Innovations in Gr
Technology Apply Across

ape Growing the Industry

Challenging and changing conditions have forced South Australian farmers to be smart and economical with their land - stretching all the way back to the stump-jump plough.

Peter Hackworth, Executive Officer of the Wine Grape Council of South Australia, says today's farmers are no different - and they deserve to be recognised – so he has established the Vinnovation Award.

"I thought there must still be people out there being inventive, but it's hard for farmers to put their hand up - they're quite modest people," Hackworth says.

The awards will be held on July 17 at Adelaide Oval. The four finalists have designed innovative ideas, practices and equipment that will be presented to over 200 wine grape growers.

"The criteria we assess them by is their ability to make an impact, to actually save money and make money, the cost of adopting the practice, and the ability of it to be applied across the state."

The finalists include systems of delaying ripening across different areas of a vineyard, better sprayers for preventing Eutypa outbreaks, rapid processing of GPS yield data, and a grape bin with inbuilt scales.
"Most of them aren't interested in commercialising the ideas - they're just interested in growing grapes - but they're happy to share them.
"Were looking at getting engineering plans made for the spray unit and the trailer, for example, and make them available so people can make them themselves or have them made.
"It's classic farming - not wanting to get further away from what they like doing."

Maturity delaying techniques for sloping vineyards

Kim Anderson, from the Adelaide Hills, has developed a suite of techniques to ensure more even ripening of his fruit across his sloping property.

Fruit at the top of the block ripens significantly faster (a difference of 1.5 - 2 Baume) than at the bottom, causing management problems come harvest time.

In general, fruit is ripening a month earlier than it was 30 years ago thanks to a warmer climate - the ability to delay and get more even crops is of increasing interest to growers.

Anderson has applied three trial methods. By using herbicide on the undervine grass in the lower block, and keeping it intact on the higher ground until budburst, the soil at the top of the block is kept cooler. At harvest the different between fruit ripeness was only 0.1 Baume.

Another technique was trimming the vines just above the highest fruiting nodes early in the season - this delays ripening by about a month and complements the other techniques well.

Finally, Anderson pruned certain vines very late in the season to delay their development and measured them against a control group. The results were a success.

Anderson's techniques allow greater uniformity to vine growth stages across a sloping block. There are also advantages to fruit ripening in cooler months, enhancing flavour development and maximising the value of fruit.

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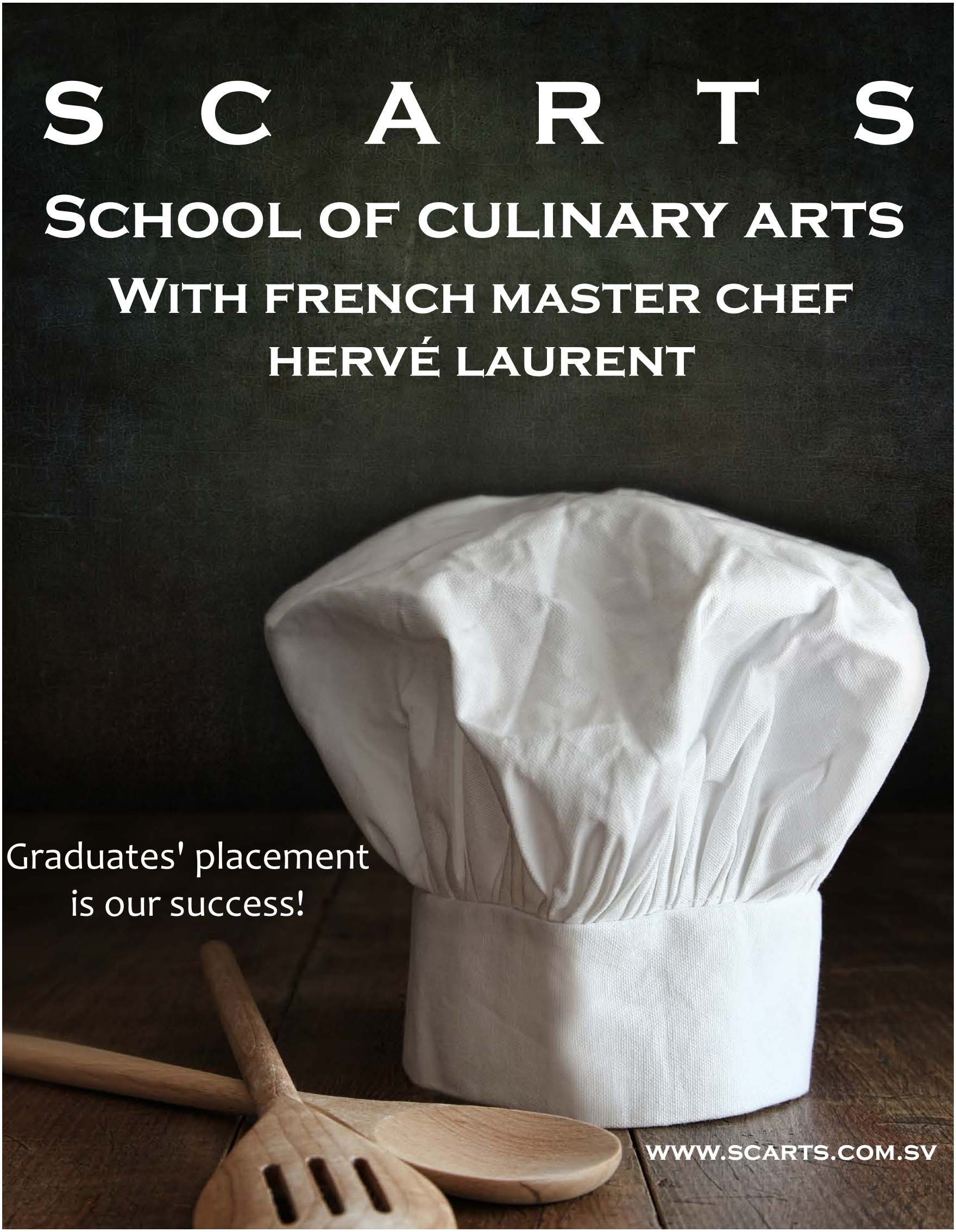

