches tall and nine to twelve inches wide. Moist, cool, and well-draining soil is best; seed germination will not take place if the soil is too warm and dry.

Chervil likes part shade in the spring and fall, full sun in the winter and full shade in the summer, so a partially shaded spot is best. Chervil doesn't do well indoors.

Chervil is propagated through seed in the spring. Wait until the plants are four inches tall before harvesting leaves. Harvest the outermost stems first, but only until summer flowering. Common chervil pests are slugs, caterpillars, and, rarely, powdery mildew.

Chives – *Allium schoenoprasum*. [Figure 3]

Chives are hardy **perennials** belonging to the Onion family. The main use is culinary (using the foliage), but they are also aromatic and occasionally ornamental, attracting a bounty of pollinators to their blooms. They grow twelve to twenty-four inches tall and twelve to eighteen inches wide in full sun. They do best with moist soil that is not constantly wet. Chives grow in hardiness zones 3-9. Flowering comes during late spring and early summer. Cut back the stalks after blooming.

Plant bulbs or through division in the fall and the first growth might be as early as March. Divide clumps every three years. Harvest the outside leaves first. Harvest about every four to six weeks during the growing season. Harvest frequently, even if not needed, for best plant growth.

Chives grow well both in the ground and in containers, indoors and outside. However, they are susceptible to powdery mildew, downy mildew, rusts, and onion smut. So, when growing chives indoors, carefully monitor the amount of water applied so as to not increase the chances of disease. Chives grown in the ground can spread rapidly with sufficient watering so be sure to cut back or contain the plants.



Figure 2. Chervil



Figure 3. Chives

Cilantro/Coriander – *Coriandrum sativum*. [Figure 4]

The leaves of Coriandrum are called “cilantro” while the seeds are coriander. As part of the Carrot family, Coriandrum is an **annual** that grows between one to three feet tall and four to twelve inches wide. Growth is best in full sun with moist but not constantly wet soil. The foliage is aromatic, and the plants have economic and culinary uses. Flowering takes place in summer.

Coriandrum should not be planted near fennel because it inhibits fennel seed production. Propagate by seed in the spring and fall, but germination is unpredictable. Stems need staking once seeds set and begin to ripen.

Cilantro should be harvested when the leaves are young, starting with the outermost leaves. Harvesting leaves should not take place after flowering. Coriander should be harvested when half of the seeds are still green, and the other half has ripened to gray.

Fusarium wilt, leaf and flower spot, and powdery mildew are problems for Coriandrum. Outdoors, caterpillars feeding on the foliage can also be pests.

Dill – *Anethum graveolens*. [Figure 5]

An **annual** that grows about twenty to forty-eight inches tall belonging to the Carrot family, dill has ornamental flowers, aromatic value, and culinary uses for the foliage. They like full sun and moist, medium-heavy soil that drains well. Plant dill in a sheltered location to protect it from the wind. Stake it, if needed once the plant reaches eighteen inches or taller. It will cross pollinate with Fennel planted nearby.

Start dill from seed; it does not tolerate transplanting well. Avoid overcrowding by thinning seedlings when they reach twelve inches tall. Pruning in the summer can promote new growth. Dill can spread rapidly in a garden setting and can become weedy if new seedlings are not managed appropriately.

Dill is susceptible to Fusarium root rot, especially in containers. Slugs and parsley worm, which is the larvae of the tiger swallowtail butterfly, can damage plant foliage and roots.



Figure 4. Cilantro



Figure 5. Dill

Fennel – *Foeniculum vulgare*. [Figure 6]

Another member of the Carrot family, fennel is an herbaceous **annual**. The foliage is aromatic, the seeds and bulbs have culinary uses, and the plant is used economically to make products like perfumes and cosmetics. Butterflies are attracted to fennel.

Full sun and moist but well-draining soil are best, yet fennel is drought tolerant and does well in hardiness zones 4-10. Fennel grows about six inches tall and eighteen inches wide. Do not plant near other crops such as bush beans, kohlrabi, or tomatoes because there is some evidence that fennel may inhibit their growth. Fennel doesn't grow well indoors.

