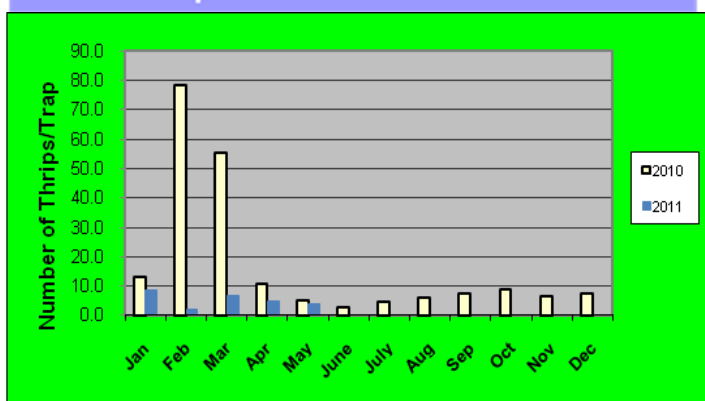


# Plant Health Brief



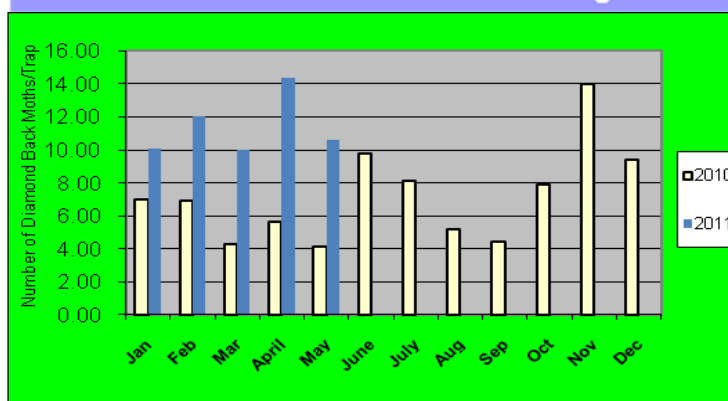
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Thrips infestation on Orchids



**Comments:** The overall average thrips populations did not show much difference as compared with the last four months. The population showed a slight decline as compared with the same month last year. One farm recorded slightly higher thrips count in the first two weeks. The farm has been informed to take adequate control measures.

Diamond Back Moth infestation on Vegetables



**Comments:** The overall average DBM population has come down slightly but the average number of moths /trap is above 10 moths/trap in the last 5 months. The population is almost double as compared with the same month last year as two farms recorded higher moths count. The farms have been informed to take up adequate control measures

## NUTRIENT REQUIREMENTS AND IMBALANCES IN ORNAMENTAL PLANTS

**MANURES & COMPOSTES:** Manures and composts contain the same nutrients for plant growth as commercial fertilizers. They characteristically contain a wide variable range of nutrients in relatively low amounts, released slowly over several years after application. These organic supplements mostly help to improve soil texture and moisture retention, but the proportion of nutrients to meet the specific nutrient requirements of plants cannot be dictated and must be taken as they come. Only good quality manure and compost should be used.

**COMMERCIAL FERTILIZERS:** Commercial fertilizers are one of the major sources of nutrient supplements for plants. Such inorganic fertilizers come with nutrients in known proportions and consistent concentrations. The nutrients are readily available for plant uptake and can be blended to match plant requirements and are convenient to apply.

Most commercial fertilizers contain the three main nutrient elements of nitrogen, phosphorus and potassium represented in the labels as N, P and K which are % ratios nitrogen (N), P<sub>2</sub>O<sub>5</sub> (phosphorus pentoxide) and K<sub>2</sub>O (potassium oxide) in various mixture blends or as compound components. Such off

the shelf fertilizers may also come in different forms. The crystallized forms are readily soluble in water for foliar applications, in irrigation or with combination with pesticide applications. Pellets are normally used in soil incorporation or the coated ones for slow release. Fertilisers are to be applied judiciously based on requirement by plants/crops. Over application can lead to toxicities in plants and nutrient imbalance in soil. The tables below show some most commonly available mixed fertilizers and their nutrient content. (The list is not exhaustive; Check with your supplier on the type of fertilizers available).

