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Singapore Garden Festival

The Singapore Garden Festival (SGF) organised by the National Parks Board (NParks) was held at the Suntec City Convention Centre (Levels 4 & 6) on 16 – 25 December 2006. This event was targeted to be the world's finest horticultural exhibition, showcasing creations from international and local top award-winning landscape and garden designers, florists and horticulturists. The Agri-Food and Veterinary Authority of Singapore (AVA) was a key supporting partner for the event. Representing AVA were Horticulture Branch (HB) and Plant Health Laboratories (PHL), which displayed the Veggie Garden and Clinic Botanica. The objective of the Veggie Garden was to educate public on home vegetable gardening, encourage home growing in the event of a vegetable supply shortage, to showcase the new and novel vegetable varieties that could be grown in Singapore (tropical climate) and to promote the concept that vegetables can also be used for interesting landscaping designs.



Veggie Garden by Horticulture Branch

The display consisted of a mock-up home garden complete with water feature and wooden walk-ways. Various types of unusual and interesting vegetables were used for landscaping to create a harmonious, visually attractive and stunning garden that will give a bountiful harvest. Vegetables grown include *leafy types*: caixin, lettuce, gailan, bayam, xiaobaicai, lettuce, kale, cabbage, brussel sprouts, sweet potato and tapioca leaves; *fruited types*: corn, squash, pumpkin, okra, chillies, bell pepper and brinjal; and *herbs*: basil, mint, ginger, rue, lemon grass, roselle and laksa leaves.



Clinic Botanica by Plant Health Laboratories

The Clinic Botanica was presented within three pavilions sporting display counters decorated with AVA corporate colours. Each pavilion was themed to present a key aspect of total plant-health care. The Soil Management Lab showcased a variety of Singapore soils, presenting the range of the earth tone palette in alluring designs and placards. Tips on differentiating the various fertilizers and identifying mineral deficiencies in garden plants were also presented to showcase the unhealthy contrast from healthy plants. The Plant Pathology Laboratory offered the public a glimpse of causal fungal cultures, juxtaposed to the commonly seen disease symptoms on leaves and plant parts. Another highlight was the display of viral-infected orchids with unusual blooms not from conscious

breeding but as a result of virus deformations. A turf sample infected with phytoplasma showing striking white-leaf symptoms also drew curious interest. The Entomology and Nematology selection of live bugs, beetles, caterpillars, and nematodes proved popular among avid gardeners who wasted no time in asking staff for control and eradication tips. A microscope attached to a display screen also proved useful in allowing visitors to delve close-up into the world of insects and worms. The Clinic organized 4 mini-talks on plant health topics each day at fixed timings. The SGF with the AVA's contributions to the show was a great success. Our Prime Minister, VIPs and the general public were enthralled at AVA's colourful and educational displays of uncommon vegetables and bountiful produce. Many public have asked for courses in growing vegetables and pest management. Consequently, AVA participating in SGF have made an impact in helping to instill and enhance gardening culture and plant health interest in Singaporeans.

Certified Pesticide Operator's Proficiency Test & Safety Course

Since January 2006, a change was introduced to the renewal procedure for Certified Pesticide Operators licence. Formerly, operators interested to renew their licences merely had to submit a medical report and make cheque payment. Under the new procedure, it is compulsory for operators wishing to renew their certification to attend a lecture on agri-chemicals use and safety; and to pass a written test thereafter. This lecture covers aspects of chemicals use and formulation, as well as an emphasis on safety procedures. It is hoped that operators will develop a better

understanding on choosing the appropriate chemical product for use for cost and operational efficiency. At the same time, AVA is meeting a social responsibility to reiterate work place safety when using agro-chemicals. Of course, to pass the test, operators still need to demonstrate appropriate experience based on test-paper scenarios; and not merely rely on the lecture. The lecture will be held twice a year at either the Animal and Plant Health Centre or the Veterinary Public Health Centre. This is to provide convenience to licensed operators, many of whom are based at the Lim Chu Kang agrotechnology parks. However, for operators who have recently attended relevant courses such as that conducted under the NSRS scheme or by NParks are exempted from the lecture requirement for renewal purpose. Such pre-qualified persons interested to be licensed should go to AVA's HQ at Maxwell Road where tests can be taken at shorter notice. Interested operators can make appointments or find out more from Ms Low Bee Leng at 63257680.



Potting Mix

free from pests and diseases in the form of a plant health certificate (phytosanitary certificate) issued from the country of origin. Pre-departure treatment such as fumigation and disinfections might also be required depending on the type and source of media. Prior to any importation of animal / plant base organic fertilizers, AVA conducts an assessment on imported commodity for the risks of carrying any damaging/exotic pests and diseases into the country. From July 05 – July 06, 115 individuals brought in about 570 bags of potting media and animal / plant base organic fertilizers (totalling 2.5 tonnes) in contravention to AVA's import requirements. These media were eventually destroyed by the AVA. Potting media and animal/plant base organic fertilizers without proper treatment, certification and assessment are potential pathways for the introduction of harmful pests and diseases into the country. Hence, the public is advised not to bring such items into Singapore unless the import requirements stipulated by AVA are fully complied. For more information, please contact Ms Ong Ai Khim at 67530658.

New Thrips on Trees

Thrips are found abundantly in vegetation all around the world. Generally, in Singapore, thrips found on ornamental plants, shrubs, and trees belong to Family Thripidae and Family Phlaeothripidae. The adult thrips are tiny (less than 2 mm long),

slender, dark brown, and have long, narrow wings, each covered with a hairy fringe. Immature stages are white with red eyes and wingless. The thrips enter the soil as larvae where they mature and emerge as adults to feed on swollen buds and expanding leaves and to reproduce. Eggs are laid in the leaf epidermis, mainly on veins and petioles. Their egg laying and feeding leave brown scars. Thrips in Singapore can cause damage year round with several generation overlaps. The symptoms on trees typically are defoliation, stunted, chlorotic and tattered leaves, browned leaf margins, and leaves puckered, wrinkled, curled or wilted. Where the outbreak has persisted for a long time, growth decline and crown dieback will occur. Most thrips that attack trees belonged to Family Phlaeothripidae. Tender leaves, growing points and flowers are the favoured infestation spots. The table below lists the common thrips found on trees in Singapore.

Thrips Names	Tree hosts
<i>Gynaikothrips ficorum</i>	<i>Ficus benjamina</i>
<i>Liothrips sp</i>	<i>Piper garmentotosum</i>
<i>Heliathrips haemorrhoidlis</i>	<i>Elaeis guineensis</i> Jacq
<i>Megalurothrips tropical</i>	<i>Mangifera indica</i> L
<i>Thrips orientalis</i>	<i>Fagraea fragrans</i>

To manage the population dynamics of thrips, regular monitoring is necessary. Besides chemical control measures, agricultural, biological and mechanical control measures should be applied judiciously to achieve sustainable thrips management.

Import of Potting Media & Organic Fertilisers of Animal / Plant Origin

Potting media for pot plants such as soil, peat, sphagnum moss, coconut / rice husk, cocopeat, soil mix (soil mixed with cocopeat, coconut/rice husk etc) and organic fertilizers are regulated by the AVA. These materials of animal and or of plant origin are known to carry a host of microorganisms and invertebrates that may be disease causing and damaging to plants. A permit from the AVA is required for the import of potting media. The permit will require the imported medium to be certified

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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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