

## **The ABC of Insects on Our Orchids**

### A N T S

They are a serious threat to orchids. They seldom cause any direct damage to orchids, rather they indicate the possibility of infestation by scale, mealybugs or aphids. Remove their food such as honeydew on new growth flower stems, and flowers. Then declare war!

Spray ORTHO HOME DEFENSE on the ground around your growing area, the legs of tables, the surface or orchid table.

If in pots, spray pot on underside. Nests in pots? Submerge the whole pot in a bucket of water. The ants and other invaders in your pots will float to the top. Spray on bark in pot if necessary.

If you don't like poisons, try bait:

Mix molasses with BORIC ACID and offer this bait in shallow containers. Sprinkle DIATOMACEOUS EARTH around your orchids. DRAX GEL (ORTHO BORIC ACID), is a commercial bait in syringe type applicator. It automatically squeezes out equal parts of food and poison.

### A P H I D S

Aphids are related to scale, are 1/8" long, greenish white or black. Most are wingless but winged versions appear and migrate to other plants when colonies get crowded.

An adult female gives birth to up to 100 young per day. They can reproduce when only 7 days old. Within a few days thousands of aphids can be born. The rate of reproduction is higher at warm temperatures.

They are easy to spot. When they develop, they shed their white skins. A pile of them may be your first sign that aphids are attacking your plants.

They eat more plant juice than they can digest so they excrete the leftovers. Aphids love this sugary juice and actually farm aphids and other insects. They transport aphids to the parts of the plant receiving the most nutrients, that is new growth, at the base of buds and on the underside of leaves. Their feeding causes poor growth and kills the buds. Aphids are not only destroying flower buds etc. but can spread viruses when they immigrate to other plants.

Aphids easily wash off with a stream of water from your hose. ISOPROPYL ALCOHOL can be sprayed on them or you soak a cotton ball with alcohol and wipe them off. Repeat 3 - 4 times every 3 to 6 days.

Remember to eliminate the ANTS that brought the aphids in the first place.

### CATERPILLARS

Caterpillars are the immature stage of moths and butterflies. The first sign of their presence are often holes in the buds and leaves. They can do significant damage in just a few hours.

Pick them off by hand and check regularly on the underside of soft-leaved plants. Insecticides do not work, however, in one web site Immidacloprid is reported to be effective against caterpillars.

The Gardener's Supply Company of Vermont recommends spraying with suspensions of water with onions, garlic, chives, jalapeno pepper, cayenne or herbs like basil, wormwood or peppermint. Steep the herbs in hot water or mix in blender.

Last year I lost many soft dendrobium leaves during my vacation due to feeding caterpillars. This year I found one hole in a leaf, found the caterpillar and killed it. - Problem solved!

### MEALYBUGS

These are members of the scale family and must be dealt with immediately when discovered. They are fortunately easily seen with their white waxy coat and the waxy coated egg sac produced by the female. They do considerable damage to mostly new growth where they can be found. They also move into the root zone, where you don't see them, and kill the plant. Their presence might be first detected by the sickly yellowish appearance of the plant.

Mealy bugs have three life cycles: egg, larva, also nymph or crawler, and adult. Mature males are small winged creatures whose primary function is to mate and then die. Females and immature bugs crawl off the plant and migrate throughout the growing area. They can also float on breezes or air currents produced by fans, then settle on plants where the current is weakest.

The life cycles of mealybugs can be short. Treatment at least three times, 6 to 10 days apart, is necessary to catch all life cycles. Spray them with alcohol which destroys their waxy coat, remove them with cotton ball soaked in alcohol, then spray them again with alcohol to catch crawlers which escaped the treatment.

### MITES

Because of their almost microscopic size it is difficult to detect them in their beginning stages. Mites severely weaken the plant by sucking sap and chlorophyll from the leaf surface. The removal of chlorophyll makes the plant look blanched and silvery. The leaf also has many tiny yellow spots that turn brown over time. Mites spin webs on the underside of the leaves. With a magnifying glass it is easy to see them walking around.

The life cycle of mites is greatly speeded up at higher temperatures and they reproduce at an alarming rate. At normal temperatures the life cycle is about 2 weeks, at warmer temperatures only one week. When colonies become crowded, winged forms appear and build new colonies on other plants. Mites overwinter in the form of eggs.

There are several types of mites. Most mites in our area attack thin-leaved orchids like oncidium and catasetum but also ansellias and others.

Most insecticides have little effect on mites. It takes a miticide to treat heavy infestations. But if you have only a few affected plants it is easy to wash them off with a stream of water. Wash every leaf with soapy water, then rinse off the soap. Or use a "409" mixture. Apply a heavy coating especially to the underside of leaves. Reapply every three to four days for six to eight applications. This will ensure that both the adults and hatching young are eliminated.

