

## SUPPLEMENTAL LABELING

**DuPont Crop  
Protection**

**DUPONT™ VYDATE® C-LV  
INSECTICIDE/NEMATICIDE  
FOR CONTROL OF COLORADO  
POTATO BEETLE AND SUPPRESSION  
OF NEMATODES**

### **DUPONT™ VYDATE® C-LV INSECTICIDE/NEMATICIDE**

EPA Reg. No. 352-532

**FOR THE CONTROL OF COLORADO POTATO BEETLE AND SUPPRESSION\* OF LESION, STUBBY ROOT AND  
ROOT KNOT NEMATODES IN POTATOES IN THE STATES OF COLORADO, IDAHO, NEBRASKA, NEVADA,  
OREGON, WASHINGTON, AND WYOMING**

#### **RESTRICTED USE PESTICIDE**

Due to Acute Toxicity and Toxicity to Birds and Mammals.

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by Certified Applicator's certification

#### **DIRECTIONS FOR USE**

It is a violation of federal law to use this product in manner inconsistent with its labeling.

#### **IMPORTANT**

Before using Vydate® C-LV, read and follow all applicable directions; restrictions; and precautions on the EPA-registered label.

This bulletin contains new or supplemental instructions for use of these products in combination which does not appear on the package label. Follow the instructions carefully. Refer to the main label for important information on the use of Vydate C-LV in irrigation systems.

This label must be in the possession of the user at the time of pesticide application.

#### **Before Using VYDATE® C-LV as a Nematicide**

To properly assess nematode populations and determine if a VYDATE® C-LV treatment program is a suitable option, it is essential to take soil samples prior to planting and use the services of a local fieldman and/or crop consultant knowledgeable about and experienced with nematode control in potatoes. Soil samples need to be taken in time to apply a pre-plant fumigant if necessary.

For maximum crop protection, use a pre-plant fumigant, **shanked-in**, and follow with the recommended VYDATE® C-LV treatment program. VYDATE® C-LV treatment programs that follow metam sodium applied via chemigation may not provide adequate crop protection.

#### **Application Information**

Apply DuPont VYDATE® C-LV Insecticide/Nematicide to potatoes by ground or overhead sprinkler irrigation systems. VYDATE® C-LV is soluble in water and moves with the irrigation water. For best results apply via overhead sprinkler systems.

Foliar applications by ground equipment for suppression of nematodes should only be used where it is not possible to apply via chemigation. Where ground application is used, VYDATE® C-LV should be incorporated with enough irrigation water to completely cover all of the tubers in the hill immediately after application. Because ground application is not as effective as chemigation, nematode damage may occur.

#### **Sprinkler Irrigation Application**

VYDATE® C-LV may be applied by overhead irrigation systems. VYDATE® C-LV is soluble in water and moves in the soil with the irrigation water. Use enough irrigation water to completely cover the entire tuber/root zone, especially tubers at the bottom of the hill. On sand, loamy sand, and sandy loam soils use approximately 0.5 inch of irrigation water; finer textured soils may require more. For center pivot systems, VYDATE® C-LV application can be made with lower amounts of water (0.10 to 0.20 acre inch) providing this application is immediately followed by a standard irrigation so that the total amount of water applied is at least 0.5 acre inch.

For solid set and wheel-line systems, inject the appropriate amount of VYDATE® C-LV at the beginning of the irrigation cycle and adjust metering rate so that all of the VYDATE® C-LV is applied during the first half of the irrigation cycle.

Always buffer the VYDATE® C-LV injection solution to a pH of 5.0 or lower. Phosphoric acid or N-phurric fertilizer solutions may also be used to buffer high pH irrigation water used with VYDATE® C-LV applications.

**In-Furrow Application:** Apply VYDATE® C-LV as a concentrated band spray in the seed row with the spray nozzle positioned behind the planter tube. Adjust nozzle height so that spray pattern is 6-8 inches wide covering the bottom and sides of the furrow.

#### Nematode Suppression\*

When used as directed, VYDATE® C-LV suppresses nematodes resulting in reduced crop damage. Nematode suppression is defined as a reduction in nematode related crop injury compared to untreated. VYDATE® C-LV performance is related to nematode population pressure. Fields that have high nematode counts or have a recent history of significant nematode related crop injury should be treated with the most effective soil fumigant program available in conjunction with the use of VYDATE® C-LV. Because soil sampling and nematode extraction techniques do not always provide an accurate and representative assessment of nematode populations; results may vary and nematode damage can occur.

#### ROOT-KNOT NEMATODE TREATMENT PROGRAMS

Nematode control programs should be based on soil samples taken with sufficient time to apply a soil fumigant if determined to be necessary. Since fumigation performance is often optimal in the fall, fall sampling for nematodes should be considered. The VYDATE® C-LV treatment program is based on the life cycle of the Columbia Root-Knot Nematode as defined by university nematologists. A degree-day model has been developed to track nematode development. In order to properly time certain VYDATE® C-LV applications, you must have access to degree-day data for your area.

