Accede®

PLANT GROWTH REGULATOR

A NEW CROP LOAD MANAGEMENT TOOL IS HERE TO CHANGE THE GAME

Product Technical Manual

SUMITOMO CHEMICAL
AgroSolutions Division

WE CHANGE THE GAME™

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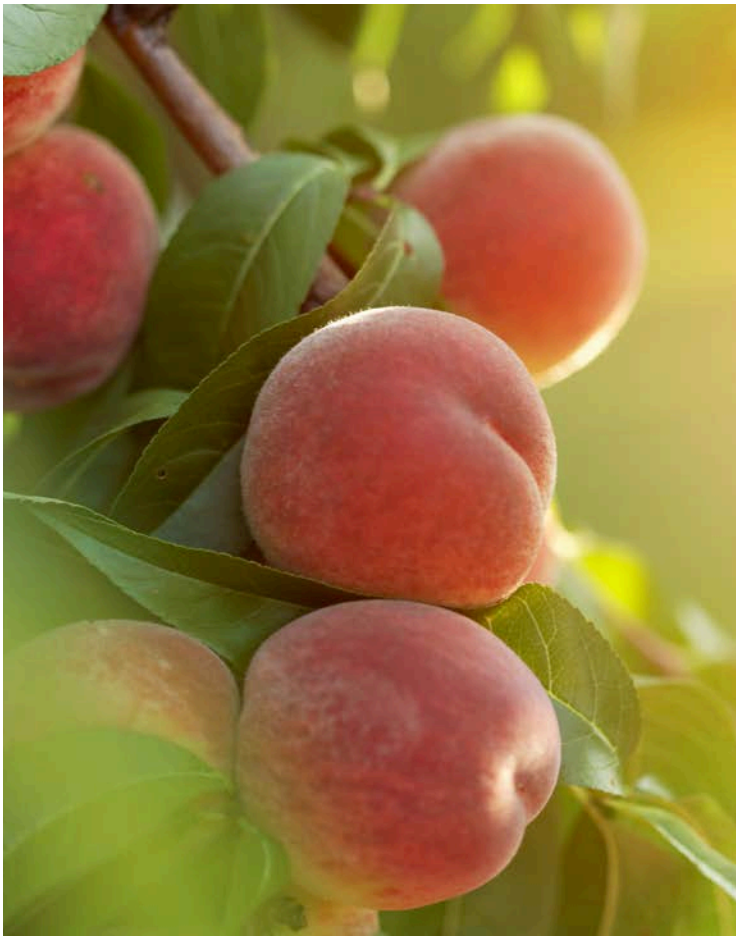
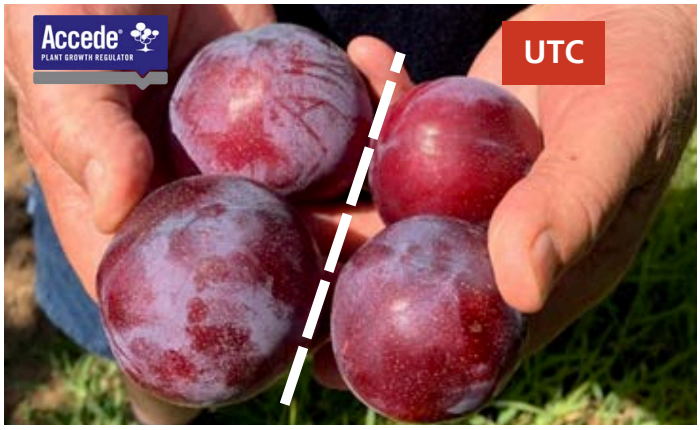


Accede Plant Growth Regulator from Sumitomo Chemical AgroSolutions contains 1-Aminocyclopropane-1-carboxylic acid (ACC), a naturally occurring compound that serves as a precursor to ethylene, influencing key aspects of plant development such as fruit/flower senescence and abscission, ripening, and colouring. It is used in apples, nectarines, peaches and plums for effective crop load management, enhancing fruit size and grower returns.



