

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

JUN 29 1994

Mr. Douglas M. Roby DowElanco 9330 Zionsville Road Indianapolis, IN 46268 OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

Subject:

Label Amendment Submission of 03/04/94 in Response to PR Notice 93-7

EPA Reg. No. 62719-32 Telone II FUMIGANT

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is accepted subject to the comments reflected on the enclosed sheet. A copy of your proposed labeling stamped "ACCEPTED WITH COMMENTS" is enclosed.

WHAT THIS ACCEPTANCE MEANS:

Based on your certification, the Agency has accepted the labeling changes that are necessary to comply with the Worker Protection Standard (WPS) labeling requirements of 40 CFR part 156, subpart K, described in PR Notices 93-7 and 93-11. Any other labeling changes submitted in connection with this amendment application but not directly related to compliance with the WPS have not been reviewed or accepted by the Agency. If you wish to make such changes, you must submit a separate amendment application proposing them. If your product is currently suspended, the acceptance of this labeling amendment does not affect the suspension in any way.

WHAT YOU NEED TO DO NEXT:

By the next label printing make all the specified changes to your labeling. Send to EPA one (1) copy of the final printed labeling:

- BEFORE selling or distributing any product bearing the final printed labeling AND
- WITHIN one year from date of this acceptance.

RECEIVED

JUL 1:1 1994

Registration



Perioded/Recyclinhia Plinted with Soly/Canola ink on paper that contains at least 50% recycled fiber Submit the final printed labeling via the U.S. Postal Service to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs (7505C)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460-0001

Hand or courier deliveries of final printed laveling may be made to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202

Sincerely,

Jim Tompkins, Deputy Chief Registration Support Branch Registration Division (7505W)

Attachment

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Douglas M. Roby DowElanco.

Comments for: EPA REG. NO. 62719-32 TELONE II

The following specific comments pertain to your WPS labeling submission concerning the product cited above:

Modify the chemical-resistant category statement on your label to state: "Some materials that are chemical-resistant to this product are listed below. If you want more options, follow instructions for category "H" on an EPA chemical-resistant category selection chart." The exact location is shown in Section A on Part 1 of the Product Worksheet.

To the PPE in "3. APPLICATORS OUTSIDE AN ENCLOSED CAB"

Add "Face-sealing goggles, unless full-face respirator is worn," to the PPE after "chemical resistant footwear plus socks"

Modify the following statement as suggested:

Plus, if odor or irritation from this product can be detected, handlers must wear a respirator with either an organic vapor-removing cartridge with a pre-filter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G). Face-sealing goggles must be worn unless full-face respirator is worn. See further respirator requirements in the "User Safety Requirements" section of the label.

At the end of "5. Handlers Exposed to High Concentrations" add

" NOTE: In-tank cleaning of bulk tanks must be performed only by persons who have been specifically trained for this activity. Refer to OSHA 29 CFR 1910.146 and the Telone User's Guide section on Storage Tanks."

Make any editorial changes indicated on the label.

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Physical or Chemical Hazards

Flammable - Do not use, pour, spill, or store near heat or open flame. Do not cut or weld container.

Ag cultural Use Regulrements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to label booklet for additional precautionary information including Personal Protective Equipment (PPE). User Safety Requirements User Safety Recommendations, and Engineering Controls Statements, and Directions for Use including Storage and Disposal.

Notice: Read the entire label. Use only according to label directions. Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" inside label booklet.

In case of an emergency endangering health or the environment involving this product, call collect 517-636-4400.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-32

EPA Est. 464-TX-1: 464-MI-1: 464-CA-1: 464-CA-2: 54686-WA-1

*Trademark of DowElanco
DowElanco • Indianapolis, IN 46268, U.S.A.

Soil Fumigant

Net Contents ___ gallons

AGDERTED with COMMENTS In EPA Letter Dated

11N 2 9 1991

Under the Federal Insecticide, Fundicide, and Bodentielde Act as amended, for the pesticide registered under EPA Reg. No.

5 \$ 22

(Label booklet)

Restricted Use Pesticide

Due to high acute inhalation toxicity and carcinogenicity.

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

(logo) DowElanco

Telone* II

A liquid fumigant for preplant treatment of soil to control plant parasitic nematodes and certain other soil pests in cropland

Not for use in greenhouses or other enclosed areas.

	weight)
1,3-dichloropropene	. 94%
Inert Ingredients	
Total	
1 gallon of Telone weighs 10.1 lb at 70°F.	

Keep Out of Reach of Children WARNING

AVISO

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

Agricultural Use Regulrements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to Inside of label booklet for additional precautionary information including Personal Protective Equipment (PPE). User Safety Requirements User Safety Recommendations, and Engineering Controls Statements, and Directions for Use Including Storage and Disposal.

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EPA Reg. No. 62719-32

EPA Est. 464-TX-1; 464-MI-1; 464-CA-1; 464-CA-2; 54686-WA-1

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Soil Fumigant

Limitation of Remedies

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Precautionary Statements

Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

WARNING

AVISO:

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

Hazardous Liquid And Vapor

- · Do not swallow any of this product. May be fatal if swallowed.
- · Do not get in eyes. Causes substantial, but temporary eye injury.
- Do not get on skin. May be fatal if absorbed through the skin. Causes skin Irritation and, if confined, skin burns. May cause allergic skin reaction.
- Do not breathe vapor. May be fatal if inhaled. May cause lung, liver, and kidney damage and respiratory system irritation upon prolonged contact.
- The use of this product may be hazardous to your health. This product contains 1.3-dichloropropene, which has been determined to cause tumors in laboratory animals. Risks can be reduced by exactly following directions for use, precautionary statements, and by wearing the personal protective equipment specified in this labeling.

