



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

DEC 27 2011

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

Julie Porter

AMVAC  
4695 MacArthur Court  
Suite 1250  
Newport Beach, CA 92660

Subject: METAM SODIUM  
EPA Reg. No. 5481-350  
Phase 2 RED Mitigation Amendment Label Dated June 28, 2011  
EPA Decision Number 459200

Dear Ms. Porter:

The amended label referred to above, submitted in connection with reregistration of metam sodium under the Federal Insecticide, Fungicide and Rodenticide Act as amended is acceptable provided the following label revisions are made and the following conditions are met:

**LABEL REVISION**

1. Page 3 – Since this label does not contain directions for use with a weed sprayer, in the PPE section, in the second paragraph that begins “Handlers applying via weed sprayer...” delete the phrase “via weed sprayer (see Terms used in this labeling section).” Also, add an “s” to “system” and change “is” to “are in this same section so the sentence reads:  
Handlers applying while irrigation systems are operating or handlers who may be exposed to liquid spray while repairing a malfunctioning chemigation system or shutting off equipment must wear:
2. Page 6 – Delete the definition for Weed Sprayer.
3. Page 8 – Under Certified Applicator Training, delete the “(s)” in “ingredient(s)”.
4. Page 10 – Under Respiratory Protection and Stop Work Triggers, in the first paragraph, insert the following underlined phrase in the sentence so it reads: “The following



- Fumigant(s) applied including the active ingredient, name of the fumigant product(s), and the EPA Registration number.
- Contact information for the applicator and property owner.
- Time period in which the application is planned to take place (must not range more than 4 weeks).
- Early signs and symptoms of exposure to the fumigant(s) applied, what to do, and who to call if you believe you are being exposed (911 in most cases).
- How to find additional information about fumigants.

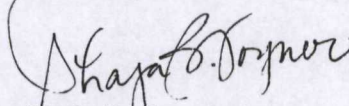
12. Page 57 – Under Statements Concerning Chemigation of Metam Sodium, delete the application method “traveler”.

### CONDITIONS

1. EPA has determined that the risk mitigation measures on the revised label for this product are necessary to adequately protect human health and the environment. Therefore, pursuant to 40 CFR § 152.130(d), EPA has decided that no product bearing previously approved labeling may be sold or distributed (released for shipment) by its registrant after December 1, 2012. Wherever state approval is required for sale or distribution of this product with this new labeling, EPA strongly encourages you to submit an application to the state authority as soon as possible. You should be aware that the Agency does not intend to modify the December 1, 2012, deadline because of any failure to obtain state approvals.
2. Submit one copy of the final printed label that incorporates the required changes before the product is released for shipment.

One copy of the label stamped “Accepted with comments” is enclosed for your records. If you have any questions, please contact Jose Gayoso by phone at (703) 347-8652 or via email at [gayoso.jose@epa.gov](mailto:gayoso.jose@epa.gov) or Shaja Joyner by phone at (703) 308-3194 or email at [joyner.shaja@epa.gov](mailto:joyner.shaja@epa.gov).

Sincerely,



Shaja B. Joyner  
Product Manager (20)  
Fungicide Branch  
Registration Division (7504P)



# RESTRICTED USE PESTICIDE

Due to acute inhalation toxicity to humans.

For retail sale to and use by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certification.

# METAM SODIUM

**A SOIL FUMIGANT SOLUTION FOR SPECIFIC CROPS AS LISTED IN THIS LABEL:  
MAY BE APPLIED BY WATER-RUN APPLICATIONS (e.g., CHEMIGATION), SOIL INJECTION OR  
SOIL BEDDING EQUIPMENT TO SUPPRESS AND/OR CONTROL SOIL-BORNE PESTS IN LISTED  
ORNAMENTALS, FOOD AND FIBER CROPS.**

For the control or suppression of Weeds, Diseases and Nematodes. Suppresses and/or Controls Weeds such as Annual Bluegrass, Bermudagrass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Amaranthus species, Watergrass, Johnsongrass, Nutgrass, Wild Morning Glory 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)\* .....32.7%

**OTHER INGREDIENTS:**.....67.3%

**TOTAL:**.....100.0%

\*Contains 3.18 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).

FIRST AID	
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>Take off contaminated clothing.</li> <li>Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>Move person to fresh air.</li> <li>If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>Call a poison control center or doctor immediately for treatment advice.</li> <li>Have person sip a glass of water if able to swallow.</li> <li>Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>Do not give anything by mouth to an unconscious person.</li> </ul>
EMERGENCY INFORMATION	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
FOR THE FOLLOWING EMERGENCIES, PHONE 24 HOURS A DAY:	
Transportation: CHEMTREC.....	1-800-424-9300
Other: AMVAC.....	1-323-264-3910

SEE SIDE/BACK PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS AND DIRECTIONS FOR USE.

EPA Reg. No. 5481-350

EPA Est. No. ☐ 5481-CA-1 ☐ 1448-MO-1 ☐ 61842-WA-1

Net Weight:

As Marked on Container



4100 E. Washington Blvd.  
Los Angeles, CA 90023 U.S.A.  
1-323-264-3910

**ACCEPTED  
with COMMENTS  
In EPA Letter Dated  
DEC 27 2011**

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



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## 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.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are barrier laminate or Viton  $\geq 14$  mils. For more options, follow the instructions for category H on the chemical-resistance category selection chart.

Handlers applying via weed sprayer (see *Terms used in this labeling* section) while irrigation system is operating or handlers who may be exposed to liquid spray while repairing a malfunctioning chemigation system or shutting off equipment must wear:

- chemical-resistant coveralls over long-sleeve shirt and long pants,
- chemical-resistant gloves,
- chemical-resistant footwear plus socks,
- chemical-resistant headgear, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label.

Handlers wearing chemical-resistant attire are limited to 30 minutes of exposure in any 60 minute period to prevent heat illness, and, as required by the Worker Protection Standard for Agricultural Pesticides, employers of these handlers must take any necessary steps to avoid heat illness.

Except as required above, handlers transferring or loading liquid formulations, handlers operating motorized ground equipment with open cabs, handlers repairing or inactivating irrigation or chemigation equipment during application, and handlers cleaning up spills or equipment, must wear:

- coveralls over long-sleeve shirt and long pants,
- chemical resistant gloves,
- chemical resistant footwear plus socks,
- chemical-resistant apron if transferring or loading the fumigant or cleaning up spills or equipment,
- protective eyewear, and
- respirator of the type specified in the PPE requirements for respiratory protection section in the PPE requirements on this label if triggered.

All other handlers, including handlers operating motorized ground equipment with closed cabs (except for handlers who set up and calibrate chemigation and irrigation equipment and start the application from inside the application block) as stated in this labeling must wear:

- long-sleeve shirt and long pants,
- shoes plus socks, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label if triggered.

All handlers who set-up and calibrate chemigation and irrigation equipment and start the application from inside the application block must wear:

- long-sleeve shirt and long pants,
- shoes plus socks,
- protective eyewear, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label if triggered.



## PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR RESPIRATORY PROTECTION

When an air-purifying respirator is required under this label's Directions for Use, Protection for Handlers, Respiratory Protection and/or Stop Work Triggers section, handlers must wear at minimum either:

- A NIOSH certified full facepiece air-purifying respirator equipped with an organic vapor (OV, NIOSH approval prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A), or
- A gas mask with a canister approved for organic vapor (NIOSH approval number prefix TC-14G).

Cartridges or canisters must be replaced when odor or sensory irritation from this product becomes apparent during use, if the measured concentration of MITC is greater than 6000 ppb (6 ppm), or, in the absence of any other instructions or indications of service life, at the end of each day's work period, whichever occurs first.

### USER SAFETY REQUIREMENTS

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

DO NOT transport contaminated clothing inside a closed vehicle unless stored in a sealed container. Wash or dispose as specified.

### 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

This pesticide is toxic to mammals, birds, aquatic invertebrates and fish. 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 wash waters or rinsate.

Metam sodium has certain properties and characteristics in common with chemicals that have been detected in groundwater (highly soluble in water and has low adsorption to soil).

For untarped applications, leaching and runoff may occur if there is heavy rainfall after soil fumigation.

### DIRECTIONS FOR USE

#### Restricted Use Pesticide

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product through any irrigation system unless the chemigation instructions on this labeling are followed. Do not apply when wind speed favors drift beyond the area intended for treatment. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only handlers may be in the application block from the start of the application until the entry restricted period ends, and in the buffer zone during the buffer zone period. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Keep children and pets out of treated areas. All METAM SODIUM uses described on this labeling 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 greenhouses. Keep container tightly closed when not in use. Do not store near feed or food.

NOTE: METAM SODIUM will control only those pests in the fumigation zone at the time of treatment. Reinfestation may occur subsequent to the fumigants degradation/dissipation from the soil.

#### 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 handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. For entry restricted period and notification requirements, see the *Entry Restricted Period* and *Notification* sections of this labeling.

**PPE For Entry During the Entry-Restricted Period:** PPE for entry that is permitted by this labeling is listed in the *Personal Protective Equipment (PPE)* section of this labeling.

#### TERMS USED IN THIS LABELING

Soil Fumigant Training Program: Certified applicator training that provides information on (1) how to correctly apply the fumigant, including how to comply with new label requirements; (2) how to protect handlers and bystanders; (3) how to determine buffer zone distances; (4) how to complete an FMP and the post-application summary; (5) how to determine when weather and other site-specific factors are not favorable for fumigant application; (6) how to comply with required GAPs and how to document compliance with GAPs in the FMP; and (7) how to develop and implement emergency response plans.

Fumigant Safe Handling Information: Information that must be provided annually to handlers that must include the following: (1) what fumigants are and how they work, (2) safe application and handling of soil fumigants, (3) air monitoring and respiratory protection requirements for handlers, (4) early signs and symptoms of exposure, (5) appropriate steps to take to mitigate exposures, (6) what to do in case of an emergency, and (7) how to report incidents.

Application Block: Area within the perimeter of the fumigated portion of a field (including furrows, irrigation ditches, roadways). The perimeter of the application block is the border that connects the outermost edges of total area treated with the fumigant product.

Application Rate: The ratio of fumigant mass applied compared to the soil surface area (e.g., lbs of product per acre). The application rate is expressed on this labeling in terms of either the "treated area application rate" or the "broadcast equivalent application rate." The "treated area application rate" relates to only the rate of fumigant applied to the portion of the field that is fumigated (e.g., rate within the bed or strips). The "broadcast equivalent application rate" relates to the rate of fumigant applied within the entire perimeter of the application block. For bedded and strip applications, the "broadcast equivalent application rate" must be calculated to determine the buffer zone distance required by this labeling.

Start of the Application: The time at which the fumigant is first delivered/dispensed into the soil in the application block.

Application is Complete: The time at which the fumigant has stopped being delivered/dispensed into the soil and the soil has been sealed; drip lines have been purged (if applicable).

Entry Restricted Period: This period begins at the start of the application and expires depending on the application method and if tarps are used when the tarps are perforated and removed. Entry into the application



block during this period is only allowed for appropriately PPE-equipped handlers performing handling tasks. See the *Entry Restricted Period and Notification* section for additional information.

**Buffer Zone:** An area established around the perimeter of each application block. The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.

**Buffer Zone Period:** Begins at the start of the application and lasts for a minimum of 48-hours after the application is complete. Non-handlers must be excluded from the buffer zone during the buffer zone period.

**Difficult to Evacuate Sites:** Pre-K to Grade 12 schools, state licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.

**Owner:** Any person who has a present possessory interest (fee, leasehold, rental, or other) in an agricultural establishment. A person who has both leased such agricultural establishment to another person and granted that same person the right and full authority to manage and govern the use of such agricultural establishment is not an owner. See definition of "owner" in WPS (40 CFR §170.3).

**Roadway:** Portion of a street or highway improved, designed or ordinarily used for vehicular travel, exclusive of the sidewalk or shoulder even if such sidewalk or shoulder is used by persons riding bicycles. In the event a highway includes two or more separated roadways, the term *roadway* shall refer to any such roadway separately.

**Representative Handling Task:** For air monitoring, the locations and handler activities sampled must represent each handler's exposure occurring within the application block. For example, for an application consisting of a seven-handler crew (1 tractor driver, 1 tractor co-pilot, 4 shovelers, and 1 certified applicator supervising) two breathing zone samples could be collected: one sample for the tractor co-pilot and one sample for a downwind shoveler. Results of previous sampling may indicate which tasks and locations are worst case and therefore representative of all handlers."

**High Release Height Center Pivot or Lateral Move Irrigation Applications:** (1) Release height OR spray height greater than 8 feet, and (2) there is greater than 30 lbs. PSI at the sprinkler head.

**Medium Release Height Center Pivot or Lateral Move Irrigation Applications:** (1) Release height AND spray height is less than 8 feet, AND (2) 29 lbs. or less PSI at the sprinkler head, AND (3) there are no end guns.

**Low Release Height-Solid Stream Center Pivot or Lateral Move Irrigation Applications:** (1) Release height and spray height is less than 4 feet, AND (2) 29 lbs. or less PSI at the sprinkler head, AND (3) application system produces a solid stream, and (4) there are no end guns.

**Solid Stream:** An uninterrupted liquid stream that remains generally as a coarse flow until contacting the intended target. An example of a solid stream application is Smart Drop®, also known as drizzle boom. Any application system that employs sprayheads or nozzles with moving parts that produce a rotating or oscillating spray pattern (e.g., rotators, spinner, nutators, and wobblers) or that otherwise break up the stream into droplets does not qualify as a solid stream nozzle.

**Weed Sprayer:** In this labeling, weed sprayer refers to a tank that holds 100-500 gallons combined with an off-set spray boom that creates a swath about 4 feet on each side of an orchard tree row, leaving the untreated grassy middle to grow.