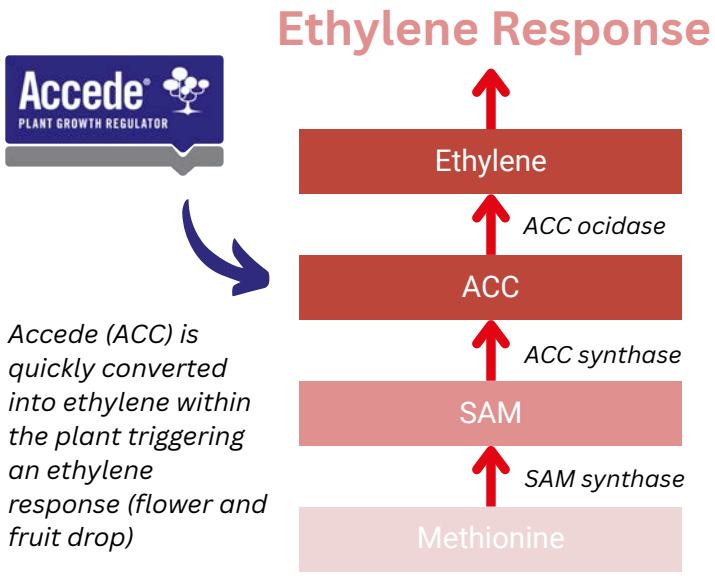
At a glance

- Active Ingredient: 1-Aminocyclopropane-1-carboxylic acid (ACC) - natural precursor to ethylene.
- Ethylene Effects: Formation of the abscission zone in flowers and fruits.
- Crops: Apples, Nectarines, Peaches and Plums.
- Use: Crop load management (thinning).
- Application Rates:
  - Apples: 50–75 g/100 L applied at 80–100% flowering and again at 15–25 mm fruitlet size.
  - Peaches & Nectarines: 75–87.5 g/100 L applied at 60–90% flowering.
  - Plums: More sensitive; apply 37.5–50 g/100 L at 60–90% flowering.

Mode of Action

- ACC is rapidly converted into ethylene inside the plant via natural biochemical pathways.
- The ethylene produced after applying Accede stimulates and accelerates flower and fruit drop in apples, nectarines, peaches and plums by triggering seed/ovule abortion and activating the abscission zone at the base of the flower or fruit stem.
- Accede does not cause gummosis in nectarines, peaches and plums, unlike other ethylene-releasing products such as ethephon.
- Accede uptake occurs through the flower pedicels in stone fruit and through both leaves and fruitlets in apples.
- Accede at the recommended rate avoids the extreme responses that ethylene application can cause in trees.

Ethylene Biosynthesis Pathway



Accede (ACC) is quickly converted into ethylene within the plant triggering an ethylene response (flower and fruit drop)

Benefits of Fruit Thinning with Accede

- Helps achieve more precise and consistent thinning.
- Reduces excessive crop load early in the season.
- Produces larger, more uniform fruit size.
- Improves fruit packout potential.
- Enhances colour development and ripening uniformity.
- Reduces reliance on manual thinning, saving time and labour.
- Promotes better tree balance for sustained productivity.

Why Thinning Matters

This photo of a plum orchard illustrates the difference between untreated trees and those managed with Accede Plant Growth Regulator at "during bloom". Hand-thinned fruit on the ground under untreated (left) and Accede-treated (right) plum trees. Because Accede was applied at bloom to thin flowers, fewer fruit needed to be removed later during hand thinning. This reduced the labor required, saving the grower both time and money. By removing excess fruit earlier, Accede decreases competition for carbohydrates, allowing the remaining fruit to grow larger while also supporting overall tree health.

Untreated trees had excess fruit and needed heavy hand thinning, while Accede treated trees required less. Early thinning reduces competition, improving fruit size and tree health.

How to use Accede

There must be no overspray or drift during application. Consult the Accede label & your local Sumitomo representative for more information.

Accede must be applied accurately to maximise crop safety and thinning performance. Success depends on correct water rates, thorough canopy coverage, and targeting the correct parts of the tree.

There must be no overspray or drift during application.

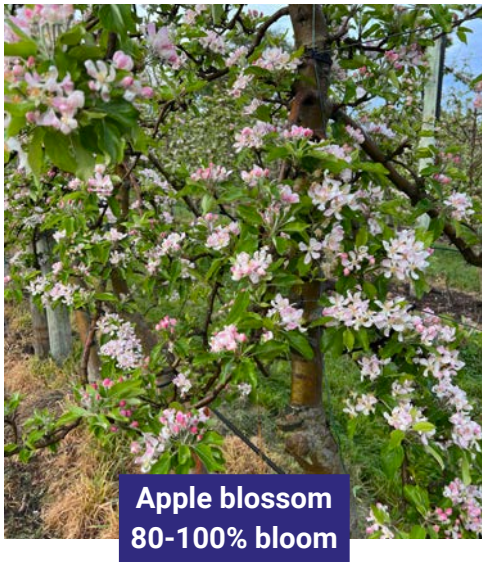
General Application Guidelines

- Apply when the daytime maximum temperature is forecast to exceed 10°C.
- Use a tree-fruit safe non-ionic surfactant, such as Pomade, at 50 mL/100 L with Accede.
- Do not apply within 2 days of a frost event.
- For untrialled varieties, begin with a lower rate on a small section of the block. Assess results before adjusting rate or water volume in subsequent applications.
- Water rate is critical — start with 500–750 L/ha at flowering in most orchards and adjust based on tree structure and canopy density.
- Maintain spray solution pH between 5–7.
- Do not pre-mix Accede in a small container prior to tank mixing.
- Only spray the portions of the canopy requiring thinning — typically the top two-thirds — which may require turning off lower nozzles.

