34704-769 01/09/1997 1/8

UNITED STATES ENVIRONMENTALPROTECTION AGENCY

WASHINGTON,D.C. 20460

OFFICE OF
PREVENTION,PESTICIDES
AND TOXIC SUBSTANCES

January 9, 1997

Mr. J. Allen Dunlap, III, Registration Manager
Insecticides & Fungicides
Platte Chemical Company
419 18th Street (80631-5852)
P.O. Box 667
Greeley, CO 80632-0667

RE: Clean Crop Nemasol 42% (EPA Reg. No. 34704-769)
Your label amendment submission dated December 10, 1996

Dear Mr. Dunlap:

The Agency has reviewed the subject label. It is accepted with the following comments. Under Agricultural Use Requirements, delete the "General Precautions for Irrigation Systems". The posting instructions for chemigation appear elsewhere and are not part of WPS requirements.

The chemigation statements are incomplete. Refer to PR Notice 87-1 sections VIII and IX. Only part of the required statements for flood (basin), furrow and border chemigation are included. Since drip irrigation has been added, the requirements under section IX must be added. Since the statements for flood and drip systems are essentially the same as for sprinkler systems, you may add a statement referring to the sprinkler systems. Under "Statements Concerning Flood (Basin), Furrow and Border Chemigation" add "Systems utilizing a pressurized water and pesticide injection system must meet the requirements for sprinkler chemigation systems." For drip irrigation systems, add "Drip irrigation systems must meet the requirements listed for sprinkler chemigation systems".

A photocopy of the subject label stamped "Accepted with Comments" is enclosed for your records. The submitted label stamped "Accepted with Comments" is being made a part of the regulatory file jacket for the product.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

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If you have any questions or concerns, please call me at (703) 305-6226, or Carl Grable of my staff at (703) 305-7392.

Sincerely yours,

Carl Grable for

Connie B. Welch,
Product Manager 21
Fungicide-Herbicide Branch
Registration Division (7505C)

Enclosure

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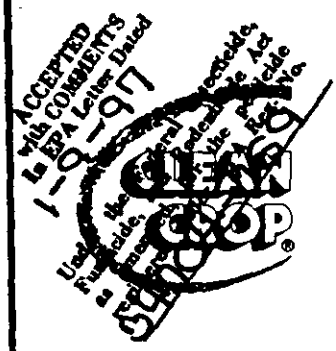

NEMASOL®

42%

A SOIL FUMIGANT SOLUTION FOR ALL CROPS
MAY BE APPLIED BY SOIL INJECTION OR CHEMIGATION
FOR CONTROL OF SOIL-BORNE PESTS THAT ATTACK ORNAMENTALS, FOOD AND FIBER CROPS.

Suppresses and/or Controls Weeds such as Annual Bluegrass, Bermudagrass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Amaranthus species, Watergrass, Johnsongrass, Nutgrass, Wild Morninggiory and Purslane, Nematodes and Symphylids. Soil-Borne diseases such as Rhizoctonia, Pythium, Phytophthora, Verticillium, Sclerotinia, Oak Root Fungus and Club Root of Crucifers.

ACTIVE INGREDIENT:	
Sodium methyldithiocarbamate (anhydrous)	42.0%
INERT INGREDIENTS:	58.0%
TOTAL	100.0%

Contains 4.26 lbs. METAM SODIUM per gallon.

KEEP OUT OF REACH OF CHILDREN

DANGER PELIGRO

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.)

For Emergencies call 24 hours a day:
Transportation: Chemtrec 1-800-424-9300

EPA REG. NO. 34704-769

EPA EST. NO. _____

NET CONTENTS _____ GALS. (_____ L)

5818 EXP10G96

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

Corrosive: Causes skin damage. May be fatal if absorbed through the skin. Do not get on skin or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Harmful if swallowed. Harmful if inhaled. Irritating to eyes, nose, and throat. Avoid breathing vapor or spray mist. Irritating to eyes. Do not get in eyes.

STATEMENT OF PRACTICAL TREATMENT

Immediately start the procedures below and contact a Poison Control Center, a physician or the nearest hospital. Describe the type and extent of exposure, the victim's symptoms, and follow the advice given.

IF ON SKIN: Immediately flush skin with large amounts of running water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately.

IF IN EYES: *Immediately flush eyes with large amounts of water for at* least 15 minutes. Hold eye lids apart to ensure rinsing of the entire surface of the eye and lids with water. Get medical attention immediately.

IF INHALED: Remove to fresh air. If not breathing, clear the victim's airway and start mouth to mouth artificial respiration. If breathing is difficult, give oxygen, preferably with a physician's advice. Get medical attention immediately.

