

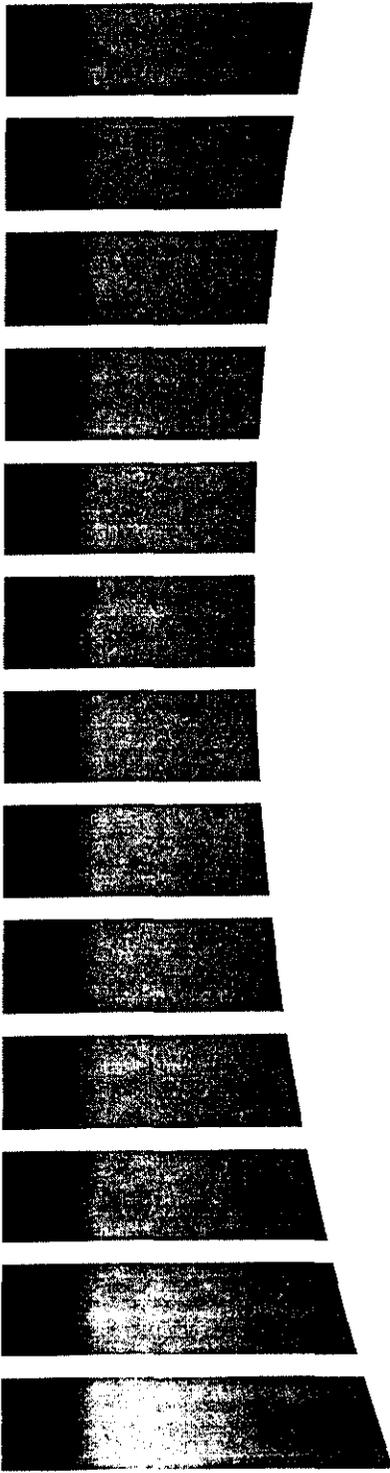
400-461

2-21-2003

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**Restricted Use Pesticide.** Due to toxicity to aquatic invertebrate animals. For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

# Dimilin® 2L



## Insect Growth Regulator Suspension Concentrate

**Net  
Contents:**

For use on cotton, soybeans, rice, pears,  
stonefruit (excluding cherries), tree nuts,  
grassland and non-crop areas

### COMPOSITION

Active Ingredient: (% by weight)

diflubenzuron

N-[[[(4-Chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide\* ..... 22%

Inert Ingredients: ..... 78%

TOTAL ..... 100%

\*Contains 2 lbs. diflubenzuron per gallon.

\*U.S. Patent Number: 6,057,370; and 6,376,430B1 and other patents pending.

### EMERGENCY ASSISTANCE:

CROMPTON EMERGENCY PHONE 203-723-3670

SAFETY DATA AND INFORMATION 203-573-3303

TRANSPORTATION EMERGENCY (CHEMTREC) 800-424-9300

Have the product container or label with you when calling  
a doctor or going for treatment.

## KEEP OUT OF REACH OF CHILDREN CAUTION

Precautionary Statements and Directions for Use are in the attached booklet. If booklet is missing, contact Crompton or an authorized dealer.

ACCEPTED  
FEB 21 2003

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.  
400-461

EPA REG. NO. 400-461  
EPA EST. NO.  
022CM

Crompton Manufacturing Company, Inc.  
Middlebury, CT 06749

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**Crompton**  
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www.cromptoncorp.com

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
CAUTION**

**PERSONAL PROTECTIVE EQUIPMENT**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical-resistant selection chart.

**Applicators and Other Handlers Must Wear:** A long-sleeved shirt & long pants; chemical-resistant gloves, such as barrier laminate, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC, or viton, when mixing and loading and also when using hand-held equipment; shoes plus socks.

**Mixers and Loaders Using Fixed-Wing Aircraft Must Wear:** Long-sleeved shirt and long pants; chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC or viton; shoes plus socks; dust/ mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C or a NIOSH approved respirator with any R, P or HE filter).

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.

When handlers use closed systems (including water soluble bags), enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

**USER SAFETY RECOMMENDATIONS**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to aquatic invertebrates. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic invertebrate organisms in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate.

**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 12 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
- chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride.
- shoes plus socks.

**STORAGE AND DISPOSAL**

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

**STORAGE** - Store in a dry location.

**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 of in a sanitary landfill, or incineration or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**GENERAL INSTRUCTIONS AND INFORMATION**

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

**SPRAY DRIFT LABELING**

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to ULV applications on grassland, for the control of grasshoppers and Mormon crickets.

1. The distance of the outer most nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed. The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory Information. **Information on Droplet Size**

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets re-

duces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

#### Controlling Droplet Size

**Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

#### Boom Length

For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

#### Application Height

Applications should not be made at a height greater than 10 feet above the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

#### Swath Adjustment

When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for the displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.)

#### Wind

Drift potential is lowest between wind speed of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **NOTE:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

#### Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are hot and dry.

