

The Basics

Pests

Like all house plants, Gesneriads are subject to various infestations of unwelcome "friends" which attack and feed on our plants. Pests can be more of a problem in the artificial environments we create for our plants than is the case in more natural environments. In our homes and greenhouses, beneficial predatory organisms are often not present so pests can multiply relatively unimpeded.

White flies are aptly named. They are white, they do fly, and they increase very rapidly. White flies are probably the most common of indoor pests and can be brought in by the introduction of new plants or cut flowers, or may find their way in through open doors and windows. Because they are so mobile, the isolation of a plant with an infestation of white flies is not the answer to controlling these pests.



Once settled in, white flies proliferate very rapidly and soon spread themselves throughout the entire plant room. They attack the plant by sucking the sap from the underside of the leaves. Leaves turning yellow and falling off are sometimes the evidence of their presence. However, quite often they are not discovered until they have multiplied, rising as clouds of white whenever you approach or disturb a plant.

White flies are the "gourmets" of the common pests as they possess very specific taste. They will invade one plant while ignoring another adjacent to it. I have found that they have an avid appetite for *Sinningia* 'Cindy' while avoiding others of the same genus. A new batch of white flies is produced every four to five weeks, but each female may live as long as two months and produce up to 400 eggs.

If caught in time, and this is very rare, white flies can be eliminated by crushing them against the leaves under which they have settled, spraying with an insecticide, washing the plant with a mild detergent, or placing it under a very fine and gentle shower. To shower a plant, aluminum foil should be placed around the base of the plant in order to cover the soil sur-

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face. Regulate the water to a tepid temperature and turn the shower to the finest spray possible. To ensure that the pressure of the shower does not destroy the plant, you can regulate it by opening and closing the taps until an acceptable pressure is achieved. Place the plants in the bathtub and shower for a few minutes. Carefully turn the plants on their sides while holding them in your hands, enabling the spray to reach the underside of the leaves.

If the infestation is severe, a spraying of an insecticide should rid you of the pests. White flies do become immune to some insecticides, and with this in mind you may have to experiment until you find one that does the job. I have used 'Ambush' for years and still find it effective, but I have read where some strains have become immune to it. If available, systemic granules are excellent for controlling the eggs that may have been missed.

Nematodes are a knotty problem. They are not easily detected and are difficult to exterminate. They are minute worms which attack and live on the main root system of the plants. As they feed, the roots become distorted and form knots. The plants begin to lack vigor and will soon wilt and eventually die.

As in most cases of pests, prevention is your best defense against nematodes. Whenever you acquire a new plant, isolate it for at least six weeks. At the end of this period, you will have assured yourself that it is not infected with any visible pests, and the plant should now be checked for nematodes. Unpot the plant and remove as much soil as possible. If it has a strong root system, the balance of the soil may be removed by placing it under warm running water and gently washing it clean. Examine for nematodes (bulging knotty abnormalities) and if healthy, repot in new soil.



Should the root system be weak, the same result may be obtained by placing the plant in a container of lukewarm water and washing the soil from the roots with a gentle movement of the fingers. If infested, the plant should be destroyed. If you unfortunately discover an infestation in your plant room, I would suggest that you dump the entire collection and start over again.

Before you begin to reestablish your collection, make certain that you sterilize your entire growing area, including light stands, trays, pots, and tools. Dump any unused soil that may be in the area.

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Springtails are "little kangaroos". They dart around the soil and the growing area of the plants, and are usually detected after watering. They exist on decomposed organic matter (mostly unsterilized soil). While they are not considered harmful, they can be most annoying to anyone who hates "creepy-crawlies" or in this case "jumpies".

As a prevention, use only sterilized soil. If you should get an infestation of springtails, you can rid yourself of them by using any one of the granular insecticides that have been formulated for soil.

Symphilids are cousins to the springtails, but they are less annoying as they do not jump or bound. Their requirements are the same: unsterilized, decomposed organic matter. They can be eliminated by the same process as that used for springtails.



