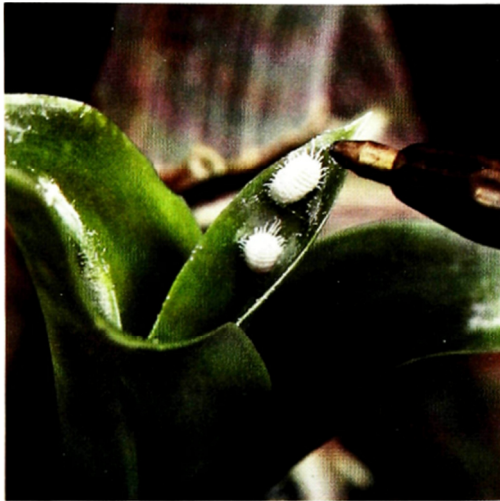


Orchid Culture — 13 — Pests — Part 1

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OUR MODERN WORLD is far from devoid of life which can inflict damage on orchids, and every orchid collection is vulnerable to attack by an array of bothersome pests. However, with early detection, correct identification, and the swift yet proper implementation of control measures, significant injury can be avoided. This article will deal with the more common pests of orchids, their characteristics and the type of damage they cause. For each type of pest, one pesticide will be listed. Selection is from the American Orchid Society *Handbook on Orchid Pests and Diseases* (see REFERENCES), which includes other recommendations for chemical



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ABOVE, FIGURE 1 — several plump mealybugs, ringed by their characteristic white filaments, feed on this new *Catasetum* growth.

BELOW, FIGURE 2 — the old, dried sheath of this *Cattleya* hybrid pseudobulb has been removed to reveal a whitish scale. Note the heavy damage inflicted by this infestation.

Photography: Stephen R. Batchelor



for chemical controls, in addition to useful descriptions and color photographs of the organisms involved. The pesticides mentioned here are all of moderate toxicity, and are available at most garden centers. Proper dilutions are not included, as they are dependent on the formula of the brand of pesticide actually purchased.

Caution! — Pesticides are poisons, potentially toxic to both you *and* your orchids. Handle with extreme care! Wear protective clothing and provide adequate ventilation when spraying. Avoid as much direct contact with the chemical as possible. Wash thoroughly after application. Exercise caution with your plants as well. Follow the recommendations on the container. Never use higher concentrations of the pesticide than what is listed. When spraying, spray the plants thoroughly, including both the topsides and undersides of the leaves. If you are trying an insecticide for the first time, do not

experiment with your entire collection. Spray a small but representative group of plants of lesser value, and observe them during the next week for any adverse reactions. If the spray seems effective, and is not toxic to your plants at the recommended dilution, only then is it prudent to spray the remaining plants. This is not all there is to say regarding proper chemical control of orchid pests and diseases. Far more information on the subject can be found, once again, in the *Handbook on Orchid Pests and Diseases*.

Scale and Mealybug — who among us can say that they have never had an infestation of mealybug or scale in their orchid collection? Very few, I suspect! Surely among the most common of orchid pests, these closely-related creatures cause trouble in a sedentary fashion. After a comparatively short but active "crawler" (immature) stage, species of mealybug and scale settle down — and in — sinking their mouth parts into plant tissue to ingest plant fluids indefinitely.

In their mature stage, both scale and mealybug are generally oval in shape and clearly visible to the unaided eye. Species of



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FIGURE 3 — A species of scale quite different in appearance from the species pictured in FIGURE 2 is securely covered and attached to this *Cycnoches chlorochilon* leaf. The surrounding, light stippling is indication of an incipient spider mite attack.

mealybug vary little in appearance. Their soft bodies are covered with a white, waxy material, and surrounded by a ring of white filaments (FIGURE 1). Some species of scale are likewise whitish in color, but, in contrast, do not have filaments when mature (FIGURE 2). Unlike mealybug, scale varies considerably from species to species. While some may be soft and whitish, others can present a darker, more durable, almost armored appearance (FIGURE 3). It is the female of the scale species which forms this protective covering, and it is here, after mating with the winged, non-feeding adult male, where the eggs and young are produced. Mealybugs, on the other hand, lay their eggs in more exposed,

though water-resistant, cottony masses. Even in the adult stage mealybugs can move sluggishly about, while (female) scale tend to remain fixed.