#### Temperature Inversions

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion,

while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

#### Sensitive Areas

The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

#### GENERAL INFORMATION

DIMILIN 2L is an insect growth regulator which is effective on a wide variety of insect pests, predominately from the families Lepidoptera and Diptera. Because of its mode of action, which results in a disruption of the normal molting process of the insect larvae, the action of DIMILIN is slow and several days may elapse before the full effect is seen. Because of its specificity, DIMILIN has little or no effect on bees or other beneficial insects and is therefore an excellent product for use in IPM programs.

#### GENERAL PRECAUTIONS AND RESTRICTIONS

Do not apply this product to bodies of water where swimming is likely to occur.

#### For Field Crops, Row Crops, Orchard Uses, Rangeland and Non-Crop

**Areas:** Do not apply within 25 feet by ground or 150 feet by air of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. All applications must include a 25 foot vegetative buffer strip within the buffer zone to decrease runoff.

**RESTRICTIONS ON ROTATIONAL CROPS:** Do not plant food or feed crops in DIMILIN treated soils within 1 month following last application, unless DIMILIN is authorized for use on these crops.

#### APPLICATION INSTRUCTIONS

##### USE AND MIXING DIRECTIONS IF USED WITH WATER:

1. Fill tank with half of the required amount of water.
2. Begin agitation and add required amount of DIMILIN 2L.
3. Continue agitation while adding remainder of water.
4. If permitted for the use site, add proper quantity of oil slowly. To avoid formation of an invert emulsion, use at least 2 parts of water for each part of oil.

##### USE AND MIXING DIRECTIONS IF USED WITHOUT WATER:

Always evaluate any potential mixture for compatibility and sprayability. To ensure thorough mixing of DIMILIN 2L with insecticides or other carriers, it is recommended that ingredients be premixed in a nurse tank prior to being transferred to aerial or ground ULV application equipment. If nurse tank is not available, or unable to simultaneously mix:

1. Fill tank with the required amount of oil and/or oil based insecticide.
2. Begin agitation and add required amount of DIMILIN 2L.
3. After the contents of the tank have been thoroughly agitated, a volume of carrier sufficient to fill the booms and piping system should be drained and then added back to the tank.

**Aerial or ground application:** Spray should be applied with aerial or ground equipment designed or modified to insure full uniform coverage of the entire plant. Adjust equipment to provide droplets with a diameter of 150 to 220 microns. Provide agitation prior to, during, and after blending and while applying.

#### SOYBEANS (except California)

**VELVET BEAN CATERPILLAR, MEXICAN BEAN BEETLE AND GREEN CLOVER WORM:** DIMILIN 2L will control larvae of velvetbean caterpillar, Mexican bean beetle and green cloverworm. Apply DIMILIN 2L at the rate of 2 to 4 ounces per acre. Make application when larvae are small (less than 0.5 inches) to give greater control and minimum insect damage to leaves. Repeat application if damaging numbers reappear. The minimum reapplication interval is 30 days.

DIMILIN 2L may be applied at the lower rate (2 ounces) to prevent velvetbean caterpillar build-up when the vegetative growth of soybeans is completed and as pod formation begins. Consult local Extension Service regarding infestation levels requiring treatment.

**BEET AND FALL ARMYWORM AND SOYBEAN LOOPER:** To control larvae of beet and fall armyworm and to provide suppression of soybean looper, apply 4 ounces of DIMILIN 2L per acre. Application must be made when worms are small before the 3rd instar and before populations build.

**GRASSHOPPERS:** For optimum results, apply 2 fl. oz. of DIMILIN 2L per acre when the majority of infesting grasshoppers have reached the 2nd to 3rd instar nymphal stage of development. DIMILIN is not effective in controlling grasshoppers once they reach the adult stage. Since DIMILIN is an insect growth regulator, grasshoppers must feed on DIMILIN and then molt before populations are reduced. Thus initial signs of control may not be seen until several days after treatment. If a large influx from neighboring fields should occur, the time to reduce that population may not be short enough to minimize extensive foliage feeding. A tank mix with a knockdown insecticide is recommended under these conditions.

**Aerial Application:** Apply recommended amount of DIMILIN 2L in sufficient water (3 to 5 gallons per acre) to achieve uniform coverage of foliage.

**Ground Application:** Apply recommended amount of DIMILIN 2L in 9 to 25 gallons of water per acre to give uniform coverage.

Do not make more than two applications per season. Do not apply within 21 days of harvest.

DIMILIN 2L inhibits the molting process of larvae, therefore it does not provide immediate kill. From 5 to 7 days may be required before populations are reduced.

