

**APOGEE®**

Plant Growth Regulator

**WETTABLE GRANULES**

**COMMERCIAL (AGRICULTURAL)**

**GUARANTEE:** Prohexadione calcium ..... 27.5%

**WARNING, contains the allergen sulfites**

**REGISTRATION NO. 28042**

**PEST CONTROL PRODUCTS ACT**

**READ THE LABEL AND BOOKLET BEFORE USING**

**KEEP OUT OF REACH OF CHILDREN**

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY  
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT  
1-800-454-2673**

**NET CONTENTS:** 2.27 kg

BASF Canada Inc.  
100 Milverton Drive  
5th Floor  
Mississauga, Ontario  
L5R 4H1  
1-877-371-2273

APOGEE® is a registered trademark of BASF.

## PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. Harmful if swallowed. Do not take internally.
3. Avoid contact with eyes, skin and clothing.
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. Wear long sleeved shirt, long pants, chemical resistant gloves, socks and footwear during mixing, loading, application, clean-up and repair.
6. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
7. Clean spray equipment thoroughly after use. Clean spray equipment thoroughly using a strong detergent or commercial sprayer cleaner according to the manufacturer's directions before and after applying this product.
8. If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at [www.croplife.ca](http://www.croplife.ca).

## FIRST AID

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**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**

1. Store in original tightly closed container.
2. Do not ship or store near food, feed, seed and fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.

## **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.

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

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial 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. The user assumes the risk to persons or property that arises from any such use of this product.

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## GENERAL INFORMATION

APOGEE® plant growth regulator is a unique production management tool for apple orchards that reduces vegetative growth allowing a balance between canopy development and fruit production.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

### Mode of Action

APOGEE plant growth regulator acts within apple trees to inhibit the biosynthesis of gibberellin, which is the natural plant hormone that regulates cell elongation. Inhibition of gibberellin therefore reduces shoot growth. Vegetative growth suppression with Apogee typically lasts for 2-5 weeks per application during the current growing season. Apogee does not affect vegetative growth the following year.

**Gibberellic acids:** When gibberellic acid sprays, such as Accel® Plant Growth Regulator, are applied in the same season as APOGEE plant growth regulator to thin, reduce cracking, reduce russetting or to increase typiness, a loss in efficacy may occur in the APOGEE plant growth regulator and/or the gibberellin spray.

**Thinning:** Applying APOGEE plant growth regulator may cause a tree to retain more fruit. Therefore, thinning programs may have to be more aggressive when using APOGEE plant growth regulator.

**Fire blight of shoots (shoot blight):** Controlling vegetative growth with APOGEE plant growth regulator as recommended in Table 2 will suppress fire blight (*Erwinia amylovora*) infection, resulting in reduced incidence and severity of the disease on shoots and leaves. APOGEE plant growth regulator does not have direct antibiotic activity against the fire blight bacteria (*Erwinia amylovora*), but APOGEE plant growth regulator can decrease host susceptibility. APOGEE plant growth regulator applications are not effective for suppression of blossom blight. For maximum reduction in fire blight susceptibility, APOGEE plant growth regulator should be applied at least 10 days before the occurrence of weather conditions favorable for shoot and leaf infections. APOGEE plant growth regulator reduces the susceptibility of apple shoot tips to fire blight and should be used as one component of a comprehensive IPM strategy for control of fire blight. This decrease in susceptibility will not become effective until about 10 days after application.

### Coverage

Because APOGEE plant growth regulator is absorbed by the leaves, thorough spray coverage of the tree foliage is necessary for good uptake. The spray should be directed to the portion of the tree where growth control is desired. To achieve good coverage, use sufficient water, proper spray pressure, nozzles, nozzle spacing, spray volume per hectare, and tractor speed. Consult the spray nozzle and accessory guide for information pertaining to proper equipment calibration.

## DIRECTIONS FOR USE

### Application Instructions

Apply APOGEE plant growth regulator to actively growing trees with ground equipment using an airblast sprayer at rates and stages listed in section **Crop Specific Information** (see Tables 1 and 2).

### Timing

For vegetative growth control, make the first application of APOGEE plant growth regulator in the spring when trees have 2.5-7.5 cm of new shoot growth. **Correct timing of application is critical to success.** An early first application (i.e., 5 cm of shoot growth) is more effective than a late application (i.e., 15-20 cm of shoot growth). If required, make a sequential application 14 - 21 days after the first application.

### Number of Applications

For most apple orchards, two applications 14-21 days apart beginning at 2.5-7.5 cm of new shoot growth will provide good growth control. For apple orchards in locations with long growing seasons, higher vigour trees and trees with light fruit load, 3-4 applications per season may be more effective. Consult with an extension specialist or consultant for your specific area.

**Tree Vigour:** Adjust the APOGEE plant growth regulator rate according to the vegetative vigour of the trees (see Tables 1 and 2). Vegetative vigour can be influenced by many factors, including fruit load, pruning, variety, rootstock, and location. A grower's experience is the best guide in predicting tree vigour. Some trees exhibit excessive shoot growth (high vigour) every year due to a combination of variety, rootstock, and location. However, trees that normally exhibit typical shoot growth can exhibit excessive growth in some years due to crop loss or severe winter pruning.

**Tree Size:** Calculate the APOGEE plant growth regulator rate per hectare based on tree size. The application rate should be based on the volume of water needed to spray the trees to drip (i.e., dilute spray or Tree Row Volume).

### Application Rate

The **Apogee plant growth regulator** application rate will be based on the vegetative vigour and the size of the tree.

