



TOMATO TOPICS



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NEWS and INFORMATION
FOR THE PROCESSING TOMATO INDUSTRY

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Tomatoes, Lycopene and Human Health, Preventing chronic diseases.

Tomatoes, Lycopene & Human Health, Preventing Chronic Diseases, Edited by Dr. A. Venket Rao (Caledonian Science Press, ISBN: 0-9553565-0-4) is the long awaited first edition reference book and definitive title on this subject. The chapters have been written by a team of internationally recognised scientists, each a specialist within their field, the text providing a clear picture of the results of current research.

The arrival of this text will have a profound and lasting effect on the way the antioxidant carotenoid lycopene and other phytonutrients found in tomato are viewed and valued in the future. An enormous and compelling body of evidence supports the health protective and chemopreventive effects, which are discussed in the book. Ongoing research, through ever-larger investigation programmes, continues to study the precise connections between lycopene and its protective effects against a long list of chronic diseases. This independently published edition provides a state of the art resource that supports improved nutritional guidelines and dietary recommendations, which promote increased consumption of foods rich in lycopene.

Almost all of the scientific investigations, which focus on lycopene, have in fact used processed tomato products, which contain many other

nutritional components. Research suggests that some of these compounds are working synergistically to enhance chemopreventive effects, adding still further to the level of protection they provide.

Copies of the book are available from Liz Mann (lizmann@aptrc.asn.au)

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Has This Season Been Windier Than Last Season?

A considerable number of people have recently commented on how windy this season has been and the impact it has had on the establishing tomato crops. To fully understand how this season compares to previous seasons historical wind speed data has been obtained for the Echuca region.

This data was obtained from the Bureau of Meteorology and is manually recorded at Echuca two times each day, once at 9:00am and then again at 3:00pm.

