PM 21 45728-16 Page 1 of 8

**** NOTIFICATION****

Please read instructions on reverse before completing form. Form Approved. OMB No. 2070-0060. Approval expires 11-30-93

(A) EPA

United States Environmental Protection Agency
Office of Pesticide Programs (H7505C)
Washington, DC 20460

Application for Pesticide:

[ ] Registration
[X] Amendment
[ ] Other

OPP Identifier Number: 164568

Section I

1. Company/Product Number: 45728-16

2. EPA Product Manager: C. Lewis
PM#: 21

3. Proposed Classification: [ ] None [ ] Restricted

4. Company/Product (Name): UCB Metam 42% (Soil Fumigant)

5. Name and Address of Applicant *(Include ZIP Code)*
UCB Chemicals Corporation
5505-A Robin Hood Road
Norfolk, VA 23513

[ ] *Check if this is a new address*

6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to:

EPA Reg. No. _____

Product Name _____

Section II

[ ] Amendment - Explain below
[ ] Resubmission in response to Agency letter dated _____
[X] Notification - Explain below.
[ ] Final printed labels in response to Agency letter dated _____
[ ] "Me Too" Application.
[ ] Other - explain below.

NOTIFICATION
LABEL NOT REVIEWED
PER PR NOTICE 93-6
DATE. 8/3/93

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

1) Compliance with EPA PR Notice 93-3. Revised wetlands statement under Environmental Hazards:

Only change is to preface existing statement with: "For terrestrial uses, ..."

Section III

1. **Material This Product Will Be Packaged In:**

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes* [ ] No	[ ] Yes [ ] No	[ ] Yes [ ] No	[ ] Metal [ ] Plastic [ ] Glass [ ] Paper [ ] Other (Specify)
* *Certification must be submitted.*	If "Yes," Unit Package wgt. / No. per container	If "Yes," Package wgt. / No. per container	

3. Location of Net Contents Information: [ ] Label [ ] Container

4. Size(s) of Retail Container

5. Location of Label Directions: [ ] On Label [ ] On Labeling accompanying product

6. Manner In Which Label Is Affixed To Product: [ ] Lithograph [ ] Paper glued [ ] Stenciled [ ] Other (_____)

Section IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Paul R. Larson	Mgr, Regulatory Affairs & Technical Services	804/857-8610

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received (Stamped)

2. Signature: Paul R. Larson

3. Title: Mgr, Regulatory Affairs & Technical Services

4. Typed Name: Paul R. Larson

5. Date: July 23, 1993

2 7 8

NO. LABEL NOT REVIEWED PER PR NOTICE 86-5
DATE 8/3/93

METAM 42% (Soil Fumigant)

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

Contains 4.2 lbs. Sodium methyldithiocarbamate per gallon.

EPA Reg. No. 45728-16 EPA Est. 3257-BL-1

KEEP OUT OF REACH OF CHILDREN

DANGER-PELIGRO

PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la etiqueta haya sido explicada ampliamente.

STATEMENT OF PRACTICAL TREATMENT

FIRST AID: Immediately start the procedures given below and contact a Poison Control Center, a physician, or the nearest hospital. Report the type and extent of exposure, describe 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 amount of running water for at least 15 minutes. Hold eyelids 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 does occur, 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.

In case of emergency - Immediately call (24 hours) (800) 424-9300 CHEMTREC or (804) 857-8615 UCB Chemicals Corporation.

See other panels for additional precautionary statements.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

DANGER

Corrosive, causes skin damage. Harmful if inhaled, swallowed or absorbed through the skin. Irritating to eyes, nose, throat, and skin. Avoid breathing vapor or spray mist. Do not get in eyes, on skin, or on clothing. Use proper protective clothing when handling (see "PROTECTIVE CLOTHING AND EQUIPMENT REQUIREMENTS" section below). In case of contact, immediately remove contaminated clothing and flush with plenty of water. For eyes, flush with water at least 15 minutes and get medical attention. Wash and dry clothing before reuse.

ENVIRONMENTAL HAZARDS

This product is toxic to fish. For terrestrial uses, do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply where runoff is likely to occur. Do not contaminate water when disposing of equipment washwaters. Apply this product only as specified on the label.