IF SWALLOWED: *Immediately give several glasses of water but do not* induce vomiting. If vomiting occurs, give fluids again. Have a physician determine if condition of patient will permit induction of vomiting or *evacuation of stomach.* Do not give anything by mouth to an unconscious or convulsing person.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

(1) **Handlers Performing Direct-Contact Tasks. Direct-contact tasks** ***include:*** *mixing, loading, or fumigant transfer with or without dry-*disconnect fittings, equipment calibration or adjustment, equipment cleanup and repair, product sampling, application or soil-sealing outside an enclosed cab, any activity less than 6 feet from an unshielded pressurized hose containing this product, spill cleanup, removal of tarp or plastic film, rinsate disposal, cleanup of small spills, preparing containers for aeration, any other handling task not otherwise *listed in (2) or (3) below.*

Applicators and other handlers performing direct-contact activities ***must wear:*** *coveralls over long-sleeved shirt and long pants,* waterproof gloves, chemical-resistant footwear plus socks, chemical-resistant headgear for overhead exposure, chemical-resistant apron when cleaning equipment, or when mixing, loading, or transferring without dry-disconnect fittings, face-sealing goggles, unless full-face respirator is worn, a respirator with either an organic-vapor-removing cartridge with a prefilter approved for pesticides *(MSHA/NIOSH approval number prefix TC-23C), or a canister ap-*proved for pesticides (MSHA/NIOSH approval number prefix TC-14G).

(2) **Handlers in Enclosed Cabs. Applicators and other handlers in enclosed cabs must wear:** coveralls, shoes and socks.
Plus, if pungent, rotten-egg odor of this product can be detected inside the enclosed cab, the handlers in the cab must wear: face-*sealing goggles, unless full-face respirator is worn, a respirator with* either an organic-vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14).

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 direct-contact activity.*
The enclosed cab must meet the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides—40CFR 170.240(d)(5).

(3) **Handlers in Treated Areas While Entry is Restricted.**
While entry is restricted (see "Entry Restrictions" in the Agricultural Use Requirements box elsewhere in this labeling), only the following *handlings tasks may be performed in a treated area outdoors:* assessing/adjusting the soil seal, assessing pest control, application technique, or application efficacy, operating ventilation equipment, sampling air or soil for this product.
All other tasks are prohibited until the entry restriction is over.

Handlers performing the above tasks must wear: coveralls over long-sleeved shirt and long pants, waterproof gloves, chemical-resistant footwear and socks.
Plus: If pungent, rotten egg odor of this product can be detected *outdoors: face-sealing* goggles (unless full-face respirator is worn) and a respirator with either an organic-vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G).

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).

2. Dispose of Contaminated Clothing: 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.

USER SAFETY RECOMMENDATIONS

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

ENVIRONMENTAL HAZARDS

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 when disposing of equipment washwaters.
Do not contaminate irrigation ditches or water used for irrigation or domestic purposes. Do not apply when conditions favor drift from treated areas.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation. Do not apply this product through any irrigation system unless the chemigation instructions on this label are followed.

CALIFORNIA ONLY: Application must be in compliance with Technical Information Bulletin-California: Metam Sodium "Guidelines for all Application Methods for Metam Sodium in California." This information bulletin may be obtained from your local pesticide dealer or a Metam Sodium registrant.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), 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 RESTRICTIONS:
Outdoors: 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 48 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 warnings signs. The signs must bear the skull and crossbones symbol and state: (1) "DANGER/PELIGRO," (2) "Area under fumigation, DO NOT ENTER/NO ENTRE," (3) the date and time of fumigation, (4) "Nemasol 42% 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.

Outdoors: Post the fumigant warning signs at entrances to treated areas.

PPE FOR ENTRY DURING THE 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.

GENERAL PRECAUTIONS FOR IRRIGATION SYSTEMS:
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, day care 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 chemigated area is open to the public such as golf courses.

Posting must conform to 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 of at least 2½ 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 of at least 8 inches in diameter containing the word STOP. Below the symbol shall be the words PESTICIDES IN IRRIGATION WATER.

This signs is in addition to any sign posted to comply with the Worker Protection Standard.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.
STORAGE: Store product in a cool, dry, locked place out of reach of children. Do not store below 0°F. Product crystalizes at lower temperatures. If exposed, warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use.
PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or ringate is a violation of Federal law. If these wastes cannot be disposed of 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.
CONTAINER DISPOSAL: (METAL) Triple rinse or equivalent. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. (PLASTIC) Triple rinse or equivalent. Puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by State and local authorities by burning. If burned stay out of smoke.

GENERAL INSTRUCTIONS

Before applying this product always thoroughly cultivate the area to be treated, breaking up clods and loosening soil deeply and thoroughly. A week before treatment, moisten soil after cultivation to the desired depth; sprinkle or flood irrigate. This step is essential for all methods of use. Immediately before application, cultivate lightly if the soil has crusted.

