SPECIMEN LABEL

Agri Star®

CRESCENDO™

Active Ingredient:	
Chromobacterium subtsugae strain PRAA4-1^{T} and spent fermentation media* . . .	30.0%
Other Ingredients:	70.0%
Total:	100.0%

*Contains not less than 1,000 Cabbage Looper Killing Units (CLKU)/mg. Note: The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

EPA Reg. No.: 84059-27-42750 **EPA Est. No.: 84059-MI-001**

KEEP OUT OF REACH OF CHILDREN

CAUTION

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.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or when going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.

See inside booklet for ADDITIONAL PRECAUTIONARY statements.

(CRESCENDO™ is a trademark of Albaugh, LLC.)

Manufactured For:
ALBAUGH, LLC
1525 NE 36th Street
Ankeny, Iowa 50021

Albaugh®
Your Alternative™

AD051716

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Protective eyewear
- A NIOSH-approved particulate respirator with any R or P filter with NIOSH approval number prefix TC-84A; or a NIOSH-approved powered air purifying respirator with an HE filter with NIOSH approval number prefix TC-21C. (Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.)

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

Engineering Controls: When handlers use closed systems or enclosed cabs 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.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE 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 product is toxic to aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

This product is toxic to certain nontarget terrestrial arthropods. Minimize spray drift away from target area to reduce effects to nontarget insects.

This product is toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product if bees are visiting the treatment area.

For terrestrial uses: 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 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 State or Tribal 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
- Protective eyewear

EXCEPTION: If the product is soil incorporated or soil injected, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are **not** within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Keep unprotected persons out of treated areas until sprays have dried.

PRODUCT INFORMATION

CRESCENDO is a biological insecticide/miticide containing cells of *Chromobacterium subtsugae* strain PRAA4-1^{T} and spent fermentation media, for use on ornamental plants and turf against the pests listed in the **APPLICATION RATES FOR SELECTED CROPS** section. CRESCENDO functions primarily as a stomach poison for use in the control or suppression of many foliar-feeding pests, including caterpillars, and certain coleoptera. CRESCENDO has multiple effects, including reducing fecundity and oviposition, deterring feeding and acting as a stomach poison on Homoptera and Hemiptera, such as aphids, psyllids, whiteflies, *Lygus* and mealybugs, and on thrips and phytophagous mites infesting labeled crops or use sites. CRESCENDO must be mixed with water.

GROUND APPLICATIONS

Apply CRESCENDO in ground equipment with quantities of water sufficient to provide thorough coverage of infested plant parts. The amount of water needed per acre will depend upon crop development, weather, application equipment, and local experience.

For hand-held or backpack sprayer applicators, mix CRESCENDO at the rate of 1-3 tablespoons per 1 gallon of water to approximate 1-3 pounds of CRESCENDO per 100 gallons of water.

Do not spray when wind speed favors drift beyond the area intended for use.

Avoiding spray drift is the responsibility of the applicator.

Mixing directions

Important - Do not add CRESCENDO to the tank mix before introducing 3/4 of the desired amount of water. Add water to the mix tank. Start the mechanical or hydraulic agitation to provide moderate circulation before adding CRESCENDO. Add the desired volume of CRESCENDO to the mix tank and continue circulation while adding the remainder of the water. Maintain circulation while loading and spraying. Do not mix more CRESCENDO than is needed for immediate use. Do not let the spray mixture stand overnight in the spray tank. Use a strainer no finer than 50 mesh in conventional spray systems.

Spray volume

For conventional ground applications, use at least 10 gallons of total volume per acre in water-based sprays.

Tank mixing

Do not combine CRESCENDO in the spray tank with other pesticides, surfactants, adjuvants, or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective, and non-injurious under your use conditions. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

To ensure compatibility of tank mix combinations, they must be evaluated prior to use. To determine the physical compatibility of this product with other products, use a jar test. Using a quart jar, add the proportionate amounts of the products to one quart of water with agitation. Add dry formulations first, then flowables, and then emulsifiable concentrates last. After thoroughly mixing, let this mixture stand for 5 minutes. If the combination remains mixed or can be readily remixed, it is physically compatible. Once compatibility has been proven, use the same procedure for adding required ingredients to the spray tank.

