

POISON
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

eChem
ETHEPHON
GROWTH REGULATOR

ACTIVE CONSTITUENT: 720 g/L ETHEPHON
(An anticholinesterase compound)

For crop thinning, loosening or ripening
in various crops and for accelerating boll opening, defoliation
and pre-conditioning before defoliation of cotton as
specified in the Directions for Use table.

THIS LEAFLET IS PART OF THE LABEL

APVMA APPROVAL NO: 53313/0706

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GENERAL INSTRUCTIONS

When adding a non-ionic wetter, use the rate as recommended on the wetter label.

IMPORTANT

- APPLES – Advancement of fruit maturity and improvement of red colour.
- Ensure fruit has reached marketable size before treatment and keep trees under observation after spraying.
 - Ensure fruit is picked at the correct stage of maturity, as fruit not harvested will quickly become over-ripe.
 - Continuing low temperatures will advance maturity and colouration; continuing warm to high temperatures, both day and night will advance maturity but may reduce colouration.
 - Apply to fruit only for the fresh market or short term storage

APPLES - Thinning

The complex nature of fruit and the possible variable action of chemical thinners due to weather conditions make it difficult to give set recommendations and growers should consult their local agronomist.

APPLES – Fruit removal

- Apply to trees to remove unwanted fruit and encourage a biennial bearing habit. Excessive vegetative growth will be suppressed and bloom the following season stimulated.
- Weather conditions are very important – warm weather following treatment will improve results, but if temperatures below 18°C prevail after spraying, fruit removal may be reduced. In the latter case, use the higher dose rate.
- Fruit will loosen in 7-10 days and thinning should be complete within 2-3 weeks. Limbs can be lightly shaken to aid removal after this time.

IMPERIAL MANDARINS and VALENCIA ORANGES:

Apply during the early stage of fruit development for thinning and correction of the habit of alternate heavy and light crops. Weather conditions influence the degree of thinning and care must be taken not to over-thin.

EXCLUSION OF LIABILITY: As the degree of thinning may vary according to the conditions and over thinning is possible, the decision to incur these risks is taken by the user, and the manufacturer and vendor exclude themselves from all conditions, representations, warranties, whether expressed or implied by statute

or otherwise and accept no responsibility for any losses which follow from the use of the product on mandarins or oranges as far as this is legally possible under the Trade Practices Act or any State legislation.

COTTON:

A foliar spray with eChem Ethephon will accelerate opening of mature unopened bolls and enhance defoliation, which can result in earlier harvest and increased recoverable yield and quality. Some premature drop of small immature bolls may occur. Harvest at optimum boll opening and optimum defoliation. Too late harvest may reduce quality and lint.

COTTON – APPLICATION

DO NOT apply before sufficient mature unopened bolls have developed to produce the desired yield of cotton. Bolls are mature when the seed coat turns light brown, the embryo fills the seed cavity with an abundance of creamy colour and cotyledons are well defined.

COTTON - TREATMENT SEQUENCE

- Light canopy: Apply eChem Ethephon then apply defoliant 4 to 7 days later.
- Moderate to heavy canopy: First apply a pre-conditioner, then apply eChem Ethephon as soon as sufficient leaves have dropped to expose the large bolls, usually 4 to 10 days later.

COTTON - APPLICATION METHOD

Apply by placement technique under the following range of conditions to achieve a target droplet density of 60 droplets per square cm.

Wind Direction: Cross Wind Wind speed range: 6-20 kph
Air Temperature: Maximum 32°C Delta t: Maximum 10°C

SUGAR CANE:

eChem Ethephon may be applied by air or ground spray equipment. Apply in 30 L water/ha by air, and 110-150 L water/ha by ground spray equipment. Apply during March-April on cane due for harvest no later than August. Consult your local eChem agent or BSES officer.

TOMATOES:

- Temperatures below 18°C retard colour development and may extend the interval between treatment and harvest.
- Treatment may cause some yellowing of foliage or defoliation.
- Sun scald of exposed fruit may occur under high temperature conditions following treatment.

DIRECTIONS FOR USE

RESTRAINTS

Do not apply to weak or stressed plants.
Do not apply if rain is expected within 8 hours.
Do not apply if day/night temperatures are expected to fall below 18°C.
Do not apply if cotton bolls have been burned by frost.
Do not pretreat with a desiccant (chlorate) before using eChem Ethephon.
Do not mix with hard (alkaline) water.
Do not apply before sufficient mature unopened bolls have developed to produce the desired yield.

