

PRESS RELEASE

\$6,000/ha yield response with improved water use efficiency

Orchardists aspiring to maximise their irrigation efficiencies may very well have an exciting new weapon to help them better utilise this precious commodity. That's according to new research to come from David J Bell & Associates and the returns could be as high as \$6,700/ha.

A drought afflicted 2006/07 season, when water allocation to Goulburn Valley farmers dropped to a meagre 30 percent, presented the perfect backdrop to the trial.

Local growers had to either purchase additional water at high prices or stretch their irrigation cycles, creating a water deficit situation that inevitably reduced yields.

David contended that the continued use of herbicides under trees in the area results in a totally bare tree line. Because the organic matter in the soil becomes so depleted, the soil surface crusts over, making it difficult for water to penetrate effectively.

He says this is clearly evidenced by irrigation water that sheds away from the trees towards the middle of the rows. David theorized in this situation a soil surfactant would improve water penetration.

In his research he trialed specialised soil surfactant AquaGro[®] Gold, which is a non-ionic, liquid blend of block-co-polymers specifically developed in the United States for situations such as this.

David applied three separate treatments and to statistically validate the final data, he replicated each treatment six times. The three treatments were:

- **Untreated**
- **AquaGro[®] Gold 5/2.5**, one 5L/sprayed hectare application in early November 2006 followed by monthly 2.5 L/sprayed hectare applications through to March 2007
- **AquaGro[®] Gold 10/5**, one 10L/sprayed hectare application in early November 2006 followed by monthly 5 L/sprayed hectare applications through to March 2007

The product was applied down the tree line via a hand held small plot boom, in a similar application to a 2-metre wide under-tree herbicide strip.

The trial location was Shepparton Victoria, at Kutrolli Orchards. Soil underneath Pink Lady apples destined for the fresh market was treated. The trees were four year old, trained on a Tatura Trellis and irrigation was through mini sprinklers.

All plots received the same irrigation schedule and the same amount of water. Irrigation followed within one to three days of application and incorporated the AquaGro[®] Gold into the soil.

The soil type was a Goulburn Valley clay loam.

David said the summer was hot and dry. Over the duration of the trial, temperatures were above average and there was very little rain

Results

In early January, after the second AquaGro[®] Gold application, water penetration was assessed. Water had moved to a significantly greater depth following both soil surfactant applications, compared to the untreated control.

With the 5/2.5 and 10/5 L/ha AquaGro[®] Gold treatments, water had penetrated to a depth of 15.3 cm and 24.3 cm respectively, compared to the untreated control at only 6.8 cm.

Measurements taken later in the season also showed that the AquaGro[®] Gold treated plots had significantly more soil moisture available to the crop, compared to the untreated control.

Crop yield

Following hand thinning by the grower in November, apple numbers were counted and all trees were further hand thinned to 250 apples per tree.

Apples from trees from each replicate were harvested and fruit numbers and weight was recorded. There was no significant difference in apple numbers per tree between treatments at the end of the season.

Both AquaGro[®] Gold treatments significantly increased the apple fruit weight and hence the apple yield per tree to approximately 30 kg, compared to the untreated control average of only 25.4 kg

Economic analysis

David then undertook an analysis of the economics of applying AquaGro[®] Gold.

He based his analysis on a number of assumptions. These were that the:

- Apples were packed in a 12 kg cartons.
- AquaGro Gold retailed for \$15/L

His economic analysis clearly shows that in this trial, the grower stood to make an excellent return on his investment. By investing between \$100 and \$200 /ha to facilitate better water utilisation, he would make an extra \$6,364 or \$6,763/ha respectively. A return of between \$30 and \$60 for every dollar spent.

For more information on the trial, growers can contact David Bell on 0417-501503.

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