

73049-41

09/27/2000

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MASTER LABEL

**PROMALIN® PLANT GROWTH REGULATOR
SOLUTION**

Active Ingredients:

N-(phenylmethyl)-1H-purine 6-amine.....	1.8% w/w
Gibberellins A ₄ A ₇	1.8% w/w
Other ingredients.....	96.4% w/w
Total:.....	100.0% w/w

EPA Reg. No. 73049-41

Valent BioSciences Corporation
870 Technology Way
Libertyville, IL 60048

ACCEPTED

SEP 27 2000

Under the Federal Insecticides,
Fungicides, and Rodenticide Act,
as amended, for the pesticide
registered under
EPA Reg. No. 73049-41

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SUBLABEL

Promalin Plant Growth Regulator Solution

For use on apples, non-bearing pears, non-bearing sweet cherries

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EPA Est No.

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

See side or back panel for First Aid

Valent BioSciences Corporation
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Libertyville, Illinois 60048

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FIRST AID	
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 center or doctor for treatment advice.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For medical emergencies, you may also call toll-free 1-877-315-9819 for treatment information.	

PRECAUTIONARY STATEMENTS
Hazard To Humans & Domestic Animals
CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

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ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Waterproof gloves
- Shoes plus socks

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store below 75°F (24°C). Keep containers tightly closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

PRODUCT INFORMATION

Promalin is a plant growth regulator for use on apples, non-bearing pears and non-bearing sweet cherries. When applied according to label directions to healthy, well-managed trees and under favorable weather conditions (see General Instructions), Promalin may provide one or more of the following benefits in some varieties:

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1. Improve the shape of Red Delicious apples through fruit elongation and development of more prominent calyx lobes ("typiness"). These desirable effects will be more evident in years when natural typiness is limited.
2. Increase fruit size and weight on most apple varieties. Some fruit thinning may occur from the use of Promalin.
3. Increase lateral bud break and shoot growth (branching), and improve branch angle on nursery stock young trees of most apple varieties. This effect provides a better tree framework for early cropping.
4. Increase lateral bud break and shoot growth, and improve branch angle on non-bearing trees of most pear and sweet cherry varieties, including nursery stock. This effect provides a better tree framework for early cropping.

GENERAL INSTRUCTIONS

- Do not apply this product through any type of irrigation system.
- When a range of rates is indicated, use the concentration and spray volume recommended locally by the Valent BioSciences Corporation agricultural specialist (1-800-323-9597).
- For optimum effectiveness, thorough spray coverage must be achieved. All parts of the plant must receive the spray or desired results will not occur. On bearing trees, approximately 85% of the spray volume should be directed into the upper two-thirds of the trees.
- Promalin applications made under slow drying conditions (cool to warm temperatures, medium to high relative humidity, and no wind) will increase absorption by the plant, thus optimizing effectiveness. Night-time applications are encouraged when day-time conditions are not conducive to slow drying conditions.
- Do not apply Promalin when air temperatures are lower than 40°F or greater than 90°F.
- For best results, the water pH should be near neutral (pH 7) and always below 8.5
- Rainfall or overhead irrigation within 6 hours after spraying may reduce the activity of Promalin.
- **Compatibility:** The Promalin Application Instructions refer to use of the product alone. Data concerning the compatibility of Promalin with other agricultural compounds, except DiPel® DF, XenTari®, or Biobit® are not available. Valent

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BioSciences Corporation does not assume responsibility for unexpected results due to the tank mixing of Promalin with other products.

- **Mixing Instructions:** Add the required amount of Promalin to a spray tank about half-filled with water. Agitate while bringing the total volume of water to the required level. New solutions should be mixed only in a clean, empty spray tank, and used within 24 hours. Discard any unused spray material following local, state, or federal law.

APPLICATION INSTRUCTIONS FOR FRUIT DEVELOPMENT

Rate and Timing

1. Single Application for Improved Typiness and Size:

A single application of 1-2 pints of Promalin per acre should be made from early king bloom to the early stages of petal fall of the side blossoms.

