

2024-0037  
2025-01-15

**MAINTAIN™ 3.5L**  
**SOLUTION**  
**COMMERCIAL**

Plant growth regulator for thinning and control of pre-harvest drop of apples, and  
for thinning of ornamental crabapples

**ACTIVE INGREDIENT:** 1-Naphthaleneacetic acid, present as sodium salt..... 3.1%  
Contains 1,2-Benzisothiazolin-3-one at 0.0058%, as a preservative.

**REGISTRATION NO.: 33945 PEST CONTROL PRODUCTS ACT**

**READ THE LABEL AND ATTACHED BOOKLET BEFORE USING**  
**KEEP OUT OF REACH OF CHILDREN**

**Manufactured by:**  
**FINE AGROCHEMICALS LIMITED**  
**Hill End House, Whittington**  
**Worcester WR5 2RQ**  
**United Kingdom**  
[www.fine.eu](http://www.fine.eu)

**Distributed by:**  
**N.M. Bartlett Inc.**  
**4509 Bartlett Rd.**  
**Beamsville, Ontario**  
**L3J 0Z1, Canada**  
**Tel : 905-563-8261**

Net Contents: 500ml – 208.2 L

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## PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN
- Harmful if swallowed.  
Refer to attached booklet for more precautions, PPE and Environmental Precautions.

## FIRST AID

**If swallowed:** Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

**If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

**If inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

**If in eyes:** Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

## TOXICOLOGICAL INFORMATION

Treat symptomatically.

### STORAGE:

Store this product away from food or feed. Keep in original container during storage. Store product in a cool, dry, well-ventilated place away from seed, fertilizer, or other pesticides.

### DISPOSAL:

DO NOT reuse this container for any purpose. This is a recyclable container and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

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If there is no container collection site in your area, dispose of the container in accordance with provincial/territorial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial/territorial regulatory agency. Contact the manufacturer and the provincial/territorial regulatory agency in case of a spill, and for clean-up of spills.

**NOTICE TO USER**

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

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**IF ANY LABEL INFORMATION IS MISSING, CONTACT THE DISTRIBUTOR BEFORE**  
**USING THIS PRODUCT**

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## PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN
- Harmful if swallowed.
- Avoid spray drift to other crops.
- Do not use spray equipment for other purposes unless thoroughly cleaned.
  
- Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair.
- **DO NOT** enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

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## TOXICOLOGICAL INFORMATION

Treat symptomatically.

## ENVIRONMENTAL PRECAUTIONS

TOXIC to non-target terrestrial plants. Observe spray buffer zones specified under DIRECTIONS FOR USE.

## STORAGE:

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**NOTICE TO USER**

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**DIRECTIONS FOR USE**

Maintain 3.5L is a plant growth regulator for use in fruit production. Uses in fruit production include thinning of fruit to help improve fruit size and quality, controlling pre-harvest fruit drop to reduce fruit losses and promoting adequate return bloom the following season. The response of fruit trees to an application may vary depending on factors such as variety, climatic factors, location, tree vigour, etc. Users need to consider these factors before choosing the desired rate and timing for an application. Always apply Maintain 3.5L using sufficient water to ensure complete and uniform spray coverage. The appropriate spray volume is determined by the type of equipment used, tree size and density of foliage. Consider all variables in rate and application timing for each variety and orchard location when establishing a spray program.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

This product may be tank mixed with a fertilizer, a supplement, or with registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels, including Directions For Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer

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Zones are followed for each product. In cases where these requirements differ between the tank mix partner labels, the most restrictive label must be followed. Do not tank mix products containing the same active ingredient unless specifically listed on this label.

In some cases, tank mixing pest control products can result in reduced pesticide efficacy or increased host crop injury. The user should contact Fine Agrochemicals Ltd at 888-474-3463 for information before applying any tank mix that is not specifically recommended on this label.

Fine Agrochemicals Ltd has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) of all potential tank-mixes under all environmental conditions or for all crop varieties. Tank mixes that are not specifically listed on this label should be tested on a small area first, under local conditions and using standard practices, to confirm the tank mix is suitable for widespread application.

