

# Missouri Environment & Garden

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## Brazil Nuts

Which are your favorites in that can of mixed nuts? Could it be the peanuts, almonds, cashews, filberts, or the biggest ones, the Brazil nuts? While not one of the major nuts grown in the United States, it is a fascinating plant with unusual fruits.

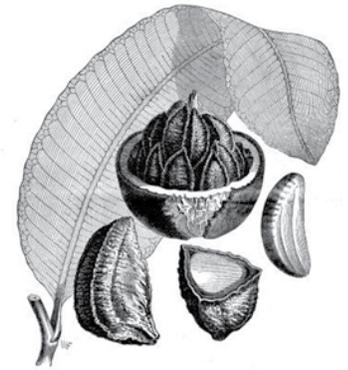
*Bertholletia excelsa*, also known as the Brazil nut, almendras, castaheiro-do-Pará, castaña-de-Brazil, juvia, saucaia, and creamnut, is a large tree found in Brazil, Bolivia, Venezuela, Colombia, and Peru along the banks of the Amazon, Rio Negro and other rivers. These majestic trees reach up to 160 feet tall and may live for over 800 years. They are usually found in natural stands of about 50 to 100 trees, but can be grown in orchards. Nut production begins when trees are 10 to 30 years old. Trees bloom during late September to February with flowers opening daily between 4:30 to 5:00 a.m. in Brazil and fall later the same day. Creamy white flowers are hooded and require only certain types of bees for effective pollination. Following pollination, a large woody fruit or capsule develops over a period of 14 months (Figure 1). Each mature tree can produce as many as 300 fruits annually, with each one weighing up to 5 pounds. Ten to 25 triangular nuts develop inside each fruit, like segments of an orange. Fruits naturally drop from trees and are harvested from January to June. Because nuts are usually harvested from the ground during the rainy season, inadequate drying procedures can result in the presence of aflatoxins on shells. However, with proper post-harvest handling, aflatoxins are avoided.

Brazil nuts are a nutritious source of protein, carbohydrates, fat and some vitamins. Because selenium intake was associated with a reduced risk of some types of cancer in a clinical trial, Brazil nuts are sometimes promoted in advertisements as a healthy food to prevent breast and prostate cancer. Brazil nut oil is also an important commodity. It is used in foods and as a cosmetic ingredient

in many popular brands of soap, shampoo, hair care products, lotions, deodorants, mouthwash, shaving lotions, and sunscreens.

Throughout history indigenous people of the Brazilian rainforest consumed the nuts raw or mixed them with other plants into gruel or mush. Empty fruits or “monkey pods” were used as drinking cups, to collect rubber latex from trees, or to carry around small fires to ward off black flies. Tea was brewed from fruits or bark for medicinal purposes, and oil was used for cooking, soap, and livestock feed.

While *Bertholletia excelsa* is an interesting native tree of South America with multipurpose nuts, they also just taste good!



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# Of Thorns, Spines and Prickles

One of the interesting aspects of enjoying plants is how our perception (and appreciation) of them changes with the seasons. Most avid gardeners probably would list spring, summer or fall as the season(s) plants are most attractive to them, and for obvious reasons. There are, however, virtues of some deciduous (often woody) plants that are most obvious during winter, after leaves have been shed. It is at this time special plant features that were hidden during the growing season are clearly visible, adding interest to the landscape.

One example of the above is the whitish-colored bark on the upper branches of the American sycamore. It is much more evident after its leaves have fallen than during summer. The same also could be said of trees and shrubs that bear colorful fruit, such as flowering crab apple, winterberry holly and cranberry-bush viburnum. Although less visually dominant than the previous examples, thorns, spines and prickles are unique appendages some plants produce that make them more interesting (if not attractive) during the winter.

Most people consider any sharp projection from a plant to be a thorn. This is understandable, since most people are familiar with roses and the sharp (sometimes painful) “thorns” they bear. However, roses don’t bear true thorns; instead they produce prickles. The proper (botanical) classification of these sharp projections differs depending on their origin in the plant that bears them.

Accurately used, the term “thorn” is applied only to a sharp-pointed structure that is a modified branch. Thorns often arise from the main stem at leaf axils. Landscape plants with true thorns include firethorn (*Pyracantha*), hawthorn and Japanese flowering quince.

A sharp projection developed from a leaf, stipule or leaf part (rather than from a branch) is called a “spine”. Honey locust probably is the most notorious woody plant that bears spines, which often are compound in their occurrence. The spines of this species are so threatening that a spineless botanical variety is used for landscaping purposes. Other familiar landscape plants bearing spines include barberry and black locust.