2. Split Applications for Improved Typiness and Size:

When the bloom period is prolonged, two applications are recommended. The first application of 0.5 to 1 pint of Promalin per acre should be made at the beginning of the bloom period, from early king bloom to the early stages of petal fall of the side bloom. The second application of 0.5 to 1 pint of Promalin per acre should be made 3 to 21 days later, or when the remainder of the canopy comes into bloom. Do not exceed the maximum recommended rate of 2 pints per acre for the combined sprays.

Spray Volume

Apply Promalin in a sufficient amount of water to ensure thorough, but not excessive, coverage. Adjust water volumes based on tree size and spacing. A suggested spray volume of 75-150 gallons/acre is adequate for most orchards. Excessive spray application volumes that result in spray runoff may reduce product performance.

APPLICATION INSTRUCTIONS FOR LATERAL BRANCHING AND TREE DEVELOPMENT

Rate and Timing

1. Application for Branching:

A single foliar application of Promalin or a Promalin-latex paint spot application may be applied to apples, non-bearing pears, and non-bearing sweet cherry trees, including nursery stock, to increase lateral bud break and shoot growth, improve branch angles, and provide a better tree framework for early cropping.

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Table 1 -- Foliar Applications

Crop	Rate	Timing
Apples (Nursery and Orchard)	125-500 ppm ¹ (0.25-1 pint Promalin per 5 gallons of spray solution) ²	For orchard trees (apples and non-bearing pears), apply at 1-3 inches of new terminal growth.
Non-bearing Pears (Nursery and Orchard)	250-1,000 ppm (0.5-2 pints Promalin per 5 gallons of spray solution)	For nursery stock (apples, non-bearing pears and non-bearing sweet cherries) treat after trees have reached a terminal height at which lateral branching is desired.
Non-bearing Sweet Cherries (Nursery Only)	250-1,000 ppm (0.5-2 pints Promalin per 5 gallons of spray solution)	

¹ parts per million² Do not exceed 2 pints per acre.

Table 2 -- Latex Applications

Crop	Rate	Timing
Apples (Nursery and Orchard)	5,000 - 7,500 ppm ¹ [0.2-0.33 pint (3.2-5.3 fluid ounces) Promalin per pint of latex paint]	Apply in the spring when terminal buds begin to swell but before shoots emerge.
Non-bearing Sweet Cherries (Orchard Only)		

¹ parts per million

NOTE: Do not apply the Promalin-latex paint mixture after bud break. Applications after buds have broken may cause some injury to tender shoot tips and fail to promote shoot growth from that point.

NOTE: Uniformly apply the Promalin-latex paint mixture with a brush or sponge to cover the bark surface thoroughly. Apply only to one year old wood.

NOTE: Any type of application of Promalin to non-bearing pears and non-bearing sweet cherries must not be made later than one year prior to first anticipated fruit harvest.

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DiPel® DF, XenTari®, and Biobit® biological insecticides are registered trademarks of Valent BioSciences Corporation.

NOTICE TO USER

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE CONCERNING THE USE OF THIS PRODUCT OTHER THAN AS INDICATED ON THE LABEL. USER ASSUMES ALL RISKS OF USE, STORAGE OR HANDLING NOT IN STRICT ACCORDANCE WITH ACCOMPANYING DIRECTIONS.

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SUBLABEL

Promalin Plant Growth Regulator Solution

For use on lilies

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For use on lilies

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PRODUCT INFORMATION

Promalin is an extremely active plant growth regulator. Care must be used in measuring, diluting, and applying Promalin.

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A foliar application of Promalin supplies plants with an additional source of the naturally occurring plant hormones, gibberellin and cytokinin. Gibberellin and cytokinin are involved in nearly all processes of plant development. Together, gibberellin and cytokinin promote a number of desirable effects, including preventing leaf yellowing and delaying flower senescence in lilies.

Additionally, gibberellin applications have been shown to increase flower size, reduce the minimum temperature required to initiate plant growth, to initiate flowering, and to overcome bud and seed dormancy. Cytokinins are involved in cell enlargement, tissue differentiation, chloroplast development, the stimulation of cotyledon growth, the delay of aging in leaves, and many other aspects of plant development.

