

# DuPont™ Verimark®

## INSECT CONTROL WITH THE ACTIVE INGREDIENT CYAZYPYR®

GROUP

28

INSECTICIDE

For soil applications to brassica, bulb, cucurbit, fruiting, leafy, legume (except soybeans), root and tuberous and corm vegetables; citrus trees, peanuts and tobacco for pest management of sucking and chewing insects that can vector certain plant diseases, aiding in optimization of the crop's potential.

### Active Ingredient

By Weight

Cyantraniliprole 3-bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-methyl-6-[(methylamino)carbonyl]phenyl]-1H-pyrazole-5-carboxamide	18.66%
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### Other Ingredients

81.34%

TOTAL	100.0%
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VERIMARK® is a suspension concentrate. SHAKE WELL BEFORE USING.

Contains 1.67 lb. active ingredient per gallon.

EPA Reg. No. 352-860

EPA Est. No. \_\_\_\_\_

### Nonrefillable Container

Net: \_\_\_\_\_

OR

### Refillable Container

Net: \_\_\_\_\_

E. I. du Pont de Nemours and Company  
Chestnut Run Plaza, 974 Centre Road  
Wilmington, DE 19805  
Phone: 1-800-441-7515 (Toll Free)

Not for sale, sale into, distribution and/or use in Nassau and Suffolk counties of New York State.

### KEEP OUT OF REACH OF CHILDREN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

### FIRST AID

For questions regarding emergency medical treatment, you may contact 1-800-441-3637 for information.

### PRECAUTIONARY STATEMENTS

### PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

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

After the product has been diluted in accordance with label directions for use, shirt, pants, socks, and shoes are sufficient Personal Protective Equipment. Follow manufacturer's instructions for cleaning/maintaining personal protective equipment (PPE). If no such instructions for washables are available, use detergent and hot water. Keep and wash PPE separately from other laundry.

### 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.

## PHYSICAL OR CHEMICAL HAZARDS

Do not place product near or allow product to come into contact with strong oxidizing substances (such as potassium permanganate) since a hazardous chemical reaction may occur.

## ENVIRONMENTAL HAZARDS

This pesticide is toxic to aquatic invertebrates and oysters. Do not apply directly to water. Drift and runoff may be hazardous to aquatic organisms in water adjacent to use sites. This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are foraging the treatment area.

### Surface Water Advisory-

This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for several weeks after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of cyantranilprole from runoff water and sediment. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours.

### Ground Water Advisory-

This chemical has properties and characteristics associated with chemicals detected in ground water. This chemical may leach into ground water if used in areas where soils are permeable, particularly where the water table is shallow.

## 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.

## RESTRICTIONS

- Do not make ground applications within 25' of lakes, rivers, reservoirs, permanent streams, marshes, natural ponds, estuaries or coastal areas. Do not cultivate within 25' of these aquatic areas to allow growth of a vegetative filter strip.
- Do not treat plants being grown for transplanting in nurseries, plant propagation houses or greenhouses by commercial transplant producers except as specified in the application section of this label.
- Do not use on crops grown to harvest in greenhouses.
- Do not make any aerial or airblast applications with DuPont™ VERIMARK®. VERIMARK® is only to be applied to the soil by ground or drip chemigation application equipment.
- May be used on crops on this label grown for seed production.
- Do not use in residential areas.
- Do not apply VERIMARK® insect control through any irrigation system unless specified in the crop section of this label or in supplemental labeling.
- Unless otherwise stated for a specific crop, do not apply a total of more than 0.4 lb ai/A of CYAZYPYR® or cyantranilprole containing products per year. This is the total from all application methods (eg. seed, soil, foliar).

## AGRICULTURAL USE REQUIREMENTS

VERIMARK® must be used 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 the label about personal protective equipment, restricted-entry interval, and notification to workers (as applicable).

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours. Exception: if the product is soil-injected or soil incorporated, 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.

For early entry into 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, wear:

- Coveralls
- Shoes plus socks
- Chemical resistant gloves (made of any waterproof material)

VERIMARK® must be used in accordance with the directions for use on this label, in separately issued labeling or exemptions under FIFRA (Supplemental Labels, Special Local Need Registrations, FIFRA Section 18 exemptions, FIFRA 2(ee))

Bulletins), or as otherwise permitted by FIFRA. Always read the entire label, including the Limitation of Warranty and Liability.

DuPont™ VERIMARK® is a suspension concentrate that can be applied as: an in-furrow spray at planting, transplant tray drench or float house (tobacco only) by growers or commercial transplant producers no earlier than 72 hours prior to planting in the field, transplant water treatment, hill drench at planting, surface band at planting, soil shank injection at planting or other soil injection systems after planting, drip chemigation, including microsprinkler in citrus, or a potato seed piece treatment to control listed insects. VERIMARK® is specially formulated to optimize effectiveness following application to soil. VERIMARK® is mixed with water for application.

VERIMARK® is a member of the anthranilic diamide class of insecticides acting on insect ryanodine receptors. VERIMARK® is most effective through ingestion of treated plant material. After exposure to VERIMARK®, affected insects will rapidly stop feeding, become paralyzed, and typically die within 1 - 3 days. Time drip applications to the most susceptible insect pest stage, typically at egg hatch and/or newly hatched larvae or nymphs, before populations reach damaging levels. When pest populations are high, use the highest listed application rate for that pest. For best results when targeting control of sucking pests, begin drip applications when insect populations first appear. VERIMARK® has preventative activity, but low curative activity for sucking pests.

### **INTEGRATED PEST MANAGEMENT**

DuPont supports the use of Integrated Pest Management (IPM) programs to control pests. This product may be used as part of an IPM program, which can include biological, cultural, and genetic practices, aimed at preventing economic pest damage. IPM principles and practices include field scouting or other detection methods, correct target pest identification, population monitoring, rotation of insecticides with different modes-of-action, and treating when target pest populations reach locally determined action thresholds. For best results on sucking pests, apply at specified rates when insects first appear. Consult your state cooperative extension service, professional consultants or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop or site systems in your area.

### **SCOUTING**

For drip applications, monitor insect populations to determine whether or not there is a need for application of VERIMARK® based on locally determined pest management guidelines. More than one drip chemigation treatment of VERIMARK® may be required to control a population of pests.

### **INSECT RESISTANCE MANAGEMENT**

For resistance management, VERIMARK® is a Group 28 Insecticide. Repeated and exclusive use of VERIMARK® (cyantraniliprole) or other Group 28 insecticide belonging to the anthranilic diamide class of chemistry may lead to the buildup of resistant strains of insects in some crops when applications are made by drip chemigation.

Some insects are known to develop resistance to products used repeatedly for control. Because the development of resistance cannot be predicted, this product may be used as part of a resistance management strategy established for the use area. These strategies may include incorporation of cultural and biological control practices, alternation of mode-of-action classes of insecticides on succeeding generations and the most susceptible life stage. Consult your local or state agricultural authorities for details.