## USE SITES

Only for use on the following:

Cover crops (i.e., crops planted between periods of regular crop production to prevent soil erosion). The terminated crop must not be used for any food or feed purposes after METAM SODIUM has been applied; Crops grown solely for seed; as well as pre-plant soil uses for (in alphabetical order): Alfalfa; Almond (*Prunus dulcis*);



Amaranth (leafy amaranth, Chinese spinach, tampala) (*Amaranthus spp.*); Amur River Grape; Andean Blackberry; Angelica; Anise; Apple (*Malus domestica*); Apricot (*Prunus armeniaca*); Aronia Berry; Artich Blackberry; Arugula (roquette) (*Eruca sativa*); Asparagus (nursery production only); Artichokes; Balm (lemon balm); Barley; Basil; Bayberry; Bearberry; Beech Nut (*Fagus spp.*); Beet, Garden; Beet, Sugar; Bilberry; Bingleberry; Blackberry (*Rubus eubatus*); Black Satin Berry; Blueberry, highbush and lowbush (*Vaccinium spp.*); Borage; Boysenberry; Brazil Nut (*Bertholletia excelsa*); Broccoli; Broccoli, Chinese (Gai Lon); Broccoli, raab (rapini); Brombeere; Brussels Sprouts; Buffaloberry; Burdock, Edible; Burnet; Butternut (*Juglans cinerea*); Cabbage; Cabbage, Chinese (Bok Choy); Cabbage, Chinese mustard (Gai Choy); Cabbage, Napa; Calamondin (*Citrus mitis* X *Citrofortunella mitis*); California Blackberry; Camomile; Cardoon (*Cynara cardunculus*); Carrot; Cashew (*Anacardium occidentale*); Catnip; Cauliflower; Cavalo Broccolo; Celeriac (celery root); Celery (*Apium graveolens* var. *dulce*); Celery, Chinese (*Apium graveolens* var. *secalinum*); Celtuce (*Lactuca sativa* var. *angustana*); Chayote (fruit) (*Sechium edule*); Che; Cherokee Blackberry; Cherry, sweet (*Prunus avium*); Cherry, tart (*Prunus cerasus*); Chervil (dried) (*Anthriscus cerefolium*); Chervil, turnip-rooted (*Chaerophyllum bulbosum*); Chesterberry; Chestnut (*Castanea spp.*); Cheyenne Blackberry; Chicory; Chilean Guava; Chinese Waxgourd (Chinese preserving melon) (*Benincasa hispida*); Chinquapin (*Castanea pumila*); Chive, fresh leaves; Chive, Chinese, fresh leaves; Chokecherry; Chrysanthemum, edible-leaved (*Chrysanthemum coronarium* var. *coronarium*); Chrysanthemum, garland (*Chrysanthemum coronarium* var. *spatiosum*); Cilantro; Citron Melon (*Citrullus lanatus* var. *citroides*); Citrus (orchard replant only); Citrus Citron (*Citrus medica*); Citrus Hybrids (*Citrus spp.*) (includes: Chironja, Tangelo, Tangor); Clary; Cloudberry; Clover; Collard; Common Blackberry; Corn; Corn Salad (*Valerianella locusta*); Coriander (cilantro or Chinese parsley) (leaf); Coryberry; Costmary; Cotton; Cover crops (i.e., crops planted between periods of regular crop production to prevent soil erosion, control weeds, and improve soil quality that are incorporated into the soil before the next crop is planted and may not be harvested for food or feed); Crops grown solely for seed; Crabapple (*Malus spp.*); Cranberry; Cress, garden (*Lepidium sativum*); Cress, upland (yellow rocket, winter cress) (*Barbarea vulgaris*); Cucumber (*Cucumis sativus*); Cucurbits; Culantro (leaf); Currant, Black; Currant, Red; Curry (leaf); Dandelion (*Taraxacum officinale*); Darrowberry; Dewberry; Dill; Dill (dillweed); Dirksen Thornless Berry; Dock (sorrel) (*Rumex spp.*); Eggplant; Elderberry (*Sambucus spp.*); Elegans Hosta; Endive (escarole) (*Cichorium endivia*); European Barberry; Evergreen Blackberry; Fava Beans; Fennel, Filbert (hazelnut) (*Corylus spp.*); Florence (finocchio) (*Foeniculum vulgare* Azoricum Group); Fritillaria, leaves; Forest Seedlings; Garden Beet; Garlic; Gherkin (*Cucumis anguria*); Ginger; Ginseng; Gooseberry (*Ribes spp.*); Gourd, edible (*Lagenaria spp.*) (includes: hyotan, cucuzza (*Luffa acutangula*, *L. cylindrical*, includes hechima, Chinese okra); Grape (vineyard replant only); Grapefruit (*Citrus paradisi*); Green Beans; Herbs (all); Hickory Nut (*Carya spp.*); Highbush Cranberry; Himalayaberry; Honeysuckle, edible; Horehound; Horseradish; Huckleberry (*Gaylussacia spp.*); Hullberry; Hyssop; Jostaberry; Juneberry; Kale; Kiwifruit, fuzzy; Kiwifruit, hardy; Kohlrabi; Kumquat (*Fortunella spp.*); Kurrat; Lavacaberry; Lavender; Leafy Greens; Leek; Leek, ladies; Leek, wild; Lemon (*Citrus jambhiri*, *Citrus limon*); Lemongrass; Lettuce, head and leaf (*Lactuca sativa*); Lima Beans; Lime (*Citrus aurantiifolia*); Lingonberry; Loganberry (*Rubus loganobaccus*); Loquat (*Eriobotrya japonica*); Lowberry; Lovage (leaf); Lucretiaberry; Macadamia Nut (bush nut) (*Macadamia spp.*); Mammoth Blackberry; Mandarin (tangerine) (*Citrus reticulata*); Marigold; Marionberry; Marjoram (includes sweet or annual marjoram, wild marjoram, or oregano, and pot marjoram); Mayhaw (*Crataegus aestivalis*, *C. opaca*, and *C. rufula*); Maypop; Mint; Mizuna; *Momordica spp.* (includes balsam apple, balsam pear, bitter melon, Chinese cucumber); Mora; Mountain Pepper Berries; Mulberry; Muntries; Mures Denronce; Muskmelon (hybrids and/or cultivars of *Cucumis melo* (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon)); Mustard; Mustard Greens; Mustard Spinach; Nasturtium; Native Currant; Nectarberry; Nectarine (*Prunus persica*); Northern Dewberry; Nursery Stock (fruit seedlings and rose bushes only); All Nursery Tree Crops (like Maple, Ash, Dogwood); Oats; Olallieberry; Onion; Onion, Beltsville bunching; Onion, fresh; Onion, green; Onion, macrostem; Onion, tree tops; Onion, Welsh tops; Orange, sour (*Citrus aurantium*); Orange, sweet (*Citrus sinensis*); Orach (*Atriplex hortensis*); Oregon Evergreen Berry; Oriental Radish; Ornamentals (floriculture only); Ornamental Crops; Parsley (*Petroselinum crispum*), Parsley, turnip-rooted (*Petroselinum crispum* var. *tuberosum*); Parsnip; Partridgeberry; Peach (*Prunus persica*); Pear (*Pyrus communis*); Pear, oriental (*Pyrus pyrifolia*); Peas (English and Garden); Pecan (*Carya illinoensis*); Pennyroyal; Phalsa; Phenomenalberry; Pincherry; Pistachio; Plum (*Prunus domestica*, *Prunus spp.*); Plum, Chickasaw (*Prunus angustifolia*); Plum, Damson (*Prunus domestica* spp. *insititia*); Plum, Japanese (*Prunus salicina*); Plumcot (*Prunus. armeniaca* X *P. domestica*); Pome Fruit (orchard replant only) Peanut; Pepper; Potato; Prune (fresh) (*Prunus domestica*, *Prunus*



spp.); Pummelo (*Citrus grandis*, *Citrus maxima*); Pumpkin (*Cucurbita* spp.); Purslane, garden (*Portulaca oleracea*); Purslane, winter (*Montia perfoliata*); Quince (*Cydonia oblonga*); Radicchio (red chicory) (*Cichorium intybus*); Radish; Radish, oriental (daikon); Rangeberry; Rape Greens; Rappini; Raspberry, black, Raspberry, red; Raspberry, wild; Ravenberry; Rhubarb (*Rheum rhabarbarum*); Riberry; Rosemary; Rossberry; Rue; Rutabaga; Rye; Sage; Salal; Salsify (oyster plant); Salsify, black; Salsify, Spanish; Satsuma Mandarin (*Citrus unshiu*); Savory, summer and winter; Schisandra Berry; Sea Buckthorn; Seed Beans; Serviceberry; Shallot, fresh leaves; Shawnee Blackberry; Skirret; Soybean; Spinach (*Spinacia oleracea*); Spinach, New Zealand (*Tetragonia tetragonioides*, *T. expansa*); Spinach, vine (Malabar spinach, Indian spinach) (*Basella alba*); Squash, summer (*Cucurbita pepo* var. melopepo) (includes: crookneck squash, scallop squash, straightneck squash, vegetable marrow, and zucchini); Squash, winter (*Cucurbita maxima*; *C. moschata*) (includes: butternut squash, calabaza, hubbard squash) and (*C. mixta*; *C. pepo*) (includes acorn squash, spaghetti squash); Stone Fruit (orchard replant only) Strawberries; Sudan; Sweet bay (bay leaf); Sweet Potato; Swiss Chard; Tansy; Tarragon; Tayberry; Thyme; Tobacco; Tomatoes; Tree Nuts (orchard replant only) Turnip; Turf (including golf courses); Walnut, black and English (Persian) (*Juglans* spp.); Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*); Wheat; Wintergreen; Woodruff; Wormwood; Yams; Youngberry and varieties and/or hybrids of these; and Zarzamora.

## USE METHOD RESTRICTIONS

The use of this product is restricted to the methods described in this label.

Use in greenhouses or any other enclosed structure or confined area is prohibited. Application with handheld equipment is prohibited. Application with cement grinder and shredder equipment is prohibited. Open pour applications are prohibited. Do not apply this product through traveler or big gun application systems

## CERTIFIED APPLICATOR TRAINING

Any certified applicator supervising a soil fumigant application must have successfully completed one of the soil fumigant training programs listed on the following EPA website <http://www.epa.gov/fumigantraining> for the active ingredient(s) in this product. The training must be completed in the time frames listed on the website. The FMP must document the date and location where the soil fumigant training program was completed.

## HANDLERS

The following activities are prohibited from being performed by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in WPS (40 CFR Part 170):

- Monitoring fumigant air concentrations;
- Cleaning up fumigant spills (this does not include emergency personnel not associated with the fumigation application);
- Handling or disposing of fumigant containers;
- Cleaning, handling, adjusting, or repairing the parts of fumigation equipment that may contain fumigant residues; and
- Performing any handling tasks as defined by the WPS (40 CFR 170).

The following activities are prohibited from being performed in the application block from the start of the application until the entry restricted period ends and in the buffer zone during the buffer zone period by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in WPS (40 CFR Part 170). (NOTE: persons repairing and monitoring tarps are considered handlers for the duration listed below). Prohibited activities (except for trained and equipped handlers) include:

- Participating in the application as supervisors, loaders, drivers, tractor co-pilots, shovelers, cross ditchers, or as other direct application participants;
- Installing, repairing, operating, or removing irrigation equipment;
- Performing scouting, crop advising, or monitoring tasks;
- Installing, perforating (cutting, punching, slicing, poking), or removing tarps; and



- Repairing or monitoring tarps until 14 days after application is complete if tarps are not perforated and removed during those 14 days. NOTE: see *Tarp Perforation and/or Removal* section on this labeling for requirements about when tarps are allowed to be perforated.

Handlers do not include local, state, or federal officials performing inspection, sampling, or other similar official duties.

## PROTECTION FOR HANDLERS

### Supervision Of Handlers

For all applications, except water run, from the start of the application until the application is complete, a certified applicator must be at the application block in the line of sight of the application and must directly supervise all persons performing handling activities.

For water-run applications (e.g., sprinkler/chemigation, wheel line, center pivot, lateral move, drip, flood, etc.), a certified applicator must be in the line of sight of the application at the start of the application, including set-up, calibration, and initiation of the application. A certified applicator may leave but must return at least every two hours to visually inspect the equipment to ensure proper functioning, and must directly supervise all WPS-trained handlers until the application is complete. WPS-trained handlers may perform these monitoring functions in place of a certified applicator but they must be under the supervision of a certified applicator and be able to communicate with a certified applicator at all times during monitoring activities via cell phone or other means.

For handling activities that take place after the application is complete until the entry restricted period expires, the certified applicator is not required to be on-site, but must have communicated in a manner that can be understood by the site owner and handlers responsible for carrying out those activities the information necessary to comply with the label and procedures described in the FMP (e.g., emergency response plans and procedures).

**IMPORTANT:** this requirement does not override the requirements in the Worker Protection Standard for Agricultural Pesticides for information exchange between operators of agricultural establishments and commercial pesticide applicators.

The certified applicator must provide **Fumigant Safe Handling Information** to each handler or confirm that within the past 12 months, each handler has received **Fumigant Safe Handling Information** in a manner that he/she can understand. **Fumigant Safe Handling Information** will be provided where this product is purchased or at <http://www.epa.gov/fumigantraining>.

### Exclusion of Non Handlers from Application Block and Buffer Zone

The certified applicator supervising the application and the owner of the establishment where the application is taking place must make sure that all persons who are not trained and PPE-equipped and who are not performing one of the handling tasks as stated in this labeling are:

- excluded from the application block during the entry restricted period, and
- excluded from the buffer zone during the buffer zone period (see buffer zone exemption for transit on roadways in Buffer Zone Requirements section).

Local, state, or federal officials performing inspection, sampling, or other similar official duties are not excluded from the application block or the buffer zone by this labeling. The certified applicator supervising the application and the owner of the establishment where the application is taking place are not authorized to, or responsible for, excluding those officials from the application block or the buffer zone.

### Providing, Cleaning, And Maintaining PPE

The employer of any handler (as stated in this label) must make sure that all handlers are provided and correctly wear the required PPE. The PPE must be cleaned and maintained as required by the Worker Protection Standard for Agricultural Pesticides.



### **Air-Purifying Respirator Availability**

The employer of any handler must confirm that an air purifying respirator and appropriate cartridges of the type specified in the *PPE* section of this labeling are immediately available for each handler who will wear one. At least one handler must have the appropriate air-purifying respirator and cartridges available (see *Respirator Fit Testing, Medical Qualification, and Training* section for additional requirements).

Exception: After the application is complete, air-purifying respirators do not need to be made available for handlers performing fumigant site monitoring tasks outside of the buffer zone.

### **Respirator Fit Testing, Medical Qualification, And Training**

Using a program that conforms to OSHA's requirements (see 29 CFR Part 1910.134), employers must verify that any handler who uses a respirator is:

- Fit-tested and fit-checked,
- Trained, and
- Examined by a qualified medical practitioner to ensure physical ability to safely wear the style of respirator to be worn. A qualified medical practitioner is a physician or other licensed health care professional who will evaluate the ability of a worker to wear a respirator. The initial evaluation consists of a questionnaire that asks about medical conditions (such as a heart condition) that would be problematic for respirator use. If concerns are identified, then additional evaluations, such as a physical exam, might be necessary. The initial evaluation must be done before respirator use begins. Handlers must be reexamined by a qualified medical practitioner if their health status or respirator style or use-conditions change.

Upon request by local/state/federal/tribal enforcement personnel, employers must provide documentation demonstrating how they have complied with these requirements.

### **Respiratory Protection And Stop Work Triggers**

The following procedures must be followed to determine whether an air-purifying respirator is required or if operations must cease for any person performing a handling task as stated in this label.