**ADJUVANT USAGE:** See Cotton Section.

**SOYBEAN YIELD ENHANCEMENT:** In the absence of significant insect pressure and under certain growing conditions, an increase in soybean seed yield has been demonstrated with DIMILIN under field conditions on both determinate and indeterminate cultivars. Application of 0.031 to 0.062 lb. a.i. per acre (2 to 4 fl. oz. DIMILIN 2L per acre) to high yield potential soybean plants at the R3 to R3.5 growth stage period has been more consistent in increasing yields than applications at other reproductive stages of the soybean plant. This reproductive period represents beginning pod growth (pod  $\frac{3}{8}$  inch long at one of the four uppermost nodes on the main stem with a fully developed leaf) to just prior to full pod elongation (pod  $\frac{1}{2}$  inch long at one of the four uppermost nodes on the main stem with a fully developed leaf).

See on soybeans not registered by the California Department of Pesticide Regulation.

## COTTON

**USE RESTRICTIONS FOR COTTON:** Do not exceed 6 applications per season and do not exceed 24 fl. oz. DIMILIN 2L per season. Do not exceed 3 applications and 12 fl. oz. DIMILIN 2L post boll opening. Do not apply closer than 14 days before harvest.

### BEET ARMYWORM:

**EARLY SEASON (before first bloom):** For early infestations on young cotton, DIMILIN 2L should be applied at the first sign of beet armyworm activity (2 egg masses or hatch outs/100 feet of row) with 2 to 4 fl. oz. per acre in multiple applications, either as directed or broadcast spray. Use on a 5 to 7 day interval until up to 8 fl. oz. per acre have been applied. Do not exceed 6 applications per season and do not exceed 24 fl. oz. DIMILIN 2L per season. Multiple applications of DIMILIN 2L will provide acceptable beet armyworm control and because it has little activity on beneficial insects (parasites and predators) and has good persistence, will help prevent populations of beet armyworm from building up later in the growing season. Use of DIMILIN 2L in this way allows for more complete coverage of new foliage during the period of rapid vegetative growth.

**MID SEASON:** Starting around first bloom and through mid-bloom, apply 4 to 8 fl. oz. of DIMILIN 2L per acre. Repeat application until up to 8 fl. oz. per acre have been applied, using a 5 to 7 day interval between applications. The higher application rate should be used on larger cotton and/or under conditions of greater larval pressure. Do not exceed 6 applications per season and do not exceed 24 fl. oz. DIMILIN 2L per season. First application should coincide with peak beet armyworm moth catches in pheromone traps, indicating another generation of larvae is imminent. DIMILIN is more effective on early stages of larval development, therefore cotton leaves should be treated before populations become established.

**LATE SEASON:** After mid-bloom and prior to 14 days before harvest, apply 6 to 8 fl. oz. of DIMILIN 2L per acre. The higher application rate should be used on more advanced cotton or under conditions of greater larval pressure. Do not exceed 6 applications per season and do not exceed 24 fl. oz. DIMILIN 2L per season. Do not exceed 3 applications and 12 fl. oz. DIMILIN 2L post boll opening. Application should coincide with peak beet armyworm moth catches in pheromone traps. Additional applications of 6 to 8 fl. oz. per acre may be needed if larval pressure continues.

**Adjuvant Usage:** Always use oil (1 to 2 quarts) with DIMILIN 2L if conditions are favorable for water evaporation (e.g. high air temperature and/or low humidity). For ground or aerial LV application, 1 pint to 2 quarts of emulsified vegetable or paraffinic crop oil is recommended to enhance canopy penetration and to reduce spray droplet evaporation and subsequent drift. For ULV application, use DIMILIN 2L in a minimum of 20 oz. of emulsified cottonseed, vegetable or petroleum based oil carrier. A compatibility agent may be needed if non-emulsified cottonseed oil is used. Consult your supplier or Crompton representative for oil specifications.

**Aerial Application:** Apply in 3 to 5 gallons total volume per acre. For ULV application, use a total volume of 20 to 48 oz. per acre. (See preceding sections on mixing directions and on use of adjuvants).

**Ground Application:** Apply in 10 to 20 gallons of total volume per acre to give uniform coverage. For ULV application, use a total volume of 20 to 64 oz. per acre (See preceding sections on mixing directions and on use of adjuvants).

Use sufficient application volume to assure adequate coverage. DIMILIN 2L may be mixed with other insecticides being applied for other cotton insects. When emulsifiable concentrate insecticide formulations are used with oil and DIMILIN in tank mixes, they may result in phytotoxicity. Care should be taken where such mixture is used. Because of the unique mode of action of DIMILIN, its visible effects may not be seen for 5 to 7 days following application.

**FALL ARMYWORM, YELLOWSTRIPED ARMYWORM, SOUTHERN ARMYWORM, SOYBEAN LOOPER, CABBAGE LOOPER AND SALTMARSH CATERPILLAR:** For larvae of fall armyworm, yellowstriped armyworm and southern armyworm, and larval suppression of soybean looper, cabbage looper and saltmarsh caterpillar, apply 4 to 8 fl. oz. of DIMILIN 2L per acre. Application should be made during early stages of larval development. Repeat application until at least 8 fl. oz. per acre have been applied using a 5 to 7 day interval. See **BEET ARMYWORM** for recommendations on adjuvants, and application by air or ground See **BEET ARMYWORM** for use restrictions.