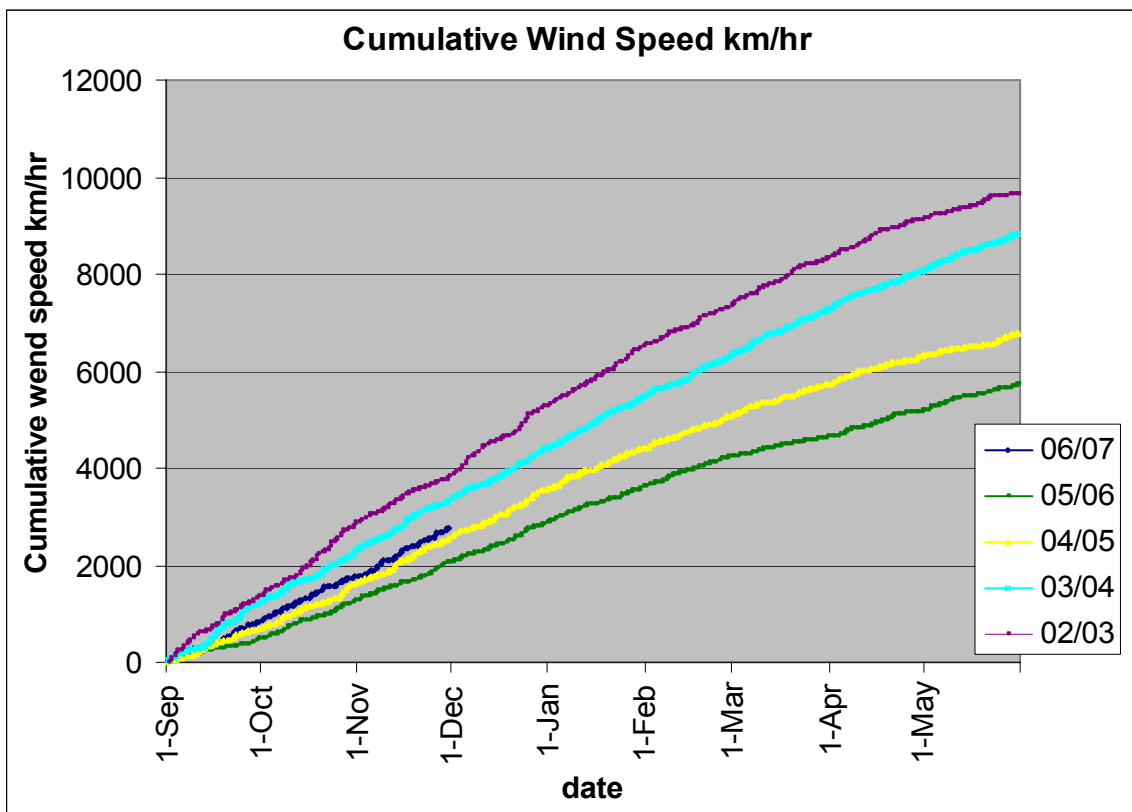
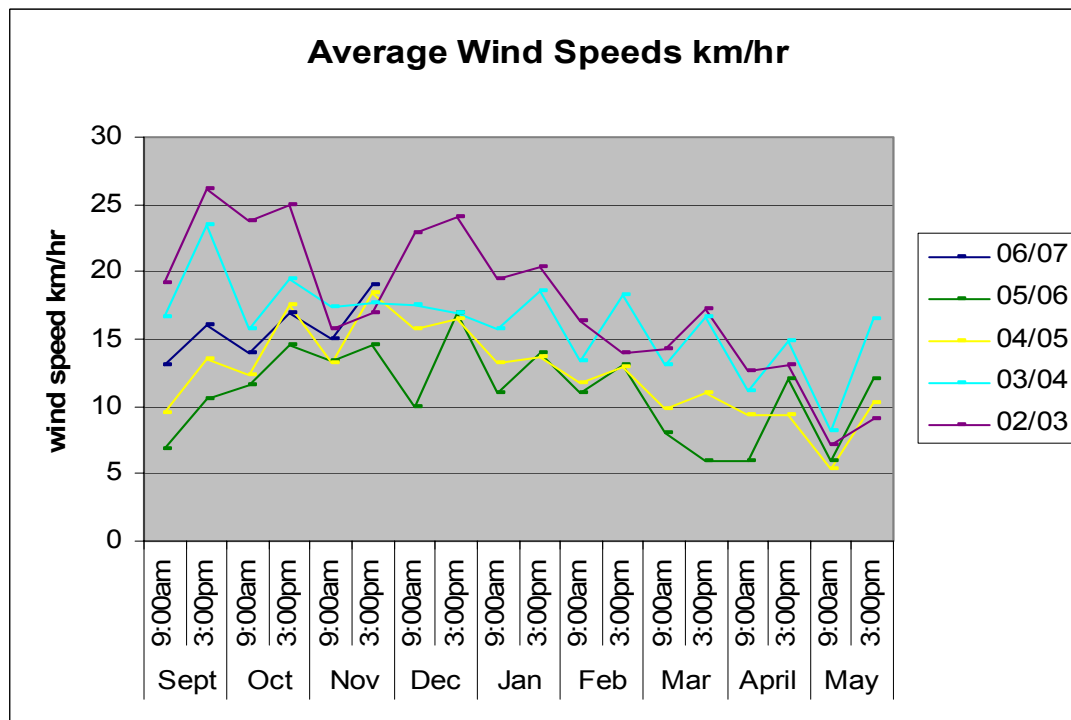


Figure 1: Cumulative Wind Speed Data

The data was analysed a number of different ways to determine how this season really does compare to the last four seasons. Firstly the wind speed data from the 1st September each year was added up to produce the graph as shown in figure 1. This graph indicated that this current year is in fact windier than the past two seasons, but is not as windy as the previous drought year of 2002/03 or the year following that last drought.



of 2002/03 or the year following that last drought.

To further understand how this season wind compared to previous years the average wind speed (km/hr) data for each month was also compared as shown in figure 2. This also showed that the current season is not as windy as the year of the previous drought or the year following that drought. The average wind speed at 3:00pm during November has increased although it is only slightly above the average wind speed at 3:00pm in November during 04/05 and 03/04.

Figure 2: Monthly Average Wind Speed

(Continued on page 3)

(Continued from page 2)

The final analysis was to determine if we had experienced stronger winds this season than during the previous years. Once again the maximum wind speed experienced each month was lower than that experienced during the previous drought in 2002/03, although stronger winds have been experienced during the month of November.

