AUSTRALIAN TREE CROP

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EDITOR'S *WELCOME*

Welcome to the March edition of *Australian Tree Crop* magazine, featuring macadamias and specialty crops.

In this issue, we celebrate the success of lychee growers as they begin exporting to the United States and the steady growth of the Australian macadamia crop.

Citrus exports are also booming and there are good prospects for blueberry exports, thanks to new post-harvest disinfestation research.

Behind each of these success stories are dedicated industry officers, researchers and growers working towards improving production, quality and efficiency in the orchard while marketing to new and existing buyers.

Tree crop growers are indeed fortunate to have so many high quality research teams in their corner, like the QDAF team working on the Small Tree High Productivity Initiative.

Peter Rigden provides an update on the findings of this initiative in this issue, as the team continues to look for ways to increase avocado, mango and macadamia productivity in high density orchards.

We also bring you details on some innovative research into the biological control of Mediterranean fruit fly in Western Australia.

As always, we have plenty of news for tree crop growers looking for products to make the job of managing their orchards easier and more effective, including new machinery, irrigation equipment and the latest in orchard monitoring systems.

SnapTrap is a new digital camera system that will snap photos of the contents of fruit fly traps and upload them to an internet 'cloud' system for easy monitoring. Interestingly, the technology was designed and trialled on-farm at Bacchus Marsh in Victoria.

In our next issue, we'll be focusing on innovative and productive ideas for citrus and avocado growers, so please get in touch if you have insights or advice to share.

Until then, we hope you enjoy reading *Australian Tree Crop* and wish you growing success.

Jenny Gilbert

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The future in fruit fly monitoring

Remote monitoring for fruit fly activity is a step closer with the release of a new electronic trapping system called SnapTrap.

Kim Khor

The system is the brainchild of **Kim Khor**, the son of Bacchus Marsh fruit growers, **Graeme** and **Jenny Payne**.

After trialling it in his parents' cherry, apple and stone fruit trees, Mr Khor refined the SnapTrap and is now commercialising the device which automatically records photographic images of fruit fly trap contents, online.

Mr Khor said the SnapTrap is a digital camera system that fits onto standard fruit fly traps, connecting to the internet and logging photos for easy review on laptops and mobile phones.

"Every few hours in daylight, the SnapTrap records a detailed, high resolution photo which is automatically uploaded to an internet 'cloud' system and published to a secure and private website," he said.

"This allows anyone responsible for monitoring the traps to review the photos easily at any time."

The SnapTrap automatically records photographic images of fruit fly trap contents, online.

The solar powered system connects to the internet through the mobile phone network, so it can be installed almost anywhere that receives sunshine.

Mr Khor said the SnapTrap has been successfully used in very low mobile signal locations and even better, where wi-fi is available because it is cheaper.

Among the benefits of the device is that it relieves the need for growers to physically visit fruit fly traps, so the trap monitoring effort can be drastically reduced.

"The time and effort saved can then be used for other important work," Mr Khor said.

"Remote monitoring allows users of this system to quickly review large numbers of traps at any time of the day, from any location.

"This makes it possible to increase the distribution or density of traps being used without increasing the time and effort required to monitor them, so this makes it feasible to install more traps so growers can achieve more accurate monitoring and responsiveness in their fruit fly control programs.

"Taking this a step further, the SnapTrap allows growers to run a more comprehensive early warning system through better monitoring of their orchard boundaries and surrounding areas."

Online review

The online monitoring system provides a gallery of photos to flick through that are easily identified with dates and times.

It can also create a time-lapse video from the photos to make it even easier to quickly review a longer period of time.

Mr Khor said SnapTrap's online review integrates with existing audit and monitoring applications such as pest monitoring software used by growers.

"Growers can flag a pest appearing in the SnapTrap and move the photo into the existing tracking software, before raising a flag for escalated review, physical sampling or response work such as sprays or baiting," he said.