### BOLL WEEVIL:

**EARLY SEASON (before first bloom):** DIMILIN 2L will control boll weevil by suppressing reproduction. Apply 4 to 8 fl. oz. of DIMILIN 2L per acre in combination with 2 to 4 quarts of emulsified cottonseed oil, vegetable oil, or paraffinic crop oil. For ULV application, use 4 fl. oz. of DIMILIN 2L in a minimum of 8 fl. oz. of emulsified cottonseed oil, oil based insecticide, or vegetable or petroleum based oil carrier. A compatibility agent may be needed if a non-emulsified cottonseed oil is used. Consult your supplier or Crompton representative for oil

specifications.

For best suppression of boll weevil reproduction, make first application at pinhead square stage of cotton growth when overwintering boll weevils are entering the fields. Repeat treatments should allow a minimum of 7 days between application.

**LATE SEASON:** DIMILIN 2L will reduce the numbers of weevils that emerge in the following spring if applications are made when adult weevils are going into diapause to overwinter. Apply when cotton plant has reached full vegetative growth or when it begins blooming out the top. For ground or aerial LV application, spray 2 to 4 fl. oz. of DIMILIN 2L per acre in combination with 2 to 4 quarts of an emulsifiable vegetable or paraffinic oil per acre. For ULV application, use 2 to 4 fl. oz. DIMILIN 2L in a minimum of 8 oz. of emulsified cottonseed oil, oil based insecticide, or vegetable or petroleum based oil carriers. A compatibility agent may be needed if a non-emulsified cottonseed oil is used. At least 2, but not more than 3, applications at 7 to 14 day intervals should be made.

DIMILIN 2L does not kill the adult boll weevils, however, eggs deposited by affected female weevils will not hatch, thus limiting reproduction. The control of egg hatch and larval development within the square prevents its shedding and will then allow normal boll development. After initial treatment of the female weevil, 7 to 10 days are required before non-hatching eggs are laid; however, once affected, non-hatching eggs will be laid for approximately 10 days, and longer if the female encounters more DIMILIN. Thus treat early and use multiple applications.

When DIMILIN 2L is used alone for boll weevil control, it allows normal build-up of beneficial insects which may aid in control of bollworm and budworm. Emulsifiable concentrate insecticide formulations used in tank mixes, in the presence of oil, may result in phytotoxicity. Care should be taken where such mixture is used.

**GRASSHOPPERS**

For optimum results, apply 2 fl. oz. of DIMILIN 2L per acre when the majority of infesting grasshoppers have reached the 2nd to 3rd instar nymphal stage of development. DIMILIN is not effective in controlling grasshoppers once they reach the adult stage. Since DIMILIN is an insect growth regulator, grasshoppers must feed on DIMILIN and then molt before populations are reduced. Thus initial signs of control may not be seen until several days after treatment. If a large influx from neighboring fields should occur, the time to reduce that population may not be short enough to minimize extensive foliage feeding. A tank mix with a knockdown insecticide is recommended under these conditions.

**Aerial application:** Apply in 3 to 5 gallons total volume per acre. For ULV application, use total volume of 20 to 32 fl. oz. per acre. (See section on use of adjuvants above).

**Ground application:** Apply in 10 to 20 gallons of total volume per acre to give uniform coverage. For ULV application, use total volume of 20 to 64 fl. oz. per acre. (See section on use of adjuvants above).

**RICE**

**USE RESTRICTIONS FOR RICE:**

- Do not apply within 80 days of harvest.
- Do not use on rice fields in which crayfish (crawfish) farming is included in the cultural practice.
- Do not drain treated water into fields where crayfish farming is intended.
- Do not apply to rice immediately adjacent to sites of crayfish aquaculture.
- Do not use treated rice flood waters for irrigating crops except for uses currently established for DIMILIN.
- Do not impregnate on granular materials.
- Do not use on wild rice (*Zizania* spp.).

**RICE WATER WEEVIL**

**Southern U.S. Rice Belt:**

**For Drill Seeded; Dry Seeded; or Water Seeded, Delayed Flood Rice,** make a single 12 to 16 fl. oz. application of DIMILIN 2L per acre per year to control larvae when adult infestations reach economic threshold and/or at initial oviposition, usually within a time frame of 2-5 days after permanent flood establishment. If adult weevil infestations are historically high and/or migration into the field is prolonged, use the higher application rate.

**For Water Seeded, Pinpoint Flood, or Continuous Flood Rice,** split applications should be made. Apply 8 fl. oz. after the permanent flood when adult infestations reach economic threshold and/or at initial oviposition, usually when rice leaves are exposed above the water surface. The second 8 fl. oz. treatment **must** be made 5-7 days after the first application. Failure to make the second 8 fl. oz. application within the above timeframe could result in inadequate control of rice water weevil larvae, especially if adult infestations are high and/or migration into the rice is prolonged.

