St. Augustine Orchid Society
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Growing Phalaenopsis – What Can Go Wrong

by Sue Bottom, sbottom15@bellsouth.net

Phalaenopsis are easy to care for and they bloom and bloom, some for more than three months at a time. They enjoy bright shady conditions and a somewhat water retentive growing medium. They are sensitive to the cold so they may need a winter home indoors, an eastern window is ideal. Finding a location outdoors in the summer months where they are exposed to loads of fresh air and the day night temperature change will pay big dividends when it comes time for them to bloom. Just be careful to have them in a location where water cannot collect in the crown of the plant causing rot. A covered porch or pergola is an ideal place to summer your phals. So if they're so easy to grow, what can go wrong? I've had my share of maladies, from cultural errors, pests and diseases and have also received pictures of phal problems other growers have shared, some of which are reproduced herein.

Problems with Culture. You know you have to balance the amount of water, light, air, etc. your orchid receives, but everyone makes cultural errors from time to time. Improper watering can create a variety of problems for you as can insufficient air movement, extreme temperatures, etc. Cultural errors may very well cause more problems than those from orchid pests and diseases.

Crown Rot. If water is allowed to stand in the crown of your plant, naturally occurring bacteria will proliferate which can cause the growing tip of the plant to rot. This is a major concern for outdoor growers who do not have an overhang or cover to prevent water from accumulating. Normal watering can also cause water to pool in the crown. Tilt the plant to allow water to drain from the crown or position the plant so the crown will naturally drain any accumulated water or add a few drops of hydrogen peroxide to the crown to kill any bacteria. Your hope is that the plant will sprout a new plantlet from below the damaged crown.

Crown Rot from Water Accumulating in the Crown of the Plant

Phalaenopsis grow upward from a central stem. If the growing tip rots from water standing in the crown, the plant cannot grow replacement leaves.

If the plant has sufficient energy reserves, it may be able to sprout a new plantlet from the base of the plant below the damaged tissue.

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Edema. Edema is caused when your plant absorbs more water than can be shed from the leaves, so the plant cells swell and produce a blister like lesion. It typically occurs when watering late in the day on a day when the night turns cool. During the cooler months, it is important to follow the much repeated advice to water early in the day.

Edema – Blister Like Lesions from Watering Late when Nights Turn Cool

You can see water filled blisters in the early stage of edema (the blue spotting is residual from spraying a copper fungicide).

The damaged tissue can become tan to brownish and corky over time and trick you into thinking it is some sort of scale infestation.

Root Rot. The roots on your phalaenopsis can rot either because they are being watered too frequently or because the potting mix is breaking down, which is a nicer way of saying your potting mix is rotting. If the mix begins to rot, your roots will likewise begin to rot. You may also find a while filamentous snow mold growing in the decaying mix. The snow mold is water repellent, so once it covers the roots they cannot absorb water. If your plant starts to look dehydrated, it probably is dehydrated. Knock it out of the pot and find out why.

Root Rot – Overwatering or Decaying Potting Mix

Your phal leaves should be plump and turgid. These leaves became thin and droopy because the roots rotted and couldn't absorb water.

Repot your phal in fresh potting mix and water lightly until it reestablishes. This is the same phal plant 3 months later.

Snow mold also grows in decaying potting mix and can suffocate the roots. Wash off the old potting mix and repot in fresh mix.

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Sunburn. The sudden appearance of black spots can be caused by sunburn, a result of leaves becoming overheated from too much light such as from a sudden increase in light during a change in seasons or moving plants outdoors in the spring. The burn occurs on the highest point of the leaf where it is exposed to the most sun. The burn fades to thin tan colored leaf scar over time and can be invaded by secondary infections. If the damage is not too severe, it is unsightly but the leaf will still photosynthesize. You may want to remove severely damaged leaves.

Temperature Effects – Sunburn and Cold Damage

Sunburn is really a thermal effect that begins as a whitish or yellowish scar fading to tan or black depending on the severity of the burn.

Cold damage can occur from cold temperatures, watering with cold water or using ice cubes.

Cold Damage. Cold damage can occur from exposure to low temperatures or watering with cold water. Cold damage causes the collapse of cell tissue resulting in surface lesions, pitting, sunken areas and discoloration. The tissue can become water soaked, wilted and browned and can be susceptible to secondary infection. Know the temperature requirements of your orchids and watch the projected nighttime lows during winter. Use room temperature water for your orchids and save your ice cubes for your evening toddies. Remove severely damaged leaves.