USE PRECAUTIONS

All METAM 42 uses described on this label are intended for soil preparation purposes only. All plant foliage and established plants growing on the treatment site will be damaged or destroyed.

Keep METAM 42 off desirable lawns and plants. Do not apply with 3 feet of the drip line of desirable plants, shrubs or tree. Do not use in confined areas without adequate ventilation OR where fumes may enter nearby dwellings. Do not use in greenhouses where desirable plants are present. Keep container tightly closed when not in use. Do not store near feed or food.

PROTECTIVE CLOTHING AND EQUIPMENT REQUIREMENTS

1. The following protective clothing and equipment are required to be used by persons engaged in carrying out any operations that are likely to involve direct contact with METAM 42 including mixing-loading; equipment calibrations or adjustments; clean up and repair of application equipment (equipment includes, but is not restricted to, chemigation equipment, shanks, tillers, drop lines and holding tanks); sampling; cleanup of spills; fumigant transfer; and rinsate disposal; or by any other person engaging in activities likely to result in direct contact with the product. This protective equipment must also be used for any operations that are done within 6 feet of unshielded, pressurized hoses containing METAM 42.
   a. A properly FIT TESTED NIOSH- or MSHA-approved half-face respirator with organic vapor cartridges plus non-venting chemical goggles, or a NIOSH- or MSHA-approved full-face respirator with organic vapor cartridges.
   b. Body covering that has long sleeves and long pants. When a closed system is not used, mixers and loaders must also wear a chemical resistant apron or cloth coveralls.
   c. Chemical resistant gloves and boots.
2. The following protective clothing must be worn at all times by persons operating or monitoring applications equipment or entering treated fields within 48 hours after completion of application.
   a. Chemical resistant footwear.
   b. Body covering that has long sleeves and long pants.
3. The following protective clothing and equipment must be immediately available at all times for use by persons operating tractor drawn ground application equipment or monitoring application equipment or entering treated fields within 48 hours after completion of application.
   a. A properly FIT TESTED NIOSH- or MSHA-approved half-face respirator with organic vapor cartridges plus non-venting chemical goggles, or a NIOSH- or MSHA-approved full-face respirator with organic vapor cartridges. This equipment must be worn when the pungent, rotten egg odor of METAM 42 is detected.

b. Chemical resistant gloves. These must be worn when a person is engaged in carrying out any operation that is likely to involve direct contact with the product, including those operations listed in Paragraph 1, above.

RE-ENTRY AND WORKER SAFETY STATEMENTS

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons. Do not enter treated areas for 48 hours after application unless protective clothing is worn (chemical-resistant footwear and body covering with long sleeves and long pants; and respirator, if odor is detected, and chemical-resistant gloves, if direct contact with product is involved).

Because certain states may require more restrictive re-entry intervals for various crops treated with this product, consult your State Department of Agriculture for further information.

Written or oral warnings must be given to workers who are expected to be in treated areas or in an area to be treated with this product.

Oral warnings must include the exact information specified in the written warnings. When oral warning are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers.

Written warnings must include the following information:

DANGER: Area treated with metam-sodium on (DATE). Do not enter without appropriate protective clothing for 48 hours after application. In case of accidental exposure, see STATEMENT OF PRACTICAL TREATMENT found on the METAM 42 label.

Posting also is required. Consult your State Department of Agriculture for further information.

DIRECTIONS FOR USE

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

California only: Application must be in compliance with Technical Information Bulletin - California "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.

PRODUCT INFORMATION

METAM 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. METAM 42 is recommended for the control of certain soil-borne pests that attack ornamental, food and fiber crops causing reductions in yield and quality. NOTE: METAM 42 will control only those pests in the fumigation zone at the time of treatment. Reinfestation may occur subsequent to the fumigant's dissipation from the soil.

Weeds and germinating weed seeds that are controlled include annual bluegrass, Bermudagrass, chickweed, dandelion, ragweed, henbit, lambsquarter, Amaranthus sp. (pigweed, careless weed), watergrass, Johnsongrass, nutgrass, wild morning glory, purslane, barnyardgrass, crabgrass, groundsel, prickly lettuce, pineappleweed, nettleleaf goosefoot, nightshade, Shepherdspurse, stinging nettle, Malva, London rocket, and fiddleneck. The best weed control is obtained when METAM 42 is applied to weeds that are actively growing.

