

# ReTain™

PLANT GROWTH REGULATOR

SOLUBLE POWDER

For extending  
flower life in cherries



**Nufarm**

Grow a better tomorrow.

## What is ReTain?

The active ingredient in ReTain® is aminoethoxyvinylglycine (AVG), a naturally occurring fermentation product that blocks ethylene production in plants. ReTain has been used by apple (and later stonefruit) growers in New Zealand since 2001 to help manage harvest timing, increase fruit size and improve the storage potential of their fruit.

## Now registered on Cherries

Due to grower interest Nufarm has recently developed a label claim to extend the flower life of cherry crops by delaying the senescence. Extending the flowering life can provide growers with the following benefits:

- > Provide bees with more opportunities to pollinate
- > Improve fruit set
- > Increase crop yield



## HOW DOES RETAIN WORK ON CHERRIES?

The activity from ReTain inhibits the ethylene in the flower which causes the ovule to begin to senesce as soon as the flower opens. It is recognised that there is a wide variability in ovule life across cultivars. USA studies<sup>1</sup> have shown that inhibiting ethylene production with ReTain can result in significant yield increases in cherry cultivars with short ovule life such as *Regina*.

## IMPROVING FRUIT SET IN CHERRIES

Some varieties of cherry are notoriously poor at setting fruit. Research has found that one of the contributors to this problem is the short period that the cherry flower, is viable and therefore able to be pollinated. By extending the flower viability, ReTain can increase the pollination period and help improve fruit set.

## IMPROVING BEE ACTIVITY

Delaying flower senescence also has significant benefits when variable weather conditions occur over flowering which is known to cause poor fruit set. Bees are very sensitive to cold conditions and are not active if temperatures drop below 13°C. Maintaining ovule viability means that bees can effectively pollinate flowers that may have normally senesced during a cold period.

The more flowers available for pollination when conditions are conducive to bee activity the greater the yield potential.



<sup>1</sup>Reference: Dr. Matt Whiting: Good Fruit Grower Feb 1 2014

## APPLICATION WINDOW

Local trials conducted in Cromwell on the *Chelan* variety showed that when ReTain was applied at 30% bloom (Fig. 1.0) flower senescence was delayed by 1-2 days compared to the untreated. However, when applications were applied at 60% bloom (Fig 1.1) the effect was reduced and only a slight delay in flower senescence was observed compared to the untreated.

The weather conditions during the trial were of a typical warm spring day followed by several days of cold windy weather.

In this trial, bloom developed very quickly with only two days between 30% and 60% bloom. Application timing is critical to ensure flowers are treated as early as possible.

Fig. 1.0: Flower viability in cherries @ 30% bloom

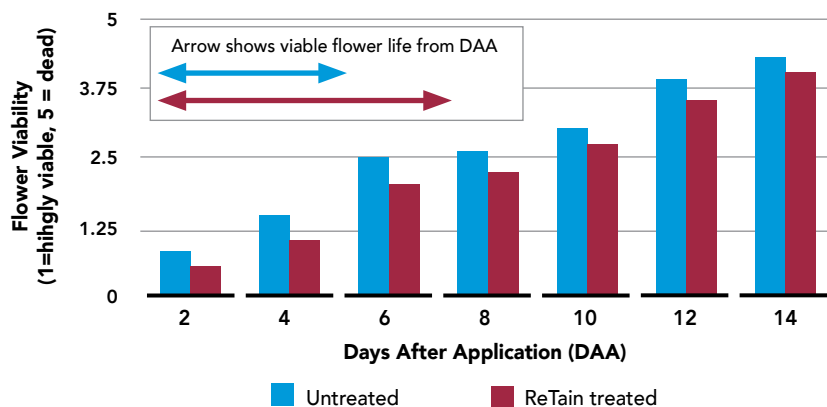
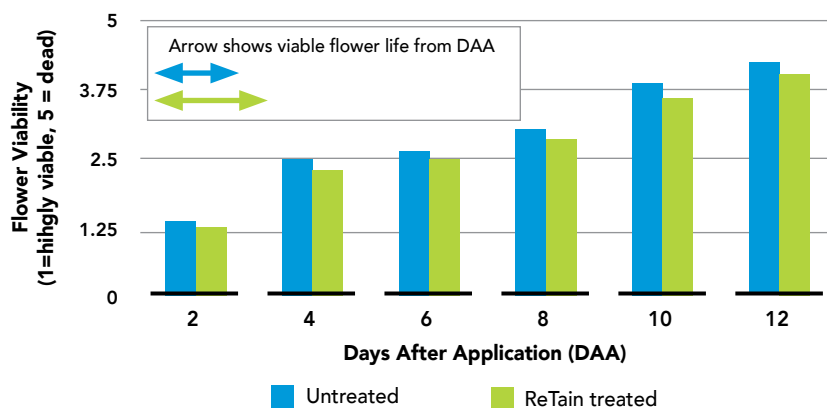