**CHEMICAL THINNING of APPLES:** Chemical thinning of apples is important to reduce the number of fruits in a cluster, ensure good tree architecture and optimum fruit size at harvest. Tree response to thinning with Maintain 3.5L applications also varies greatly based on the apple variety, climatic factors before and after application, tree vigour and spacing, pollination, fruit set and fruitlet size at time of application. **Table 1** below provides a list of apple varieties and recommended use rates for Maintain 3.5L. The level of thinning can vary greatly from year to year. Knowledge of the orchard's history and prior year's performance can help a grower determine the best spray program which is unique for that orchard. A typical rate for a moderate-to-thin apple variety in an orchard which requires 935 litres of water per hectare to achieve drip, is 5 ppm (146 mL of Maintain 3.5L per hectare). **Table 2** provides specific use rates based on ppm of NAA and tree row volume. Higher rates may be needed for more difficult-to-thin varieties or for large, vigorous trees with high fruit set potential which need aggressive thinning, or when applications are made towards the end of the fruit thinning window. Lower rates may be best for weaker trees with poor pollination and lower fruit set potential.

Typical application timings range from full bloom to 30 days after full bloom. Maintain 3.5L is most effective for fruit thinning when applied once the king fruitlets are 5 to 10 mm in diameter. The preferred application temperature is between 21°C and 24 °C under slow drying conditions. Applications are not recommended below 15.6 °C or above 26.7 °C. Over-thinning may occur when daytime temperature exceeds 29.4 °C. Satisfactory thinning can be obtained under such conditions with lower rates. Spray applications should be directed to the top two-thirds of the tree canopy for optimal performance. Under normal conditions, one application for thinning should be adequate. However, if a second application is desired, it should not be made earlier than 7 days after the first application. Maintain 3.5L can also be used in combination with carbaryl for fruit thinning. Consult your local Provincial spray guides for information on this tank mix combination as well as the specific timing windows for fruit thinning in your area. Also, consult your local extension specialist or pomologist for specific recommendations for apple varieties in your area.

Certain varieties can be sensitive to Maintain 3.5L and therefore growers should exercise caution prior to large scale use. Application of Maintain 3.5L to trees younger than 5 years of age should be made with caution as damage to the trees may occur. Pygmy or misshapen fruit formation or phytotoxicity may occur on some varieties under the following conditions: 1) higher rates, 2) when temperatures exceed 29.4 °C

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and/or 3) when applications are made to fruit >15 mm in size. Delicious and Fuji apple varieties are particularly susceptible and care should be exercised when using Maintain 3.5L on such varieties.

**TABLE 1**

Apple Varieties	Thinning rates <sup>1</sup> (mL Maintain 3.5L per 378.5 litres of tree row volume <sup>2</sup> )	Typical Application Timing
<b>Easy-to-thin:</b> Granny Smith, Braeburn, Pink Lady, Cortland, Delicious Baldwin, Idared, Jonathan, Northern Spy, MacIntosh, Red Delicious, Rome Beauty, Stayman, Rhode Island Greening, and others.	14.8 to 88.7 (1.2 -7.5 ppm)	Petal fall (3-7 mm fruit size) and/or early fruit set (8-10 mm fruit size).  Note: Thinning becomes increasingly difficult as fruit size increases. Adjust the rate of Maintain 3.5L to obtain desired results. Application to fruit >15 mm may result in misshapen or pygmy fruit in sensitive varieties.
<b>Moderately difficult-to-thin:</b> Gala, Golden Supreme, Honeycrisp, Cameo, Gingergold, JerseyMac, Rome, Jonagold, Empire, Olenberg (Duchess) Red Astrachan, Spartan, Mutsu, Yellow Transparent, Williams Early and others.	29.6 to 118.3 (2.5-10.0 ppm)	
<b>Difficult-to-thin:</b> Fuji, Golden Delicious, Jonamac, Lodi, Macoun, York, York Imperial, Yellow Newton, PaulaRed, Early Macintosh, and others.	44.4 to 118.3 (3.7-10.0 ppm)	

1 Note: The rate ranges supplied are intended only as a general guide. Your intended results may require rates above or below those in the table. When Maintain 3.5L is used in combination with a non-ionic surfactant or in a tank mix with another apple thinning product, the application rate of Maintain 3.5L should be appropriately reduced.

