

Care of Cactus in the Home

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This NebGuide discusses the care of cacti as houseplants.

Cacti are among the most fascinating groups of plants for indoor use. Often described as arid desert plants, they also are found in forests and on prairies. In Nebraska, several native species of cacti intermingle with prairie grasses. Cacti belong to a larger group of plants known as succulents. These plants have enlarged stems and have few to no leaves to conserve and store water. Many species have hair, spines and thick skin for protection. Many cacti do well as houseplants. Cacti can be grown singly or in combination as dish gardens.

Soils

Good drainage is essential in any growing mix for raising cacti, yet the growing media also must have adequate moisture retention properties and good aeration, along with adequate nutrients. A general growing medium for arid species of cacti consists of 1/3 peat moss, 1/3 garden soil and 1/3 sharp (builders') sand. Equal parts sand and a good house plant growing mix also will do. Many modifications of these mixes can be used. Tropical-type (rain forest) cacti require more organic matter in the growing mix. Several brands of potting soil are commercially available, as well, specifically for growing cactus.

Cacti should be repotted as needed, rather than on a regular schedule. Repot if the cactus plant has grown to within 1/4 inch of the side of the container. Repot into a container only slightly larger than the present one. Repotting into a container that is too large may lead to overwatering. Spring is the normal time to transplant cacti. When transplanting cacti, a rolled up newspaper or a pair of tongs can be used to hold a plant in order to prevent spines from injuring fingers. Set the plant in the new container at the same level it was originally growing and fill around it with moistened growing media. Wait several days before watering so damaged roots will have time to heal. A container that is wider than it is tall is better for species with lateral growing roots. Porous containers are usually best.

Watering

Watering is probably the most important factor in cactus culture. Potting mixture, containers, drainage, temperature, size

of plant and type of plant all influence water use, so no absolute schedule can be given for watering. Careful observation is the best way to determine a plant's water needs. During the active growing season (spring and summer), water when the top 1/2 inch of the growing media feels dry to the finger. The growing media should be thoroughly moistened at each watering and allowed to dry before water is added again. Dormant cacti need less moisture. A light watering every few weeks is sufficient. Do not soak the growing media during the dormant period. Some sources recommend using lukewarm water as cold water can shock the roots when watering cactus.

Fertilizer

Like other types of house plants, cacti need fertilizer, but in smaller amounts. From spring to fall they can be fertilized every two to three months with a low nitrogen fertilizer such as 5-10-10 or 7-40-6. Excess nitrogen can cause succulent growth, leading to insect, disease and other problems. Time-release fertilizers also can be used but need only be applied once in the spring. Do not fertilize newly repotted plants, unrooted plants or plants going through a dormancy period.

Light

Most arid species of cacti require bright sunlight to grow well. Windows facing south provide the most sunlight, while windows facing east and west usually offer some direct sun for at least part of the day. Day length recommendations for light vary from 12 to 18 hours. In some homes, artificial light may be necessary to supplement natural light. The length of the light received each day can have an effect on cactus flowering, especially for the tropical cacti.

Temperature

Proper temperatures for raising cacti vary with the season. Optimum temperatures for most cacti plants range from 65° to 90° F during the active growing season (spring and summer). They can be placed outdoors in late spring but may need to be shaded during the hottest part of the day until they adjust to the temperatures and higher light intensities. Too much sun can lead to sunburning. In the fall, bring cold sensitive cactus indoors before temperatures reach the freezing point.

Dormant (fall and winter) cactus plants do best at temperatures from 45° to 55° F. The cooler temperatures develop sturdier plants and encourage the formation of flower buds. Cool winter temperatures are not a necessity for cactus plants, but these conditions approach the environment in which cacti normally grow. Convenience often will decide the temperature at which cacti plants are maintained.

Propagation

Cacti usually are propagated by seeds, cuttings or off-sets. Some species are more challenging to propagate than others.

Cuttings are pieces of cactus stem without roots. Allow cuttings to dry for a few days before placing in a rooting medium. This permits the cut surface to heal, or callus. The callus helps prevent rotting when the cutting is placed in the rooting material. Rooting hormones can be used to enhance root production on the cuttings. Place cuttings in a rooting medium of equal parts peat moss and sharp sand in a sunny location and water occasionally. Too much water should be avoided. Pot the cutting after roots have formed.