In cacti, the entire leaf of the plant is transformed into

a spine. In addition to reducing water loss by restricting leaf surface area, this unique adaptation protects the succulent stem of the plant from animals that would use it for food or a source of water.

Other plants bear spines only around the margins of their leaves. American holly, English holly and Oregon grape-holly are good examples of the latter.

The third type of sharp projection found on plants is called a “prickle”. Prickles arise from stem tissue and are extensions of its cortex and epidermis. Perhaps because it nearly rhymes with the word “tickle”, a prickle sounds much less threatening than a thorn or a spine. Such is not always the case. Undoubtedly, the most popular garden plant that bears prickles is rose and most avid gardeners have had more than one painful, unfortunate encounter with its sharp appendages. Other examples of plants bearing prickles include prickly ash (*Zanthoxylum americanum*) and *Aralia spinosa*, also known as devil’s walking stick.

In nature, the purpose of thorns, spines and prickles is to protect plants from would-be predators. Any herbivore with average intelligence will not likely try to nibble at a species such as barberry more than once. Unfortunately, growing plants with thorns, spines and prickles in the landscape can pose a certain amount of danger, depending upon the species.

When used as background plants, border plants or when tree branches are trimmed well above head height, most plant bearing thorns, spines or prickles are harmless. Additionally, they add a unique character to the winter landscape can serve as an impenetrable barrier to make our home and its contents more secure. However, when placed in the landscape where people often walk or drive by they can present a safety problem, especially to children and pets. Proper care in selecting, placing and maintaining them will help to avoid unfortunate encounters and add aesthetic value to the landscape.

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# Care of Fruit Trees and Plants Begins at Your Door

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Fruit trees can be challenging to grow in Missouri because of erratic weather conditions and a favorable climate for diseases and insects. While much attention is usually given to frost protection, irrigation, nutrition, and pest control of trees after planting, it is also important to provide good care of mail-order plant material before it is placed in the ground. Here are a few tips that will improve survival and enhance the growth of your fruit trees and small fruit plants.

When you place the order with a nursery, ask them to provide a specific shipping date so you will be prepared for the delivery. Bare-root plants are best planted in late March through April 15 in Missouri. Plug plants with green leaves should be delivered after the danger of frost (May 10 for most parts of Missouri). A tracking number for the shipment is helpful in determining the day and time of delivery. As soon as the delivery arrives, open the container and inspect the plants to make sure they haven't been damaged during packing, handling, or shipping. Don't worry if the roots or the top branches of woody plants have been pruned or if a few of the branches or shoots are damaged. However, if the graft union is broken on fruit trees, the nursery should be contacted immediately. Similarly, if the packing material surrounding the roots is dry, buds on bare root fruit trees have leafed out, or disease symptoms are clearly visible on any plant part, call the nursery immediately and request replacements or a refund.

After inspecting plants, it is always best to set them in the ground immediately. However, if this is not possible,

re-wrap the roots with moist packing material (sawdust, shredded paper, etc.) and seal the root system in plastic to prevent moisture loss. Dormant, bare-root plants should be stored in a cool dark area, as near 40°F as possible. Plug plants with green should arrive later in the growing season than bare-root plants and can be stored in a shaded area with the roots also protected from moisture loss. Do not store bare root or plug plants near ethylene-generating plants such as apples, pears, peaches, bananas, or tomatoes. Ethylene is a natural hormone that stimulates bud break and will reduce the storage life of fruit trees. If cold storage is not possible, fruit plants can be potted in containers temporarily and kept outdoors until they are moved to a permanent planting site. Potted plants will require watering when the growing medium is dry. Also, potted plants need to be covered to prevent root freezing when air temperatures fall below 20°F.

When planting time arrives, soak plant roots in water for about an hour before setting them in the ground. Prune any broken branches or long roots back and plant them in a hole large enough to accommodate the root system. Next, firm up the soil in the planting hole and apply fertilizer to the soil surface in a circle, at least 6 inches from the stem, and water to dissolve the granules immediately after planting.

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# February Gardening Calendar

## Ornamentals

- **Weeks 1-4:** Winter aconite (*Eranthis* sp.) and snowdrops (*Galanthus* sp.) are hardy bulbs for shady gardens that frequently push up through snow to bloom now.
- **Weeks 1-4:** Water evergreens if the soil is dry and unfrozen.
- **Weeks 1-4:** Inspect summer bulbs in storage to be sure none are drying out. Discard any that show signs of rot.
- **Weeks 1-4:** Enjoy the fragrant blooms of the Ozark Witch Hazel flowering in shrub borders or wooded areas on warm sunny days.
- **Weeks 1-4:** Take geranium cuttings now. Keep the foliage dry to avoid leaf and stem diseases.
- **Weeks 2-4:** Sow seeds of larkspur, sweet peas, Shirley poppies and snapdragons where they are to grow outdoors now. To bloom best, these plants must sprout and begin growth well before warm weather arrives.
- **Weeks 2-3:** Seeds of slow-growing annuals like ageratum, verbena, petunias, geraniums, coleus, impatiens and salvia may be started indoors now.
- **Weeks 4:** Dormant sprays can be applied to ornamental trees and shrubs now. Do this on a mild day while temperatures are above freezing.
- **Weeks 4:** Start tuberous begonias indoors now. "Non-stop" varieties perform well in this climate.

