

**ReTain**<sup>®</sup>

# Improving Your Apples with ReTain

## Application and harvest timing, monitored with starch testing, is critical to success

ReTain<sup>®</sup> inhibits the production of ethylene in plant tissues. Ethylene affects plant processes such as fruit maturation, ripening and fruit drop.

Inhibiting ethylene production in apples can be used to manage the timing of ripening, increase fruit size and improve storage potential.

Varieties differ in the levels of ethylene produced during harvest and storage.

Varieties that produce a lot of ethylene such as Gala, Royal Gala, Red Delicious and Pink Lady are more responsive than low ethylene producing varieties such as Fuji and Granny Smith.

The earliest time that fruit can be harvested for long term storage is normally within a week of the first signs of starch being converted to sugars, when cut apples are tested with iodine. This is a starch index of about 1.5 on the chart shown on the next page.

To delay apple maturation, Retain should be applied 21-28 days before this time.

If ReTain is applied two weeks later, for example, 21-28 days before apples are harvested for immediate sale (starch index of 4 or 5), then there will be little response to the ReTain.

It is important to carry out regular starch testing (at least weekly) of your apples from the time of ReTain application right through harvest, so that the fruit is picked at the right starch index.

Testing should be done by taking the two most mature fruit from 10 suitable trees across a block. These should be collected at shoulder height half way into the trees. They should be of even marketable size and should not be damaged. They should then be cut in half across the core and one half sprayed or dipped in an iodine solution. (8.8 g potassium iodide and 2.2 g of iodine crystals in 1 L of water). After a minute each piece should be given a starch index score and the average score then calculated for the 20 pieces. This will give a reasonably accurate estimate of the maturity of the next lot of apples to be picked.

After ReTain application it is important to delay the harvest until the desired response is achieved. In responsive varieties this will be 7-14 days. Less responsive varieties will be delayed by 2-5 days. The apples will continue increasing in size during this period provided the tree has not been over thinned or stressed.

A, 7 day before harvest (for long term storage), ReTain application has been successfully trialed and a submission for registration made to the APVMA. These trials have shown this timing does not delay harvest but significantly improves the maintenance of quality in storage.

**Note:** ReTain should not be used on blocks that are likely to have a colouring problem.

**SUMITOMO CHEMICAL**

# ReTain<sup>®</sup> PLANT GROWTH REGULATOR

Starch Pattern Index (SPI) chart for helping to determine apple maturity