The soil-borne plant pathogenic fungi controlled include species of Verticillium, *Rhizoctonia*, *Pythium*, *Phytophthora*, *Sclerotinia*, as well as *Sclerotium rolfsii*, *Armillaria mellea* (Oak root fungus), and *Plasmodiophora brassicae* (Club root of crucifers).

The plant parasitic nematodes which METAM 42 controls include root knot, lesion, dagger, lance, needle, pin, reniform, stunt, stubby root, sting, and spiral. NOTE: METAM 42 will only control nematodes that are in the fumigated zone at the time of treatment. In Oregon and Washington, METAM 42 will only suppress *Meloidogyne chitwoodi*.

Other pests controlled include symphilids or garden centipedes.

METAM 42 TREATMENT GUIDELINES

For optimum results from soil fumigation with METAM 42, certain procedures should be observed at designated times in the treatment program. Described in this section are important guidelines for each of the four stages of the treatment process:

- planning a METAM 42 application
- field preparation prior to application
- application of METAM 42
- preparing for planting after application of METAM 42

Your sales representative will help you select the best treatment program for your particular needs.

PLANNING A METAM 42 APPLICATION

Time of Application

METAM 42 is applied after harvest and 14-21 days before a new crop is planted. In some areas of North America, fall applications are preferred because the fumes dissipate over the winter, allowing planting to begin as soon as favorable springtime conditions arrive.

Application Rate

Apply 15 to 74-1/2 gallons of METAM 42 per treated acre depending on crop, target pest, and soil properties. Soil properties to consider when determining the application rate include the depth of soil to be treated, soil texture, and percent organic matter.

Target Pest and Depth of Treatment

When rate ranges for METAM 42 are given, 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 state nematologist, entomologist and plant pathologist to determine if crop rotation is more feasible than fumigation. Note: METAM 42 will only control pests, unless otherwise specified on this label, that are in the fumigated zone at the time of treatment.

For control of weeds and fungi causing seed or seedling diseases, treatment of only the top 2 to 4 inches of soil may be required. For control of nematodes and fungi which occur throughout the rhizosphere, treatmentto depths greater than 4 inches may be required. For a given soil type, the required application rate will increase proportionately with the depth of treatment required. For example, if 25 gallons of METAM 42 per acre is required to treat 4 inches, then 50 gallons of METAM 42 will be required to treat to a depth of 8 inches. Choose the appropriate application method to distribute METAM 42 evenly throughout the soil to the required depth.

Soil Characteristics

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

Except in the case of cover crops, plant material under the soil surface should be thoroughly decomposed before METAM is applied. Because of the absorbing effect of humus, soils with high levels of organic matter under the surface require higher than usual doses of METAM 42. For example, muck soils require twice the amount of fumigant that would be used in mineral soils.

Application rates will vary with the soil texture. For instance, heavy clay soils require more METAM 42 than light sandy soils.

FIELD PREPARATION PRIOR TO APPLICATION

Soil Cultivation

Always cultivate thoroughly area to be treated to loosen soil and to break up clods. Then sprinkle or flood irrigate to moisten loosened soil if needed. Immediately before treatment, cultivate lightly to break up soil crust.

Soil Temperature During Treatment

At the time of fumigation, the soil temperature should be the raaange of 40°F to 90°F in the treated zone. Treated zone is defined at the depth of treatment that METAM 42 achieves at the time of application. To prevent rapid evaporation of the product from the soil, avoid treating soil during times of the day when soil temperatures exceed 90°F two inches deep. Instead, make the application during the early morning hours when the soil temperature is coolest.

Measuring the Soil Moisture

Application should be made under "good seed bed moisture conditions", that is, the soil moisture should be about 50-80% of field capacity. As a simple field test, squeeze a handful of soil into a ball and then gently try to break it apart with your fingers. If it breaks easily, the soil moisture content is sufficient. If it will not break apart or if water can be squeezed out, it is too wet. When necessary, 1-2 weeks prior to treatment sprinkle or flood irrigate the soil to increase the moisture content. The soil must be moistened to at least the desired treatment depth.

