Tech Note – Plant Growth Regulator

nufarm



APPLES: ROYAL GALA, STRAINS AND SPORTS

ReTain®

ReTain is a naturally occurring plant growth regulator which can improve harvest management, fruit quality and enhance storage potential in apples.

Active ingredient

150 g/kg aviglycine hydrochloride (AVG).

Formulation

Water soluble powder.

Why ReTain is gold on Royal Gala apples

A naturally occurring plant growth regulator, using ReTain is like waving a wand over your Royal Gala block to ensure a better harvest. It's magic!

Royal Gala and its descendants are among the most responsive apples to ReTain applications because of the high levels of ethylene produced prior to harvest.

The key to ReTain's performance is its extended suppression of ethylene production at a critical time in the growth stage of the fruit.

ReTain will improve your fruit quality and give you the control to delay ripening in your orchard.

Three key benefits of ReTain

1. Control of fruit ripening times for improved harvest management.
2. Improved yield, quality and fruit size.
3. Greater control of crop maturation timing for enhanced storage benefits.



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How does ReTain work?

ReTain is a plant growth regulator comprised of aviglycine hydrochloride (AVG), which is used to delay ethylene production.

Ethylene

Ethylene is a plant hormone involved in seed germination, flowering, fruit development, abscission, and fruit ripening.

- Ethylene production increases as an apple nears maturity triggered by heat and a burst in respiration.
- Increased ethylene turns on the production of new enzymes.
- These enzymes then catalyse reactions that start ripening.
- Respiration increases dramatically.
- Put together with oxygen and heat in summer, more ethylene is created, creating more ripening... and so the cycle goes on.

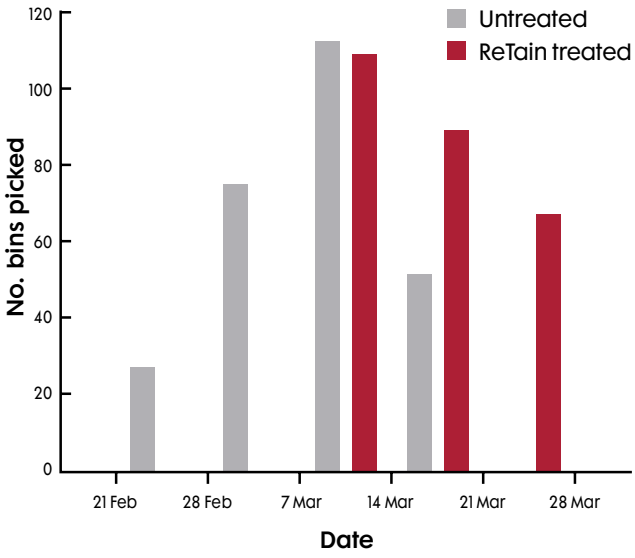
AVG

- Naturally occurring amino acid formulated as the product ReTain.
- Fermentation metabolite and is synthetically manufactured by Valent Biosciences in the USA.
- Competitively inhibits the activity of ACC synthase which in turn blocks ethylene biosynthesis in plants.
- Breaks the ripening cycle triggered by ethylene increase.



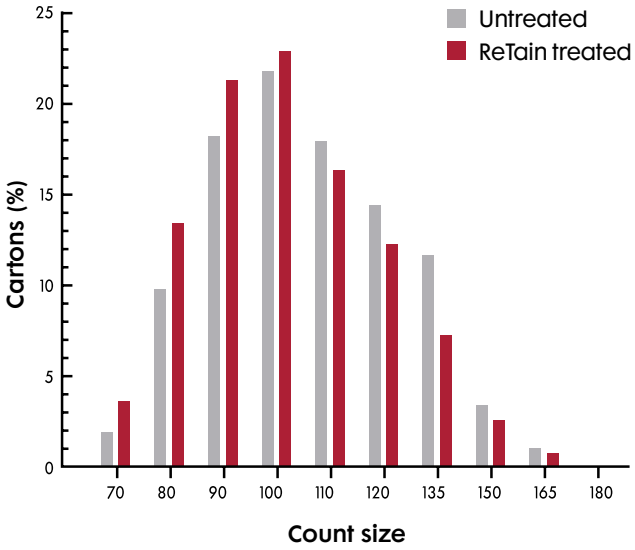
1 Key Benefit 1: Harvest management

Managing your harvest means managing the picking of fruit at optimal quality. ReTain flattens the peak letting the grower take control. Best quality out turns for fruit. No wasted down time. No scrambling to get fruit off.



2 Key Benefit 2: Yield and fruit size

Royal Gala returns, historically and to this day most often reward the producer of larger fruit.

