



# IPM-Integrated Pest Management

## Integrated Pest Management (IPM)

When it comes to pests, prevention is far better than cure. Once pests are in your grow room, they can cause serious damage to your plants - even kill them! We help many growers avoid and eradicate pests. Here we share our knowledge...

At Aquaculture, we believe in Integrated Pest Management (IPM). Basically, this involves:

- prevention - through good hygiene and general monitoring
- biological control (natural predators) - as preventative measure and/or at first sign of attack
- selective pesticide use - in extreme cases only

IPM stresses how important it is to be proactive when dealing with pests. To help you become proactive with your pest management, this article pays particular attention to what you can do to prevent pests, describes what some of the most common pests look like, the damage individual pests can cause and what to do if your grow room is attacked.

## Aquaculture's top tips on how to prevent pests

1. Spray your room before every new crop cycle. A good product to use is Room Clean, a plant friendly room cleaner and disinfectant.
2. Try to use only your own cuttings. If you have to use cuttings other people have given you, make sure that you treat each cutting before putting them in your grow room.
3. For early identification and to reduce the chance of pests reaching your plants, we recommend that you use sticky yellow strip traps. Place the sticky traps near all entry points, for example the air inlets.
4. Hypoaspis miles, a natural predator, is an excellent preventive measure, which is most effective if introduced two weeks after planting or striking cuttings. This predatory mite feeds mainly off sciarid larvae, but it will also eat thrip larvae and other organisms in the growing media.
5. Neem oil and Pest off are two naturally derived pesticides that can help to prevent most greenhouse pests.

Please note: while both Neem Oil and Pest off can be used as a preventive measure, they can also be used at the first sign of attack. But as these products kill all insects, we don't advise you to use them if you are using natural predators.

However, you may have no choice but to spray your plants with one or both of these products if they become infected with pests. Neem oil and Pest off will kill whatever they hit, but it's important to be aware that both are a very short persistence. This means you could quickly build up the predators again.

6. Last but not least, make sure you inspect your plants for pests on a regular basis, checking the tops and undersides of leaves.

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Now we discuss how you can identify pests and what damage they can cause. Where applicable, we also detail any particular products that we know to be effective in preventing and/or treating individual pests.

## Spider mites

An extremely common problem for many growers, spider mites are tiny. They resemble minute spiders - hence the name. You may also find their eggs or the mite itself on the underside of leaves.

### Damage

Spider mites feed off the sap of plants, causing the leaves to turn yellow. Usually, this damage can be seen as small yellow dots on the upper surface of the leaf. As this damage increases, whole leaves turn yellow. Furthermore, as the mites remove the chlorophyll, the leaf and eventually the whole plant dies.

Nymphs and adults also produce webs that often completely cover the plant. Thus, the plant can become completely swarmed with mites.

When the growing environment changes adversely, female spider mites enter a period of hibernation known as diapause. Such environmental changes include:

- falling temperatures
- a decline or deterioration in food supply

This is important to note because many growers stop growing after a severe attack, hoping that the spider mites will leave the grow room to hunt for other sources of food. Unfortunately, this is not usually the case. Rather, the spider mites go into a dormant condition, hidden within the grow room. During this condition they eat nothing, lay no eggs and are difficult for predatory mites to find. As soon as conditions become favourable again, the females become active and resume laying eggs.

Another major problem with spider mites is that they reproduce rapidly, particularly when conditions are favourable (hot and dry). This only helps to increase the damage spider mites cause.

### Prevention

Phytoseiulus persimilis, a natural predator, can help to prevent and treat spider mites. As Phytoseiulus persimilis can only be used for spider mites, they deal with the problem quickly and effectively.

Aquaculture tip - If there is low humidity in your grow room, you may wish to purchase a humidifier. This is because an increase in humidity can help to reduce spider mites and improve predator activity.

### Treatment

However, if you don't notice spider mites until they have caused severe damage, we recommend that you spray your plants with Neem oil and /or Pest Off. Use Phytoseiulus again within one to two days of spraying.

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## Whitefly

Whiteflies are usually approximately 1.5mm long, with four white wings.

### Damage

Whiteflies feed on the sap of plants, which causes wilting, leaves to turn yellow and poor growth. Such leaf damage can adversely affect the development of flowers and lead to a reduction in yield.

### Treatment

Neem oil is one of the most common products growers use to eliminate whiteflies. However, Bio link plus, a mixture of beneficial bacteria and fungi, is also increasingly growing in popularity.

## Thrips

Yellowy brown in colour, thrips can be up to 3mm in length. The larvae of thrips are also yellowy brown in colour. Silver-grey patches and the black dots of their excreta on the leaves is usually an indication that thrips have attacked your plants.

### Damage

Generally, it is the feeding habits of thrips that cause significant damage to plants. Thrips pierce the surface of the leaf in order to feed off the liquid in the plant's cells, resulting in poor growth and loss of plant colour. Thrips can also spread infection from plant to plant.

### Treatment

The most common predator growers use to tackle thrips, particularly for flowering plants, is *Amblyseius cummeris*. This predator mite is most effective if brought into the grow room during the development stage of thrips.

Also as a good preventive measure, *Amblyseius* can be brought into the grow room on a weekly basis in vermiculite carrier material. Alternatively, use controlled release sachets (CRS). The waterproof CRS lasts about 8 weeks and is particularly useful when leaf contact between plants can be maintained.

## Aphids

Also commonly known as greenfly, aphids tend to be pale green in colour and between 1mm and 3mm in length.

### Damage

Aphids pierce the leaves and feed off the liquid in the plant's cells. Consequently, you may not be aware that aphids are in your grow room until the leaves of your plants are curling and/or look damaged.

Nymphs and adults can also disturb the balance of hormones within the plant. As a result, the plant's growth is retarded, giving rise to deformed leaves. This is because the saliva of aphids induce strong allergic reactions, such as the malformation of the plant's growing tips. If infestation occurs early enough in the season, this can even kill young plants.

Like thrips, aphids can also spread disease from plant to plant.

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## **Aphids** *(continued)*

### **Prevention**

Aphidius is very effective in preventing thrips. This parasite can also be used at the first sign of an infestation.

### **Treatment**

However, if it is clear that there's a large infestation of thrips in your grow room, we recommend using Aphidoletes. A natural predator, Aphidoletes will actually kill more aphids than they consume.

## **Sciarid fly**

Also known by growers as Fungus Gnats, Sciarid flies are usually between 1-2mm long, black in colour, with veined wings.

### **Damage**

It's the larvae of the Sciarid fly that tend to cause severe damage to plants. Most damage is a result of the larvae chewing the roots. However, larvae can also spread mites, nematodes, viruses and fungal spores, resulting in further damage.

### **Prevention**

Sciarid flies are attracted to moist conditions around the root zone. Maintaining a lower level of water in the growing media will make it difficult for larvae to survive.

### **Treatment**

Fungus Gnatt off is an excellent product for combating sciarid flies. It works by killing larvae in the root zone.

We hope that this document has helped you to gain a better understanding of what you can do to prevent pests and what to do if you're unfortunate enough to have pests in your grow room. If you require any further information, please don't hesitate to contact us.

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