**California:**

**To Control Larvae of Rice Water Weevil,** apply 8 to 16 fl. oz. DIMILIN 2L per acre per year at initiation of oviposition by adults. During a typical year this coincides with 2 to 8 days after rice emergence above the water. For best results target the application for 2 to 5 days after rice emergence above the water (2 to 4 leaf stage). Use 12 to 16 fl. oz. DIMILIN 2L if infestations have been historically high.

**All States:**

Consult your local extension service for determination of economic threshold and/or determination of initiation of oviposition.

DIMILIN does not appear to control adult weevils. It controls rice water weevil by preventing larval emergence from the egg. Eggs laid under the surface of treated water are controlled. Additionally, adults feeding on treated plant surfaces do not lay viable eggs.

Apply DIMILIN 2L by air using at least 5 gallons total volume per acre.

Do not apply DIMILIN 2L if flooding is in progress. Activity will be reduced. Since DIMILIN 2L is water active, the entire field should be treated.

For maximum activity of DIMILIN 2L do not disturb flood after a single application for at least 7 days. With split applications in water seeded, pinpoint flood, or continuous flood rice, flood should not be disturbed for a minimum of 4 days following the first treatment and 7 days following the second application. Treated water should be held at least 14 days to allow for dissipation of DIMILIN 2L.

DIMILIN 2L is not phytotoxic to rice. DIMILIN 2L can be safely applied in combination with post permanent flood herbicides such as FACET®, GRANDSTAND® and LONDAX®. However, before using a tank mix combination, read each product label carefully and follow Precautionary Statements on each label.

\*Facet is a registered trademark of BASF AG; \*Grandstand is a registered trademark of Dow AgroSciences; \*Londax is a registered trademark of E.I. DuPont de Nemours and Company.

**PEARS**

**GENERAL INFORMATION:** Under normal agricultural practices, DIMILIN 2L does not interfere with the activity of beneficial insects, except with the potential loss of their food source. Also, DIMILIN is considered non-toxic to adult honey bees.

**PEAR RESTRICTIONS:** Do not apply more than 4 application of DIMILIN 2L per year. Do not apply more than 64 fl. oz. per acre of DIMILIN 2L per year. Do not apply closer than 14 days prior to harvest. Do not use oil in tank mix with DIMILIN 2L in late season treatments (third and fourth applications).

**PEAR PSYLLA (pre-bloom):** Apply 40 to 48 fl. oz. per acre of DIMILIN 2L in 80 to 400 gallons of water per acre during the delayed dormant to the popcorn stage period. Complete uniform coverage of the tree is essential to achieve optimum control. A horticultural mineral oil should be used

with DIMILIN 2L at the rate of 4 to 6 gallons per acre during the delayed dormant period. After the delayed dormant period and through the popcorn stage, apply oil at a concentration of 0.25%, but use no more than 1 gallon per acre. A surfactant may be used to improve coverage. Follow manufacturer's label recommendations. DIMILIN 2L should be applied during egg deposition so that it will come in contact with pear psylla eggs and/or 1<sup>st</sup> and 2<sup>nd</sup> instar nymphs.

**PEAR RUST MITE (pre-bloom):** Apply DIMILIN 2L at the rate of 40 to 48 fl. oz. per acre in 80 to 400 gallons of water per acre from delayed dormant to the popcorn stage. See pear psylla section above for the use of oil.

**PEAR PSYLLA SUPPRESSION (post-bloom):** Applications of DIMILIN 2L at normal codling moth rates and timings will provide suppression of pear psylla.

**DIMILIN 2L COMBINATION WITH SUMMER OIL:** DIMILIN 2L may be applied with a light summer oil, using a concentration of 0.25 to 1% oil, but use no more than 1 gallon per acre. Oil may cause injury to certain pear varieties. Check compatibility of oil mixtures with your local tree fruit specialist.

**CODLING MOTH CONTROL:** Apply DIMILIN 2L at the rate of 12 to 16 fl. oz. per acre in a minimum of 80 gallons of water per acre. Use the lower rate where there is light codling moth pressure and/or on small trees. Complete coverage of the fruit and foliage in all areas of the tree is essential for optimum control.

**Time of Application:** Timing is extremely important because DIMILIN 2L controls codling moth by killing the eggs. It must be applied prior to egg laying so that eggs are laid on treated plant parts.

**First Application** should be made as soon as possible after first moths are caught (biofix) or observed, or about 50-75 degree-days after biofix. This timing can be determined by your local pest control consultant and/or fruit specialist with the aid of pheromone traps. Normally this timing occurs at late petal fall or about 10-14 days earlier than the timing used for organophosphate insecticides.

**Second Application** should be made about 14-18 days after the first.

**Third and Fourth Application**, if necessary, should be timed prior to egg laying of the 2<sup>nd</sup> generation by using the same method as for the first generation. If traps are not used, make the third application 21-30 days after the second, followed by the fourth application 21-30 days later. The last application can be no closer than 14 days prior to harvest. If a degree-day model is used the third spray should be timed at 1000 degree-days after biofix.