1. Handlers Performing Direct Contact Tasks

Direct contact tasks are tasks performed outdoors or in a well-ventilated area. They include:

- equipment calibration or adjustment
- · · rinsate disposal

equipment dean-up and repair

fumigant transfer

moduci samping

- · · clean-up of small spills
- any activity less than 6 feet from an unshielded pressurized hose
- preparing containers for aeration

containing this product

• any other task not otherwise listed in (2), (3), (4) cr (5) below

· removal of tarp or plastic film *

Applicators and other handlers performing direct-contact tasks must wear:

- · Coveralls over short-sleeved shirt and short pants, Eval
- · Chemical-resistant oloves, such as barrier laminate or viton.
- · Chemical-resistant footwear plus socks.
- · Face-sealing googles, unless full-face respirator is worn.
- · Chemical-resistant headgear for overhead exposure.
- Chemical-resistant apron.
- Respirator with either an organic-vapor-removing cartridge with a prefilter approved for pesticides
 (MSHANIOSH approval number prefix TC-23C) or canister approved for pesticides (MSHANIOSH
 approval number prefix TC-14G). See further respirator requirements in the "User Safety
 Requirements" section on this label.

2. Handlers in Enclosed Cabs

Applicators and other handlers in enclosed cabs must wear:

- Coveralls.
- Shoes and socks.
- Plus, if odor or irritation from this product can be detected inside the enclosed cab, handlers in the cab must wear a respirator with either an organic-vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G). See further respirator requirements in the "User Safety Requirements* section on this label.
- . In addition, the PPE specified in (1) for direct-contact activities must be immediately available in the enclosed cab and must be worn if the handler leaves the enclosed cab to perform any directcontact activity.
- The enclosed cab must meet the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides -- 40 CFR 170.240(d)(5).

3. Applicators Outside an Enclosed Cab

Applicators applying Telone II (or sealing the soil following application of Telone II) who are not inside an enclosed cab must wear:

- Coveralls over short-sleeved shirt and short pants.
- Chernical-resistant gloves, such as barrier laminate (EVAL) or viton.

Chemical-resistant footwear plus socks.

Chemical-resistant headgear for overhead exposure.

Face - water gossles, unles full-face Plus, if odor or irritation from this product can be detected, handlers must wear a respirator with either an organic-vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G), and unless full-face respirator is worn face-sealing googles. See further respirator requirements in the "User Safety Requirements" section on this label. Must be worn for

4. Handlers in Treated Area within 72 Hours After Application

Only the following handler tasks may be performed in the treated area within 72 hours after the application is complete:

- · Assessing/adjusting the soil seal
- Assessing pest control, application technique, or application efficacy
- Sampling air or soil for this product

All other tasks are prohibited until the 72-hour period has expired.

Unless in an enclosed cab as described in (2) above, handlers performing the above tasks in the treated area within 72 hours after application must wear:

· Coveralis.

- · Chemical-resistant gloves, such as barrier laminate or viton.
- · Chemical-resistant footwear and socks.
- · Plus if odor or irritation from this product can be detected, handlers must wear: a respirator with either an organic-vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G). See further respirator requirements in the "User Safety Requirements" section on this label.

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5. Handlers Exposed to High Concentrations

- Handlers exposed to high concentrations of this product, such as cleanup following large spills and exposure to this product in poorly ventilated areas must wear:
 - · Chemical-resistant suit.
 - · Chemical-resistant gloves, such as barrier laminate or viton.
 - · Chemical -resistant footwear plus socks.
 - · Chemical-resistant headgear.
- Supplied-air respirator with MSHA/NIOSH approval number prefix TC-19C or self-contained breathing apparatus (SCBA) with MSHA/NIOSH approval number prefix TC-13F. See further respirator requirements in the "User Safety Requirements" section on this label.

User Safety Requirements

- 1. Respirator Requirements: When a respirator is required for use with this product, the following criteria must be met:
 - a. Cartridges or canisters must be replaced daily or when odor or irritation from this product becomes apparent, whichever is sooner.
 - b. Respirators must be fit-tested and fit-checked using a program that conforms to OSHA's requirements (described in 29 CFR Part 1910.134).
 - c. Respirator users must be trained using a program that conforms to OSHA's requirements (described in 29 CFR Part 1910.134).
 - d. Respirator users must be examined by a qualified medical practitioner to ensure physical ability to safety wear the style of respirator to be worn.
- 2. Dispose of Contaminated Ciothing: Discard clothing and other absorbent materials that have been drenched or heavily contaminated with liquid from this product. Do not reuse them.
- 3. Clean and Maintain PPE: Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Wash PPE after each day's use.
- Contact With Mouth: Never siphon this product by mouth or use mouth to blow out clogged lines. nozzles, etc.
- 5. Heat Illness Avoidance: Use measures to avoid or minimize heat illness while using this product. These measures include gradual adjustment to heat and respirator stress, fans for cooling, cooling yests, frequent breaks to cool down, frequent intake of drinking water, and maintaining weight from day to day.

