

## **Fall in the Low Desert**

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It's fall in the low desert. What should I do now with my plants?

General Considerations We consider fall to begin when nights are definitely cool while days remain warm, sometime in September or October. Fall is definitely here!

This is a busy time of year for succulent gardeners. Cactus resume active growth after pausing during summer heat. Most mesembs wake up from their long summer dormancy and commence growing. Leafy succulents like Euphorbia and Uncarina must be prepared for winter cold. And, finally, it is the best time of year to plant seed of winter-growing plants like mesembs and winter-growing bulbs.

Cactus in the Fall Cacti and a few other succulents have a specialized metabolism unusual in the plant kingdom. They open their pores to take in carbon dioxide only at night, the better to save water. They use sunlight during the day to convert carbon dioxide and water into sugar.

These processes work best when days are warm to hot, and nights are cool. Few cacti grow well during times of high night temperatures. Many of our cacti slow down during the heat of our summers because they are partially dormant.

However, when nights cool down, our cacti resume active growth. The books tell us to withhold water and fertilizer in the fall to prepare for winter, and not to repot plants now.

But, this is not correct for us in the lower desert! Quite the contrary, now is an excellent time to repot our plants. We should also be watering and fertilizing regularly. Our cacti are going to be growing strongly until our days cool below the 70s, sometime in late November to mid December.

My cacti make more than half their annual growth in the fall. The books were written by people living in places like northern Europe, where winters are long, cold, and dark - six months with weather even colder than we have between mid December and mid January.

Don't believe the books. Water and fertilize your cacti until around Thanksgiving.

Other Succulents in the Fall Many non-cactus succulents come from arid regions with hot, rainy summers, and cool to warm, dry winters. Most of Africa, Madagascar, and the Arabian Peninsula experiences weather like this. These plants are accustomed to flourishing during the summers and going dormant and leafless during the long winter. Almost none of these plants tolerate frost, and they tend to rot quickly when they are cool and wet.

Examples of such plants include almost all Euphorbia; almost all cucurbits, including Corallocarpus, Dendrosicyos, and Gerrardanthus; all Adenia; all asclepiads like stapeliads, Ceropegia, Cynanchum, Fockea, Folotsia, and Matelea; all Pachypodium except for P. namaquanum, which grows in habitat in the cool winter; all Pedaliaceae such as Sesamothamnus and Uncarina; and all Adenium.

Now is the time to plan for bringing these plants under protection. They are not happy with our cold nights and cool winter rains. We must have our winter hibernating space prepared in advance or we will be caught when frost threatens, awake until 3 am bringing our precious plants into the living room.

Make sure these plants spend the winter where there is good air circulation, protection from frost, and bright light. For some of us, a patio is sufficient to overwinter these plants. Others bring them into a sunroom or a cool, well-lighted room in the house.

To prepare for the move, stop watering these plants sometime in the fall. Clip the tops off the vining caudiciforms to force them into dormancy. It is a hard decision to make; they are also in active growth right now, but we must act before it gets too cold. And, sometimes it can go from warm to cold almost overnight.

What? You mean some plants grow ONLY in the winter? A tiny fraction of the Earth's land mass experiences a climate with warm to hot, dry summers, and cool to cold, damp to wet winters. This is called the Mediterranean climate; it is found in the lands surrounding the Mediterranean sea, the southwest tip of Africa, the southern coasts of Australia, the west coast of South America from Peru south, and southern California to northern Baja California.

Plants from these regions are adapted to this climate. They grow during times of short days, long nights, cool temperatures, and plenty of moisture. During warm seasons they are dormant, and many would be killed with even one summer soaking.

Most ice plant relatives, family Aizoaceae, known to aficionados as mesembs, grow like this. This would include Cheiridopsis, Conophytum, Dactyloopsis, Drosanthemum, Lampranthus, Mitrophyllum, Monilaria, Pleiospilos, Ruschia, and Titanopsis.

So do almost all members of family Crassulaceae, including Adromischus, Crassula, Dudleya, Echeveria.

Also, many bulbs, including many Albuca, some Boophane, all Brunsvigia, Lachenalia, and Massonia.

These plants wake up in the fall, grow rapidly all winter, and go back to sleep in the spring. Now that nights are cool, water these plants once heavily. Stand back. If they wake up and begin growing within a week, resume regular winter care for them: Keep them moist to wet, fertilize regularly, and continue like this until night temperatures start to rise, which is usually sometime between late March or early June.

If they don't wake up after that first watering, wait two weeks and try again.

What Seeds Can I Start Now? All the above winter-growers can be started now outside.

There are many successful ways to sprout seed. I will tell you what works for me.

I use 20-ounce or larger styrofoam drinking cups I recycle from work or buy by the case. The styrofoam keeps the soil cooler during warm weather, which is important for most seedlings. I do not make holes in the cups at first - not until the seedlings are well established. This goes against

everything you may read or have been told, but those pots must stay moist while the seedlings are sprouting.