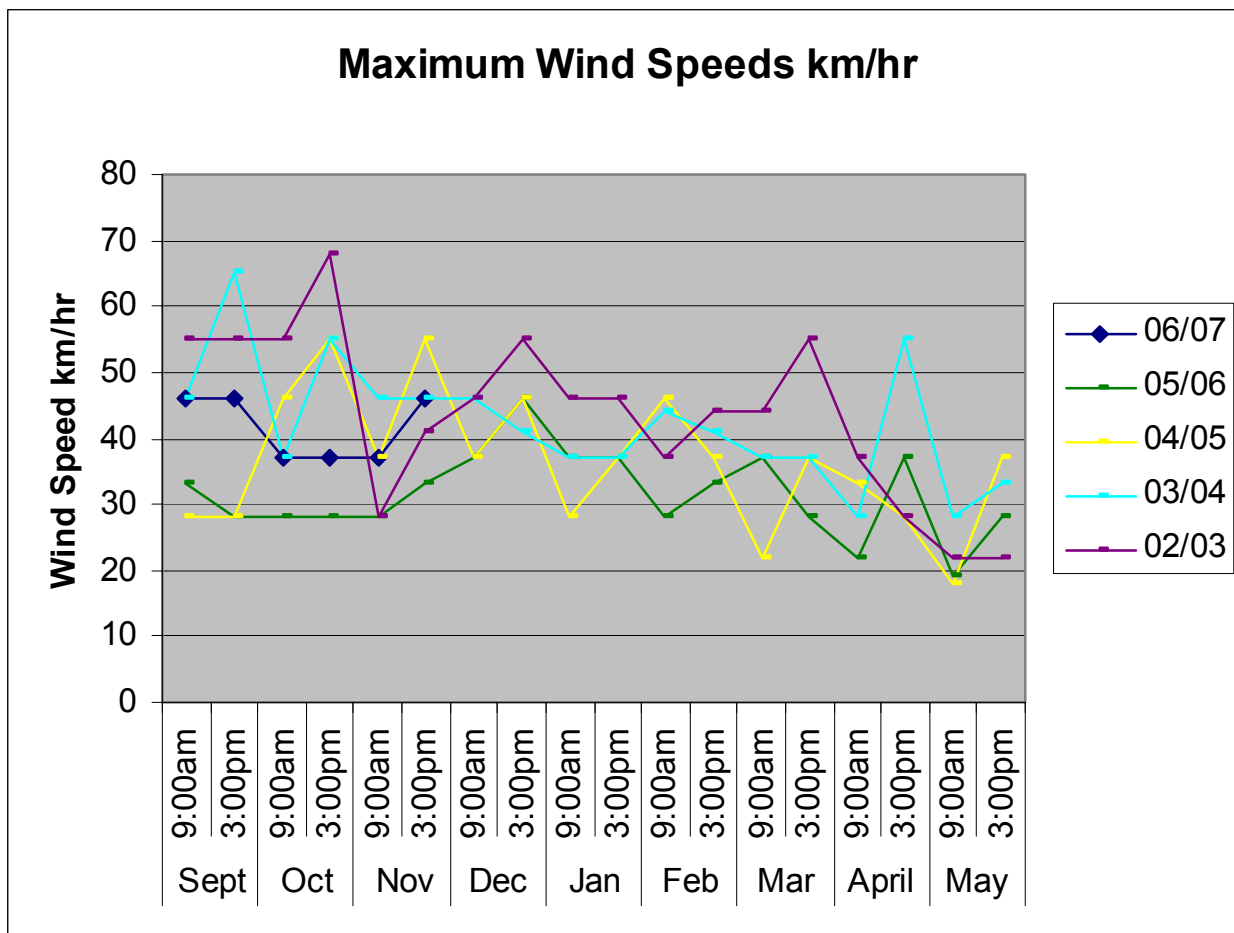


Figure 3: Maximum Wind Speeds

Although this season is windier than the previous season it does appear that the current conditions may be considered average if compared to the previous four seasons.

How Does This Season’s Temperature Compare?

Tomato crop growth and development is partly dependant upon the amount of heat available to the plants. Tomato growth occurs best between 6°C and 44°C. Daily heat units are calculated keeping in mind the upper and lower limits for tomato growth. These heat units are accumulated on a daily basis to assist in predicting tomato development.

Heat units have been accumulated from the beginning of September each year to enable the various seasons to be compared. From figure 4 it can be seen that this current season (from Echuca) is warmer than last season and also the previous 5 year average. Comparing the heat units from this year individually with previous years it appears that the current season is similar to that of 2002/03.

So far this season the temperature is similar to that of the 2002/03 season, although wind did start off this season at a lower level. In addition to the challenge of dealing with high heat units and increasing wind levels during the month of November the industry is also dealing with the issue of low irrigation water allocations. Unless rain occurs in the coming weeks it is predicted that water allocations will remain at the current 23% for the Goulburn System for the duration of the season. The average temporary irrigation water sales price for this season has already exceeded the average price paid for water during the 2002/03 season by \$65/Meg, with the weekly price per Meg currently increasing by around \$50-\$80/week. Taking into account the impact of the heat, increasing wind during November, low irrigation water allocations and increasing temporary water price this season will be a very challenging season.