User Safety Recommendations

Users should:

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

Engineering Controls Requirements

Mechanical Transfer System: Personal protective equipment specified for "Direct Contact Activities" must be worn by the operator of the mechanical transfer system. The operator of the mechanical transfer system must have available to him the manufacturer's written instructions for operation of the system and must read and understand (or have explained to him in detail) the proper operation and maintenance of the system.

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With all bulk and mini-bulk containers, Telone II must be transferred through connecting hoses, pipes, and/or couplings sufficiently tight to prevent workers or other persons from coming in contact with liquid Telone II.

 All hoses, piping, and tanks used in connection with Telone II shall be of type appropriate for use under the pressure and vacuum conditions to be encountered.

2. External sight gauges shall be equipped with valves so that pipes to sight gauge can be shut off in case of breakage or leakage.

The mechanical transfer system must be adequate to make necessary measurements of the pesticide being used.

4. Shut-off devices must be installed on the exit end of all hoses and at all disconnect points to prevent leakage of Telone product when the transfer is stopped and hose is removed or disconnected. A dry coupler that will minimize pesticide leakage to must be installed at the disconnect point.

The pressure in hoses used to move Telone II beyond a pump must not exceed the manufacturer's maximum pressure specification.

First Aid

If Inhaled: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

If on skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. If water is not immediately available, remove excess chemical from skin with adsorbent material such as towel or dry soil, then proceed at once to a location where water is available and thoroughly wash contaminated skin with plenty of water. Call a physician. If In eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. If swallowed: Do not induce vomiting. Call a physician or Poison Control Center immediately. Never give anything by mouth to an unconscious person.

Note to physician: Because rapid absorption may occur through lungs if product is aspirated and cause systemic effects, the decision to induce vomiting or not should be made by a physician. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.

Physical or Chemical Hazards
Flammable - Do not use, pour, spill, or store near heat or open flame. Do not cut or weld container.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by disposal of equipment washwaters. See "Storage, Shipment and Disposal" section. In case of spills properly dispose of contaminated materials.

Ground water advisory: 1,3-dichloropropene is known to move through soil and under certain conditions has the potential to reach ground water as a result of agricultural use. Application in areas where soils are permeable and ground water is near the surface, or in karst geology, could result in ground water contamination.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift.

Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Regulrements

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

Entry Restriction:

Entry (including early entry that would otherwise be permitted under the WPS) by any person -- other than a correctly trained and equipped handler who is performing a handling task permitted on this labeling -- is prohibited from the start of application until 72 hours after application. In addition, if tarps are used for the application, non-handler entry is prohibited while tarps are being removed.

Notification:

Notify workers of the application by warning them orally and by posting fumigant warning signs at entrances to treated areas. The sign must bear the skull and crossbones symbol and state: (1) "DANGER/PELIGRO." (2) Areas under fumigation. DO NOT ENTER/NO ENTRE." (3) the date and time of fumigation. (4) "Telone II Fumigant in use." and (5) name, address, and telephone number of the applicator." Post the fumigant warning sign instead of the WPS sign for this application, but follow all WPS requirements pertaining to location, legibility, size and timing of posting and removal.

PPE For Reentry During The Entry-Restricted Period:

PPE for entry that is permitted by this labeling is listed in the "Hazards to Humans and Domestic Animals" section of this labeling.

STORAGE, SHIPMENT AND DISPOSAL

Shipment: Do not ship or store with food, feeds, drugs, or clothing.

Storage: Store in tightly-closed original container in a cool place away from dwellings. Do not allow contamination of seeds, plants, fertilizers, or other pesticide chemicals. Do not contaminate food, feedstuffs, drugs, or domestic water supplies.

Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide and rinsates is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

Because Telone II is corrosive under certain conditions, flush all application equipment with fuel oil, kerosene or a similar type of petroleum solvent immediately after use. Fill pumps and meters with new motor oil or a 50% motor oil/fuel oil mixture before storing. Do not use water. Dispose of rinsate by applicable Federal, state and local regulations. Never introduce rinsate or unused Telone II into surface or underground water supplies.

Metal Container Disposal: To dispose of container emptied during application operation, remove bungs, invert container in the field just treated and ensure that the container is free of liquid. Orient container such that ventilation of bung holes is not restricted. Allow containers to aerate for at least 14 days. Replace bungs prior to transport. After aeration, offer container to qualified reconditioner or dispose of as directed by State or local regulations.

Refiliable Containers: Follow cleaning and handling directions in Telone User's Guide.

Bulk or Mini-bulk Product Transfers: Dry break or dry disconnect couplings are required for all product transfers involving bulk or mini-bulk containers for Telone II as of September 30, 1993.

General Information

Telone It is a liquid fumigant for preplant treatment of soil to control plant parasitic nematodes and certain other soil pests and plant diseases in cropland.

Telone II may be applied as a preplant soil treatment to control the following types of plant parasitic nematodes: burrowing, citrus, cyst (golden, sugar beet, soybean, carrot and wheat), dagger, lance, pin. needle, reniform, ring, root knot, root lesion, spiral, sting and stubby root.