With their lethargic adult habits, and visible size, mealybug and scale are fairly easy to detect — given some observation on the part of the grower. Any part of an orchid can be infected, though these common pests have a perverse tendency to pick out-of-sight locations in which to feed, such as the undersides and bases of leaves as well as even the roots. Going undetected, particularly in warm weather, large colonies can develop in no time. Heavily infested orchids, draped and smeared in these offensive bugs, look more like objects to be found in an abandoned and haunted house than the prized possessions of an orchid grower. To make matters all the more disgusting, mealybug and scale also tend

Photography: Stephen R. Bachelor

FIGURE 4 — Mealybugs infest this new *Paphiopedilum* growth.



Continued heavy infestation will result in a severely stunted and deformed growth.

to exude what may euphemistically be called "honeydew", a nourishing substance to both the sooty (black) mold and ants which usually accompany severe infestations. Tender, young growths, a favorite of mealybug, will develop abnormally with continued infestation (FIGURE 4). Scale species have no objections to hardened pseudobulbs (FIGURE 2). Tissue infested any length of time by mealybug or scale turns yellow, then black (FIGURES 2&5). With prolonged infestation, entire leaves and growths can yellow and die. Plants will show a serious decline in vigor.

FIGURE 5 — prolonged scale attack causes yellowing and necrosis of infested leaves and pseudobulbs. Note that even though this picture was taken after an insecticide spraying some scale still remains.



Photography: Stephen R. Bachelor

If detected at an early stage, when populations are small, control of scale and mealybug is a fairly easy affair. A spray of a mild liquid soap and water (or one of the insecticidal soaps on the market), innocuous as it sounds, may be sufficient to discourage the establishment of a damaging population — before the fact. A Q-tip dipped in alcohol can be useful in killing and removing the isolated bug or two. But give that one fertile female some time (one adult female mealybug can lay 300-600 eggs in less than two weeks) and a far more "uncooperative" population can quickly result. Heavy infestations have a way of creeping up on the unwary orchid hobbyist. For these the more objectionable, yet more effective insecticides are required.

Orthene, emulsion or wettable-powder, is one of the more effective sprays for control of mealybug and scale. Its residual effect is more prolonged than that of the better-known Malathion. Especially with



Photography: Stephen R. Bachelor

FIGURES 6 and 7 — Parasitized by aphids, and drained of their vital juices from bud stage (left) till flowering (right), these *Tolumnia* Golden Sunset flowers show a severe reduction in size.

the wettable powder, a wetter-sticker or a small amount of liquid detergent should be used to improve coverage and penetration. While Orthene is systemic, direct contact with Orthene (or most other insecticides) will increase efficacy with these pests. Therefore, pains should be taken to spray all surfaces, undersides of leaves included, as well as to see that some dilute insecticide reaches the axils of the leaves and other areas where infestations are likely to occur. In large colonies both scale and mealybug tend to resist spray penetration. Dislodging such colonies by scrubbing them with a small brush (such as a toothbrush), either dipped in dilute insecticide solution or dry, will increase exposure and enhance the penetration of the spray to follow. In this way, too, relatively inaccessible colonies may be reached. Nevertheless, several follow-up sprays at three- to four-week intervals may be required in order to completely eradicate a well-established infestation. Likewise, sprays containing imidacloprid as the active ingredient exhibit good control and are readily available to the hobbyist.

Aphids — In contrast to mealybug and scale, aphids are a problem to orchids in the immature, or nymph, stage. Adult female aphids usually have wings and can fly into a growing area to produce eggs or live young, with or without mating. The rather bald-looking, leggy nymphs are of varying colors, usually green, or perhaps red. Developing flower spikes — to the irritation of many a grower — are among their favorite haunts (FIGURE 6). Here, if left to their own devices, aphids feed, reducing severely the vigor and size of the resulting flowers (FIGURE 6). In moving from plant to plant, aphids have been suspected of transmitting virus and other diseases. Because they too can exude a "honeydew", ants are frequently their companions.

Chemical control measures used for scale and mealybug infestations, such as Orthene and imidacloprid, are frequently recommended for the control of aphids as well. These are fine for spraying vegetative parts, if and when they are attacked. The problem is that when flower spikes are the subject of an aphid infestation, spraying the sensitive buds with insecticide is a considerable risk. If this is done, a more dilute spray might be advisable. Flowers resulting from sprayed buds can look as deformed or damaged as those parasitized by insects! Less potent sprays of liquid soap and water may equally succeed at removing aphids from flower spikes, at least temporarily, while not harming the buds in the process. Repeated sprayings may be necessary to keep these pests from settling in once again.

Part 2, to appear in next month's BULLETIN, will discuss those orchid pests which by virtue of small size — or sneakiness — are not easily seen by the grower.

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