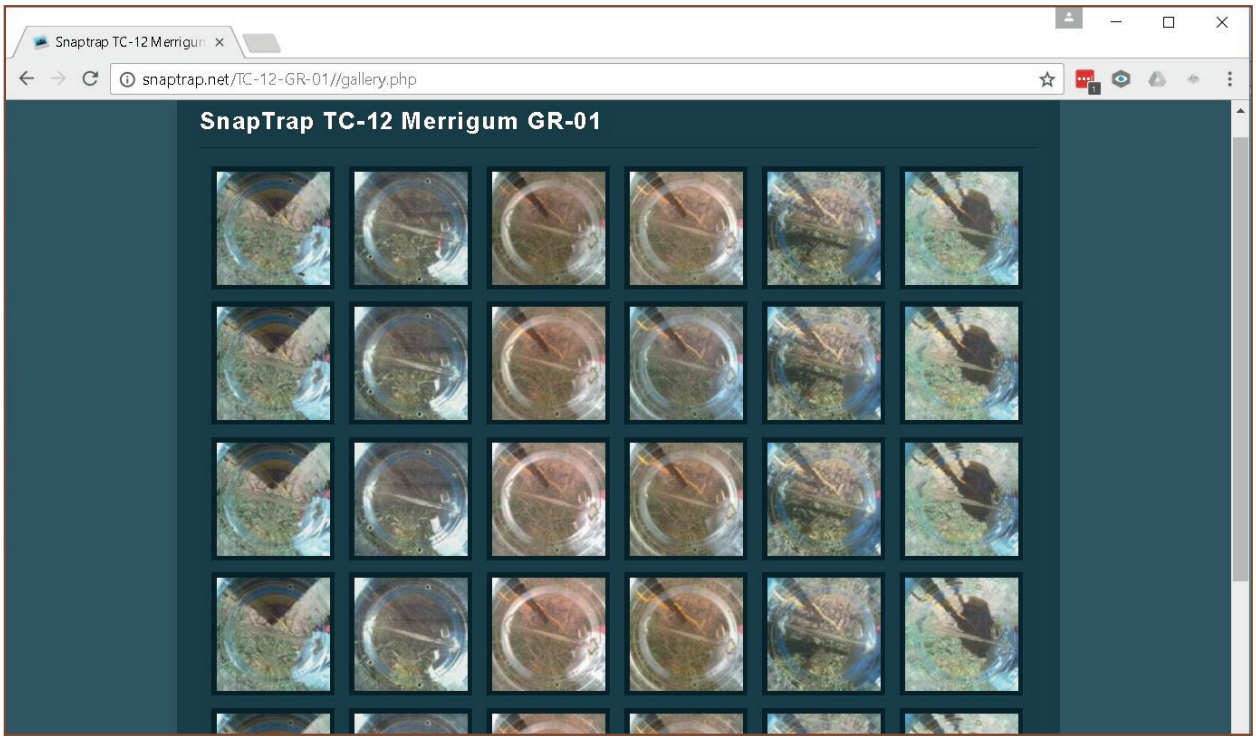
While Mr Khor first came up with the concept for remote monitoring of codling moth traps, he has since tailored the SnapTrap to fit almost any kind of fruit fly trap including the standard Lynfield trap.

Another benefit is that SnapTrap records temperature logs so that the system can provide degree-day calculations for lifecycle predictions and allow growers to plan the optimal timing for sprays and other fruit fly control activities.

"This increased accuracy saves times and work, reduces fruit fly control costs and lowers fruit damage," Mr Khor said.

"And with ongoing monitoring, it is much easier to assess the effectiveness of control programs.

"For example, if a baiting program is started after an initial trap catch, the SnapTrap will allow growers to check for new insects and compare the results over different locations."



Remote monitoring allows users of the SnapTrap system to quickly review large numbers of fruit fly traps at any time of the day, from any location.

Future developments

Mr Khor believes automatic detection of fruit flies is likely to be the next major advance with this system.

The technology will also prove useful for research, with easier data collection for lifecycle analysis and modelling helping to improve the understanding of fruit fly behaviour in different regions.

"Other environmental sensors plug into the SnapTrap to monitor factors such as humidity, rainfall and soil moisture and focus on those which are contributing to fruit damage," Mr Khor said.

"In the future, collecting trapping information over wider areas and collating it in a central location will allow us to develop a regional understanding of fruit fly behaviour patterns.

"It also has the potential to provide data for government and other organisations to improve our biosecurity capabilities and market access efforts."

The SnapTrap will be available to growers through local rural resellers.