Unless directed otherwise in the specific crop/pest sections of this label, the best practices are to follow these instructions to delay the development of insecticide resistance:

- Avoid using the same mode of action (same IRAC group number) on consecutive generations of insect pests.
- Make no more than 2 applications of VERIMARK® (cyantraniliprole) or other Group 28 products per generation to the same insect species on a crop.
- Application to the next generation of target pest(s) must be with an effective product with a different mode of action (non-Group 28 insecticide).
- Make no more than 2 successive applications within a 30-day period to the same insect species on a crop. The following application to the target pest(s) must be with an effective product with a different mode of action.
- Avoid using less than the labeled rates of VERIMARK® when applied alone or in tank mixtures.
- Target the most susceptible insect life stages, whenever possible.
- Monitor insect populations for product effectiveness. If resistance to VERIMARK® develops in your area, VERIMARK® or other products with a similar mode of action, may not provide adequate control.
- If poor performance cannot be attributed to improper application or extreme weather conditions, a resistant strain of insect may be present. If you experience difficulty with control and resistance is a reasonable cause, immediately consult your local DuPont Crop Protection company representative or agricultural advisor for the best alternative method of control.

For additional information on insect resistance monitoring, visit the Insecticide Resistance Action Committee (IRAC) on the web at <http://www.irac-online.org>.

## APPLICATION

For drip applications and soil injection after planting, apply at the specified rates before insect populations reach locally determined action thresholds. For best results with sucking pests, begin applications when insects first appear. Consult the cooperative extension service, professional consultants or other qualified authorities for local pest management guidelines in your area.

Apply follow-up treatments of DuPont™ VERIMARK®, or DuPont™ EXIREL™ insect control as specified, to keep pest populations within threshold limits. Refer to the Resistance Management section of this label for further guidance on follow-up treatments. See individual crop sections of this label for specific minimum spray intervals.

Use sufficient water to obtain thorough distribution of VERIMARK® in the root zone.

VERIMARK® may be applied by: ground (including an in-furrow spray at planting, transplant tray drench or float house (tobacco only) by growers or commercial transplant producers no earlier than 72 hours prior to planting in the field, transplant water treatment, hill drench at planting, surface band at planting, soil shank injection at planting or other soil injection systems after planting, drip or microsprinkler chemigation or as a seed piece treatment). Not all application methods are allowed on all crops; see specific crop sections of this label or other supplemental labeling for application methods which may be used.

### SOIL APPLICATIONS

VERIMARK® must be applied in a manner that ensures the product solution adequately saturates the root zone.

VERIMARK® is designed to optimize root uptake and care for tender roots and shoots. When applied to the root zone before, during, or soon after sowing or transplanting, VERIMARK® prevents feeding of early season pests, reducing both direct damage and the transmission of some insect-transmitted diseases. This reduction in plant stress early in the crop cycle results in more vigorous plant growth and gets the crop off to a strong start. Manage irrigation so that significant quantities of VERIMARK® remain in the root zone where it is most effective. Maintaining soil moisture to field capacity or to meet crop needs and environmental conditions aids in product availability to the roots and can improve efficacy.

Applications of VERIMARK® to the root zone allow the active ingredient to be transported from the roots through the xylem providing upward systemicity. VERIMARK® is translocated to the canopy beginning immediately after the application, reaching a protective concentration in 1 to 3 days for seedlings and up to 7 days for larger plants. As the plant grows, the roots continue to absorb the available VERIMARK® from the reservoir in the soil providing extended protection of the plant canopy including new growth.

The length of control provided following soil applications will depend on the rate used, the pest being controlled and the environmental conditions; such as soil type, soil moisture, soil pH, etc. Use the higher rates when pests are expected to occur later in the crop growth cycle or when pests are expected to be present continuously. VERIMARK® will primarily have activity in the foliage of treated plants and will not provide protection within the blooms and fruit. Foliar applications of other products may be needed to protect these parts of the plant.

Unless directed otherwise in the specific crop sections of this label, only one at plant soil application of VERIMARK® may be made per crop season. A total of two drip chemigation or soil injection applications can be made per season at an application rate not to exceed 10 fl oz of product (0.130 lb ai/A) per application; except in citrus where the maximum rate is 0.391 lb ai/A and at the rates of 0.261 -0.391 only one application can be made per year. If VERIMARK® is applied as an at plant soil application, only one subsequent drip chemigation application can be made.

#### **In-Furrow Spray at Planting**

Apply as a narrow band spray into the furrow at the seeding depth.

#### **Transplant tray drench or float house (tobacco only) by growers or commercial transplant producers no earlier than 72 hours prior to planting in the field**

This application method is allowed for use by growers or commercial transplant producers no earlier than 72 hours prior to planting in the field. Use only on transplants grown in soil/potting media.

Follow these steps to calculate the amount of VERIMARK® and water to use:

1. Determine the number of plants per acre to be planted.
2. Divide the desired VERIMARK® rate (fl oz/acre) by the number of plants per acre to be planted (this provides the fluid ounces of VERIMARK® per transplant).
3. Multiply the fluid ounces of VERIMARK® per transplant times the number of plants in each tray to determine the fluid ounces of VERIMARK® per tray.
4. Multiply the fluid ounces of VERIMARK® per tray times the number of trays to be treated.
5. Determine the amount of water needed to thoroughly drench transplant plugs in a transplant tray without runoff through the bottom of the tray (see directions for application below). The amount of water needed may vary by size of the transplant and plug. Multiply the amount of water needed per tray times number of trays to be treated.
6. Mix the amount of VERIMARK® in the volume of water needed to drench the desired number of trays and follow application instructions below. Make application with properly calibrated spray equipment with continuous agitation.

#### Application:

If possible discontinue watering 24 hours before treatment so spray solution is absorbed quickly. Apply as a broadcast low pressure coarse high volume spray so that solution runs off from the foliage to the soil/potting media in the tray, but it does not runoff from the bottom of the tray. If necessary, wash solution from foliage to soil by making a second pass with water only before the spray solution dries. It is critical to drive as much of the spray solution as possible into the soil/potting media to maximize product performance. Make application no longer than 3 days before transplanting in the field. Allow tray to dry before transporting to the field for planting, and do not handle treated trays prior to 4 hours after the application without appropriate personal protection equipment as described in the agricultural use requirements section of this label. Do not mix any other product when applying DuPont™ VERIMARK® using this application method unless crop safety has been previously shown with the tank mix.

#### Transplant water treatment or Hill Drench

Transplants should be adequately watered before transplanting. Apply at transplanting in a minimum of 2 fluid ounces of treatment solution per transplant. Ensure water volume is sufficient to thoroughly wet the root zone.

#### Surface Band at Planting

Apply as a narrow (2 inches or less) surface band spray above the seed line at planting. Incorporate surface band application within 24 hours of application using sufficient irrigation (usually 0.5 – 1.0 inches of water) to reach the seeding depth.

#### Soil Shank Injection

Use soil shank injection at planting. Applications must be incorporated using sufficient irrigation (usually 0.5 – 1.0 inches of water) to reach the root zone. Shank injection should be placed just below the seed row about 1-2 inches deep.

For insecticide resistance management it is important to avoid consecutive applications of insecticides with the same mode of action on successive generations of the same pest. See crops on label for treatment rates and additional use information.

### APPLICATION SOLUTION PREPARATION

Application equipment must be clean and free of previous pesticide deposits before applying VERIMARK®. Fill application tank 1/4 to 1/2 full of water. Add VERIMARK® directly to application tank. Mix thoroughly to fully disperse the insecticide, once dispersed continued agitation is required. Use mechanical or hydraulic means; do not use air agitation. Follow the most restrictive of the labeling limitations and precautions of all products used in mixtures.