Peaches getting sprayed with Accede

Plum blossom
60-90% bloom

Peach blossom
60-90% bloom



Apple blossom
80-100% bloom

Keys to Success - Water Rate & Coverage

Accede must be applied precisely to achieve optimal thinning, as it only affects the areas where it is deposited and does not translocate within the tree. Application technique is therefore critical.

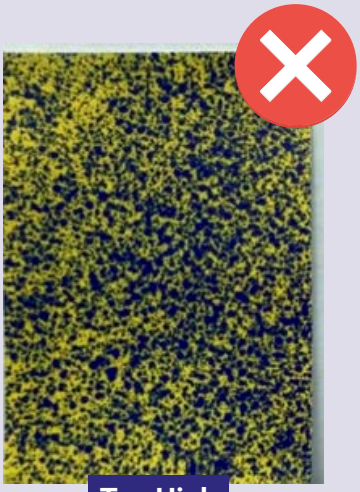
To maximise thinning performance:

- Only apply Accede to the parts of the tree that require thinning, typically the top 50–70% of the canopy by turning off the bottom nozzles.
- Increasing the water rate will increase product delivery, improve coverage, and slow drying time, all of which enhance thinning.
- Calibrate your sprayer to ensure the correct amount of water is being sprayed.
- Ensure nozzles are not worn out, are clean, and filtration is good.

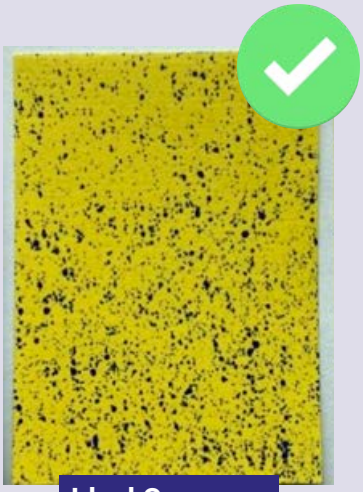
Only apply Accede to the parts of the tree that require thinning, typically the top 50–70% of the canopy

Checking Coverage

Tree Row Volume (TRV) can be used as a guide for correct water volumes, but the best way is to test with water-sensitive paper in the field. Below are examples of coverage levels. While the coverage on the left may be ideal for a fungicide, it is excessive for Accede and can lead to over-thinning. The middle example shows ideal coverage for Accede, while the example on the right shows insufficient coverage, which can result in under-thinning.



Too High



Ideal Coverage

Too Low

IMPORTANT NOTE: If unsure about the correct water volume, check coverage using water-sensitive papers and consult your local Sumitomo representative.

Accede in Stone Fruit

Accede provides stone fruit growers with a reliable and natural approach to early-season thinning. By supplying ACC, the natural precursor to ethylene, Accede helps manage crop load in peaches, nectarines, and plums, improving fruit size, uniformity, and overall quality. The key benefits of using Accede in stone fruit include:

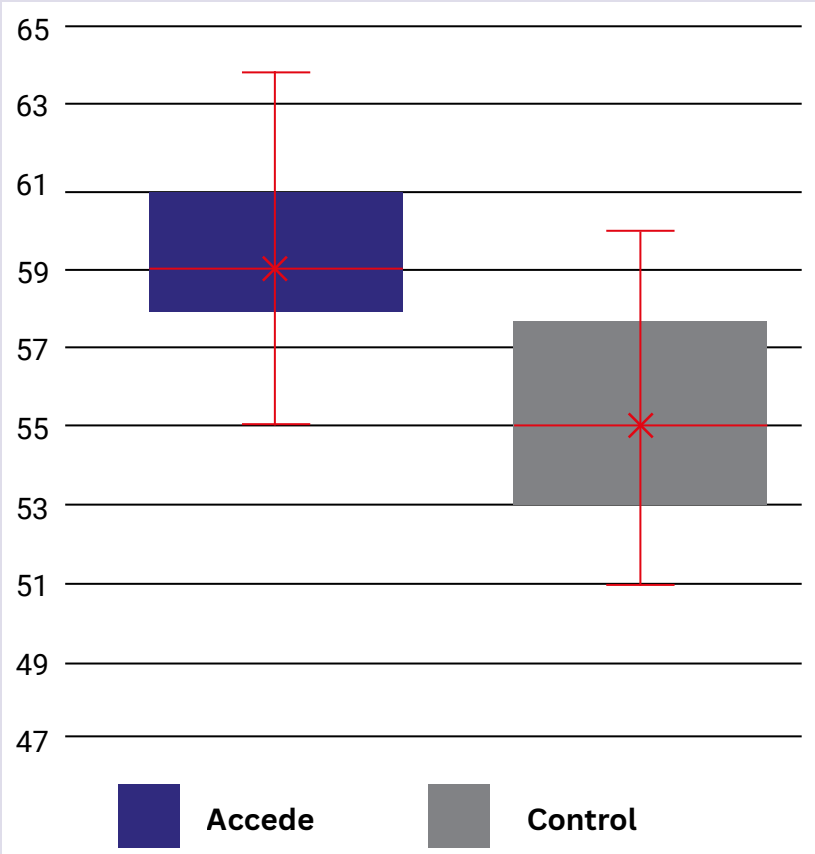
Reduction in crop load

- By reducing crop load early, Accede allows the tree to focus more energy on the fruit that matter. The ones harvested at maturity.
- This often results in a greater proportion of fruit being ready and harvested during the first pick.

Greater fruit size = better returns

- Increasing fruit size leads to a higher marketable yield and improved grower returns.

Queen Garnet Plums Fruit Size at Harvest (mm), Shepparton, Victoria (2022)



This chart illustrates the differences in fruit size at harvest between trees treated with Accede and untreated control trees.

Key Takeaways:

- **Larger Fruit with Accede:** Fruits from Accede-treated trees are consistently larger, showing both higher median and mean sizes.
- **Smaller, More Variable Fruit in Control:** Control trees produce smaller fruits overall, with greater variability and a higher proportion of fruit in the lower size ranges.
- **Consistency Matters:** Accede-treated trees display a tighter size range, shifted toward larger fruit, indicating more uniformity and predictably bigger harvests.

Overall, Accede treatment results in larger, more uniform fruit at harvest compared to untreated trees.

Report Number: JB2022SEV

Case Study: Princess Time Peaches, Cobram, Victoria (2023)

Report Number: JB2023CV

Princess Time Peaches were sprayed with Accede at 62.5 g/100 L and 75 g/100 L at the 70% bloom stage to promote controlled flower thinning and support improved crop balance.

As shown above, Accede applied at 62.5 g/100 L is too low and produces inconsistent results. This is why 75 g/100 L is considered the minimum label rate.

Reduction in Hand Thinning

Accede helps stone fruit growers manage crop load while easing labour pressure during thinning. While it does not eliminate the need for hand thinning, it can substantially improve efficiency and workforce flexibility.

Key points:

- Can significantly reduce hand thinning costs.
- Provides greater flexibility in labour management.
- A 30% crop load reduction does not necessarily equal a 30% cost reduction, as results vary with crop conditions.

Case Study: Prime Time Plum, Shepparton, Victoria (2023)

During this Accede trial, the grower achieved a 63% reduction in hand-thinning costs, saving $9,650 per hectare. This demonstrates how Accede can significantly improve labour efficiency and boost orchard profitability when used in a well-managed thinning program.

	Hand Thinning Cost per Tree	Hand Thinning Cost/ha	Cost Saving
Control	$5.50	$15,439	0%
ATS x 3 *	$1.72	$4,825	69%
Accede	$2.06	$5,789	63%

**Three passes through the orchard with tractor costs*

Report Number: V23-0112

Accede in Apples

Accede provides Apple growers with a reliable and natural approach to early-season thinning. Accede helps manage crop load in apples, improving fruit size, uniformity, and overall quality. Accede can be applied on apples as both a primary and a late secondary option. 50 – 75 g/100 L applied at 80-100% flowering and 15-25 mm fruitlet size.

Key Benefits of Accede in Apples

- Larger, more uniform apples.
- Reduced hand-thinning labour.
- Improved colour and fruit size.
- Flexible flower and fruitlet timing options.

Two New & Unique Options for Apples Growers

Primary Option

As a primary (flower) spray option Accede is:

- Less temperature dependent than Ethephon.
- Increases fruit size and is better for tree health compared to NAA.
- Only requires one spray and is less timing sensitive than ATS.

Secondary Option

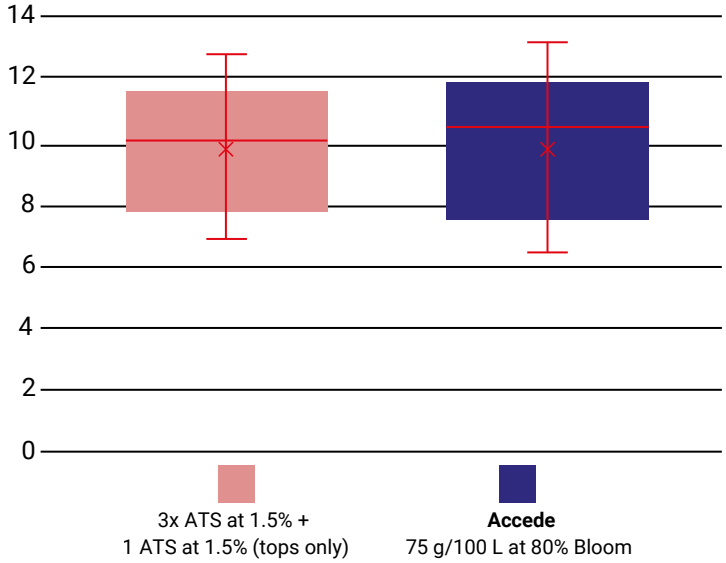
As a secondary option Accede widens the thinning window. Working best on fruitlets between 15-25mm fruit size. Giving growers an option when MaxCel and Brevis are no longer effective. This also give growers more time to decide on the correct late thinning strategy, waiting to see what has dropped from earlier sprays.