## SCALE

There are mainly two different types of scale on orchids. Brown scale and the tiny white Boisduval scale.

The brown scale is a light yellowish to dark brown oval attached to the leaves, pseudobulbs and flowers, rarely on rhizomes and roots. The female white round Boisduval scale can be found on the leaves and pseudobulbs often on a somewhat sunken spot, the males mostly on the underside of leaves and pseudobulbs surrounded by a cottony mass (not to be confused with mealy bugs). The immature crawlers are tiny yellow spots visible with a magnifying glass.

The eggs of both scale types are under the shell of the female and remain there after she dies. They hatch into crawlers that can move all over the plant and to other plants. The life cycle is completed in a month or in two to three weeks in warm weather. The overlapping generations create the biggest scale-management problem. Once the female has a hardened shell it is too late to kill it. The insecticide does not penetrate the shell and the young underneath are unharmed. Even when you spray with a systemic insecticide and find an apparently dead scale shell on the plant and lift it, the crawlers (or eggs) are alive underneath.

If you find scale, immediately isolate it to prevent the crawlers from moving to adjacent plants. Spray with isopropyl alcohol and wipe the insects off with an alcohol wetted cotton ball. Pseudobulbs with deep ridges can be cleaned with a soft baby tooth brush. Be sure to turn the plant upside down when you brush the scale out of the ridges. A commercial grower once spread the scale infestation to a great degree by brushing the scale down into the orchid pot. The eggs and crawlers developed there undisturbed because he sprayed only the plants, when they were maturing they crawled back up into plant. Pay attention to rhizomes; in heavy infestations the insects could be on the roots. Replace the potting mix because eggs and crawlers might be hiding there. Consider disposing of those plants.

The last destructive pests in the alphabet are the

## SLUGS and SNAILS

They can reduce your flowers over night into a few strips of tissue or eat big holes into the buds and leaves. Those tender new green root tips disappear. Slugs are hiding in the mix and under the pots and can be destructive despite their small size. Snails can find hiding places who knows where.

Bush snails have flattened small shells and hide in the potting mix. Sprinkle "That's It" (7.5 % metaldehyde) into the pot. The small granules fall into the mix and are no danger for pets. Larger granules of Sluggo (iron phosphate) may be placed around the pots. I don't like them in the mix, they could attract mold.

The first defense of course should be your visit to the growing area at night and use the crush, kill, and destroy method. You can also drown them in beer but this never worked for me.

Copper strips also were not successful because I lacked the patience to make a tight enclosure. And you know what happens once they are inside the copper strip enclosure!

## INSECTICIDES

Should you have an infestation throughout your collection it might be necessary to use systemic insecticides like Orthene, also called Isotox (chemical name acephate). Bayer's Imidacloprid is another systemic insecticide for the control of aphids, thrips, spider mites, soft brown scale (apparently not armored scale; boisduval scale is an armored scale), and caterpillars. Rose fertilizer containing the insecticide imidacloprid should be used with caution as fertilizer at the wrong time of year might be inappropriate for orchids. Imidacloprid is moderately poisonous to humans and should be sprayed using rubber gloves and breathing mask.

The people and the pet friendly use of isopropyl alcohol with a home-made, stable mixture of household chemicals is recommended as a safe and always available insecticide:

For 1,5 liter spray mix :

- 50 % isopropyl alcohol (70% or better 90%) (about 3 cups)
- 50 % good quality water (about 3 cups)
- 1 teaspoon liquid soap
- 1 teaspoon neem oil or horticultural oil or mineral oil

The alcohol dissolves coat or shell, the soap is used as surfactant, the oil smothers the breathing apparatus of the insects.

Another insecticide, also recommended against spider mites, is made of:

- 1 pint "409" cleaner
- 1 pint isopropyl alcohol (90%)
- add good quality water to make 1 gallon of spray

Of course there are also growth regulators, chitin inhibitors and natural predators available. But for the average grower these are in my opinion not really feasible because it takes a controlled environment for them to be effective and they are expensive.

The single greatest mistake leading to unsuccessful insect management is lack of attention to scheduling. All sprays need to be repeated three to four times every six to ten days, for mites every three to four days. To remember better the dates I spray always on the same day of the week which makes it seven days apart.

The use of home made insecticides including insecticidal soap is very time consuming if you have to spray a whole collection. Spray every leaf surface and underside, the pseudobulbs and the mix need to be wetted thoroughly also.

Should you use a systemic insecticide, the poison will be absorbed by the plant and taken in by the feeding insect. Complete coverage of the plant may not be that important.

Compiled by Renate Schmidt.

Sources: AOS and other Internet sites