- If at any time any handler experiences sensory irritation (tearing, burning of the eyes or nose), then either:
  - An air-purifying respirator must be worn by all handlers who remain in the application block or surrounding buffer zone, or
  - Operations must cease and handlers not wearing an air-purifying respirator must leave the application block and surrounding buffer zone.
- Handlers can remove air-purifying respirators or resume operations if two consecutive breathing-zone samples taken at the handling site at least 15 minutes apart show that levels of MITC have decreased to less than 600 ppb (0.6 ppm), provided that handlers do not experience sensory irritation. During the collection of air samples, an air-purifying respirator must be worn by the handler taking the air samples. Samples must be taken at the location where the irritation was first experienced.
- When using monitoring devices to monitor air concentration levels, a direct read detection device, such as an electronic device or a colorimetric device (e.g., Draeger, Sensidyne) must be used. The devices must have sensitivity of at least 600 ppb (0.6 ppm) for MITC. Persons using direct read detection devices must follow the manufacturer's directions.
- When breathing zone samples are required, they must be taken outside respiratory protection equipment and within a 10 inch radius of the handler's nose and mouth.
- When air-purifying respirators are worn, air monitoring samples must be collected at least every 2 hours in the breathing zone of a handler performing a representative handling task.
- If at any time: (1) a handler experiences sensory irritation when wearing an air-purifying respirator, or (2) a MITC air sample is greater than or equal to 6,000 ppb (6 ppm), then all handler activities must cease and handlers must be removed from the application block and surrounding buffer zone.
- Handlers can resume work activities without air-purifying respirators if two consecutive breathing-zone samples taken at the handling site at least 15 minutes apart show levels of MITC have decreased to less than 600 ppb (0.6 ppm), provided that handlers do not experience sensory irritation. During the collection of air samples an air-purifying respirator must be worn by the handler taking the air samples. Samples must be



taken at the location where the irritation was first experienced or where sample(s) were greater than or equal to 6,000 ppb (6 ppm).

- Handlers can resume work activities if all of the following conditions exist provided that the appropriate air-purifying respirator is worn:
  - Two consecutive breathing zone samples for MITC taken at the handling site at least 15 minutes apart must be less than 6,000 ppb (6 ppm),
  - Handlers do not experience sensory irritation while wearing an air-purifying, and
  - Filter cartridges/canisters have been changed.
  - During the collection of air samples an air-purifying respirator must be worn by the handler taking the air samples. Samples must be taken at the location where the irritation was first experienced or where sample(s) were greater than or equal to 6,000 ppb (6 ppm).

## **TARP PERFORATION AND/OR REMOVAL**

**IMPORTANT:** Persons perforating, repairing, removing, and/or monitoring tarps are defined, within certain time limitations, as handlers (see *Handlers* section), and they must be provided the PPE and other protections for handlers as required on this labeling and in the Worker Protection Standard for Agricultural Pesticides.

- Tarps must not be perforated until a minimum of 5 days (120 hours) have elapsed after the application is complete, unless a weather condition exists which necessitates early tarp perforation or removal (see *Early Tarp Removal for Broadcast Applications Only* and *Early Tarp Perforation during Flood Prevention Activities for Bedded Applications Only* requirements).
- If tarps are perforated within 14 days after the application is complete, tarp removal must not begin until at least 2 hours after tarp perforation is complete.
- If tarps are perforated but not removed within 14 days after the application is complete, planting or transplanting must not begin until at least 48 hours after the tarp perforation is complete.
- If tarps are not perforated or removed within 14 days after the application is complete, planting or transplanting may take place while the tarps are being perforated.
- Each tarp panel used for broadcast fumigation must be perforated.
- Tarps may be perforated manually **ONLY** for the following situations:
  - At the beginning of each row when a coulter blade (or other device which performs similarly) is used on a motorized vehicle such as an ATV.
  - In fields that are 1 acre or less.
  - During flood prevention activities.
- In all other instances tarps must be perforated (cut, punched, poked, or sliced) only by mechanical methods.
- Tarp perforation for broadcast fumigations must be completed before noon.
- For broadcast fumigations, tarps must not be perforated if rainfall is expected within 12 hours.
- **Early Tarp Removal for Broadcast Applications Only:**
  - Tarps may be removed before the required 5 days (120 hours) if adverse weather conditions have compromised the integrity of the tarp, provided that the compromised tarp poses a safety hazard. *Adverse weather* includes high wind, hail, or storms that blow tarps off the field and create a hazard, e.g., tarps blowing into power lines and onto roads. A *compromised tarp* is a tarp that due to an adverse weather condition is no longer performing its intended function and is creating a hazard.
- **Early Tarp Perforation during Flood Prevention Activities for Bedded Applications Only:**
  - Tarp perforation is allowed before the 5 days (120 hours) have elapsed.
  - Tarps must be immediately retucked and packed after soil removal.

## **ENTRY RESTRICTED PERIOD AND NOTIFICATION**

### **Entry Restricted Period**

Entry into the application block (including early entry that would otherwise be permitted under the WPS) by any person – other than a correctly trained and PPE-equipped handler who is performing a handling task listed on this labeling – is **PROHIBITED** - from the start of the application until:

- 5 days (120 hours) after the application is complete for untarped applications, or



- 5 days (120 hours) after the application is complete if tarps are not perforated and removed for at least 14 days after the application is complete, or
- 48 hours after tarp perforation is complete if tarps will be perforated within 14 days after the application is complete and will not be removed for at least 14 days after the application is complete, or
- tarp removal is completed if tarps are both perforated and removed less than 14 days after the application is complete.

#### NOTES:

- See *Tarp Perforation and/or Removal* section on this labeling for requirements about when tarps are allowed to be perforated.
- If early tarp removal occurs for a broadcast application the entry restricted period is a minimum of 5 days after the application is complete.
- When listing application information for soil fumigant applications to comply with part 170.122 of the WPS, list the entry restricted period time frame in place of the REI.

#### Notification

Notify workers of the application by warning them orally and by posting Fumigant Treated Area signs. The signs must bear the skull and crossbones symbol and state:

- "DANGER/PELIGRO,"
- "Area under fumigation, DO NOT ENTER/NO ENTRE,"
- "Metam Sodium Fumigant in USE,"
- "the date and time of fumigation,
- the date and time entry restricted period is over,
- "METAM SODIUM", and
- Name, address, and telephone number of the certified applicator in charge of the fumigation.

Post the Fumigant Treated Area sign instead of the WPS sign for this application, but follow all WPS requirements pertaining to location, legibility, text size, and sign size (40 CFR §170.120).

Post Fumigant Treated Area signs at all entrances to the application block no sooner than 24 hours prior to application.

Fumigant Treated Area signs must remain posted for no less than the duration of the entry restricted period.

Fumigant Treated Area signs must be removed within 3 days after the end of the entry restricted period.

#### MANDATORY GOOD AGRICULTURAL PRACTICES (GAPs)

The following GAPs must be followed during all fumigant applications.

#### Shank Applications

##### *Weather Conditions*

- To determine if unfavorable weather conditions exist or are predicted (see Identifying Unfavorable Weather Conditions section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.



- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: <http://www.nws.noaa.gov>, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

#### *Identifying Unfavorable Weather Conditions*

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist within an hour prior to sunset and continue past sunrise and may persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

#### *Soil Conditions, Injection Depth, and Soil Sealing*

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

The injection point for bedded and broadcast shank injection applications shall be a minimum of 3 inches from the final soil/air interface. Chisel traces must be eliminated following an application and the soil surface must be sealed immediately after application using one or more of the following methods:

- Compaction with a bed-shaper, roller, press wheel, coil packer, ring packer, or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a 1/4-inch of water beginning immediately after application begins and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

#### *Tarps (when tarps are used in METAM SODIUM applications)*

- A written tarp plan must be developed and included in the FMP.
- Once a tarp is perforated, the application is no longer considered tarped.
- Tarps must be installed immediately after the fumigant is applied to the soil.

#### *Soil Temperature*

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

#### *Soil Moisture*

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- EXCEPTION: In areas where soil moisture must exceed available water capacity to form a bed (e.g. certain regions in Florida), soil moisture content may exceed 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six



inches of soil is between 60% to 80% available water capacity immediately prior to the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

- For **coarse** textured soils (fine sand and loamy fine sand), there must be enough moisture (50% to 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.
  - For **moderately coarse** textured soils (sandy loam and fine sandy loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color, will not stick.
  - For **medium** textured soils (sandy clay loam, loam, and silt loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable and forms a weak ribbon between the thumb and forefinger.
  - For **fine** textured soils (clay, clay loam, and silty clay loam), there must be enough moisture (50% to 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.
  - For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

#### *Application and Equipment Considerations*

- Do not apply or allow fumigant to spill onto the soil surface. Injectors must be below the soil surface before product flow begins. Each injection line must either have a check valve located as close as possible to the final injection point, or drain/purge the line of any remaining fumigant prior to lifting injection shanks from the ground. Do not lift injection shanks from the soil until the shut-off valve has been closed and the fumigant has been depressurized (passively drained) or purged (actively forced out via air compressor) from the system.
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry disconnect couplings (closed transfer system) must be installed on tanks and transfer hoses.
- Sight gauges and pressure gauges must be properly functioning.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.



- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor driver during application to prevent backflow of the fumigant into the pressurizing cylinder.
- All rigs must include a flow meter or a flow monitoring device.
- All rigs must have a constant pressure system with orifice plates to ensure the proper amount of fumigant is applied.
- Valves (e.g., backflow, shut-off), vacuum relief valves, and low pressure drains must be in place, operational, and leak free.
- Use only positive displacement pumps. Do NOT use impellers made of brass, aluminum, or galvanized material.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels/shanks to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

#### **Spray Blade Applications (includes bed-top blade and soil cap applications)**

##### *Weather Conditions*

- To determine if unfavorable weather conditions exist or are predicted (see Identifying Unfavorable Weather Conditions section) and whether application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: <http://www.nws.noaa.gov>, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

##### *Identifying Unfavorable Weather Conditions*

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist prior to sunset and continue past sunrise and persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

##### *Soil Conditions, Injection Depth, and Soil Sealing*

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.



- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural “chimneys” that may occur in the soil when plant residue is present. These “chimneys” allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Apply the product mixture on the soil immediately ahead of the bed-shaping equipment or tiller. The soil surface must be compacted immediately after application using one or more of the following methods:

- Compaction with a bed-shaper, roller, press wheel, coil packer, ring packer, or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a 1/4-inch of water beginning immediately after application begins and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

*Tarps (when tarps are used in METAM SODIUM applications)*

- A written tarp plan must be developed and included in the FMP.
- Once a tarp is perforated, the application is no longer considered tarped.

*Soil Temperature*

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

*Soil Moisture*

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- EXCEPTION: In areas where soil moisture must exceed available water capacity to form a bed (e.g. certain regions in Florida), soil moisture content may exceed 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior to the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:
  - For **coarse** textured soils (fine sand and loamy fine sand), there must be enough moisture (50% to 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.
  - For **moderately coarse** textured soils (sandy loam and fine sandy loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.
  - For **medium** textured soils (sandy clay loam, loam, and silt loam). there must be enough moisture (50% to 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.
  - For **fine** textured soils (clay, clay loam, and silty clay loam), there must be enough moisture (50% to 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.
  - For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to



be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.

- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

#### *Application and Equipment Considerations*

- Do not apply or allow fumigant to drain or drip onto the soil surface
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- Sight gauges and pressure gauges must be properly functioning.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor driver during application to prevent backflow of the fumigant into the pressurizing cylinder.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

#### **Rotary Tiller Applications**

##### *Weather Conditions*

- To determine if unfavorable weather conditions exist or are predicted (see Identifying Unfavorable Weather Conditions section) and whether application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.



- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: <http://www.nws.noaa.gov>, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

#### *Identifying Unfavorable Weather Conditions*

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist prior to sunset and continue past sunrise and persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

#### *Soil Conditions, Injection Depth, and Soil Sealing*

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Spray or drip the product mixture on the soil immediately ahead of the bed-shaping equipment or tiller. The soil surface must be compacted immediately after application using one or more of the following methods:

- Compaction with a bed-shaper, roller, press wheel, coil packer, ring packer, or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a 1/4-inch of water beginning immediately after application begins and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

#### *Tarps (when tarps are used in METAM SODIUM applications)*

- A written tarp plan must be developed and included in the FMP.
- Once a tarp is perforated, the application is no longer considered tarped.

#### *Soil Temperature*

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

#### *Soil Moisture*

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- EXCEPTION: In areas where soil moisture must exceed available water capacity to form a bed (e.g. certain regions in Florida), soil moisture content may exceed 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior to the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:
  - For **coarse** textured soils (fine sand and loamy fine sand), there must be enough moisture (50%



- to 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.
- For **moderately coarse** textured soils (sandy loam and fine sandy loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.
- For **medium** textured soils (sandy clay loam, loam, and silt loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.
- For **fine** textured soils (clay, clay loam, and silty clay loam), there must be enough moisture (50% to 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.
- For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve soil moisture, tillage should be done as close to the time of application as possible.

#### *Application and Equipment Considerations*

- Do not apply or allow fumigant to drain or drip onto the soil surface.
- Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Sight gauges and pressure gauges must be properly functioning.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor driver during application to prevent backflow of the fumigant into the pressurizing cylinder.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels shanks to make sure they are free of debris and obstructions.



- Check and clean the orifice plates.

## Center Pivot and Lateral Move Applications

### *Wind Speed*

- For lateral move or center pivot applications: 1) not using a solid stream type nozzle, OR 2) having a release height or spray height greater than 4 feet, OR 3) having 30 lbs or greater PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.
- For lateral move or center pivot applications using: 1) a solid stream, AND 2) having release height and spray height less than 4 feet, AND 3) having 29 lbs. or less PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 25 mph.

### *Weather Conditions*

- To determine if unfavorable weather conditions exist or are predicted (see Identifying Unfavorable Weather Conditions section) and whether application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: <http://www.nws.noaa.gov>, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

### *Identifying Unfavorable Weather Conditions*

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist prior to sunset and continue past sunrise and persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

### *Soil Conditions*

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the General Instructions for Sprinkler System, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.



### *Soil Temperature*

- At the beginning of the application, the soil temperature must be between 35° and 90°F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

### *Soil Moisture*

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below:
- EXCEPTION: In areas where soil moisture must exceed available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior to the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:
  - For **coarse** textured soils (fine sand and loamy fine sand), there must be enough moisture (50% to 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.
  - For **moderately coarse** textured soils (sandy loam and fine sandy loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.
  - For **medium** textured soils (sandy clay loam, loam, and silt loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.
  - For **fine** textured soils (clay, clay loam, and silty clay loam), there must be enough moisture (50% to 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.
  - For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve soil moisture, tillage should be done as close to the time of application as possible.

### *Flushing Irrigation Lines*

- Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

### *Application and Equipment Considerations*

- Anti-siphon and backflow prevention devices must be installed and in working order.



- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Use only positive displacement pumps. DO NOT use impellers made of brass, aluminum or galvanized material.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The system must contain a functional check valve, vacuum relief valve, inspection port 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 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 that 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.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

### **Solid Set Sprinkler Applications**

#### *Wind Speed*

- Wind speed at the application site *must* be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.

#### *Weather Conditions*

- To determine if unfavorable weather conditions exist or are predicted (see Identifying Unfavorable Weather Conditions section) and whether application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.



- Do not apply if an air stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: <http://www.nws.noaa.gov>, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

#### *Identifying Unfavorable Weather Conditions*

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist prior to sunset and continue past sunrise and persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

#### *Soil Conditions*

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the General Instructions for Sprinkler System, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

#### *Soil Temperature*

- At the beginning of the application, the soil temperature must be between 35° and 90 ° F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperatures must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

#### *Soil Moisture*

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- EXCEPTION: In areas where soil moisture must exceed available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior to the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:
  - For **coarse** textured soils (fine sand and loamy fine sand), there must be enough moisture (50% to 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.
  - For **moderately coarse** textured soils (sandy loam and fine sandy loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.
  - For **medium** textured soils (sandy clay loam, loam, and silt loam), there must be enough



moisture (50% to 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

- For **fine** textured soils (clay, clay loam, and silty clay loam), there must be enough moisture (50% to 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.
- For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve soil moisture tillage should be done as close to the time of application as possible.