Telone II can also be used to control garden centipedes (symphylans) and wireworms, suppress sugar beet Rhizomania disease, Fusarium wilt of cotton and Verticillium wilt of mint and potatoes and aid in the control of bacterial canker of peaches.

Before fumigation, soil sampling for the type and number of pests present is recommended. In fields where pre-treatment soil samples indicate the presence of high population levels of nematodes, a successful furnigation cannot be expected to eradicate entire populations. Therefore, post-treatment sampling is recommended to determine the need for additional pest management practices.

Consult State Agricultural Experiment Station or Extension Service specialists for information on other practices such as post-harvest destruction of crop residues, weed control or other cultural practices, and use of nematode resistant crop varieties that may aid in reducing crop losses from soil bome pests.

General Use Precautions

Soil furnigation using Telone II should be conducted only according to directions and conditions of use described in this labeling.

Formulator use of Telone II: Labeling for end use products containing Telone II that are prepared and sold by formulators must comply with all precautionary statements, use precautions, environmental hazards, handling and protective equipment requirements, maximum application rates and other exposure mitigation measures specified in this product labeling.

recontamination prevention: Telone II will control pests that are present in the soil treatment zone at time of fumigation. It will not control pests that are introduced into soil after fumigation. To avoid reinfestation of treated soil do not use irrigation water, transplants, seed pieces, or equipment that could carry soil borne pests from infested land. Avoid contamination from moving infested soil onto treated beds through cultivation, movement of soil from below the treated zone, dumping contaminated tare soil in treated fields and soil contamination from equipment or crop remains. Clean equipment carefully before entering treated fields.

Bulk or Minibulk Product Transfers: Dry break or dry disconnect couplings are required for all product transfers involving bulk or minibulk containers for Telone II as of September 30, 1993.

Do not use containers, pumps or other transfer equipment made of aluminum, magnesium or their alloys, as under certain conditions Telone II may be severely corrosive to such metals.

Equipment Clean-up: Because Telone II is corrosive under certain conditions, flush all application equipment with fuel oil, kerosene or a similar type of petroleum solvent immediately after use. Fill pumps and meters with new motor oil or a 50% motor oil/fuel oil mixture before storing. Do not use water. Dispose of rinsate by incorporation into field just treated or by other approved means. Never introduce rinsate or unused Telone II into surface or underground water supplies.

Chemigation: Do not apply Telone II through any type of irrigation system.

Fertility Interactions: Fumigation may temporarily raise the level of ammonia nitrogen and soluble salts in the soil. This is most likely to occur when heavy rates of fertilizer and fumigant are applied to soils that are either cold, wet, acid, or high in organic matter. To avoid injury to certain crops including red beets, carrots, corn, radishes, cole crops, legumes (beans), lettuce, onions, and sugar beets, fertilize as indicated by soil tests made after fumigation. To avoid ammonia injury or nitrate starvation (or both) to crops grown on high organic soils, do not use fertilizers containing ammonium salts. Use only fertilizers containing nitrates until after the crop is well established and the soil temperature is above 65°F.

When using high rates of Telone II as required by certain state nursery regulations, liming of highly acid soils before furnigation may stimulate nitrification and reduce the possibility of ammonia toxicity. Certain nursery crops such as citrus seedlings, *Cornus* sp., *Crataegus* sp., spruce, and vegetable crops such as cauliflower have shown evidence of phosphorus deficiency following furnigation. To avoid this possible effect, additional phosphate fertilizer (foliar applied) is recommended where experience indicates a deficiency may occur.

Application Directions

Application Timing

Telone II can be applied at any time of the year when soil conditions permit. Conditions that allow rapid diffusion of the fumigant as a gas through the soil normally give best results. Because Telone II does not provide residual control of soil pests, it should be used as a preplant application before planting each crop. The following soil temperature and moisture conditions should exist at time of treatment. Failure to meet these conditions may result in unsatisfactory product performance:

Soil Conditions

Soll temperature at the depth of application must be between 40°F and 80°F. In areas where the soil temperature in the spring may not reach 40°F in time to allow application of Telone II prior to planting, late summer or early fall treatment is recommended.

Soil moisture throughout the desired treatment zone should be at or near the permanent wilting point to allow optimum dispersion of the fumigant, which moves as a gas through the soil air spaces. The permanent wilting point varies with soil texture and organic matter content. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If you do not know how to determine the soil moisture content of the area to be treated, consult your local extension service or soil conservation service specialist or pest* control advisor (ag consultant) for assistance.

In general, no irrigation should immediately precede subsoiling or fumigation; however, when surface soil moisture conditions are not likely to provide an adequate seal against fumigant loss, a very light sprinkler irrigation to wet the top 1 to 2 inches of soil may be useful.

Soli Preparation

The soil should be free of clods. Large clods can prevent effective soil sealing and reduce effectiveness of Telone II. Plant residues should be thoroughly incorporated into the soil prior to treatment to avoid interfering with application. Undecomposed plant material may harbor pests that will not be controlled by furnigation. Little or no crop residue should be present on the soil surface. Crop residue that is present should lie flat to permit the soil to be sealed effectively. Compacted soil layers within the desired treatment zone should be fractured before or during application of the furnigant. Deviation from the above conditions may result in unsatisfactory results.