Fungus Gnats or Black Flies are tiny black flies, somewhat like fruit flies, that invade the growing area. They are harmless, but can become a nuisance to anyone who hates having unwanted inhabitants in the plant room. They live on decaying organic matter and breed in the soil. Sphagnum and peat moss are their favorite breeding grounds. To control them, you may spray with any insecticide. I normally use Raid (pyrethrum) for this purpose, but at no time have I been entirely free of them. As with springtails, a granular insecticide or a soil drench may be helpful.



Blossom or Flower Thrips, or "dusters", are noticed when pollen is being spilled or dusted over the blossoms and on the underlying leaves, and some of the pollen sacs show damage. Thrips attack the center of the bloom, and this is especially visible in Saintpaulias.



Thrips are often detected in motion when the blossom is disturbed. This may be done by gently rubbing your finger along the pollen sac. Tiny dark insects, which can be seen quite readily with the naked eye, scurry in the flower.

Like other pests, thrips can be introduced by various means, but mostly by infected plants that have been placed among your own without

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having been isolated or examined. They spread rapidly and are very difficult to eradicate. A proven method for the eradication of these pests is to starve them to death. This can be done by disbudding all your plants for as long as it will take you to get rid of them. Six to eight weeks should be sufficient. By doing this, you are depriving them of a source of food as they feed on pollen.

Added precautions may be taken by creating a "gas chamber". This can be accomplished by completely enclosing your plant stands or growing area with clear plastic sheeting and hanging one or two Vapona strips in the enclosure. Plastic sheeting can be obtained from most paint or hardware stores. Do this for a period of 24 to 48 hours. This process will get rid of the parents but will have no effect on the eggs.

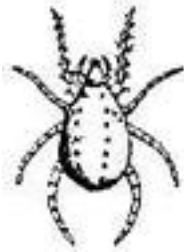
Spraying is not effective against thrips unless direct contact is made. Systemic granules are quite effective, but they are not easily available in some areas. Yellow and blue sticky cards are somewhat effective in trapping some of the pests, and help in monitoring and identifying the type of infestation. Blue are used for thrips and the yellow for all other flying insects (gnats, white flies). Three cards per 93 square meters (1000 square feet) is considered effective coverage, but placement is important. Remember, the cards are a means of control and monitoring, not elimination.

Thrips are also the vectors of Impatiens Necrotic Spot Virus (INSV) which can wipe out an entire collection. The only known treatment is complete elimination of all infected plant material. Infected plants cannot be cured. Do not attempt to propagate plants from what may seem to be a healthy leaf or branch of an infected plant. If Western Flower Thrips are absent, then vegetative propagation is the only other way of spreading INSV.

Cyclamen Mites manifest as distortion of the center or crown of new leaves. The leaves become grayish in color, hairy, and rather brittle. The centre leaves will eventually die and the plant, in desperation, will produce multiple crowns. Mites are not visible to the naked eye and feed on young leaves from which they extract the juices. Infestations are caused by introduction of infected plants. The best advice is to destroy all plants and start a new collection. Cyclamen mites can be eliminated by spraying with Kelthane EC two or three times and seven days apart. Insects develop an immunity to insecticides and miticides, so you may have to experiment with some others for effective eradication. Again some systemic granules may also be effective.

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Broad mites are similar to cyclamen mites and suck the juices from the more mature leaves, causing the leaves to droop or curl downwards.



Red spider mites are visible and are a reddish brown color. They leave silky webs around the plant. Broad mites are challenged with the same treatment as cyclamen mites, while red spider mites can be eliminated by using a pyrethrum containing garden spray such as Raid.

Foliar Mealy bugs, also known as woolly aphids, are very visible and look like little bits of cotton. They are sucking insects and can suck a plant dry in a short time. They are covered in a protective waxy coating. Each individual is approximately 3 mm (1/8 inch) long. Mealy bugs multiply rapidly and usually lay their eggs in leaf axils and around the blossoms. They produce an abundant amount of sticky wet honeydew which in turn will develop into a mold.



