



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

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

Mardel Belotinsky  
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P.O. Box 1327  
Hollister, CA 95024-1327

**JAN - 4 2012**

Subject: Tri-Clor Fumigant  
EPA Reg. No. 58266-2  
Phase 2 RED Mitigation Amendment dated November 28, 2011  
EPA Decision Number 459342

Dear Ms. Belotinsky:

The amended label referred to above, submitted in connection with reregistration of chloropicrin 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 REVISIONS**

1. On page 1 below the Ingredient Statement, revise the sentence "One gallon of Tri-Clor Fumigant. . ." to read "One gallon of Tri-Clor Fumigant weighs 13.88 lbs. @ 68° F (20°C)."
2. On page 3 revise the IMPORTANT section to read, "IMPORTANT: A self-contained breathing apparatus (SCBA) is not permitted for routine handler tasks. If responding to an emergency when corrective action is needed to reduce air concentrations to acceptable levels, wear an SCBA. Escape-only SCBA respirators must not be used by handlers for responding to emergencies. In addition wear PPE required for potential contact with liquid fumigant."
3. On page 6 under Use Precautions revise the second to last sentence of the last bullet to read, "To avoid ammonia injury and/or nitrate starvation to crops, avoid using fertilizers containing ammonia salts and use only fertilizers containing nitrates until after the crop is well established and the soil temperature is about 65°F."

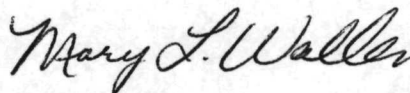
4. On page 8 under the Air Purifying Respirator Availability section revise the exception to read, "Exception: Air-purifying respirators do not need to be made available for handlers performing fumigant site monitoring tasks outside of the buffer zone."
5. On page 9 in the Respiratory Protection and Stop Work Triggers section revise the first sentence to read, "The following procedures must be followed to determine whether an air-purifying respirator (full facepiece or gas mask) is required or if operations must cease for any person performing a handling task (except for fumigant site monitoring outside of the buffer zone) as stated in this label."
6. On page 23 at the end of the Calculating the Broadcast Equivalent Application Rate section add the following, "For certain types of application methods such as nontarped, buried drip applications for melons the beds are significantly wider (approximately 80 to 84 inches) than the treated root zone area. In this case the calculations above would be modified so the strip or bed width (inches) is replaced with the treated bed area (inches)."
7. On page 23 under Buffer Zone Proximity under number 2 revise "has" to read, "have"
8. On page 34 under Posting Fumigant Buffer Zones under the Exception revise the last sentence to read, "The signs must remain posted until the last buffer zone period expires and signs must be removed within 3 days after the buffer zone period for the last block has expired."
9. On page 39 move the Drip Application Monitoring section from the FMP to the Post-Application Summary. Place this section on page 40 after the Air Monitoring Results section and before the Fumigant Treated Area and Buffer Zone Signs section.

## 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 Andrea Mojica by phone at 703-308-0122 or via email at [mojica.andrea@epa.gov](mailto:mojica.andrea@epa.gov) or Mary Waller by phone at 703-308-9354 or email at [waller.mary@epa.gov](mailto:waller.mary@epa.gov).

Sincerely,



Mary L. Waller  
Product Manager (21)  
Fungicide Branch  
Registration Division (7504P)

Enclosure



**RESTRICTED USE PESTICIDE  
DUE TO ACUTE TOXICITY**

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.

# Tri-Clor Fumigant

**ACCEPTED  
with COMMENTS  
In EPA Letter Dated:**

1/4/2012

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

**ACTIVE INGREDIENT:**

Chloropicrin .....99%

**OTHER INGREDIENTS:** ..... 1%

**TOTAL:** .....100%

*This product weighs 13.88 lbs./gal. @ 20 °C.*

**58266-2 KEEP OUT OF REACH OF CHILDREN**



**DANGER**

**PELIGRO**

**POISON** [Note : « Poison » will be printed in red.]

*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.)*

**IN ALL CASES OF OVEREXPOSURE, GET MEDICAL ATTENTION IMMEDIATELY.  
TAKE PERSON TO A DOCTOR OR TO AN EMERGENCY TREATMENT FACILITY.**

**FIRST AID**

<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 by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<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 lens, 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>

**NOTE:** Have the product container or label with you when calling a poison control center or doctor, or going for treatment. Do not give anything by mouth to an unconscious person.

**NOTE TO PHYSICIAN**

Chloropicrin is a volatile liquid that is the active ingredient in tear gas. As a gas it is a powerful lachrymator. Early symptoms of overexposure are lachrymation, respiratory distress, and vomiting. Pulmonary edema may develop later. Treatment is symptomatic.

**EMERGENCY PHONE NUMBER:** Chemtrec, 1-800-424-9300

*See side panels for additional precautionary statements.*



## **PRECAUTIONARY STATEMENTS**

### **HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**DANGER.** THIS FUMIGANT IS A HIGHLY HAZARDOUS MATERIAL AND MUST BE HANDLED WITH CARE ONLY BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION WHO ARE TRAINED WITH ITS PROPER USE. CONSULT YOUR DEALER REPRESENTATIVE OR THE DISTRIBUTOR FOR CORRECT PROCEDURE BEFORE USING. READ AND FOLLOW ALL LABEL DIRECTIONS AND PRODUCT LITERATURE SPECIFIC TO YOUR REQUIREMENTS. POISONOUS LIQUID AND VAPOR. INHALATION MAY BE FATAL. CHLOROPICRIN IS READILY IDENTIFIABLE BY SMELL. EXPOSURE TO VERY LOW CONCENTRATIONS OF VAPOR WILL CAUSE IRRITATION OF EYES, NOSE, AND THROAT. CONTINUED EXPOSURES AFTER IRRITATION IS EVIDENT, OR HIGHER CONCENTRATIONS, MAY CAUSE PAINFUL IRRITATION TO EYES OR TEMPORARY BLINDNESS. LIQUID WILL CAUSE CHEMICAL BURNS TO SKIN OR EYES. DO NOT GET ON SKIN, IN EYES, OR ON CLOTHING. HARMFUL OR FATAL IF SWALLOWED. CHLOROPICRIN FUMIGANT HAS THE CAPACITY TO CAUSE MARKED IRRITATION TO THE UPPER RESPIRATORY TRACT, AND IS A STRONG LACHRYMATOR (TEAR PRODUCING EYE IRRITANT). LOW CONCENTRATIONS, BELOW THOSE NECESSARY TO CAUSE SERIOUS SYSTEMIC INTOXICATION, ARE CAPABLE OF CAUSING SEVERELY PAINFUL EYE IRRITATION, HENCE WILL NOT BE VOLUNTARILY TOLERATED. HOWEVER, THE EFFECT MAY BE SO POWERFUL THAT A PERSON MAY BECOME TEMPORARILY BLINDED AND PANIC-STRICKEN AND THAT IN TURN MAY LEAD TO ACCIDENTS.

### **PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical-resistant to this product are listed below. For more options, follow the instructions for Category H on the chemical resistance category selection chart. PPE constructed of saranex, neoprene, and chlorinated polyethylene provide short-term contact or splash protection against liquid in this product. Longer-term protection is provided by PPE constructed of viton, Teflon, and EVAL barrier laminates (for example, responder suits manufactured by Life-guard or silvershield gloves manufactured by North). Where chemical-resistant materials are required, leather, canvas, or cotton materials offer no protection from this product and must not be worn as the sole article of protection when contact with this product is possible.