1. Assess if trees have low, medium, or high vigor to determine the rate of APOGEE plant growth regulator (see section **Crop-Specific Information**).
2. Determine the size of the tree in terms of the amount of water needed for a dilute spray (spray to drip or according to Tree Row Volume).
3. Multiply the APOGEE plant growth regulator rate per 100 L of dilute spray by the size of the tree in litres per hectare. The result is the number of grams needed per hectare for those trees. Once this application rate is determined in grams per hectare, it can be converted into the actual spray volume.

**Example Calculation:** For a block of apple trees that typically produces 50 to 100 cm of shoot growth per year (vigorous growth), the suitable rate would be 2 applications of 45 g/100 litres according to the crop specific rate table (Table 1). The trees are large and require 3000 litres per ha to spray dilute (i.e., to drip).

$$\frac{45 \text{ grams of APOGEE plant growth regulator}}{100 \text{ litres of water}} \times \frac{3000 \text{ litres}}{\text{ha}} = 1350 \text{ g/ha}$$

The rate of APOGEE plant growth regulator may be applied in dilute or concentrated sprays as long as good spray coverage is achieved.

### Crop-Specific Information

Make the first application of APOGEE plant growth regulator when shoots have 2.5-7.5 cm of new shoot growth. Repeat applications as needed (up to a maximum of 4 applications per season) for control of vegetative growth and suppression of fire blight. Refer to Tables 1 and 2 for application rates and timings. Dilute spray volumes are based on the amount of solution required to thoroughly wet the foliage to the point of runoff. Consult your local extension agent or consultant for a recommendation to calculate the dilute coverage based on the tree row volume. Applying APOGEE plant growth regulator can increase fruit set (see **Thinning** section under **Mode of Action**) by reducing June drop. Therefore, thinning programs may need to be more aggressive when using APOGEE plant growth regulator.

On apple varieties known to be prone to cracking, such as Empire and Stayman, APOGEE plant growth regulator has been associated with an increase in fruit cracking.

The use of APOGEE plant growth regulator on Cortland variety may result in a decrease in yield and marketable yield.

**Table 1. Recommended Application Rates for Vegetative Growth Control in Apples**

Application Timing	APOGEE plant growth regulator rate <sup>1</sup> per 100 litres of dilute spray	APOGEE plant growth regulator rate <sup>2</sup> per ha
<b>Medium to High Vigour Trees (split applications)</b> Apply at 2.5-7.5 cm of new shoot growth. Make subsequent applications at 14 – 21 day intervals, up to a maximum of 4 applications per season if required.	45 grams	1350 grams
<b>Low to Medium Vigour Trees (split applications)</b> Apply at 2.5-7.5 cm of new shoot growth. Make subsequent applications at 14 – 21 day intervals, up to a maximum of 4 applications per season if required.	27 grams	810 grams
<b>Low Vigour Trees (single application)</b> Apply at 2.5-7.5 cm of new shoot growth.	27– 45 grams	810 to 1350 grams

<sup>1</sup> All rates in this table represent formulated product amounts.

<sup>2</sup> Rate based on dilute water volume of 3000 L/ha (to runoff).

**Table 2. Recommended Application Rates for Suppression of Fire Blight in Apples**

Application Timing	APOGEE plant growth regulator rate <sup>1</sup> per 100 litres of dilute spray	APOGEE plant growth regulator rate <sup>2</sup> per ha
<p><b>To reduce fire blight infections of shoot by decreasing vegetative growth</b>                      Apply at 2.5-7.5 cm of new shoot growth.                      Make subsequent applications at 14 – 21 day intervals, up to a maximum of 4 applications per season if required.</p>	45 grams	1350 grams

<sup>1</sup> All rates in this table represent formulated product amounts.

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**Airblast Application**

**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 outside of the treatment area on the upwind side.

**DO NOT** apply by air.

**ADDITIVES**

**Adjuvant**

APOGEE plant growth regulator can be applied with Agral® 90 at a rate of 0.5 mL/L or 0.05% v/v in conditions where uptake of prohexadione-calcium would be reduced such as drought conditions, low humidity, hot temperatures or if particularly lush growth is present (lots of foliage).

**Ammonium Sulphate**

APOGEE plant growth regulator can be applied with ammonium sulphate (AMS) at a ratio of 1:1 to APOGEE plant growth regulator if the water source used for spray applications contains high levels of calcium (hard water). Use high-quality, spray grade AMS to avoid plugging nozzles.

**MIXING**

1. Ensure the spray tank is clean before use. Follow the clean-out recommendations stated on the label of the product that was previously used.
2. Fill the spray tank one-half full of water and start agitation.
3. Add the required amount of APOGEE plant growth regulator to the tank.
4. Add the required amount of adjuvant (if needed).

5. Add the required amount of ammonium sulfate (if needed).
6. Continue agitation while filling the remainder of the spray tank.
7. After use, clean the spray tank according to precautions.

### **GENERAL RESTRICTIONS AND LIMITATIONS**

1. Maximum seasonal use rate: Do not apply more than a total of 5.4 kg of APOGEE plant growth regulator per hectare, per season.
2. Pre-harvest Interval (PHI): Do not apply within 45 days before harvest.
3. Restricted Entry Interval (REI): 12 hours.
4. Rainfast period: Apogee is rainfast 8 hours after application.
5. Do not apply to crops that show injury (leaf phytotoxicity) produced by any other prior pesticide applications, because this injury may be enhanced or prolonged.
6. Do not tank mix or apply APOGEE plant growth regulator with calcium sprays because research has shown the added calcium will reduce the effectiveness of APOGEE plant growth regulator.
7. Do not apply this product through any type of irrigation system.

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This label transcript service is offered by the Pest Management Regulatory Agency to provide efficient searching for label information. This service and this information do not replace the official hard-copy label. The PMRA does not provide any guarantee or assurance that the information obtained through this service is accurate, current or correct, and is therefore not liable for any loss resulting, directly or indirectly, from reliance upon this service.