CHEMIGATION USE DIRECTIONS

Spray preparation

First, prepare a suspension of CRESCENDO in a mix tank. Fill tank to ¾ of the amount of water for the area to be treated. Start mechanical or hydraulic agitation. Add the required amount of CRESCENDO, and then the remaining volume of water. Then, set the system to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start system and uniformly inject the suspension of CRESCENDO into the irrigation water line so as to deliver the desired rate of CRESCENDO per acre. Inject the suspension of CRESCENDO with a positive displacement pump into the main line ahead of a right angle turn to ensure adequate mixing. CRESCENDO is to be metered continuously for the duration of the water application.

Do not combine CRESCENDO with other pesticides, surfactants, adjuvants, or fertilizers for application through chemigation equipment unless prior experience has shown the combination to be physically compatible, effective and non-injurious under your conditions of use.

General Requirements -

1) Apply this product only through sprinkler, including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.
2) Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
3) If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
4) Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
5) A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Specific Requirements for Chemigation Systems Connected to Public Water Systems -

1) Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
2) Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
3) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4) The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
5) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7) Do not apply when wind speed favors drift beyond the area intended for treatment.

Specific Requirements for Sprinkler Chemigation -

1) The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5) The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7) Do not apply when wind speed favors drift beyond the area intended for treatment.

Specific Requirements for Drip (Trickle) Chemigation -

1) The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5) The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Application Instructions for All Types of Chemigation -

1) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues, may cause product to lose effectiveness or strength.
2) Determine the treatment rates as indicated in the directions for use and make proper dilutions.
3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required. Utilize agitation to keep solution in suspension.

Application Instructions for Drip Chemigation -

1) Check to be sure that the system provides a uniform waterflow.
2) Irrigate crop with sufficient water to wet the root zone. Then, begin flow of the solution containing product solution from the chemical tank for a period to uniformly distribute the material. Discontinue flow of the CRESCENDO mixture and let the system continue to run only as necessary to purge the line with fresh water. Let the CRESCENDO solution remain in the root zone of the crop.

SOIL TREATMENT USE DIRECTIONS

CRESCENDO can be applied by soil drench, or soil injection to protect against certain soil-dwelling insects.

In general, CRESCENDO can be applied by the following methods, unless specified differently in the **APPLICATION RATES FOR SELECTED CROPS** section:

Soil Drench Applications: Apply CRESCENDO at a concentration of 2-6 pounds per 100 to 150 gallons of water per acre, and at a sufficient rate to thoroughly soak the growing media and root zone. Multiple drench applications can be made on a 10- to 14-day interval for insect control treatments.

Shanked-In and Injected Applications: CRESCENDO, at a concentration of 2-6 pounds per 100 to 150 gallons of water per acre, can be shanked-in or injected into the soil alone, or with most types of liquid nutrients.

USE INSTRUCTIONS

CRESCENDO is a biological insecticide/miticide/nematicide for use against listed insects and mites. Close scouting and early attention to infestations is highly recommended. For insects and mites, proper timing of application targeting new populations or recently hatched larvae and nymphs is important for optimal results. Applying CRESCENDO when pest populations are low is recommended.

For insects and mites, thorough coverage of infested plant parts is necessary for effective control or suppression. CRESCENDO does not have systemic activity. For some crops, directed drop nozzles by ground machine are required.

Under heavy pest populations, apply a knockdown insecticide prior to or in a tank mix with CRESCENDO, use the higher label rates, shorten the spray interval, and/or increase the spray volume to improve coverage.

Repeat applications at an interval sufficient to maintain control or suppression, depending upon plant growth rate, insect and mite activity, and other factors. If attempting to control or suppress an insect population with a single application, make the treatment when egg hatch is essentially complete but when larvae or nymphs are young and before economic damage occurs.