**When performing tasks with NO potential for contact with liquid fumigant, all handlers (including applicators) must wear:**

- Long-sleeved shirt and long pants, and
- Shoes and socks.

**When performing tasks with potential for contact with liquid fumigant, all handlers (including applicators) must wear:**

- Long-sleeved shirt and long pants,
- Chemical-resistant gloves,
- Chemical-resistant apron,
- Protective eyewear (Do NOT wear goggles), and
- Chemical-resistant footwear with socks.

In addition, when an air-purifying respirator is required under this label's *Directions for Use*, *Protection for Handlers*, *Respiratory Protection* and *Stop Work Triggers* sections, 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).

**IMPORTANT:** A self-contained breathing apparatus (SCBA) is not permitted for routine handler tasks.

If responding to emergencies such as a spill or leak, or when corrective action is needed to reduce air concentrations to acceptable levels, wear an SCBA.

#### **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.

#### **USER SAFETY RECOMMENDATIONS**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets on clothing. 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.
- Supply your physician with information on Chloropicrin, which is available from your Dealer Representative or the Distributor.

#### **ENVIRONMENTAL HAZARDS**

- This pesticide is toxic to mammals and birds. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.
- Chloropicrin has certain properties and characteristics in common with chemicals that have been detected in groundwater (chloropicrin is highly soluble in water and has low adsorption to soil).
- For untarped applications of chloropicrin, leaching and runoff may occur if there is heavy rainfall after soil fumigation.

### PHYSICAL OR CHEMICAL HAZARDS

Do not use containers or application equipment made of magnesium, aluminum, or their alloys, as under certain conditions this fumigant may be severely corrosive to such metals. [See the *Calibration, Set-up, Repair and Maintenance for Application Rigs and System Controls and Integrity* sections of this labeling for further requirements for application equipment.] Do not permit water to be used to clean the fumigant pressure system, as corrosion will result. Diesel oil is satisfactory for this purpose.

### 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 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.*

#### Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard (WPS). ***No instructions elsewhere on this labeling relieve users from complying with the requirements of the WPS.***

For the 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 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 or greenhouse (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., pounds 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.

### **Application Restrictions**

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

- Apply TRI-CLOR FUMIGANT only through drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.
- Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

### Product Information

TRI-CLOR FUMIGANT is a pre-plant fumigant for the control of soil-borne pests, such as wireworms and nematodes, and diseases caused by certain species of *Phythium*, *Phytophthora*, *Fusarium*, and *Verticillium*.

### Use Precautions

- This fumigant is a highly hazardous material and must be handled with care only by certified applicators or persons under their direct supervision who are trained with its proper use.
- Comply with all local regulations and ordinances. Obtain an application permit from Agricultural Regulatory Agencies as required.
- Obtain medical assistance at once in case of illness after exposure, and do not allow conditions which could accidentally cause further exposure until recovery is complete.
- Never fumigate alone. It is imperative to always have an assistant and proper protection equipment, to aid in case of an accident.
- Drivers of application equipment must advise other workers of all precautions and procedures. In addition, drivers must instruct their helpers in the mechanical operation of the tractor and how to work with the tractor driver while fumigating.
- Handle this fumigant in the open, when possible, with the operator "upwind" from the container where there is good ventilation.
- Keep pets, livestock, and other domestic animals out of the treated area during application and during tarp perforation and/or removal if a tarp is used.
- Fumigation may temporarily raise the level of ammonia nitrogen and soluble salts in the soil. This is most likely to occur when heavy rates of fertilizer and fumigant are applied to soils that are either cold, wet, acid, or high in organic matter. To avoid injury to plant roots, fertilize as indicated by soil tests made after fumigation. To avoid ammonia injury and/or nitrate starvation to crops, avoid using fertilizers containing ammonia salts and use only fertilizers nitrates until after the crop is well established and the soil temperature is about 65°F. Liming highly acid soils before fumigation stimulates nitrification and reduces the possibility of ammonia toxicity.

### 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 [www.epa.gov/fumigantraining](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 application);
- Handling or disposing of fumigant containers;
- Cleaning, handling, adjusting, or repairing the parts of application 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., drip), 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 [www.epa.gov/fumiganttraining](http://www.epa.gov/fumiganttraining).

For all handling tasks at least two handlers must be present.

Exception: After the application is complete, only one trained handler is required to perform fumigant site monitoring tasks outside of the buffer zone.

**Exclusion of Non Handlers from the 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/canisters of the type specified in the *PPE* section of this labeling are immediately available for each handler who will wear one. At a minimum two handlers must have the appropriate air-purifying respirator and cartridges/canisters 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.

Cartridges or canisters must be replaced when odor or sensory irritation from this product becomes apparent during use, if the measured concentration of chloropicrin is greater than or equal to 1.5 ppm, or after 8 hours of cumulative use, whichever occurs first.

**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 (full facepiece or gas mask) 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 (full facepiece or gas mask) 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 (full facepiece or gas mask) or resume operations if two consecutive breathing zone samples taken at the handling site at least 15 minutes apart show that levels of chloropicrin have decreased to less than 0.15 ppm, provided that handlers do not experience sensory irritation. During the collection of air samples, an air-purifying respirator (full facepiece or gas mask) 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., Matheson-Kitagawa, Draeger, or Sensidyne) must be used. The devices must have sensitivity of at least 0.15 ppm for chloropicrin. 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 (full facepiece or gas mask) 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 (full facepiece or gas mask), or (2) a chloropicrin air sample is greater than or equal to 1.5 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 (full facepiece or gas mask) if two consecutive breathing zone samples taken at the handling site at least 15 minutes apart show levels of chloropicrin have decreased to less than 0.15 ppm, provided that handlers do not experience sensory irritation. During the collection of air samples an air-purifying respirator (full facepiece or gas mask) 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 the sample(s) were greater than or equal to 1.5 ppm.
- Handlers can resume work activities if all of the following conditions exist provided an air-purifying respirator (full facepiece or gas mask) is worn:
  - two consecutive breathing zone samples for chloropicrin taken at the handling site at least 15 minutes apart must be less than 1.5 ppm.
  - handlers do not experience sensory irritation while wearing the air-purifying respirator (full facepiece or gas mask), and
  - filter cartridges/canisters have been changed.
  - During the collection of air samples an air-purifying respirator (full facepiece or gas mask) 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 the sample(s) were greater than or equal to 1.5 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 application 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.



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- In all other instances tarps must be perforated (cut, punched, poked, or sliced) only by mechanical methods.
- Tarp perforation for broadcast applications must be completed before noon.
- For broadcast applications, 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,"
- "Chloropicrin Fumigant in USE,"
- "the date and time of fumigation,

- the date and time entry restricted period is over,
- "TRI-CLOR FUMIGANT", 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.