**Acidification of Application Solution** - All applications of VERIMARK® should be adjusted to approximately pH 4 - 6. For at-plant soil applications, adjust the pH of the application spray tank using a commercially available acidifier. For drip chemigation applications, adjust the pH of the system's pesticide injection tank, supply tank or nurse tank using a commercially available acidifier. The entire drip chemigation system (i.e. the water used in the drip system) does not need to have the pH adjusted. Adjust the pH of the application solution after all products being applied have been added to the tank. Once prepared, an application solution may be held for up to 8 hours before starting the application. Do not store the application solution overnight.

**Compatibility** - This product can be mixed with pesticide products labeled for use on crops on this label in accordance with the most restrictive of label limitations and precautions. Do not exceed labeled dosage rates. This product cannot be mixed with any product containing a label prohibition against such mixing. Concentrated mixtures such as those in a nurse tank and tank mixtures of more than two products can increase the chances of incompatible spray mixtures. A jar test (as described below) should be conducted when label guidance is not given or prior experience with a specific tank mixture is unknown. The jar test should follow the proper sequence of addition at the spray water volume planned to assure that the tank mix is compatible. Constant agitation may be required during mixing and spraying of mixtures.

Steps to conduct a jar test to determine physical tank mix compatibility of VERIMARK® with other products:

- Add clean water to jar proportional to the planned water volume that will be used in the spray tank (a jar size of 8-16 oz is acceptable).
- Using the most restrictive PPE of the products to be tested, mix proper proportions of VERIMARK® and desired tank mix partner(s) as will be present in the spray tank, add one product at a time following the sequence of addition according to formulation type provided in this label.
- Seal and shake mixture after each product is added.
- Allow to stand for 1 hour.
- View jar to determine if settling, flocculation, crystallization or any other undesirable changes have happened.
- If none of the above is observed or the solution can be easily remixed after shaking, the mixture is compatible with VERIMARK®.
- If the tank mix is not compatible, a higher water volume, reduced rate of the tank mix partner(s), reduced number of tank mix partners or a compatibility agent may be needed.

**Tank Mixing** - The crop safety of all tank mixtures with VERIMARK® which may include physically compatible pesticides, fertilizers, adjuvants, and/or additives, has not been tested. When considering the use of a tank mixture on a

labeled crop without prior experience, or which is not specifically described on DuPont™ VERIMARK® product labeling or in other DuPont product use instruction, it is important to first understand crop safety. To test for crop safety prepare a small volume of the intended tank mixture, apply it to an area of the target crop as directed by both this and the tank mix partner product labels, and observe the treated crop to ensure that a phytotoxic response does not occur. DuPont will not be responsible for any crop injury arising from the use of a tank mixture that is not specifically described on VERIMARK® product labeling or in other DuPont product use instruction.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations, and directions for use, on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements on each product in the tank mixture.

***Tank Mixing Sequence*** -Add different formulation types in the sequence indicated below\*. Allow time for complete mixing and dispersion after addition of each product.

1. Water soluble bags (WSB)
2. Water soluble granules (SG)
3. Water dispersible granules (WG, XP, DF)
4. Wettable powders (WP)
5. VERIMARK® and other water based suspension concentrates (aqueous flowables) (SC)
6. Water soluble concentrates (SL)
7. Suspoemulsions (SE)
8. Oil based suspension concentrates (OD)
9. Emulsifiable concentrates (EC)
10. Surfactants, oils, adjuvants
11. Soluble fertilizers
12. Drift retardants

\* Unless otherwise specified by manufacturer directions for use or by local experience.

## **CHEMIGATION**

The following types of irrigation equipment may be used for chemigation applications: drip (trickle) or strip tubing irrigation systems. Microsprinkler applications can be made in citrus.

Do not connect any irrigation system used for pesticide applications to a public water system unless the pesticide label-prescribed safety devices are in place. 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 at least 60 days out of the year.

**See "Required System Safety Devices For All Chemigation Systems" at the end of the Chemigation section.**

## **APPLICATION INSTRUCTIONS**

### ***DRIP (TRICKLE) AND MICROSPRINKLER CHEMIGATION***

VERIMARK® must be applied in a manner that ensures the product is in the root zone. VERIMARK® must be in the root zone to provide effective control of target pests. VERIMARK® is most effective when it is applied so that the roots are at or near the site of application; manage irrigation so that significant quantities of VERIMARK® remain in the root zone where it is most effective. Unless directed otherwise in the specific crop sections of this label, a total of two applications can be made per crop season. Any subsequent applications made with products that contain cyantraniliprole must be foliar applications.

1. Do not begin applications until after crop emergence in direct seeded crops.
2. Do not make applications if soil moisture is below the level required for active plant growth.
3. This product must be applied uniformly in the root zone or poor performance may result. Drip tape or emitters must be located within or directly adjacent to the root zone. Microsprinkler spray patterns must include the majority of the tree's root zone.
4. The drip and microsprinkler systems must be properly designed, free of leaks, and operated in a manner that provides uniform application of water throughout the field or grove.
5. In most situations, this product should be applied during the first 1/3 of the irrigation cycle, starting just after the system has come up to pressure.
6. The minimum injection period is the time that it takes water to move from the injection point to the furthest emitter in the irrigation zone (propagation time). If this time is not known, it can be calculated by measuring the time for a soluble dye to move from the injection point to the farthest emitter. A longer injection improves uniformity throughout the zone, but needs to allow for at least an equal period of water to flush the system and move the product through the soil.
7. VERIMARK® must not be applied at the same time that a drip irrigation line clean out product is being used as performance may be reduced.

## **Directions for Chemigation:**

### **Preparation**

A pesticide tank is recommended for the application of DuPont™ VERIMARK® in drip chemigation systems.

Thoroughly clean the injection system and tank of any fertilizer or chemical residues using a standard clean-out procedure. Dispose of any residues in accordance with State and Federal laws. With the mix tank 1/4 to 1/2 full with water and the agitator running, measure the required amount of VERIMARK® and add it to the tank. Then add additional water to bring your total pesticide mixture up to the desired volume for your application. Note: Always add the VERIMARK® to water, never put VERIMARK® into a dry tank or other mixing equipment without first adding water. See "Tank Mixing Sequence" section of the container label for tank mixing sequence. Continue to agitate the mixture throughout the application process. Use mechanical or hydraulic agitation, do not use air agitation.

### **Injection Into Chemigation Systems**

Inject the proper amount of VERIMARK® into the irrigation water flow using a positive displacement injection pump or a Venturi injector. Injection should occur at a point in the main irrigation water flow to ensure thorough mixing with the irrigation water.

### **Uniform Water Distribution**

The irrigation system used for application of VERIMARK® must provide for uniform distribution of VERIMARK® treated water. Non-uniform distribution can result in crop injury, lack of effectiveness or illegal pesticide residues in or on the crop being treated. Ensure the drip chemigation system is operating properly to uniformly distribute the chemigation application to the crop. Contact the equipment manufacturer, the local University Extension agent or other experts if you have questions about achieving uniform distribution of the application.

### **Monitoring of Chemigation Applications**

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of a responsible person, shall shut the system down and make necessary adjustments should the need arise. Wear the personal protective equipment as defined in the PPE section of the label for applicators and other handlers when making adjustments or repairs on the chemigation system when VERIMARK® is in the irrigation water.

### **Operation**

Start the water pump and let the system achieve the desired pressure before starting the injector. Start the injector. When the application is finished, allow the entire irrigation and injector system to be thoroughly flushed clean before stopping the system.

### **Cleaning the System**

Thoroughly clean the injection system and tank of any fertilizer or chemical residues using a standard clean-out procedure. Dispose of any residues in accordance with State and Federal laws. Consult your owner's manual or your local equipment dealer for cleanout procedures for your injection system.

