

## National Vegetable Industry Centre Newsletter

### Improving postharvest disease control in potatoes

Kylie Crampton, Elena Lazar and Tony Napier, I&I NSW

The Australian Centre for International Agricultural Research (ACIAR) is currently conducting studies with sweet potatoes in Papua New Guinea (PNG) and potatoes in Australia. The sweet potato is a major food crop in PNG, providing 43% of total dietary intake. The research in PNG will focus on improving marketing efficiency and postharvest management within their own country. The research conducted in Australia will focus on reducing postharvest losses of potatoes.

The Australian potato industry produces 1.3 million tonnes per annum, and is valued at \$480 million. In NSW the major production regions are the Riverina (113,834 t), the Coastal areas (31,883 t) and the Tablelands (19,664 t). Unlike other vegetable crops, the Australian potato industry has seen increased exports in recent years to its key markets in Asia. However, in some years they have experienced excessive losses due to postharvest rots and breakdown. The Australian component of this project has analysed the supply chain to identify practices that may be contributing to these losses. From there, researchers will be looking at ways to improve control of postharvest diseases through the application of both conventional control measures and new control measures such as biocontrol methods and essential oils. It is hoped that these alternative control measures may be more acceptable to consumers who are becoming increasingly adverse to postharvest chemical usage.

Potato growers in the Riverina were interviewed late last year to determine current domestic and export supply chains, identify where major losses are occurring, and where modifications to current supply chain practices may lead to improvements in quality out-turn through better management of postharvest diseases. The interviews identified that the majority of Riverina production goes to the local fresh and processing markets. Growers indicated they have seen a downturn in disease incidence in the last few years; however *Erwinia* seed-piece breakdown remains a concern for them.

I&I NSW staff at Gosford have commenced the research component of the ACIAR project for controlling post harvest diseases in Australian potatoes. A number of potential control agents will be tested including commercial biocontrol agents which have been developed overseas and have shown some promise in preventing post harvest diseases in potatoes. These include the biofungicides Shemer (*Metschnikowia fructicola*) and Bio-Save® (*Pseudomonas syringae*) and the natural sprout inhibitor Talent® (derived from the essential oil (*Carum carvi*)). In addition, some emerging essential oil biofumigants including lemon myrtle and tea tree oil will be evaluated for post harvest disease control. Previous research into the antimicrobial activity of these essential oils has shown that citral, the main component of lemon myrtle, exhibits antifungal activity against a range of post harvest pathogens. *In vitro* trials of these bio-control agents and essential oils are now underway at Gosford.



Kylie (left) and Elena conducting *in vitro* trials at Gosford

For more information on the ACIAR potato project contact Elena Lazar or Kylie Crampton, Post Harvest Researchers for I&I NSW at Gosford on (02) 4348 1900



Industry &  
Investment



## Onion growers meet in Griffith

Tony Napier, I&I NSW, Yanco

The 2009/10 season will not be remembered fondly by most Riverina growers. It was a tough growing season with low paddock yields, small bulb size and poor commodity prices. The local heavy rain in late May has been welcomed by growers but delayed the sowing of some crops. NSW I&I estimate the area sown to onions in the Riverina for the 2010/11 season will be 10% higher than last season.

The Australian Onion Industry Association (AOIA) meets twice a year in various locations around Australia. The association had its mid year meeting at Griffith on the 30<sup>th</sup> and 31<sup>st</sup> May commencing with the executive members meeting on the Sunday and the general meeting on the Monday. The Monday meeting started with general business followed by a few short updates on research project activities. Issues discussed about the National Residue Survey (NRS) and the levy review process generated the most interest.

The NRS was originally established in 1961 to measure pesticide residues in exported meats. Today the NRS tests for residues in 22 animal and 26 plant commodities. The onion industry started testing in 1994 and since then has always achieved 100% compliance with Australian standards. The current levy of \$0.40/tonne funds this service which tests for 47 different residues on about 100 samples in the last 12 months. The lively debate on the NRS saw a range of concerns. The main issue raised was that in its current format it does not meet Eurogap standards and exporters have to conduct more testing at a further cost.

