



Bitterroot flowers along the Nez Perce National Historic Trail in Lolo.

Growing Succulents

Succulents are popular plants with indoor gardeners. The evolution of water-storing capabilities in their roots, stems and leaves helps them withstand drier climates and makes them easier to care for.

The water content of some succulents may reach 90-95 percent of the plant's makeup. Succulents have a moist, fleshy interior, consisting of stored water that is available for the plant when there is none in the soil. They can often go dormant to survive harsh conditions. Because of the severity of natural growing climates, succulents will flower, pollinate, and develop seeds in a shorter time than many other plants.

There are thousands of different succulent species; one easier way to classify them for a home garden is as soft or hardy. Soft succulents are not frost or freeze tolerant. Hardy, or hard, succulents are more tolerant to colder weather and can survive outside in a Montana winter. Succulents suited to zones 6 and higher would be classified as soft, including those within the *crassula*, *echeveria*, and *sedum* families. Succulents suited to zones 5 and lower would be classified as hardy, and include species in the *sempervivum*, *yucca*, and *lewisia* families, which include Montana's state flower – the bitterroot.



SUCCULENT CARE

Succulents have basic needs: water, light, and nutrients. Remember that these plants evolved in areas of infrequent rain, but not necessarily extreme heat.

Succulents prefer climates with low relative humidity (10-30%) and require good moisture drainage. They should only be watered when the soil/substrate is dry. Once it has dried, additional water should be applied until it runs from drainage holes in the container or completely soaks into the soil. Over-watering or planting in a poorly-draining substrate can stress the plant and lead to bacterial or fungal root rot. Purchase soil mixes specifically for succulents, or create your own (coarse sand, potting mix, and perlite). Containers with drainage holes at the bottom are better suited for succulent plants than those without.

Succulents need adequate light, from 2-3 hours per day for plants with low light requirements, or up to 6 hours per day for high light requirements. If getting enough light is a concern, place the succulent on a windowsill or near an appropriate artificial light source.

Succulents can benefit from being outside in the summer. Place them in a semi-shaded area and gradually move to a sunnier location as plants acclimate to outdoor temperatures and avoid sunburn. Avoid locations that receive hot, intense sunlight from 11 a.m. to 3 p.m.

Succulents don't require as much fertilizer as other houseplants, however, a low-nitrogen fertilizer once or twice in spring and summer can help the plant while actively growing. Succulents enter dormancy during colder, darker winter months and only need enough water to keep from shriveling. They can handle cold while dormant, but watering during dormancy can be deadly for succulents that spend the winter outdoors. To bring a plant into dormancy while inside, provide good light, dry soil, cool nights, and roughly 14 hours of dark per day. To encourage plants to bloom and come out of dormancy, gradually decrease the time the plant is in the dark and begin to water it.

Signs of an unhealthy succulent include spindly growth, pale, shriveled, or dropping leaves and changes in color. Although rare, if a leaf is infected with bacterial or fungal

disease, remove the leaf to limit the spread. Diseases can be prevented through proper watering and bright light. Scale and mealy bugs may also attack succulents; these can be removed with a cotton swab dipped in 70% rubbing alcohol or insecticide. Succulents are sensitive during planting because of their small root system. Damaged roots can leave plants susceptible to soil-borne pathogens, resulting in disease. If roots get damaged when transplanting, keep the plant out of strong sunlight and don't water it for a week to give the roots time to heal.

SUCCULENT PROPAGATION

Succulent plants can reproduce through vegetative propagation (leaves and cuttings), quicker than growing from seed, which can take 3-6 months to germinate and begin to grow. Propagated succulents are more desirable because they are genetically identical to parent plants (where cuttings were taken from).

Propagating a succulent is simple. First, cut a leaf or tip from the stem and allow the wound to callus or dry. Once dried, the cutting can be placed in slightly moistened, sterilized sand. The cutting should be watered sparingly until roots develop. A rooting hormone may speed the process, but it isn't necessary. Test root formation by gently tugging the cutting from the substrate. If there is resistance, roots have formed, and the plant can be transplanted to a container or garden and cared for like any other succulent. The best time to take a cutting is in spring, after the plant's dormant period. The cutting should be kept short to prevent leaf wilting before the new plant can form.

Adapted from the MontGuide "Growing Succulents," MT202208AG, by Adriane Good, former MSU Extension Agriculture Agent in Pondera County, and Abiya Saeed, MSU Extension Horticulture Specialist.



Top: Four varieties of succulent plants are ready to be transplanted. **Bottom:** Sections of succulent plants with roots before transplanting.

For additional information about succulent varieties and propagation requirements, check out the following resources:

- <https://extension.wvu.edu/lawn-gardening-pests/indoor-plants/succulents-101/>
- <https://extension.umaine.edu/gardening/manual/propagation/plant-propagation/>
- <https://extension.umn.edu/houseplants/cacti-and-succulents>