Propagate by seed in the spring or divide bulbs in early spring. Due to heavy self-sowing, cut back flower heads before seed set unless seeds are desired.

Harvest the leaves any time during the growing season. Harvest seeds for fresh use in the summer and for drying in the fall.

Fennel is susceptible to *Cercospora* leaf spot and mycoplasma. Slugs and aphids are also problematic.

Horseradish – *A Armoracia rusticana*.

Belonging to the Mustard family, horseradish is a hardy herbaceous **perennial** that grows one to four feet tall. It likes full sun and moist soil but can be slightly drought tolerant. Hardiness zones 3-10 are optimum. Contact with the sap can cause skin irritation. Both roots and leaves have culinary uses.

This plant is very invasive; once planted, horseradish is difficult to remove. Planting in containers can prevent this, but division and repotting are necessary. Division is the best form of propagation and should be done in early spring. Horseradish needs frequent watering, so the roots don't become woody.

Only the larger roots should be harvested. Harvest in the spring and/or fall. Leaves are harvested when young, especially in the spring.

Horseradish is susceptible to white rust and bacterial leaf spot. The cabbage caterpillar is also a common pest.



Figure 6. Fennel

Mint – *Mentha* spp. [Figure 7]

As herbaceous **perennials**, mints grow in hardiness zones 4-9. They are aromatic and can be used for culinary purposes. Mints grow well in full sun to partial shade with well-draining, moist soils. Different species of mint should be grown separately to prevent cross breeding.

Mints are vigorous growers and can take over a garden, so border the plants with deep edging or put them in containers that are then planted into the ground to prevent spreading. Division is necessary every three years, replanting the young growth for reestablishment.

Traditional container production works well. However, the pot's soil should never be allowed to dry out and, due to the fast growth rate, frequent division and repotting is necessary. Divide during spring or fall.

Harvest for fresh crops any time during the growing season. Mint harvested for drying should be taken before flowering. Flowering can cause bitterness.

Rust is a major disease of mint, but has no form of management, so any plants showing rust should be thrown out. Verticillium wilt, a fungal disease, is also of concern. No treatment is available; remove and destroy infected plants.

Oregano – *Origanum vulgare*. [Figure 8]

Oregano is a hardy **perennial** belonging to the Mint family. Height and width reach twelve to thirty-six inches with summer blooming flowers. Oregano likes full sun and well-draining, slightly alkaline soil. The leaves are used for culinary purposes and the foliage is aromatic. Hardiness zones 4-9 are optimum.

Propagate by seed in the spring or fall. Cutting and division propagation takes place in the spring. Division can also be done after flowering. Cut back after flowering.

Container growth is successful in Colorado if plants are brought indoors during winter. Indoors, nighttime temperatures should be between 40-50°F. During the day, temperatures should be raised a few degrees. Be careful not to overwater during winter, this increases plant susceptibility to stem and root rots as well as Fusarium wilt. Harvesting can take place any time.



Figure 7. Mint



Figure 8. Oregano

Parsley – *Petroselinum crispum*. [Figure 9]

A biennial grown like an **annual**, parsley belongs to the Carrot family. The height is twelve to thirty-two inches and width twelve to twenty-four inches. Hardiness zones 5-9 are the most suitable. Parsley likes full sun to partial shade and neutral to slightly alkaline, moist, well-draining soil. Parsley is allelopathic, suppressing growth of nearby plants by chemicals released from leaves and roots.

Parsley is propagated by seed from spring to late summer, growing well both outdoors and in containers. Cut flower stalks back when they first begin to grow to prolong leaf harvest; leaves are no longer good for harvesting after bloom. Harvesting only a small amount at a time can also prolong growth. Parsley can be taken any time during the season.