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Bin Trailer with built in scales

Bill and Phil Longbottom from Padthaway, South Australia, are independent grape growers who supply to a number of processors Their bins were previously loaded in the vineyard before being driven to and offloaded at a weighing pad. This resulted in under or overloaded grape bins and a higher risk of accident - for example a forklift tipping when handling an overweight bin. There are also price penalties for over-delivering on contracts or overloading trucks.

The solution was to build a dual-axle trailer with suspension and built in scales, that displays a digital readout to the harvester operator. All construction was undertaken on their farm at an estimated cost of $6000.

Benefits of their innovation include being able to offload bins straight on to delivery trucks to save double-handling the grapes, better scheduling for trucks, better yield estimation during picking, reduced noise thanks to suspension, and it removes the problem of variation in volume weight between varieties. They've paid for their device in one season by selling the fruit that is excess to processing contracts to other wineries instead.

Rapid GPS yield mapping and analysis

Hans Loder works in mining, but he has an ongoing association with Coonawarra's Katnook Estate.

Katnook uses GPS yield monitors on its harvesters to accurately track yield across vineyards. The data collected was typically sent for processing in to yield maps that took several months to be processed and delivered, much too late to be of use in harvesting decisions.

Loder developed a script to process the data within 24 hours of the harvester moving through the block. It bypasses expensive mapping software to display data natively in Google Earth.

Pixels are colour coded according to yield for quick analysis. The data is also displayed in much higher resolutions than before - with data points down to 150mm - allowing investigation of individual vines and selective harvesting of high value fuit.

Katnook reduced its data processing costs by 75 per cent, using the new yield maps to its advantage in pruning, nutrition and weed management.

Recirculating cordon sprayer

Ben Blows is an independent grape grower from Macclesfield. Cool and wet climate grapevines, like Blows' vineyard, are often affected by Eutypa, a fungus which infects pruning wounds and shortens the life of vines significantly.

Blows designed and constructed a recirculating sprayer to reduce the spread of Eutypa. His cordon sprayer uses four nozzles on each side, targeted to hit pruning wounds while allowing spraying at up to seven kilometres per hour.

The sprayer was put together with components from other machinery and vineyard waste, including a mount from a leaf blower, pump from an older sprayer, and 44 gallon drums. The cost of the device was estimated at $6000.

Sprays are applied within 48 hours of completing pruning. The sprayer uses a reduced volume of chemicals, which directly results in savings and allows him to use a smaller tank, limited soil compaction in his high rainfall vineyard.

Long term, Ben expects that the greater protection from Eutypa will significantly improve the commercial life of his vines.