Placement of Fumigant

Telone II may be applied as either a broadcast (overall) or row treatment. It must be placed at least 10 inches below the final soll surface. When soil conditions allow, placement a minimum of 12 inches below the final soil surface is recommended. Deeper placement is recommended when fumigating soil to be planted to deep-rooted plants, such as perennial fruit and nut crops, or to control deeply distributed pests.

Application Methods and Equipment

Broadcast Application: Use chisel (shank), Nobel (sweep) plow or plow-sole application equipment. For best results when using chisel equipment, use ripper-type, forward-swept shanks. Nobel plow equipment is particularly useful for fall fumigation when the soil still contains some undecomposed standing plant material. Subsoiling may be necessary before application as described under "Soil Preparation". Choose application equipment which allows the deepest application and best soil seal under existing conditions.

The fumigant outlet spacing varies with the type of application equipment used.

With chisel equipment a fumigant shank spacing of 12 to 24 inches is recommended. The outlet spacing for this equipment may be up to 1 1/2 times the application depth but generally should be equal to the application depth and should not exceed the soil-shattering capability of the chisels. The maximum outlet spacing should not exceed 24 inches.

With plow-sole equipment a 12-inch outlet spacing is recommended. Do not exceed an outlet spacing of 18 inches.

With Nobel (sweep) plow equipment use an outlet spacing of 9-12 inches along the sweeps.

Broadcast application can be made in the same direction or at an angle to the direction of row planting. Refer to Table 1 for broadcast treatment rates for various crops.

Row Application: Use chisel equipment to treat a band of soil where the crop is to be planted, i.e. the plant row. One or two chisels per plant row is recommended. In general, when one chisel is used, apply Telone II at the flow rates given in Table 2. When two chisels per plant row are used, space the chisels (fumigant outlets) 8 to 12 inches apart and divide the flow rates given in Table 2 equally between the two outlets. Regardless of the number of chisels used, the amount of fumigant applied per 1000 feet of plant row should remain the same. With certain deeper rooted crops such as potatoes and sugar beets, higher flow rates may be necessary to ensure adequate treatment of the zone of soil where primary root growth occurs; however, in no case should the amount of fumigant applied per acre exceed the gallons per acre rates for broadcast treatment given in Table 1. To determine the amount (gallons) of Telone II required per acre for various plant row spacings and flow rates, refer to Table 3. Note that as the distance between the plant rows increases the amount of fumigant required decreases and vice versa.

To prevent seed germination problems caused by improper seed-to-soil contact or improper seeding depth, do not place the seed directly over the furrow left by the applicator chisel(s). When one chisel is used per plant row, place the seed about 4 inches to one side of the chisel furrow. When two chisels are used per plant row, plant the seed offset from the chisel trace.

Sealing the Soil After Application

Immediately after chisel application of Telone II the soil should be "sealed" to prevent furnigant loss and ensure that an effective concentration of fumigant is maintained within the soil for a period of several days. For broadcast treatment (flat fumigation), sealing can be accomplished with equipment that will uniformly mix the soil to a depth of 3 to 4 inches to effectively eliminate chisel or plow traces which can allow direct escape of the fumigant. A tandem disc or similar equipment may be used for this purpose. To maximize sealing, steps should also be taken to compact the soil surface to further retard the rate of fumigant loss by following with a ring roller, cultipacker or roller in combination with tillage equipment. Compaction of the soil surface alone may give the appearance of adequate sealing without effectively disrupting chisel or plow traces.

For row treatment, forming the beds at the time of application should be accomplished in a manner that places the furnigant at least 12 inches from the nearest soil/air interface. The closest soil/air interface could be the furrow for multiple knife applications or the top of the bed for single knife applications. Row treatments into preformed beds should be sealed by disrupting the chisel trace using press sealers, ring rollers or by reforming the beds and following with such equipment.

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Sealing can also be improved by applying non-perforated plastic film, such as polyethylene, over the entire area or in strips. Use of a film to seal the soil surface does not eliminate the need to eliminate chisel traces prior to application of the plastic film.

Proper soil conditions at the time of application (see Soil Preparation section) are important to ensure proper placement of furnigant (see Placement of Furnigant section) and obtaining adequate sealing. Prior tillage should be adequate to eliminate clods and thoroughly mix crop residues into the soil.

Soil Fumigation Interval

Leave the soil undisturbed and unplanted for at least 7 days after application of the fumigant. A longer undisturbed interval is required if the soil becomes cold or wet, and for deep-rooted tree, shrub and vine planting sites.

After the fumigation interval, to prevent phytotoxicity, allow the fumigant to dissipate completely before planting the crop. Under optimum soil conditions for dissipation, 1 week for each 10 gallons/acre is recommended. For fruit, nut, and nursery crops at least three months should elapse between treatment and planting. To hasten dissipation, especially if heavy rains or low temperatures occur during the treatment period, till the soil to the depth of fumigant application. Use a knife-like chisel without turning the soil to reduce the possibility of recontaminating the treated soil. Dissipation is usually complete when the odor of Telone II is no longer evident at the application depth. Seed may be used as a bioassay to determine if Telone II is present in the soil at concentrations sufficient to cause plant injury. Do not plant if the odor of Telone II is present within the zone of fumigation.

