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The Western Flower Thrips in Singapore

The Western Flower Thrips (WFT; Californian Thrips or *Frankliniella occidentalis*) from the Western USA became a global problem in the 1980s. It feeds on numerous plants, sucking up sap exuding from leaves, flowers, or stems punctured by its mouthparts. The affected foliage has a characteristic silvery appearance, and the leaf tips will wither, curl, brown and die. The petals of affected flowers may become flecked, spotted and deformed, and many buds will fail to open.

Monitoring the population levels of WFT is critical for its management. To prevent insecticide resistance, the rotation of insecticides from different chemical groups (eg. Imidacloprid, Abamectin and Acephate) is required, each for 2-3 WFT generations. Alternately, the bio-control fungus *Beauveria bassiana* may be used.

Seasonal Patterns of *Thrips palmi* on Orchid Flowers in Singapore

Thrips palmi (Melon thrips) are small (0.8 – 1.3 mm) polyphagous insect pests that feed on orchids. It is considered a quarantine pest in Japan, Australia, New Zealand, the UK and the USA, and infested orchids are either retreated at the ports of entry or destroyed. As Singapore has annual exports of \$15-20 million worth of orchid cut flowers, better thrips management will help reduce such loss. To promote market access for our orchids, AVA initiated a thrips surveillance programme to gain such insights.

In co-operation with local orchid nurseries over the 2001–2008 period, *T. palmi* trapped on blue sticky traps placed near *Dendrobium* orchids were subjected to a time series analysis with the weather data. It was found that lower minimum temperatures resulted in higher thrips numbers, and that the thrips population was consistently high during the first three months of the year. Lower night temperatures may therefore promote the hatching of thrips eggs, thus leading to the higher numbers observed. Given such information, a programme incorporating a more judicious use of insecticides may be developed.

Nematodes of Turfgrasses

While golf courses require healthy turf grass for smooth and fast play, many may be damaged by nematodes, microscopic root parasitizing round worms. Foilar

symptoms include yellowing or chlorosis, wilting and decline in turf growth that are often in random patches. Below ground symptoms may include galls or root knots, cysts, brown to rotten and thrifty roots and the absence of feeder roots.

Common Singapore turf grass nematodes include the ectoparasitic stunt, ring, sheathoid, sheath, spiral, dagger and stubby-root nematodes and *Tylenchus*, and the endoparasitic lance, lesion, reniform, burrowing, and root-knot nematodes. *Paratylenchus*, *Aphelenchoides* and *Aphelenchus* may be present too.

The management of such nematodes require frequent monitoring. The application of appropriate cultural practices promoting plant vigor and root health will allow nematode infestation with little apparent damage. Conditions stressful to grasses (eg. extreme soil compaction, excessive traffic on grasses and drought) should be avoided. Chemicals (eg. abamectin, fenamifos, carbendazim) or plant-derived materials can also suppress them.

Chilling Injury in Fruits and Vegetables

Respiration, ethylene production and metabolism can cause post-harvest losses in fruits and vegetables. Such losses may be reduced with lower storage temperatures, but many tropical and subtropical fruits, vegetables, and ornamentals can be injured after a period of exposure to chilling temperatures below 10 ° C, but

above their freezing points. Prolonged chilling stress can be cumulative, and may lead to surface lesions, internal discolorations, water-soaking, and the failure to ripen normally. However, such chilling injuries are only evident after removal to higher temperatures, and may be associated with *Alternaria* spp. and other weak pathogens that only grow well in tissues weakened by chilling. Maturity at harvest and the degree of ripeness are also important factors in determining chilling sensitivity in fruits like avocados, honeydew melons, and tomatoes.

To alleviate chilling injury, intermittent warming, high or low temperature preconditioning, controlled atmosphere storage, pretreatments with ethylene, abscisic acid, methyl jasmonate, calcium and other natural compounds, hypobaric storage, waxing, film packaging and genetic manipulation have been used.

ASEAN Regional Diagnostic Network (ARDN)

The ASEAN Regional Diagnostic Network was envisaged as a system for the identification of agriculturally important organisms detected in South-East Asia. This would facilitate market access and comply with quarantine requirements of regional users. The Network will draw upon expertise both within and beyond the region, and provide a framework for enhancing national and regional diagnostic capacity by building diagnostic skills among ASEAN professionals and

developing practical diagnostic tools relevant to ASEAN.

The Clearing House at CABI SEA, on the MARDI campus at Serdang, Malaysia will receive samples from clients. The staff will make the initial identifications and registrations before consigning the samples to experts on the diagnostic expertise register for identification in strict confidence.

To develop the Clearing House's protocols and procedures, its list of regional resources, and to provide data on its usage and feasibility, the Network's first year of operation will be limited to a few ASEAN countries. International diagnostic standards and best practices will be adopted where available and appropriate. Initial gaps in expertise and scientific knowledge will be addressed through training activities and programs.

The Network will be overseen by an Advisory Committee and chaired by the ASEAN Plant Health Cooperation Network Lead Member country (Malaysia). The chair and will report to National Plant Protection Organisations of ASEAN member countries through the Expert Working Group on Phytosanitary Measure and the ASEAN Sectoral Working Group on Crops. The Network will also support this Working Group's goal to reduce trade impediments by harmonising phytosanitary measures within the ASEAN region. The programme on skills development and diagnostic resources will be managed by the

Australian Department of Agriculture, Fisheries and Forestry, in consultation with the ASEAN Plant Health Cooperation Network Lead Member Country and the Clearing House.

AVA will be contributing our expertise to serve as a diagnostic node for the network. Those interested to tap on this ARDN may also contact the Plant Health Laboratory Division, AVA, for more information.

World Orchid Conference 2011

The triennial World Orchid Conference (WOC) is the premier international conference for orchid enthusiasts, academics and industry players. Singapore, through the Orchid Society of South East Asia (OSSEA), has won the bid to host the 20th WOC in Singapore at the Sands Expo and Convention Centre from 13 - 20th November 2011. This year's theme is "Where New and Old World Orchids Meet". Apart from a four day conference, the WOC will include an orchid landscape display cum plant competition. More information is available at <http://www.20woc.com.sg>.

Overseas Pest Interceptions October 2010 to March 2011

Commodity	Pest Intercepted	Intercepting Country
Aquatic plants	<i>Bemisia tabaci</i>	Denmark, France, UK
Orchid cut-flowers and Foliages	Comb footed spider, tangle foot spider, widow spider, button spider	Australia
Foliages	Ants (<i>Formicidae</i>)	Australia
Carnations	Mealy bugs	Australia
<i>Altherrnanthera</i>	<i>Spodoptera litura</i>	UK
Orchids	Thrips	Australia

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The aim of this bulletin is to disseminate horticulture and plant health information to plant growers, exporters and importers in Singapore. If you have any suggestions, comments or enquiries, please contact us at :

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