**Tarps** (when tarps are used in TRI-CLOR FUMIGANT 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.

### **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 Preparation**

- Soil must be properly prepared and at the surface generally be free of large clods. The area to be fumigated must be tilled to a depth of 5 to 8 inches.
- Field trash must be properly managed. Residue from a previous crop must be worked into the soil to allow for decomposition prior to the start of the application. Little or no crop residue shall be present on the soil surface. Crop residue that is present must not interfere with the soil seal. Removing the crop residue prior to the start of the application is important to limit the natural "chimneys" that occur in the soil when crop 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 limit the efficacy of the fumigant. However, crop residue on the field serves to prevent soil erosion from both wind and water and is an important consideration. To accommodate erosion control, fumigant efficacy, and human health protection, clear fields of crop residue as close to the start of the application as possible to limit the length of time that the soil would be exposed to potentially erosive weather conditions.

## **TRI-CLOR FUMIGANT**

### **Bedded and Broadcast Shank Applications: Additional GAPs**

In addition to the GAPs required for all TRI-CLOR FUMIGANT soil fumigation applications, the following GAPs apply for injection applications:

### **Tarps (when tarps are used in TRI-CLOR FUMIGANT applications)**

- Tarps must be installed immediately after the fumigant is applied to the soil.

### **Soil Preparation**

- Trash pulled by the shanks to the ends of the field must be covered with tarp, or soil, depending on the application method before making the turn for the next pass.

### **Soil Temperature**

- The maximum soil temperature at the depth of injection must not exceed 90° F at the beginning of the application.
  - If air temperatures have been above 100° F in any of the three days prior to the start of the 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.

### **Application Methods and Equipment**

- Apply TRI-CLOR FUMIGANT with chisel equipment or a Noble plow.
- For shallow (injection depth minimum 8-10 inches) broadcast work, use a shank spacing of 9-12 inches.



- For deep applications (injection depth minimum 18 inches), a shank spacing up to 24 inches may be used; however, it is recommended that the shank spacing not exceed 18 inches.
- When applying TRI-CLOR FUMIGANT with a Noble plow, use an outlet spacing of 9-12 inches along the sweeps.

### Application Depth

- *For Tarped-Broadcast and Tarped-Bedded Applications:* The injection point must be a minimum of 8 inches from the nearest final soil/air interface.
- *For Untarped-Bedded Applications:* The injection point must be a minimum of 12 inches from the nearest final soil/air interface.
- *For Untarped-Broadcast Applications:* The injection point must be a minimum of 10 inches from the nearest final soil/air interface.
- *For Untarped-Broadcast Deep Applications:* The injection point must be a minimum of 18 inches from the nearest final soil/air interface.

### Soil Sealing

- *For Broadcast Untarped Applications:* Use a disc or similar equipment to uniformly mix the soil to at least a depth of 3 to 4 inches to eliminate the chisel or plow traces. Following elimination of the chisel trace, the soil surface must be compacted with a cultipacker, ring roller, and roller in combination with tillage equipment.
- *For Bedded Applications:* Preformed beds must be sealed by disruption of the chisel trace using press sealers, bed shapers, cultipackers, or by re-shaping (e.g., relisting, lifting, replacing) the beds immediately following injection. Beds formed at the time of application must be sealed by disrupting the chisel trace using press sealers, or bed shapers.
- *For Tarped Applications:* The use of a tarp does not eliminate the need to minimize chisel traces prior to application of the tarp, such as by using a Noble plow or other injection shank that disrupts the chisel traces.

### Soil Moisture

- The soil must be moist 9 inches below the surface. The amount of moisture needed in this zone will vary according to soil type. Surface soil generally dries rapidly and must not be considered in this determination.
- Soil moisture must be determined using one of the following methods:
  - the USDA Feel and Appearance Method for testing (see below), or
  - an instrument, such as a tensiometer.
- Available water capacity must be equal to or greater than 50% for shank applications. If there is less than 50% available water capacity 9 inches below the surface, the soil moisture must be adjusted. If irrigation is not available and there is adequate soil moisture below 9 inches, soil moisture can be adjusted by disking or plowing before the start of the application. To conserve existing soil moisture, pretreatment irrigation or pretreatment tillage should be done as close to the start of the application as possible.
- Measure soil moisture at a depth of 9 inches at either end of the field, no more than 48 hours prior to the start of the application.

The USDA Feel and Appearance Method for estimating soil moisture as appropriate for the soil texture:

- For **coarse** textured soils (fine sand and loamy fine sand), the soil is moist enough (50 to 75% 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), the soil is moist enough (50 to 75% 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), the soil is moist enough (50 to 75% 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), the soil is moist enough (50 to 75% 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. Whenever possible, the field should 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 agent, soil conservationist, or pest control advisor (agriculture consultant) should be consulted for assistance.

#### **Prevention of End Row Spillage**

- Do not apply or allow fumigant to spill onto the soil surface. For each injection line 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.

#### **Calibration, Set-up, Repair, and Maintenance for Application Rigs**

- Brass, carbon steel, or stainless steel fittings must be used throughout. Polyethylene tubing, polypropylene tubing, Teflon® tubing or Teflon® -lined steel braided tubing must be used for all low pressure lines, drain lines, and compressed gas or air pressure lines. All other tubing must be Teflon® -lined steel braided.
- Galvanized, PVC, nylon, or aluminum pipe fittings must not be used.
- All rigs must include a filter to remove any particulates from the fumigant and for pressurized systems a check valve to prevent backflow of the fumigant into the pressurizing cylinder or the compressed air system.
- Rigs must include a flow meter or a constant pressure system with orifice plates to ensure the proper amount of fumigant is applied.
- To prevent the backflow of fumigant into the compressed gas cylinder (e.g., nitrogen, other inert gas, compressed air), if used, applicators must:

- Ensure that positive pressure is maintained in the compressed gas cylinder at not less than 200 psi during the entire time it is connected to the application rig, if a compressed gas cylinder is used. *(This is not required for a compressed air system that is part of the application rig because if the compressor system fails the application rig will not be operable.)*
- Ensure that application rigs are equipped with properly functioning check valves between the compressed gas cylinder or compressed air system and the fumigant cylinder. The check valve is best placed on the outlet side of the pressure regulator, and is oriented to only allow compressed gas to flow out of the cylinder or compressed air out of the compressed air system.
- A pressure relief valve must be installed between the regulator and the check valve to ensure a regulator failure does not over pressurize the fumigant cylinder.
- Always pressurize the system with compressed gas or by use of a compressed air system before opening the fumigant cylinder valve.
- 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 and screen checks, if installed.
  - Pressurize the system with compressed gas or compressed air, and check all fittings, valves, and connections for leaks using soap solution.
- Install the fumigant cylinder, and connect and secure all tubing. Slowly open the compressed gas or compressed air valve, and increase the pressure to the desired level. Slowly open the fumigant cylinder valve, always watching for leaks.
- In case of the rupture of a hose or fitting while applying the fumigant, immediately stop the tractor or motor. Get off the tractor and get to a place where the problem can be observed without exposure to the fumes. Approach from upwind, with respiratory protection if required and make the necessary repairs.
- When changing cylinders, be certain they are turned off and the fumigant system is not under pressure.
- When the application is complete, close the fumigant cylinder valve and blow residual fumigant out of the fumigant lines into the soil using compressed gas or compressed air. If the rig uses a centrifugal pump instead of compressed gas to inject fumigant into the soil, you may clear residual fumigant from the fumigant lines using an application wand connected to the system's low point via a drain hose. Place the wand in the soil until all residual fumigant has drained from the system. The wand and drain hose must be free of dirt to allow proper drainage. At the end of the application season, disconnect all fumigant cylinders from the application rig. At the end of the season, seal all tubing openings with tape to prevent the entry of insects and dirt.

