

# Missouri Environment & Garden

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## Cucumber: A Brief History

The National Garden Bureau has chosen cucumber as its vegetable to promote this year. Thus, 2014 is “The Year of the Cucumber”. Cool and refreshing on a hot summer day, cucumber is one of America’s top five garden vegetables. For years, cucumber was considered to be primarily “diet food” because of its low caloric content. Recent research, however, has shown this water-laden vegetable contains significant amounts of phyto-nutrients which have a wide array of human health benefits. While March is a bit early to plant cucumbers in our gardens, it is a fitting month to take a closer look at this interesting vegetable.

Cucumber (*Cucumis sativus*) belongs to the Cucurbitaceae family. Other important members of this family include watermelon, muskmelon, pumpkin and squash. Native to India, cucumber is another one of our most ancient vegetables. Cave excavations have revealed that cucumber has been grown as a food source for over 3000 years. Early cucumbers were probably very bitter because of compounds they contained called cucurbitacins. These natural defense compounds act to repel insects and other pests. Bitterness still is a problem with some cucumbers today, although great progress has been made by plant breeders to eliminate the bitter compounds.

Cucumbers were cultivated and eaten in ancient Egypt as evidenced by the Bible. Numbers 11:5 reads: “We remember the fish, which we did eat in Egypt freely; the cucumbers, and the melons, and the leeks, and the onions, and the garlick”. Evidently the Egyptians made weak liquor from cucumber by cutting a hole in the ripe fruit, stirring the inside with a stick to liquefy it, plugging the hole and then burying it in the ground for several days. The resultant concoction was unearthed and consumed. The previous probably should be followed with the warning: “Don’t try this at home”.



The Greeks also cultivated cucumbers as (later) did the Romans. The Emperor Tiberius was said to have demanded that they be on his table every day. To meet that demand, his gardeners fashioned some of the first plant forcing structures, constructing portable containers which they moved from place to place. Later, the Romans advanced plant forcing structure technology (and cucumber production) by fashioning frames covered with translucent panes of silicates—not unlike our modern cold frames.

Later, Charlemagne was said to have grown cucumbers in his gardens in Italy in the 8th and 9th century. Cucumber later spread to Western Europe. It was during the reign of King Henry VIII that cucumber made its way to England. His first wife (Catherine of Aragon) was said to have demanded them for her Spanish salads.

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The Age of Discovery proved to be very important to the spread of cucumber. Columbus is credited for taking cucumber to the New World, along with many other vegetables. He introduced it to Haiti in 1494. From there it spread. In 1539, De Soto judged the cucumbers he found growing in Florida to be better than those of native land of Spain. By 1806 eight varieties of cucumbers would be found growing in America's colonial gardens.

As mentioned previously, scientists recently have found cucumber to contain a number of beneficial phyto-nutrients. The lack of that knowledge did not keep cucumber from being used medicinally earlier in our history. The cucumber's water retentive ability earned it the reputation for never losing its cool. As a result, 17th Century physicians prescribed placing fever patients on a bed of cucumbers so they would become "cool, as a cucumber." Additionally, it was thought that if cucumbers were eaten three times daily, red noses would be healed and pimples on the face would disappear.

Trappers and fur traders probably were responsible for introducing Native Americans to cucumber as they made their way across the country. Reportedly, this expansion was interrupted somewhat in the 18th century when medical journals warned of the dangers of eating cucumbers and other vegetables not adequately cooked. The set back was short-lived and by the 19th century cucumber regained its popularity in the U.S.

Cucumber's popularity was bolstered considerably when, in 1876, Henry J. Heinz added pickles to the list of products made by the food processing company that bears his name. Others followed, and by the end of the 19th century pickles were a tasty addition to the monotonous diet of meat and potatoes consumed by most Americans. Today, pickles can be found in 70 percent of all households, and Americans are said to consume nine pounds of them per capita annually.

Cucumbers are placed into one of two major categories based on their use: slicing or pickling. Slicing cucumbers are eaten fresh from the garden. They range in size from about four to 12 inches and have skin that is relatively smooth. If "spines" are present, they normally are white.

Pickling cucumbers are much smaller, ranging in size from one to five inches; the latter reserved for making dill pickles. Unlike the slicers, pickling cucumbers usually have bumps on their skin along with "spines" that are black. Gerkins are a type of immature pickling cucumber. They are noted for their small size and warty skin.