Approved Uses

Control of Nematodes

Telone II is recommeded for control of nematodes in soils to be planted to various crops including those listed below. Refer to Tables 1 and 2 below for broadcast and row treatment application rates and specific use requirements. Refer to table 3 to determine flow rates for specific row spacings.

Note: For crops identified by footnotes 1, 2, 3 or 4, do not exceed maximum broadcast application rates for nematode control in mineral soils for species other than cyst nematode.

Vegetable crops:

asparagus beans beets, red > black-eyed peas broccoli1 Brussels sprouts¹ cabbage¹ cantaloupe 1 carrots cauliflower³ celery collards com cowpeas cucumbers 1

egg plant endive garlic horseradish kale kohlrabi leeks lettuce meions1

mustard greehs1 okra onions parsnips peas peppers

pimentos potatoes pumpkins 1 radishes1 rutabaga salsity shallots spinach

squash (summer) squash (winter) sweet potatoes² Swiss chard tomatoes turnips 1 watermelons 1

Field crops:

alfalfa barley birdsfoot trefoil buckwheat clover .ton1 flax grasses hops

kenaf lespedeza millet mile mint oats pasture grass peanuts¹ popcorn

rye safflower sorghum soybeans sugar beets sugarcane tobacco1 vetch wheat

Fruit and nut crops:

almonds4 apples apricots bananas blackberries blueberries boysenberries cashew nuts cherries chestnuts cranberries currants dates dewberries figs

gooseberries grapefruit4 grapes4 hazelnuts (filberts) hickory nuts huckleberries kumquats lemons4 limes⁴ loganberries nectarines olives oranges⁴ peaches4

pears pecans persimmons pineapple³ plums4 pomegranates prunes4 quince raspberries strawberries tangerines4 tangelos4 youngberries walnuts4

Maximum broadcast application rates for nematode control (except cyst nematode) in mineral soils for specified crops listed above:

(Gallons/acre)

(crop) ¹	•	12
(crop) ²		15
(crop) ³		42
(crop) ⁴		55

Nursery crops:

Floral plants, omamentals, shrubs and bushes; forest, shade, fruit and nut trees; and vine and bramble fruits of all types.

When used according to state nursery regulations, Telone II may be used in the production of certified nursery stock.

Table 1. Broadcast Treatment Rates for Nematode Control+

		Recommended Rate				
Crop	Soll Type	Broadcast	FI Oz/ 1000 Ft			
	or Texture	Gal/Acre	of Row/Outlet ¹			
Vegetable crops ²	Minerat ³	9 - 18 ⁴	26 - 53			
	Muck or Peat ⁵	24 - 36	71 - 106			
Field crops	Mineral	9 - 18 ⁴	26 - 53			
	Muck or Peat	24 - 36	71 - 106			
Fruit, nut and nursery crops 6,7,8,9,10	Sand	27 - 33	79 - 97			
	Sandy Loam	36 - 48	106 - 141			
	Silt Loam	63 - 75	185 - 220			
	Clay Loam	84 - 102	247 - 300			

†For crops identified by footnotes 1, 2, 3, or 4 in the list above, do exceed specified maximum broadcast application rate.

²Potatoes:

Before fumigation, soil sampling for the type and number of pests present is recommended and can help to determine the need for additional treatment with a contact nematicide. Preharvest tuber sampling for nematodes also is recommended. If the nematode population is high enough to damage the crop, potatoes can be harvested early. Do not store potatoes with a detectable nematode infestation.

In Idaho, Nevada, Oregon and Washington, and in Modoc and Siskiyou or Intles of California refer to Telone II supplemental labeling entitled: "For Nematode and Wireworm Control in Potatoes" for directions for use.

In all other areas, use 9 to 18 gallons of Telone II per acre to control the northern root knot nematode *Meloidogyne hapla* in mineral soil and 24 to 36 gallons per acre in muck soil. For high populations of this speries use the higher recommended rate. For more difficult-to-control root knot nematodes such as the Columbia root knot nematode *Meloidogyne chitwoodi*, apply 20 gallons per acre (59 fl oz/1000 ft of row/outlet based on 12-inch centers) in mineral soil. For best results apply the furnigant at least 18 inches below the final soil surface.

¹Flow rates are based on 12-inch outlet spacing. Flow rates for alternate spacings can be calculated using the following formula: fl oz/1000 ft of row/outlet = 2.94 x rate in gallons/acre x outlet spacing in feet. For row treatment refer to Tables 2 and 3.

³Mineral soil includes sand, sandy loam, silt, and clay loam. Use the higher rates for finer textured (heavier) soils.

⁴For cyst-forming nematodes use 18 gallons per acre (53 if oz/1000 ft/outlet).

⁵Greater than 20% organic matter content.

⁶Pineapple: Application may b⁷ made at the time of planting. For best results, seal the soil with polyethylene film, which acts as a gas permeability barrier.

⁷Strawberries: For broadcast fumigation of mineral soils only, apply 24 to 36 gallons per acre.