(Continued on page 4)



UPCOMING EVENTS

Annual Crop Inspection & Industry Pre Harvest Dinner

Thursday 25th January, 2007

3:30pm at Campaspe Irrigation for crop inspection

7:30pm for the dinner on board the "Mirage"

RSVP Essential: to Liz (0427 857 578 or email lizmann@aptrc.asn.au)

The "Mirage" is located just along from the Port of Echuca wharf in Victoria (park at the caravan park end of the wharf)

Sponsored by



The 5th **Annual Australian Water Summit** (1st March 2007) a must attend event for water industry professionals from across the Nation, and will deliver the best presentations and case studies on issues such as:

- Updates to national and state water reform planning
- Water company planning and development
- Issues in environment and sustainability
- Analysis of water pricing and water trade practices
- Private sector involvement in water utilities and public private partnerships
- Addressing the effects of water restrictions and the role of the community in water decision making
- Water efficiency, Technological advances and innovation.

Visit <http://www.australianwatersummit.com.au/> for further information or contact customer service on ph 02 9080 4090, email: info@iir.com.au

ABARE Outlook 2007

March 6th - 7th, 2007, www.abareconomics.com

Keep It Real

Options for integrating environmental stewardship and quality assurance for Australian agriculture

Incorporating the 5th EMS in Agriculture and 5th National On Farm Food Safety and Quality Assurance conferences

6 – 10th August 2007, Hobart, Tasmania www.tqainc.com.au/conference.htm

8th World Congress and 11th ISHS Symposium on the Processing Tomato
June 8th - 11th, 2008 in Toronto, Canada (Post Congress Tour - June 12th & 13th)

www.worldtomatocongress.com

Nipro's liquid pop-up fertilizer promotes earlier flowering and fruit production in processing tomatoes – IK Caldwell trial report

A replicated trial evaluating the addition of Nipro's liquid pop-up fertilizer to transplanting water was recently established in the Rochester district by Paul Elton, (IK Caldwell) with the assistance of Keith Fallow, (Nipro). The trial was set up to try and quantify grower observations from previous years of faster and improved crop establishment after using this product on tomatoes, and range of other crops, and to determine the most effective rate to use on process tomatoes.

Tomato seedlings were hand transplanted on the 18 October 2006. Varying rates of Nipro Pop-up were applied in the transplanting water at this time. Immediately after transplanting the field was watered up until the beds "blacked out" – approx 3-4 days later.

A base fertilizer treatment of 300 kg of triple super was spread prior to forming the beds and 50 kg of MAP was applied as a starter, 5 cm either side of, and 5 cm above the drip tape.

Preliminary results:

Applying Nipro pop-up at sowing markedly improved early transplant vigor (1 = dead & 10 = 100% green leaves and actively growing) after 7 days. The seedlings recovered from transplanting shock much more quickly, more leaves (nodes) had formed by week 3 and stems were more robust by week 5 in the liquid pop-up treatments. (refer also to the graph)

At week 5 it was also observed that, in the water alone plots, a couple of seedlings had broken off at the soil surface – their thinner stems were unable to withstand several days of strong winds.

First fruit begun to appear around week 5 and by week 8 there was a very obvious response to the added pop-up: bushes were more advanced with more flowers and fruit verses the water alone treatment.