## **REQUIRED SYSTEM SAFETY DEVICES FOR ALL CHEMIGATION SYSTEMS**

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 device, such as a positive displacement pump or a Venturi injector, that provides uniform injection of the product, is effectively designed and constructed of materials compatible with the product, and is capable of being fitted with a system interlock.
7. 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 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.

## **SPRAY TANK CLEANOUT**

Prior to application, start with clean, well maintained application equipment. Immediately following application, thoroughly clean all spray equipment to reduce the risk of forming hardened deposits which might become difficult to remove.

Drain application equipment. Thoroughly rinse and flush all application equipment with clean water.

Take all necessary safety precautions when cleaning equipment. Do not clean near wells, water sources or desirable vegetation. Dispose of waste rinse water in accordance with local regulations.

## **SPRAY DRIFT MANAGEMENT**

The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions. Avoiding spray drift is the responsibility of the applicator.

### **IMPORTANCE OF DROPLET SIZE**

The most effective drift management strategy is to apply the largest droplets which are consistent with pest control objectives. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly or under unfavorable environmental conditions.

A droplet size classification system describes the range of droplet sizes produced by spray nozzles. The American Society of Agricultural and Biological Engineers (ASABE) provide a Standard that describes droplet size spectrum categories defined by a number of reference nozzles (fine, coarse, etc.). Droplet spectra resulting from the use of a specific nozzle may also be described in terms of volume mean diameter (VMD). Coarser droplet size spectra have larger VMD's and lower drift potential.

### **CONTROLLING DROPLET SIZE - GROUND APPLICATION**

- Nozzle Type - Select a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. The use of low-drift nozzles will reduce drift potential.
- Pressure - The lowest spray pressures recommended for the nozzle produce the largest droplets. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, using a higher-capacity nozzle instead of increasing pressure results in the coarsest droplet spectrum.
- Flow Rate/Orifice Size - Using the highest flow rate nozzles (largest orifice) that are consistent with pest control objectives reduces the potential for spray drift. Nozzles with higher rated flows produce coarser droplet spectra.

### **BOOM LENGTH AND APPLICATION HEIGHT**

- Application Height (ground) - Applications made at the lowest height consistent with pest control objectives, and that allow the applicator to keep the boom level with the application site and minimize bounce, will reduce the exposure of spray droplets to evaporation and wind, and reduce spray drift potential.

### **WIND**

Drift potential is lowest when applications are made in light to gentle sustained winds (2-10 mph), which are blowing in a constant direction. Many factors, including droplet size and equipment type also determine drift potential at any given wind speed. AVOID GUSTY OR WINDLESS CONDITIONS.

Local terrain can also influence wind patterns. Every applicator is expected to be familiar with local wind patterns and how they affect spray drift.

### **TEMPERATURE AND HUMIDITY**

Setting up equipment to produce larger droplets to compensate for droplet evaporation can reduce spray drift potential. Droplet evaporation is most severe when conditions are both hot and dry.

### **SURFACE TEMPERATURE INVERSIONS**

Drift potential is high during a surface temperature inversion. Surface inversions restrict vertical air mixing, which may cause small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Surface inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Mist or fog may indicate the presence of an inversion in humid areas.

Inversions may also be identified by producing smoke and observing its behavior. Smoke that remains close to the ground, or moves laterally in a concentrated cloud under low wind conditions indicates a surface inversion. Smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

### **SHIELDED SPRAYERS**

Shielding the boom or individual nozzles can reduce the effects of wind. However, it is the responsibility of the applicator to verify that the shields are minimizing drift potential, and not interfering with uniform deposition of the product.



## **SENSITIVE AREAS**

Making applications when there is a sustained wind moving away from adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is an effective way to minimize the effect of spray drift.

## **DRIFT CONTROL ADDITIVES**

Using product compatible drift control additives can reduce drift potential. When a drift control additive is used, read and carefully observe cautionary statements and all other information on the additive's label. If using an additive that increases viscosity, ensure that the nozzles and other application equipment will function properly with a viscous spray solution. Preferred drift control additives have been certified by the Council of Producers & Distributors of Agrotechnology.

## **CROP ROTATION**

Crops on this label and the following crops or crop groups may be planted immediately following the last application of DuPont™ VERIMARK®: Brassica Leafy Vegetables (Crop Group 5); Bulb Vegetables (Crop Group 3-07); Cotton; Cucurbit Vegetables (Crop Group 9); Fruiting Vegetables (Crop Group 8-10); Leafy Vegetables (except brassicas) (Crop Group 4); Leaves of Root and Tuber Vegetables (Crop Group 2); Legume Vegetables (Crop Groups 6 and 7); Low Growing Berries (Crop Subgroup 13-07H); Oilseeds (Crop Group 20); Peanuts; Root and Tuber Vegetables (Crop Subgroups 1B and 1C); Tobacco.

The following crops or crop groups may be planted 30 days following the last application of DuPont™ VERIMARK®: Cereal Grains (Crop Group 15); Forage, Fodder and Straw of Cereal Grains (Crop Group 16); Grass Forage, Fodder and Hay (Crop Group 17); Nongrass Animal Feeds (forage, fodder, straw and hay) (Crop Group 18); Sugar beets.

There is no plant back restriction for conversion of a treated field to, or for making a new or replacement planting into established orchards or fields of, Bushberries (Crop Subgroup 13-07B); Citrus (Crop Group 10-10); Pome Fruits (Crop Group 11-10); Stone Fruits (Crop Group 12); Low Growing Berries (Crop Subgroup 13-07G); or Tree Nuts (Crop Group 14-12).

All other crops cannot be planted until 12 months after the last application of VERIMARK®.