**Monitoring Degree-Days:** Soil degree-days should be monitored with in-field data loggers placed 6 to 8 inches deep in the potato row. Degree-day accumulation starts at planting and is based from 41 degrees F (5 degrees C.). To calculate degree-days in Fahrenheit, take the average daily soil temperature (add daily max. + daily min., and divide by 2), then subtract 41 which will yield the degree-day value for that day. Add the daily cumulative total from the date of planting to track growing degree-days.

#### Treatment Options Based on Nematode Populations in the Columbia Basin of Oregon and Washington

For maximum crop protection, use a pre-plant fumigant, shanked-in, and follow the recommended VYDATE® C-LV treatment program.

Where pre-plant soil samples show 0 to 50 root-knot nematodes per 250 cc of soil, choose one of these two treatment programs.

BEST TREATMENT PROGRAM	ALTERNATE TREATMENT PROGRAM
2.1 to 4.2 pts/acre in-furrow at planting	Skip in-furrow
2.1 pts/acre at crop emergence	2.1 pts/acre at crop emergence
2.1 pts/acre at 1440 degree-days (800 DD C)	2.1 pts/acre at 1440 degree-days F (800 DD C)
2.1 pts/acre 14 days later	2.1 pts/acre 14 days later
Continue applying 2.1 pts/acre every 14 days until 7 days before digging.	Continue applying 2.1 pts/acre every 14 days before digging.

Note: For best results, all applications other than in-furrow should be made via chemigation.

Where pre-plant soil samples are greater than 50 but not more than 150 root-knot nematodes per 250 cc of soil:

Start with a fumigant that is applied pre-plant using a soil injection (shank) system
2.1 to 4.2 pts/acre in-furrow at planting
2.1 pts/acre at crop emergence
2.1 pts/acre at 1440 degree-days F (800 DD C)
2.1 pts/acre 7 days later
2.1 pts/acre 7 days later
2.1 pts/acre 14 days later
Continue applying every 14 days until 7 days before digging

Note: For best results, all applications other than in-furrow should be made via chemigation.

#### Treatment Options Based on Root-Knot Nematode Populations in All Other Areas

Where pre-plant soil samples are 0 to 150 per 250 cc of soil, choose one of these treatment programs based on pre-plant soil nematode counts. Use the Maximum Protection program for high nematode counts (close to but not exceeding 150 nematodes per 250 cc of soil) and the Alternate Program for low counts (close to zero nematodes per 250 cc of soil):

For Maximum Protection	Next Best Program	Alternate Program
Shanked-in fumigant pre-plant	2.1 pts/acre to 4.2 pts/acre in-furrow at planting	2.1 pts/acre at 1440 degree days F (800 DD C)
2.1 pts/acre to 4.2 pts/acre in-furrow at planting	2.1 pts at 1440 degree days F (800 DD C)	2.1 pts/acre 14 days later
2.1 pts/acre at 1440 degree days F (800 DD C)	2.1 pts/acre 14 days later	Continue applying 2.1 pts/acre every 14 days until 7 days before digging
2.1 pts/acre 14 days later	Continue applying 2.1 pts/acre every 14 days until 7 days before digging	
Continue applying 2.1 pts/acre every 14 days until 7 days before digging		

Note: For best results, all applications other than in-furrow should be made via chemigation.

## Potatoes Following Alfalfa

Alfalfa roots can harbor large numbers of root-knot nematode eggs. The eggs inside alfalfa roots are protected from nematicides and they do not hatch until the alfalfa roots break down in the soil. This makes it very difficult to monitor nematode populations via soil sampling and can result in an underestimation of the actual population density. Under these conditions, nematode related crop damage could occur even with the best treatment programs. For this rotation, disc alfalfa roots thoroughly and allow as much time as possible for the alfalfa roots to break down prior to planting potatoes. Nematode sampling will be more accurate once the alfalfa roots have broken down and the soil is moist. Apply a shanked-in fumigant before planting then use the following VYDATE® C-LV treatment program:

2.1 to 4.2 pts/acre in-furrow at planting
2.1 pts/acre at crop emergence
2.1 pts/acre 14 days later
Continue applying 2.1 pts/acre every 14 days until 7 days before digging

Note: For best results, all applications other than in-furrow should be made via chemigation.

## In-Season Soil Sampling

After planting, it is advisable to monitor nematode populations via soil sampling prior to 1440 degree-days F in order to assess the potential for nematode damage. If nematodes are found, it is important to start a VYDATE® C-LV treatment program not later than 1440 degree-days F. Applications that start later than 1440 degree-days F may not provide an adequate level of tuber protection.

**IMPORTANT:** The maximum amount of VYDATE® C-LV allowed per acre per season is 18.9 pints. For long season potatoes, it is important to estimate the number of applications needed to protect the crop up until the pre-Harvest interval of 7 days before digging. **The use of VYDATE® C-LV is not recommended where root-knot nematode counts are higher than 150 per 250 cc of soil or where the total estimated amount of product needed to protect the crop right up to harvest exceeds 18.9 pints/acre/season.**

Warm soil conditions following vine-kill and before harvest can increase the risk of tuber damage especially if harvest is delayed.