Phytotoxicity

METAM 42 is phytotoxic. Protect valuable, non-target plants by stopping soil applications of METAM 42 at least 3 feet short of the drip line of trees, shrubs, and other desirable plants. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

APPLICATION OF METAM 42

Apply METAM 42 according to the methods and rates outlined under "USES, APPLICATION METHODS, & RATES" section below.

Use of Diluted METAM 42

USE PROMPTLY AFTER MIXING WITH WATER. DO NOT STORE THE DILUTED PRODUCT. DO NOT ALLOW SOLUTION TO STAND OVERNIGHT. Flush all equipment with water after each day's use. Disassemble valves and clean carefully.

Odors During Treatment

Strong odors during or after treatment are a signal that the fumigant is escaping and needs to be sealed in the soil.

Sealing METAM 42 In Soil

To be most effective, METAM 42 should be sealed in the soil. Sealing methods include applying irrigation water or tarpaulins (plastic, paper or fabric) and packing soil with a roller or drag. Tarpaulins should be spread loosely over the treated area and secured to prevent removal by wind. They should remain in place for at least 48 hours. If tarped, the sealed area should be cultivated to a depth of 2 inches to aerate the soil seven days after treatment. When tarpaulins are used to seal the soil, wait at least 21 days before planting.

Application In Tank Mix With Liquid Fertilizer

METAM 42 may be injected in a mixture with liquid fertilizers. Since the composition of liquid fertilizers vary considerable, the physical compatibility of each fertilizer/METAM 42 tankmix should be checked by using the following procedure:

Mix a small quantity of METAM 42 and liquid fertilizer in a glass container. METAM 42 and fertilizer should be mixed in the same ratio as they will be applied to the field (i.e., if 40 gallons of METAM 42 and 40 gallons of liquid fertilizer are to be applied per acre, then METAM 42 and fertilizer should be mixed in the jar in a 40:40 or 1:1 ration). Agitate the liquids to attain a complete mixture.

If a uniform mix cannot be made, the mixture should not be used. If the mixture remains uniform for 30 minutes, the combination may be used. Should the mixture separate after 30 minutes, but readily remix uniformly with agitation, the mixture can be used if adequate agitation is maintained in the tank.

DO NOT PLACE CAPS ON JAR AS INCOMPATIBLE MIXES MAY EVOLVE HYDROGEN SULFIDE GAS.

USE PROMPTLY AFTER MIXING WITH WATER OR FERTILIZER. DO NOT ALLOW SOLUTION TO STAND.

Flush all equipment with water after each day's use. dissassemble valves and clean carefully

GENERAL PRECAUTIONS FOR IRRIGATION SYSTEMS

When applying by chemigation methods the following directions or warnings must be observed:

Apply this product only through (choose one or more of the following types of systems: 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 through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform 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.

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 the chemigated area is open to the public such as golf courses or retail greenhouses.

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

USE PRECAUTIONS FOR SPRINKLER IRRIGATION

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back 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. diaph agm pump) effectively designed and constructed of naterials that are compatible with pesticides and capable of being fitted with a system interlock.
- Application of more than recommended quantities of irrigation water may result in decrease product performance by removing the chemical from the zone of effectiveness.
- Do not apply when wind speed favors drift beyond the area intended for treatment.
- Use only sprinkler systems that give uniform coverage.

USE PRECAUTIONS FOR FLOOD (BASIN), FURROW AND BORDER IRRIGATION

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.

Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:

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

USE PRECAUTIONS FOR DRIP (TRICKLE) IRRIGATION

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

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

NOTE: UCB Chemicals Corporation does not encourage connection of chemigation systems to public water systems. The following information is provided for users who have evaluated all alternative application and water source options before choosing to make such a connection.

A "public water system" is one that provides piped water for human consumption to the public, and the system also either has at least 15 service connections or regularly serves and average of at least 25 individuals daily at least 60 days a year.

- Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the pint 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 should be a complete physical break (air gap) between the outlet and of the fill pipe and the top or overflow rim of the reservoir tank measuring 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 back 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.