Application equipment must be calibrated and all control systems must be working properly. Proper calibration is essential for application equipment to deliver the correct amount of fumigant uniformly to the soil. Refer to the manufacturer's instructions on how to calibrate your equipment, usually the equipment manufacturer, fumigant dealer, or Cooperative Extension Service can provide assistance.



**Planting Interval**

After application, leave the soil undisturbed for 10 to 14 days. Wet soil retards diffusion of the fumigant, thus requiring a longer soil exposure period. At the end of the soil exposure period, aerate the soil by plowing or deep cultivation. If heavy rains accompanied by low temperatures occur during the soil exposure period, working the soil several times is essential for thorough aeration. Aeration is usually complete when the odor of the fumigant is no longer evident.

**TRI-CLOR FUMIGANT Drip Applications: Additional GAPs**

In addition to the GAPs required for all TRI-CLOR FUMIGANT soil fumigation applications, the following GAPs apply for drip applications. The certified applicator or WPS trained handlers under the supervision of and in communication with the certified applicator shall shut the system down and make necessary adjustments should the need arise.

**Soil Preparation**

- Till fields with known plowpans because they can lead to puddling of the fumigant due to inadequate soil drainage.
- Beds should be listed, shaped and ready for planting.

**Soil Moisture**

- For all soil types, pre-application moisture should be dry enough to prevent soil saturation and bed collapse once application and flushing is complete.
- Soil moisture should be at 50% of field capacity in the top 2-3" at the time of TRI-CLOR FUMIGANT application.

**Product and Dosage**

- Plan the application by calculating the amount of TRI-CLOR FUMIGANT required at the appropriate rate for the crop, treated area, and target pest.
- TRI-CLOR FUMIGANT must be applied through a drip irrigation system to wet the soil thoroughly in the area being treated. Drip emitters should be spaced 8-12 inches apart.
- Pre-mix with TS Series surfactant prior to application through drip system at a ratio of 1:20 surfactant to TRI-CLOR FUMIGANT. Contact your Trical representative to obtain TS Series surfactants.
- TS Series surfactant may be metered into the supply line for TRI-CLOR FUMIGANT and then passed through a mixing device such as a centrifugal pump or static mixer, to assure proper agitation. The mixture of TRI-CLOR FUMIGANT and the TS Series surfactant must then be metered into the water supply line and passed through a mixing device such as a centrifugal pump or static mixer, to assure proper agitation before it is distributed into the drip irrigation system.
- Meter TRI-CLOR FUMIGANT into the drip system according to the dosage. An adequate concentration of TRI-CLOR FUMIGANT must be present in order to be effective. At no time should the concentration of TRI-CLOR FUMIGANT exceed 1,500 ppm by weight in the drip line. For example, a 300 pounds per treated acre application rate would require 24,000 gallons of water per treated acre to deliver a 1,500 ppm concentration.

### **System Controls and Integrity**

- The irrigation system (main lines, headers, drip tape) must be thoroughly checked for leaks before the start of application. Leak detection requires that the irrigation system be at full operating pressure. The amount of time needed at full operating pressure will vary by irrigation system design. Look for puddling along major pipes (holes in pipes or leaky joints), at the top and ends of rows (leaky connection, open drip tape), and on the bed surface (damaged drip tape, malfunctioning emitters). Any leaks discovered during the pre-application check must be repaired prior to the start of the application.
- To inject fumigant, use a metering system (such as a positive pressure system, positive displacement injection pump, diaphragm pump, or a Venturi system) effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls. Do not use containers, pumps, or other equipment made of aluminum, magnesium or their alloys as chloropicrin can be corrosive to such metals.
- The system must contain:
  - A functional check valve, a vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination and backflow;
  - A functional, automatic, quick-closing check valve to prevent the flow of fluids back toward the fumigant container;
  - A functional, normally closed solenoid-operated valve located on the intake side of the injection point and connected to the system interlock to prevent the fumigant from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down; and
  - Functional interlocking controls to automatically shut off the fumigant injection when the irrigation water flow stops or decreases to the point where fumigant distribution is adversely affected.
- Crop injury and/or lack of effectiveness can result from non-uniform distribution of treated water.
- If you have any questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

### **Site of Injection and Irrigation System Layout**

- Site of injection must be as close as practical to the area being treated (such as direct injection of fumigant into the header pipe/manifold or into an aboveground delivery pipe attached to the header). If the fumigant is injected into a main line, make sure the irrigation pipe is able to be cleared of all fumigant as the fumigant may pool in low sections of the pipe. Also make sure that valves on lateral lines of the main line are closed if these lateral lines lead to areas not being fumigated at the time of the application.

### **System Flush**

- After application of the fumigant, continue to drip-irrigate the area with water to flush the irrigation system. Do not allow the fumigant to remain in the irrigation system after the application is complete. The total volume of water, including the amount used for flushing the irrigation system, must be adequate to completely remove the fumigant from the lines, but should be less than the amount that could over-saturate the beds (bed collapse can occur from over-saturation) and should not exceed 1.5 acre-inches (40,000 gallons) of water per acre. If common lines are used for both the fumigant application and water seal (if a water

seal is applied) these lines must be adequately flushed before starting the water seal and/or normal irrigation practices.

#### Soil Sealing

- If tarps are used they must be put in place before the application starts.
- Tarp edges must be buried along the furrow and at the ends of rows.

#### Application Depth

- *For Untarped Applications:* The drip tape must be buried at a minimum of 5 inches.

#### Planting Interval

- Do not disturb treated soil for 2 weeks. Wet soil retards diffusion of the fumigant thus requiring a longer aeration period. Aeration is usually complete when the odor of the fumigant is no longer evident.

#### Requirements for Pre-Plant Drip Irrigation Soil Fumigation in a Greenhouse

- The maximum application block size that can be treated is 50,000 square feet.
- All applications must be tarped.
- During the application keep all doors, vents, and windows to the outside open, and keep all fans or mechanical ventilation systems running within the greenhouse.
- Leaks through which gases could enter adjacent enclosed areas must be sealed.

**TABLE 1<sup>1</sup> -- PREPLANT SOIL FUMIGATION USES**

Field soils to be planted to	Application Rate (pounds product/ treated acre) <sup>3</sup> for untarped shank broadcast applications	Application Rate (pounds product/ treated acre) <sup>3</sup> for tarped shank bed, strip and broadcast; untarped shank bed; and untarped deep shank broadcast applications	Application Rate (pounds product/ treated acre) <sup>3</sup> for tarped drip and untarped buried drip irrigation applications
Floral crops, Nursery Crops (including forest nursery seedlings)	175	350	100-300
Plant and seed beds	175	300-350	100-300
Eggplant, Cucumbers, Melons, Tomatoes	175	300-350	100-300
Sweet potatoes, Yams	175	150-350	100-300
Onions	175	200-350	100-300
Strawberries	175	150-350	100-300
All other crops <sup>2</sup>	175	350	100-300



<sup>1</sup> Do not exceed specified maximum application rates in Table 1.

<sup>2</sup> Not to be used with aquatic plants or for forestry uses.

<sup>3</sup> To facilitate application of this product when applying in low dosages, dilution with the solvent Exxsol<sup>®</sup> D-80 is allowed. The maximum rate of Exxsol<sup>®</sup> D-80 shall not exceed 150 lbs./acre.