#### *Flushing Irrigation Lines*

- Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

#### *Application and Equipment Considerations*

- Anti-siphon and backflow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Use only positive displacement pumps. Do NOT use impellers made of brass, aluminum, or galvanized material.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The system must contain a functional check valve, vacuum relief valve, inspection port, 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 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 that 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.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

## **Drench Applications**

### *Weather Conditions*

- To determine if unfavorable weather conditions exist or are predicted (see Identifying Unfavorable Weather Conditions section) and whether application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: <http://www.nws.noaa.gov>, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

### *Identifying Unfavorable Weather Conditions*

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist prior to sunset and continue past sunrise and persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

### *Soil Conditions*

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers



and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

#### *Soil Temperature*

- At the beginning of the application, the soil temperature must be between 35° and 90 ° F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

#### *Soil Moisture*

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- EXCEPTION: In areas where soil moisture must exceed available water capacity to form a bed (*e.g.*, certain regions in Florida), soil moisture content may exceed 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior to the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:
  - For **coarse** textured soils (fine sand and loamy fine sand), there must be enough moisture (50% to 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.
  - For **moderately coarse** textured soils (sandy loam and fine sandy loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.
  - For **medium** textured soils (sandy clay loam, loam, and silt loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.
  - For **fine** textured soils (clay, clay loam, and silty clay loam), there must be enough moisture (50% to 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.
  - For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before the application. To conserve soil moisture, tillage should be done as close to the time of application as possible.
- Applications must be followed immediately with 0.20 to 0.50 inches of water through solid set sprinklers.
- A minimum of two more water seals must be applied; one water seal on the first evening of the application and the second on the evening of the day after application.

#### *Application and Equipment Considerations*

- Anti-siphon and backflow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.



- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- Each nozzle must be equipped with a flow monitor, e.g., mechanical, electronic, or Red-ball type monitor.
- Nozzles and metering devices are of correct size and are sealed and unobstructed.
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- The system must contain a functional check valve, vacuum relief valve, inspection port, 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 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 that 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.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

## **Drip Application**

### *Weather Conditions*

- To determine if unfavorable weather conditions exist or are predicted (see Identifying Unfavorable Weather Conditions section) and whether application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and



- on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: <http://www.nws.noaa.gov>, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

#### *Identifying Unfavorable Weather Conditions*

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist prior to sunset and continue past sunrise and persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

#### *Soil Conditions*

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

#### *Soil Temperature*

- At the beginning of the application, the soil temperature must be between 35° and 90° F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

#### *Soil Moisture*

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- EXCEPTION: In areas where soil moisture must exceed available water capacity to form a bed (e.g. certain regions in Florida), soil moisture content may exceed 80%.
- If appropriate measuring equipment is not used to determine whether soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior to the application, the USDA *Feel and Appearance Method* test may be used to help estimate whether the 60% to 80% soil moisture content requirement is met:
  - For **coarse** textured soils (fine sand and loamy fine sand), there must be enough moisture (50% to 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.
  - For **moderately coarse** textured soils (sandy loam and fine sandy loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.



- For **medium** textured soils (sandy clay loam, loam, and silt loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable and forms a weak ribbon between the thumb and forefinger.
- For **fine** textured soils (clay, clay loam, and silty clay loam), there must be enough moisture (50% to 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.
- For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve soil moisture tillage should be done as close to the time of application as possible.

*Tarps (when tarps are used in METAM SODIUM applications)*

- A written tarp plan must be developed and included in the FMP.
- Application to blocks with previously laid and perforated tarps is allowed, but once a tarp is perforated, the application is no longer considered tarped. Therefore, the application would not be eligible for tarp buffer zone credits.

*Flushing Drip Irrigation Lines*

- After application of the fumigant, continue to irrigate the area with water to flush the injection and irrigation system with untreated water. Do not allow fumigant to remain in the irrigation system after the application is complete. The total volume of water must be adequate to completely remove the fumigant from the irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal and/or normal irrigation practices.

*Application and Equipment Considerations*

- Anti-siphon and backflow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The drip irrigation system (main lines, headers, drip tape) must be thoroughly checked for leaks before the start of the application. An adequate run-time and pressure are needed to detect leaks. Look for



puddling along major pipes (holes on pipes or leaky joints), at the top and ends of rows (leaky connections, open drip tape), in the furrows and on the bed surface (damaged drip tape, malfunctioning emitters).

- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- Nozzles and metering devices are of correct size and are sealed and unobstructed.
- The system must contain a functional check valve, vacuum relief valve, inspection port, 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 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 that 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.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

### **Flood Basin, Furrow and Border Application**

#### *Weather Conditions*

- To determine if unfavorable weather conditions exist or are predicted (see Identifying Unfavorable Weather Conditions section) and whether application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: <http://www.nws.noaa.gov>, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.



### *Identifying Unfavorable Weather Conditions*

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist prior to sunset and continue past sunrise and persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

### *Soil Conditions*

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

### *Tarps (when tarps are used in METAM SODIUM applications)*

- A written tarp plan must be developed and included in the FMP.
- Once a tarp is perforated, the application is no longer considered tarped.

### *Soil Temperature*

- At the beginning of the application, the soil temperature must be between 35° and 90 °F measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

### *Soil Moisture*

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- EXCEPTION: In areas where soil moisture must exceed available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior to the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:
  - For **coarse** textured soils (fine sand and loamy fine sand), there must be enough moisture (50% to 75% of available capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.
  - For **moderately coarse** textured soils (sandy loam and fine sandy loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color, will not stick.
  - For **medium** textured soils (sandy clay loam, loam, and silt loam), there must be enough moisture (50% to 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.
  - For **fine** textured soils (clay, clay loam, and silty clay loam), there must be enough moisture (50% to 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.



- For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

#### *Application and Equipment Considerations*

- Systems using a gravity flow pesticide dispersing 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.
- Meter at a steady rate into 3 to 18 inches of water per treated acre during irrigation. **IMPORTANT:** Prior to starting the application, always inspect ditches and border areas to ensure containment of the irrigation waters. Apply only into field head ditch. **DO NOT APPLY INTO ANY LATERAL DITCHES.**
- Backflow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- To inject fumigant, use a metering system effectively designed and constructed of materials that are compatible with the fumigant capable of being fitted with the system interlocking controls.
- Flow rates must be calibrated and checked for each application.
- All previous materials applied with the system must be cleaned thoroughly prior to fumigant application.
- System must be flushed after application to totally remove all fumigant.



## MAXIMUM APPLICATION RATES FOR PRE-PLANT SOIL FUMIGATION

Maximum application rate is 320 lbs ai/A (100.6 gallons per treated acre).

### CALCULATING THE BROADCAST EQUIVALENT APPLICATION RATE

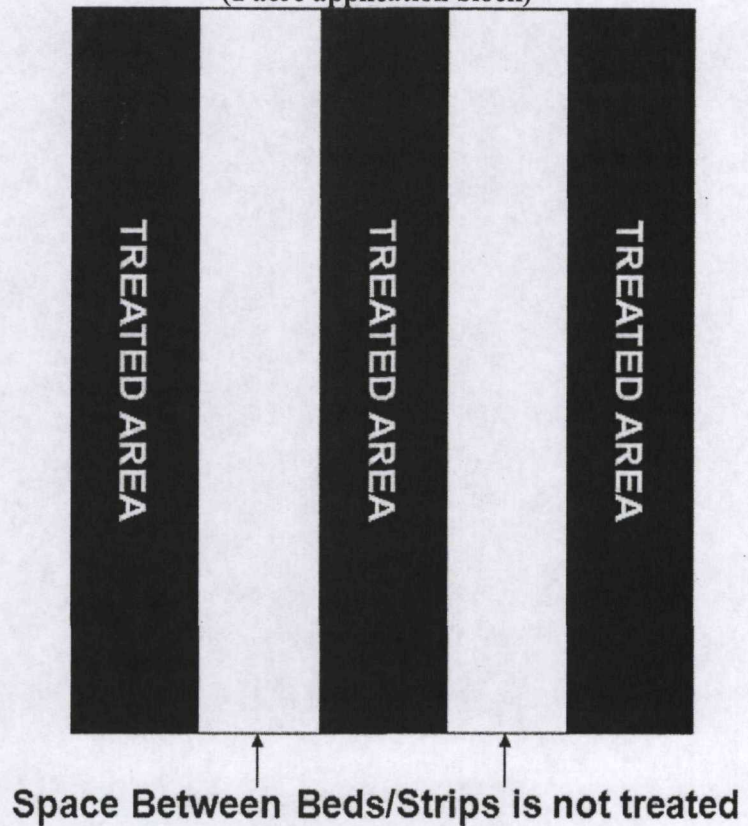
To calculate the broadcast equivalent rate for bedded or strip applications the following information is needed:

- pounds (or gallons) of product per treated acre
- strip or bed bottom width (inches)
- center-to-center row spacing (inches)
- application block size (acres)

Pounds (or gallons) of product **per treated acre** is the ratio of total amount of product applied to the size of the **total area treated** (e.g., the rate of product applied in the bed). For bedded or strip applications, the **total area treated** is the summation of the area (i.e., length x width) of each treated bed bottom or strip that is located within the application block as shown by the black areas in Figure 1 (e.g., black areas are 0.6A or 60% of the area within the application block). The area of the space between the beds/strips is not factored in the total area treated.

The **application block size** is the acreage within the perimeter of the fumigated portion of a field (including furrows, irrigation ditches, roadways). The perimeter of the application block is the border that connects the outermost edges of total area treated with the fumigant product.

Figure 1. Bedded/Strip Application  
(1 acre application block)



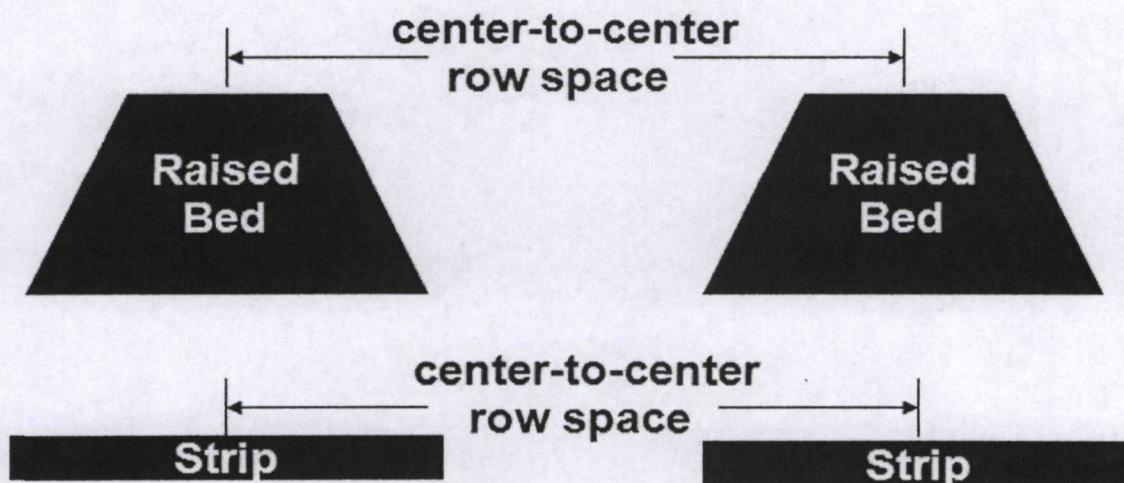


The "broadcast equivalent rate" must be calculated with the following formula:

$$\begin{array}{lcl} \text{Broadcast equivalent rate} & & \text{pounds (or} \\ \text{(pounds (or gallons)} & = & \frac{\text{strip or bed bottom width}}{\text{center-to-center row}} \times \text{gallons) of} \\ \text{product/acre)} & & \text{spacing} \text{ product/} \\ & & \text{(inches)} \text{ treated acre} \\ & & \text{applied in the} \\ & & \text{strip or bed} \end{array}$$

- The bed width must be measured from the bottom of the bed.
- The center-to-center row spacing must be calculated as shown in Figure 2.
- If there are any ditches, waterways, drive rows and other areas that are not fumigated that are in the application block, multiply the above broadcast equivalent equation by **(total area of strips or beds + row spacing)/(application block size)**. A sample calculation is provided below.

Figure 2. Center Row Spacing

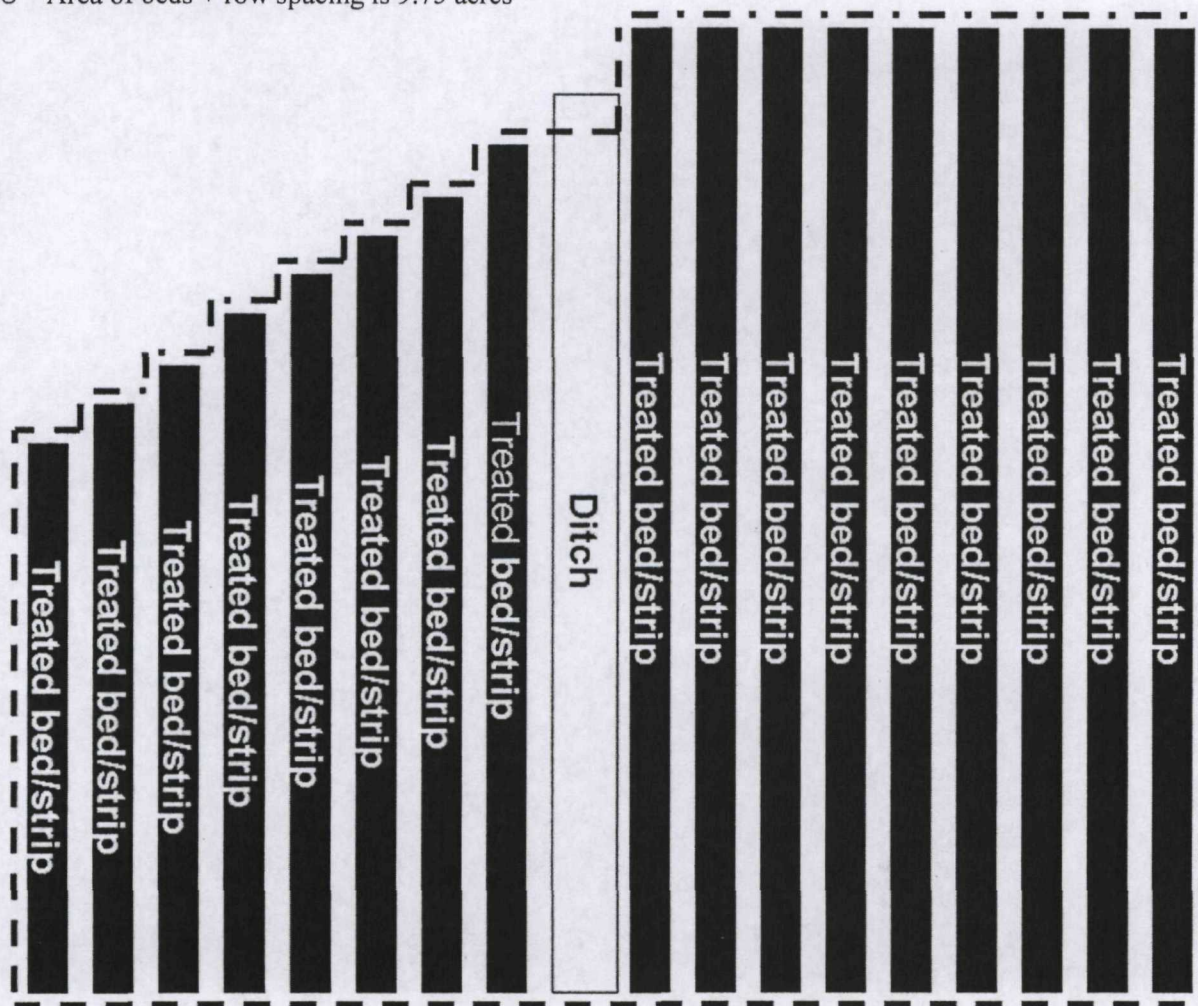




### Sample broadcast equivalent rate calculation

**Assumptions:**

- Application method is shank bedded
- Bed width is 30 inches (measured at the bottom of bed)
- Center-to-center row spacing is 60 inches
- 200 pounds of product per treated acre is applied in the beds
- Total application block size is 10 acres
- Ditch in the middle of application block is 0.25 acres
- Area of beds + row spacing is 9.75 acres



$$\begin{aligned}
 \text{broadcast equivalent rate} &= \frac{\text{strip or bed bottom width (inches)}}{\text{center-to-center row spacing (inches)}} \times \frac{\text{area of strips or beds + row spacing}}{\text{application block size}} \times \text{pounds product/ treated acre applied in the bed} \\
 &= \frac{30 \text{ inch width beds}}{60 \text{ inch row spacing}} \times \frac{9.75 \text{ acres}}{10 \text{ acres}} \times 200 \text{ pounds product/ treated acre} \\
 &= 97.5 \text{ pounds product/acre}
 \end{aligned}$$