Offsets are sections found at the base of the plant. Rooted offsets can be separated from the parent plant and potted immediately. Unrooted offsets should be treated similarly to cuttings.

Most species of cacti may be propagated from seeds. A simple way of germinating cactus seed is to spread the seed on the surface of moist, pasteurized soil and barely cover with sand. Place the container in a plastic bag and seal. Some types of seed will germinate in a few days while some may require several months. Germination temperature for most cactus seed should be around 70° to 80° F. Water, if necessary, with tepid water from the bottom. Do not let the soil become soggy. Remove the plastic bag when seeds have germinated. Transplant the seedlings after a vigorous root system has formed, which will take several months. Applying fungicides may be necessary to prevent or reduce seedling diseases.

Grafting, the union of two or more different plants, produces unusual growth forms and provides a decay-resistant stock for certain kinds of cacti. Grafting also can save a plant with a rotted stem or root system. It is also a way of maintaining selections that have little or no chlorophyll.

The grafted plant consists of two parts, the stock and the scion. The stock, or understock, is the bottom part of the plant growing on its own roots; the scion is a portion of another plant joined to the top of the stock (see *Figure 1*). The stock and scion must be botanically compatible to have a successful graft.

Select the cacti to be used as the stock and scion and make appropriate cuts with a sharp, sterile knife or razor blade. The grafting should be done when the stock is actively growing. It is very important to make sure that the surfaces to be joined on the stock and scion are clean, fit closely together and do not dry out before they are placed together. Align the growth rings of both plants with each other.

Hold the scion in place with string or rubber bands or by running several wooden or plastic toothpicks through the graft

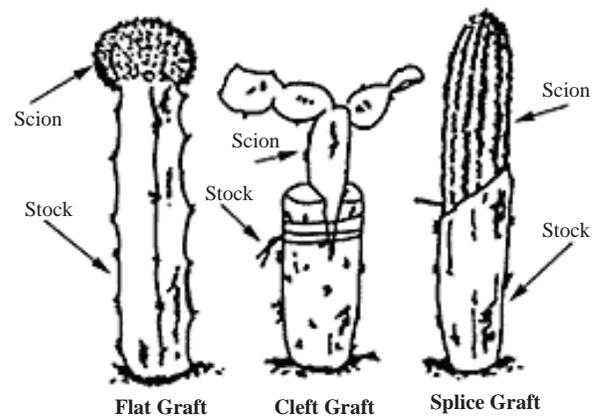


Figure 1. Cactus grafting methods.

union. Keep the plant in a moist, warm place so the union will not dry out and force the graft apart. Usually it takes about two weeks for the stock and scion to unite. Then the bindings can be removed. There will be a shrinking and discoloration of the union if the graft has failed. In that case repeat the process, making sure the graft union does not dry out.

Diseases and Pests

The major diseases of cacti are root and/or stem rots. Excessive watering should be avoided to prevent these rots. Good air circulation between plants reduces diseases.

Insect and related pests on cacti include aphids, red spider mites, fungus gnats, scales and mealy bugs. Make sure newly purchased plants are free of pests before they are added to your plant collection. If insects or mites do become established on your plants, first identify the pest and follow appropriate measures to rid the plants of these pests.

Holiday, Rain Forest or Tropical (Thanksgiving, Christmas and Easter) Cactus

There are many new selections or types of holiday or rain forest cacti (ex. Easter, Christmas or Thanksgiving plants) from which to choose. Christmas and Thanksgiving cactus (*Schlumbergera truncate* and *S. buckleyi*) are closely related, whereas the Easter cactus (*Rhipsalidopsis* species) is a different species. Their common names refer to their normal season of bloom. Rain forest cacti, in contrast to arid species of cactus, require a growing medium with more organic material. A good growing mix consists of two parts peat moss, one part garden soil and one part sand. Good drainage is essential. Commercial growing mixes work very well and are usually more convenient to use than mixing your own.

Fertilize Christmas and Thanksgiving cactus plants monthly from the time the plants finish blooming through late spring. Reduce fertilizer during fall and early winter. Fertilize Easter cactus plants monthly from the time the plants finish blooming through late summer.

