

by Richard Molle

“Orchid Ailments And Their Management”

Like any plant, Orchids can suffer from pests, disease and ailments associated with poor cultural conditions. The Orchid-grower must be observant and act when any sign of pests or disease is evident. Priority should always be given to the least toxic, effective option for control of pests and disease. Along with observation and appropriate treatment, preventative measures should be a key component of our cultural practices.

Orchids can be long-lived plants, and fortunately they are largely resistant to pests, however, this does not mean they are invincible! For many of us, the first signs of pests are an infestation, leading us to ask “where did these come from?” The truth is that infestations, no matter how small, do not happen overnight. Vigilance in inspecting your plants is vital to stay on top of pests, as they can very quickly get out of hand. Once you have spotted a pest, the key to controlling it is accurate identification.

Most Orchid pests can be thought of as either sucking or chewing. Among the most common types of sucking pests include: Aphids, Scale, Mealybugs, Thrips and Mites. All of these pests can be controlled using low level measures such as washing or blasting them off with water. Particularly bad infestations will require chemical controls to be applied several times at regular intervals in order to stop the next generation from repeating the cycle. In addition to this, it is often recommended to alternate using different chemicals to avoid the development of resistance in these pests.

Amongst the most ubiquitous of pests are aphids. These small sap-sucking insects are typically found on new, tender growing points. Their piercing mouth parts can be particularly damaging to buds and flowers. Even worse than this, they can be carriers of disease, and transmit virus from plant to plant in your collection. I prefer to squash these bugs, or take the plant outside and hose the aphids off. When detected early, aphids can be prevented from causing any significant damage. A tell-tale sign of aphids is the presence of ants, which feed on the honeydew excrement from the aphids. Alternatively, scale may be present, which also secrete honeydew and attract ants.

Scale are referred to as soft or hard, based on the armoured shell that protects their soft body. This shell must be damaged before the insect beneath can be killed. Scale are commonly found on the underside of Orchid leaves, near the mid vein, leaf axis, or flower stems. If only a few scale are present, my first preference is to physically remove them by rubbing or scratching them off. Alternatively, I soak a cotton bud in isopropyl alcohol (rubbing alcohol) and wipe it across the scale’s shell. This should be done slowly and precisely so that the alcohol penetrates the armoured shell of the scale. If larger infestations are evident, then an insecticidal soap or horticultural oil can be used. These aim to suffocate the scale by blocking their breathing pores.

Mealybugs resemble their namesake, appearing as a cottony or mealy mass. Careful observation of your Orchids is needed if mealy bug is to be kept in check, as they typically hide in the crevices of leaves, sheaths and stems, with one type even affecting roots. Their waxy body makes control more difficult, and my first preference is always manual removal. If the infestation is too large, then an isopropyl alcohol soaked cotton bud is used, or a horticultural oil. It is important to isolate badly affected plants in order to prevent their spread throughout your collection. If the roots are affected, then I remove the Orchid from its pot and soak the roots in an insecticidal soap solution for at least two hours before reporting it into a clean pot with new potting material.

Some of the most destructive sucking pests are Thrips. Flower buds, maturing flowers and young leaves are the most commonly affected plant parts. Thrips are too small to be easily seen with the naked eye, but the damage they cause is easy to see, appearing as streaks on flowers and stippling on leaves. Deformed flowers

are also evidence of thrips. The best treatment for Thrips is insecticidal soap or horticultural oil. If using these, try to avoid getting them on the roots of your plants, as they can potentially damage them.

Spider mites are actually spiders and not insects. They are commonly prevalent when conditions are hot and dry, and are difficult to identify due their small size. Spider mites will feed on the leaves of your Orchids and cause a stippling effect on the foliage. In extreme infestations, a fine webbing will be evident on the leaves as well. Before it gets this bad, my preference is to wash them off the plant with a strong jet of warm water or use a horticultural oil. Fortunately, the high humidity up here in the subtropics makes Spider mites less common than some of the other pests listed above, and this provides a clue for their prevention. Adequate watering and humidity will decrease the incidence of these pests on your Orchids.

The second group of pests are the chewing type, including: slugs, snails, cockroaches and rodents. These pests can cause significant damage to your Orchids in a relatively short period of time. Fortunately, they can all be relatively straight forward to control, with a number of commercially available products to choose from. Before reaching for a poison, think about your pets and the local wildlife. If your orchids are growing in, on or under trees or out in the open, then a non-toxic option should be used. Slugs and snails can be caught and killed in a beer trap, gathered up on a lettuce leaf or on a piece of cut fruit left out the previous night. Traps can be used for other pests and should be checked regularly.

If you are growing your plants in a secured house with no access for pets or wildlife, then poison baits can be used. My preference for snails and slugs is Yates "Baysol" bait

(Figure 2), which is fast acting and mould resistant, making it last longer than any other brand I have tried. Mortein's "Kill and Protect" cockroach baits (Figure 1) are also long lasting and very effective

Figure 1: Kill and Protect cockroach



Figure 2: Baysol snail and slug



I scatter these throughout my Orchid houses every three months and have not had any trouble for the last few years since using them. Finally, mice can be a problem, especially in the cooler months. To control them I use a combination of traps outside and Talon brand rodent poison inside the growing area away from animals. If I had a pet dog or cat, I would be more cautious about using these baits and poisons, but in my current situation, I find them very useful.