Mealy bugs are difficult to eradicate because of the cottony mass that surrounds them and which seems impenetrable to insecticides. Isolation of new plant material, and destruction of infected specimens, is the safest strategy. Alcohol seems to be the most deadly enemy of mealy bugs. Rubbing (isopropyl) alcohol dabbed directly on them will penetrate the waxy mass. If the infestation is severe, alcohol can be used as a spray by diluting with water at a rate of 50:50. Systemic pesticides or insecticides are very effective against them, and at the moment Marathon is being used with great success.

Soil mealy bugs are more difficult to detect and are usually discovered when the plant has started to wilt despite being watered. Batches of soil mealy bugs resemble perlite, and for this reason are often unnoticed. Discarding of the infected plants is your best bet, and again a leaching of the soil with alcohol, or granular systemic added to the soil, are your best weapons.

Crown rot causes the young leaves in the center of the plant to turn a grayish brown and somewhat resemble an attack of cyclamen mite. Over watering is usually the culprit, but crown rot can also be caused by pouring water into the center of the plant, by heavy soil with poor porosity

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and drainage, or by deep potting of plants which will cause moisture to seep into the crown. Soil mealy bugs or root nematodes may also cause crown rot. Ensure that your soil is light and well-drained, and do not overwater. As previously discussed, bottom watering is a safeguard against this problem. Crown rot is most common with Saintpaulias, but other gesneriads such as Streptocarpus, Sinningias, and Episcias are also susceptible.



Mildew can be deadly, and all steps should be taken to eliminate it as quickly as possible. You will discover a white-grey powdery substance on flower stems, blossoms, leaves, and sometimes even the soil surface. Mildew is one of the many fungi that exist in our environment, and is not only detrimental to plants, but to clothing and other items. It is airborne and develops when there is high humidity, poor air circulation, and when night temperatures drop to a "too cool" temperature in your growing area.

To treat this fungus, remove the infected plants immediately. Otherwise, the spores being airborne, they may waft to other areas of the plant room and proliferate. Once the plants have been isolated, it is best to do a complete cleanup of the area. Wash your growing area (light stands, trays, etc.) with a mild solution of bleach. Then spray the entire area, including walls, floors, and ceiling, with Lysol deodorizer and disinfectant spray. I have found this to be excellent for the control of mildew, and I use it to spray my growing areas at least once a month. Avoid having the spray fall on your plants by spraying it away from the plant stands. If ventilation is your problem, you should consider installing a fan. This will provide good air circulation for your plants, but be careful not to place the fan in such a way that it blows directly on your plants, or you will have created another problem.

For treatment of infected plants, do not try to brush or blow the mildew from the plant, as this will only release the spores into the air, and they will find some new place to settle. Many brand names of fungicides have been suggested as cures for mildew, but my mainstay is Flowers of Sulfur which can be procured very easily from your pharmacy. Dust your infected plant lightly with the powder. Within a short time, provided your conditions are normal, the mildew will have disappeared and you can move the plants back to their original places. For anyone who may have condi-

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tions that foster mildew, you should keep small saucers or open containers of sulfur around your growing area. It inhibits and retards the growth of mildew.

Mildew may also be controlled by using Fermate in your soil mix. Those of you who are familiar with the late Ernie Fisher's formula for soil will know that Fermate is one of its ingredients.

Botrytis or Grey Mold is similar to mildew. It is a grey substance which may form around the crown of the plant, destroying the young leaves and ultimately killing the plant. It is also airborne and is caused by rapid changes in temperature. I understand that a dusting of Zineb powder will clear up this condition. Luckily I have never experienced this problem, so my knowledge on handling it is limited.

Editor's Note: This is the final article in our series "The Basics" – special thanks to Monte Watler, for the original material published in the newsletter of the Toronto Gesneriad Society and to Peter Shalit for the editing and compilation for reprinting in TG.

J. K.

