Frost on the Cactus

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While working for the Boyce Thompson Arboretum near Superior for the past three and a half years, I have learned some lessons about frost and succulent plants the hard way. Some of these lessons may be of interest to you in trying to keep your own plants from dying or being injured during our sometimes severe winters.

Our gardens are situated at 2,400 feet of elevation, and have experienced a low of 17 degrees F in 1969, which marred our specimens of senita and eucalyptus. I have found establishment and correct situation to be of utmost importance in avoiding frost damage. Cold air is much like water and low areas where cold air can settle should be avoided when dealing with tender plants. The most critical time as far as frost is concerned is just before sunrise when the air is the coldest. The plants should be situated so the frost can be burned off as quickly as possible. Minutes hang like hours when there is frost on your plants. Placing frost sensitive plants adjacent to rock walls that throw back absorbed heat has worked with reasonable success in our cactus gardens. Establishing your plants in the summer so they can lay down extensive root systems before winter rolls around is important. Well established species usually fare better through a severe frost than poorly established plants. The gradual withholding of water during the fall to take your plants into winter dormancy is important to harden summer's growth before winter sets in. If the plants are outside, they generally get enough water from our winter rains to keep their roots alive. This is what usually damages our aloes. They engorge themselves on the winter rains, and then are zapped by the cold air.

If possible, one should cover tender plants when especially low temperatures are expected. Never use plastic bags as they tend to conduct the cold right to the growing point of the plant. Paper grocery bags and corrugated boxes are good. Blankets and other cloth covers are good insulators against the cold, but can become very heavy if rained upon. Natural lath houses like trees and shrubs, give some protection. Speaking of lath houses, aluminum houses have been found to be 10-20 degrees colder than wooden houses which could make quite a difference for some tender plants. The floor of the lath house tends to be its coldest part and thus, should be avoided. All frost tender species should be staged above the floor so that cold air can drain off. Keep an eye and ear on weather reports. When the severest weather threatens, prized possessions can be moved inside.

Most species of the following genera have proven hardy enough to withstand even our severest frosts: *Acanthocalycium, Ancistrocactus, Arequipa, Ariocarpus, Astrophytum, Austrocactus, Aztekium, Blossfeldia, Borzicactus, Chamaecereus,l Cochemiea, Copiapoa, Coryphantha, Dolichothele, Echinocactus, Echinocereus, Echinofossulocactus, Echinomastus, Echinopsis, Epithelanta, Escobaria, Espostoa, Culychnia, Ferocactus, Frailea, Cymnocalycium, Haageocereus, Hamtocactus, Horridocactus, Islaya, Leuchtenbergia, Lobivia, Lophophora, Loxanthocereus, Machaerocereus, Maihuenia, Mammillaria, Matucana, Neobesseya, Neolloydia, Neoporteria, Notocactus, Obregonia,*

Opuntia, Oreocereus, Oroya, Parodia, Pediocactus, Pelecyphora, Pterocactus, Pygmaeocereus, Pyrrhocactus, Rebutia, Sclerocactus, Setiechinopsis, Soehrensia, Strombocactus, Stetsonia, Sulcorebutia, Tephrocactus, Thelocactus, Toumeya, Trochocereus, Turbinocarpus, Weingartia, and *Wilcoxia*.

Even though we look at the saguaro as a pretty tough cactus in our area, it can be killed if the temperature drops below 32 degrees F for more than 24 hours. Cold weather is a challenge. I hope my observations will help you to save your plants from the iceman.