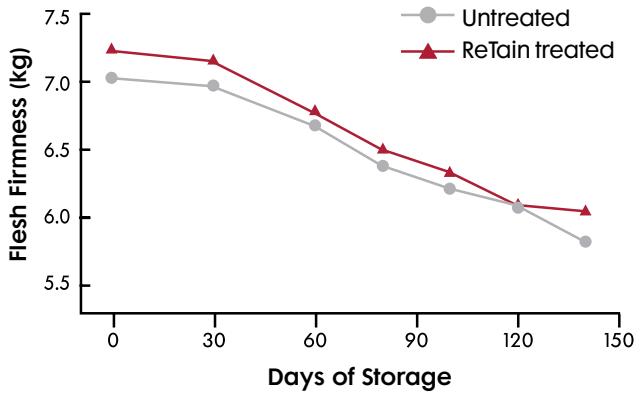


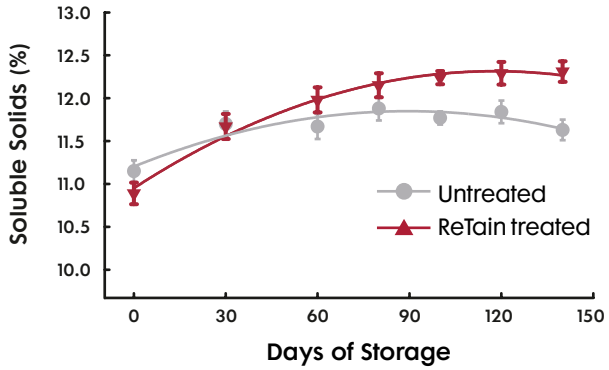
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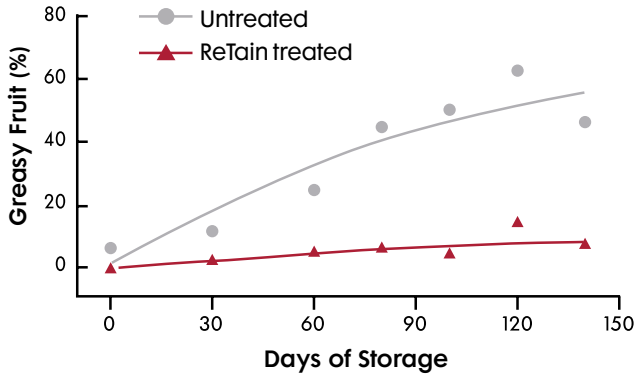
3 Key Benefit 3: Enhanced storage benefits

For great quality fruit at the end of storage you have to have great quality fruit at the start of storage.

Crop uniformity achieved at harvest with ReTain is enhanced during storage through increased fruit firmness, higher soluble solids, and reduced greasiness.







Things to Consider

Plant responses to PGRs can be variable. To get the best out of a ReTain application it is important to be aware of factors that can influence results.

Things you can't control but can take into account in your decision making.

- Rootstock
- Vigour
- Training system
- Tree age
- Tree health
- Crop load
- Number of calcium and kaolin clay applications

These are strong influences and ones we have some degree of control over.

- Purpose
- Weather
- Temperature
- Application timing
- Application rate
- Coverage
- Water quality
- Calcium and kaolin clay applications

Do not apply ReTain

- When trees may be nutrient, water, insect or disease stressed.
- To pipfruit within 7 days of any calcium spray.
- If trees have been treated with kaolin clay.
- In the late afternoon or early evening if fruit are still warm.
- With management tools that affect apple maturity such as girdling, etc.
- If rain is expected within 6 hours of application.



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Directions for use

Apply ReTain when drying conditions are slower such as in the early to mid-morning period in order to ensure adequate absorption. If using foil mulch or reflective films, apply ReTain before laying down the foil mulch or reflective films.

Withholding period

A withholding period of 28 days applies for export apples and 7 days for local market apples.

Adjuvant

ReTain must be used with Freeway® organosilicone surfactant in order to obtain the optimum response. Use a final concentration of 50 mL/100 L in the spray tank as per label for Royal Gala. DO NOT use a surfactant concentration of more than 100 mL/100 L.

Compatibility

DO NOT tank-mix ReTain with agricultural product other than Freeway surfactant. DO NOT apply products containing 1-naphthylacetic acid (NAA) or ethephon (chlorethephon) to blocks after they have been treated with ReTain.

Use rates

CROP	TIMING	RATE/HA	COMMENTS
Apples: Delay fruit maturation (delay the harvest period) and increase fruit size, improve quality and storage potential.	Apply 21–28 days prior to the anticipated beginning (Go Date) of the normal harvest period.	830 g/ha in 800–1200 L water/ha.	**Gala, Royal Gala and related varieties:** **Adjuvant:** Use Freeway at a final concentration of 50 mL/100 L in the tank mix.



The information contained is a quick reference only.
Always consult the product label before use.

Priority Partnership®

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