Gala Trial - Shepparton, Victoria (2022)

Report Number: JB2023TV

The trial demonstrated that Accede achieved the same primary thinning results as the standard program but required three fewer spray passes through the orchard. In the trial charts below, the red bar represent 3 x ATS applications, while the blue bar show the results with Accede, highlighting its efficiency and potential to significantly reduce labour and operational costs without compromising thinning outcomes.

Fruit per branch section area (cm2) 44 days after application



Same primary thinning result, 3 fewer trips through the orchard.

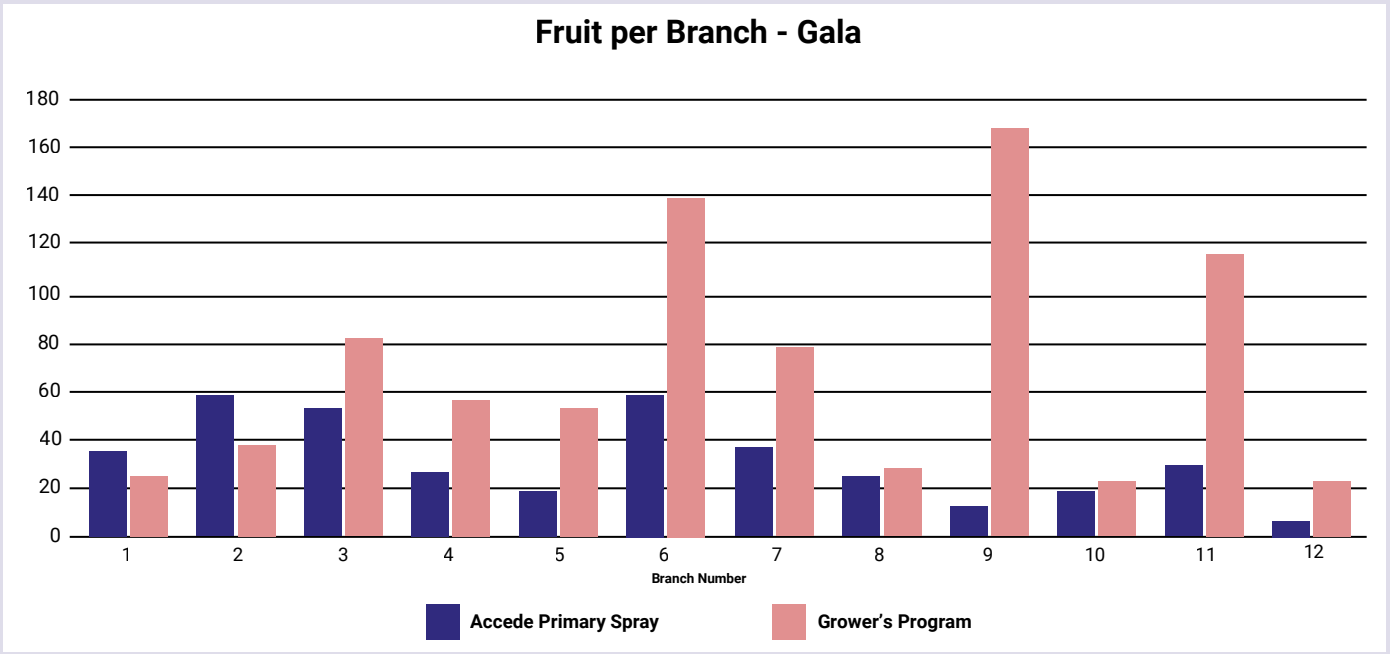
Gala Trial - Spreyton, Tasmania (2025)