See POTATOES section for specific directions on the application of NEMASOL 42% to potato fields where no-till stubble or cover crop exist. *To prevent loss from evaporation, use only at times when air temperature* is moderate and there is little wind movement. Soil temperature must be from 40 to 90°F in the treated zone. Treated zone is defined as the depth of treatment that NEMASOL 42% achieves at the time of application. For other conditions, see section, "CULTIVATION AND PLANTING AFTER APPLICATION". Do not apply to soil surface, as in the sprinkler method, when air temperature is over 90°F or when low humidity or high winds would cause loss of NEMASOL 42% before it can be drenched into the soil with additional water. If fumes become unpleasant during treatment, apply more water to seal the fumes into the soil where they should be confined to achieve maximum fumigation benefit.

The activity of NEMASOL 42% is increased by the use of tarp (plastic, paper or fabric) spread loosely over the treated areas and secured to prevent removal by wind. Keep covered for a minimum period of 48 hours. Seven days after treatment cultivate areas to depth of 2 inches to aerate the soil. Do not seed earlier than 21 days after application when tarping method is used. Use promptly after mixing with water. Do not allow solution to stand. Flush equipment with water after each day's use. Disassemble valves and clean carefully.

PRODUCT INFORMATION

NEMASOL 42% is a water soluble liquid. When applied to properly prepared soil, the liquid is converted into a gaseous fumigant. After sufficient interval of time, the gas dissipates leaving the soil ready for planting.

WHEN TO USE MAXIMUM AND MINIMUM RATES
The application rate of NEMASOL 42% is dependent on the soil type to be treated and the position in the soil of the pest to be suppressed or controlled. Generally a light sandy soil requires a lower application rate than a heavier mineral soil. In addition, if the pest is in the upper portion of the soil profile (annual weeds) a lower application rate is generally required than if the pest is deeper in the soil profile and deeper penetration is desired (perennial weeds seeds). When a range of application rates is given in this label consult your local agricultural extension service for more specific information.

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NEMASOL 42% is recommended for the control of the following soil-borne pests that attack ornamental, food and fiber crops: Weeds and germinating weed seeds: Annual Bluegrass, Bermudagrass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Amaranthus spp. (Pigweed & Careless Weed), Watergrass, Johnsongrass, Nutgrass, Wild Morningglory and Purslane: Nematodes and Symphylids (Garden Centipede) and Soil-borne Diseases such as Rhizoctonia, Pythium, Phytophthora, Verticillium, Sclerotinia, Oak Root Fungus and Club Root of Crucifers.

USE PRECAUTIONS

Keep children and pets out of treated areas. All NEMASOL 42% uses described on this label are intended for pre-plant soil preparation only. All plant foliage and any established plants growing on the treatment sites will be either severely damaged or destroyed.

Keep the product off of any desirable turf or plants. Do not apply within three feet of the drip line of desirable plants, shrubs or trees. Do not use in confined areas or where fumes may enter nearby dwellings. Do not use in greenhouses. Keep container tightly closed when not in use. Do not store near feed or food.

NOTE: NEMASOL 42% will control only those pests in the fumigation zone at the time of treatment. Reinfestation may occur subsequent to the fumigants dissipation from the soil.

TREATMENT GUIDELINES:

For optimum results, certain procedures should be observed at designated times in the treatment program. Described below are important guidelines for each of the four stages of the treatment process.

- Pre-Application planning
- Field preparation prior to application
- Application
- Preparation for planting after application

Consult your sales representative for the appropriate treatment program for your particular needs.

PLANNING AN APPLICATION:

NEMASOL 42% is applied after harvest and 14-21 days before a new crop is planted. *In some areas, fall applications are preferred* as the product will dissipate over the winter which allows planting to begin as soon as favorable spring time conditions arrive.

APPLICATION RATE

Apply 30 to 75 gallons of this product per treated acre depending on crop, target pest and soil properties. Some of the soil properties to consider when determining the application rate include soil texture, percent organic matter and depth of soil to be treated.

TARGET PEST AND DEPTH OF TREATMENT

When application rates for this product are given in ranges, use the higher rate if pests (insects, nematodes, etc.) are present in high numbers or if the area to be treated has a history of pest problems. Consult with your state Nematologist, Entomologist and Plant Pathologist to determine if crop rotation is more feasible or desirable than fumigation.

NOTE: This product will only control pests that are in the fumigated zone at time of treatment. For control of weeds and fungi which cause seed or seedling diseases treatment of only the top 2 to 4 inches [illegible] be required. Treatment depths greater than 4 inches may [illegible] control of Nematodes and fungi which occur throughout the [illegible] the required application rate should be increased proportionately with the depth of the treatment required. Always choose the appropriate application method to evenly distribute the product throughout the soil to the required treatment depth.

SOIL CHARACTERISTICS

Soil properties to consider when determining the application rate of this product include the depth of soil *to be treated, soil texture, and percent* organic matter.

Plant materials under the soil surface (except in the case of [illegible]) should be thoroughly decomposed before application. [illegible] sorbing effect of humus, soils with high levels of organic matter [illegible] surface require higher rates. For example, muck soils require twice the rate that would be used in mineral soils.

Application rates will also vary with soil texture. For instance, heavy clay soils require a higher rate than light sandy soil.