GENERAL INSTRUCTIONS

Apply with standard spray equipment. Avoid high spray pressure, which can cause "misting" of spray particles. These very small spray particles may deposit on immature foliage and contribute to unwanted stem elongation. For optimum effectiveness, thorough spray coverage must be achieved; only plant parts covered with spray solution will be protected from leaf yellowing. Leaves or parts of leaves not covered with Promalin will not be protected from chlorosis.

An effective dose of Promalin is strongly dependent on application volume. Plant response can vary if a given rate is applied at different spray volumes. Uniformity of spray solution is equally important. **For foliar applications uniformly apply 2 quarts of finished spray solution to 100 sq. ft. of bench area.**

When making directed applications to lilies, apply enough solution to ensure coverage of the lower leaves, but do not apply more than 15 ml of finished solution per plant, as Promalin applied to soil can contribute to unwanted stem elongation.

Differences in plant response to Promalin due to differences in plant surfaces, leaf orientation, and plant structure are possible. Extreme temperatures can influence plant response to Promalin. It is recommended that Promalin be applied during morning or late afternoon hours, or when plants are not under environmental stress.

Tank mixing of this product with any other product which is not specifically and expressly authorized by the label shall be the exclusive risk of the user, applicator and/or application advisor.

DETERMINING OPTIMAL APPLICATION RATES

Promalin contains equivalent portions of 6-Benzyladenine (BA) and Gibberellin (GA₄₊₇). The rates recommended on this label are rate ranges and should be used only as a guide.

An optimum Promalin rate depends on desired expectations, and physical and environmental factors. Specific growing practices such as watering, potting media,

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fertilization, temperature, and light conditions will affect plant responses to a given Promalin rate.

Results from Promalin applications are dependent upon timing, rate, frequency of application, and plant vigor at application.

To determine optimum use rates, conduct trials on a small number of plants under actual use conditions using the lowest recommended rate.

LIMITATIONS

Leaves or parts of leaves not covered with Promalin will not be protected from chlorosis.

Do not apply to plants under pest, nutritional, or water stress. Promalin will not correct or substitute for treatment of pest, nutrient, or water stresses, all of which may result in lower leaf yellowing as a symptom.

Do not apply this product through any type of irrigation system.

Foliar applications of Promalin may be used to overcome over-applications of a gibberellin-inhibiting plant growth regulator.

Avoid drift onto non-target species.

Do not mix Promalin with pesticides, fertilizers, wetting agents, spreader stickers or other adjuvants.

Over-application may result in accelerated stem growth.

Do not apply Promalin to any food crop.

Do not reuse soil from plants treated with Promalin.

MIXING INSTRUCTIONS AND RATE CONVERSION TABLE

Promalin mixes readily with water.

Foliar Applications: Always make sure application equipment is thoroughly clean before mixing. When preparing Promalin for use as a foliar spray, fill tank to one half full. Add the recommended amount of Promalin according to the rate conversion table below. Complete filling the tank.

Rate Conversion Table

PPM (parts per million) (BA/GA ₄₊₇)	ml/ L	ml/ Gallon	Fl. Oz./ Gallon
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1/1	0.06	0.2	0.007
5/5	0.3	1.1	0.04
10/10	0.6	2.1	0.07
25/25	1.4	5.3	0.18
50/50	2.8	10.5	0.36
75/75	4.2	15.8	0.53
100/100	5.5	21.0	0.71

APPLICATION INSTRUCTIONS FOR PREVENTION OF LEAF YELLOWING IN EASTER AND LA HYBRID LILIES

Promalin may be applied to Easter (*Lilium longiflorum*) and LA Hybrid (*longiflorum*-Asiatic crosses) lilies to decrease yellowing and necrosis of lower leaves and delay flower senescence. Gradual leaf yellowing usually begins near or before visible bud stage. Post-harvest leaf yellowing may be dramatic with rapid leaf yellowing occurring on finished plants prior to their sale. When used preventatively, Promalin can inhibit both types of leaf yellowing on Easter and LA Hybrid lilies. Additionally, an application of Promalin to flower buds has shown to delay flower senescence, a secondary effect of applying gibberellins to lilies.

Early-season Application Recommendations

Foliar Promalin applications directed only toward the lower foliage have proven to reduce lower leaf yellowing on greenhouse-grown Easter and LA Hybrid lilies.