Whatever the type, cucumbers contain cucurbitacins which can impart a bitter taste. Additionally, the taste is

associated with a digestive condition and social indiscretion known as a "burp". In the middle of the 20th century, "burpless" cucumbers were introduced that eliminated this problem. Today there are several burpless varieties available. Their fruit usually is long, somewhat narrow and thin-skinned. Non-burpless types can be made a bit more socially acceptable by cutting off about one inch of the stem-end and peeling the skin off the fruit.

Cucumbers are relatively easy to grow. They prefer a full-sun exposure in a well-drained garden loam. Amending the soil with compost or other forms of organic matter will improve soil structure and increase yields. Check garden drainage before planting, since wet soil will promote disease infestation and reduce productivity.

Heavy feeders, cucumbers require fertile soil, nitrogen fertilizer, and/or additions of high-nitrogen organic matter sources. A side dressing of 5-10-10 fertilizer at the time of planting and once a month thereafter should be sufficient. Adequate amounts of water also must be provided since the fruits are largely water. Mulching helps to conserve water as well as control weeds.

Cucumbers plants are vines and need room to grow. Standard types may spread four to six feet and should be spaced four to five feet apart. The restricted vines of dwarf and bush types may require as little as two square feet per plant.

For earlier maturity, cucumbers can be started indoors in individual pots ten to 14 days prior to setting them out. If direct seeded, sow seeds when the soil has warmed up to 70°F. Place one seed every six inches, covering it with soil to a depth of one inch.

Depending on conditions, seedlings should emerge in about a week. When the plants are two inches high, thin plants to one plant per lineal foot. An alternative method is to plant in "hills" four to five feet apart. Sow four to five seeds per hill and thin to three plants per hill after seedlings emerge.

Cucumber is plagued by a number of troublesome insect pests. They include cucumber beetle (stripped and spotted), aphids and squash vine borer. Control of beetle is important for the prevention of bacterial wilt. Although there are pesticides labeled for the control of the aforementioned pest, some gardeners choose to use floating row cover over young transplants or seedlings to exclude the pests.

The two most problematic diseases that afflict cucumber include bacterial wilt and powdery mildew. Bacterial wilt is controlled by eliminating its primary vector—the cucumber beetle. Incidence of powdery mildew can be lessened by providing adequate space between plants,

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eliminating weeds to increase air circulation, keeping the leaves dry by using drip instead of overhead irrigation, or using fungicides judiciously. Garden clean up in the fall also is helpful in reducing disease inoculums for the following growing season.

Most cucumber varieties reach maturity in 50 to 65 days. The fruit will be firm to the touch and the skin will have a uniform dark green color. Cucumbers enlarge (mature) rapidly and should be checked/harvested daily. If left on the vine too long, the fruit becomes over-mature and less desirable. Slicing types are mature when about six to eight inches long; larger slicing varieties should be picked before they are ten inches long. Pickling varieties should be harvested after reaching a length of one to four inches. In either case, refrigerate harvested fruit as soon as possible to preserve flavor and avoid desiccation.

### Cucumber Trivia:

- The largest cucumber ever grown was 67 inches long and weighed 154 pounds.
- Cucumbers contain 96 percent water.
- The inside of a cucumber can be up to 20 degrees cooler than its outside.
- One-half cup of sliced cucumbers contains only eight calories.
- Fresh extracts from cucumbers have recently been shown to have both antioxidant and anti-inflammatory properties.
- Placing a slice of cucumber on the eyelid can reduce puffiness. However, the beneficial affect is due to cool temperature and not to the cucumber per se.
- Try rubbing a cucumber slice over the mirror in your bathroom; it will eliminate the fog and provide a soothing, spa-like fragrance.

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## Protecting Fruit Crops from Spring Frost

As always, there is a high potential for spring frost damage to fruit crops in Missouri. Unseasonably cool temperatures have been recorded this year and it is predicted that this trend will continue through the spring. With this in mind, there are a few techniques that can be used to protect fruit buds and flowers from low temperatures.

First, delay fruit tree pruning for as long as possible in the spring, but allow just enough time to complete this task before bloom. The hardiest buds are always on the older wood, while those nearest the tips of branches are the most susceptible to damage. Plan to leave a few extra fruit buds when pruning. Once the danger of frost has passed, excess blooms or small fruitlets can be removed by thinning.