## Vegetables

- **Week 1-4:** Season extending devices such as cold frames, hot beds, cloches and floating row covers will allow for an early start to the growing season.
- **Week 1-4:** Start onion seeds indoors now.
- **Week 1-4:** Run a germination test on seeds stored from previous years to see if they will still sprout.
- **Week 1-4:** Don't work garden soils if they are wet. Squeeze a handful of soil. It should form a ball that will crumble easily. If it is sticky, allow the soil to dry further before tilling or spading.
- **Week 2-4:** Sow celery and celeriac seeds indoors now.
- **Week 3-4:** Sow seeds of broccoli, cauliflower, Brussels sprouts and cabbage indoors now for transplanting into the garden later this spring.
- **Week 3-4:** If soil conditions allow, take a chance sowing peas, lettuce, spinach and radish. If the weather obliges, you will be rewarded with extra early harvests.

## Fruits

- **Week 1-4:** Inspect fruit trees for tent caterpillar egg masses. Eggs appear as dark brown or gray collars that encircle small twigs. Destroy by pruning or scratching off with your thumbnail.
- **Week 1-2:** Collect scion wood now for grafting of fruit trees later in spring. Wrap bundled scions with plastic and store them in the refrigerator.
- **Week 3-4:** Grapes and bramble fruits may be pruned now.
- **Week 3-4:** Begin pruning fruit trees. Start with apples and pears first. Peaches and nectarines should be pruned just before they bloom.
- **Week 3-4:** When pruning diseased branches, sterilize tools with a one part bleach, nine parts water solution in between cuts. Dry your tools at day's end and rub them lightly with oil to prevent rusting.
- **Week 4:** Established fruit trees can be fertilized once frost leaves the ground. Use about one-half pound of 12-12-12 per tree, per year of age, up to a maximum of 10 pounds fertilizer per tree. Broadcast fertilizers over the root zone staying at least one foot from the tree trunk.

# February Gardening Calendar

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## Miscellaneous

- **Weeks 1-4:** To avoid injury to lawns, keep foot traffic to a minimum when soils are wet or frozen.
- **Weeks 1-4:** When sowing seeds indoors, be sure to use sterile soil mediums to prevent diseases. As soon as seeds sprout, provide ample light to encourage stocky growth.
- **Weeks 1-4:** Repot any root-bound house plants now before vigorous growth occurs. Choose a new container that is only 1 or 2 inches larger in diameter than the old pot.
- **Weeks 1-4:** To extend the vase life of cut flowers you should: 1. - Recut stems underwater with a sharp knife. 2. - Remove any stem foliage that would be underwater. 3. - Use a commercial flower preservative. 4. - Display flowers in a cool spot, away from direct sunlight.
- **Weeks 1-2:** Now is a good time to learn to identify trees by their winter twigs and buds.
- **Weeks 1-2:** Branches of pussy willow, quince, crabapple, forsythia, pear and flowering cherry may be forced indoors. Place cut stems in a vase of water and change the water every 4 days.
- **Weeks 2-4:** Watch for squirrels feeding on the tender, swollen buds of Elms, Hickories, Oaks and other trees as spring approaches.
- **Weeks 2-4:** Maple sugaring time is here! Freezing nights and mild days make the sap flow.
- **Weeks 2-4:** Begin to fertilize house plants as they show signs of new growth. Plants that are still resting should receive no fertilizers yet.
- **Weeks 3-4:** Now is a good time to apply appropriate sprays for the control of lawn weeds such as chickweed and dandelion.
- **Weeks 3-4:** Tall and leggy house plants such as dracaena, dieffenbachia and rubber plants may be air layered now.
- **Weeks 3-4:** Save grape vine prunings for making into attractive wreaths and other craft objects.
- **Weeks 4:** Late winter storms often bury birds' natural food supplies and a well stocked feeding station will provide a life-giving haven for our feathered friends.
- **Weeks 4:** Encourage birds to nest in your yard by providing water and by putting up bird houses. Planting suitable shrubs, trees, vines and evergreens will provide wild food sources and nesting habitat.

*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))*