### Calculating the Broadcast Equivalent Application Rate

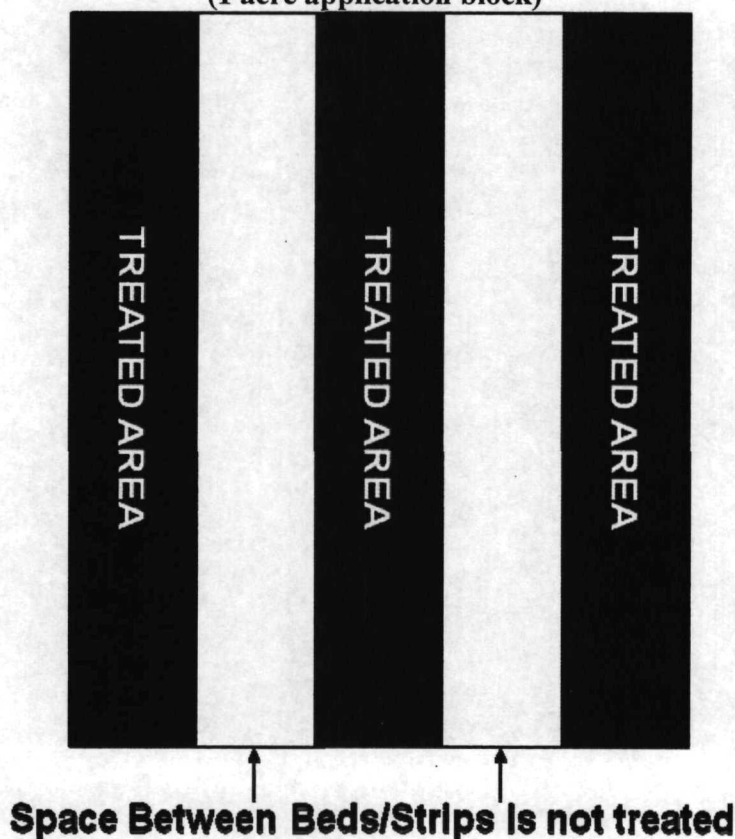
To calculate the broadcast equivalent rate for bedded or strip applications the following information is needed:

- 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

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



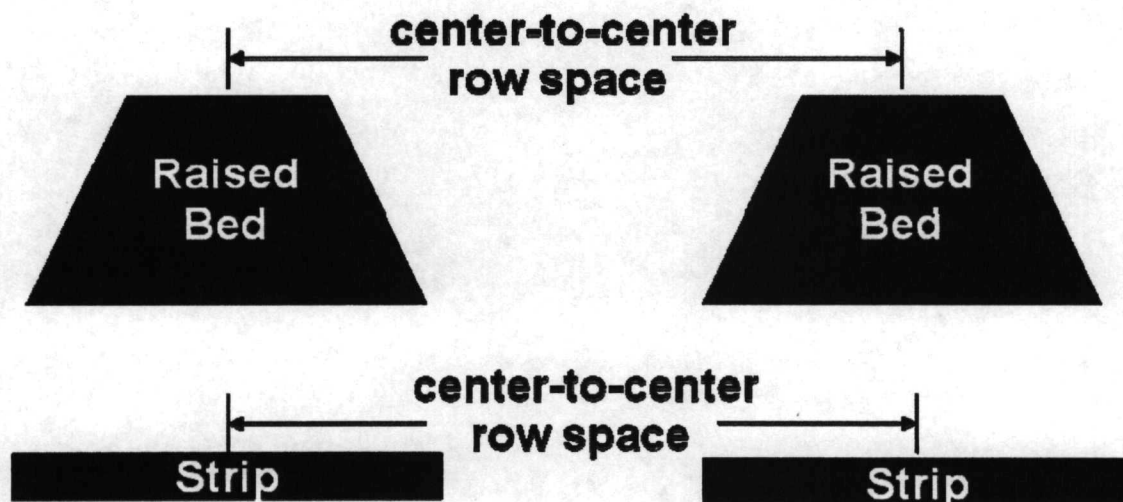
the outermost edges of total area treated with the fumigant product.

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

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

- 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.

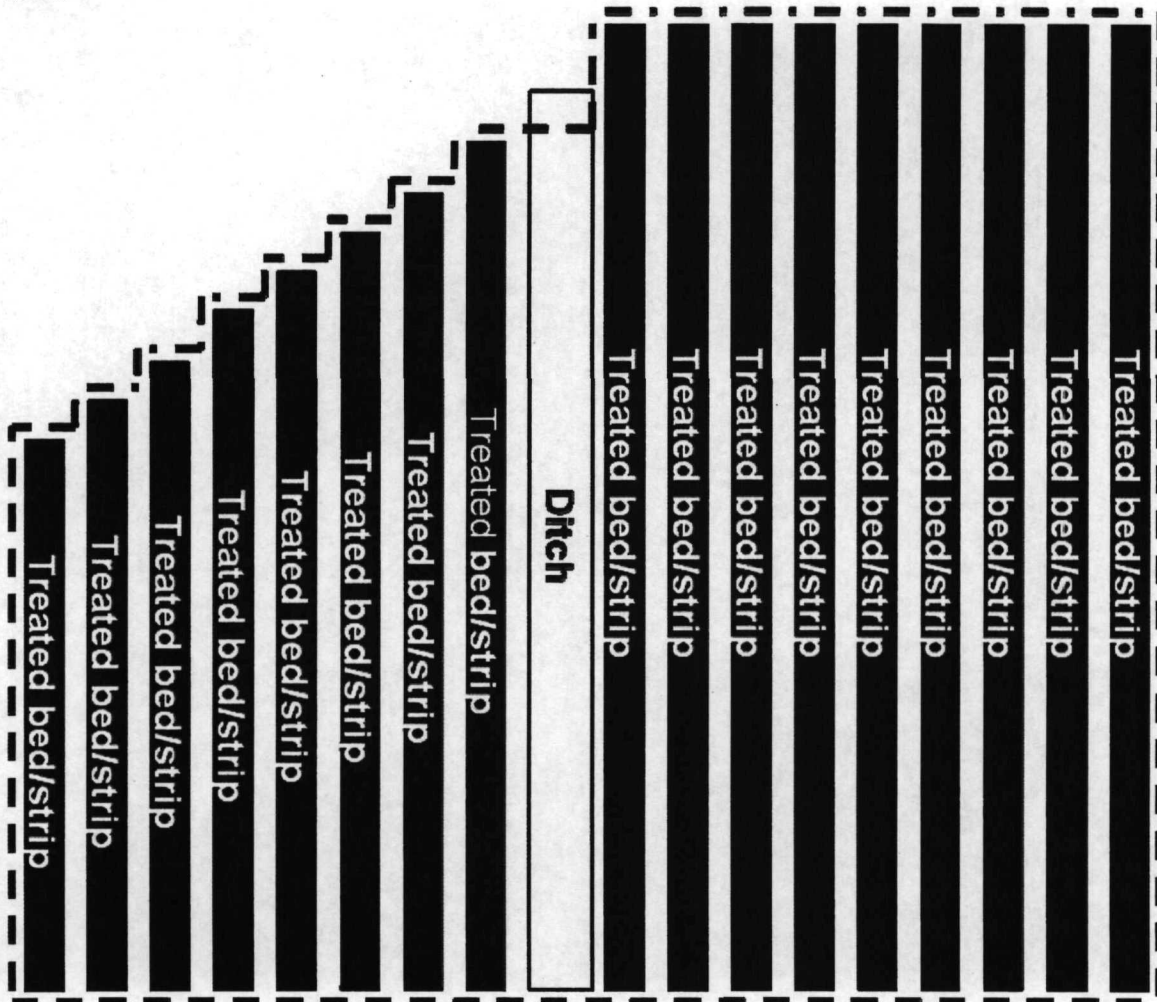
Figure 2. Center Row Spacing



### 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





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

### Buffer Zone Requirements

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

- 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 Exemption 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 chloropicrin buffer zone(s).
- To reduce the potential for off-site movement from multiple fumigated fields, buffer zones from multiple chloropicrin 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* has been implemented if there are any residences or businesses within 300 feet of any of the buffer zones.