## BUFFER ZONE REQUIREMENTS

A buffer zone must be established for every fumigant application. The following describes the general buffer zone requirements:

- An area established around the perimeter of each application block. The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.
- All non-handlers, including field workers, residents, pedestrians, and other bystanders, must be excluded from the buffer zone during the buffer zone period except for transit (see *Buffer Zone Exemptions for Transit on Roadways*).
  - Local, state, or federal officials performing inspection, sampling, or other similar official duties are not excluded from the application block or the buffer zone by this labeling. The certified applicator supervising the application and the owner of the establishment where the application is taking place are not authorized to, or responsible for, excluding those officials from the application block or the buffer zone.
- The buffer zone period begins at the start of the application and lasts for a minimum of 48-hours after the application is complete.

### Buffer Zone Proximity

- Before the start of application, the certified applicator must determine whether their buffer zone will overlap any metam sodium or metam potassium (or other MITC generating pesticides) buffer zone(s).
- To reduce the potential for off-site movement from multiple fumigated fields, buffer zones from multiple metam sodium or metam potassium (or other MITC generating pesticides) application blocks must not overlap UNLESS:
  1. A minimum of 12 hours have elapsed from the time the earlier application(s) is complete until the start of the later application, and
  2. *Fumigant Site Monitoring* or *Response Information for Neighbors* have been implemented if there are any residences or businesses within 300 feet of any of the buffer zones.

In addition, only for Low Release Height-Solid Stream Center Pivot Applications:

- Before the application begins, the certified applicator must determine whether the application block or its resulting buffer will overlap with a buffer that is already in effect.
- To reduce the potential for off-site movement from multiple fumigated fields, buffer zones from multiple metam sodium or metam potassium application blocks may not overlap UNLESS:
  - Both application blocks are treated using low release height-solid stream center pivot systems. The 12 hour waiting period does not apply in this instance.  
NOTE: Under this exception, buffer zones may only overlap with those from application blocks that are not within the same field (i.e., application blocks must be in separate fields that are treated with a different center pivot rig also equipped with low release height etc.) For buffers from application blocks within the same field to overlap, 12 hours must elapse from the completion of the first application until the start of the subsequent application.
  - Emergency preparedness and response measures specified in the label have been implemented if there are any homes, businesses, or property not within the control of the fumigator within 300 feet of each buffer zone.

### Structures Under The Control Of The Owner Of The Application Block

- Buffer zones must not include buildings used for storage (e.g., sheds, barns, garages), UNLESS:
  - The storage buildings are not occupied during the buffer zone period, and
  - The storage buildings do not share a common wall with an occupied structure.

### Areas Not Under The Control Of The Owner Of The Application Block

- Buffer zones must not include residential areas (e.g., employee housing, private property), buildings (e.g., commercial, industrial), outdoor residential areas (e.g., lawns, gardens, play areas) and other areas that people may occupy, UNLESS:



1. The occupants provide written agreement, prior to the start of the application, that they will voluntarily vacate the buffer zone during the entire buffer zone period, and
  2. Reentry by occupants and other non-handlers must not occur until,
    - o The buffer zone period has ended, and
    - o Sensory irritation is not experienced upon re-entry.
- Buffer zones must not include agricultural areas owned and/or operated by persons other than the owner of the application block, UNLESS:
    1. The owner of the application block can ensure that the buffer zone will not overlap with a metam sodium or metam potassium (or other MITC generating pesticides) buffer zone from any other property owners, except as provided in the *Buffer Zone Proximity* section, and
    2. The owner of the other property provides written agreement to the applicator that they, their employees, and other persons will stay out of the buffer zone during the entire buffer zone period.
  - Buffer zones must not include roadways and rights of way UNLESS:
    1. The area is not occupied during the buffer zone period, and
    2. Entry by non-handlers is prohibited during the buffer zone period.
 

Buffer Zone Exemptions for Transit on Roadways

Vehicular and bicycle traffic on public and private roadways through the buffer zone is permitted. (NOTE: Buffer zones are not permitted to include bus stops or other locations where persons wait for public transit.)
  - For all other publicly owned and/or operated areas such as parks, sidewalks, permanent walking paths, playgrounds, and athletic fields, buffer zones must not include these areas UNLESS:
    1. The area is not occupied during the buffer zone period,
    2. Entry by non-handlers is prohibited during the buffer zone period, and
    3. Written permission to include the public area in the buffer zone is granted by the appropriate state and/or local authorities responsible for management and operation of the area.

Certified applicators must comply with all local laws and regulations.

See the *Posting* section for additional requirements that may apply.

## **BUFFER ZONE DISTANCES**

Buffer zone distances must be calculated using the application rate and the size of the application block.

- Buffer zone distances must be based on look-up tables in this labeling (25 feet is the minimum distance regardless of site-specific application parameters).
- If after applying all applicable buffer zone credits the buffer zone is greater than ½ mile (2,640 ft), then the application is prohibited.
- Tables 1-11 as appropriate for the method of application must be used to determine the minimum buffer distances. Round up to the nearest rate and block size, where applicable. Applications are prohibited for rates or block sizes that exceed what is presented in the buffer zone tables.



## Table 1. Shank Injection Application - Broadcast Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (Gallons product/A)



Table 2. Shank Injection Application - Broadcast with Water Seal Buffer Zone Distances in Feet

[illegible][illegible]







Table 4. Center Pivot and Lateral Move Application (High Release Height\*) Buffer Zone Distance in Feet

Gal/A	Application Block Size (acres)																Broadcast Equivalent Application Rate (Gallons product/A)
	1	5	10	20	30	40	50	60	70	80	90	100	110	120	140	160	
10	50	50	50	75	75	100	100	200	200	200	250	300	350	400	600	800	
18	80	100	100	138	138	200	200	300	300	300	350	400	450	500	700	900	
25	125	150	150	200	200	300	300	400	400	400	450	500	550	600	800	1000	
31	160	188	200	250	269	363	382	475	488	500	550	600	650	700	900	1100	
38	185	225	250	300	338	425	463	550	575	600	650	700	750	800	1000	1200	
44	205	263	300	350	407	488	544	625	663	700	750	800	850	900	1100	1300	
50	220	300	350	400	475	550	625	700	750	800	850	900	950	1000	1200	1400	
57	235	313	375	450	557	638	719	825	888	950	1000	1050	1100	1150	1350	1550	
63	250	325	400	500	638	725	813	950	1025	1100	1150	1200	1250	1300	1500	1700	
69	262	338	425	550	719	813	907	1075	1163	1250	1300	1350	1400	1450	1650	1850	
75	275	350	450	600	800	900	1000	1200	1300	1400	1450	1500	1550	1600	1800	2000	
82	288	363	488	650	850	975	1100	1300	1400	1500	1563	1625	1688	1750	1950	2150	
88	300	375	525	700	900	1050	1200	1400	1500	1600	1675	1750	1825	1900	2100	2300	
94	312	389	563	750	950	1125	1300	1500	1600	1700	1788	1875	1963	2050	2250	2450	
100.6	325	400	600	800	1000	1200	1400	1600	1700	1800	1900	2000	2100	2200	2400	2600	

\* This buffer zone distance table is for center pivot and lateral move irrigation equipment in which the: 1) release height OR spray height greater than 8 feet, and 2) there is > 30 lbs psi at the sprinkler head.



Table 5. Center Pivot and Lateral Move Application (Medium Release Height\*\*) Buffer Zone Distance in Feet

Gal/A	Application Block Size (acres)																	Broadcast Equivalent Application Rate (Gallons product/A)
	1	5	10	20	30	40	50	60	70	80	90	100	110	120	140	160		
10	25	25	25	25	25	50	50	75	75	75	88	100	150	200	400	600		
18	25	38	50	50	50	75	75	138	138	138	169	200	250	300	500	700		
25	25	50	75	75	75	100	100	200	200	200	250	300	350	400	600	800		
31	37	63	94	107	125	163	182	275	288	300	350	400	450	500	700	900		
38	50	75	113	138	175	225	263	350	375	400	450	500	550	600	800	1000		
44	62	88	132	169	225	288	344	425	463	500	550	600	650	700	900	1100		
50	75	100	150	200	275	350	425	500	550	600	650	700	750	800	1000	1200		
57	87	113	175	250	357	438	519	625	688	750	800	850	900	950	1150	1350		
63	100	125	200	300	438	525	613	750	825	900	950	1000	1050	1100	1300	1500		
69	112	138	225	350	519	613	707	875	963	1050	1100	1150	1200	1250	1450	1650		
75	125	150	250	400	600	700	800	1000	1100	1200	1250	1300	1350	1400	1600	1800		
82	138	263	288	450	650	775	900	1100	1200	1300	1363	1425	1488	1550	1750	1950		
88	150	175	325	500	700	850	1000	1200	1300	1400	1475	1550	1625	1700	1900	2100		
94	162	188	363	550	750	925	1100	1300	1400	1500	1588	1675	1763	1850	2050	2250		
100.6	175	200	400	600	800	1000	1200	1400	1500	1600	1700	1800	1900	2000	2200	2400		

\*\* This buffer zone distance table is for center pivot and lateral move irrigation equipment in which the: 1) release height AND spray height is less than 8 feet, AND 2) 29lbs. or less PSI at the sprinkler head, AND 3) there are no end guns.

44/65



45/65

Table 6. Center Pivot and Lateral Move Application (Low Release Height-Solid Stream\*\*) Buffer Zone Distance in Feet

Gal/A	Application Block Size (acres)																Broadcast Equivalent Application Rate (Gallons product/A)
	1	5	10	20	30	40	50	60	70	80	90	100	110	120	140	160	
10	25	25	25	25	25	25	25	50	63	75	88	100	125	150	350	550	
18	25	25	38	38	38	50	50	75	100	125	138	150	188	225	425	625	
25	25	25	50	50	50	75	75	100	138	175	188	200	250	300	500	700	
31	30	35	63	70	75	107	119	150	192	232	254	275	325	375	575	775	
38	35	50	75	89	100	138	163	200	244	288	319	350	400	450	650	850	
44	40	63	88	107	125	169	207	250	297	344	385	425	475	525	725	925	
50	50	75	100	125	150	200	250	300	350	400	450	500	550	600	800	1000	
57	60	94	125	157	188	238	294	363	419	475	532	588	644	700	900	1100	
63	70	113	150	188	225	275	338	425	488	550	613	675	738	800	1000	1200	
69	85	132	175	219	263	313	382	488	557	625	694	763	832	900	1100	1300	
75	105	150	200	250	300	350	425	550	625	700	775	850	925	1000	1200	1400	
82	125	163	225	288	350	413	494	613	694	775	857	938	1019	1100	1300	1500	
88	145	175	250	325	400	475	563	675	763	850	938	1025	1113	1200	1400	1600	
94	165	188	275	363	450	538	632	738	832	925	1019	1113	1207	1300	1500	1700	
100.6	185	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1600	1800	

\*\*\* This buffer zone distance table is for center pivot and lateral move irrigation equipment in which the: 1) release height AND spray height is less than 4 feet, AND 2) 29lbs. or less PSI at the sprinkler head, AND 3) application system produces a solid stream (e.g. drizzle boom/Smart Drop®), AND 4) there are no end guns.