Figure 9. Parsley

Many pests attack parsley. Carrot fly, celery fly, cabbage loopers, beet armyworms, carrot weevils, corn earworms, flea beetles, leaf hoppers, and slugs are problematic. Parsley is susceptible to a few diseases as well: Pythium (damping off), Septoria leaf spot, and aster yellows.

Rosemary – *Rosmarinus officinalis*. [Figure 10]

As a member of the Mint family, Rosemary is a shrubby, tender perennial grown as an **annual** in Colorado, which grows three to six foot tall and wide. Hardiness zones 7-11 are best. Grow in full sun with moist, well-draining soil. Container production is best in Colorado because they do not thrive in cold. Rosemary is aromatic and the leaves, stems and flowers have culinary uses.

Most often propagation is done by cuttings. Rosemary should be repotted and/or divided frequently to prevent from becoming root bound.



Figure 10. Rosemary

Avoid overwatering to prevent root rots or bacterial leaf spots. Light pruning after flowering is beneficial. Do not apply fertilizers until after flowering. Leaves and flower tops are harvested in the spring and early summer.

Sage – *Salvia officinalis*. [Figure 11]

Sage is a **perennial** in the Mint family growing two to three foot tall and wide in hardiness zones 5-8. Along with the leaves being used for culinary purposes, sage is aromatic and ornamental. Full sun in moist, well-draining soil is best. Flowers bloom in the summer.

Sage is propagated by seed and cuttings in the spring. Pinch branch tips often throughout the first summer. Prune in the spring and after the flowers bloom in the late summer. Replace sage every four to five years to avoid having plants become too woody.

If planted in the ground, apply fertilizer when growth first begins in the spring and in the first week of June. Sage grows well in containers if fertilized monthly. However, take care that container sage is not over watered, allowing the media to slightly dry between irrigation.

In the first year only harvest the leaves once in the fall from the top three to five inches of the plant. In the following years two to three leaf harvests can be taken at any time.

Sage is susceptible to rust, powdery mildew, stem rot and fungal leaf spots. These can, for the most part, be prevented by not overwatering.

Sweet Basil – *Ocimum basilicum*. [Figure 12]

Basil is a tender **annual** that grows twelve to twenty-four inches tall and six to fifteen inches wide that is part of the Mint family. Besides culinary uses, basil is also aromatic and ornamental. Moist, but well-draining, medium-textured soil, full sun and wind protection are the proper growing environment.

Propagate by seed in the spring and cuttings in the summer. Pinch to prevent flowering if leaves will be harvested for culinary purposes.

The first leaf harvest is done when the plant is one foot tall or has six leaves (all should be taken.) Plants can also be cut back to six inches when flowering takes place. Main harvesting is during the summer picking the leaves from top to bottom. When growing in high temperature areas, like Colorado, harvesting can take place as often as every three weeks.

Inspect plants for Fusarium and Rhizoctonia, which can cause damping off. A good preventative measure is not overwatering.



Figure 11. Sage



Figure 12. Sweet Basil

Sweet Bay – *Laurus nobilis*. [Figure 13]

Bay is part of the Laurel family. It is a **perennial** tree that can grow ten to sixty feet tall and twelve to thirty feet wide. Along with culinary use of the leaves, bay is aromatic and ornamental. It grows in full sun with moist, well-draining soil and is slightly drought tolerant. Bay is not suited to landscapes in Colorado; it is hardy in zone 8.

Propagate by layering in the spring or fall. Bay is difficult to propagate any other way. However, division is possible and should be done if any offshoots come up.

Despite its size, bay does very well when grown in pots. In Colorado it is best to grow bay in containers that are placed in a sheltered spot to protect the plants from wind damage in the summertime. During winter, bay needs to be brought indoors with night temperatures going no higher than 50°F and the day temperatures only a few degrees above that. Media should be allowed to dry between irrigation during the winter.

Apply fertilizer every other week during spring and summer. Prune to shape bay trees in the summer. Cut back plants to the base every winter to encourage new growth for the next year.