Problems with Pests. Mealybugs, scale and mites are the most common enemies of your phalaenopsis.

Mealybugs and Scale. While they have different appearances, the damage they cause and their treatment are the same. *Mealybugs* appear to be white cottony masses that can occur on any part of the plant from the roots to the flowers, though they tend to hide in plant crevices. There are different types of *scale*, but the kinds that typically infest phalaenopsis are soft brown scale, that forms light yellowish to dark brown oval to circular shells, and armored scale, that ultimately forms a brown conical structure protecting the juvenile scale underneath it. Scale can appear on leaves, flowers, flower spikes and sometimes roots. Soft scale produces honeydew while hard scales do not.

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Mealybugs and Scale

Mealybugs look like white cottony masses that may appear on your leaves, though they love to hide iin plant crevices.

Mealybugs are also happy feasting on your roots, out of sight. You may have to pour an insecticide drench through the potting mix.

Soft brown scale may appear on leaves, flower and flower stems. You may notice a sappy sticky substance.

Armored scale has a hard, crusty coating protecting the scale underneath, but can easily be removed with a Q-tip or soft toothbrush.

If there are only a few scale or mealybugs, use a Q tip dipped in isopropyl alcohol to physically remove the pests, or put the alcohol in a spray bottle and spray all visible pests and hiding places. For more severe infestations, use repeat applications of a contact pesticide or use the home made remedy of one part isopropyl alcohol, one part 409 soap and 2 parts water. Be sure to spray all plant surfaces and pest hiding places. Drenches, in which the insecticide is poured through the potting mix, are easier to apply than contact pesticides and probably more effective with the added benefit of lowering your potential exposure to chemicals. You can use one of the Bayer products containing the active ingredient imidacloprid and the orchid will move the chemical through the roots into the leaves and kill the pests from the inside out. For the product containing 1.47% imidacloprid, add 1 ounce per gallon of water; for the 0.74% strength product, add 2 oz/gal; and for the 0.47% strength product add 3 oz/gal and pour it through the potting mix.

Mites. Mites are not insects, they are members of the spider or arachnid family. There are three groups of mites infesting cultivated orchids, spider mites, flat mites and broad mites. The two spotted red spider mite (*Tetranychidae*) causes a chlorotic spot or stipple at each feeding site as chloroplasts are sucked out along with the plant sap. Leaves eventually develop a mottled or stippled appearance with webbing under the leaf in severe infestations. Flat mites, or false spider mites (*Tenuipalpidae*), including the Phalaenopsis mite, often feed on the upper surfaces of leaves creating a pock-marked appearance from empty and collapsed leaf cells. Broad mites (*Tarsonemidae*) are microscopic in size and the initial symptom is chlorotic discoloration.

Mites proliferate during warm, dry conditions and are often pests on indoor phalaenopsis. To prevent and/or treat for mites, spray upper and lower leaf surfaces with the home cure mixture of 1 part rubbing alcohol, 1 part 409 or Murphy's Oil Soap and 2 parts water. Plants can also be sprayed with a miticide like Avid, Talstar or Kelthane following label instructions being particularly careful to contact all the undersides of the leaves. During

warm weather, new generations mature every 6 days so repeat applications will be required.

Mite Damage on Phalaenopsis

Damage from Red Spider Mite includes stippling and webbing on the underside of the leaf.

Damage from Flat Mites includes pockmarking on the upper leaf surface and no webbing.

Problems with Diseases. There are some diseases phalaenopsis are susceptible to, including bacterial soft rot, bacterial brown spot, collar rot and botrytis.

Phalaenopsis Diseases –Bacterial and Fungal Problems

Bacterial Soft Rot *(Erwinia)*

Bacterial Brown Spot *(Pseudomonas)*

Collar Rot, Southern Blight *(Sclerotium)*

Flower Blighting (*Botrytis*)

Bacterial Infections. With *bacterial soft rot*, small water-soaked spots appear on the leaves and often are surrounded by yellow halos. If unchecked, the infection spreads so rapidly that plants may be completely rotted in 2 to 3 days. This wet rot may have a foul odor and has a water soaked appearance. *Bacterial brown spot* is the most common disease of phalaenopsis. The symptoms may appear anywhere on the leaf as a small, soft, water soaked blister that may be surrounded with a yellowish or pale green halo. Initially dirty green in color, spots coalesce and enlarge, and eventually becoming brown or black, dried up and sunken. If the diseased area invades the crown, the plant will die.