To enhance insect population management, consider tank mixing with contact insecticides/miticides. Use the lower label rates of CRESCENDO when populations are low and when tank mixing with other insecticides/miticides. Use the higher rates of CRESCENDO when applied stand-alone, when populations are high or when egg numbers are high.

For hard-to-wet crops, consider using a spreader/sticker or adjuvant, which has been approved for use on the targeted crops, to enhance coverage and adhesion of CRESCENDO to the crop.

CRESCENDO has been evaluated for phytotoxicity on a variety of crops under various normal growing conditions. However, testing all crop varieties, in all mixtures and combinations, is not feasible. Prior to treating an entire crop, test a small portion of the crop for sensitivity.

GENERAL SPRAY CONSIDERATIONS

CRESCENDO performs best under certain conditions. To preserve product spray characteristics and overall efficacy, consider the following spray parameters:

Tank-Mixing
CRESCENDO does not have ovicidal activity. When significant insect or mite population or eggs are present, consider tank mixing with a complementary ovicidal/contact insecticide.

pH
To maintain product properties, the pH of the mixed spray solution should be between 6-8, with the most desirable level being neutral.

Water Hardness
If you know or suspect you have hard water, add ammonium sulfate (AMS) at levels of 1-2% (w/w) or 8.5 to 17 pounds per 100 gallons of water to help maintain efficacy. Add AMS together with CRESCENDO or add it to the water and thoroughly dissolve before adding CRESCENDO. Conduct a spray test to determine if your crop/variety is compatible with these AMS levels before adding CRESCENDO to the tank for spraying. For organic production, use an approved water conditioner to address suspected hard water.

Adjuvants/Carrier Volume
Avoid carrier volumes and/or adjuvants alone or in combinations that result in spray runoff or a drip accumulation.

Some adjuvants have been shown to increase or decrease the effectiveness of CRESCENDO. Use of a quality adjuvant or crop oil is highly recommended.

APPLICATION RATES FOR SELECTED CROPS

For greenhouse applications on the crops and pests listed, use 1-3 pounds of CRESCENDO in 100 gallons of water sprayed until just before the point of runoff.

See specific application rates for each crop for additional details on greenhouse applications and for all other application types.

FOR USE ON THE FOLLOWING CROPS FOR CONTROL OR SUPPRESSION OF SPECIFIED INSECTS AND MITES:

Herbaceous Ornamentals

Folliar applications, 2 – 3 pounds CRESCENDO per acre or 2 – 3 pounds CRESCENDO per 100 gallons of water.

Armyworms, Azalea caterpillar, Bagworm, Cankerworms, Codling moth, Diamondback moth, Ello moth, Fall webworm, Lo moth, Loopers, Obliquebanded leafroller, Oleander moth, Omnivorous leafroller, Omnivorous looper, Peach twig borer, Pecan nut case bearer, Pine tip moth, Redhumped caterpillar, Tobacco budworm, and Webworms.

Apply in sufficient water to provide complete coverage but not excessive to the point of run-off.

Woody Ornamentals

Broadleaves, Shrubs, and Tree Conifers, Citrus, Fruit Trees, Nut Trees, Pome Fruit Trees, and Stone Fruit Trees

Foliar applications, 2 – 3 pounds CRESCENDO per acre or 2 – 3 pounds CRESCENDO per 100 gallons of water

Blackheaded budworm, California oakworm, Douglas fir tussock moth, Elm spanworm, Flea beetle, Fruittree leafroller, Greenstriped mapleworm, Gypsy moth aphids, Hemlock looper, Jack pine budworm, *Lygus*, Mealybugs, Mimosa webworm, Mites, Pear psylla, Pine butterfly, Scales, Saddleback caterpillar, Saddle prominent caterpillar, Spruce budworm, Tent caterpillar, Thrips, Western tussock moth, and Whiteflies.

Apply in sufficient water to provide complete coverage but not excessive to the point of run-off.

Ornamental Grasses

Foliar, followed by irrigation, 2-4 pounds CRESCENDO per 1/5th acre,
or 10-20* pounds CRESCENDO per acre,
or 4 – 8 ounces CRESCENDO per 1,000 sq. ft.