Christmas and Thanksgiving cactus should be given six weeks of cooler temperatures (55° F) in September and

October, whereas Easter cactus should have cooler temperatures in February and March. This encourages flower bud formation. Once buds set, more water will be needed. During the pre-flowering period (September and October for Christmas/Thanksgiving cactus and February and March for Easter cactus), keep plants dry and cool until flower buds form. Increase water and temperature after this pre-flowering treatment. If plants do not flower, placing the plants in the dark for 13 hours a day for six weeks will encourage flowering. This can be done by placing the plant in a dark room or covering it with a dark cloth or a box.

Rain forest cactus plants can be set outdoors in partial shade in late spring after the last frost and brought indoors before danger of frost in the fall. However, long periods of

direct sunlight can cause sunburning. Holiday cacti tolerate temperatures of 65° to 90° F during most of the year. Cooler temperatures of 45° to 55° F during the pre-flowering stage aid in flower bud formation. An east or west window is a good location to maintain holiday cactus plants. These plants often will not flower because of excessive artificial light in the home at night during the pre-flowering season.

Holiday cacti commonly drop unopened flower buds. This may be caused by an excessive number of buds or a sudden change in temperature, light or other environmental factors.

Table 1 is a partial list of commonly grown cacti. Many other species are available and adapted to growing in the indoor landscape. The height and rate of growth of cactus will vary considerably with age, location, growth rate and species.

Table 1. Partial list of commonly grown cacti.

<i>Common Name</i>	<i>Scientific Name</i>	<i>Comments</i>
Artichoke Cactus	<i>Obregonia denegrii</i>	Resembles a dark green pine cone. Three to 5 inches in diameter. Woolly center.
Ball Cactus	<i>Escobaria vivipara</i>	Globular, yellow spines, red-purple flowers.
Brain Cactus	<i>Stenocactus multicosatus</i> or <i>Echinofossulocactus</i> spp.	Two to four inches wide and up to 2.5 inches tall. White, violet to purple flowers
Chin	<i>Gymnocalycium</i> spp.	Flowers pink to yellow. One to 6 inches tall and up to 3 inches in diameter.
Column Cactus	<i>Cereus peruvianus</i>	Upright, 3 to 6 feet tall, white flowers open at night.
Crown Cactus	<i>Rebutia</i> spp.	Yellow to red-orange flowers. Plants up to 2.5 inches wide and 1.5 inches tall. Flattened top.
Fire Barrel/Barrel.	<i>Ferocactus</i> spp.	Long spines. Cylindrical plants. Five inches in diameter, up to 1 foot in height.
Giant Saguaro	<i>Carnegiea gigantea</i>	Solitary trunk with outstretched arms. White flowers. Good as houseplant when young.
Golden Barrel	<i>Echinocactus grusonii</i>	Upright, barrel-shaped.
Hedgehog Cactus	<i>Echinocereus</i> spp.	Small, globular, covered with short spines, easy to grow, good for beginners.
Living Rock	<i>Ariocarpus</i> spp.	Rock-like appearance of the stem. Grows extremely slow. Triangular and spineless tubercles.
Old Man Cactus	<i>Cephalocereus senilis</i>	White to yellow to red flowers. Long grayish hairs. Up to 1 to 2 feet tall.
Pincushion	<i>Mammillaria</i> spp.	Small, easy to flower, plant can appear hairy.

Table 1. Partial list of commonly grown cacti (continued).

<i>Common Name</i>	<i>Scientific Name</i>	<i>Comments</i>
Cacto Rojo	<i>Neoporteria/Eriosyce</i> spp.	Small plants. Good for small places. Flowers white to pink to red.
Prickly Pear, Cholla	<i>Opuntia</i> spp.	Tiny barbed bristles. Difficult to handle. Flat oval pads. Colorful pear-shaped fruit.
Peanut Cactus	<i>Chamaecereus</i> spp.	Numerous branches. Covered with soft white spines with sharp edges. Up to 6 inches tall. Red-orange flowers.
Peruvian Old Man	<i>Epostoa lanata</i>	Tree shaped. Up to 4 feet tall and stems up to 4 inches in diameter. Sharp spines. Lavender flowers.
Silver Torch	<i>Cleistocactus strausii</i>	Four to 6 feet tall. Spiny. Red flowers. Velvety, fuzzy texture. Repeat blooming.
Star Cactus	<i>Astrophytum</i> spp.	Green, spineless cacti, white flakes on ribs. Yellow flowers.
Woolly Torch	<i>Pilosocereus leucocephalus</i>	Columnar branched. Pale pink flowers.

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