FIELD PREPARATION PRIOR TO APPLICATION

Before applying this product, always thoroughly cultivate the area to be treated, breaking up clods and loosening soil deeply and thoroughly. Then sprinkle or flood irrigate to moisten reserved soil if needed. Immediately before treatment, cultivate lightly to break up soil crust. See POTATOES section for specific directions on the application of NEMASOL 42% *to Potato fields where no till stubble of cover crop exist.*

AIR TEMPERATURES DURING TREATMENT

[illegible] at times when air temperature is moderate and there is little wind movement. Do not apply to soil surface (as in the [illegible] irrigation method) when air temperature at time of application [illegible] or when high winds or low humidity would cause loss of NEMASOL 42% [illegible] into the [illegible]

SOIL TEMPERATURE DURING TREATMENT

Soil temperature [illegible] in the treated zone. Treated zone is defined [illegible] that NEMASOL 42% achieves at the time of application. To prevent rapid evaporation of the product from the soil [illegible] during time of day when soil temperatures exceed [illegible] inches deep. Instead, make the application at night or [illegible]

SOIL MOISTURE AT TIME OF TREATMENT

Applications should be made [illegible] Good seed bed moisture conditions [illegible] test, squeeze a handful of soil [illegible] try to break it apart with your fingers [illegible] breaks easily, the soil moisture content [illegible] apart easily or if water can be squeezed [illegible] soil.

When necessary, [illegible] irrigate the soil 1 to 2 weeks prior to treatment to increase the moisture content. The soil must be moistened to at least the desired treatment depth.

PHYTOTOXICITY

NEMASOL 42% [illegible] Protect [illegible] non-target plants by stopping soil application of this product at least 3 feet short of the drip line of trees, shrubs or other desirable plants. For sprinkler application [illegible] and lack of effectiveness can result from non-uniform distribution of the treated water.

APPLICATION OF NEMASOL 42%

Apply according to the methods and rates outlined below under the section "USES, APPLICATION METHODS AND RATES".

USE OF DILUTED NEMASOL 42%

Do not store the diluted product. Do not allow the diluted solution to stand overnight. Use the diluted solution promptly after mixing with water. Flush all equipment with water after each day's use, disassemble valves and clean carefully.

ODORS DURING OR AFTER APPLICATION

Strong odors during or after application are a signal that *the fumigant is* escaping and needs to be sealed in the soil. If unusually strong odors are occurring, the application should be stopped immediately and not resumed until the source of the odor has been identified and corrected. [illegible] or whenever [illegible] with other application methods, a water seal should be applied immediately to the treated areas [illegible]

SEALING NEMASOL 42% IN SOIL

[illegible] NEMASOL 42% should be sealed in the soil at the time of application.

Sealing methods include applying a water seal by sprinkler irrigation [illegible] packing [illegible] drag or press [illegible] should be spread [illegible] the treated area and [illegible] to prevent [illegible] by wind. [illegible] in place for at least 48 hours [illegible] to a depth [illegible] tarpaulins are used to seal [illegible] at least 21 days before planting.

APPLICATION IN TANK MIX WITH LIQUID FERTILIZER

NEMASOL 42% [illegible] in a mixture with [illegible] fertilizers. Since the composition of [illegible] vary considerably, the physical compatibility of each NEMASOL 42% / fertilizer tank mix should be checked using the following procedure:

Mix a small quantity of NEMASOL 42% and liquid fertilizer in the same ratio as they will [illegible] of NEMASOL [illegible] than the [illegible]

If a uniform mix cannot be made, the mixture should not be used. If the mixture remains uniform for [illegible] minutes [illegible] *the combination* may be used [illegible] minutes, but is [illegible] adequate [illegible]

DO NOT PLACE CAPS ON [illegible] MIXES MAY EVOLVE HYDROGEN SULFIDE GAS. USE PROMPTLY AFTER MIXING WITH *WATER OR FERTILIZER.* DO NOT ALLOW THE SOLUTION TO STAND. FLUSH ALL EQUIPMENT WITH WATER AFTER EACH DAY'S USE. DISASSEMBLE VALVES [illegible]

GENERAL *PRECAUTIONS FOR IRRIGATION SYSTEMS*

Posting of areas to be chemigated is required when [illegible] any part of a treated area is within 300 feet of sensitive areas such as residential areas, *labor camps, businesses, day care 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 the public such as golf courses.

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Posting must conform to 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. Where there are no usual points of entry, signs must be posted in the corners of the treated areas and in any other locations affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area toward the sensitive area. The signs shall be printed in English. Signs must be posted prior to application and must remain posted until tarpaper 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 posted period.

All words shall consist of letters of at least 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 PESTICIDES IN IRRIGATION WATER.

This sign is in addition to any sign posted to comply with the Worker Protection Standard.

STATEMENTS CONCERNING CHEMIGATION OF NEMASOL 42%

When applying by chemigation methods, the following directions or warnings must be observed. Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler big gun, solid set, or hand move, flood (basin), furrow, border or drip (trickle) irrigation system(s).