The levy review process was also keenly debated at the Griffith meeting. In 2002 the onion industry introduced a research levy of \$1.60/tonne (collected at the first point of sale). The onion industry is now reviewing the levy process and it has been proposed that it is time to consider an increase. The combined total for both the NRS and the research levy is \$2.00/tonne and it is being considered to increase levies to a total of \$3.00 or \$4.00/tonne. A membership levy to Plant Health Australia (PHA) and the introduction of a new marketing and promotions levy are also being considered in the levy review with various opinions on what proportion should be allocated to what activities.

It was generally agreed that \$0.10/tonne should be allocated to PHA membership as well as some increase to the research levy. Opinions were divided on the NRS and the marketing levy. No decisions were made or finalised at the meeting but it gave local growers a good opportunity to have some input into the process. Growers from other growing areas will also be given the opportunity to have their say over the next few months with voting papers being sent out to every levy paying grower in mid August. Local Riverina growers who missed the meeting are invited to contact Brian Bonde, chairman of the AOIA, if they would like to provide some input to the process.



Trevor Twigden addressing the meeting at Griffith

For further information on the AOIA or the levy review process contact Tony Napier, District Horticulturist (Vegetables) at Yanco Agricultural Institute on (02) 6951 2611.

## Watermelon industry snapshot

Stephen Wade, I&I NSW, Bathurst

Watermelons are a popular summer fruit in Australia. In 2005-06 the NSW watermelon industry grew \$14.3 million worth of melons, producing a fifth of the Australian watermelon crop.

**Table 1. The Australian watermelon industry (2005-06).**

State	Gross Value (\$)	Production (t)	Crop Area (ha)	Growers (#)
Queensland	39,146,405	73,446	2,691	209
New South Wales	14,285,721	26,414	842	116
Western Australia	10,333,774	15,818	550	75
Northern Territory	4,863,310	12,866	416	16
Victoria	2,154,837	3,978	140	19
South Australia	678,510	1,256	25	10
Australia	71,462,557	133,778	4,664	445

**Table 2. The NSW watermelon industry (2005-06).**

River Catchment	Gross Value (\$)	Production (t)	Crop Area (ha)	Growers (#)
Lachlan	10,218,770	18,894	495	11
Northern Rivers	1,567,260	2,898	121	37
Hawkesbury-Nepean	680,999	1,259	47	20
Murrumbidgee	652,930	1,207	53	7
Lower Murray Darling	604,085	1,117	33	8
Other	561,677	1,038	92	33
New South Wales	14,285,721	26,414	842	116

**Table 3. NSW watermelon industry trends (2000-06).**

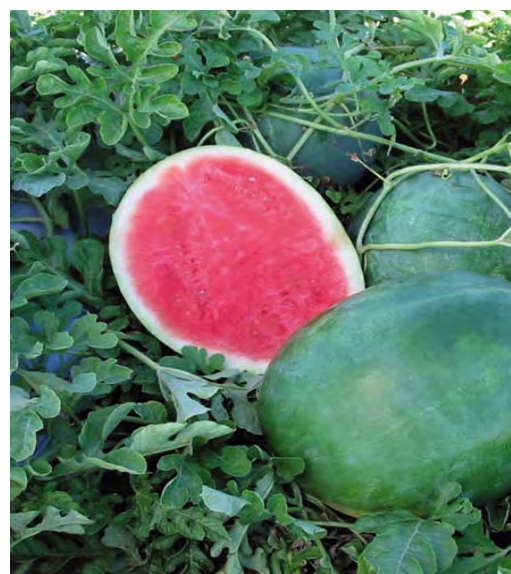
NSW Watermelon Industry	2000-01	2005-06	Change (%)
Gross Value (\$)	4,324,597	14,285,721	+330
Production (t)	9,129	26,414	+289
Crop Area (ha)	538	842	+156
Growers (#)	120	116	-3
Crop Yield (t/ha)	17	31	+185
Productivity (t/grower)	76	228	+298

Tables 1, 2 & 3: Australian Bureau of Statistics (2008).

Despite the drought, the NSW watermelon industry tripled in value from 2000-06. The NSW watermelon crop increased by 17,285 t over the period due to higher sales and production. NSW watermelon consumption rose following the introduction of seedless watermelons. NSW crop areas increased by 304 ha with the main growth occurring in the Lachlan Valley.

NSW growers increased their watermelon crop yields by 14 t/ha and grower productivity by 152 t/grower from 2000-06. This rise was aided by the use of improved varieties, such as Nightshade and Royal Armada, transplants, raised beds, plastic mulches, drip irrigation and harvest aids.

