



Prof Martin Hill, Dr Michael Jukes, Dr Sonnica Albertyn, Prof Caroline Knox and Dr Sean Moore.

Postgraduate qualifications in citrus entomology and microbiology

On 5 and 6 April, Rhodes University held their annual graduation ceremonies for doctoral and masters graduates in science. Congratulations are due to five young students who were awarded post-graduate qualifications in entomology or microbiology.

Sonnica Albertyn graduated with a PhD, having completed a thesis entitled "*Thaumatotibia leucotreta* (Meyrick) (Lepidoptera: Tortricidae) population ecology in citrus orchards: the influence of orchard age" and was supervised by Prof Martin Hill and Dr Sean Moore.

Michael Jukes graduated with a PhD, having completed a thesis

entitled "*Baculovirus Synergism: Investigating Mixed Alphabaculovirus and Betabaculovirus Infections in the False Codling Moth, Thaumatotibia leucotreta, for Improved Pest Control*". Michael was supervised by Prof Caroline Knox, Prof Martin Hill and Dr Sean Moore.

EXTENSION BRIEFS CONTINUED FROM PAGE 65

- Monitor injuries to fruit during picking, handling and transport to the packhouse. Advise orchard managers and/or producers accordingly. Keep the time from harvest to the first fungicide treatment to a minimum, it is strongly recommended to treat at least within 24 hours after picking.
- Ensure that all fungicide applications are replaced frequently as per protocol and kept clean
- Keep the fruit dumping site where fruit will enter the packhouse as clean as possible
- Ensure proper removal of any rotten fruit before sanitising and treatment of the fruit
- Have a sanitation action (total loss chlorine spray) between fruit

sorting and the first fungicide application

- Manage the concentration of imazalil in the fungicide dip tank by doing regular titrations
- Do not wax wet fruit – this could result in a severe risk to fruit quality
- Apply the correct amount of wax onto the fruit (i.e. 1.0 – 1.5ℓ per ton of fruit) and ensure even spread of the wax over the whole fruit
- Reduce the time from harvest to cold chain storage
- Packhouse sanitation should be a continuous process and not just a once a day or week activity
- Store fruit destined for the juicing factory as far away from the packhouse as possible and have them removed as soon as possible



Francois Joubert, Prof Caroline Knox, Prof Martin Hill, Melissa Lloyd, Dr Sean Moore and Marcel van der Merwe.

MSc degrees were awarded to **Marcel van der Merwe** (with distinction), **Melissa Lloyd** and **Francois Joubert** for their studies on *"Yeast-baculovirus synergism: Investigating mixed infections for improved management of the false codling moth, Thaumotobia leucotreta."*, *"Isolation, identification and genetic characterisation of a microsporidium isolated from the carob moth, Ectomyelois ceratoniae (Lepidoptera: Pyralidae)"* and *"Assessment of pheromone specificity in Thaumotobia leucotreta (Meyrick) populations with focus on pest monitoring and the regional rollout of the sterile insect technique in citrus"*, respectively. Marcel and Melissa were supervised by Prof Knox, Prof Hill and Dr Moore, whereas Francois was supervised by Prof Hill and Dr Moore.

It is extremely gratifying to report that all five graduates have remained involved with the citrus industry in some form. Both Sonnica and Michael are enrolled for postdoctoral studies through Rhodes University, the former with CRI in Port Elizabeth and the latter in the Microbiology Department at Rhodes. Marcel is enrolled for a PhD, as a continuation of the same study, Melissa has a position with River Bioscience, conducting research and working in quality control and Francois is farming with his father in the Sundays River Valley, after having worked for The Co-op for a year.

At the PhD graduation ceremony, Prof Hill was acknowledged for being awarded a Distinguished Professorship at Rhodes.

EXTENSION BRIEFS CONTINUED

Below is the same checklist for chemical application from last year with a few amendments.

Checklist for chemical application

- Chlorine application
 - o Solution pH: 6 - 7
 - o Chlorine concentration: 75 – 100 ppm (free active chlorine)
 - o ORP: 800 mV
- Fungicide dip tank
 - o Imazalil concentration: 500 ppm
 - o Solution pH: not higher than 6
 - o Exposure time: 1 – 3 minutes in a solution at pH3 or not longer than 45 seconds in a solution at pH6
 - o Maintain the concentration by following the advised imazalil top-up protocol

- Wax application
 - o Fruit should be dry when they reach the wax applicator
 - o Wax load should be between 1.0 and 1.5 litres per ton fruit depending on manufacturers' recommendations
 - Over application can lead to MRL exceedance
 - Under application will lead to poor fruit quality and poor disease control
 - o The wax solution should be agitated continuously (24 hours a day, 7 days a week)
 - Thiabendazole tends to precipitate to the bottom of the wax drum and cannot be fully re-suspended
 - o Drying tunnels after the wax applicator should not be overheated
 - Obtain the optimal temperature for the specific wax from the wax manufacturer
 - The correct drying of the wax is crucial to ensure that the desired effect is gained