### 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:
  1. The storage buildings are not occupied during the buffer zone period, and

2. 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,
    - 1) The buffer zone period has ended, and
    - 2) 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 chloropicrin 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 Exemption 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.





Table 3. Bed Tarp Buffer Zone Distances in Feet

	Application Block Size (Acres)																															
	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	110	120	130	140	150	160				
Broadcast Equivalent Application Rate (lbs Product/Acre)	75	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35	40	45				
	80	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	85	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	90	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	95	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	105	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	110	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	115	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	120	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	125	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	130	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	135	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	140	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	145	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	150	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	155	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	160	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	165	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	43	51	60	65	70	75	80	
	170	25	25	25	25	25	25	29	33	37	41	45	128	173	213	245	278	310	360	410	474	538	588	638	678	718	777	837	897	957	1000	
	175	25	25	25	25	25	25	33	41	49	57	65	135	180	230	260	295	330	380	425	500	575	625	675	718	758	817	875	935	995	1050	
	180	25	25	25	25	25	34	42	50	59	67	139	185	237	267	303	339	391	437	514	591	643	694	733	771	836	900	964	1029	1094	1159	
	185	25	25	25	25	25	35	43	52	60	69	143	190	243	275	312	349	402	449	529	608	661	714	753	793	859	925	991	1057	1123	1189	
	190	25	25	25	25	25	36	45	53	62	71	147	195	250	282	320	358	413	461	543	624	679	733	774	814	882	950	1018	1086	1154	1222	
	195	25	25	25	25	25	30	37	46	55	64	72	150	201	256	290	329	368	423	474	557	641	696	736	776	846	916	986	1056	1126	1196	
	200	25	25	25	25	25	30	38	47	56	65	74	154	206	263	297	337	377	434	486	571	657	714	771	814	887	959	1030	1101	1172	1243	
	205	25	25	25	30	30	39	48	57	67	76	158	211	269	305	346	387	445	498	586	674	732	791	835	879	952	1025	1098	1171	1244	1317	
	210	25	25	25	30	30	40	49	59	68	78	162	216	276	312	354	396	456	510	600	690	750	810	855	900	975	1050	1125	1200	1275	1350	
	215	25	25	25	30	30	41	50	60	70	80	166	221	283	319	362	405	467	522	614	706	768	829	875	921	998	1075	1152	1229	1306	1383	
	220	25	25	25	30	30	41	52	62	72	82	170	226	289	327	371	415	478	534	629	723	786	849	896	943	1021	1100	1179	1258	1337	1416	
	225	25	25	25	30	35	42	53	63	73	84	174	231	296	334	379	424	489	546	643	739	804	868	916	964	1045	1125	1205	1286	1366	1447	
	230	25	25	25	30	35	43	54	64	75	85	177	237	302	342	388	434	499	559	657	756	821	887	936	986	1068	1150	1232	1314	1396	1478	
	235	25	25	25	30	35	44	55	66	77	87	181	242	309	349	396	443	510	571	671	772	839	906	957	1007	1091	1175	1259	1343	1427	1511	
	240	25	25	25	30	35	45	56	67	78	89	185	247	315	357	405	453	521	583	686	789	857	926	977	1029	1114	1200	1286	1372	1458	1544	
	245	25	25	25	30	35	46	57	69	80	91	189	252	322	364	413	462	532	595	700	805	875	945	998	1050	1138	1225	1313	1400	1488	1576	
	250	25	25	30	30	35	47	59	70	81	93	193	257	329	371	421	471	543	607	714	821	893	964	1018	1071	1161	1250	1339	1429	1519	1609	
	255	25	25	30	35	40	48	60	71	83	95	197	262	335	379	430	481	554	619	729	838	911	984	1038	1093	1184	1275	1366	1457	1548	1639	
	260	25	25	30	35	40	49	61	73	85	97	201	267	342	386	438	490	565	631	743	854	929	1003	1059	1114	1207	1300	1393	1486	1579	1672	
	265	25	25	30	35	40	50	62	74	86	98	204	273	348	394	447	500	575	644	757	871	946	1022	1079	1136	1230	1325	1420	1515	1610	1705	

Table 4. Bed Untarp (both preformed beds and beds listed/disk hilled at the time of application) Buffer Zone Distances in Feet