CROP	MODE OF ACTION	STATE	RATE (High Volume)	WHP	CRITICAL COMMENTS
Apples: Jonathan, Delicious	Advancement of maturity; improvement of red colour	Qld, NSW, Vic, SA, WA, only	35 to 65 mL/100 L water PLUS a non-ionic wetter and add "stop drop"	7 days	Ensure fruit has reached marketable size before treatment and keep trees under observation after spraying. Apply 2 to 3 weeks before normal harvest period and 7 to 14 days before desired harvest date. Ensure fruit is picked at the correct stage of maturity, as fruit not harvested will quickly become over-ripe. Note: For best results spray when temperatures are between 15 and 32°C. Continuing low temperatures will advance maturity but may reduce colouration, so use lower rate. Use higher rate for quicker response. Add a "stop-drop" to prevent premature loosening of fruit. Thorough coverage is essential. Apply to fruit only for the fresh fruit market or short term storage.
Tydemans Early		Tas only	25 mL/100 L water and add "stop-drop"		
Gravenstein, Golden Delicious, Jonathan and Red Delicious	Thinning*	Vic, SA only	15 mL/100 L water PLUS a non-ionic wetter		Apply at full bloom OR up to 1 week following full bloom. A second thinning spray 10 to 14 days after the eChem Ethephon spray may be necessary. On Gravenstein and Golden Delicious apply carbaryl or 5 to 7.5 ppm NAA (use higher rate for maximum thinning). On Jonathan and Red Delicious apply carbaryl or 4 ppm NAA
Golden Delicious, Stark Crimson and Legana		Tas only	35 mL/100 L water PLUS a non-ionic wetter		
Golden Delicious Red Delicious Jonathan and Granny Smith		WA only	35 to 40 mL/100 L water PLUS a non-ionic wetter		
Lady William			45 to 65 mL/100 L water PLUS a non-ionic wetter		*Note: For all thinning applications: The complex nature of fruit set and the possible variable action of chemical thinners due to weather conditions, make it difficult to give set recommendations and growers should consult their local agronomist.
All varieties	Aid complete removal of fruit from trees and encourage a biennial bearing habit (Excessive vegetative growth will be suppressed and the following bloom stimulated)	NSW, SA, WA only	65 to 135 mL/100 L water PLUS a non-ionic wetter	7 days	Apply just prior to full bloom OR 5 to 6 weeks later during early morning or late afternoon when slow drying conditions occur. Ensure thorough coverage of foliage and flowers or fruit. Note: Under normal weather conditions use lower rate for Delicious and higher rate for Jonathans as they are difficult to de-fruit. Consult the local Department of Agriculture for specific recommendations on other varieties. Warm weather following treatment will improve results, but if temperatures below 18°C prevail after spraying, fruit removal may be reduced, in the latter case use a higher dose rate. Fruit will loosen in 7 to 10 days and thinning should be complete within 2 to 3 weeks. Limbs can be lightly shaken to aid the removal after this time.
			Retard vegetative growth and stimulate flowering of young apple-trees in the following season		