PREPARATION FOR PLANTING AFTER APPLICATION OF METAM 42

Effect of Rain

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

Recontamination

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

Interval Between Treatment and Planting

Because METAM 42 is harmful to living plants, an appropriate interval must be observed between soil fumigation and planting. On well drained soils which have a light to medium texture and which are not excessively wet or cold following application, planting can begin 14-21 days after treatment. If soils are heavy or especially high in organic matter, or if they remain wet and/or cold (below 60°F) following application, a minimum interval of greater than 21 days should be observed, extending until the soil is sufficiently dry to allow for cultivation

Aeration Before Planting

Important: When treating heavier field soils, including soils high in clay or organic matter, should be allowed to aerate and dry thoroughly after treatment with METAM 42. During cold and/or wet weather, frequent shallow cultivation can aid the escape of METAM 42 from the soil.

On heavy, wet soils, light surface cultivation to break up crusting and promote drying of the soil should be done 5 to 7 days after application. This cultivation may be repeated as necessary. To avoid reinfesting treated soil, cultural practices should be such that untreated soils are not mixed with treated soils.

Testing for Dissipation of METAM 42

After the waiting period has passed, if there is any question about the complete escape of METAM 42 from the soil, transplant a seedling into the treated soil. If the plant develops normally without any signs of chemical injury, crop planting can begin.

USES, RATES AND APPLICATION METHODS

FIELD APPLICATION - where entire area is BEING TREATED

SOIL INJECTION: Use injectors (shanks, blades, fertilizer wheels, plows, etc.) to apply METAM 42 at the rate of 29-3/4 to 74-1/2 gal. METAM 42 per treated acre. Follow immediately with a roller to smooth and compact surface. Light watering or a tarp after rolling helps prevent gas escape.

Example: apply METAM 42 through injectors placed 4 inches below surface and 5 inches apart.

SPRINKLER SYSTEM: Use only those sprinkler systems which give large water droplets to prevent excess loss. Using an injector pump or gravity metering device, apply 56 to 74-1/2 gallons METAM 42 per treated acre in a minimum of one acre inch of water. For control of shallow pests (top 12" or less of soil profile), use 15 to 74-1/2 gallons per acre. Inject the METAM 42 in enough water to reach the desired treatment depth. The product should be continuously metered into the irrigation system throughout the entire application period. Flush the system with only enough water to clear lines. If the soil surface dried quickly, reseal it with 15 minutes of water 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 "CHEMIGATION" section above.

Application Over Cover Crops

METAM 42 can be applied through sprinkler irrigation systems over cover crops such as alfalfa, clover, and such grasses as rye, oats, wheat, and sudan grass. When the product is applied over covers, no cultivation of the soil is required before the application of METAM 42.

Effect of Air Temperature and Winds on Sprinkler Application

When using a sprinkler application method, apply METAM 42 only when the air temperature is below 90°F (32°C). This precaution is recommended to guard against evaporation of the product. Either low humidity or high winds can also cause the evaporation of METAM 42 before it can be drenched into the soil. To prevent wind drift of the fumigant, apply only when wind conditions are suitable.

Runoff of Treatment Solution

To prevent runoff of treatment solution during sprinkler application, do not exceed the infiltration rate of the solution into the soil. Should runoff occur, isolate it from growing crops and water sources. Once collected, reapply it to the treated area.

CHECK, FLOOD (BASIN), FURROW and BORDER IRRIGATION: Meter METAM 42 at a steady rate into water during irrigation. Use 37-1/4 to 74-1/2 gal. METAM 42 per treated acre, depending upon the kind of pest and depth desired, in 3 to 18 inches of water per acre. Follow use precautions in "CHEMIGATION" section above.

DISC APPLIED METHOD: Spray dilute METAM 42 immediately in front of disc. Use 15 to 74-1/2 gals. METAM 42 per treated acre. Follow immediately with a roller to smooth and compact the soil surface.

FIELD APPLICATION TO BEDS OR ROWS

SOIL INJECTION: METAM 42 may be injected, at the rate of 56 to 74-1/2 gals. METAM 42 per treated acre (1.1 to 1.5 pints per 100 sq. ft. of treated soil), into pre-formed plant beds following the directions given above under soil injection. If a wider treated band is desired, space 2 or more injectors (shanks, blades, fertilizer wheels, etc.) to cover the desired treating width. Roll immediately. Light watering or a tarp after rolling helps prevent gas escape.

Note: If METAM 42 is injected into established plant beds through plastic tarps to terminate growth of a previous crop, and to fumigate the bed in preparation for planting a subsequent crop, the terminated crop should not be used for any food or feed purpose after METAM 42 has been applied.