		Application Block Size (Acres)																															
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	110	120	130	140	150	160				
Broadcast Equivalent Application Rate (lbs Product/Acre)	35	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	40	50	60	75				
	40	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	45	55	65	80				
	45	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	60	70	80	95				
	50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	65	75	85	100				
	55	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	70	80	90	105				
	60	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	75	85	95	110				
	65	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	80	90	100	115				
	70	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	85	95	105	120				
	75	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	90	100	110	125				
	80	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	95	105	115	130				
	85	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	100	110	120	135				
	90	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	105	115	125	140				
	95	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	110	120	130	145				
	100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	115	125	135	150				
	105	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	120	130	140	155				
	110	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	125	135	145	160				
	115	25	30	32	36	39	43	68	94	119	145	213	268	330	365	418	455	533	608	679	758	838	898	965	1045	1126	1206	1287					
	120	25	32	39	46	53	60	85	110	135	160	225	285	350	380	435	475	575	640	708	775	820	865	958	1050	1138	1225	1313	1400				
	125	30	40	49	59	68	78	101	125	149	173	243	303	368	415	460	513	613	660	743	825	873	920	1000	1080	1170	1260	1350	1440				
	130	30	43	56	69	82	95	118	140	163	185	260	320	385	450	485	550	650	680	778	875	925	975	1043	1110	1203	1295	1388	1480				
	135	30	45	59	74	88	103	126	150	174	198	273	335	405	468	510	565	668	730	815	900	969	1038	1090	1143	1238	1333	1428	1523				
	140	35	50	65	80	95	110	135	160	185	210	285	350	425	485	535	580	685	780	853	925	1013	1100	1138	1175	1273	1371	1469	1567				
	145	40	56	72	88	104	120	146	173	199	225	315	385	440	540	575	625	775	870	915	960	1068	1175	1250	1325	1435	1546	1656	1767				
	150	45	63	80	98	115	133	159	185	211	238	328	393	463	553	600	650	805	893	974	1055	1149	1243	1340	1438	1557	1677	1797	1917				
	155	50	69	88	107	126	145	171	198	224	250	340	400	485	565	625	675	835	915	1033	1151	1230	1310	1430	1550	1679	1808	1938	2067				
	160	55	75	94	114	133	153	181	210	239	268	358	418	508	578	645	720	855	948	1056	1165	1255	1345	1479	1613	1747	1881	2016	2151				
165	60	80	100	120	140	160	191	223	254	285	375	435	530	590	665	765	875	980	1080	1180	1280	1380	1528	1675	1815	1954	2094	2233					
170	65	88	111	134	157	180	211	243	274	305	418	460	555	633	708	778	925	1075	1164	1253	1363	1473	1586	1700	1842	1983	2125	2267					
175	75	100	125	150	175	200	231	263	294	325	460	485	580	675	750	790	975	1170	1248	1325	1445	1565	1645	1725	1869	2013	2156	2300					
180	77	103	129	154	180	206	238	270	302	334	473	499	597	694	771	813	1003	1203	1283	1363	1485	1610	1692	1774	1922	2070	2218	2366					
185	79	106	132	159	185	211	244	278	311	344	486	513	613	714	793	835	1031	1237	1319	1401	1528	1654	1739	1824	1976	2128	2279	2431					
190	81	109	136	163	190	217	251	285	319	353	499	527	630	733	814	858	1059	1270	1354	1439	1569	1699	1786	1873	2029	2185	2341	2497					
195	84	111	139	167	195	223	258	293	327	362	513	540	646	752	836	880	1086	1304	1390	1476	1610	1744	1833	1922	2082	2243	2403	2563					
200	86	114	143	171	200	229	264	300	336	371	526	554	663	771	857	903	1114	1337	1426	1516	1651	1789	1880	1971	2136	2300	2464	2629					
205	88	117	146	176	205	234	271	308	344	381	539	568	679	791	879	925	1142	1371	1461	1552	1693	1833	1927	2021	2189	2358	2526	2694					
210	90	120	150	180	210	240	278	315	353	390	552	582	696	810	900	948	1170	1404	1497	1590	1734	1878	1974	2070	2243	2415	2588	2760					
215	92	123	154	184	215	246	284	323	361	399	565	596	713	829	921	971	1198	1437	1533	1628	1775	1923	2021	2119	2296	2473	2649	2826					
220	94	126	157	189	220	251	291	330	369	409	578	610	729	849	943	993	1226	1471	1568	1666	1817	1967	2068	2169	2349	2530	2711	2891					
225	96	129	161	193	225	257	297	338	378	418	591	624	746	868	964	1016	1254	1504	1604	1704	1858	2012	2115	2218	2403	2588	2772	2957					
230	99	131	164	197	230	263	304	345	386	427	605	637	762	887	986	1038	1281	1538	1640	1741	1899	2057	2162	2267	2456	2645	2834	3023					
235	101	134	168	201	235	269	311	353	394	436	618	651	779	906	1007	1061	1309	1571	1675	1779	1940	2102	2209	2316	2509	2703	2896	3089					
240	103	137	171	206	240	274	317	360	403	446	631	665	795	926	1029	1083	1337	1605	1711	1817	1982	2146	2256	2366	2563	2760	2957	3154					
245	105	140	175	210	245	280	324	368	411	455	644	679	812	945	1050	1106	1365	1638	1747	1855	2023	2191	2303	2415	2616	2818	3019	3220					
250	107	143	179	214	250	286	330	375	420	464	657	693	829	964	1071	1129	1393	1671	1782	1893	2064	2236	2350	2464	2670	2875	3080	3286					
255	109	146	182	219	255	291	337	383	428	474	670	707	845	984	1093	1151	1421	1705	1818	1931	2106	2280	2397	2514	2723	2933	3142	3351					
260	111	149	186	223	260	297	344	390	436	483	683	721	862	1003	1114	1174	1449	1738	1853	1969	2147	2325	2444	2563	2776	2990	3204	3417					
265	114	151	189	227	265	303	350	398	445	492	697	734	878	1022	1136	1196	1476	1772	1889	2006	2188	2370	2491	2612	2830	3048	3265	3483					
If after applying applicable credits the buffer zone distances are still greater than ½ mile (2,640 feet), then the application is prohibited.																																	
Buffer for Compacted Untreated Beds (beds listed/diskilled and compacted at the time of application in one pass) is 25 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.

Buffer for Compacted Untarp Beds (beds listed/disk hilled and compacted at the time of application in one pass) is 25 feet.

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Table 5. Broadcast Tarp Buffer Zone Distances in Feet

	Application Block Size (Acres)															
	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40
70	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
80	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
90	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
95	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
105	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
110	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
115	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
120	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
125	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
130	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
135	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
140	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
145	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
150	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
155	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
160	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
165	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
170	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
175	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
180	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
185	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
190	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
195	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
200	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
205	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
210	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
215	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
220	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
225	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
230	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
235	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
240	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
245	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
250	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
255	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
260	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
265	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
270	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
275	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
280	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
285	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
290	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
295	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
300	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
305	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
310	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
315	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
320	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
325	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
330	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
335	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
340	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
345	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
350	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25