CROP	MODE OF ACTION	STATE	RATE (High Volume)	WHP	CRITICAL COMMENTS
Cherries: Ron's Seedling, St.Margaret, Napoleon, Florence	Promote evenness of maturity; early colour development	NSW only:- Young district	20 mL/100 L water	7 days	Treatment with eChem Ethephon: Apply when approximately 20% of the fruit show pink to red colour development, normally 7 to 10 days before harvest. Ensure thorough coverage of leaves and fruit. Note: High temperature at spraying or following spraying may accelerate results. DO NOT spray when mean daily temperatures exceed 32°C. DO NOT spray when rain is expected within 24 hours OR when temperatures are low (17°C or less) as this will delay or reduce the effect of eChem Ethephon. Fruit will mature 3 to 5 days earlier than normal and will be loosened to allow easier harvesting. A high proportion of fruit will readily separate from the stalk when harvested.
		Orange/ Bathurst district	40 mL/100 L water		
Table grapes: Barlinka	To promote early uniform colouring	NSW, SA only	15 to 20 mL/100 L water PLUS a non-ionic wetter	14 days	Apply when 5 to 30% of the berries are coloured (2-4 weeks prior to expected harvest). Use the higher rates to maximize the colouring effects required. Ensure thorough coverage of bunches although the foliage need not be completely covered. Note: Ethephon may slightly reduce firmness of grapes. DO NOT use on grapes intended for long storage.
Red Emperor, Red Prince, Red Malaga, Cardinal, Muscat of Hamburg		NSW, Vic, SA, WA only	25 to 40 mL/100 L water PLUS a non-ionic wetter		
Flame Seedless		WA only			
Wine grapes : Semillon	Aids mechanical harvesting	NSW only	40 to 130 mL/100 L water PLUS a non-ionic wetter	7 days	Apply 7 days before expected harvest. Thorough coverage of upper and lower leaf surfaces is essential. Note: Some leaf yellowing and leaf fall, which is not detrimental to vines, may occur. The concentration to use will depend on a number of factors such as seasonal conditions, crop size, weather conditions (before and after application) and trellis type. Therefore, before applying consult the local Department of Agriculture for specific recommendations.
Mandarins: Imperial	Thinning to increase fruit size, to reduce size of heavy crop and to even out the production cycle	Qld, NSW SA, WA only	35 to 40 mL/100 L water	Not Required	Apply during the early stage of fruit development for thinning and correction of the habit of alternate heavy and light crops. Apply as foliar spray when fruitlets are about 10 to 15 mm in diameter and when natural fruit drop is occurring. This is usually in November in Qld, December in SA and intermediate in NSW, WA and Vic. Weather conditions influence the degree of thinning and care must be taken not to over-thin. Note: Fruitlets should fall off 7 to 14 days after application. Aim to apply 13 to 15L of spray per 4 to 5 m high tree. Use the higher rate when a very heavy crop is evident. DO NOT apply in cold weather (less than 18°C) OR when rain is likely within 1 or 2 days of spraying. DO NOT add surfactants or wetting agents as leaf fall may be increased. See also General Instructions.
		Vic only	25 to 35 mL/100 L water		
Oranges: Navel		NSW, WA only	35 to 40 mL/100 L water		
Valencia		NSW, SA, WA only			
		Vic only	40 to 45 mL/100 L water		
Macadamia nuts: Own Choice	Aid harvesting by promoting uniform nut fall	NSW, WA only	165 mL/100 L water PLUS a non-ionic wetter	7 days	Apply late March to early May when nuts are mature. Vary rate according to degree of loosening required. Note: Nuts will be stimulated to fall within 10 to 14 days after spraying. Mechanical shaking may be used 7 to 10 days after spraying. Ensure thorough coverage of foliage and nuts. Ensure tops and insides of trees are adequately sprayed. A small quantity of older leaves will fall after treatment, but production will not be adversely affected. DO NOT use on Teddington variety.
H2 Variety			55 to 105 mL/100 L water PLUS a non-ionic wetter		
Peaches	Advancement and concentration of maturity	Vic only :- Goulburn Valley	15 mL/100 L water PLUS a non-ionic wetter	6 weeks	Apply once as foliage spray after commencement of the final fast growth stage. Timing depends on variety. Determine by measuring twice weekly, fruit circumference, 20 tagged fruit/block. After rapid growth stage determined, wait 3 to 4 days for further confirmation, then spray. Thorough coverage essential. Note: Instances have been recorded where this product, when applied in peaches apparently the correct time, has resulted in premature fruit drop, fruit gumming and fruit-splitting. See also General Instructions.

(Continued overleaf)

CROP	MODE OF ACTION	STATE	RATE		WHP	CRITICAL COMMENTS
			General	Boom Spraying		
Pineapples (plus Urea)	Initiation of flowering	Qld, WA only	80 mL + 5 kg Urea /100 L water. Apply 30 mL solution/Plant	1.6 L PLUS 100 kg Urea in 2000 L of water/ha (Boom spray)	7 days	Apply in March. Note: Rate should be doubled for plant crops that are growing vigorously at the time of application
			40 mL + 5 kg Urea/100 L water. Apply 30 mL solution/plant	0.8 L PLUS 100 kg Urea in 2000 L of water/ha (Boom spray)		Apply May – June OR September – October. Note: See above – February/March application with Urea.
Pineapples (without urea)	Initiation of flowering in ratoon		25 mL/10 L water. Apply 30 mL solution/plant	6.0 L in 2000L of water/ha (Boomspray)		Apply February – March. Note: Use on the final crop in the block before eradication of the crop. Pineapples treated at the above time will be ready for picking 7 to 10 months after application.
			7 mL/10 L water. Apply 30 mL solution/plant	1.5 L in 2000L water/ha (Boom spray)		Apply May – June OR September – October. Note: See above – February/March application without Urea.
Pineapples	Fruit ripening		-	1.7 L in 1000 L water/ha		eChem Ethephon for ripening should only be used on even crops successfully induced for flowering with eChem Ethephon. DO NOT use on fields intended for ratoon production. Treatment should be made when the forced fruit are beginning to show the first colour break. An initial harvest may be necessary to remove more advanced fruit before applying eChem Ethephon. The remaining treated fruit will be ready for harvest at least 7 days following the eChem Ethephon ripening application. Note: DO NOT use on fruit intended for the fresh fruit market. eChem Ethephon for ripening is NOT SUITABLE FOR USE ON SUMMER PLANT CROPS because of scattered fruiting and high risk of forcing young suckers. Where natural fruiting has occurred prior to chemical induction, these natural fruit must be picked before eChem Ethephon ripening. Treatment too early can result in a loss in yield and a reduction in fruit sugar levels.