Do not apply this product through any other type of irrigation system. 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. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label prescribed safety devices for public water systems are in place. 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.

OBSERVE THE FOLLOWING PRECAUTIONS IF YOUR CHEMIGATION SYSTEM IS CONNECTED TO A PUBLIC WATER SYSTEM

NOTE: PLATTE CHEMICAL CO. DOES NOT ENCOURAGE CONNECTION OF CHEMIGATION SYSTEMS TO PUBLIC WATER SYSTEMS. THE FOLLOWING INFORMATION IS PROVIDED FOR USERS WHO HAVE EVALUATED ALTERNATIVE APPLICATION AND WATER SOURCE OPTIONS BEFORE CHOOSING TO MAKE SUCH A CONNECTION.

A public water system is defined as a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of a year.

Chemigation systems connecting 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 minimum physical break (air gap) between the outlet end of the fill pipe and the top of the highest inlet of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.

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.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in the cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

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

SPRINKLER CHEMIGATION SYSTEMS

Use Rates and Application Methods — Field Application Where Crop Area is Being Treated Section

STATEMENTS CONCERNING THE OPERATION OF SPRINKLER CHEMIGATION: DRIP (TRICKLE), OR OTHER APPROVED SYSTEMS UTILIZING A PRESSURIZED WATER AND PESTICIDE INJECTION SYSTEM

The system must contain a functional check valve, vacuum relief valve, and low pressure drain as appropriate located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump. 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.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. 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.

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

STATEMENTS CONCERNING FLOOD (BASIN), FURROW AND BORDER CHEMIGATION

Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.

Do not dilute in supply tanks. Agitation of supply tank recommended after mixing.

PREPARATION FOR PLANTING AFTER APPLICATION OF NEMASOL 42%

Effect of Rains

If NEMASOL 42% application is rained on less than 24 hours after treatment, lack of control at and near the soil surface may occur.

Recontamination

Precautions must be taken to prevent recontamination of treated fields with plant pathogenic fungi, plant parasitic nematodes or weed seed. Use clean seeds or plants before farm equipment is driven into the treated area. It should be rinsed free of untreated soil and weed seeds from other fields.

Interval Between Treatment and Planting:

Because NEMASOL 42% is harmful to germinating seeds and living plants, an appropriate interval must be observed between treatment and planting. On well drained soils which have a light to medium texture and which are not excessively wet or cold following the application, planting to a depth of 1 to 2 inches after treatment. If soils are heavy or especially high in organic matter or the soils remain wet and/or cold (below 60°F), the following minimum interval of 21 days or greater should be observed. The interval before planting should be extended until the soil is sufficiently dry to allow for cultivation.

Aeration of Soils Before Planting

Important: Heavier soils, including soils high in clay or organic matter should be allowed to aerate and dry thoroughly after treatment with NEMASOL 42%. During the longer wet weather, frequent shallow cultivations can be essential for NEMASOL 42% from the treated soils. On heavy wet soils, light surface cultivation to break up crusting and promote drying should be done 5 to 7 days after treatment. This cultivation may be repeated as necessary. CAUTION: To avoid reinfecting treated soils, care should be taken to assure that untreated soils are not mixed with treated soils.

Testing of Treated Soils Before Planting

Soils are fumigated to control soil-borne fungi, nematodes, insects, and weeds. The length of time required for fumigants to escape from the soil before plants can safely be planted varies greatly. Typically 14 days are needed under typical conditions, however, circumstances which do not favor volatilization (evaporation) of the fumigant can greatly lengthen the waiting period (up to 30 days). The release period is shorter with (1) low rates of fumigant, (2) light soils, (3) high soil temperatures, (4) low soil moisture, (5) shallow application depth and (6) repeated cultivations after fumigation. Seeded crops are less susceptible to residual soil fumigant injury than transplanted crops. In general, fumigants escape slowly from cold, wet, heavy soils.

The information below describes two simple tests to assay for harmful residual soil fumigants before planting.

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Lettuce Seed Test

1. With a trowel dig into the treated soil to, or just below, the depth of application. Remove 2 to 4 small (1-2 oz) soil samples, mix briefly, and immediately place a portion in an air tight jar so that fumes will not escape. Use mason jars, wheat germ jars or similar jars with gas tight lids.
2. Sprinkle lettuce seed on the moistened surface of the soil and recap immediately. Prepare a similar jar with untreated soil (an untreated check) for comparison.
3. Place the jars at 65 to 85 degrees F in indirect sunlight (direct sunlight may kill the seed by overheating). Lettuce seed will not germinate in the dark.
4. Inspect the jars for germination in one to three days.
5. The soil is safe to plant if seed germinate as well in the treated soil as the untreated control.

