

Reducing the impact of late season rainfall

Giving fruit a helping hand



Reducing the impact of late season rainfall is not an easy task. The frequency and intensity of late season rainfall is unpredictable, but ongoing research aims to generate important results that will be directly applicable to orchard practice. Several techniques have been validated in the management of fruit cracking and this project (2013 – 2016) hopes to provide further information with which to improve fruit integrity, and consequently fruit quality. The research aims of the project are to reduce crop damage and the impact of late season rainfall by:

1. Reducing the impact of rapid water uptake to fruit following rainfall
2. Building fruit resilience through orchard practices before rainfall

Building fruit resilience through orchard practices before rainfall

Rather than responding to rainfall when it arrives during the later stages of fruit maturation, it may be possible to build into the fruit some increased ability to withstand excess water entry from rainfall. The aim is to maintain cuticular integrity and skin strength. These factors will be influenced by things like nutrition and irrigation.

To date, the relationship between early fruit development and later crack development with late season rainfall are not well known.

This project aims to investigate some things that can be manipulated early in order to give fruit a helping hand later on.

One factor investigated was the rate of fruit development and floral closure in cooler sites to see if cuticular integrity could be better maintained. Cool spring sites seem to suffer more with 'nose' cracks. Another factor was the mode of application of calcium – ground applied through fertigation or canopy applied through foliar spraying.

Initial results are promising, but given this is a long term study a full analysis of data has not yet been undertaken.

Fruit Development

To encourage faster fruit development, particularly floral closure, Cytolin was applied at 50%, 100% and two weeks after full bloom on Lapins at 2 sites in 2012-13 and 3 sites in 2013-14, and additionally on Sweet Georgia in 2013-14. Monitoring of fruit development was undertaken regularly, and cuticle and skin properties tested at pit-hardening and at harvest. Preliminary results showed increased early growth rates during spring at the cooler site. It also resulted in reduced style retention on the developing fruit (in sites where style retention occurred), and reduced nose scarring and cracking. Some increases in fruit size at harvest were seen.

Nutrition

To determine if the mode of application of calcium to fruit impacted on fruit resilience to rainfall, calcium was applied either through fertigation or by foliar application to Sweet Georgia cherry trees. Fruit were monitored regularly, and calcium levels determined at pit-hardening and at harvest. Skin strength, fruit pedicel retention force and firmness were also assessed. Preliminary results showed that positive effects of foliar-applied calcium at any stage of fruit development on skin strength, and stem pull force, and when applied throughout the season on fruit firmness. Fertigated fruit had a higher proportion of calcium in the fruit flesh, which may prove to be of benefit in post-harvest storage.



From top to bottom;

1. Nose scar on Lapins fruit
2. Cross section of scar
3. Style retention on fruit

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