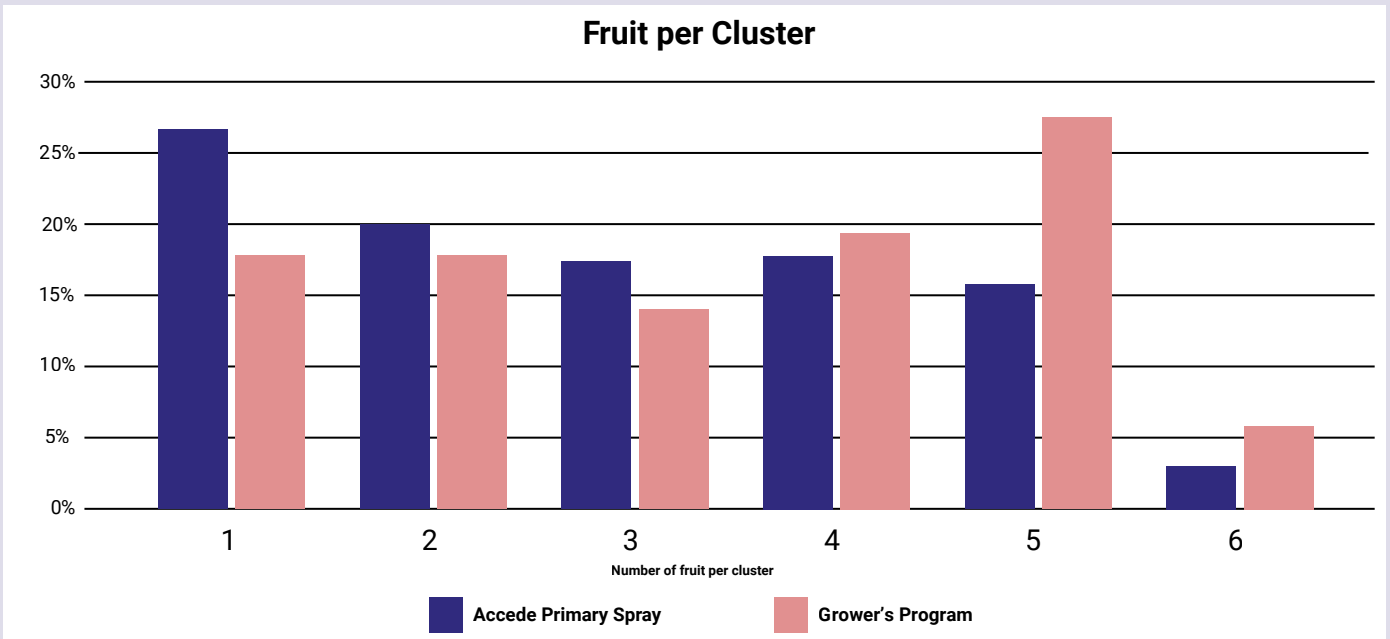
Report Number: JB2025ST

Accede proved to be a reliable tool for apple growers, delivering consistent thinning results even under challenging seasonal conditions. During a cold and wet season, which caused a sporadic bloom and made traditional chemical thinners less effective, Accede outperformed the standard grower program, improving fruit distribution and early fruit sizing.

Key results from the trial include:

- Accede provided more consistent results across all conditions.
- Maximum temperature on the day of application was 14.3°C.
- Achieved double the thinning effect, promoting early fruit drop and earlier fruit sizing.
- The grower's standard program consisted of 2 x ATS sprays, with NAA included in the second spray as a tank mix.
- Accede left more fruit in singles, doubles, and triples, while the grower's program had more clusters of 4s, 5s, and 6s.





Apple Variety Differences

Accede works differently from many other apple thinners. It's often more effective on traditionally hard-to-thin varieties like Gala, compared to easier-to-thin types such as Pink Lady. Because of this, you may find that Pink Lady requires a higher application rate than Gala.

Gala Apples

Traditionally harder to thin.

Accede more effective on Gala apples.

Pink Lady Apples

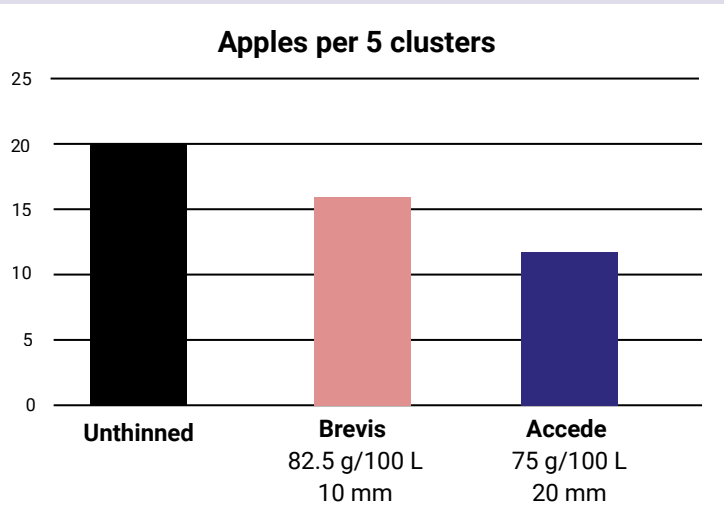
Traditionally easier to thin.

Accede less effective on Pink lady apples.