For grapes, a good way to protect the crop is to use double pruning, especially for cultivars that are the earliest to break bud in the spring. This technique is only used for cultivars trained to a single curtain cordon system with spur pruning. Like fruit trees, the buds at the base of shoots, nearest the trunk and cordons, are the most tolerant to cold temperatures. To double prune, select the fruiting spurs that will be left on the vine to produce the crop. Next, remove excess wood as usual, except for the spurs. Instead of leaving just 3 to 4 buds per spur, leave as many as 10 to 15 buds on them. These extra buds delay development of the basal buds so they can potentially avoid frost damage. After the frost free date, wood with the extra buds is removed. While this method requires some extra effort, it can save the crop. Also, if primary buds at a node are injured, a smaller crop of grapes can be produced from secondary buds.

Small fruits, such as strawberries, can be re-covered with straw mulch or protected by placing plastic or tarps over the plants during when temperatures fall below freezing in the spring. Brambles and blueberries can also be covered, but this is practical only when there are a few plants.

Frequently, the average frost free date is publicized for specific areas. However, with fruit crops, it is often more useful to consider the last frost free date on record. For example, weather data indicate that the average frost free dates for Springfield and Kirksville are April 15 and 20, respectively. However, based on historical data, the latest date that 32°F was recorded in Springfield was May 9. Kirksville has recorded this temperature as late as May 25. Like other years in Missouri, be prepared for erratic spring weather.

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# April Gardening Calendar

## Ornamentals

- Weeks 1-4: Study your landscape for gaps that could be nicely filled with bulbs. Mark these spots carefully and make a note to order bulbs next August.
- Weeks 1-4: Enjoy, but do not disturb the many wildflowers blooming in woodlands throughout Missouri.
- Weeks 1-4: When buying bedding plants, choose compact, bushy plants that have not begun to flower.
- Weeks 1-3: When crabapples are in bloom, hardy annuals may be transplanted outdoors.
- Weeks 1-3: Fertilize established roses once new growth is 2 inches long. Use a balanced formulation. Begin spraying to control black spot disease.
- Weeks 1-2: Examine shrubs for winter injury. Prune all dead and weakened wood.
- Week 1: Groundcovers can be mowed to remove winter burn and tidy plants up. Raise mowers to their highest settings. Fertilize and water to encourage rapid regrowth.
- Week 1: Shrubs and trees best planted or transplanted in spring, rather than fall, include butterfly bush, dogwood, rose of Sharon, black gum (*Nyssa*), vitex, red bud, magnolia, tulip poplar, birch, ginkgo, hawthorn and most oaks.
- Week 1: Winter mulches should be removed from roses. Complete pruning promptly. Remove only dead wood from climbers at this time. Cultivate lightly, working in some compost or other organic matter.
- Weeks 2-4: Look for flowering dogwoods in bloom.
- Weeks 2-4: Break off rims from peat pots when transplanting seedlings, otherwise they can act as a wick to draw moisture away from the roots.
- Weeks 2-3: Transplant Virginia bluebells (*Mertensia virginica*) after bloom, but before the foliage disappears.
- Weeks 3-4: Do not prune boxwoods before April 15.
- Weeks 3-4: Evergreen and deciduous hedges may be sheared. Prune the top narrower than the base so sunlight will reach the lower limbs.
- Weeks 3-4: Oaks and hickories bloom.
- Weeks 3-4: Easter lilies past blooming can be planted outdoors. Set the bulbs 2 to 3 inches deeper than they grew in the pot. Mulch well if frost occurs.
- Weeks 3-4: Apply controls for holly leaf miner when the new leaves are just beginning to grow.
- Weeks 3-4: Balloon flower (*Platycodon*), hardy hibiscus, gasplant (*Dictamnus albus*) and some lilies are slow starters in the spring garden. Cultivate carefully to avoid injury to these tardy growers.
- Week 4: Prune spring flowering ornamentals after they finish blooming.
- Week 4: Begin planting out summer bulbs such as caladiums, gladioli and acidanthera at 2 week intervals.

## Lawns

- Weeks 1-4: Start mowing cool season grasses at recommended heights. For complete details, refer to University Extension Guide #6705, Cool Season Grasses.
- Weeks 1-2: Topdress low spots and finish overseeding thin or bare patches.
- Weeks 1-2: Aerate turf if thatch is heavy or if soil is compacted.
- Weeks 1-2: Apply crabgrass preventers before April 15. Do not apply to areas that will be seeded.