For the fast moving soft rot, immediately remove infected tissue an inch below the affected tissue using a sterile instrument, then pour peroxide over the wound. For bacterial brown

spot, pour peroxide over the infected tissue and if it continues to enlarge, consider removing infected tissue. Bactericides like Physan or copper compounds can be sprayed on infected and adjacent plants following label instructions (copper should not be used on dendrobiums or blooming plants). Treat nearby plants as well as those that are diseased.

Collar Rot. The main symptom of Southern Blight or Collar Rot is a rapid collapse and rotting of the roots, pseudobulbs and lower parts of the leaves. The base of the stem turns creamy yellow, later dark brown and infection spreads to the roots and leaves. The disease eventually girdles and destroys the entire basal portion of the plant. Small yellow or tan sclerotia resembling mustard seeds form on the affected tissue. You can treat the plant with a systemic fungicide containing thiophanate methyl (like Thiomyl, Cleary's 3336 or Banrot) and perhaps save the plant if the disease has not progressed too far. Sterilize benches and surrounding area with bleach, physan or pool algaecide.

Botrytis. Botrytis is a fungal infection that causes very small, black or light brown spots on the flowers. The spots may enlarge and cover the entire flower. If conditions are moist, a gray fungal growth may appear on severely infected or decaying flowers. This fungus is common in the environment and cannot be eradicated. Remove infected flowers since these are reservoirs of infection. Infection may be reduced through careful sanitation, increased air circulation, reduced humidity and warmer night temperatures (above the mid 60's). You can spray with a protectant fungicide like Daconil or the home remedy of baking soda at 2 tsp/gal.

Problems with Virus. Virus expresses itself in chlorotic and necrotic spots, streaks, lines and rings in the leaves. Flowers may show necrotic spots and streaks as well as color break, often resulting in an unhealthy, ugly looking plant. The virus, if present, is present in all parts of the plant. There is no treatment for a virused plant. Destroy the plant to prevent it from infecting other plants. If the plant is valuable, isolate it completely from other plants and follow strict precautions to prevent infecting other plants.

Virused Phalaenopsis

This phal suffers from 'ugly plant syndrome' as a result of virus, confirmed by the Agdia test strip.

Virused phal has chlorotic streaking and spotting, although there is no color break in the flower.

A very faint chlorotic streaking in the leaf is an early warning that the plant may be virused.

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Problems with Deformities. Sometimes there are problems that can arise for no obvious reason. A bloom spike can emerge from the center of the plant from the growing tip of the plant, called an apical spike, rather than from under the leaves. This may mean the plant will no longer produce new leaves from the growing tip and you may have to wait for a basal keiki to form for the plant to continue growing. The bloom spike can also get twisted under the leaf and even start growing through a leaf in its attempt to grow toward the sunlight. I have broken many spikes trying to straighten them. If you don't catch it early enough to gently reorient the spike, it may be better to let the spike find its own way. You may also get leaf deformities which may indicate a genetic defect, a reaction to chemicals applied or just a random mutation and the next plant growth will be normal.

What the …?

This phal has a normal flower spike to the right and an apical spike emerging from the growing center of the plants.

This flower spike got disoriented as it tried to emerge and got twisted under the leaf as it tried to grow towards the light.

This leaf seems to have mutated growing into a funnel shape.

Seasonal Care. In the spring, once nighttime temperatures stay about 60°F, move your phal to its shady summer home. During the summer, your phal will gather its strength for next year's blooms. Water with a dilute fertilizer solution when the potting mix approaches dryness. When the temperatures first start to cool in the fall, leave the plant outdoors to receive a chill as long as temps don't drop below 50 or 55°F. This signals the plant to start the bloom cycle. After two or three weeks or when the temps drop below 50°F, bring the plant indoors for the winter. Continue watering with a dilute fertilizer solution when the potting mix approaches dryness. You should see flower spikes by Christmas and flowers by Valentine's Day. By Independence Day, you'll remove the spent flower spike and decide whether your plant needs to be repotted, normally needed every year or two.

Finding the right spot to grow your phalaenopsis will prevent many disease and environmental problems from developing. A bright shady spot with fresh air bathing your plant will help keep it healthy. Observe your plant to make sure the leaves are plump and green, and respond to any problems quickly. Then kick back and enjoy the blooms!

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When All Goes Well

Phal. Medellin Spring (*Phal.* Brother Love Rosa x *Phal*. Little Gem Stripes)

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