Fertilizers (% of N:P:K)	Fertilizers (% of N:P:K)
13:13:21	15:9:20+ Magnesium+ Sulphur+ Trace Elements
12:12:17+ 2 Magnesium	13:13:24
18:6:6+ Trace Elements	16:16:16
15:15:15	15:0:15
Urea- Contains 46% Nitrogen	15:5:20+ Trace Elements

## DETECTION OF WESTERN FLOWER THRIPS (WFT) IN LOCAL ORCHID FARMS

*Frankliniella occidentalis* (Pergande), also known as Western flower thrips, has originated from the South Western States of the USA, which has now spread to countries such as Europe, New Zealand and North America and has become a cosmopolitan pest. WFT (Fig. 1), is of increasing concern to our orchid farmers. It is an European Plant Protection Organization (EPPO) A2 quarantine pest and of quarantine significance in some countries such as Taiwan. The movement of horticultural materials such as potted plants, seedlings, and cuttings, and development of insecticide-resistant strain/s due to the intensive usage of insecticides in horticulture industry are some of the factors that contributed to the international spread of *F. occidentalis*. In Singapore, WFT had not been detected on orchids but on *Saraca cauliflora* before. This pest was not found on any traps from the routine population monitoring programmes as well. However, in October 2010, some live *F. occidentalis* were detected on a sample of orchid flowers for export. Hence a special WFT pheromone lure was bought in to monitor the situation of WFT on local farms together with the conventional blue trap starting from March 2011. Preliminary survey results indicated that WFT was indeed present in all the five local orchid farms surveyed with maximum number detected of three WFT per trap. The count indicates that the WFT is not as prevalent as *Thrips palmi* which is the serious thrips affecting orchids and many other hosts. WFT is an important agricultural pest and has been documented to feed upon over 500 different species of host plants, including a large number of fruits, vegetables and ornamental crops, and it is primarily a flower feeder. It feeds by piercing plant cells with their mouthparts and feeding on the exuded plant juices. The resulting collapse of plant cells may be the cause for deformed flowers, leaves and shoots. Silvery flecked scars or small black "faecal" spots may be seen on the expanded leaves. In addition to direct feeding injury, WFT is also a vector of two closely related tospoviruses; impatiens necrotic spot virus (INSV) and tomato spotted wilt virus (TSWV). Early detection of western flower thrips is essential to limit thrips feeding damage. The situation of WFT is currently being closely monitored to determine the extent of pest population in local farms. A fast identification tool-RT-PCR WFT identification protocol is also under adaptation.



Fig 1. *Frankliniella occidentalis* – Close up view

## PEST INTERCEPTIONS (MAY 2011)

There were two pest interceptions from importing countries for the month of May 2011.

Commodity = Orchid flowers and foliages  
 Pest = Live juvenile cobweb spider (*Theridion* sp) & Live immature spider (*Coleosoma floriadanum*)  
 Intercepting Country = Australia  
 Commodity = Orchid flowers  
 Pest = Live thrips (Thysanoptera: Thripidae)  
 Intercepting Country = Australia

Exporters are advised to implement pest control management on farm with insecticide/acaricide applications to control thrips/spider infestations. Please also inspect the packing materials before packing to reduce the spider infestations. Pre-shipment insecticidal dipping treatment will further help in the killing of thrips on flowers/foliages.

## PESTICIDE INFORMATION

COMMON NAME	Amitraz
TRADE NAME	Wendell- Amitraz 20%, Mitac 21.7%, Amitraz 20%
TYPE	Insecticide / Miticide- An ovicide which shows primary contact action
CHEMICAL NATURE	Formamidine Acaricide
FORMULATION	Liquid formulation
PROPERTIES	Amitraz is yellow to orange liquid. Molecular weight 293.4. It is classified as a Class III chemical- Slightly Hazardous and can cause moderate eye irritation. Inhalation toxicity may show nasal discharge, sore throat, cough and difficulty in breathing. Do not induce vomiting and contact physician. It is chemically stable and not easily water soluble but incompatible with alkaline materials.
USES	Insecticide/miticide with contact properties. Effective on the control of <i>Varroa</i> – a mite infestation in honey bees. It is also effective on whiteflies, tetranychid and eriophyid mites on fruits, citrus, ornamentals. It is also effective on both eggs and neonate larvae of cotton boll worms and tobacco budworms.
TOXICOLGY	Acute oral toxicity to rats: LD <sub>50</sub> 650mg/kg; Dermal LD <sub>50</sub> > 1600mg/kg. Rabbit- LD <sub>50</sub> >200mg/kg; Fish toxicity for technical grade (100%): LC <sub>50</sub> : 0.74 ppm (rainbow trout) Avian toxicity: Oral LD <sub>50</sub> : 788mg/kg Honey bees: Non toxic
DOSAGE	1 to 2 ml of the product in one litre.
WITH-HOLDING PERIOD	Re entry allowed after 24 hours Pre harvest interval (PHI)- At least 7-14 days