Crop	Application Method	Target Pest	DUPONT™ VERIMARK® RATE		PHI (pre-harvest interval) (days)	REI (re-entry interval) (hours)
			Lb. ai per acre	fluid ounces product per acre		
Brassica (Cole) Leafy Vegetables (Crop Group 5) Including Broccoli, Broccoli chinese Broccoli raab, Brussels sprouts, Cabbage, Chinese cabbage (bok choy), Chinese cabbage (napa), Chinese mustard cabbage, Cauliflower, Cavalo broccolo, Collards, Kale, Kohlrabi, Mizuna, Mustard greens, Mustard spinach, Rape greens, Turnip greens	Soil at Planting (an in-furrow spray, transplant tray drench by growers or commercial transplant producers no earlier than 72 hours prior	Beet armyworm Corn earworm Diamondback moth† Imported cabbageworm Western yellowstriped armyworm	0.065 - 0.130	5 - 10	N/A	4
	to planting in the field, transplant water	Cabbage looper Cabbage webworm	0.088 - 0.130	6.75 - 10		
	treatment, hill drench, surface band, soil shank injection)	Cabbage aphid Flea beetle Green peach aphid Leafminers ( <i>Liriomyza</i> spp.) Whitefly*	0.088 - 0.176	6.75 - 13.5		
		Thrips (foliage feeding only)§ Cabbage maggot	0.130 - 0.176	10 - 13.5		
<p>§ - <b>Suppression only.</b> Use as part of an overall effective thrips control program. Rotate to products with different modes of action.  * - Allow 1 - 3 days for VERIMARK® to be translocated into the aerial portions and to fully protect the transplants following an at-plant application. During that time and when populations are high, use in conjunction with an effective foliar whitefly control program.  † - <b>Diamondback moth resistance management</b> - Do not apply cyantraniliprole containing products more than twice to any generation of diamondback moth or within any 30 day period. After the second application of cyantraniliprole for diamondback moth, rotate to another effective product with a different mode of action (i.e. a product with a different IRAC group number). Application(s) to the next generation of diamondback moth must be with an effective product with a different mode of action. Do not apply less than 5 fl oz of VERIMARK® per application per acre for diamondback control. Do not make more than 6 total applications per calendar year of any cyantraniliprole containing products for control of diamondback moth at the same farm location.  Do not apply more than 13.5 fl oz (0.176 lb ai/A) of VERIMARK® at planting.  Do not apply a total of more than 0.4 lb ai/A of CYAZYPYR® or cyantraniliprole containing products per calendar year whether applications are made to the soil or foliarly.  VERIMARK® must be applied uniformly in the root zone to ensure effective control.  Surface band application requires a sufficient amount of water post-application to ensure the treatment is moved into the root zone. See the SOIL APPLICATION section of the label for additional guidance, also see the rate conversion chart for application rate per 1000 linear feet.  <b>Adjusting the pH of the application solution:</b> The pH of the application solution should be between pH 4 and 6. (See "Acidification of Application Solution" section of the label.)</p>						
Bulb vegetables, (Crop Group 3-07) Chive, fresh leaves; chive, Chinese, fresh leaves; daylily, bulb; elegans hosta; fritillaria, bulb; fritillaria, leaves; garlic, bulb; garlic, great-headed, bulb; garlic, serpent, bulb; kurrat; lady's leek; leek; leek, wild; lily, bulb; onion, Beltsville bunching; onion, bulb; onion, Chinese, bulb; onion, fresh; onion, green; onion, macrostem; onion, pearl; onion, potato, bulb; onion, tree, tops; onion, Welsh, tops; shallot, bulb; shallot, fresh leaves	Soil at planting (in-furrow spray)	Thrips (foliage feeding only)§	0.130-0.176	10 - 13.5	1	4
	Drip chemigation	Thrips (foliage feeding only)§	0.088 - 0.130	6.75 - 10		
<p>§ - <b>Suppression only.</b> Use as part of an overall effective control program. Begin drip application when populations first appear, typically 1 thrips adult or larva per plant. Allow 1 - 3 days for VERIMARK® to be translocated into the aerial portions and to fully protect. Minimum application interval between drip chemigation treatments is 10 days.  Do not apply more than 2 drip chemigation applications of VERIMARK® per crop.  Rotate with products with different modes of action.  Do not apply a total of more than 0.4 lb ai/A of CYAZYPYR® or cyantraniliprole containing products per calendar year whether applications are made to the soil or foliarly.  VERIMARK® must be applied uniformly in the root zone to ensure effective control.  Drip tape must be placed as close to the row of plants as possible to ensure VERIMARK® is applied in the root zone. See the SOIL APPLICATION section of the label for additional guidance.  <b>Adjusting the pH of the application solution:</b> The pH of the application solution should be between pH 4 and 6. (See "Acidification of Application Solution" section of the label.)</p>						

Crop	Application Method	Target Pest	DUPONT™ VERIMARK® RATE		PHI (pre-harvest interval) (days)	REI (re-entry interval) (hours)
			Lb. ai per acre	fluid ounces product per acre		
Root vegetables except sugar beets (Crop Subgroup 1B) Beet, garden; burdock, edible; carrot; celeriac; chervil, turnip-rooted; chicory; ginseng; horseradish; parsley, turnip-rooted; parsnip; radish; radish, oriental; rutabaga; salsify; salsify, black; salsify, Spanish; skirret; turnip	Soil at planting (an in-furrow spray, surface band, soil shank injection)	Cabbage maggot§	0.130 - 0.176	10 - 13.5	N/A	4
	<p>§ - <b>Suppression only.</b> Do not apply a total of more than 0.4 lb ai/A of CYAZYPYR® or cyantraniliprole containing products per calendar year whether applications are made to the soil or foliarly.</p>					
Citrus (trees under five feet tall only), (Crop Group 10-10) Australian desert lime;  Australia finger-lime; Australia round lime; Brown River finger lime; Calamondin; Citron; Citrus hybrids; Grapefruit; Japanese summer grapefruit; Kumquat; Lemon; Lime; Mediterranean mandarin; Mount white lime; New Guinea wild lime; Orange, sour; Orange, sweet; Pummelo; Russel River lime; Satsuma mandarin; Sweet lime; Tachibana orange; Tahiti lime; Tangelo; Tangerine (mandarin); Tangor; Trifoliate orange; Uniq fruit	Soil Drench or Microsprinkler Chemigation*	<b>For trees 3 feet tall or less:</b> Asian citrus psyllid Citrus leafminer	0.196 - 0.391	15 - 30	1	4
		<b>For trees between 3 feet and 5 feet tall:</b> Asian citrus psyllid Citrus leafminer	0.261 - 0.391	20 - 30		
<p>Two applications can be made to the soil per year at the 15 fluid ounce rate. Do not make 2 successive applications of VERIMARK® to citrus. At rates greater than 15 fl oz/A only one application is allowed per year. Use the lower rate for trees under 3 feet tall and the higher rates for trees 3 to 5 feet tall. Do not apply a total of more than 0.4 lb ai/A of CYAZYPYR® or cyantraniliprole containing products per calendar year whether applications are made to the soil or foliarly. Allow 4-7 days from the time of application for VERIMARK® to fully translocate into the aerial portions of the citrus trees. * - <b>Soil drench</b> applications should be made in a minimum of 1/2 to 1 pint of water per tree distributed evenly around the tree root zone. Soil drench applications should be followed by sufficient irrigation to move VERIMARK® into the root zone. Wait 24 hours before initiating the next irrigation event. <b>Microsprinkler chemigation</b> application pattern must include a majority of the tree's root zone while minimizing the application to areas where the tree roots are not present. For best results, apply to trees that have been trained to microsprinkler applications. Run the irrigation system for 5- 10 minutes before injecting the VERIMARK into the system to achieve optimal uptake. Apply sufficient water to drive VERIMARK® into the root zone. Wait 24 hours before initiating the next irrigation event. See "CHEMIGATION" section for more information. Adjusting the pH of the application solution: The pH of the application solution should be between pH 4 and 6. (See "Acidification of Application Solution" section of the label.)</p>						