**COMBINATION WITH ORGANOPHOSPHATES FOR CODLING MOTH CONTROL:** DIMILIN 2L can be used in combination with an organophosphate insecticide, to save a trip through the orchard and to make timing of DIMILIN 2L sprays easier. The combination is more effective than DIMILIN 2L alone when controlling moderate to heavy codling moth infestations and/or treating large trees. The combination will provide residual control of eggs laid after application.

**Rate:** Apply DIMILIN 2L and the organophosphate at their labeled rates.

**Time of Application:** Apply at the beginning of egg hatch of first generation codling moth. This is the normal timing for the first organophosphate cover spray (250 degree-days following biofix for first generation and 1250 degree-days for the second generation).

This program can be repeated for the 2<sup>nd</sup> or 3<sup>rd</sup> generation of codling moth or use DIMILIN 2L alone prior to egg laying. Do not use oil in tank mix with DIMILIN 2L in late season treatments.

With light codling moth populations, as indicated by monitoring, this combination may offer control of an entire generation with 1 application. When populations are heavy, this combination will improve control, but it may not control an entire generation with one spray. A second spray

of DIMILIN 2L alone or in combination may be applied 14-18 days later.

**LEAFMINER CONTROL:** Apply DIMILIN 2L at the rate of 8 to 16 fl. oz. per acre in a minimum of 80 gallons of water just prior or during egg laying to control eggs and larvae. Timing for control of the first or second generation can be determined by your local pest control consultant or fruit specialist. Should later generations of leafminers occur, DIMILIN 2L should be applied in the same manner.

It is desirable to have DIMILIN 2L in place at the time of egg laying. It will continue to give control through the early sap feeding stage. Complete coverage of the foliage is essential to achieve control of the larvae through the early sap feeding stage.

**ALMOND, BEECH NUT, BRAZIL NUT, BUTTERNUT, CASHEW, CHESTNUT, CHINQUAPIN, FILBERT (HAZELNUT), HICKORY NUT, MACADAMIA NUT (BUSH NUT), PECAN, WALNUT (BLACK AND ENGLISH), PISTACHIOS**

**RESTRICTIONS FOR TREE NUTS GROUP:** Do not apply within 28 days of harvest. Do not exceed 4 (3 for walnuts) applications nor 1 lb. ai per acre (64 fl. oz. per acre) per growing season. Use of oil is not permitted except for the initial dormant stage application.

**Ground Application:** Apply in sufficient water for thorough coverage, using at least 50 gallons per acre for small trees ( $\leq 10$  feet tall) and at least 100 to 300 gallons per acre for larger trees. Using insufficient water for thorough coverage and/or using an uneven spray pattern across the canopy will likely result in less than desired efficacy. If four applications are used, application timing should correspond to dormant to pre-bud swell, at bloom to petal fall, at flowers/leaves/immature nut fruit formation and at hull split.

**PEACH TWIG BORER:**

**DORMANT/DELAYED DORMANT:** Apply DIMILIN 2L at the rate of 12 to 16 fl. oz. per acre with 4 to 8 gallons per acre (1.5 to 2.0 gallons per 100 gallons in a dilute spray) narrow range oil. Always use the higher rate of DIMILIN in the rate range if the crop has a history of heavy infestations.

**BLOOM:** Apply DIMILIN 2L at the rate of 12 to 16 fl. oz. per acre starting at early bloom. Always use the higher rate of DIMILIN in the rate range if the crop has a history of infestations.

**SPRING FLIGHT: ("May Spray"):** Using pheromone traps to determine flight activity, apply DIMILIN 2L at the rate of 16 fl. oz. per acre at initial flight activity.

**SUMMER FLIGHT:** Using pheromone traps to determine flight activity, apply DIMILIN 2L at the rate of 16 fl. oz. per acre at initial flight activity.

**PECAN NUT CASEBEARER:** For each generation apply DIMILIN 2L at the rate of 8 to 16 fl. oz. per acre. Note for the first generation this is approximately 8 to 15 days following the first prolonged moth catch (biofix which is defined as the date on which the total of 5 moths are captured in 3 pheromone traps within a 7-day period). States may have a different recommendation for initiation of spraying; please consult authorities such as county and university extension specialists on current recommendations. Use the higher rate for longer residual control, higher pest infestations, low crop load, larger trees or heavy, dense foliage.

**HICKORY SHUCKWORM:** Apply DIMILIN 2L at the rate of 8 to 16 fl. oz. per acre starting at half-shell hardening. Make subsequent applications at 21-day intervals to shuck split, or while nuts are susceptible to hickory shuckworm under heavy infestations. Use the higher rate under higher pest infestations, low crop load, larger trees or heavy, dense foliage.