Table 7. Solid Set Sprinkler Buffer Zone Distance in Feet

Gal/A	Application Block Size (acres)																				
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	60	70	80	90	100	110	120
10	25	25	25	25	25	25	25	25	25	25	25	25	50	50	75	75	75	88	100	110	120
18	38	38	38	38	38	40	43	45	48	50	50	50	75	75	138	138	138	169	200	150	200
25	50	50	50	50	50	55	60	65	70	75	75	75	100	100	200	200	200	250	300	350	400
31	55	57	58	60	63	69	75	81	87	94	107	125	163	182	275	288	300	350	400	450	500
38	62	65	67	70	75	83	90	98	105	113	138	175	225	263	350	375	400	450	500	550	600
44	68	73	78	83	88	97	106	114	123	132	169	225	288	344	425	463	500	550	600	650	700
50	75	81	88	94	100	110	120	130	140	150	200	275	350	425	500	550	600	650	700	750	800
57	80	88	97	105	113	125	138	150	163	175	250	357	438	519	625	688	750	800	850	900	950
63	87	97	106	116	125	131	140	146	155	200	300	438	525	613	750	825	900	950	1000	1050	1100
69	93	104	116	127	138	155	173	190	208	225	350	519	613	707	875	963	1050	1100	1150	1200	1250
75	100	113	125	138	150	170	190	210	230	250	400	600	700	800	1000	1100	1200	1300	1350	1400	1450
82	115	152	189	226	263	268	273	278	283	288	450	650	775	900	1100	1200	1300	1363	1425	1488	1550
88	125	138	150	163	175	205	235	265	295	325	500	700	850	1000	1200	1300	1400	1475	1550	1625	1700
94	137	150	163	175	188	223	258	293	328	363	550	750	925	1100	1300	1400	1500	1588	1675	1763	1850
100.6	150	163	175	188	200	240	280	320	360	400	600	800	1000	1200	1400	1500	1600	1700	1800	1900	2000

Broadcast Equivalent Application Rate (Gallons product/A)

46/65



47/65

Table 8. Drench Application Buffer Zone Distances in Feet

Gal/A	Application Block Size (acres)																				Broadcast Equivalent Application Rate (Gallons product/A)
	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	
8	28	31	34	36	39	42	44	47	51	55	70	86	94	102	109	125	141	156	164	180	120
9	34	37	41	44	47	50	53	56	61	66	84	103	113	122	131	150	169	188	197	216	211
10	40	44	47	51	55	58	62	66	71	77	98	120	131	142	153	175	197	219	230	252	234
11	46	50	54	58	63	67	71	75	81	88	113	138	150	162	175	200	225	250	263	288	273
12	51	56	61	66	70	75	80	84	91	98	127	155	169	183	197	225	253	281	295	323	308
13	57	62	68	73	78	83	88	94	102	109	141	172	188	203	219	250	281	313	328	359	342
14	63	68	74	80	86	92	97	103	112	120	155	189	206	223	241	275	309	344	361	395	375
15	68	75	81	87	94	100	106	113	122	131	169	206	225	244	263	300	338	375	394	431	409
16	74	81	88	95	102	108	115	122	132	142	183	223	244	264	284	325	366	406	427	467	444
17	80	87	95	102	109	117	124	131	142	153	197	241	263	284	306	350	394	438	459	503	479
18	86	93	101	109	117	125	133	141	152	164	211	258	281	303	326	375	422	469	492	539	515
19	92	100	108	117	125	134	142	150	163	175	225	275	303	326	350	400	450	500	525	575	550
20	97	106	115	124	133	142	150	159	173	186	239	292	319	345	372	425	478	531	558	611	584
21	102	112	122	131	141	150	159	169	183	197	253	309	338	366	394	450	506	563	591	647	617
22	108	118	128	138	148	158	168	178	193	208	267	327	356	386	416	475	534	594	623	683	649
23	114	124	135	146	156	167	177	188	203	218	281	344	375	406	438	500	563	625	656	719	681
24	120	131	142	153	164	175	186	197	213	229	295	361	394	427	459	525	591	656	689	755	719
25	126	137	149	160	171	184	195	206	223	241	309	378	413	447	481	550	619	688	722	791	755
26	131	143	155	167	180	192	203	216	234	252	323	395	431	467	503	575	647	719	755	827	788
27	137	149	162	175	188	200	212	225	244	263	338	413	450	488	525	600	675	750	788	863	827
28	142	155	169	182	195	209	221	234	254	273	352	430	469	508	547	625	703	781	820	898	857
29	148	162	176	189	203	217	230	244	264	284	366	447	488	528	569	650	731	813	853	934	897
30	154	168	182	197	211	225	239	253	274	295	380	464	506	548	591	675	759	844	886	970	931
31	159	174	189	204	219	234	248	263	284	306	394	481	525	569	613	700	788	875	919	1006	964
32	165	180	196	211	227	242	256	272	295	317	408	498	544	589	634	725	816	906	952	1042	1000
33	171	187	203	218	234	250	265	281	305	328	422	516	563	609	656	750	844	938	984	1078	1034
34	176	193	209	226	242	259	274	291	315	339	436	533	581	630	678	775	872	969	1017	1114	1069
35	182	199	216	233	250	267	283	300	325	350	450	550	600	650	700	800	900	1000	1050	1150	1100
36	188	205	223	240	258	275	292	309	335	361	464	567	619	671	722	825	928	1031	1083	1186	1139
37	193	211	230	248	266	284	301	319	345	372	478	584	638	691	744	850	956	1063	1116	1222	1174
38	199	218	238	255	273	292	310	328	355	383	492	602	658	711	766	875	984	1094	1148	1258	1209
39	205	224	243	262	281	300	318	338	366	394	506	619	675	728	788	900	1013	1125	1181	1294	1244
40	210	230	250	269	289	309	327	347	376	405	520	636	694	752	809	925	1041	1156	1214	1330	1278
41	216	236	257	277	297	317	336	356	386	416	534	653	713	772	831	950	1069	1188	1247	1366	1314
42	222	243	263	284	305	325	345	365	396	427	548	670	731	792	853	975	1097	1219	1280	1402	1350
43	228	249	270	291	313	334	354	375	406	438	563	688	750	813	875	1000	1125	1250	1313	1438	1386
44	233	255	277	299	320	342	363	384	416	448	577	705	769	833	897	1025	1153	1281	1345	1473	1421
45	239	261	284	306	328	350	371	394	427	459	591	722	788	853	919	1050	1181	1313	1378	1509	1457
46	245	267	290	313	336	359	380	403	437	470	605	739	806	873	941	1075	1209	1344	1411	1545	1491
47	250	274	297	320	344	367	389	413	447	481	619	756	825	894	963	1100	1238	1375	1444	1581	1527
48	256	280	304	328	352	375	398	422	457	492	633	773	844	914	984	1125	1266	1406	1477	1617	1563
49	262	286	311	335	359	384	407	431	467	503	647	791	863	934	1006	1150	1294	1438	1509	1653	1599
50	267	292	317	342	367	392	416	441	477	514	661	808	881	955	1028	1175	1322	1469	1542	1689	1635
51	273	299	324	350	375	401	425	450	486	525	675	825	900	975	1050	1200	1350	1500	1575	1725	1671
52	279	305	331	357	383	409	433	459	496	536	689	842	919	995	1072	1225	1378	1531	1608	1761	1707
53	284	311	338	364	391	417	442	468	506	547	703	859	938	1016	1094	1250	1406	1563	1641	1797	1743
54	290	317	344	371	398	426	451	478	516	558	717	877	956	1036	1116	1275	1434	1594	1673	1833	1779
55	296	323	351	379	406	434	463	488	528	569	731	894	975	1056	1138	1300	1463	1625	1708	1869	1815
56	301	330	358	386	414	442	469	497	538	581	745	911	994	1077	1159	1325	1491	1656	1739	1905	1851
57	307	336	365	393	422	451	478	506	548	591	759	928	1013	1097	1181	1350	1519	1688	1772	1941	1887
58	313	342	371	400	430	459	486	516	559	602	773	945	1031	1117	1203	1375	1547	1719	1805	1977	1923
59	319	348	378	408	438	467	495	525	569	613	788	963	1050	1138	1225	1400	1575	1750	1838	2013	1959
60	324	354	385	415	445	476	504	534	579	623	802	980	1069	1158	1247	1425	1603	1781	1870	2048	2000
61	330	361	392	422	453	484	513	543	589	634	816	997	1088	1178	1269	1450	1631	1813	1903	2084	2036
62	336	367	398	430	461	492	522	553	599	645	830	1014	1106	1198	1291	1475	1659	1844	1936	2120	2072
63	341	373	405	437	469	501	531	563	609	656	844	1031	1125	1219	1313	1500	1688	1875	1969	2156	2108
64	347	379	412	444	477	509	539	572	620	667	858	1048	1144	1239	1334	1525	1716	1906	2002	2192	2144
65	353	386	419	451	484	517	548	581	630	678	872	1066	1163	1259	1356	1550	1744	1938	2034	2228	2180
66	358	392	425	458	492	526	557	591	640	688	886	1083	1181	1280	1378	1575	1772	1969	2067	2264	2216
67	364	398	432	466	501	536	568	600	650	700	900	1100	1200	1300	1400	1600	1800	2000	2100	2300	2250

Buffer zone distances cannot be greater than 1/2 mile (2,640 feet). If after applying applicable credits the buffer zone distances are still greater than 1/2 mile (2,640 feet), then the application is prohibited.



Table 9. Drip Application Buffer Zone Distances in Feet

Gal/A	Application Block Size (acres)																Broadcast Equivalent Application Rate (Gallons product/A)
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	60	70	80
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
9	25	25	25	25	25	25	25	25	25	25	38	38	50	50	63	76	88
13	25	25	25	25	25	25	25	25	25	25	50	50	75	75	100	125	150
16	25	25	25	25	25	26	28	29	31	32	57	57	82	82	113	140	163
19	25	25	25	25	25	28	30	33	35	38	63	63	88	88	125	150	175
22	25	25	25	25	25	29	33	36	40	44	69	69	94	94	138	163	188
25	25	25	25	25	25	30	35	40	45	50	75	75	100	100	150	175	200
28	25	27	29	30	32	37	42	47	52	57	82	82	113	125	175	207	238
31	25	28	32	35	38	43	48	53	58	63	88	113	125	150	200	250	275
35	25	30	35	39	44	49	54	59	64	69	94	132	138	175	225	269	313
38	25	31	38	44	50	55	60	65	70	75	100	150	150	200	250	300	350
41	32	37	41	46	50	56	63	69	76	82	125	188	200	250	300	350	400
44	38	41	44	47	50	58	65	73	80	88	150	225	250	300	350	400	450
47	44	46	47	49	50	59	68	76	85	94	175	263	300	350	400	450	500
50	50	50	50	50	50	60	70	80	90	100	200	300	350	400	450	500	550
53	51	52	53	54	55	64	74	85	96	106	213	319	372	425	478	531	584
57	52	54	56	58	60	68	79	90	101	113	225	338	394	450	506	563	634
60	53	56	59	62	65	71	83	95	107	119	238	356	416	475	534	594	684
63	54	58	62	66	70	75	88	100	113	125	250	375	438	500	563	625	734
66	55	60	65	70	75	79	92	105	118	131	263	394	459	525	591	656	784
69	56	62	68	74	80	83	96	110	124	138	275	413	481	550	619	688	834
72	57	64	71	78	85	86	101	115	129	144	288	431	503	575	647	719	884
75	58	66	75	82	90	90	105	120	135	150	300	450	525	600	675	750	934

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Table 10. Flood Basin, Furrow, and Border Application Buffer Zone Distances in Feet

Gal/A	Application Block Size (acres)																										Broadcast Equivalent Application Rate (Gallons product/A)	
	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	120	140	160	180		200
8	25	25	25	25	25	34	36	38	41	43	55	63	70	78	90	102	113	125	137	148	160	172	195	218	241	264	287	310
9	25	25	25	35	38	40	43	46	49	52	66	75	84	94	108	122	136	150	164	178	192	206	234	257	280	303	326	349
11	25	34	37	40	44	47	50	54	57	60	77	88	98	109	126	142	159	175	191	208	224	241	273	296	319	342	365	388
13	35	39	43	46	50	54	58	61	65	69	88	100	113	125	144	163	181	200	219	238	256	275	313	336	359	382	405	428
14	39	44	48	52	56	60	65	69	73	77	98	113	127	141	162	183	204	225	246	267	288	309	352	375	398	421	444	467
16	44	48	53	58	63	67	72	77	81	86	109	125	141	156	180	203	227	250	273	297	320	344	391	414	437	460	483	506
17	48	53	58	64	69	74	79	84	89	95	120	138	155	172	198	223	249	275	301	327	352	378	430	453	476	499	522	545
19	53	58	64	69	75	81	86	92	98	103	131	150	169	188	216	244	272	300	328	356	384	413	469	492	515	538	561	584
20	57	63	69	75	81	87	93	100	106	112	142	163	183	203	234	264	295	325	355	386	416	447	508	531	554	577	600	623
22	61	68	74	81	88	94	101	107	114	120	153	175	197	219	252	284	317	350	383	416	448	481	547	570	593	616	639	662
24	66	73	80	87	94	101	108	115	122	129	164	188	211	234	270	305	340	375	410	445	480	516	586	609	632	655	678	701
25	70	78	85	93	100	108	115	123	130	138	175	200	225	250	288	325	363	400	438	475	513	550	625	648	671	694	717	740
27	74	82	90	98	106	114	122	130	138	146	186	213	239	266	305	345	385	425	465	505	545	584	664	687	710	733	756	779
28	79	87	96	104	113	121	129	138	146	155	197	225	253	281	323	366	408	450	492	534	577	619	703	726	749	772	795	818
30	83	92	101	110	119	128	137	145	154	163	208	238	267	297	341	386	430	475	520	564	608	653	742	765	788	811	834	857
31	88	97	106	116	125	134	144	153	163	172	219	250	281	313	359	406	453	500	547	594	641	688	781	804	827	850	873	896
33	92	102	112	121	131	141	151	161	171	180	230	263	295	328	377	427	476	525	574	623	672	722	820	843	866	889	912	935
35	96	107	117	127	138	148	158	168	179	189	241	275	309	344	395	447	498	550	602	653	705	756	859	882	905	928	951	974
36	101	111	122	133	144	155	165	176	187	198	252	288	323	359	413	467	521	575	629	683	737	791	898	921	944	967	990	1013
38	105	116	128	139	150	161	173	184	195	206	263	300	338	375	431	488	544	600	656	713	769	825	938	961	984	1007	1030	1053
39	109	121	133	145	156	168	180	191	203	215	273	313	352	391	449	508	566	625	684	742	801	859	977	1000	1023	1046	1069	1092
41	114	126	138	150	163	175	187	199	211	223	284	325	366	406	467	528	589	650	711	772	833	894	1016	1039	1062	1085	1108	1131
42	118	131	143	156	169	181	194	207	219	232	295	338	380	422	485	548	612	675	738	802	865	928	1055	1078	1101	1124	1147	1170
44	123	136	149	162	175	188	201	214	228	241	306	350	394	438	503	569	634	700	766	831	897	963	1094	1117	1140	1163	1186	1209
46	127	140	154	168	181	195	208	222	236	249	317	363	408	453	521	589	657	725	793	861	929	997	1133	1156	1179	1202	1225	1248
47	131	145	159	173	188	202	216	230	244	258	328	375	422	469	539	609	680	750	820	891	961	1031	1171	1194	1217	1240	1263	1286
49	136	150	165	179	194	208	223	237	252	266	339	388	436	484	557	630	702	775	848	921	993	1066	1211	1234	1257	1280	1303	1326
50	140	155	170	185	200	215	230	245	260	275	350	400	450	500	575	650	725	800	875	950	1025	1100	1250	1273	1296	1319	1342	1365
52	144	160	175	191	206	222	237	253	268	284	361	413	464	516	593	670	748	825	902	980	1057	1134	1289	1312	1335	1358	1381	1404
53	149	165	181	197	213	228	244	260	276	292	372	425	478	531	611	691	770	850	930	1009	1089	1169	1328	1351	1374	1397	1420	1443
55	153	170	186	202	219	235	252	268	284	301	383	438	492	546	629	711	793	875	957	1039	1121	1203	1367	1390	1413	1436	1459	1482
57	158	174	191	208	225	242	259	276	293	309	394	450	506	563	647	731	816	900	984	1069	1153	1238	1406	1429	1452	1475	1498	1521
58	162	179	197	214	231	249	266	283	301	318	405	463	520	578	665	752	838	925	1012	1098	1185	1272	1445	1468	1491	1514	1537	1560
60	166	184	202	220	238	255	273	291	309	327	416	475	534	594	683	772	861	950	1039	1128	1217	1306	1484	1507	1530	1553	1576	1599
61	171	189	207	225	244	262	280	299	317	335	427	488	548	609	701	792	884	975	1066	1158	1249	1341	1523	1546	1569	1592	1615	1638
63	175	194	213	231	250	269	288	306	325	344	438	500	563	625	719	813	906	1000	1094	1188	1281	1375	1563	1586	1609	1632	1655	1678
64	179	199	218	237	256	275	295	314	333	352	448	513	577	641	737	833	929	1025	1121	1217	1313	1409	1602	1625	1648	1671	1694	1717
66	184	203	223	243	263	282	302	322	341	361	459	525	591	656	755	853	952	1050	1148	1247	1345	1444	1641	1664	1687	1710	1733	1756
68	188	208	228	249	269	289	309	329	349	370	470	538	605	672	773	873	974	1075	1176	1277	1377	1478	1680	1703	1726	1749	1772	1795
69	193	213	234	254	275	296	316	337	358	378	481	550	619	688	791	894	997	1100	1203	1306	1409	1513	1719	1742	1765	1788	1811	1834
71	197	218	239	260	281	302	323	345	366	387	492	563	633	703	809	914	1020	1125	1230	1336	1441	1547	1758	1781	1804	1827	1850	1873
72	201	223	244	266	288	309	331	352	374	395	503	575	647	719	827	934	1042	1150	1258	1366	1473	1581	1797	1820	1843	1866	1889	1912
74	206	228	250	272	294	316	338	360	382	404	514	588	661	734	845	955	1065	1175	1285	1395	1505	1616	1836	1859	1882	1905	1928	1951
75	210	233	255	278	300	323	345	368	390	413	525	600	675	750	863	975	1088	1200	1313	1425								