CAUTION

A. Be sure to sample the field properly in several areas, particularly low wet sites.
B. Be sure that the lids are air tight. (no grit under the seal)
C. Be sure that the jars are placed in the light. (not direct sun)

Tomato Transplant Test

Transplant five to 10 succulent, fast growing tomato seedlings into fumigated beds (approximately 4-6 inches deep). Do the same in a non-fumigated area (i.e., between rows). If there is variation in the field, plant into the heaviest, wettest soils. Inspect the seedlings in two days for wilting or "root burn". If plants in the fumigated zone look the same as those outside the fumigated zone, it is safe to plant.

Which Test is Best?

Both the lettuce seed and tomato transplant tests should serve the purpose. The response of tomato seedlings vary somewhat depending on how succulent they are, the relative humidity, soil moisture and temperature. Relative differences between plants in fumigated and unfumigated areas are key to detecting low level residues. High concentrations should produce clear cut symptoms.

Lettuce seed tests in jars are not subjected to the variations in the field which can affect the response of tomato transplants. However, the process of collecting a soil sample allows some fumigant to escape prior to sealing the jar. In addition, excess soil moisture can inhibit normal lettuce seed germination reducing the sensitivity of the test.

USES, RATES AND APPLICATION METHODS
Field Application Where Entire Area is Being Treated
Soil Injection:

Apply with injectors (shanks, blades, fertilizer wheels, plows, etc.)

NOTE: It may be necessary to stagger the injector placement on two or more tool bars to prevent soil build up during application.

Apply NEMASOL 42% at the rate of 30 to 75 gallons per treated acre. Follow immediately with a roller to smooth and compact the soil surface. Light watering or tarping after rolling helps prevent gas escape.

When setting up your soil injection equipment with either spray blades, injection knives or coulters make sure they are evenly and closely spaced to create an even application width and depth. To accomplish this it may require multiple tool bars with the injection tools staggered. This will help prevent buildup of trash and aid in the soil sealing.

Example: Apply NEMASOL 42% through injectors placed 4 inches below the soil surface and 5 inches apart.

Rotary Tiller or Power Mulcher:

Spray dilute NEMASOL 42% immediately in front of tiller or mulcher. Use 30 to 75 gallons per treated acre. Follow immediately with a roller or [illegible] to seal soil surface. Light watering or tarping after rolling or bed shaping helps prevent the escape of gas.

Disk Applied Method:

Spray dilute NEMASOL 42% immediately in front of disc. Use 30 to 75 gallons per treated acre. Follow immediately with a roller to smooth and compact the soil surface. Light watering or rolling helps prevent gas escape.

Sprinkler System:

Use only sprinkler systems which give large water droplets to prevent excessive loss. Use 37.5 to 75 gallons of NEMASOL 42% per treated acre in a minimum of one acre inch of water. For control of shallow pests (top 1 foot or less of soil profile) use 30 to 75 gallons of NEMASOL 42% per treated acre and inject in only enough water to reach the desired treatment depth. Meter continuously into the irrigation system through out the entire application period. At completion of application, flush the system with only enough water to clear the lines. If soil surface dries quickly, reseal it by running sprinklers for 20 minutes once a day for the next day or two. On very light soils, keep surface moist by sprinkling for 2 or 3 days.

Follow use precautions in "GENERAL PRECAUTIONS FOR IRRIGATION SYSTEMS" section above.

Application Over Cover Crops

NEMASOL 42% can be applied through sprinkler irrigation systems over cover crops such as [illegible] and grasses such as Rye, Oats, Wheat and Sudan. When applied over cover crops, no soil cultivation is required before the application.

Effect of Air Temperature and Winds on Sprinkler Applications

When using the sprinkler application method, apply NEMASOL 42% only when the air temperature is below 90° F. This precaution is recommended to guard against [illegible] of the product. Low humidity or high winds can [illegible] of the product before it can be [illegible] into the soil. [illegible] when wind conditions favor drift from treated field.

Runoff of Treatment Solutions

To prevent runoff of the treatment solution during a Sprinkler Application, do not apply the solution at a rate greater than the absorption capacity of the field. Should runoff occur, divert it from growing crops and water sources. Once collected, [illegible] to the treated field.

Check, Flood (Basin) Furrow and Border

Meter NEMASOL 42% at a [illegible] rate into water during irrigation. Depending on the [illegible] and the treatment depth desired, use 30 to 75 gallons per treated acre in [illegible] inches of water per acre. Meter the product into the water at the [illegible] of the field.

Follow use precautions in "GENERAL PRECAUTIONS FOR IRRIGATION SYSTEMS" section above.

FIELD APPLICATION TO BEDS OR ROWS

SOIL INJECTIONS: NEMASOL 42% may be injected into pre-formed plant beds following the directions given above under soil injection. If a wider treated band is desired, space 2 or more shanks at intervals of 5 inches to cover the desired treating width. Use that injector shank(s) to inject NEMASOL 42% [illegible] inches deep into well prepared soil. Follow immediately with a roller [illegible] chisel channels. Light watering or a tarp after rolling helps to prevent gas escape. Apply at the rate of 36.9 to [illegible] fluid ounces/1,000 linear feet of bed per chisel (30 to 75 gals./treated acre). Space shanks [illegible] inches apart to cover the desired treating width. If NEMASOL 42% is [illegible] into established plant beds through plastic tarps to terminate growth of a previous crop, and to fumigate the [illegible] in preparation of planting a subsequent crop, the terminated crop must not be used for any food or feed purposes after NEMASOL 42% has been applied.