SAFETY DIRECTIONS

Product is harmful if swallowed. Attacks eyes. Repeated minor exposure may have a cumulative poisoning effect. Obtain an emergency supply of atropine tablets 0.6mg. Protect eyes while using. When preparing spray and using the prepared spray wear elbow length PVC gloves and face shield or goggles. Wash hands after use. After each day's use, wash gloves and face shield or goggles and contaminated clothing.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 131126. If swallowed do NOT induce vomiting. Give a glass of water. If swallowed, give one atropine tablet every 5 minutes until dryness of the mouth occurs - if poisoned by skin absorption or through lungs, remove any contaminated clothing, wash skin thoroughly and give atropine tablets as above. Get to a doctor or hospital quickly. If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor.

Material Safety Data Sheet

Additional information is listed in the Material Safety Data Sheet.

CONDITIONS OF SALE

eChem (Australia) Pty Ltd. accepts responsibility for the consistent quality of the product however since the use and application of the product is beyond its control, the company accepts no responsibility whatsoever for any loss, damage or other result following the use of the product whether used in accordance with directions or not; other than those mandatorily imposed by statutes, the liability is limited to the replacement of the goods and is conditional upon a claim made in writing and, where necessary, a sufficient part of the goods being returned for proper examination by the company within thirty days of sale.

Batch No :

D.O.M.

CROP	MODE OF ACTION	STATE	RATE (High Volume)	WHP	CRITICAL COMMENTS
Sugarcane	Cane ripening	Qld, NSW, WA only	1 L/ha	6 weeks	Use in March-April to accelerate ripening in cane and increase c.c.s. Use on cane planted for early harvest with harvest no later than August. Apply to actively growing and non-stressed cane with at least eight non-stressed green leaves. Cane varieties Q115, Q119, Q137, Q124, Q96, H56-752 and CP44-101 have all shown high to moderate response to ethephon. Shortening of some internodes and yellowing of leaves may occur without any effect on cane yield. Test any new varieties prior to application.
Tomatoes	Accelerate ripening, increasing yield of marketable fruit	All states	1.2 L in 440 to 880 L water/ha.	7 days	Apply once in the season. Ensure thorough coverage of fruit and foliage, when fruit is 5 to 30% pink or red. To determine this, pull a few plants, shake off all fruit, weigh and determine above percentage. Optimum harvest maturity is expected 14 to 21 days after spraying. DO NOT use on greenhouse crops. Note: Temperatures below 18°C retard colour development and may extend the interval between treatment and harvest. Treatment may cause some yellowing of foliage or defoliation. Sun scald or exposed fruit may occur under high temperature conditions following treatment.

CROP	SITUATION	STATE	RATE	CRITICAL COMMENTS
Cotton	Defoliation, acceleration of boll opening	Qld, NSW, WA, NT only	2-3 L/ha in a minimum of 20 L of water/ha	FOR ENHANCED DEFOLIATION AND BOLL OPENING OF COTTON. Apply when the number of mature unopened bolls is sufficient to produce the desired crop. Use the lower rate in warm, optimum conditions. Use the higher rate for stressed plants, rank growth, or adverse cool conditions (eg if day/night temp. after treatment is expected to be below 22°C). Ensure thorough and uniform coverage of bolls.
	Pre-conditioning of crop before a normal defoliation is to occur		1.3 L/ha in a minimum of 20 L of water/ha	FOR PRE-CONDITIONING BEFORE DEFOLIATION. Apply when there are sufficient mature unopened bolls to produce the desired yield. Apply defoliant 4-7 days later. Ensure thorough and uniform coverage of bolls.
	Defoliation #		0.5-1 L/ha in a minimum of 20 L of water/ha	Use in a tank mix with a registered rate of thidiazuron. Apply when there are sufficient unopened bolls to produce the desired yield. Total application volume should be no less than 20 L/ha. Ensure thorough and uniform coverage of bolls and leaves. # This mixture will also provide some acceleration of boll opening, however, a subsequent application of a boll opener may be required to complete boll opening.

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

WITHHOLDING PERIODS:

Apples, Cherries, Macadamia nuts, Pineapples, Tomatoes, Wine grapes:

DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION.

Table Grapes and Cotton: **DO NOT HARVEST FOR 14 DAYS AFTER APPLICATION.**

Peaches and Sugar Cane: **DO NOT HARVEST FOR 6 WEEKS AFTER APPLICATION.**

DO NOT FEED COTTON STUBBLE OR GIN TRASH TREATED WITH CHEM ETHEPHON TO LIVESTOCK.

DO NOT GRAZE LIVESTOCK ON TREATED PLANTS.