Because bay is an evergreen, the leaves can be harvested any time. Scale insects are the only pests that harm bay plants.

Sweet Marjoram – *Origanum majorana*.

As part of the Mint family, sweet marjoram is an herbaceous **perennial** that is tender and treated like an annual in Colorado. Marjoram is aromatic, ornamental and the leaves are used in cooking. The height ranges twelve to forty inches and the width twelve to eighteen inches. Full sun and a slightly alkaline, well-draining soil are ideal. Flowering occurs in the summer.

Because of tenderness marjoram belongs in hardiness zones 9-10. Due to Colorado's lower hardiness zones, sweet marjoram does best when grown in containers indoors. However, be careful not to overwater, especially in winter.

Propagate by seed in spring and/or fall. Cuttings are taken from spring to early summer. Cut back plants after flowering is over. Harvest any time during the season for both fresh and dry leaves, but some prefer to harvest before flowering if it is to be dried.



Figure 13. Sweet Bay

Tarragon – *Artemisia dracunculus*. [Figure 14]

Tarragon belongs to the Daisy family. A hardy herbaceous **perennial** used for aromatic, culinary, and economic purposes (products like perfumes and detergents.) Height ranges eighteen to forty-eight inches tall, twelve to fifteen inches wide. Full sun and well-draining soil are important. Drought tolerance helps them to thrive in warm and dry environments and in hardiness zones 3-7.

Propagate by seed in the spring, but tarragon in the garden rarely, if ever, produces seed. Cuttings can be taken in the summer. They should be divided every three to five years in spring or fall. Summer flowers should be removed. Cut back to the base in the fall.

Harvest for fresh leaves any time during the growing season. When harvesting for freezing, leaves should be taken during the summer.

Tarragon is susceptible to rust. Any plants showing rust should be discarded.

Thyme – *Thymus vulgaris*. [Figure 15]

Belonging to the Mint family, thyme is a **perennial**. They grow six to fourteen inches tall and eight to sixteen inches wide in full sun with moist, well-draining, slightly alkaline soil. Thyme can manage drought conditions in hardiness zones 4-9. Flower tops and leaves have culinary uses, and the foliage is aromatic.

Seed propagation takes place in the spring. The preferred methods of propagation are division in the spring and cuttings in the summer. Thyme grows well in containers, especially indoors. Do not overwater due to root rot susceptibility.

A heavy early spring pruning of one-half to one-third of the stem length is healthy for the plant. Light pruning should be done after flowering in the summer.

Harvest the plant when four inches tall in the middle of summer and again at the end of the growing season.



Figure 14. Tarragon



Figure 15. Thyme

Authors: Carol O'Meara, CSU Extension, retired; Alison O'Connor, PhD, CSU Extension; Chelsea Bragg, former CSU student. Artwork by David Whiting and Carol O'Meara. Used with permission. Reviewed October 2013. Reviewed April 2023 by Cassey Anderson, CSU Extension.

- Colorado Master Gardener GardenNotes are available online at <https://cmg.extension.colostate.edu/>.
- No endorsement is intended of products mentioned, nor is criticism implied of products not mentioned.
- Copyright Colorado State University Extension. All Rights Reserved. CMG GardenNotes may be reproduced, without change or additions, for nonprofit educational use with attribution.
- Colorado State University, U.S. Department of Agriculture, and cooperating Colorado counties.

Colorado State University Extension is an equal opportunity provider.

Colorado State University does not discriminate on the basis of disability and is committed to providing reasonable accommodations.

CSU's Office of Engagement and Extension ensures meaningful access and equal opportunities to participate to individuals whose first language is not English.

<https://col.st/OWMJA>

Colorado State University Extension es un proveedor que ofrece igualdad de oportunidades.

Colorado State University no discrimina por motivos de discapacidad y se compromete a proporcionar adaptaciones razonables.

Office of Engagement and Extension de CSU garantiza acceso significativo e igualdad de oportunidades para participar a las personas quienes su primer idioma no es el inglés.