Crop	Application Method	Target Pest	DUPONT™ VERIMARK® RATE		PHI (pre-harvest interval) (days)	REI (re-entry interval) (hours)	
			Lb. ai per acre	fluid ounces product per acre			
Cucurbit Vegetables (Crop Group 9) Including Chayote (fruit), Chinese wax- gourd (Chinese pre- serving melon) Citron melon, Cucumber, Gherkin, Edible gourd (includes hyotan, cucuzza, hechima, Chinese okra), Momordica spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), Muskmelon (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon), Pumpkin, Summer squash (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini), Winter squash (includes butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash), Watermelon	Soil at planting (an in-furrow spray, transplant tray drench by growers or commercial transplant producers no earlier than 72 hours prior to planting in the field, transplant water treatment, hill drench, surface band, soil shank injection)	Beet armyworm Cabbage looper Cotton/melon aphid Leafminers ( <i>Liriomyza</i> spp.) Whitefly*	0.088 - 0.176	6.75 - 13.5	1	4	
		Green peach aphid Thrips (foliage feeding only)§ Seed corn maggot (except when applied as shank injection)	0.130 - 0.176	10 - 13.5			
		Drip chemigation Make application(s) in the first half of the crop	Beet armyworm (foliage feeding only) Melonworm (foliage feeding only) Pickleworm	0.065 - 0.130			5 - 10
		growing cycle, typically up to peak bloom crop	Cabbage looper (foliage feeding only) Cotton/melon aphid	0.088 - 0.130			6.75 - 10
		stage (usually approximately 40 days after crop emergence or transplanting).	Green peach aphid Leafminers ( <i>Liriomyza</i> spp.) Whitefly*	0.130			10
<p>§ - <b>Suppression only.</b> Use as part of an overall effective thrips control program. Rotate to products with a different mode of action.  * - Allow 1 - 3 days for VERIMARK® to be translocated into the aerial portions and to fully protect transplants following an at-plant application. Allow 2-5 days for VERIMARK® to fully protect the plants following a drip application. During those times and when whitefly populations are high, use in conjunction with an effective foliar whitefly control program.  Minimum application interval between drip chemigation treatments is 10 days.  Do not apply more than 13.5 fl oz (0.176 lb ai/A) of VERIMARK® at planting.  Do not apply more than 2 drip chemigation applications of VERIMARK® per crop. Do not make more than one drip chemigation application per crop if an at plant application of VERIMARK® was made.  Do not apply a total of more than 0.4 lb ai/A of CYAZYPYR® or cyantraniliprole containing products per calendar year whether applications are made to the soil or foliarly.  VERIMARK® must be applied uniformly in the root zone to ensure effective control.  Surface band application requires a sufficient amount of water post-application to ensure the treatment is moved into the root zone. Drip tape must be placed directly underneath a single row of plants to ensure VERIMARK® is applied in the root zone. See the SOIL APPLICATION section of the label for additional guidance, also see the rate conversion chart for application rate per 1000 linear feet.  <b>Cucurbit Yellow Stunting Disorder Virus Suppression:</b> Use of VERIMARK® to control whiteflies which may vector the cucurbit yellow stunting disorder virus at a rate of 10-13.5 fl oz/A at planting and at 10 fl oz/A via drip chemigation applied early season will help suppress and slow the expression of cucurbit yellow stunting disorder in cucurbits.  <b>Adjusting the pH of the application solution:</b> The pH of the application solution should be between pH 4 and 6. (See "Acidification of Application Solution" section of the label.)</p>							

Crop	Application Method	Target Pest	DUPONT™ VERIMARK® RATE		PHI (pre-harvest interval) (days)	REI (re-entry interval) (hours)
			Lb. ai per acre	fluid ounces product per acre		
Fruiting Vegetables (Crop Group 8-10) African eggplant; Bush tomato; Bell pepper; Cocona; Currant tomato; Eggplant; Garden huckleberry; Goji berry; Groundcherry; Martynia; Naranjilla; Okra; Pea eggplant; Pepino; Pepper, bell; Pepper, nonbell; Roselle; Scarlet eggplant; Sunberry; Tomatillo; Tomato; Tree tomato	Soil at planting (an in-furrow spray, transplant tray drench by growers or commercial transplant producers no earlier than 72 hours prior to planting in the field, transplant water treatment, hill drench, surface band, soil shank injection)	Beet armyworm Fall armyworm Southern armyworm Tomato fruitworm Tomato pinworm Western yellowstriped armyworm	0.065 - 0.130	5 - 10	1	4
		Flea beetles Green peach aphid§ Leafminers ( <i>Liriomyza</i> spp.) Loopers Potato aphid§ Whitefly*	0.088 - 0.176	6.75 - 13.5		
	Thrips (foliage feeding only)§	0.130 - 0.176	10 - 13.5			
	Drip chemigation or soil injection	Beet armyworm Colorado potato beetle Fall Armyworm Hornworms Southern armyworm Tomato fruitworm Tomato pinworm Western yellowstriped armyworm	0.065 - 0.130	5 - 10		
		Green peach aphid§ Leafminers ( <i>Liriomyza</i> spp.) Loopers Potato aphid§ Tomato psyllid§ Whitefly*	0.088 - 0.130	6.75 - 10		
European corn borer Thrips (foliage feeding only)§	0.130	10				
<p>§ - <b>Suppression only.</b> Use as part of an overall effective control program. Begin drip application when populations first appear. Rotate with products with different modes of action.</p> <p>* - Allow 1 - 3 days for VERIMARK® to be translocated into the aerial portions and to fully protect transplants following an at-plant application. Allow 2-5 days for VERIMARK® to fully protect plants in the first half of the growing cycle and 7-10 days for plants in the second half of the growing cycle following a drip application. During those times and when whitefly populations are high, use in conjunction with an effective foliar whitefly control program.</p> <p>Minimum application interval between drip chemigation treatments is 10 days. Do not apply more than 13.5 fl oz (0.176 lb ai/A) of VERIMARK® at planting. Do not apply more than 2 drip chemigation or soil injection applications of VERIMARK® per crop. Do not make more than one drip chemigation or soil injection application per crop if an at plant application of VERIMARK® was made. Do not apply a total of more than 0.4 lb ai/A of CYAZYPYR® or cyantraniliprole containing products per calendar year whether applications are made to the soil or foliarly. VERIMARK® must be applied uniformly in the root zone to ensure effective control. Surface band application requires a sufficient amount of water post-application to ensure the treatment is moved into the root zone. Drip tape must be placed directly underneath a single row of plants to ensure VERIMARK® is applied in the root zone. See the SOIL APPLICATION section of the label for additional guidance, also see the rate conversion chart for application rate per 1000 linear feet.</p> <p><b>Tomato Spotted Wilt Virus and Tomato Yellow Leaf Curl Virus Suppression:</b> Use of VERIMARK® to control thrips which may vector the tomato spotted wilt virus and whiteflies which may vector the tomato yellow leaf curl virus at a rate of 10-13.5 fl oz/A at plant and at 10 fl oz/A via drip chemigation applied early season will help suppress and slow the expression of tomato spotted wilt virus and tomato yellow leaf curl virus in fruiting vegetables.</p> <p><b>Adjusting the pH of the application solution:</b> The pH of the application solution should be between pH 4 and 6. (See "Acidification of Application Solution" section of the label.)</p>						