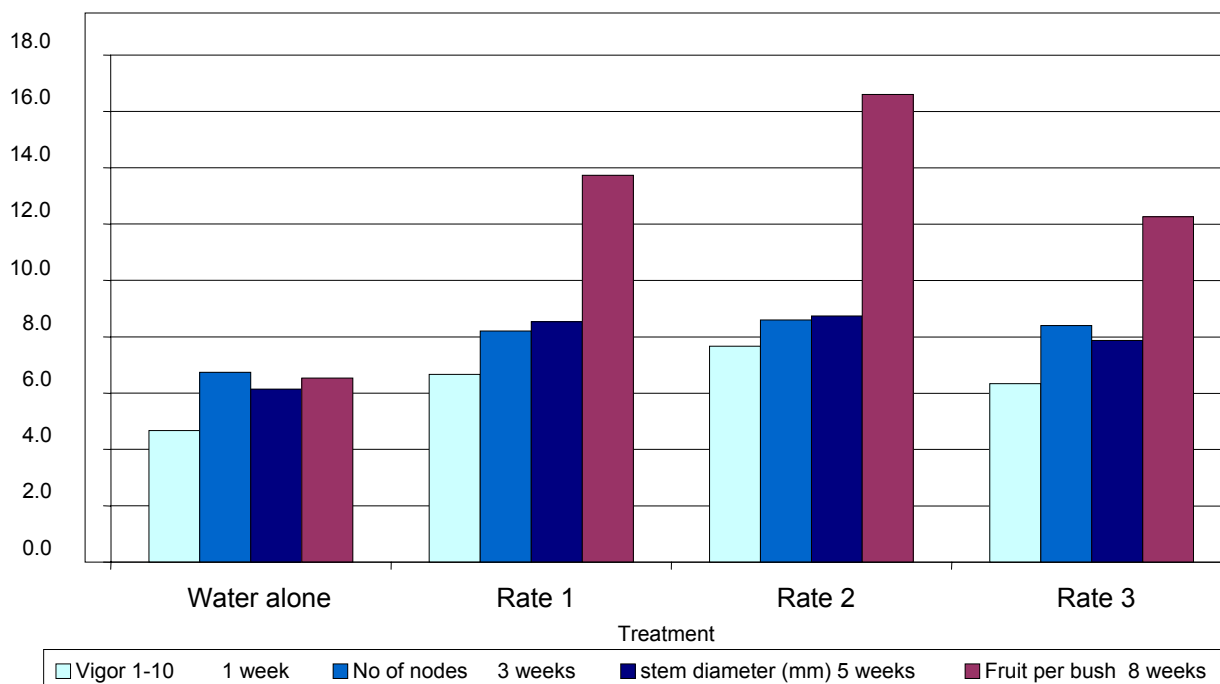
Take Home Message:

There is a significant benefit for the grower to apply Nipro liquid pop-up fertilizer in the transplanting water. The seedlings recover from transplanting shock much more quickly, are stronger, more vigorous and advanced and are producing more fruit by 8 weeks after transplanting.

Preliminary results suggest Rate 2 is the most effective rate. For more information contact Paul Elton from IK Caldwell (Ph: 0428 577710).

Note from Liz Mann

"I saw the trial at 4-5 weeks after planting. At that time I was able to see a visual difference and was able to pick the water only plots in each of the replicates."



Powdery Mildew

Powdery mildew on tomatoes in South Eastern Australia is caused by the fungus *Oidium lycopersici*. In northern Australia the fungus responsible for powdery mildew is *Leveillula taurica*.

Growth and spore development of the powdery mildew fungus is favoured in hot dry weather, with a relative humidity of above approximately 40%. This is unlike many other fungus species as powdery mildew is able to develop in the absence of water on the foliage.

Early symptoms of powdery mildew are often difficult to detect in the field as symptoms are located within the canopy, towards the bottom and in the centre of the plant. Chemical control is generally most effective when applied before the disease is well established.

Russet mite and powdery mildew infections are both favoured by hot dry conditions thus often occur together. Powdery mildew symptoms can be confused with natural plant senescence or mite damage. It is difficult to make a positive identification without visible signs of fungal sporulation.

Sulphur is the only fungicide currently registered for control of powdery mildew on tomatoes in Australia. It is a preventative, contact, fumigant fungicide and miticide, with no systemic activity and acts by inhibiting fungal spore germination.

Previous research funded through the APTRC and HAL (TM098009) investigated a number of control options for powdery mildew. This work found that there were a number of alternative methods of control other than sulphur. Powdered milk showed efficacy in significantly reducing severity of foliage symptoms late in the crops life, although residue was evident on both fruit and foliage. Vegimax™ in combination with sulphur worked well in a year of high disease pressure to significantly increase crop yield and Brix yield. Aminofit™ significantly reduced disease incidence, which often reached 100% by harvest. It also significantly reduced severity late in the life of the crop. Unfortunately there was no benefit to yields.

It was also noted in the final report for the project TM098009 that silicon rich fertilisers or mulches may be effective in controlling powdery mildew.

