

# Korea, Thailand & China Inspection Guide

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(April 2008 : V4)

## IPM & Orchard Hygiene

- 1) **Skirting and weed control management practices** - If more than one in twenty trees have foliage in contact with weeds or the ground then the block is excluded from Korea, Thailand and China export and no further inspection is required. Observe trees from directly adjacent orchards and make note if orchard hygiene (skirting & weed control) need attention (grower-packing house issue). QLD exempt from orchard hygiene requirement due to negligible levels of FRW).
- 2) **Pest & Disease Monitoring Program** - Sight a monitoring sheet that demonstrates use of a monthly IPM program for China Quarantine pests that commences from flowering (January for 2008 program). See Inspection Form for guidelines of a China Quarantine IPM program. If no China Quarantine IPM is used then the block is excluded from China export.

Area (Ha)	Number of trees Sampled	Total Number of Fruits/shoots
<2	10	50
2 - 3	12	60
4	15	75
5 - 8	20	100
9 - 16	25	125
17 - 20	30	150
+1	+1	+1tree per +1ha

## Sample size

Number of trees to be samples shall be according to the size of the orchard. Five fruit shall be sampled from each tree. Orchards larger that 20 ha add 1 tree for every 1 ha above 20ha. For example a 32 ha block will require (30 + 12) 42 trees to be sampled

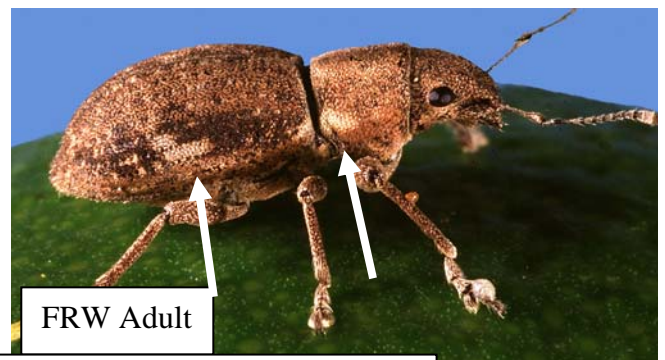
**Monitoring** : Pick 5 fruit randomly from each randomly selected tree.

## Fruit : Under Calyx, Navel end & fruit surface

- 3) **FRW Eggs & Adults** - Note that eggs are yellow in colour and glued together in yellowish 'papery' masses of 20–30. If eggs, adults or larvae are detected record this on the monitoring sheet. FRW are about 8mm in size, it has two pale markings on the side of its body (arrowed), and a short snout. If an FRW adult, egg or larvae is detected then the block will require fumigation for China export.
- 4) **LBAM Eggs & larvae** - Note that eggs overlap to give a fish scale in appearance and that LBAM larvae can vary in size from 2-20mm. LBAM larvae can also bore into fruit. If eggs or larvae are detected then the block is excluded from China export.



FRW Eggs



FRW Adult

FRW Adult actual size

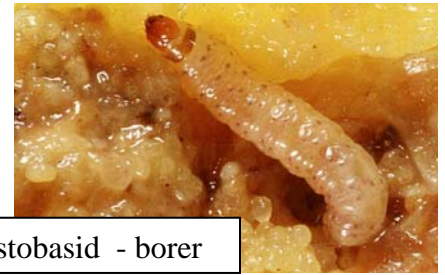


LBAM larvae on calyx



LBAM Eggs

- 5) **Borers Eggs & Larvae** – Cut any holes in the rind and check for the presence of borers (incl. LBAM). Bore holes can be small (3mm) and can sometimes be seen as a prematurely coloured spot on green fruit. Eggs can appear as overlapping clusters. Check for signs of webbing or gouging of fruit, especially between touching fruit. If any borer, eggs or larvae are detected then the block is excluded from China export.



Blastobasid - borer



Sorghum head caterpillar (SHC) - borer

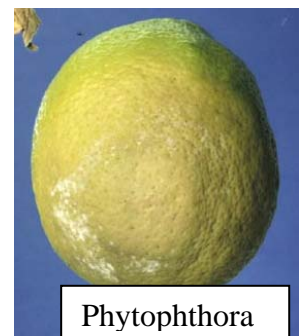


Orange fruit borer

- 6) **Diseases** – All suspicious fruit must be sent for official identification to the citrus pathologist
- Septoria**: small, round pits / depressions 1-2 mm in diameter that extend no deeper than the rind surface (flavedo). Pits are light tan with a narrow greenish margin, becoming reddish-brown as the fruit matures.
  - Phytophthora**: first appears as a slight surface discolouration and then extends rapidly. Fruit rind turns light to olive brown. The fruit remains firm with a leathery texture, and has a distinctive smell. In damp weather, a white fungal growth often develops on the fruit surface and common blue mould may follow.



Septoria



Phytophthora

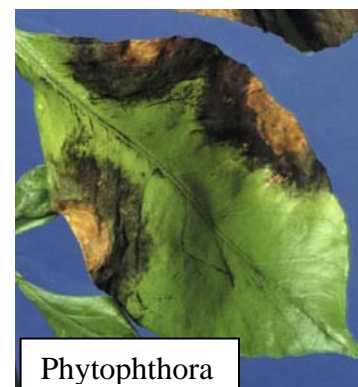
- 7) **Canopy : FRW leaf feeding** – Scan the 1/2 of the skirt line of each tree that is inspected (about first 50cm above skirt) for evidence of FRW feeding. If evident make a note in the comment column of an estimate of the percentage of trees with damage.



FRW leaf damage

**Leaves** : Pick 200, spring flush leaves per block randomly from lower & upper parts of canopy from randomly selected tree.

- 8) **FRW adults, LBAM & Borers** - Check if leaves are rolled /webbed for LBAM borers or pupae. Check for Borer & LBAM eggs. Check for FRW adults.
- 9) **Diseases** - Express post suspect disease samples to citrus pathologist
- Greasy spot** (Korea only): first appear as small black specks up to 0.5 mm in diameter, sometimes with a chlorotic halo, on the underside of leaves 4-6 months old. Chlorosis associated with the leaf spots extends to the upper leaf surface. Specks on the lower surface enlarge into slightly raised greasy yellow brown to black blisters 1-3mm in diameter that darken with age.
  - Septoria**: small raised, blister-like black spots with a yellow halo
  - Phytophthora** : leaf infections appear on the edges or leaf tips as dark brown, watery, roughly circular, spreading blotches.

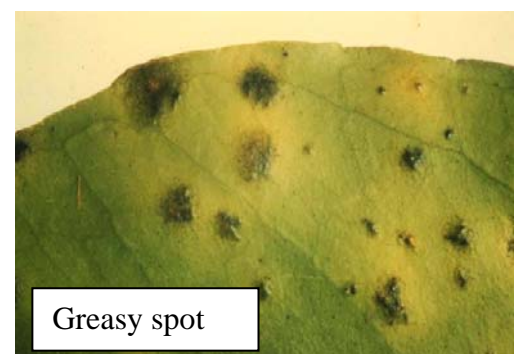


Phytophthora

Send suspect insects for identification at your local DPI office (charges may apply). Express post suspect disease samples to Citrus pathologist NSW DPI, Elizabeth Macarthur Agricultural Institute, PMB 8, Camden NSW 2570



Septoria



Greasy spot