Crop	Application Method	Target Pest	DUPONT™ VERIMARK® RATE		PHI (pre-harvest interval) (days)	REI (re-entry interval) (hours)
			Lb. ai per acre	fluid ounces product per acre		
Leafy Vegetables (non- brassica) (Crop Group 4) Including Amaranth leafy, Arugula, Cardoon, Celery, Celery (Chinese), Celtuce, Chevrl, Chinese spinach, Chrysanthemum (edible leaved), Chrysanthemum, garland, Corn salad, Cress (garden), Cress (upland), Dandelion, Dock, Endive (escarole), Florence fennel, Lettuce (head & leaf), Orach, Parsley, Purslane (garden), Purslane (winter), Radicchio, Rhubarb, Spinach, Spinach (vine), Spinach (New Zealand), Swiss chard, Tampala	Soil at planting (an in-furrow spray, transplant tray drench by growers or commercial transplant producers no earlier than 72 hours prior to planting in the field, transplant water treatment, hill drench, surface band, soil shank injection)	Beet armyworm Corn earworm Diamondback moth†	0.065 - 0.130	5 - 10	N/A	4
		Cabbage looper Green peach aphid Leafminers ( <i>Liriomyza</i> spp.) Potato aphid§ Whitefly*	0.088 - 0.176	6.75 - 13.5		
<p>§ - <b>Suppression only.</b> Use as part of an overall effective aphid control program. Rotate to products with different modes of action.</p> <p>* - Allow 1 - 3 days for VERIMARK® to be translocated into the aerial portions and to fully protect the transplants following an at-plant application. During that time and when whitefly populations are high, use in conjunction with an effective foliar whitefly control program.</p> <p>† - <b>Diamondback moth resistance management</b> - Do not apply cyantraniliprole containing products more than twice to any generation of diamondback moth or within any 30 day period. After the second application of VERIMARK® for diamondback moth, rotate to another effective product with a different mode of action (i.e. a product with a different IRAC group number). Application(s) to the next generation of diamondback moth must be with an effective product with a different mode of action. Do not apply less than 5 fl oz of VERIMARK® per application per acre for diamondback control. Do not make more than 6 total applications per calendar year of any cyantraniliprole containing products for control of diamondback moth at the same farm location. Do not apply more than 13.5 fl oz (0.176 lb ai/A) of VERIMARK® at planting. Do not apply a total of more than 0.4 lb ai/A of CYAZYPYR® or cyantraniliprole containing products per calendar year whether applications are made to the soil or foliarly. VERIMARK® must be applied uniformly in the root zone to ensure effective control. Surface band application requires a sufficient amount of water post-application to ensure the treatment is moved into the root zone. See the SOIL APPLICATION section of the label for additional guidance, also see the rate conversion chart for application rate per 1000 linear feet.</p> <p><b>Adjusting the pH of the application solution:</b> The pH of the application solution should be between pH 4 and 6. (See "Acidification of Application Solution" section of the label.)</p>						

Crop	Application Method	Target Pest	DUPONT™ VERIMARK® RATE		PHI (pre-harvest interval) (days)	REI (re-entry interval) (hours)
			Lb. ai per acre	fluid ounces product per acre		
Legume vegetables, succulent or dried (Crop Group 6) Bean (Lupinus) (includes grain lupin, sweet lupin, white lupin, and white sweet lupin); bean (Phaseolus) (includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean); bean (Vigna) (includes adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese long-bean, cowpea, crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, yardlong bean); broad bean (fava); chickpea (garbanzo); guar; jackbean; lablab bean; lentil; pea (Pisum) (includes dwarf pea, edible-podded pea, English pea, field pea, garden pea, green pea, snowpea, sugar snap pea); pigeon pea; sword bean	Soil at planting (in-furrow spray, surface band spray)	European corn borer§ Fall armyworm Lesser cornstalk borer Leafminers Whiteflies Black bean aphid Thrips (foliage feeding only)§ Corn seed maggot§	0.088 - 0.176	6.75 - 13.5	N/A	4
<p>§ - <b>Suppression only.</b> Do not apply more than 13.5 fl oz (0.176 lb ai/A) of VERIMARK® at planting. Do not apply a total of more than 0.4 lb ai/A of CYAZYPYR® or cyantraniliprole containing products per calendar year whether applications are made to the soil or foliarly. VERIMARK® must be applied uniformly in the root zone to ensure effective control. See the SOIL APPLICATION section of the label for additional guidance, also see the rate conversion chart for application rate per 1000 linear feet.</p>						
Peanuts	Soil at planting (an in-furrow spray, surface band, soil shank injection)	Thrips (foliage feeding only)§** Cutworms Lesser cornstalk borer	0.130 - 0.176	10 - 13.5	N/A	4
<p>§ - <b>Suppression only.</b> ** - Use in conjunction with an effective thrips and tomato spotted wilt virus management program. Do not apply more than 13.5 fl oz (0.176 lb ai/A) of VERIMARK® at planting. Do not apply a total of more than 0.4 lb ai/A of CYAZYPYR® or cyantraniliprole containing products per calendar year whether applications are made to the soil or foliarly. VERIMARK® must be applied uniformly in the root zone to ensure effective control. See the SOIL APPLICATION section of the label for additional guidance, also see the rate conversion chart for application rate per 1000 linear feet. <b>Tomato Spotted Wilt Virus Suppression:</b> Use of VERIMARK® to manage thrips which may vector the tomato spotted wilt virus at a rate of 10-13.5 fl oz/A at plant will help suppress and slow the expression of tomato spotted wilt virus in peanuts.</p>						

Crop	Application Method	Target Pest	DUPONT™ VERIMARK® RATE		PHI (pre-harvest interval) (days)	REI (re-entry interval) (hours)
			Lb. ai per acre	fluid ounces product per acre		
Tobacco	Soil at planting (transplant water treatment, hill drench, float house or transplant tray drench by growers or commercial transplant producers no earlier than 72 hours prior to planting in the field)	Tobacco budworm Tomato hornworm Tobacco hornworm Flea beetle	0.130 - 0.176	10 - 13.5	N/A	4
<p>Do not apply more than 13.5 fl oz (0.176 lb ai/A) of VERIMARK® at planting.  Do not apply a total of more than 0.4 lb ai/A of CYAZYPYR® or cyantraniliprole containing products per calendar year whether applications are made to the soil or foliarly.  VERIMARK® must be applied uniformly in the root zone to ensure effective control.  See the SOIL APPLICATION section of the label for additional guidance.</p>						
Tuberous and Corm Vegetables (Crop Subgroup 1C) including, Arracacha; Arrowroot; Artichoke, Chinese; Artichoke, Jerusalem; Canna, edible; Cassava, (bitter), Cassava (sweet), Chayote (root); Chufa; Dasheen; Ginger; Leren; Potato, Sweet potato, Tanier; Turmeric; Yam bean; Yam (true)	Soil at planting (an in-furrow spray, transplant water treatment, hill drench, surface band, soil shank injection)	Beet armyworm Cabbage looper Colorado potato beetle† Western yellowstriped armyworm	0.088 - 0.176	6.75 - 13.5	N/A	4
		European corn borer Potato flea beetle§	0.130 - 0.176	10 - 13.5		
		Green peach aphid§ Potato psyllid§	0.176	13.5		
<p>§ - <b>Suppression only.</b> Use as part of an overall effective control program. Rotate to products with different modes of action.  † - <b>Colorado potato beetle resistance management:</b> Do not apply any other cyantraniliprole containing product for Colorado potato beetle control following an at plant application of VERIMARK®.  <b>Adjusting the pH of the application solution:</b> The pH of the application solution should be between pH 4 and 6. (See "Acidification of Application Solution" section of the label.)  Do not apply more than 13.5 fl oz (0.176 lb ai/A) of VERIMARK® at planting.  Do not apply a total of more than 0.4 lb ai/A of any CYAZYPYR® or cyantraniliprole containing products per calendar year whether applications are made to the seed, soil or foliarly.  VERIMARK® must be applied uniformly in the root zone to ensure effective control.  Surface band application requires a sufficient amount of water post-application to ensure the treatment is moved into the root zone. See the SOIL APPLICATION section of the label for additional guidance, also see the rate conversion chart for application rate per 1000 linear feet.</p>						