- ◆ Apply 7 to 10 days prior to visible bud stage.
- ◆ Protection from leaf yellowing lasts up to 3 weeks after application. Thus, a second application is required for protection from leaf yellowing throughout the growing season.
- ◆ Avoid direct contact of spray solution to immature leaves. Spray solution contacting immature leaves may result in unwanted stem elongation.

Rate (PPM) (parts per million)	Timing	Method
5/5 to 10/10 (BA/GA ₄₊₇)	<i>Early-season</i> (7 to 10 days prior to visible bud stage)	Directed foliar spray Apply only to lower leaves to minimize stem elongation

Mid-season Application Recommendations

A second foliar Promalin application directed only toward the lower foliage has proven to reduce leaf yellowing on greenhouse-grown Easter and LA Hybrid lilies that can occur just prior to shipping/flowering.

- ◆ Apply 7 to 10 days after visible bud.

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- ◆ Avoid direct contact of spray solution to immature leaves. Spray solution contacting immature leaves may result in unwanted stem elongation.

Rate (PPM) (parts per million)	Timing	Method
5/5 to 10/10 (BA/GA ₄₊₇)	<i>Mid-season</i> (7 to 10 days after visible bud stage)	Directed foliar spray Apply only to lower leaves to minimize stem elongation

Late-season Application Recommendations

A late-season Promalin application contacting foliage and flower buds has proven to reduce leaf yellowing and prolong flowering of Easter and LA Hybrid lilies during shipping and in the post-harvest environment. Promalin will prevent the chlorosis that may afflict lilies following storage in a cooler. Protection from leaf yellowing lasts for up to 14 days after placement of plants into a cooler. Promalin has shown to increase flower longevity of Easter and LA Hybrid lilies by 25 percent.

- ◆ Apply when largest flower bud is at least 8 cm in length. Application to plants with smaller flower buds may result in stem elongation and taller plants.
- ◆ Do not apply more than 14 days prior to placement into a cooler or shipping, as suitable protection may not be achieved.

Rate (PPM) (parts per million)	Timing	Method
100/100 (BA/GA ₄₊₇)	<i>Late-season</i> (when first bud reaches at least 8 cm in length and no more than 14 days prior to placement in a cooler or shipping)	Foliar spray Apply to foliage and flower buds

APPLICATION INSTRUCTIONS FOR PREVENTION OF LEAF YELLOWING IN ORIENTAL LILY

Promalin may be applied to Oriental lily to decrease yellowing and necrosis of lower leaves and delay flower senescence. Gradual leaf yellowing may begin at or near the visible bud stage. Post-harvest leaf yellowing may be dramatic with rapid leaf yellowing occurring on finished plants prior to their sale. When used preventatively, Promalin can inhibit both types of leaf yellowing on Oriental lily. Additionally, an application of Promalin to flower buds has shown to delay flower senescence, a secondary effect of applying gibberellins to lilies.

Mid-season Application Recommendations

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Foliar Promalin applications contacting foliage have shown to reduce lower leaf yellowing on greenhouse-grown Oriental lily.

- ◆ Apply within 7 to 10 days before or after visible bud stage.
- ◆ Protection from leaf yellowing lasts up to 3 weeks after application. Thus, a second application is required for protection from leaf yellowing throughout the growing season.

Rate (PPM) (parts per million)	Timing	Method
100/100 (BA/GA ₄₊₇)	<i>Mid-season</i> (7 to 10 days before or after visible bud stage)	Foliar spray

Late-season Application Recommendations

A second foliar Promalin application contacting foliage and flower buds has proven to reduce leaf yellowing and prolong flowering of Oriental lily. A late-season Promalin application will prevent leaf chlorosis that can occur just prior to shipping/flowering, in a storage cooler, and during shipping in the post-harvest environment.

- ◆ Do not apply more than 14 days prior to placement into a cooler or shipping, as suitable protection may not be achieved.
- ◆ Protection from leaf yellowing lasts for 14 days after plants are placed into a cooler.

Rate (PPM) (parts per million)	Timing	Method
100/100 (BA/GA ₄₊₇)	<i>Late-season</i> (no more than 14 days prior to placement in a cooler or shipping)	Foliar spray Apply to foliage and flower buds

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