SOIL COVERING METHOD (bed over method): NEMASOL 42% may be sprayed or dripped in a bed wide band onto the soil immediately ahead of bedshaping equipment. Cover the NEMASOL 42% with soil to a depth of 3 to [illegible] inches [illegible] should be rolled and compacted immediately. Apply at the rate of 30 to 75 gallons per acre of treated soil [illegible] 4 to 22 fluid ounces per 100 linear feet of row [illegible] inch wide bed). If a narrower or wider bed is to be treated, adjust the fluid ounces per 100 linear feet of row to reflect the actual treated area.

ROTARY TILLER or POWER MULCHER: Spray NEMASOL 42% immediately in front of the tiller or mulcher. Use 30 to 75 gallons per treated acre. Follow immediately with [illegible] bed shaper to seal soil surface. Light watering or a tarp [illegible] helps to prevent gas escape.

DRIP IRRIGATION SYSTEM

NEMASOL 42% must be [illegible] through a drip irrigation system to wet the soil thoroughly in the area being treated. Meter 30 to 67 gallons NEMASOL 42% per treated acre into the drip system during the entire irrigation period. APPLICATION MUST BE CONTINUOUSLY SUPERVISED. THIS IS VERY IMPORTANT. AN ADEQUATE CONCENTRATION OF NEMASOL 42% MUST BE PRESENT AT THE TIME OF WEED SEED GERMINATION IN ORDER TO BE EFFECTIVE. Further directions for use are as follows: (1) [illegible] must be in seed bed condition, (2) beds larger than [illegible] diameter (2) beds must be [illegible] shaped and ready for planting. (3) Soil moisture must be 50% of field capacity in the top 2-3" at time of application.

METHOD OF DETERMINING FLUID OUNCES/100 FEET OF LINEAR ROW

1. Determine width of bed in feet by dividing the width of bed in inches by 12. Example: [illegible] 12 = 0.4166 ft.
2. Determine square feet in 100 linear feet of bed by multiplying the width of the bed by 100. Example: 0.4166 ft. x 100 ft. = 41.66 sq. ft.
3. Determine the treated acres per 100 linear feet of bed by dividing the sq. ft. by 43,560 (sq. ft. in acre). Example: 41.66 sq. ft. divided by 43,560 = 0.000956.
4. To determine the fluid ounces per 100 linear ft.
   a) 1 gal. = 128 fl. oz.; 50 gals. = 6400 fl. oz.; 75 gals. = 9,600 fl. oz.
   b) multiply fluid ounces by acres. Example: 50 gals. = 6400 fl. oz. x 0.00096 = 6.14 fl. oz. per 100 linear feet row.

ADDITIONAL RECOMMENDATIONS

SEED TREATMENT

A suitable fungicide should be used to treat all crop seed being planted into the treated soil.

PEANUTS

For control of Cylindrocladium Black Rot (CBR) and nematodes, apply NEMASOL 42% at the rate of 7.5 gallons per acre (6.1 fluid ounces per 100 lineral feet of row).

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Use with partially resistant cultivars (NC-10C or others as designated by your local Agricultural Extension Service) in cases of severe disease pressure. Plant other varieties only in cases of light CBR pressure.

Soil Preparations:
Before applying NEMASOL 42%, all residue from the previous crop should be decomposed (enhance by fall disking) and plowed under in the Spring with a mold-board plow. Soil incorporated preplant herbicides must be applied prior to the application of NEMASOL 42%.

Application:
Apply 8 to 10 inches below seed placement with injector shank or sweep type applicator placed in front of a bedshaper to mark rows. Soil temperatures must be in the range of 60°F to 90°F at a 3 inch depth at time of treatment.

Tillage and Planting After Application
Do not mix untreated soil with treated soil by tillage or other cultural practices. Plant the peanuts in the center of the treated beds no earlier than 14 days following the application of NEMASOL 42%. A Sting Nematocide treatment will be necessary in fields with heavy infestations of root knot, ring and/or Sting Nematodes.

PEPPERMINT:
Verticillium Wilt: When infestation is limited to small spots in a field, the spread of Verticillium can be reduced by treating the infected spots. Apply at the rate of up to 75 gallons of NEMASOL 42% per treated acre using injector blade or thin shank injector rig. Follow directions for "FIELD APPLICATION - WHERE ENTIRE AREA IS BEING TREATED."