For further information on watermelons contact Stephen Wade, District Horticulturist (Vegetables) at Bathurst Primary Industries Centre on (02) 6330 1216.



Royal Armada melons (Lefroy Valley).

## NSW early season processing tomato variety trials

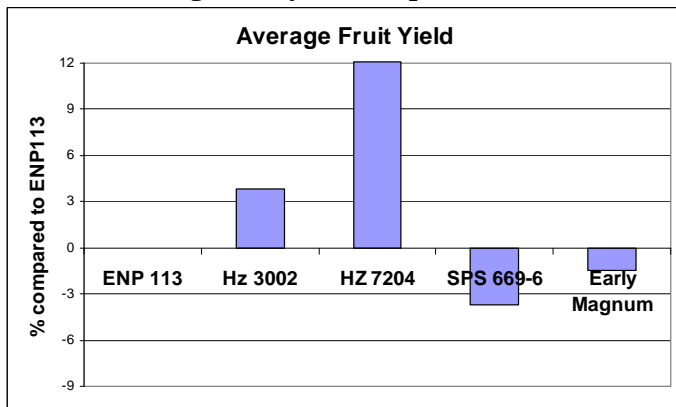
Tony Napier, I&I NSW, Yanco

Over the last four seasons I&I NSW and the Australian Processing Tomato Industry have conducted a variety evaluation program on numerous new and existing commercial lines. During this time the five commercial varieties Hz 3002, Hz 7204, SPS 669-6, Early Magnum and ENP 113 were evaluated. ENP 113 can now be used as the standard variety in these trials to indicate the performance of the other commercial varieties.

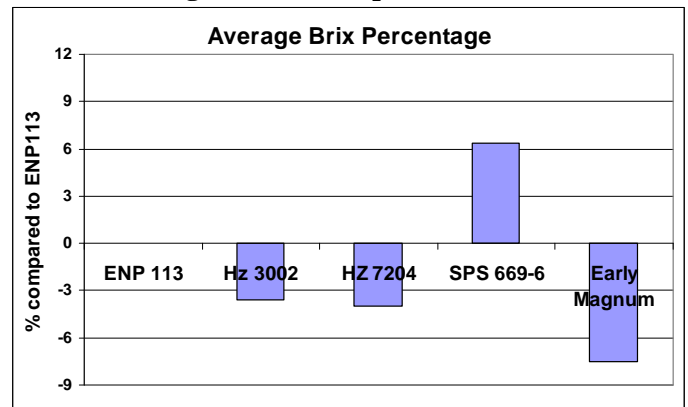
There were seven early season trials including four replicated machine harvested trials and three replicated hand harvested trials. All the trials were direct seeded into double rows and furrow irrigated. The trials were all sown during September and harvested between 22<sup>nd</sup> January and 7<sup>th</sup> February. All seven trials have been individually analysed and previously reported to industry.

The following data are the average results of these commercial varieties over the last four years. The results are given in comparison to how ENP 113 performed. ENP 113 averaged 78 t/ha of fruit yield at 5.5% Brix and a Total Soluble Solids (TSS) yield of 4.2 t/ha over the four years.

**Table 1. Average fruit yield compared to ENP 113**

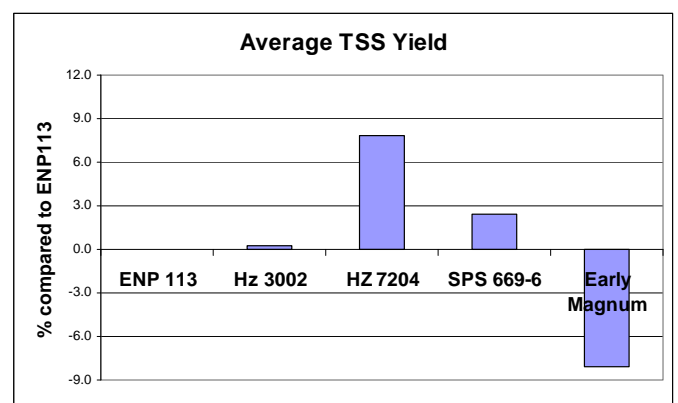


**Table 2. Average Brix % compared to ENP 113**



When the early season variety trials are averaged over the last four years, Hz 7204 had the highest average fruit yield while SPS 669-6 had the highest average Brix % (see tables 1&2). Hz 7204 also produced the highest average TSS yield which was 7.8 % higher than ENP 113 (see table 3). SPS 669-6 recorded a consistently high Brix % over the last four years resulting in it having the second highest average TSS yield at 2.4 % higher than ENP 113.