**PECAN WEEVIL:** For suppression of pecan weevils, apply DIMILIN 2L at the rate of 8 to 16 fl. oz. per acre. Use the higher rate if weevils are attacking fruit and for higher infestations.

**FILBERT WORM:** Apply 12 to 16 fl. oz. DIMILIN 2L per acre. The lower rate may be used where filbert worm pressure is low and/ or the trees

are small. The higher rate is necessary when worm pressure is moderate to high and/or the trees are large.

DIMILIN 2L should be applied within 2 to 3 days after the 1st moth is caught in pheromone detection traps. Mating takes place within several days of emergence and egg laying begins the next day. DIMILIN 2L must be applied prior to egg deposition on the treated foliage. Good uniform coverage of the tree is essential to achieve optimum control of filbertworm with DIMILIN 2L. Normally DIMILIN 2L will give season long control. If moth pressure remains high, additional applications should be made.

**CODLING MOTH:** Apply 16 fl. oz. DIMILIN 2L per acre. DIMILIN is most effective when applied prior to egg laying. DIMILIN 2L must be present on the surface upon which eggs are laid; therefore, full coverage spray is necessary. First application should be made when moth flights begin or when moths are found in pheromone traps. The second application should be made approximately 21 days after the first application. For control of the second brood, application should be timed prior to egg laying, similar to first brood.

Because of fluctuations in temperature, the emergence and moth flights of the over-wintering population may be extended over a long period of time. Under such circumstances, DIMILIN 2L should be tank mixed with an Organophosphate (OP) insecticide at its lowest label rate. This tank mix should be applied at the normal first OP timing. Later in the season, if egg laying has already occurred before application of DIMILIN 2L, it is recommended that DIMILIN 2L be tank mixed with an OP as previously described.

**FALL WEBWORM, WALNUT CATERPILLAR, REDHUMPED CATERPILLAR, OBLIQUE BANDED LEAFROLLER, OMNIVEROUS LEAFIER, OMNIVEROUS LEAFROLLER, VARIGATED LEAFROLLER, WINTER MOTH, ORIENTAL FRUIT MOTH:** Apply DIMILIN 2L at the rate of 8 to 16 fl. oz. per acre at the first sign of larval infestation. Use the higher rate for longer residual control, higher pest infestations, low crop load, larger trees or heavy, dense foliage.

**STONEFRUIT (EXCLUDING CHERRIES)**

**STONE FRUIT RESTRICTIONS:** Do not apply after petal fall. Do not exceed 2 applications nor 0.50 lb. ai (32 fl. oz.) per acre in any given season. Allow at least 21 days between any 2 applications.

**Ground Application:** Apply in sufficient water for thorough coverage, using at least 50 gallons per acre for small trees (≤ 10 feet tall) and at least 100 gallons per acre for larger trees. Using insufficient water for thorough coverage and/or using an uneven spray pattern across the canopy will likely result in less than desired efficacy.

**PEACH TWIG BORER:**

**DORMANT/DELAYED DORMANT:** Apply DIMILIN 2L at the rate of 12 to 16 fl. oz. per acre with 4 to 6 gallons per acre (1.5 to 2.0 gallons per 100 gallons in a dilute spray) narrow range oil. Always use the higher rate in the rate range if the crop has a history of heavy infestations.

**BLOOM:** Apply DIMILIN 2L at the rate of 12 to 16 fl. oz. per acre starting at early bloom. Include vegetable oil at the rate of 1 qt. per acre. Always use the higher rate in the rate range if the crop has a history of heavy infestations.

**FALL WEBWORM, WALNUT CATERPILLAR, REDHUMPED CATERPILLAR, OBLIQUE BANDED LEAFROLLER, FILBERT LEAFROLLER, WINTER MOTH, OMNIVEROUS LEAFIER, OMNIVEROUS LEAFROLLER, VARIGATED LEAFROLLER, ORIENTAL FRUIT MOTH:** Apply DIMILIN 2L at the rate of 8 to 16 fl. oz. per acre at the first sign of larval infestation. Use the higher rate for longer residual control, higher pest infestations, low crop load, larger trees or heavy, dense foliage.

**GRASSLAND AND NON-CROP AREAS**

**GRASSLAND AND NON-CROP AREA USE RESTRICTIONS:**

Do not exceed a total of 2.0 fl. oz. DIMILIN 2L per acre per year.

Do not make more than 2 applications of DIMILIN 2L per year.

This pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

Allow at least 1 day after treatment before cutting grass.

**GRASSHOPPERS / MORMON CRICKETS:** DIMILIN 2L will control grasshopper/Mormon cricket infestations in rangeland, pastures, improved pastures and similar areas used for production of native, domesticated forage plants for harvest for livestock primarily for grazing or mechanical harvest. Higher rates and gallonages are suggested for areas with dense vegetation, when nymphs are beyond the 3rd instar stage, and when climatic conditions are favorable for grasshopper/Mormon cricket survival and increase.