Fig. 1.1: Flower viability in cherries @ 60% bloom

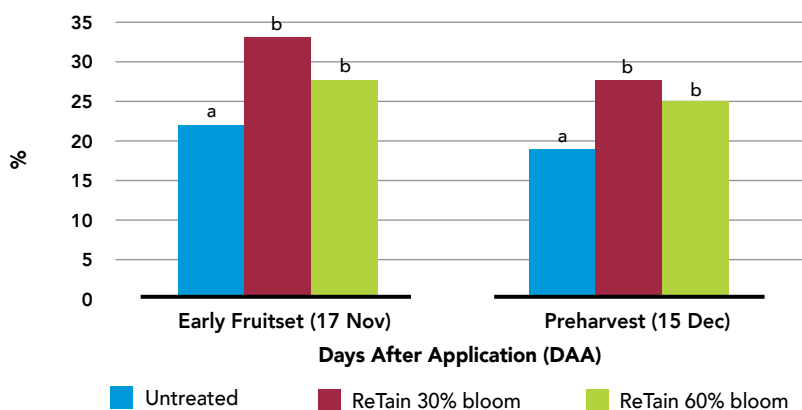


## RETAIN SIGNIFICANTLY INCREASED FRUIT SET AND CROP YIELD

Local trials in Cromwell also showed a significant increase in fruitset (Fig. 3.0) as well as an increase in crop yield (Fig. 3.1) regardless of the timing of application.

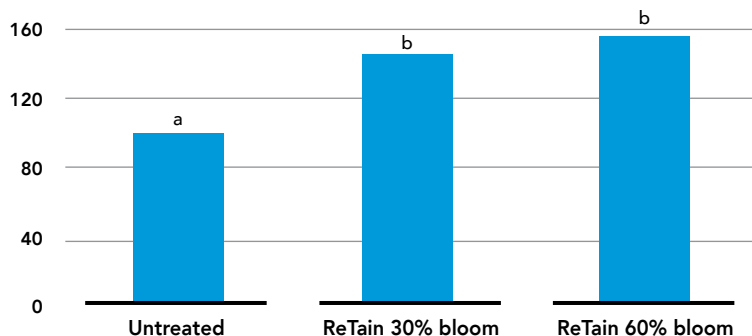
It was observed that ReTain did not change individual fruit size or weight. This has also been consistently noted in overseas trials.

Fig. 3.0: Fruitset Percent (relative to number of healthy flowers)



Early fruitset data  $\log(x+1)$  transformed for analysis, detransformed means presented, LSD  $P(0.05) = .09t$ , CV = 4.86%

Fig 3.1: Relative Yield Increase (untreated control = 100)



Data  $\log(x=1)$  transformed for analysis, detransformed means presented. LSD  $P(0.05) 0.163t$ , CV 5.97%

## TO GET THE BEST RESULTS:

- > The window of application is very short and accurate timing is essential so it is important that growers are prepared and have a supply of ReTain on hand.
- > Monitor the development of blossom on trees closely.
- > Aim to apply ReTain at 30% bloom. If conditions are unfavourable for spraying at 30% bloom there is a short window out to 60% bloom for application to achieve successful results. Efficacy is reduced from late applications as the most flowers are past the stage where ReTain will have an impact. Do not apply after full bloom.
- > Apply ReTain alone – adjuvants are not recommended for blossom sprays.



## Label Directions:

Cherries			
Extend flower life	Apply at 30-60% bloom	830g/ha in 1000-1500L/ha	ReTain will extend flower life which may increase fruit set under poor pollination conditions or in varieties with low natural fruit set.  The use of surfactants is not recommended.

Withholding Period: DO NOT apply later than full bloom

### POWERFUL REWARDS FOR LOYALTY TO NUFARM

Every purchase of ReTain earns you valuable reward points in Priority Partnership®, the rewards programme for New Zealand farmers. If you would like to know more visit [www.prioritypartnership.co.nz](http://www.prioritypartnership.co.nz).



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