POTATOES
For suppression of potato pests such as Nematodes, Weed Seeds and Verticillium dahliae (Early Maturity Disease).
SOIL INJECTION: Apply a minimum of 30 gallons per acre of NEMASOL 42% - follow directions for FIELD APPLICATION WHERE ENTIRE AREA IS TREATED.

Sprinkler System Preplant Applications:
Apply 55 to 75 gallons of NEMASOL 42% per treated acre in sufficient water to penetrate to the desired treatment depth. Meter continuously into the irrigation system throughout the entire application period. Soil temperature should be in the range of 40°F to 90°F in the treatment zone. Soil moisture immediately prior to treatment must be 50% to 80% of field capacity down to the 24 inch level. Soil condition must facilitate even water penetration without runoff.

NOTE: 1. NEMASOL 42% may be applied where a crop stand or vegetation exists without prior tillage, provided there is adequate penetration of the product.

2. NEMASOL 42% will suppress root knot nematodes in the treatment zone at the time of treatment. The treatment zone is defined as the depth of penetration that NEMASOL 42% achieves at the time of application. If high numbers of these nematodes are present, and/or the nematodes re-enter the treated zone throughout the growing season, some damage may occur unless additional action is taken. NEMASOL 42% has no residual activity and reinfestation of a treated field can occur from numerous sources such as weed nematode populations, seed pieces, irrigation water, equipment contamination and blowing wind.

Early Maturity Disease of Potatoes in the Pacific Northwest:
Apply 30 gallons NEMASOL 42% per treated acre using the soil injection method as described in the "FIELD APPLICATION - WHERE ENTIRE AREA IS BEING TREATED" section.

TREATMENT OF TREE REPLANT SITES
After removing dead or diseased trees and as much of the root system as possible, make a shallow basin over the planting site. Add NEMASOL 42% to the proper amount of water and fill the basin. Use 2 gals. NEMASOL 42% per 100 sq. ft. in sufficient water (depending on soil type) to penetrate at least 6 ft. For control of Oak Root Fungus, use a basin at least 6 ft. square. Increase dosage to 3 pts. per 100 sq. ft. in sufficient water to penetrate to the depth of the root system. If water is hauled to the planting site, add NEMASOL 42% to the water and mix before filling the basin. Fumigation of replant sites is required when near (¼ mile) to populated areas such as schools, hospitals, commercial or office buildings, factories, residential areas, etc. Fumigation is not required if treatment is further than ¼ mile from such populated areas.

SYMPHYLID CONTROL
Soil should be in good bed condition to a depth of 8 to 10 inches. Maintain adequate soil moisture during the spring season to bring symphylids to the upper soil surface. Treat during July-August when symphylids are in the upper soil surface. Apply a minimum of 15 gallons of NEMASOL 42% per acre (0.3 pints per 100 sq. ft. of treated soil) using blade or thin blade chisel injectors spaced 5 inches apart. Inject below the level of Symphylid concentration, usually 6 to 8 inches. Pack soil immediately after the application.

TOBACCO PLANT BEDS
Soil applications are recommended whenever possible. Read and follow the use directions carefully. Treatment in the South should generally be made before November 30.

STRIP METHOD - Prepare the bed 5 to 7 days before application to ensure best conditions for weed seed germination and fumigant action of NEMASOL 42%. The bed should be free of clods, level and in good tilth. Apply 0.75 to 1.125 gallons of NEMASOL 42% in a minimum of 40 gallons of water per 100 sq. yds. Apply uniformly over the entire bed. Cover the bed immediately with plastic cover. Keep covered no less than one day but no more than two days. The cover need not be tented, but should be secure to prevent wind from uncovering the treated area. Seven days after date of application, loosen the treated soil to a depth of 1 inches. Do not seed tobacco earlier than 21 days after the NEMASOL 42% application.

DRENCH METHOD - Apply 1.875 gallons of NEMASOL 42% in 150 to 200 gallons of water per 100 sq. yds. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow DIRECTIONS given previously for Field Applications - Where Entire Area is Being Treated.

NOTICE
PLATTE WARRANTS THAT THIS PRODUCT CONFORMS TO THE CHEMICAL DESCRIPTION ON THE LABEL THEREOF AND IS REASONABLY FIT FOR THE PURPOSES STATED ON SUCH LABEL ONLY WHEN USED IN ACCORDANCE WITH THE DIRECTIONS UNDER NORMAL USE CONDITIONS. IT IS IMPOSSIBLE TO ELIMINATE ALL RISKS INHERENTLY ASSOCIATED WITH THE USE OF THIS PRODUCT. CROP INJURY, INEFFECTIVENESS, OR OTHER UNINTENDED CONSEQUENCES MAY RESULT BECAUSE OF SUCH FACTORS AS WEATHER CONDITIONS, PRESENCE OF OTHER MATERIALS, OR THE MANNER OF USE OR APPLICATION, ALL OF WHICH ARE BEYOND THE CONTROL OF PLATTE. IN NO CASE SHALL PLATTE BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. ALL SUCH RISKS SHALL BE ASSUMED BY THE BUYER.
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