## Lesion and Stubby Root Nematode Treatment Programs

There are no population limitations for using VYDATE® C-LV against lesion nematodes. For stubby root nematodes, VYDATE® C-LV is recommended where soil samples indicate 0-50 per 250 cc of soil. Use a shanked-in fumigant followed by a VYDATE® C-LV treatment program if stubby root populations are higher than 50 per 250 cc of soil.

Choose one of these two treatment options:

Best Treatment Program	Alternate Treatment Program
In-furrow at 2.1 pts/acre	Skip in-furrow
2.1 pts/acre at crop emergence prior to tuber initiation (hooking)	2.1 pts/acre at crop emergence prior to tuber initiation (hooking)
2.1 pts/acre 14 days later	2.1 pts/acre 14 days later
2.1 pts/acre 14 days later	2.1 pts/acre 14 days later
2.1 pts/acre 14 days later	2.1 pts/acre 14 days later

Note: For best results, all applications other than in-furrow should be made via chemigation.

**Important:** Applications made after tuber initiation may not control Corky Ringspot disease that is vectored by the Stubby-Root Nematode. If a field has a history of Corky Ringspot or if there is reason to believe that Corky Ringspot could be a problem, use the labeled rate of a shanked-in fumigant and follow with the treatment program that starts with an in-furrow application.

Do not apply more than 18.9 pints ( 2.4 gallons) of VYDATE® C-LV per acre per season and do not apply within 7 days of harvest.

## Control of Colorado Potato Beetle

Apply Vydate(R) C-LV at 2.1 pints/acre by air, ground or chemigation via overhead sprinkler. For overhead sprinkler chemigation applications, inject Vydate(R) C-LV at 2.1 pints/acre using not more than 0.10 to 0.25 acre inch of water as the carrier.

**NOTE:** Do not apply more than 2.4 gal (18.9 pts) (9 lb ai) VYDATE® C-LV per season. Do not make more than 8 foliar applications of VYDATE® C-LV per acre per crop. Last application (days to harvest) = 7 days.

## USE PRECAUTION -

### SPRINKLER IRRIGATION APPLICATIONS

Apply this product through overhead sprinkler irrigation equipment including center pivot, lateral move, end tow, side (wheel) roll, traveler, solid set, mini (micro) sprinkler, hand move irrigation systems. Do not apply this product through any other type of irrigation system.

Application should be in sufficient water and of sufficient duration to apply the recommended rate evenly to the entire treated area.

Do not allow irrigation water to collect or run-off during chemigation.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

If you have questions about calibration, you should contact state extension service specialists, equipment manufacturers, or other experts.

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.

Wear 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 DuPont™ VYDATE® C-LV is in the irrigation water.

When the application is finished, allow the entire irrigation and injector system to be thoroughly flushed clean before stopping the system.

A pesticide supply tank is recommended for the application of VYDATE® C-LV in chemigation systems. VYDATE® C-LV is a water soluble liquid. Once in solution, no further agitation is required. VYDATE® C-LV is compatible with most commonly used plant protectants with the exception of Bordeaux mixtures, lime sulfur and spray oils. Highly alkaline water should be buffered so that the pH of spray solution is in the range of neutral to slightly acidic.

Do not connect any irrigation system (including greenhouse systems) 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.

#### **REQUIRED SYSTEM SAFETY DEVICES**

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. 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.

#### **SPRINKLER CHEMIGATION**

1. End guns must be turned off during the application, if they irrigate non target areas.
2. It is recommended that nozzles in the immediate area of control panels, chemical supply tanks and system safety devices be plugged to prevent contamination of these areas.
3. Do not apply when wind speed favors drift beyond the area intended for treatment.
4. Do not apply when system connections or fittings leak or when nozzles do not provide uniform distribution.

See crops on label for recommended treatment rates and additional use information.

#### **POSTING OF AREAS TO BE TREATED**

Posting of areas to be chemigated is required when 1) any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, daycare centers, hospitals, in - patient clinics, nursing homes, or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or 2) when the chemigated area is open to public such as golf courses or retail greenhouses.

Posting must conform to all the following requirements. Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. When there are no usual points of entry, signs must be posted in the corners of the treated areas and in any other location affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area towards the sensitive area. The signs shall be printed in ENGLISH. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the duration of the posting period.

All words shall consist of letters at least 2 1/2 inches tall, and all letters and the symbol shall be a color which sharply contrasts with their immediate background. At the top of the sign shall be the words "KEEP OUT", followed by an octagonal stop sign symbol at least 8 inches in diameter containing the word "STOP". Below the symbol shall be the words "PESTICIDE IN IRRIGATION WATER".

Posting required for chemigation does not replace other posting and reentry requirements for farm worker safety.

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