**Table 3. Average TSS yield compared to ENP 113**



Calculating which variety would give the highest gross return (in \$) depends on how much the tonnage price changes with an increase or decrease to the percentage of Brix. At current pricing, the average gross return (in \$) would have a similar result to the TSS yield. The seven early trials conducted over the last four years showed that Hz 7204 returned 3.3 % more value than SPS 669-6 and about 6.8 % more than ENP 113.

For further information on the processing tomato variety trials contact Tony Napier, District Horticulturist (Vegetables) at Yanco Agricultural Institute on (02) 6951 2611.

## **Water for the future**

David Trolldahl, I&I NSW, Yanco

Approximately two hundred and sixty people attended The Australian Government Department of the Environment, Water, Heritage and the Arts (DEWHA) public information session on the Murray Darling Basin plan at the Griffith Leagues club on June 2<sup>nd</sup> 2010. The Basin Plan stands to have the largest single impact on water availability in the Murray Darling basin in the history of water reform.

Speakers from the Department and The Murray Darling Basin Authority outlined the process of how the basin plan would be arrived at and stated that “The Basin Plan will provide a framework for setting environmentally sustainable limits (known as sustainable diversion limits) on the amount of surface water and groundwater that can be taken from the Basin. These limits will be set based on the best available scientific knowledge and socio-economic analysis and cultural information.” The meeting split up into workshops with sessions in water purchasing, environmental watering, infrastructure upgrade programs, drought assistance and the Australian Competition and Consumer Committee’s session on water market rules and charges.

The Wentworth group released its ‘Sustainable Diversion Limits in the Murray-Darling Basin’ report the morning prior to this meeting. It advocates a reduction of 65% of irrigation in the Murrumbidgee valley and 39% reduction in the Murray valley as compared to the generally recommended reduction of less than 10% over the whole Murray Darling basin. The report estimated this reduction in water availability in the Murrumbidgee valley would only reduce profits by 26%. This report and its implications to all irrigators and residents in the MIA stirred an increased level of interest to the meeting. The key concerns of the audience were the need to ensure there is balance between water for the environment and for food production.

The Draft Basin plan will be released in July 2010 followed by a 16 week consultation period when there will be further information sessions held. Submissions and responses are welcomed by DEWHA and can be sent via the web or by mail. The Basin plan is set to be legislated on and released sometime in 2011 but in NSW will not take effect until 2014 when the existing water sharing plan finishes.

For more information contact the Water Information Line 1800 218 478 or email [waterinformation@environment.gov.au](mailto:waterinformation@environment.gov.au). The regional contact for the Murrumbidgee region is Mr Rod Carr on 02 6274 2682 or [rod.carr@environment.gov.au](mailto:rod.carr@environment.gov.au)

## **Australia’s first batch of mild onions**

Sarah Chester, I&I NSW, Albury

Industry & Investment NSW (I&I) Chemistry Services Laboratory at Wagga Wagga has recently tested Australia’s first batch of mild onions, which will hit the shelves later this year. Moonrocks Australia, a grower of brown onions in Queensland, is Australia’s first certified mild onion grower. I&I chemist at Wagga Wagga, Richard Meyer, said the certification process was a first in Australia because previously onions have been marketed as mild, but with no distinction as to what characteristics define a mild onion.

The certification program is managed and delivered by National Onion Laboratories, a Georgia based company, who have successfully supported the mild onion industry in the US. Mr Meyer said the onions presented a new product to the Australian consumer, and hopes were high of developing a mild onion industry similar to that found in America. Mr Meyer said the Australian mild onion industry was still in its infancy and was looking to develop volumes domestically before exports start. However, he said interest has already been received from south east Asia and the Pacific Islands. “Mild onions have huge potential in offering consumers a product which offers low pungency, while still retaining full flavour, and allows growers to differentiate their products commanding a premium price,” Mr Meyer said.

The Chemistry Services Laboratory, which developed its rapid testing procedure with support from Horticulture Australia and Onions Australia, has been offering a service to growers, producers and seed companies for the past four years and has tested 300 such batches of onions this season alone.