Annual bluegrass billbug adults and larvae, European chafer, Green June beetle, *Aphodius* spp., May or June beetles (*Phyllophaga* spp.), Northern and Southern masked chafers (*Cyclocephala* spp.), Sugarcane grub (*Tomarus* spp.), and White grubs (such as larvae of Black turfgrass ataenius)

For control of white grubs and annual bluegrass weevils, use a minimum of 100 gallons of water per acre or 300 fluid ounces per 1,000 square feet.

Thoroughly irrigate to moisten the top inch of soil. There should be no more than ½ inch of thatch present at the time of application. Time applications to occur shortly after egg hatch when grubs are 1st or 2nd instar.

Under dry conditions where thatch is present, pre-watering is recommended prior to application for grub or weevil control.

*Please confirm your CRESCENDO package size to ensure it accommodates the specified application rate before applications.

TREE FARMS AND PLANTATIONS

Conifers, Including Christmas Trees and Deciduous Trees

1-3 pounds of CRESCENDO per acre or 1-3 pounds of CRESCENDO per 100 gallons of water

Bagworm, fall webworm, gypsy moth, hemlock looper, jack pine budworm, pine tip moth, redhumped caterpillar, spruce budworm, tent caterpillar, and tussock moths

2-3 pounds of CRESCENDO per acre or 2-3 pounds of CRESCENDO per 100 gallons of water

Flea beetle

European elm flea weevil – Target overwintering adults in May and June prior to and immediately after oviposition to prevent larvae from entering and leaf mining within foliage.

Cottonwood leaf beetle - Apply to newly hatched to 2nd instar larvae. If adult beetles are also present, tank mix with a knockdown insecticide. Heavy infestations may require repeat applications.

TURFGRASS

Bluegrass, Bentgrass, Bermudagrass, Dichondra, Fescue, Orchardgrass, *Poa annua,* Ryegrass,St. Augustine, Zoysia mixtures, and other grasses including grasses grown for seed

Ornamental Grasses

Foliar applications, 2 – 4 pounds CRESCENDO per acre (0.75 – 1.5 ounces per 1,000 sq. ft.)
Armyworms, Chinch bugs Cutworms, Leafhoppers, and Sod webworm.

Mix specified dosage of CRESCENDO in sufficient water to provide thorough coverage of turf.

For control of Armyworms, Chinch bugs, Cutworms, Leafhoppers, and Webworms, do not irrigate following application.

*Please confirm your CRESCENDO package size to ensure it accommodates the specified application rate before following.

Foliar followed by irrigation, 10 - 20* pounds CRESCENDO per acre (4 – 8 ounces per 1,000 sq. ft.)
White grubs (such as larvae of black turfgrass ataenius, European chafer, green June beetle, *Aphodius* spp., May or June beetles (*Phyllophaga* spp.), northern and southern masked chafers (*Cyclocephala* spp.)

For control of white grubs, use a minimum of 100 gallons of water per acre or 300 fluid ounces per 1,000 square feet.

Thoroughly irrigate to moisten the top inch of soil. There should be no more than ½ inch of thatch present at the time of application. Time applications to occur shortly after egg hatch when grubs are 1st or 2nd instar.

Under dry conditions where thatch is present, pre-watering is recommended prior to application for grub or weevil control.

*Please confirm your CRESCENDO WDG package size to ensure it accommodates the specified application rate before following.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in original container in a cool, dry place.

PESTICIDE DISPOSAL: To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

CONTAINER HANDLING: Nonrefillable container. Do not reuse or refill this container.
Completely empty bag into application equipment. Then offer for recycling if available, or dispose of empty bag in a sanitary landfill or by incineration. Do not burn, unless allowed by state and local ordinances. (For instances where state and local ordinances do allow burning): If burned, stay out of smoke.

WARRANTY

To the extent consistent with applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. To the extent consistent with applicable law, the user assumes all risks of use, storage or handling that are not in accordance with the accompanying directions.