DRIP IRRIGATION: During pre-irrigation, check drip tape for uniform distribution and repair if necessary. Apply 15 to 56 gals. METAM 42 per treated acre (0.3 to 1.1 pints per 100 sq. ft. of treated soil) using enough water to thoroughly wet entire desired treatment zone. During the entire irrigation period, inject METAM 42 continuously into drip line as close as possible to treatment area. Two or more lines per bed may be needed to ensure full coverage. See use precautions in "CHEMIGATION" section above.

Important: Application must be continuously monitored as weed elimination will not be satisfactory if too much water is applied. An adequate concentration of METAM 42 must be present at the time of weed seed germination to provide effective weed control. Further directions for use are as follows:

1. Ground must be in seed-bed condition, no clods larger than 1/2" in diameter.
2. Beds must be listed, shaped and ready for planting.
3. Soil moisture must be at 50% of field capacity in the top 2-3" at time of METAM 42 application.

SOIL COVERING METHODS: (Bed-over methods). METAM 42 may be sprayed or dripped onto the soil immediately ahead of bed-shaping equipment. Cover the METAM 42 with soil to a depth of 3 to 6 inches. The soil should be rolled and compacted immediately. The recommended rate of METAM 42 is 37-1/4 to 74-1/2 gal. per acre of treated soil, approximately equivalent to 3/4 to 1-1/2 pints per 100 linear ft. of 12-inch wide row.

ROTARY TILLER or POWER MULCHER: Spray dilute METAM 42 immediately in front of tiller or mulcher. Use 37-1/4 to 74-1/2 gallons per treated acre (3/4 to 1-1/2 pints per 100 sq. ft. of treated soil). Follow immediately with roller or bed shaper to seal soil surface.

DRENCH METHOD: Apply 15 to 74-1/2 gals. METAM 42 per treated acre to finished beds in enough water to soak at least 2 inches deep for control of shallow seeded weeds. Avoid contamination by untreated soil by not disturbing the treated area.

TREATMENT OF TREE REPLANT SITES: After removing dead or diseased tree and as much of the root system as possible, make a shallow basin over the planting site. Add METAM 42 to the stream of water while filling the basin. Use 3/4 qt. METAM 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 20 x 20 ft. square. Increase dosage to 1-1/2 qts. METAM 42 per 100 sq. ft. in sufficient water to penetrate to the depth of root system. If water is tanked to the planting site, add METAM 42 to the water and mix before filling basin.

ADDITIONAL RECOMMENDATIONS

SEED TREATMENT: A suitable fungicide should be used to treat all crop seed being planted into fumigated soil.

POTATOES: For suppression of Root Knot Nematodes and Control of Verticillium dahliae (Early Maturity Disease) in Potatoes: Sprinkler System Preplant Application - Use 37-1/4 to 74-1/2 gallons of METAM 42 per treated acre. Inject into the sprinkler system all the METAM 42 needed for the area covered and apply in a minimum of 1 acre inch of water. Soil temperature should be in a range of 40°F to 90°F in the treatment zone. Soil moisture immediately prior to treatment must be 50% to 75% of yield capacity down to 24" level. Soil condition must facilitate even moisture penetration without runoff.

NOTE: METAM 42 will suppress root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that METAM 42 achieves at the time of application.

If high numbers or deep nematodes are identified, anticipate nematodes to build up throughout the growing season. Some damage will occur unless additional action is taken.

METAM 42 has no soil residual and reinfestation of a field can occur from numerous sources such as deep nematode populations, seed pieces, irrigation water, equipment contamination and blowing wind.

EARLY MATURITY DISEASES OF POTATOES IN OREGON: Apply 29-3/4 gals. METAM 42 per treated acre using thin shank injector rig with shanks spaced 5 inches apart.

WHEAT AND BARLEY: For suppression of certain root diseases caused by Early Season Soil Fungi - before applying METAM 42, cultivate the area to be treated to break up clods. Apply 1.85 to 7.5 gallons per treated acre 14 to 21 days before planting. METAM 42 may be diluted with water or non-acidic liquid fertilizer immediately before applying. Inject METAM 42 to a depth of 5 to 8 inches into moist soil. Space injector shanks 2 to 12 inches apart.