<b>VERIMARK® CONVERSION CHART FOR DRIP (TRICKLE) CHEMIGATION AND AT-PLANT SOIL APPLICATION</b>															
	Rate in Fluid Ounces product/1000 Row-feet Based on Planted Row Spacing (in inches) of:														
Fl oz/Acre	20	25	30	34	36	38	40	44	48	60	66	72	78	80	84
5	0.19	0.24	0.29	0.33	0.34	0.36	0.38	0.42	0.46	0.57	0.63	0.69	0.75	0.77	0.80
6.75	0.26	0.32	0.39	0.44	0.46	0.49	0.52	0.57	0.62	0.77	0.85	0.93	1.01	1.03	1.08
8.5	0.33	0.41	0.49	0.55	0.59	0.62	0.65	0.72	0.78	0.98	1.07	1.17	1.27	1.3	1.37
10	0.38	0.48	0.57	0.65	0.69	0.73	0.77	0.84	0.92	1.15	1.26	1.38	1.49	1.53	1.61
13.5	0.52	0.65	0.77	0.88	0.93	0.98	1.03	1.14	1.24	1.55	1.70	1.86	2.01	2.07	2.17



# DUPONT™ VERIMARK® POTATO SEED PIECE TREATMENT

## Application and Mixing Guidance

VERIMARK® may be applied as a water-based slurry with other registered seed treatment fungicides and insecticides. Potential mixing partners should be tested for physical compatibility with VERIMARK® and added dyes or polymers before mixing for seed treatment. Avoid mixtures of several materials and very concentrated seed treatment spray mixtures. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures. Do not mix this product with any product that prohibits such mixing. Caution should be used to ensure that excessive moisture is not applied to the seed pieces to limit potential rotting that may reduce crop emergence. Treat seed pieces on farm or at a local facility. Plant treated seed pieces within 24 hours of treatment with VERIMARK®.

## Pests Controlled and Use Rate

Use VERIMARK® as specified in the following Use-Rate Table for control of beet armyworm, Colorado potato beetle, cabbage looper, European corn borer, western yellowstriped armyworm and suppression of potato flea beetle, potato psyllid, and green peach aphid. Determine the use rate of VERIMARK® based on the planned seeding density. Do not use a seed treatment rate of VERIMARK® greater than 0.176 pounds of cyantraniliprole per acre. Do not apply any other cyantraniliprole containing product for Colorado potato beetle control following a seed piece application of VERIMARK®. Do not apply a total of more than 0.4 lb ai/A per calendar year of any CYAZYPYR® or cyantraniliprole containing products whether applications are made to the soil or foliarly.

Potato Seeding Rate 100 lbs per acre	VERIMARK® Use Rate (fl oz/100 lb of seed pieces)	VERIMARK® Use Rate (lb ai/A)
16 - 18	0.63 – 0.75	0.132 – 0.176
19 - 22	0.53 – 0.61	0.131 – 0.175
23 - 25	0.46 – 0.54	0.138 – 0.176
26 - 27	0.46 – 0.5	0.156 – 0.176
28 - 29	0.46	0.168 – 0.174

## Mixing Instructions

For use in standard and calibrated seed treatment equipment only. Treatment equipment must be clean and free of previous pesticide deposits before applying VERIMARK®. Add VERIMARK® directly to the mixing tank. Mix the specified amount of VERIMARK® thoroughly with sufficient water to coat the potato seed pieces.

Add an EPA approved dye or colorant to treat the seed pieces per 40 CFR 153.155(b)(1) during the seed treatment process. Ensure that all treated seed pieces are dyed an unnatural color.

## Mixing Tank Cleanout

Prior to application, start with clean, well maintained application equipment. Immediately following application, thoroughly clean all mixing equipment to reduce the risk of forming hardened deposits, which might become difficult to remove.

Drain mixing equipment. Thoroughly rinse mixing equipment and flush with clean water.

Clean all other associated application equipment. Take all necessary safety precautions when cleaning equipment. Do not clean near wells, water sources or desirable vegetation. Dispose of water rinse water in accordance with local regulations.

## **STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:** Do not subject to temperatures below 32 degrees F. Store product in original container only in a location inaccessible to children and pets. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Not for use or storage in or around the home.

**PESTICIDE DISPOSAL:** Do not contaminate water, food or feed by storage or disposal. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

**CONTAINER HANDLING: Refer to the Net Contents section of this product's labeling for the applicable "Refillable Container" or "Nonrefillable Container" designation.**

**Nonrefillable Rigid Plastic and Metal Containers (Capacity Equal to or Less Than 5 Gallons):** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

**Nonrefillable Rigid Plastic and Metal Containers (Capacity Greater Than 5 Gallons):** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

**Nonrefillable Rigid Plastic and Metal Containers, e.g., Intermediate Bulk Containers [IBC] (Size or Shape Too Large to be Tipped, Rolled or Turned Upside Down):** Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying the contents from this container into application equipment or mix tank and before final disposal using the following pressure rinsing procedure. Insert a lance fitted with a suitable tank cleaning nozzle into the container and ensure that the water spray thoroughly covers the top, bottom and all sides inside the container. The nozzle manufacturer generally provides instructions for the appropriate spray pressure, spray duration and/or spray volume. If the manufacturer's instructions are not available, pressure rinse the container for at least 60 seconds using a minimum pressure of 30 PSI with a minimum rinse volume of 10% of the container volume. Drain, pour or pump rinsate into application equipment or rinsate collection system. Repeat this pressure rinsing procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

**All Refillable Containers:** Refillable container. Refilling Container: Refill this container with DuPont™ VERIMARK® containing cyantraniliprole only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn out threads and closure devices. If damage is found, do not use container, contact DuPont at the number below for instructions. Check for leaks after refilling and before transporting. If leaks are found, do not reuse or transport container, contact DuPont at the number below for instructions. Disposing of Container: Do not reuse this container for any other purpose other than refilling (see preceding). Cleaning the container before final disposal is the responsibility of the person disposing of the container. To clean the container before final disposal, use the following pressure rinsing procedure. Insert a lance fitted with a suitable tank cleaning nozzle into the container and ensure that the water spray thoroughly covers the top, bottom and all sides inside the container. The nozzle manufacturer generally provides instructions for the appropriate spray pressure, spray duration and/or spray volume. If the manufacturer's instructions are not available, pressure rinse the container for at least 60 seconds using a minimum pressure of 30 PSI with a minimum rinse volume of 10% of the container volume. Drain, pour or pump rinsate into application equipment or rinsate collection system. Repeat this pressure rinsing procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Do not transport if container is damaged or leaking. If the container is damaged, leaking or obsolete, or in the event of a major spill, fire or other emergency, contact DuPont at 1-800-441-3637, day or night.

**NOTICE TO BUYER**— Purchase of this material does not confer any rights under patents of countries outside of the United States.

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## **LIMITATION OF WARRANTY AND LIABILITY**

NOTICE: Read this Limitation of Warranty and Liability Before Buying or Using This Product. DuPont will not be responsible for losses or damages resulting from the use of this product in any manner not specifically directed by DuPont. User assumes all risks associated with such non-directed use. If the Terms Are Not Acceptable, Return the Product at Once, Unopened, and the Purchase Price Will Be Refunded.

It is impossible to eliminate all risks associated with the use of this product. Such risks arise from weather conditions, soil factors, off target movement, unconventional farming techniques, presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of DuPont. These risks can cause: ineffectiveness of the product, crop injury, or injury to non-target crops or plants. **WHEN YOU BUY OR USE THIS PRODUCT, YOU AGREE TO ACCEPT THESE RISKS.**

DuPont warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for the purpose stated in the Directions for Use, subject to the inherent risks described above, when used in accordance with the Directions for Use under normal conditions.

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**For product information call: 1-888-6-DUPONT [1-888-638-7668]**

**Internet address: <http://cropprotection.dupont.com/>**

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