Some recent research conducted on powdery mildew in capsicums in northern Australia evaluated a number of other control methods. It was found that there was some success using a liquid form of silicon. The silicon product is made from sand particles which when sprayed on the plant it hardens the cell walls of the plant restricting the penetration of powdery mildew spores. It was also suggested that alternating powdered milk and silicon sprays could also significantly reduce the impact of powdered mildew on capsicums.

As this year is turning out to be hot and dry powdery mildew

could become an issue. As many of the chemical control methods for powdery mildew have no systemic activity it is important to ensure that the product when applied penetrates the plant canopy and hits the bottom, centre part of the tomato bush which is where powdery mildew infections typically occur.



Whitefly and Tomato Yellow Leaf Curl Virus

Since the discovery of TYLC virus in Queensland in March 2006 all states have been on alert to ensure the virus does not spread. The virus is spread by whitefly which is commonly found in Queensland and has also been detected in Victoria.

TYLC Symptoms

Plants are stunted or dwarfed. Only new growth produced after infection is reduced in size. Leaflets are rolled upwards and inwards. Leaves are often bent downwards and are stiff, thicker than normal have a leathery texture, show interveinal chlorosis and are wrinkled. Young leaves are slightly chlorotic (yellowish). Flowers appear normal. Fruit, if produced at all, are small, dry and unsaleable. Affected plants tend to be distributed randomly or in patches.

Some processing tomato transplants were brought down from Queensland this season. To prevent the spread of the virus or vector to Victoria the nursery involved followed strict guidelines as developed by the Victorian DPI. All plants from Queensland which entered Victoria were also inspected upon arrival by DPI Officers. This same procedure was also followed for host plants other than tomatoes which also entered Victoria.

To further ensure the virus has not entered Victoria it is important that all growers and support service personnel be on the lookout for the whitefly and any suspicious plant symptoms. If you would like to send samples for further testing please contact:

Gisele Irvine
Senior Officer - Incident and Investigations
Biosecurity Victoria
Department of Primary Industries, Knoxfield Centre
Private Bag 15
Ferntree Gully Delivery Centre
Victoria 3156

ph: (03) 9210 9388

DPI staff will shortly be conducting a survey around the Goulburn Valley to ensure the virus and vector are not present. This is necessary to provide proof of freedom for market access to especially WA.

Water Through Efficiency - Request for Tenders

The **Australian Government Department of Agriculture, Fisheries and Forestry** is running a *Water Through Efficiency Request for Tenders* (RFT DAFF 61/06). People holding specific permanent water entitlements in the Southern Murray-Darling Basin are invited to submit tenders offering up water that they can save, or have saved, through on-farm or off-farm efficiency measures.

The tender process is aimed at people who can save water while maintaining productive capacity. It is not suited to people who wish to exit the irrigation industry. Permanent water entitlements offered up in this tender will be used to achieve environmental outcomes under the Living Murray Initiative. Tenders Close 31st January 2007

<http://www.daffa.gov.au/natural-resources/water/watertender>

Available Funding

Incentives available for whole farm plans and reuse system. Goulburn Broken Catchment Management Authority
<http://www.gbcma.vic.gov.au/default.asp?ID=151>

Drought Assistance

Victoria: <http://www.dpi.vic.gov.au/dpi/nrenfa.nsf/Link-View/35F1D5419C927FEACA256C4500151F7CC5C1899E958127624A256B520005C2A1>

NSW: <http://www.agric.nsw.gov.au/reader/drought/drought-assistance>

2006/07 Cultivar Evaluation Trials

Due to the current seasonal conditions the number of cultivar evaluation trials planted this season have been reduced. The budget allocated towards the management of the cultivar evaluation project was also reduced in line with the reduction in trial number. Mike Titley from Applied Horticultural Research is again this year managing the project. Tony Napier from NSW DPI has coordinated the NSW trials.

Trials this season are located at the following sites:

NSW

- Early season machine harvest and observation trial
 - Rorato Nominees, Jerilderie
- Mid season machine harvest
 - Rorato Nominees, Jerilderie
- Mid season machine harvest and observation trial
 - SS Farms, Jerilderie/Finley

Victoria (all transplants)

- Mid season machine harvest and observation trial
 - SS Farms, Rochester/Echuca
- Mid season machine harvest
 - Kennedy Ag, Corop

Field days will be held at these sites prior to harvest, but if you would like to inspect the trial at another time please contact Liz Mann on 0427 857 578 to obtain trial plans and directions.

ACKNOWLEDGMENTS:

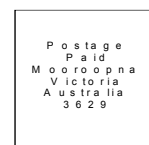
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