Do not mix METAM 42 with acidic fertilizer or other acidic solution. For best results, moisture in the treated zone should be 50% of filed capacity or more.

Use only in areas which receive 15 or more inches of rainfall per year.

PEANUTS - CYLINDROCLADIUM BLACK ROT (CBR) CONTROL: Apply METAM 42 at the following rates:

- CBR-resistant cultivar (NC 8C): 7.5 gallons per treated acre or 4.1 pints per 1,000 feet of treated row
- CBR-susceptible peanut cultivars (Florigant, GK-3, NC-6, Keel 29): 15 gallons per treated acre or 8.2 pints per 1,000 feet of treated row
- CBR-highly susceptible cultivars (VA 81B, NC7): use of METAM 42 not recommended.

Soil Preparation: Before applying METAM 42, residue from the previous crop should be decomposed (enhanced by fall discing) and plowed under in the spring with mold-board plow. Soil incorporated preplant herbicides must be applied before application of METAM 42.

Application: Apply METAM 42 with a gravity flow regulator through chisel-type or coulter-type applicators. Center each applicator, one per row, in front of a bedshaper to mark the location of chemical deposition. METAM 42 should be deposited 6-to-8 inches below the soil surface of beds. Bed and applicator spacing should coincide with row spacing at planting. Soil temperatures must be in the range of 60°F to 90°F at 3-inch depth before application.

Tillage and Planting after Application: Do not mix treated soil with untreated soil by tillage or other cultural practices. Plant peanuts in the center of treated beds no earlier than 14 days following application of METAM 42. An at-planting nematicide treatment will be necessary in fields with heavy infestations of root knot, ring, and/or sting nematode.

TOBACCO PLANT BEDS: Fall applications are recommended wherever possible. Read and follow DIRECTIONS FOR USE carefully. Treatment in the South should generally be made before November 30.

A. TARP METHOD: Prepare the bed 5 to 7 days before application to ensure best conditions for weed seed germination and fumigant action of METAM 42. The bed should be free of clods, level and in good tilth. Apply 0.75 to 1.1 gals. of METAM 42 in a minimum of 40 gals. of water per 100 sq. yd. of treated soil. Apply uniformly over the entire bed. Cover the bed immediately with a plastic cover. Keep covered no less than one day, but not more than two days. The cover need not be tented, but should be secured to prevent wind from uncovering the treated area. Seven days after date of METAM 42 application, loosen the treated soil to a depth of 2 in. Do not seed tobacco earlier than 21 days after METAM 42 application.

B. DRENCH METHOD: Apply 1.85 gals. METAM 42 in 150 to 200 gals. of water per 100 sq. yd. of treated soil. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for seed bed treatment.

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

PEPPERMINT: Verticillium wilt control. When infestation is limited to small spots in a field, spread can be reduced by treating the soil with 74-1/2 gals. METAM 42 per acre of soil treated (1-1/2 pints per 100 sq. ft. of treated soil) using injector blade or thin shank injector rig with injectors spaced 5 inches apart.

STORAGE AND DISPOSAL

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

STORAGE: Keep container tightly sealed during storage. Do not store below 0°F. Product crystallizes at lower temperatures. If exposed, warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Triple rinse (or equivalent) containers or bulk storage tanks. Offer containers for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other procedures approved by State and local authorities.

NET CONTENTS GALLONS

NOTICE -- READ CAREFULLY

Terms of Sale or Use: On purchase of this product, buyer and user agree to the following conditions:

Warranty: UCB makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Except as so warranted, the product is sold as is. Buyer and user assume all risk of use and/or handling and/or storage of this material when such use and/or handling and/or storage is contrary to label instructions.

Directions and Recommendations: Follow directions carefully. Timing and method of application, weather and crop conditions, mixture with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller and are assumed by buyer at his own risk.

Use of Product: UCB's recommendations for the use of this product are based upon tests believed to be reliable. The use of this product being beyond the control of the manufacturer, no guarantee, expressed or implied, is made to the effect of such or the results to be obtained if not used in accordance with directions or established safe practice.

Damages: Buyer's or user's exclusive remedy for damages for breach of warranty or negligence shall be limited to direct damages not exceeding the purchase price paid and shall not include incidental or consequential damages.

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