## Vegetables

- Weeks 1-3: Finish transplanting broccoli, Brussels sprouts, cabbage, and cauliflower plants into the garden. High phosphorous fertilizers help get transplants off to a quick start.
- Weeks 1-2: Plants started indoors should be hardened off outdoors in cold frames before being transplanted into the garden.
- Weeks 1-2: Start cucumber, cantaloupe, summer squash, and watermelon seeds indoors in peat pots.
- Weeks 1-2: Finish sowing seeds of all cool-season vegetables not yet planted.
- Weeks 1-2: Plastic films can be used to preheat the soil where warm season vegetables are to be grown.
- Weeks 1-2: Asparagus and rhubarb harvests begin.
- Weeks 2-4: Handpick and destroy asparagus beetles.
- Weeks 2-4: Keep your hoe sharp! Don't allow weeds to get an early start in your garden

# April Gardening Calendar

## Vegetables (continued)

- **Weeks 2-4:** Flower stalks should be removed from rhubarb plants, if they develop.
- **Weeks 2-4:** Try an early sowing of warm-season crops such as green beans, summer squash, sweet corn, New Zealand spinach and cucumbers.
- **Weeks 2-3:** Thin out crowded seedlings from early plantings of cool season crops such as beets, carrots, lettuce, onions and radish.
- **Weeks 2-3:** Sow seeds of luffa and hard-shell gourds indoors in peat pots. Soak seeds overnight before planting.
- **Weeks 2-3:** Make succession sowings of cool-season crops.
- **Weeks 3-4:** Begin planting lima beans, cucumbers, melons, okra and watermelons.
- **Weeks 3-4:** Begin setting out transplants of tomatoes, eggplants, peppers and sweet potatoes.

## Fruits

- **Weeks 1-4:** Blemish-free fruits unmarred by insect or disease injury can rarely be produced without relying on regular applications of insecticides and fungicides. For special information, consult University Extension Guide Sheet #G6010, Home Fruit Spray Schedule.
- **Weeks 1-2:** Wooden clothespins make useful spreaders for training young fruit limbs. Place pins between the trunk and branch to force limbs outward at a 60 degree angle from the trunk.
- **Weeks 1-2:** A white interior latex paint may be brushed on the trunks of newly planted fruit trees to prevent sunburn. This will gradually weather off in time.
- **Weeks 1-2:** Stink bugs and tarnished plant bugs become active on peaches.
- **Weeks 1-2:** Leaf rollers are active on apple trees. Control as needed.
- **Weeks 1-2:** Prune peaches and nectarines now.
- **Week 1:** Plant bare-root or potted fruit trees as soon as the soil can be worked.
- **Week 1:** Remove tree wraps from fruit trees now.
- **Weeks 2-4:** Protect bees and other pollinating insects. Do not spray insecticides on fruit trees that are blooming.
- **Week 2:** Destroy or prune off webs of eastern tent caterpillars. "B.t." (Dipel) is a safe biological spray.
- **Weeks 3-4:** Orange, jelly-like galls on cedar trees spread rust diseases to apples, crabapples and hawthorns.
- **Weeks 3-4:** Begin sprays for fire-blight susceptible apples and pears using an agricultural streptomycin.
- **Week 4:** Spider mites and codling moths become active on apples.

## Miscellaneous

- **Weeks 1-2:** Termites begin swarming. Termites can be distinguished from ants by their thick waists and straight antennae. Ants have slender waists and elbowed antennae.
- **Weeks 1-2:** Look for morel mushrooms when lilacs bloom and the forest floor turns green.
- **Week 1:** Mount a rain gauge on a post near the garden to keep track of precipitation so you can tell when to water. Most gardens need about 1 inch of rain per week between April and September.
- **Weeks 2-4:** Mole young are born in chambers deep underground.
- **Weeks 3-4:** Honeybees are swarming. Notify a local beekeeper to find a new home for these beneficial insects.
- **Week 4:** Soaker hoses and drip irrigation systems help you save water and money.
- **Week 4:** Hummingbirds return from their winter home in Central America.
- **Week 4:** Wasp and hornet queens begin nesting.

*Gardening Calendar supplied by the staff of the William T. Kemper Center for Home Gardening located at the Missouri Botanical Garden in St. Louis, Missouri. ([www.GardeningHelp.org](http://www.GardeningHelp.org))*