Accede Secondary Thinning Selectivity

When applied to apples at 15–25 mm, Accede demonstrates selective thinning, removing the smaller fruitlets while leaving the larger king fruitlets intact.

Applied with Accede at 21 mm average fruit size.



Pink Lady Trial - Shepparton, Victoria (2020)

Accede is unique in that its strongest thinning activity occurs when fruit diameter is between 15–25 mm, removing smaller fruitlets while leaving the larger king fruitlets.

This provides growers with a new chemical alternative to hand thinning, helping improve fruit size, uniformity, and overall crop quality, while reducing labour requirements and offering more flexibility in orchard management.

Report Number: V20-016

Important Factors Affecting Thinning and Fruit Set

Plant thinning responses to chemical thinners, including Accede, depend on several factors, such as environment, rate, timing, crop load, variety, tree age, tree vigor and status, water volume, and other management practices.

Environmental Factors

- High temperatures on the day of application will increase Accede's thinning effect.
- Cold nights below 4 degrees before or after application will also increase Accede's thinning effect.
- Trees under environmental stress, such as drought or flooding, will have an increased response to Accede.
- Nutrient deficiencies will also increase the thinning response of Accede.

Production Practices

- Crop load: higher starting crop loads will require higher rates of Accede, while lower starting crop loads require lower rates of Accede.
- Hail netting can increase thinning by lowering solar radiation.
- Severe pruning that leaves predominantly older fruiting wood can make thinning with ACC more difficult.
- Dwarfing rootstocks are typically harder to thin and will require higher rates of Accede to be effective.

Considerations

<u>Stone Fruit</u>

- Waterlogging may stimulate natural ethylene production, leading to fruit drop similar to late frost damage. Under these conditions, excessive thinning may be observed.

<u>Stone Fruit and Apples</u>

- Cool, overcast conditions after application can slow fruitlet growth and delay visible drop, so allow an additional 1–2 weeks to properly assess thinning results before making further decisions. Some fruitlets will naturally cease development and shed, or can be removed during hand thinning.

For further information on factors affecting thinning and fruit set, please see page 14.

Cultivar Response

Accede has been widely tested across apple and stone fruit cultivars in Australia and overseas and is effective in most varieties. Always refer to the product label for approved thinning recommendations at flowering and/or fruitlet stages.

For varieties not listed, contact your local Sumitomo Chemical Australia representative or authorised Accede agent.

Directions for use:

Read the GENERAL INSTRUCTIONS section carefully before setting up to spray and deciding on a rate.

CROP	VARIETY	TIMING	RATE	CRITICAL COMMENTS
APPLES: **DO NOT** apply during the heat of the day for the second application on Apple fruitlets. For best results in hot conditions, apply Accede under slow drying conditions, e.g. early in the morning or at night in order to maximize absorption. **DO NOT** apply more than two applications of Accede in Apples (Primary and/or secondary thinning) per season.				
Apple	Gala Royal Gala Jazz Envy and related varieties	Primary thinning at 80 – 100% flowering	**Lighter setting warmer regions:** 50 – 62.5 g/100 L (200 - 250 ppm) **Heavy setting cooler regions - like Huon Valley Tasmania:** 62.5 – 75 g/100 L (250 – 300 ppm)	Accede will thin when applied at any stage between 80% flowering and 25 mm fruitlet size so application timing can be adjusted to avoid poor weather. The rate to be used in primary thinning depends on how heavy the flowering is and the expected influence of factors affecting fruit set under GENERAL APPLICATION INSTUCTIONS. The rate to be used in secondary thinning depends on the level of primary thinning achieved, the target fruit load and weather conditions. Because Accede is active on larger sized fruitlets and primary thinning gives early size increase, wait until the effect of primary thinning is clear before deciding on the rate and using Accede for secondary thinning. Use the higher rate for greater thinning effect. Generally, the later Accede is applied the greater the thinning effect for a given concentration. If Accede is used as a primary thinner this interval can vary from 3 - 4 weeks for Gala types to 5 – 6 weeks for Pink Lady. If shedding of large fruitlets is expected to cause damage to fruitlets lower in the tree, then the secondary thinner can be applied earlier - once fruitlets reach 15 mm. Application of Accede as a secondary thinner at rates greater than 62.5 g/100 L (250 ppm), particularly in warmer conditions, may result in minor leaf yellowing and drop but has no long-term impact on yield or quality, however, consider reducing the concentration by 50 ppm or changing the day of application if temperatures are expected to exceed 30°C on the day of application. A tree-fruit safe non-ionic surfactant such as Pomade* at 50 mL/100L should be used with all Accede applications.
		Secondary thinning at 15 – 25 mm fruitlet size		
	Pink Lady Fuji	Primary thinning at 80 – 100% flowering	62.5 – 75 g/100 L (250 – 300 ppm)	
		Secondary thinning at 15 – 25 mm fruitlet size		
	Kanzi Golden Delicious Granny Smith (only when thinning required)	Primary thinning at 80 – 100% flowering	50 - 62.5 g/100 L (200 – 250 ppm)	
		Secondary thinning at 15 – 25 mm fruitlet size		