Rather than the tiny pots many people use for seedlings, I have found larger and deeper pots much preferable in our low humidity. Seedlings need to stay moist to very wet, and may be killed by drying out even once. Almost all seedlings should stay in their nursery pots for at least 2-3 years. If you are able to check your seedling pots several times per day, every day, by all means use tiny pots. I don't have that kind of time.

I use a sandy, freely-draining mixture of regular desert soil, sand, and perhaps pumice or perlite. I never use any organic matter such as bark, potting soil, or peat moss EXCEPT for the few succulents that benefit from this - mainly genus Conophytum, which prefers definitely acid soil. Organic matter attracts fungus gnats, which eat seedlings.

I fill the cup to within an inch of the top with soil, add some water, drop the seeds on the water, and swirl and shake gently while the water is being absorbed to even the soil surface and distribute the seeds uniformly. After the water soaks in I sprinkle a very thin layer of coarse sand or pumice over the seed to cover it just barely.

I set the pots where they will be protected from birds - this is very important. I expose them fully to winter sun and rain. I cover them with paper frost "cloth" on freezing nights, though this may not be necessary.

I keep the soil WET, not just moist, until the seedlings are well- established. The soil should be glistening wet. This is known as the bog method. Some people sprout seedlings in pots with holes in the bottom and stand them in trays of water. I used to do this but I stopped because I can get the same results from pots without drainage holes, and because I am afraid of mosquitos and West Nile fever.

After the seedlings are well up, I keep the soil moist rather than wet, but I never let them dry completely. At this time I make drainage holes in the sides of the cups near the bottom with a knife, chopstick, or pencil.

I fertilize with quarter-strength balanced liquid fertilizer about once a week. They grow fast!

Some of these seeds need warm days and cool nights to sprout, and will not sprout if planted later in the winter. Bulbs and many mesembs fall into this group. So, get to work!

Mesemb seedlings should be kept growing constantly through their first summer, if possible. This doesn't work outside, where high temperatures will force them into dormancy. If you have space in the house, bring the seedling pots inside and put them in bright light. Let them get almost dry between waterings. If they go dormant, stop watering, but do give them a good spray every 2-3 weeks through the summer.

If you must keep your mesemb seedlings outside over the summer, they will go dormant when nights heat up, between April and June. Put them in the shade! Be sure to give them a good spritz them with water every 2-3 weeks, dampening the top eighth inch of soil, but do not soak the entire pot. Almost none will survive a long, hot summer such as ours with no water. Don't divide mesemb

seedlings until they are overgrowing the seedling pot, which will take 1-2 years for most.

Next spring, when it warms up, stop watering bulb seedlings and put the seedling pots in the shade or in the house where they will be cooler. Leave bulbs dry all summer. Don't unpot and divide bulb seedlings until after the 2nd or 3rd growing season.

Now is also a good time to sprout cactus seed. They need bright light but no direct sun, so almost any windowsill is fine. An indoor light setup with 4 foot fluorescent shop lights is inexpensive and works well. Seedlings don't need special grow lights. So long as days remain above the mid 70s, outside in bright shade is fine for most cactus seed. Then, when it cools down, bring them inside.

I use plastic containers such as yogurt cups or smaller styrofoam drinking cups. Cactus seedlings like to be very crowded for the first year or two. I do not punch holes in cactus seedling pots. They need to stay quite moist for the first year or two; drying out even once may kill all your seedlings. I had trouble with pots drying out when I made drainage holes.

Fill the container about three-quarters full of desert soil. I don't ever use organic matter or potting soil for cactus seedlings; this invites fungus gnats, which will eat your seedlings. Soak the soil thoroughly so there is water standing in the cup. After you are sure all the soil is wet, pour off all the extra water you can. Sprinkle the cactus seeds evenly on the surface of the soil. Lightly sprinkle a thin layer of pumice or large gravel. Don't cover them too deeply; they need light to sprout. Spritz them with water from a spray bottle to be sure the seeds and soil surface are very wet. Put a baggie or plastic wrap over the pot and secure with a rubber band. Set the pot in very bright light but not in direct sun, which will cook the seeds.

After most of the seedlings have sprouted, open the covering for a little air circulation, but keep the soil very moist for the first year or two. Put the seedlings where they receive bright light, but never direct sun. They should stay a nice green color with maybe some red streaks. Too red means too much light, and pale green means too little light. Yellow or white means death from sunburn.

Don't divide cactus seedlings until they are so crowded they look like a cushion of green. This will almost always be at least 2-3 years.

Some of my favorite sources of seed include:

The seed depot of the Cactus and Succulent Society of America, with discounted prices for CSSA members;

Mesa Garden, Belen, New Mexico, which offers thousands of species of cactus, mesemb, and other seed;

Silverhill Seeds, Cape Town, Republic of South Africa, with thousands of species of annuals, bulbs, perennials, trees, shrubs, succulents, and more.

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