St. Augustine Orchid Society

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Winter Cold Weather

January 2002

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Orchid Growing Tips

The good news is that days are getting longer, but the bad news of course, is there are three more months of winter. Given that the average annual temperature is usually just a degree or two above or below the average for all years, and that we had a very warm fall: it might be very cold during the next three months. Weather extremes are the real challenge for orchid growers. One night below 32ºF or above 120ºF and the rest of the year does not matter. A heating or cooling system must be able to handle the worst possible condition, otherwise you run the risk of loosing your orchid collection.

When does the worst scenario occur? When you are least prepared. For me, it was waking up in the middle of the night and realizing that the house was cold and very dark. The power was out on a record cold night. Of course, gas heaters with electric fans and thermostats were also not working and the greenhouse was already down to 35ºF. A kerosene heater and Coleman cooking stove saved the day. Even though the greenhouse temperature was below freezing for 10 minutes or so, no plants died. Why? Fortunately, plants contain lots of water that holds heat, which means that a plant has a certain amount of residual heat.

Orchids are also more tolerant of extremes if they return to normal temperatures quickly and if they are in good health. The morning sun hitting a plant leaf quickly warms the leaf, just as the sun quickly warms your car. Phals should be kept at a minimum 65ºF at night in winter. On extremely cold nights my greenhouse may approach 60ºF, but there is rarely any direct or indirect damage as long as the daytime temperature gets back to normal quickly. On very cold nights followed by gloomy days where the greenhouse remains at the minimum 65ºF, there are often phals that drop buds and bacterial rots appear in the next week or so. These are just some of the sub lethal effects that come when a phal's internal temperature gets too low. Each type of orchid has a minimum temperature below which it stops growing and becomes vulnerable to diseases.

Many greenhouse heaters are equipped with day/night thermostats that allow you to set a different greenhouse temperature for night and daytime. The change in temperature during the day is also important. While this feature may only be used a few times a winter, it can make a huge difference in the health of your plants.

This time of year when greenhouses are closed is also a time to carefully watch for disease. Besides maintaining the proper temperature, avoiding overly high humidity and maintaining good air movement are critical. Cold plants will condense moisture on both leaves and flowers leading to Botrytis (small brown spots on flowers) and various fungal rots. Humidity levels at 70-80% at night are ideal, but avoiding 100% humidity is critical. It might seem impossible to keep humidity lower than 100% on very cold nights. Gas heaters tend to lower humidity on cold nights because the air burned is replaced by cold air from outside that is typically very low in humidity.

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If you use electric heat or if the humidity outside is very high it can be difficult to keep humidity below 100%. Rapid air movement is the only solution. Avoid watering during these periods. Commercial growers often use preemptive spraying, a costly alternative. Good greenhouse hygiene is now more important than ever and cannot be emphasized enough. Remove dead leaves and flowers from plants, benches, and floors. You may even find that spraying Physan on floors and benches will help. On warm days, turn on ventilation fans and exchange air inside the greenhouse as much as possible with fresh air. Most growers that report constant problems with disease fail to follow these basic tenants of good culture.