APPLICATION RATES AND RECOMMENDATIONS			
Insect	No. of Applications	Rate per Acre	Timing
Grasshoppers and Mormon crickets	1	1.0 to 2.0 fl. oz.	Early instar (majority in the 2nd to 3rd instar nymphal stages); use high rate for pastureland.
	1	0.75 to 1.0 fl. oz.	Early instars: see RAATS* section; rangeland only
	2	0.5 to 1.0 fl. oz.	If a second application is made, typically apply 2 to 3 weeks after the first application.

**AERIAL APPLICATION:** Apply in 1 to 5 gallons of water per acre and include 1 pt. to 2 qts. of emulsified vegetable or paraffinic crop oil if conditions are favorable for water evaporation (e.g. high air temperature and/or low humidity). For ULV application, use a total volume of at least 12 to 32 fl. oz. per acre and use at least 4 fl. oz. of emulsified vegetable or paraffinic crop oil per acre. Use at least 2 parts of water for each part of oil. For low volume and ULV applications, make sure the boom is filled with spray mixture containing the correct concentration of DIMILIN 2L before the first application begins.

**GROUND APPLICATION:** Apply in 5 to 20 gallons of water per acre. Include 1 pt. to 2 qts. of emulsified vegetable or paraffinic crop oil if conditions are favorable for water evaporation.

**TIMING OF APPLICATION:** Applications may be made anytime after eggs begin to hatch. For optimum results, applications should be made when the majority of the nymphs have reached the 2nd to 3rd instar stage of development. DIMILIN 2L remains active on the foliage and will continue to control grasshoppers/Mormon crickets that hatch later in the season. DIMILIN 2L is not effective in controlling grasshoppers/Mormon crickets once they have reached the adult stage. Since it is an insect growth regulator, effects of DIMILIN 2L may not be seen until 3 to 10 days after treatment. If adults from early hatching species are present, tank-mix DIMILIN 2L with a registered adulticide to control later hatching species. Check mixing compatibility and sprayability prior to transferring to the main spray tank.

**\*REDUCED AREA AND AGENT TREATMENTS (RAATS):** A RAATS application is an IPM strategy that takes advantage of grasshopper movement and conservation biological control to allow DIMILIN 2L to be applied on rangeland on a reduced treated area and at reduced rates, while sustaining acceptable grasshopper/Mormon cricket control. RAATS may provide ranchers with an economic means to reduce grasshopper

competition on their rangeland, depending on insect age and plant canopy. Using this program Dimilin 2L may be applied on as little as 50% of the infested acreage (e.g. skipping a 100 ft. swath for every 100 ft. treated), up to 100% infested acreage. Apply 0.75 to 1 fl. oz. Dimilin 2L per treated acre. The rate to use per acre and amount of area treated will depend on grasshopper/Mormon cricket age, plant canopy and topography. Skip up to 50% of the infested area and use the lower rate under uniform topography with early instar ages and sparse vegetation. If the majority of the population is late instars, vegetation is dense, terrain is considered rough, and conditions are hot during treatment, then the coverage and rate of Dimilin 2L should be increased up to a blanket (100%) coverage with 1 fl. oz. per acre. Refer to application methods and oil requirement conditions in Aerial Applications section above.

**NON-CROP AREAS**

[Field border, fence rows, roadsides, farmsteads, ditchbanks, wasteland, Conservation Reserve Program (CRP) land]

**GRASSHOPPERS/MORMON CRICKETS:** Apply 2.0 fl. oz. DIMILIN 2L per acre to manage grasshoppers/Mormon crickets in their breeding areas before they move into cropland. See GRASSLAND section for timing of application.

**AERIAL APPLICATION:** Apply in 1 to 5 gallons of water per acre (Note oil requirement condition above).

**GROUND APPLICATION:** Apply in 5 to 30 gallons of water per acre. (Note oil requirement condition above).

**MODE OF ACTION:** DIMILIN affects the formation and/or deposition of chitin in the insect's exoskeleton (cuticle, exuvia). Chitin is a polysaccharide occurring mainly in the exoskeleton. When a larva/nymph is exposed to DIMILIN, the exoskeleton at molting is weakened and the larva/nymph is unable to successfully molt. If an adult female grasshopper consumes DIMILIN, the eggs she lays may not hatch (transovarial activity). Besides a fatal incomplete molting, grasshoppers may exhibit missing posterior legs, hernias, abdominal segments malformed, twisted antennae, hemolymph exudation, and wrinkled wings. Additionally, they may move slower, have limited jumps and unsteady landings, show a reduction in feeding, have atrophy of posterior legs or be unable to fly. Any nymph/adult possessing these symptoms is likely more susceptible to predatory insects. DIMILIN has been shown not to impact adult populations of various ground dwelling and flying non-target arthropods in a rangeland ecosystem.

**IMPORTANT NOTICE**—Seller warrants that this product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with the directions and instructions specified on the label under normal conditions of use, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product, contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to seller, and buyer assumes the risk of any such use.

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