Table 11. Rotary Tiller and Spray Blade Applications Buffer Zone Distance in Feet

Gal/A	Application Block Size (acres)														
	1	5	6	7	8	9	10	20	30	40	50	60	70	80	
10	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
18	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
31	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
38	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
44	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
57	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
63	25	25	25	25	25	25	25	25	25	25	42	57	64	72	
69	25	25	25	25	25	25	25	25	25	25	58	88	103	118	
75	25	25	25	25	25	25	25	25	25	25	74	119	142	164	
82	25	25	27	29	30	32	34	49	64	75	90	150	180	210	
88	25	25	29	32	36	39	43	73	103	125	180	225	255	285	
94	25	25	30	36	41	47	52	97	142	275	225	263	293	323	
100.6	25	25	32	39	46	53	60	120	180	225	270	300	330	360	

Broadcast Equivalent Application Rate (Gallons product/A)

Broadcast Equivalent Application Rate (Gallons product/A)



## BUFFER ZONE CREDITS

The buffer zone distances for *METAM SODIUM* applications may be reduced by the percentages listed below. Credits may be added, but credits cannot exceed 80%. Also, the minimum buffer zone distance is 25 feet regardless of buffer zone credits available.

- See [www.tarpcredits.epa.gov](http://www.tarpcredits.epa.gov) for a list of tarps that have been tested and determined to qualify for buffer reduction credits. Only tarps listed on this website qualify for buffer reduction credits.
- 10% reduction in buffer zone distance, IF the organic content of the soil in the application block is  $\geq 1\%$  -  $2\%$ ; a 20% reduction in buffer zone distance, IF the organic content of the soil in the application block is  $>2\%$  -  $3\%$ ; and a 30% reduction in the buffer zone distance, IF the organic content of the soil in the application block is  $>3\%$ .
- 10% reduction in buffer zone distance, IF the soil temperature is measured to be 50°F or less. Record temperature measurements at the application depth or 12 inches, whichever is shallower.
- 10% reduction in the buffer zone distance, IF the clay content of the soil in the application block is greater than 27%.

### Examples of Buffer Zone Calculations with Credits Applied

If the buffer zone is 50 feet and the application qualifies for a buffer zone reduction credit since the soil organic content is 1.5%, then the buffer zone can be reduced by 10%, i.e., reduced by 5 feet based on the following calculation: 50 feet - (50 feet x 10%) = 45 feet.

If the buffer zone is 50 feet and the application qualifies for two buffer zone credits since the soil organic content is 1.5% and the clay content is greater than 27%, then the buffer zone can be reduced by 20% (10% organic content credit + 10% clay content credit), i.e., reduced by 10 feet based on the following calculation 50 feet - (50 feet x 20%) = 40 feet.

## POSTING FUMIGANT BUFFER ZONES

- Posting of a **buffer zone** is required unless there is a physical barrier that prevents bystander access to the buffer zone.
- Buffer Zone signs must be placed along or outside the perimeter of the buffer zone, at all usual points of entry and along likely routes of approach from areas where people not under the owner's control may approach the buffer zone.
  - Some examples of points of entry include, but are not limited to, roadways, sidewalks, paths, and bike trails.
  - Some examples of likely routes of approach include, but are not limited to, the area between a buffer zone and a roadway, or the area between a buffer zone and a housing development.
  - When posting, the certified applicator supervising the application must ensure compliance with all local laws and regulations.
- Buffer Zone signs must meet the following criteria:
  - The printed side of the sign must face away from the application block toward areas from which people could approach.
  - Signs must remain legible during the entire posting period and must meet the general standards outlined in the WPS for sign size, text size, and legibility (see 40 CFR §170.120).
  - Signs must be posted no sooner than 24 hours prior to the start of the application and remain posted until the buffer zone period has expired.
  - Signs must be removed within 3 days after the end of the buffer zone period.
  - Buffer Zone signs which meet the criteria above will be provided at points of sale for applicators to use. Templates may be downloaded from [http://www.epa.gov/pesticides/reregistration/soil\\_fumigants/](http://www.epa.gov/pesticides/reregistration/soil_fumigants/).
  - The Buffer Zone signs must contain the following information:
    - The 'Do Not Walk' symbol
    - DO NOT ENTER/NO ENTRE,
    - Metam Sodium Fumigant BUFFER ZONE,
    - Contact information for the certified applicator in charge of the fumigation.



Exception: If multiple contiguous blocks are fumigated within a 14-day period, the entire periphery of the contiguous blocks' buffer zones may be posted. Buffer Zone signs must be posted no sooner than 24-hours prior to the start of the first application. The signs must remain posted until the last buffer zone period expires and signs may remain posted until 3-days after the buffer zone period for the last block has expired.

### RESTRICTIONS FOR DIFFICULT TO EVACUATE SITES

- Difficult to evacuate sites are pre-K to grade 12 schools, state licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons. No fumigant application with a buffer zone greater than 300 feet is permitted within 1/4 mile (1320 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application.
- No fumigant application with a buffer zone of 300 feet or less is permitted within 1/8 mile (660 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application.

### EMERGENCY PREPAREDNESS AND RESPONSE MEASURES

If the buffer zone is 25 feet, then the *Emergency Preparedness and Response Measures* are not applicable.

#### Triggers for Emergency Preparedness and Response Measures

The certified applicator must either follow the directions under the *Fumigant Site Monitoring* section or follow the directions under the *Response Information for Neighbors* section if:

- the buffer zone is greater than **25 feet** but less than or equal to **100 feet**, and there are residences or businesses within **50 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **100 feet** but less than or equal to **200 feet**, and there are residences or businesses within **100 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **200 feet** but less than or equal to **300 feet**, and there are residences or businesses within **200 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **300 feet** or the **buffer zones overlap**, and there are residences or businesses within **300 feet** from the outer edge of the buffer zone.

#### Fumigant Site Monitoring

NOTE: *Fumigant Site Monitoring* is ONLY required if the *Emergency Preparedness and Response Measures* are triggered AND directions from the *Response Information for Neighbors* section are not followed.

From the start of the application until the buffer zone period expires, a certified applicator or handler(s) under his/her supervision must:

- Monitor for sensory irritation in areas between the buffer zone outer perimeter and residences and businesses that trigger this requirement.
- Monitoring for sensory irritation must begin in the evening on the day of application and continue until the buffer zone period expires. Monitor a minimum of 8 times during the buffer zone period, including these periods:
  - 1 hour before sunset,
  - during the night,
  - 1 hour after sunrise, and
  - during daylight hours.



Implement the emergency response plan immediately if a handler monitoring experiences sensory irritation.

### **Response Information for Neighbors**

NOTE: *Response Information for Neighbors* is ONLY required if the *Emergency Preparedness and Response Measures* are triggered AND directions from the *Fumigant Site Monitoring* section are not followed.

The certified applicator supervising the application must ensure that residences and businesses that trigger the requirement have been provided the response information at least **1 week** before the application starts. The information provided may include application dates that range for no more than **4 weeks**. If the application does not occur when specified, the information must be delivered again.

- Information that must be included: The location of the application block.
- Fumigant(s) applied including the active ingredient, name of the fumigant product(s), and the EPA Registration number.
- Contact information for the applicator and property owner.
- Time period in which the application is planned to take place (must not range more than 4 weeks).
- Early signs and symptoms of exposure to the fumigant(s) applied, what to do, and who to call if you believe you are being exposed (911 in most cases).
- How to find additional information about fumigants.

The method used to share the response information for neighbors can be accomplished through mailings, door hangers, or other methods that will effectively inform the residences and businesses within the required distance from the edge of the buffer zone.

### **NOTICE TO STATE AND TRIBAL LEAD AGENCIES**

If your state and/or tribal lead agency requires notice, information must be provided to the appropriate state or tribal lead agency prior to the application. Please refer to [www.epa.gov/fumigantstatenotice](http://www.epa.gov/fumigantstatenotice) for a list of states and tribal lead agencies that require notice and information on how to submit the information.

The information that must be provided to state and tribal lead agencies includes the following:

- Location of the application blocks,
- Fumigant(s) applied including EPA registration number,
- Applicator and property owner contact information, and
- Time period that fumigation may occur.

### **EMERGENCY RESPONSE PLAN**

The certified applicator must include in the FMP a written emergency response plan that identifies:

- evacuation routes,
- locations of telephones,
- contact information for first responders and local/state/federal/tribal personnel, and
- emergency procedures/responsibilities (e.g., adding water to the field, repairing tarps, fixing equipment, evacuating upwind) if:
  - there is an incident,
  - sensory irritation is experienced outside of the buffer zone, and/or there are equipment/tarp/seal failure or complaints, or other emergencies.



## SITE-SPECIFIC FUMIGATION MANAGEMENT PLAN (FMP)

Prior to the start of application, the certified applicator supervising the application must verify that a site-specific FMP exists for each application block. In addition, an agricultural operation fumigating multiple application blocks may format the FMP in a manner whereby all of the information that is common to all the application blocks is captured once, and any information unique to a particular application block or blocks is captured in subsequent sections.

The FMP must be prepared by the certified applicator, the site owner, registrant, or other party.

The certified applicator must verify in writing (sign and date) that the site-specific FMP(s) reflects current site conditions before the start of application.

Each site specific FMP must contain the following elements:

- ❖ Certified Applicator Supervising the Application
  - Name,
  - Phone number,
  - Pesticide applicator license and/or certificate number,
  - Specify if commercial or private applicator,
  - Employer name,
  - Employer address, and
  - Date and location of completing EPA approved soil fumigant training program.
- ❖ General site information
  - Application block location (e.g., county, township-range-section quadrant), address, or global positioning system (GPS) coordinates
  - Name, address, and phone number of application block owner
  - Map, aerial photo, or detailed sketch showing:
    - application block location
    - application block dimensions
    - buffer zone dimensions
    - property lines
    - roadways
    - rights-of-ways
    - sidewalks
    - permanent walking paths
    - bus stops
    - nearby application blocks
    - surrounding structures (occupied and non-occupied)
    - locations of Buffer Zone signs, and
    - locations of difficult to evacuate sites with distances from the application block labeled.
- ❖ General application information
  - Target application date/window,
  - Fumigant Product Name, and
  - EPA registration number.
- ❖ Tarp Plan (if tarp is used)
  - Schedule for checking tarps for damage, tears, and other problems,
  - Minimum size of damage that will be repaired,
  - Factors used to determine when tarp repair will be conducted,
  - Equipment/methods used to perforate tarps,
  - Target dates for perforating tarps, and
  - Target dates for removing tarps.
- ❖ Soil conditions
  - Description of soil texture and moisture in application block,
  - Method used to determine soil moisture, and



- Soil temperature measurement if air temperatures were above 100 ° F in any of the 3 days prior to the application
- ❖ Buffer zones
  - Application method,
  - Injection depth,
  - Application rate from lookup table on label,
  - Application block size from lookup table on label,
  - Credits applied and measurements taken (if applicable),
    - Tarp brand name, lot number, thickness, manufacturer, batch number, and part number
    - Organic matter content
    - Clay content
    - Soil temperature
  - Buffer zone distance, and
  - Description of areas in the buffer zone that are not under the control of the owner of the application block. If buffer zones extend onto areas not under the control of the owner, attach the written agreement and keep it with the FMP.
- ❖ Record Emergency Response Plan as described in the *Emergency Response Plan* section.
- ❖ Posting of Fumigant Treated Area and Buffer Zone
  - Person(s) who will post and remove (if different) Fumigant Treated Area and Buffer Zone signs, and
  - Location of Buffer Zone signs.
- ❖ Emergency Preparedness and Response Measures (if applicable)
  - Fumigant site monitoring (if applicable):
    - When and where it will be conducted;
  - Response information for neighbors (if applicable):
    - List of residences and businesses informed,
    - Name and phone number of person providing information, and
    - Method of providing the information.
- ❖ State and/or tribal lead agency advance notification (if state and/or tribal lead agency requires notice, provide a list of contacts that were notified and date notified)
- ❖ Plan describing how communication will take place between the certified applicator supervising the application, the owner, and other on-site handlers (e.g., tarp perforators/removers, irrigators) for complying with label requirements (e.g., buffer zone location, buffer zone start and end times, timing of tarp perforation and removal, PPE).
  - Name and phone number of persons contacted by the certified applicator, and
  - Date contacted.
- ❖ Handler (including Certified Applicators) Information and PPE
  - Names, addresses and phone numbers of handlers
  - Names, addresses, and phone numbers for employers of handlers
  - Tasks that each handler is authorized and trained to perform
  - Date of PPE training for each handler
  - Applicable handler PPE including:
    - Long-sleeved shirts/long pants, shoes, socks
    - Chemical-resistant apron
    - Chemical-resistant footwear and socks
    - Protective eyewear (not goggles)
    - Chemical-resistant gloves
    - Air-purifying respirators
      - Respirator make, model, type, style, size, and cartridge/canister type
    - Other PPE
  - For handlers: Confirmation of receipt of Fumigant Safe Handling Information.
  - For certified applicator(s) supervising the application: Completion date and location of the soil fumigant training program listed on the following EPA website <http://www.epa.gov/fumiganttraining> for the active ingredient(s) in this product.
  - For handlers designated to wear air-purifying respirators:
    - date of medical qualification to wear a respirator,



- date of respirator training, and
- date of fit-testing for the respirator.
- Unless exempted in the *Protection of Handlers* section, verify that:
  - at minimum 1 handler has the appropriate respirators and cartridges/canisters during handler activities, and
  - the employer has confirmed that the appropriate respirator and cartridges/canisters are immediately available for each handler who will wear one.
- ❖ Air monitoring plan
  - If sensory irritation is experienced, indicate whether operations will cease or operations will continue with use of an air-purifying respirator
  - For monitoring the breathing zone:
    - Representative handler tasks to be monitored,
    - Monitoring equipment to be used, and
    - Timing of the monitoring.
- ❖ Good Agricultural Practices (GAPs)
  - Identify (e.g., list, attach applicable label section) applicable mandatory GAPs.
- ❖ Pesticide Product Labels and Material Safety Data Sheets (MSDS)
  - Ensure that labels and MSDS are on-site and readily available for employees to review.