2 Volume of water required per hectare required to achieve drip at the time of application.

**TABLE 2**

Spray Preparation Chart for High Volume Application (in parts per million)				
Target Rate (ppm NAA acid basis)	Tree Row Volume Expressed as Litres per Hectare*			
	935	1871	2806	3742
	mL of Maintain 3.5L	mL of Maintain 3.5L	mL of Maintain 3.5L	mL of Maintain 3.5L
1	29	59	88	117
5	146	293	439	586
10	293	586	879	1172
15	439	879	1318	1758
20	586	1172	1758	2344

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\* Use the appropriate Maintain 3.5L rates from this chart to prepare the desired final Tree Row Volume spray per hectare

**PRE-HARVEST DROP:** Maintain 3.5L is effective in delaying pre-harvest drop of apples and provides a tool to manage apple harvest operations. Best results generally occur when Maintain 3.5L is applied at 10 to 20 ppm two (2) weeks prior to anticipated harvest, followed by another application of Maintain 3.5L at 10 ppm made one (1) week prior to anticipated harvest. For mid-summer and early fall varieties, during periods of warm weather, Maintain 3.5L usually becomes effective in one to two days. For later varieties during cool weather, a slightly longer period is necessary. Treat only healthy apple trees. When possible, apply sprays when temperature is 21°C or higher. Thoroughly wet foliage as well as fruit with the spray. Consult local extension specialists on the volume to be used when using speed sprayers.

For summer varieties, apply Maintain 3.5L when the first healthy, uninjured fruit begin to drop. For such varieties, under ideal conditions, 5 ppm NAA may be fully effective. With mid-season varieties, such as McIntosh, Spartan and Honeycrisp, apply 10 ppm Maintain 3.5L when the first healthy, uninjured fruit begin to drop. If the area treated is not harvested within 7 to 10 days after the first treatment, a second application should be made to the remaining unpicked fruit 5 to 6 days after the first application to hold the fruit longer. For late-summer maturing varieties such as Red Delicious, one application of Maintain 3.5L at 10 ppm should be made at the time when the first healthy, uninjured fruit begin to drop. For apples grown in the province of British Columbia, use up to 20 ppm of Maintain 3.5L. Contact your local apple specialist for specific product recommendations.

**Important:** MAINTAIN 3.5L inhibits fruit drop but does not affect normal ripening. The fruit must be harvested at the proper stage of maturity even though the product is still effectively delaying fruit drop. For pre-harvest drop control, do not make more than 2 applications per season and do not apply the last Maintain 3.5L application less than 5 days before anticipated harvest.

#### **TO PROMOTE RETURN BLOOM ON APPLE TREES THE FOLLOWING SEASON:**

When Maintain 3.5L is used at the thinning stage, it can also effectively promote return bloom during in an off-year among trees which are likely to produce only a limited number of blossoms in the following year. Contact your local pomologist regarding the varieties which tend to have biennial bearing.

**FRUIT SET THINNING OF ORNAMENTAL CRABAPPLES:** For use only as a component of an integrated pest management program to control codling moth in British Columbia. A Maintain 3.5L treatment at 20 ppm spray solution should be made within five (5) days after full bloom to completely remove all flowers and young fruit. Application should be made by municipal employees or licensed applicators only. Do not apply this product in a manner which will increase drift to non-target plants or expose workers or other personnel. The treated area must be vacated prior to application. Make only one application per season.

#### **APPLICATION OF MAINTAIN 3.5L:**

##### **Airblast application:**

**DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured

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outside of the treatment area on the upwind side. Direct 80% of the spray to the upper 2/3 of the tree structure. Use a properly calibrated sprayer to ensure uniform and complete coverage of all foliage and developing fruit without runoff. Spray volume should be adjusted for tree size and density.

Maintain 3.5L works best if climatic conditions allow an extended drying period. Apply in the morning or evening when temperatures are lower and humidity tends to be higher than during the day.

**DO NOT** apply by air.

### **Spray Buffer Zones:**

A spray buffer zone is NOT required for:

- uses with hand-held application equipment permitted on this label,

The spray buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands).

Method of Application	Crop	Spray Buffer Zones (metres) Required for the Protection of Terrestrial Habitat:
Airblast	Apples	4
Airblast	Ornamental crabapples	2

When tank mixes are permitted, consult the labels of the tank-mix partners and observe the largest (most restrictive) spray buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The spray buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the pesticides portion of the Canada.ca website.

Apply only to agricultural crops when the potential for drift to areas of human habitation and human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

Maintain is a registered trademark of Fine Agrochemicals, Ltd.