CROP	VARIETY	TIMING	RATE	CRITICAL COMMENTS
NECTARINES, PEACHES AND PLUMS: **DO NOT** apply Accede on Nectarines, Peaches and Plums that are light setting, set only at the tips of branches or are biennial bearing (in an off year). **DO NOT** apply more than one application of Accede in Nectarines, Peaches and Plums per season.				
Nectarine and Peach	Heavy setting varieties only	60 – 90% flowering	75 - 87.5 g/100 L (300 – 350 ppm)	Application at higher rates after leaf emergence may lead to significant leaf yellowing and drop, so only one application at flowering is possible. It is important to carefully consider all factors mentioned under GENERAL INSTRUCTIONS that may affect pollination and fruit set before deciding on the rate and using Accede. There are many varieties of Nectarines, Peaches and Plums, so it is important that initial applications are done to small trial sections in a block over one or two seasons starting with the lower rate, to determine appropriate timing, rate and likely response before full block treatments are conducted. Plums require good pollination with bees to get good fruit set. If this is unlikely to occur, then a lower rate of Accede should be used. A tree-fruit safe non-ionic surfactant such as Pomade* at 50 mL/100L should be used with all Accede applications.
Plum	Queen Garnett only		37.5 - 50 /100 L (150 – 200 ppm)	

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

FOR VARIETIES NOT MENTIONED IN THE DIRECTIONS FOR USE CONTACT YOUR LOCAL SUMITOMO CHEMICAL REPRESENTATIVE FOR GUIDANCE

WITHHOLDING PERIOD:
NOT REQUIRED WHEN USED AS DIRECTED.

General Instructions

Accede Plant Growth Regulator contains 1-AMINOCYCLOPROPANE-1-CARBOXYLIC ACID (ACC), a natural compound responsible for the biosynthesis of ethylene production in tree fruits. It is ideal for thinning Apples, Nectarines, Peaches and Plums, reducing the need for hand thinning labour and improving fruit quality.

IMPORTANT FACTORS AFFECTING THINNING AND FRUIT SET

Many factors can influence plant stress level, flowering, fruit set or fruit maturation during the course of the season and therefore response to chemical thinners. For example elevation, sun exposure, soil texture, tree size, root stock, growing conditions (prevailing or anticipated weather patterns such as high or low temperature extremes, chilling, drought or flood conditions, nutrient levels) or production practices (e.g. crop load, pruning severity, trunk girdling, root pruning). These factors must all be carefully considered prior to using Accede. Severe pruning which leaves mostly older wood to set fruit will be harder to thin with ACC. Hail nets may affect thinning effect due to reduction in solar radiation. Waterlogging in stone fruit triggers ethylene production in the tree which will cause fruit drop just as a late frost on fruitlets will do. Note that cool, overcast conditions after application will delay fruitlet growth and flower/fruitlet drop and so it may be necessary to wait an extra one or two weeks to see how much the Accede has reduced fruit set before hand thinning. A proportion of the fruitlets will stop developing and these are ones that will eventually drop or can be taken off during hand thinning.

Accede is a precursor to ethylene and so varietal response may be different to other apple thinners such as NAA or 6BA. It is recommended that initial applications are on small trial sections in a block over one or two seasons to determine appropriate timing, rate and likely response before full block treatments are conducted.

WATER VOLUME AND SPRAYER SET UP

The amount of water applied per hectare and coverage is as important as the concentration applied. On tree crops, apply Accede in just sufficient water to ensure that flowers and fruits, receive light to moderate coverage using calibrated spray equipment. Adjust water volumes based on plant size and spacing. It is not necessary to wet to the point of runoff. Since low water volumes can be used with Accede, concentrate spraying is not needed. Over wetting, leading to spray drift and drip can lead to overthinning - particularly in the bottom of vase shaped trees.

For higher density, single/dual leader, flat profile pruning systems and trees 2.5 - 4 m in height; 500 – 750 L/ha is adequate at flowering; increasing to 750 – 1000 L/ha (apples only) when fruitlets are 20mm in size.
For larger vase shaped trees or Tatura trellis systems these rates can be increased by around 20% but then 80% of the spray should be directed into the upper 2/3rd of the tree canopy.
Accede only has a thinning effect on the parts of the tree sprayed. DO NOT apply to parts of the tree that do not require thinning.

Accede®
PLANT GROWTH REGULATOR

A NEW CROP LOAD MANAGEMENT TOOL IS HERE TO CHANGE THE GAME

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