

# CRI Training Workshops for Citrus Scouts

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*“The most important aspect of good pest management remains the grower's footprints in the orchard. Such footprints, plus the accumulation of reliable inspection data and experience, will facilitate growth in the development of economical, commercially acceptable and sustainably integrated pest management strategies.”* M.B. GEORGALA.

**Introduction** The total size of citrus plantings in southern Africa has grown dramatically over the past decade. In order to manage these vast areas of citrus it has become essential to employ dedicated scouts to assist with monitoring in orchards and to gather valuable data. This data can be evaluated in accordance with intervention guidelines and suggested thresholds (Moore et. al 2008) and can assist managers in making sound decisions regarding pest management.

Towards the end of 2018 CRI conducted scout training workshops for citrus scouts and managers in the Brits and Patensie citrus growing regions. Each workshop accommodated approximately 35 attendees and comprised a presentation and practical scout training in the orchard. The contents of the workshop covered the basic principles of citrus scouting and provided the necessary tools to enable the identification and monitoring of important citrus pests and diseases.

**Pest scouts** Pest scouts are essentially the manager's eyes in the orchard! However, the citrus scout is often highly underrated. Scouts need to be reliable, very observant, physically capable, well-trained and well-incentivised.

**The Scout Form** The most important part of the training teaches scouts the correct way of logging information on the scout form. The form depicts the percentage of inspection points in an orchard that are infested.

**Scouting procedures** Sweep surveys by moving diagonally in a v-shaped pattern through large citrus orchards will allow scouts to cover a wide area and assist in the early detection of pests. Scouting of fixed data trees is important to accurately measure the development of pest populations in citrus orchards over time and, most importantly, to determine the success of control measures. Scouts are trained on how, when and where to look for important citrus pests.

**Inspection Points** On each tree a scout must monitor ten inspection points. At least two of these inspection points should be inside the canopy of the tree. Inspection points could include the framework branches, new shoots, flower clusters or citrus fruit depending on the pest(s) being monitored.

Pic top: Identification manual for Citrus Pest and their Natural Enemies: 2015

Pic centre: Tools needed by citrus scouts: magnifying glass and sharp fruit knife.

Above: Example of citrus scouting form.

In small orchards, at least five trees should be scouted for every 1 ha of citrus (or 50 Inspection points). For larger orchards the number of trees per hectare can be reduced.

**Timing** Scouting should take place at least weekly in a particular orchard, on the same day each week. It is important to start scouting for thrips in orchards when the new Spring flush emerges. Scouting for Red Scale, Bollworm and Mealybug should commence in the months leading up to January. From November onwards monitoring for FCM is compulsory and for the early cultivars in some regions, fruit fly monitoring will commence in December. Other citrus pests to scout for include Citrus Looper,

Mites, Leafhopper, Ants and Psylla. In this regard, reading the CRI Integrated Production Guidelines for export Citrus (Volume III – Grout et. al. 2003 and updates at [www.citrusres.com](http://www.citrusres.com)) is highly recommended. The guidelines explain the process of monitoring for each of the important citrus pests and give growers an indication of the seasonal occurrence of pests.

**Conclusion** There is a growing need for training in citrus IPM especially scouting, pest and disease identification and the interpretation of scouting data. CRI can provide training on an ad-hoc basis. For more information, contact Wayne Mommsen on [mommsenw@cri.co.za](mailto:mommsenw@cri.co.za).

## SCOUTING FOR IMPORTANT CITRUS PESTS

During the training workshop each of the important citrus pests are discussed in detail, together with clear pictures for identification. Trapping and scouting, as well as pest and natural enemy identification are also covered. Below are some examples of major citrus pests, but the workshop presents a more comprehensive list.

PHOTOS BY PETER STEPHEN



1st instar Citrus thrips.

### Thrips

**TRAPPING** - Hang out yellow sticky traps on the northern, sunny side of the tree. Use a magnifying glass or microscope to identify citrus thrips when inspecting the trap.

**SCOUTING** - Using a magnifying glass, inspect young leaves and small fruitlets and look under the calyx of larger citrus fruit by gently lifting its points, using a sharp fruit knife. It's important that scouting is done on a sunny day, when thrips are more active.

**NATURAL ENEMIES** - Predacious mites on older leaves, hanging horizontally inside the canopy.



Citrus mealybug.

### Mealybug

**SCOUTING** - Using a magnifying glass, inspect new shoots and leaves on the inside of the canopy, on small fruitlets and under the calyx of larger fruit by lifting its points with a sharp fruit knife.

**NATURAL ENEMIES** - Parasitic wasps *Anagrus* and *C. perminutus*, Lacewings and Ladybird beetles such as *Nephus* and *Cryptolaemus*.



FCM Adult.

### FCM

**TRAPPING** - Hang out Yellow Delta traps baited with a pheromone lure, at least one trap in each orchard of 4 ha, or bigger. Traps must be hung in the top third of the tree on the edge of the canopy (southern side of the tree) and inspected weekly. It is important to recharge the traps at the right time, with the pheromone lure.

**SCOUTING** - Inspect fallen fruit under data trees. However, supplementary information can be obtained on other trees by inspecting green fruit with sting marks showing discolouration, out of season fruit and split fruit.

**NATURAL ENEMIES** - Parasitic wasps, particularly egg parasitoids.

**References:** 1. Integrated Production Guidelines for export Citrus (Volume III Integrated Pest and Disease Management – Grout et. al. 2003 and [www.citrusres.com](http://www.citrusres.com)) 2. Integrated Pest Management for Citrus, 2 Citrus pest Monitoring, Learner Guide, Citrus Academy 3. Thresholds and Guidelines for Intervention Against Citrus Pests, Moore et. al. 2008, South African Fruit Journal, Aug/Sept edition, p77 – p81.

