

Winter in the Valley of the Sun **by Dr. Leo Martin**

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

General Considerations

Some people define "winter" in the desert as that time of year when we have some days too cold for short pants. Others go by the calendar and say it begins the second week in November.

Winter begins when we have many very cool days and, at night, the chance of frost. Early frosts in some outlying areas of the Valley of the Sun arrive in mid November, and may arrive at any time through early March.

Some areas experience almost no frost.

Frost is the big concern here. Frost protection must be planned, purchased, and applied before frost arrives. So, it is important to have frost protection ready in advance.

Our frosts result from ground heat radiating away into the sky on clear, still, cloudless nights - those nights when stars sparkle like diamonds on black velvet. With no aerial water vapor to trap and reflect heat, it dissipates away. Cloud cover acts like a lid on a cooking pot, retaining heat.

Temperatures drop all night, with minimums occurring at sunrise. The sun's rays quickly warm the land above freezing.

Coldest temperatures are at ground level; 30 feet into the air temperatures are almost always above freezing. This is why citrus groves have large fans: they circulate air in vertical cycles and pull warmer air down to ground level.

Cold air is heavier than warm air and will flow downhill like water.

Obstacles trapping the air flow, like low retaining walls, will be cold spots. Plants uphill from such walls will be at risk. Areas near desert washes will be colder than nearby hills. I live near the confluence of two fairly large washes, and I experience lows around 12 degrees colder than another CACSS member living just 4 blocks from me.

Dry plants tolerate cold weather better than wet plants, so most of us stop watering our summer-growing plants in late fall and give them time to have dry soil when frost arrives. Note that here we are referring to summer-growing plants like cacti, most Euphorbia, and most pachycaul succulents. Most mesembs and most southern African bulbs grow during cold weather and prefer to be moist to wet during the coldest, darkest days.

For a smaller collection, moving plants indoors or under a patio cover suffices. Patio covers trap heat and, unless we get a really cold night, are adequate to keep plants above freezing. But, don't wait too long to move your plants! Oh, how many pleasant memories I have of arriving home at 6 pm when frost is predicted and moving hundreds of plants under cover until 4 am.

There are a few plants that will not tolerate low but non-freezing temperatures. Don't risk your tropical euphorbias on the patio, and I have found Uncarina to be more tender than other plants.

Plants in the ground can be covered with frost cloth or shade cloth.

Frost cloth is a non-woven paper product, normally white, which traps heat at night and transmits light the next day. It does not need to be removed until weather is good and warm. each day. Use a method to hold the cloth off the growing tips or the tips will freeze. On really cold nights, be sure the frost or shade cloth drapes to the ground to prevent cold air from flowing downhill and under the cloth.

Cactus growing points are more tender than mature stems. If you wander through large, old gardens, you will still see scars from the December 1991 freeze. Even if your cactus has its tips nipped, it should recover and branch below the frost damage. Styrofoam cups placed on the tips are usually enough to protect most cacti in the ground.

Many Mammillaria cactus will grow and bloom throughout our winter if protected from frost outside. Natural rain may be enough water for them.

During warmer spells I water some of my Mams otherwise protected from rain and frost under a patio cover. Other cacti that may grow during the winter - therefore needing some water - include Copiapoa, Neochilenia, and Pachycereus species.

A simple high/low memory thermometer is a great asset to the gardener. Put it outside near your plants. Each night, compare and write down the published Phoenix low temperatures, recorded at Phoenix Sky Harbor Airport, with the low readings in your garden. After a winter you will have a good idea how your low temperatures compare with the official low temperatures for Phoenix, and you will be able to predict when you will have frost based on predicted lows. For example, if you notice that your garden is consistently 12 degrees colder than the official reading at the airport, and a low of 38 is expected for Phoenix Sky Harbor Airport, you will know to expect frost.

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. By now we should be keeping such plants moist to wet, fertilizing regularly, and continuing like this until night temperatures start to rise, which is usually sometime between late March or early June.