### Record-Keeping Procedures

The owner of the application block as well as the certified applicator supervising the application must keep a signed copy of the site-specific FMP for 2 years from the date of application.

For situations where an initial FMP is developed and certain elements do not change for multiple application blocks (e.g., applicator information, certified applicator, handlers, record-keeping procedures, emergency procedures) only elements that have changed need to be updated in the site-specific FMP provided the following:

- The certified applicator supervising the application has verified that those elements are current and applicable to the application block before it is fumigated.
- Record-keeping requirements are followed for the entire FMP (including elements that do not change).

The certified applicator must make a copy of the FMP immediately available for viewing by handlers involved in the fumigation. The certified applicator or the owner of the application block must provide a copy of the FMP to any local/state/federal/tribal enforcement personnel who request the FMP. In the case of an emergency, the FMP must be made immediately available when requested by local/state/federal/tribal emergency response and enforcement personnel. The certified applicator supervising the application must ensure the FMP is at the application block during all handler activities.

Within 30 days after the application is complete, the certified applicator supervising the application must complete a Post-Application Summary.

### POST-APPLICATION SUMMARY

The Post-Application Summary must contain the following elements:

- ❖ Actual date and time of the application,
- ❖ Application rate
- ❖ Size of application block
- ❖ Weather Conditions
  - Summary of the National Weather Service weather forecast during the application and the 48-hours after the application is complete including:
    - wind speed, and
    - air stagnation advisory (if applicable).



- Forecast must be checked on the day of, but prior to the start of the application, and on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- ❖ Tarp damage and repair information (if applicable):
  - Date of tarp damage discovery,
  - Location and size of tarp damage,
  - Description of tarp/tarp seal/tarp equipment failure, and
  - Date and time of tarp repair completion.
- ❖ Tarp perforation/removal details (if applicable):
  - Date and time tarps were perforated,
  - Date and time tarps were removed, and
  - Record if tarps were perforated and/or removed early. Describe the conditions that caused early tarp perforation and/or removal.
- ❖ Complaint details (if applicable):
  - Person filing complaint (e.g., on-site handler, person off-site),
  - If off-site person, name, address, and phone number of person filing complaint, and
  - Description of control measures or emergency procedures followed after complaint.
- ❖ Description of incidents, equipment failure, or other emergency and emergency procedures followed (if applicable).
- ❖ Air monitoring results:
  - When sensory irritation was experienced:
    - Date, time, location, and handler task/activity where irritation was observed and
    - Resulting action (e.g., implement emergency response plan, cease operations, continue operations with air-purifying respirators).
  - When using a direct read detection device:
    - Sample date(s), time(s), location(s), and concentration(s),
    - Handler task/activity monitored (if applicable), and
    - Resulting action (e.g., cease operations, continue operations with air-purifying respirators).
- ❖ Water-run application monitoring
  - Record monitoring date(s) and time(s)
  - Name of person(s) monitoring
  - Record observations:
    - Is the equipment functioning properly,
    - Description of corrective action (if applicable), and
    - Other comments.
- ❖ Fumigant Treated Area and Buffer Zone Signs:
  - Dates of posting and removal.
- ❖ Any deviations from the FMP (e.g., changes in emergency response actions, changes in handler information, changes in handlers responsible for completing emergency tasks, changes in communication between certified applicator, owner, and other handlers).

### Record-Keeping Procedures

The owner of the application block, as well as the certified applicator supervising the application, must keep a signed copy of the Post-Application Summary for 2 years from the date of application.

### PRODUCT INSTRUCTIONS

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. Use promptly after mixing with water. Do not allow solution to stand. If sensory irritation is experienced, follow the directions under the "*Respiratory Protection and Stop Work Triggers*" section.



## PRODUCT INFORMATION

METAM SODIUM is a water soluble liquid. When applied to soil, the liquid is converted into a volatile fumigant (Methylisothiocyanate, MITC). After a sufficient interval of time, the gas dissipates leaving the soil ready for planting.

## WHEN TO USE MAXIMUM AND MINIMUM RATES

The application rate of METAM SODIUM 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 weed seeds). When a range of application rates is given in this label, consult your local agricultural extension service for more specific information.

## 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

METAM SODIUM is applied after harvest and 14 to 21 days before a new crop is planted. In some areas, fall applications are preferred, as the product will degrade/dissipate over the winter, which allows planting to begin as soon as favorable springtime conditions arrive.

## APPLICATION RATE

Apply 40 to 100 gallons of this product per treated acre depending on crop, target pest and soil properties (or see crop-specific considerations in the Additional Information section of this label). 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 of soil may only be required (see application specific requirements in the Good Agricultural Practices section of this label). Treatment depths greater than 4 inches may be required for control of Nematodes and fungi, which occur throughout the rhizosphere. The required application rate should be increased proportionately with the depth of the treatment required. Always choose the appropriate application method to evenly distribute this 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.

Due to the absorbing effect of humus, soils with high levels of organic matter under the 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.



**PHYTOTOXICITY**

METAM SODIUM is phytotoxic. Protect valuable, non-target plants by stopping soil applications of this product at least 3 feet short of the drip line of trees, shrubs and other desirable plants. For sprinkler application, crop injury and lack of effectiveness can result from non-uniform distribution of the treated water.

**APPLICATION OF METAM SODIUM**

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

**USE OF DILUTED METAM SODIUM**

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.

**APPLICATION IN TANK MIX WITH LIQUID FERTILIZER**

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

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

If a uniform mix cannot be made, the mixture should not be used. If the mixture remains uniform for 30 minutes without agitation, the combination may be used. Should the mixture separate after 30 minutes, but is readily remixed with agitation, the mixture can be used if adequate agitation is maintained in the tank.

DO NOT PLACE CAPS ON MIX JAR AS INCOMPATIBLE 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 AND CLEAN CAREFULLY.

**STATEMENTS CONCERNING CHEMIGATION OF METAM SODIUM**

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, 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 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 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: AMVAC CHEMICAL CORPORATION 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.

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 connected to public water systems must contain a functional, reduced-pressure zone (RPZ), backflow preventer or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction.

There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top of overflow rim 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.

Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

### SPRINKLER CHEMIGATION SYSTEMS

See "Uses, Rates And Application Methods -- Field Application Where Entire Area Is Being Treated" Section.

### PREPARATION FOR PLANTING AFTER APPLICATION OF METAM SODIUM

#### Effect of Rains

If a METAM SODIUM 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 METAM SODIUM is harmful to germinating seeds and living plants, an appropriate interval must be observed between treatments 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 can begin 14 to 21 days after the application is complete. If soils are heavy or especially high in organic matter or if the soils remain wet and/or cold (below 60°F) following the application, a 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 METAM SODIUM. During cold and/or wet weather, frequent shallow cultivation can aid dissipation of METAM SODIUM 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

Fields are fumigated to control soil-borne fungi, nematodes, insects, and weeds. The length of time required for fumigants to dissipate/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 (i.e., up to 30 days). The release period is short with (1) low rates of fumigant; (2) light soil; (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.

#### **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 to 2 oz) soil samples, mix briefly, and immediately place a portion in an airtight 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°F to 85°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 1 to 3 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 airtight (no grit under the seal).
- C. Be sure that the jars are placed in the light (not direct sun).

#### **Tomato Transplant Test**

Transplant 5 to 10 succulent, fast-growing tomato seedlings into fumigated beds (approximately 4 to 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 varies 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 tested 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.

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### **USES, RATES AND APPLICATION METHODS**

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#### **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 2 or more tool bars to prevent soil build up during application.

Apply METAM SODIUM at the rate of 40 to 100 gallons per treated acre (or see crop-specific considerations in the Additional Information section of this label). 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 placed 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 METAM SODIUM through injectors placed 4 inches below the soil surface and 5 inches apart.

#### **Rotary Tiller or Power Mulcher**

Spray diluted METAM SODIUM immediately in front of tiller or mulcher. Use 40 to 100 gallons per treated acre (or see crop-specific considerations in the Additional Information section of this label). Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil. Light watering or tarping after rolling or bedshaping helps prevent the escape of gas.

#### **Sprinkler System**

Use only sprinkler systems which give large water droplets to prevent excessive loss. Use 50 to 100 gallons of METAM SODIUM per treated acre in a minimum of 1 acre-inch of water (or see crop-specific considerations in the Additional Information section of this label). For control of shallow pests (top 1 foot or less of soil profile), use 40 to 100 gallons of METAM SODIUM per treated acre and inject in only enough water to reach the desired treatment depth. Meter continuously into the sprinkler system throughout the entire application period. At completion of application, flush the system with only enough water to clear the lines. If soil surface dried 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.

#### **Application Over Cover Crops**

METAM SODIUM can be applied through center pivot or solid set sprinkler systems over cover crops that are living and less than approximately eight inches tall such as alfalfa, clover, and grasses such as Rye, Oats, Wheat and Sudan. When applied over cover crops, no soil cultivation is required before the application. The terminated crop must not be used for any food or feed purposes after METAM SODIUM has been applied.

#### **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, isolate it from growing crops and water sources. Once collected, reapply it to the treated field.

#### **Check Flood (Basin) Furrow and Border**

Meter METAM SODIUM at a steady rate into water during irrigation. Depending on the kind of pest and the treatment depth, use 40 to 100 gallons per treated acre in 3 to 18 inches of water per acre. Meter METAM SODIUM into the irrigation water at the head of the field at a point with enough turbulence to assure adequate mixing of the product in the water.

### **FIELD APPLICATION TO BEDS OR ROWS**

#### **Soil Injection**

METAM SODIUM 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 thin injection shank(s) and inject METAM SODIUM, 4 inches deep into well-prepared soil. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil. Light watering or a tarp after rolling helps to prevent gas escape. Apply at the rate of 49.2 to 122.9 fluid ounces/1,000 linear feet of bed per chisel (40 to 100 gallons/treated acre) (or see crop-specific considerations in the Additional Information section of this label). Space shanks 5 inches apart to cover the desired treating width. If METAM SODIUM is injected into established plant beds through plastic tarps to terminate growth of a previous crop, and to fumigate the bed in preparation of planting a subsequent crop, the terminated crop must not be used for any food or feed purposes after METAM SODIUM has been applied.



**Soil Covering Method (Bed-over methods)**

METAM SODIUM may be sprayed or dripped in a bed wide band onto the soil immediately ahead of bedshaping equipment. Cover the METAM SODIUM with soil to a depth of 3 to 6 inches. The soil should be rolled and compacted immediately. Apply at the rate of 40 to 100 gallons per acre of treated soil (or see crop-specific considerations in the Additional Information section of this label) or 5.9 to 29.4 fluid ounces per 100 linear feet of row (12-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 acres.

**Rotary Tiller or Power Mulcher**

Spray METAM SODIUM immediately in front of the tiller or mulcher. Use 40 to 100 gallons per treated acre (or see crop-specific considerations in the Additional Information section of this label). Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil. Light watering or a tarp after rolling may be used to help prevent gas escape.

**DRIP IRRIGATION SYSTEM****Method of Determining Fluid Ounces per 100 Feet of Linear Row**

- (1) Determine width of treated bed in feet by dividing width of bed in inches by 12. Example: 5 in. bed = 5 in. divided by 12 = 0.4166 feet.
- (2) Determine square feet in 100 linear feet of bed by multiplying the width of the bed by 100. Example: 0.4166 feet x 100 feet = 41.66 square feet.
- (3) Determine the treated acres per 100 linear feet of bed by dividing the square feet by 43,560 (square feet in acre). Example: 41.66 square feet divided by 43,560 = 0.00096 acre.
- (4) To determine the fluid ounces per 100 linear feet.
  - a) 1 gallon = 128 fluid ounces; 50 gallons = 6,400 fluid ounces; 100 gallons = 12,800 fluid ounces
  - b) Multiply fluid ounces by acres. Example: 50 gallons = 6,400 fluid ounces x 0.00096 = 6.14 fluid ounces per 100 linear feet row.

METAM SODIUM must be applied through a drip irrigation system to wet the soil thoroughly in the area being treated. Meter 40 to 75 gallons METAM SODIUM per treated acre into the drip system during the entire irrigation period.

**ADDITIONAL INFORMATION****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 METAM SODIUM at the rate of 10 gallons per treated acre (8.81 fluid ounces per 100 linear feet of row).

Use with partially resistant cultivators (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 METAM SODIUM, all residues 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 METAM SODIUM.

**Application**

Apply 8 to 10 inches below seed placement with injector shank or coulter 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 after the application of METAM SODIUM is complete. An at-planting 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 100 gallons of METAM SODIUM 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 Dahlia* (Early Maturity Disease).

**Soil Injection:** Apply a minimum of 40 gallons per treated acre of METAM SODIUM following the directions for "FIELD APPLICATION WHERE ENTIRE AREA IS BEING TREATED."

### **Early Maturity Diseases of Potatoes in the Pacific Northwest**

Apply 40 gallons METAM SODIUM 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. Application with handheld equipment is prohibited. Add METAM SODIUM to the stream of water while filling the basin. Use 1 quart of METAM SODIUM per 100 square feet in sufficient water (depending on the soil type) to penetrate at least 6 feet. For control of Oak Root fungus, use a basin of at least 20 square feet. Increase dosage to 2 quarts per 100 square feet in sufficient water to penetrate to the depth of the root system. If water is tanked to the planting site, add METAM SODIUM to the water and mix before filling the basin.

### **SYMPHYLID SUPPRESSION**

Soil should be in good seedbed condition to a depth of 8 to 10 inches. Maintain adequate moisture during the spring season to bring Symphylids to the upper soil surface. Treat during July to August when Symphylids are in the upper soil surface. Apply a minimum of 20 gallons of METAM SODIUM per treated acre (0.4 pints per 100 square feet 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**

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

### **Drench Method**

Apply 2 1/2 gallons METAM SODIUM in 150 to 200 gallons of water per 100 square yards. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for FIELD APPLICATION WHERE ENTIRE AREA IS BEING TREATED.

### **STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:** Do not expose to extreme temperatures. Do not stack more than four drums high. Leaking or damaged drums should be placed in overpack drums for disposal. Spills should be absorbed in sawdust or sand and disposed of in a sanitary landfill. Keep container closed when not in use.



**PESTICIDE DISPOSAL:** Pesticides wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of according to label instructions, contact your State Pesticide or Environmental Protection Agency, or the Hazardous Waste Representative at the nearest EPA regional office for guidance.

**CONTAINER DISPOSAL:**

**Nonrefillable container.** Do not reuse or refill this container. Offer for recycling if appropriate. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank. Repeat this procedure two more times.

**Refillable container.** Refill this container with sodium or potassium methyldithiocarbamate only. Do not reuse this container for any other purpose. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

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**LIMITED WARRANTY AND DISCLAIMER**

The manufacturer warrants (a) that this product conforms to the chemical description on the label; (b) that this product is reasonably fit for the purposes set forth in the directions for use, subject to the inherent risks referred to herein, when it is used in accordance with such directions; and (c) that the directions, warnings, and other statements on this label are based upon responsible experts' evaluations of reasonable tests of effectiveness, of toxicity to laboratory animals and to plants and residues on food crops, and upon reports of field experience. Tests have not been made on all varieties of food crops and plants, or in all states or under all conditions.

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