Diagnosing and treating disease is trickier than dealing with insects as only the damage, rather than the pathogen, is seen. The most common types of diseases are caused by bacteria, fungus, or virus. It is also possible that a sick Orchid may be suffering from more than one disease, as a weakened plant is more susceptible to secondary infections. If a disease is found to affect multiple plants, or reappears after treatment, then careful consideration must be made to the culture and conditions being provided to your Orchids. Similarly to the treatment of pests, successful disease treatment first requires accurate identification.

Pseudomonas and *Erwinia* are amongst the most common bacterial diseases affecting Orchids, and can both be fatal. *Pseudomonas* is generally known as crown rot and can spread through the plant rapidly, causing death if not treated. *Erwinia* is associated with soft rot, which typically develops in the leaves of Orchids. Both these bacterial infections need to be treated as soon as they are seen. The first step in treatment should be the removal of all affected tissue. I use a sterile, single-edge razor blade to cut a couple of centimetres below the infection into healthy tissue. I then either cover the exposed tissue with Tomato Dust if small, or drench the plant in Physan and repot if more widespread. In all cases, it is important that the disease be stopped before spreading to the crown of a monopodial Orchid or rhizome of a sympodial Orchid. If the bacteria get into these parts of the plant, they may not be able to recover and you should consider disposing of the plant.

Fungal infections can also affect Orchids. Rusts, smuts and Botrytis commonly affect Orchids grown in conditions without adequate air movement. These pathogens typically appear when temperatures drop, leading to higher humidity. Once flowers are affected, the symptoms are irreversible, but not fatal to the plant. Preventative fungicides like Mancozeb can be used before and during these cold and damp conditions, and the types of fungicide used should be rotated to avoid resistance. My own way of dealing with this for flowering plants is to simply bring them indoors while still in bud. The lower humidity inside the house prevents the infection of these flowers. Hygiene of the growing area is also important to minimising the prevalence of pathogenic fungi, and all old vegetative material should always be removed. If possible, increasing the air movement is the most effective control measure of all.

Perhaps the most insidious of all ailments is virus. Orchid viruses are more common than many growers realise, and can be spread by pests such as aphids as well as the grower if unsterilized equipment is used between plants. Virus may persist in plants without symptoms being evident. Other plants will display patterned necrosis (dead tissue) or streaked chlorosis (yellow tissue) of the leaves, or colour break in flowers (Figure 3). If colour break or any of these symptoms appears in a plant, I suggest you dispose of the plant. If it is a particularly good plant, isolate it and reflower it to determine if the virus persists. Alternatively, you can get the plant virus tested to be sure. The absence of symptoms of virus in plants until they flower or perhaps only in times of stress, mean we should treat all our plants as if they have virus. This means only using sterile tools and pots for every plant to avoid potential cross contamination. I use a supersaturated solution of trisodium phosphate to sterilise all my tools in between use on plants. An alternative would be to flame sterilise your equipment, but a period of time is needed for them to cool down before being used on your Orchids. At this stage, there is no guaranteed cure for virus in Orchids.

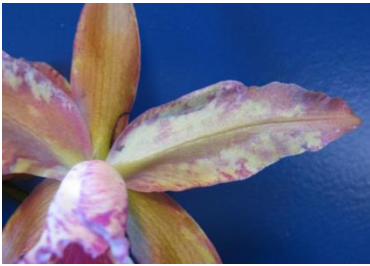


Figure 3: Colour break in a flower (Rv-orchidworks.com, 2017)

Even though Orchids are generally pests and disease free, the Orchid grower needs to be aware of several common ailments and their management for the long-term cultivation of their Orchids. The steps new and experienced growers should follow to control disease are to firstly, discard badly diseased plants. There is little chance you will be able to save it, with the likelihood of it leading to the infection of more of your plants being much higher. Secondly, if you see dark brown or black patches on a plant, remove it with a sterilized tool, along with some of the surrounding healthy tissue. Apply Physan or Hydrogen peroxide (H_2O_2) to any affected plants to further prevent the spread of the disease. Thirdly, isolate any suspected infected plants and treat them as if they were diseased. It is also advisable to quarantine newly purchased plants in case they harbour disease. Lastly, re-evaluate the growing area for adequate air movement and ensure all appropriate disease prevention measures are in place. Always sterilise your tools and pots to ensure you are not the one responsible for spreading disease through your own plants.

Image credit:

Rv-orchidworks.com. (2017). *Color Break Virus*. [online] Available at: <http://www.rv-orchidworks.com/orchidtalk/orchid-ailments-compost-pile/17867-color-break-virus.html> [Accessed 29 Jun. 2017].