⁸Tree Planting Sites: Use 24 fl oz (1.5 pints) of Telone II by application of the fumigant at a single point in the center of each planting site at a depth of 5 feet below the final soil surface. Sites prepared by backhoeing to break up restrictive soil layers that may retard fumigant movement should be dug in the approximate dimensions of 10 x 10 x 10 feet. The hole should then be backfilled to a depth of 5 feet, the fumigant applied using a closed-system application tube and the remainder of the soil previously removed immediately added to the hole. For sites where no restrictive soil layers are present, the fumigant can be applied to a depth of 5 feet using an injection auger. For best results, prepare and treat planting sites in the fall and plant in the spring.

⁹For shallow-rooted plants grown only one year, use 15 to 27 gallons per acre (44 to 79 fl oz/1000 ft of row/outlet).

10 Citrus: For burrowing nematode control, inject Telone II on 18-inch centers at least 12 inches deep. For buffers within existing groves or for tree planting sites within existing groves, do not apply within 5 feet of living trees. Keep the field free of plants susceptible to this nematode at least two years before planting to citrus.

Table 2. Row Treatment Rates for Nematode Control Using a Single Chisel per Row1

Crops	Soll Texture ²	FI Oz/1000 Ft of Row ³
Vegetable	Mineral Muck and Peat	52 - 106 142 - 212
Field 4,5	Mineral Muck and Peat	52 - 106 142 - 212
Fruit, Nut and Nursery ⁶	Mineral Muck and Peat	52 - 106 142 - 212

¹For row spacing of 24 inches or less apply Telone II as a broadcast treatment (See Table 1 for rates).

²For a description of soil textures see footnote 3 under Table 1.

³To determine actual gallons per acre needed for various row spacings see Table 3.

⁴Sugar Beets: To control sugar beet cyst nematode, use 93 fl oz/1000 ft of row.

⁵Row treatment is not recommended for potatoes in irrigated areas of western and northwestern states.

⁶Pineapples: To control reniform nematodes use 230 fl oz/1000 ft of row.

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Table 3. Rate Conversion Chart for Various Row Spacings and Fumigant Flow Rates 1.

Note: In no case should the amount of fumigant applied per acre exceed the gallons per acre rates for broadcast treatment given in Table 1.

FI Oz/ 1000 Ft					Plant	Row	Spaci	ng (In	ches)				
of Row_	26	28	30	3 2	3 4	36	38	40	4 2	4 4	4 6	48	50
(Gallons per Acre)													
52	8.2	7.6	7.1	6.6	6.2	5.9	5.6	5.3	5.1	4.8	4.6	4.4	4.2
60	9.4	8.8	8.2	7.7	7.2	6.8	6.4	6.1	5.8	5.6	5.3	5.1	4.9
68	10.7	9.9	9.3	8.7	8.2	7.7	7.3	6.9	6.6	6.3	6.0	5.8	5.5
76	11.9	11.1	10.3	9.7	9.1	8.6	8.2	7.8	7.4	7.0	6.7	6.5	6.2
84	13.2	12.3	11.4	10.7	10.1	9.5	9.0	8.6	8.2	7.8	7.5	7.1	6.9
92	14.4	13.4	12.5	11.7	11.0	10.4	9.9	9.4	8.9	8.5	8.2	7.8	7.5
100	15.7	14.6	13.6	12.8	12.0	11.3	10.7	10.2	9.7	9.3	8.9	8.5	8.2
108	17.0	15.8	14.7	13.8	13.0	12.2-	11.6	11.0	10.5	10.2	9.6	9.2	8.8
116	18.2	16.9	15.8	14.8	13.9	13.2	12.5	11.8	11.3	10.8	10.3	9.9	9.5
124	19.5	18.1	16.9	15.8	14.9	14.1	13.3	12.7	12.1	11.5	11.0	10.5	10.1
132	20.7	19.3	18.0	16.8	15.8	15.0	14.2	13.5	12.8	12.2	11.7	11.2	10.8
140	22.0	20.4	19.1	17.9	16.8	15.9	15.0	14.3	13.6	13.0	12.4	11.9	11.4
148	23.2	21.6	20.1	18.9	17.8	16.8	15.9	15.1	14.4	13.7	13.1	12.6	12.1
156	24.5	22.8	21.2	19.9	18.7	17.7	16.8	15.9	15.2	14.5	13.8	13.3	12.7
164	25.8	23.9	22.3	20.9	19.7	18.6	17.6	16.7	15.9	15.2	14.6	13.9	13.4
172	27.0	25.1	23.4	21.9	20.7	19.5	18.5	17.6	16.7	16.0	15.3	14.6	14.0
180	28.3	26.3	24.5	23.0	21.6	20.4	19.3	18.4	17.5	16.7	16.0	15.3	14.7
188	29.5	27.4	25.6	24.0	22.6	21.3	20.2	19.2	18.3	17.4	16.7	16.0	15.3
196	30.8	28.6	26.7	25.0	23.5	22.2	21.1	20.0	19.1	18.2	17.4	16.7	16.0
204	32.0	29.8	27.8	26.0	24.5	23.1	21.9	20.8	19.8	18.9	18.1	17.4	16.7
212	33.3	30.9	28.9	27.0	25.5	24.0	22.8	21.6	20.6	19.7	18.8	18.0	17.3

¹Fiefer to Table 2 for the rate needed for a specific crop and/or soil texture. To obtain the gallons per acre used for a row spacing not shown in this table, use the following equation:

Plant Diseases

Bacterial Canker of Peaches: Telone II can be used as an aid in the control of this disease by application as a preplant, overall treatment of light (sandy) soils at the rate of 36 gallons per acre (106 fl oz/1000 ft row per outlet) preferably in the fall when the soil is warm (55 to 80°F at injection depth) and moist. Inject the furnigant at a depth of 10 to 12 inches with chisels mounted on 12-inch centers.

Fusarium Wilt of Cotton: The effects of this disease can be suppressed by controlling the root knot nematodes associated with this disease/nematode complex. Use Telone II as a row treatment at the rate of 46 to 106 fl oz/1000 ft of row. The lower rate is suitable for mineral soils whereas the higher rate should be used for heavier soils.

Sugar Beet Rhizomania Disease: Use Telone II to suppress the effects of this disease by preplant application at the rate of at least 73.5-II oz/1000 ft of plant row but not more than 132 fl oz/1000 ft of plant row. These flow rates are equivalent to 10 to 18 gallons per acre for sugar beets planted in 30-inch beds with one plant row per bed. For beets planted in 40-inch beds with two plant rows per bed the

recommended flow rates are equivalent to 15 to 27 gallons per acre. Use the higher rates for heavier (finer textured) soils and/or for higher levels of disease infestation. Telone It is believed to reduce the activity of *Polymyxa beta*, which has been identified as the vector of the Rhizomania disease virus. The fumigant should be placed at least 12 inches below the final soil surface. Immediately after application, mechanically compact (seal) the soil surface to prevent fumigant loss. Sealing can be accomplished by forming the beds during application or, when fumigating pre-formed beds, re-list the beds or use a ring roller, cultipacker, bed shaper, press sealer or similar device.

Verticillium Wilt of Mint and Potatoes: To aid in the control of this disease, apply Telone II as a broadcast treatment. For mint, use 59 gallons per acre (173 fl oz/1000 ft row/outlet) in the spring or, preferably, in the fall. For potatoes, use 17 to 25 gallons per acre (50 to 73 fl oz/1000 ft row/outlet) in the spring, or 25 to 34 gallons per acre (73 to 100 fl oz/1000 ft row/outlet) in the fall.

Soil insects

Symphylans (Garden Centipedes): Use Telone II for treatment of soil to be planted to crops where these pests have been shown to be a problem. Apply the fumigant only as a broadcast treatment at the rate of 18 to 36 gallons per acre (53 to 106 fl oz/1000 ft row/outlet) when soil temperature is warm (55 to 80°F) at the application depth.

Wireworms: Use Telone II for treatment of soil to be planted to crops where these pests have been shown to be a problem. Apply the fumigant as a broadcast treatment at the rates recommended for nematode control (Table 1) by injection at least 14 inches below the final soil surface.

For wireworm control in Idaho, Nevada, Oregon and Washington, and in Modoc and Siskiyou counties of California refer to Telone II supplemental labeling entitled: "For Nematode and Wireworm Control in Potatoes" for directions for use.

Warranty Disclaimer

DowElanco warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. DOWELANCO MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE CR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of DowElanco or the seller. All such risks shall be assumed by Buyer.

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The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at DowElanco's election, one of the following:

- (1) Refund of purchase price paid by buyer or user for product bought, or
- (2) Replacement of amount of product used.

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Telone* II

EPA Reg. No. 62719-32

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Label text based on EPA copy dated 04/21/93

Amendments:

1) Addition of language required under PR Notice 93-7 for soil furnigants.

2) Updated Environmental Hazards section to comply with PR Notices 93-3 and 93-8.

3) Updated text in Restricted Use Pesticide box to comply with PR Notice 93-1.

(Editor's Note: Added text underlined)

(Editor's Note: Added text underlined)

(Base Label)

Restricted Use Festicide

Due to high acute inhalation toxicity and carcinogenicity.

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

(logo) DowElanco

Telone* II

A liquid fumigant for preplant treatment of soil to control plant parasitic nematodes and certain other soil pests in cropiand

Not for use in greenhouses or other enclosed areas.

Active Ingredient: (by	weight)
1,3-dichloropropene	94%
Inert Ingredients	. 6%
Total	
1 gallon of Telone weighs 10.1 lb at 70°F.	

Precautionary Statements

Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

WARNING

AVISO

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.)

Firet Aid

If Inhaled: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

If on skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. If water is not immediately available, remove excess chemical from skin with sorbent material such as towel or dry soil, then proceed at once to a location where water is available and thoroughly wash contaminated skin with plenty of water. Call a physician. If in eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. If swallowed: Do not induce vomiting. Call a physician or Poison Control Center immediately. Never give anything by mouth to an unconscious person.

Note to physician: Because rapid absorption may occur through lungs if product is aspirated and cause systemic effects, the decision to induce vomiting or not should be made by a physician. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by disposal of equipment washwaters. See "Storage, Shipment and Disposal" section. In case of spills properly dispose of contaminated materials.

Ground water advisory: 1,3-dichloropropene is known to move through soil and under certain conditions has the potential to reach ground water as a result of agricultural use. Application in areas where soils are permeable and ground water is near the surface, or in karst geology, could result in ground water contamination.