Table 6. Broadcast Untarp Buffer Distances in Feet

		Application Block Size (Acres)																														
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	110	120	130	140	150	160			
Broadcast Application Rate (lbs Product/Acre)	30	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		
	35	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35	43	50	63	75	85	95	105	115	125	134	144	153	163		
	40	25	25	25	25	25	25	25	25	25	25	25	25	25	25	38	50	80	110	138	165	175	185	200	210	228	245	263	280	299		
	45	25	25	25	25	25	25	25	25	25	25	25	25	25	25	41	58	76	95	133	170	201	233	253	283	310	330	358	385	413	444	
	50	25	25	25	25	25	25	25	25	25	25	25	25	25	58	90	115	140	185	230	265	300	335	370	405	440	477	513	550	587	626	
	55	25	25	25	25	25	25	25	25	25	25	25	25	25	46	68	100	133	161	190	238	285	325	365	405	445	485	520	563	607	650	693
	60	25	25	25	25	25	25	25	25	25	25	25	25	25	68	110	143	175	208	240	290	340	385	430	470	510	550	585	634	683	731	780
	65	25	25	25	25	25	25	30	33	37	41	45	95	145	183	220	253	285	343	400	448	495	540	585	630	670	726	782	838	893	948	
	70	25	25	25	25	25	33	41	49	57	65	123	180	223	265	298	330	395	460	510	560	610	660	710	755	818	881	944	1007	1060	1131	
	75	25	25	30	30	30	30	42	56	70	84	98	158	218	263	307	343	380	452	523	578	633	688	743	798	848	919	989	1060	1131	1200	
	80	25	30	30	30	30	32	52	72	92	112	132	194	257	303	348	389	430	508	587	647	707	767	827	887	942	1021	1099	1178	1256	1335	
	85	25	30	30	30	33	35	61	87	113	139	165	230	295	343	390	435	480	565	650	715	780	845	910	975	1035	1121	1208	1294	1380	1467	
	90	25	34	43	52	61	86	111	136	161	186	248	309	366	423	473	523	616	709	794	879	949	1019	1089	1154	1250	1346	1443	1539	1635	1731	
	95	25	41	56	72	88	112	136	160	184	208	265	323	389	455	510	565	666	768	873	978	1053	1128	1203	1273	1379	1485	1591	1697	1803	1909	
	100	25	47	69	92	114	137	160	183	206	229	283	336	412	488	548	608	717	826	951	1076	1156	1236	1316	1391	1507	1623	1739	1855	1971	2087	
	105	25	54	83	111	140	162	184	206	228	250	300	350	435	520	585	650	768	885	1030	1175	1260	1345	1430	1510	1636	1762	1888	2013	2139	2265	
	110	25	56	88	119	150	173	196	218	241	264	325	386	473	559	628	696	817	938	1079	1220	1310	1400	1490	1575	1706	1838	1969	2100	2231	2362	
115	25	59	93	126	160	184	207	231	254	278	350	422	510	598	670	742	867	991	1128	1265	1360	1455	1550	1640	1777	1913	2050	2187	2324	2461		
120	25	61	98	134	170	194	219	243	268	292	375	458	548	637	713	788	916	1044	1177	1310	1410	1510	1610	1705	1847	1989	2131	2273	2415	2557		
125	25	64	103	141	180	205	230	256	281	306	400	494	585	676	755	834	966	1097	1226	1355	1460	1565	1670	1770	1918	2065	2213	2360	2507	2654		
130	25	66	108	149	190	216	242	268	294	320	425	530	623	715	798	880	1015	1150	1275	1400	1510	1620	1730	1825	1977	2129	2281	2433	2585	2737		
135	25	71	118	164	210	238	265	293	320	348	450	553	651	750	833	915	1040	1165	1314	1463	1578	1695	1810	1925	2085	2246	2406	2567	2727	2887		
140	25	76	128	179	230	259	288	317	346	375	475	575	680	785	868	950	1065	1180	1353	1525	1645	1765	1885	2005	2172	2339	2506	2673	2840	3007		
145	25	78	130	183	235	268	301	334	367	400	500	600	706	811	903	994	1108	1223	1402	1581	1706	1831	1956	2080	2253	2427	2600	2773	2946	3119		
150	25	79	133	186	240	277	314	351	388	425	525	625	731	838	938	1038	1151	1265	1451	1638	1768	1900	2030	2160	2340	2520	2700	2880	3060	3240		
155	25	80	135	190	245	286	327	368	409	450	550	650	757	864	973	1081	1194	1308	1501	1694	1850	1990	2130	2265	2454	2643	2831	3020	3209	3398		
160	25	81	138	194	250	295	340	385	430	475	575	675	783	890	1008	1125	1238	1350	1550	1750	1910	2070	2230	2380	2578	2777	2975	3173	3371	3569		
165	25	85	146	206	267	310	353	397	440	483	595	707	817	927	1038	1150	1283	1417	1600	1783	1943	2103	2263	2400	2600	2800	3000	3200	3400	3600		
170	25	90	154	219	283	325	367	408	450	492	615	738	851	963	1069	1175	1329	1483	1650	1817	1982	2132	2285	2425	2627	2829	3031	3233	3435	3637		
175	25	94	163	231	300	340	380	420	460	500	635	770	885	1000	1100	1200	1375	1550	1700	1850	2000	2150	2300	2450	2654	2858	3063	3267	3471	3675		
If after applying applicable credits the buffer zone distances are still greater than 1/5 mile (2,640 feet), then the application is prohibited.																																

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 8. Drip Tarp Buffer Zone Distances in Feet

	Application Block Size (Acres)																								
	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	110	120	
Broadcast Equivalent Application Rate (lbs Product/Acre)	60	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	35	40	
	65	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	40	50	50	55	60	
	70	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	45	60	60	60	65	65	
	75	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	45	60	60	65	70	75	
	80	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	38	45	53	60	60	65	70	75
	85	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	40	50	60	60	60	65	70	70	75
	90	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	40	60	60	60	60	81	88	90	97
	95	30	30	30	30	30	30	30	30	30	30	30	32	34	36	38	40	60	60	64	68	97	105	110	118
	100	30	30	30	30	30	30	30	30	30	30	30	32	34	36	38	40	60	60	68	77	114	123	130	140
	105	30	30	30	30	30	30	30	30	30	30	30	32	34	36	38	40	60	60	73	85	130	141	150	162
	110	30	30	30	30	30	30	30	30	30	30	30	35	39	44	49	53	77	93	108	122	146	158	170	183
	115	30	30	30	30	30	30	30	30	30	30	39	48	56	65	67	68	103	120	134	148	162	176	190	205
	120	30	30	30	30	30	30	30	30	30	30	45	60	68	75	80	85	140	140	153	165	193	209	226	243
	125	30	30	30	30	30	30	30	30	30	30	48	65	73	82	93	103	147	160	177	193	224	243	261	281
	130	30	30	30	30	30	30	30	30	30	30	50	70	79	88	105	122	153	180	201	222	255	276	297	319
	135	30	30	30	30	30	30	30	30	30	30	53	75	85	95	118	140	160	200	225	250	287	310	333	356
	140	30	30	30	30	30	33	36	39	42	45	69	93	105	122	145	167	192	230	257	283	318	343	369	394
	145	30	30	30	30	30	36	42	48	54	60	86	112	125	148	173	193	223	260	288	317	349	377	404	432
	150	30	30	30	30	30	39	48	57	66	75	110	130	145	175	200	220	255	290	320	350	380	410	440	470
	155	30	30	30	30	30	40	50	59	68	78	114	134	150	181	207	227	264	300	331	362	393	424	455	486
	160	30	30	30	30	30	42	51	61	70	80	117	139	155	187	213	235	272	309	341	373	405	437	469	501
	165	30	30	30	30	30	43	53	63	73	83	121	143	160	193	220	242	281	319	352	385	418	451	484	517
	170	30	30	30	30	30	44	54	65	75	85	125	147	164	198	227	249	289	329	363	397	431	465	499	533
	175	30	30	30	30	35	46	56	67	77	88	128	152	169	204	233	257	298	338	373	408	443	478	513	548
	180	30	30	30	30	35	47	58	68	79	90	132	156	174	210	240	264	306	348	384	420	456	492	528	564
	185	30	30	30	30	35	48	59	70	81	93	136	160	179	216	247	271	315	358	395	432	469	506	543	580
	190	30	30	30	30	35	49	61	72	84	95	139	165	184	222	253	279	323	367	405	443	481	519	557	595
	195	30	30	30	30	35	51	62	74	86	98	143	169	189	228	260	286	332	377	416	455	494	533	572	611
	200	30	30	30	35	40	52	64	76	88	100	147	173	193	233	267	293	340	387	427	467	507	547	587	627
	205	30	30	30	35	40	53	66	78	90	103	150	178	198	239	273	301	349	396	437	478	519	560	601	642
	210	30	30	30	35	40	55	67	80	92	105	154	182	203	245	280	308	357	406	448	490	532	574	616	658
	215	30	30	30	40	40	56	69	82	95	108	158	186	208	251	287	315	366	416	459	502	545	588	631	674
	220	30	30	30	40	40	57	70	84	97	110	161	191	213	257	293	323	374	425	469	513	557	601	645	689
	225	30	30	30	40	45	59	72	85	99	113	165	195	218	263	300	330	383	435	480	525	570	615	660	705



Table 9. Drip Buried Untarp Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (lbs Product/Acre)	Application Block Size (Acres)																								
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	110	120
20	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	44	61	77	88
25	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	47	66	84	102	120	138	165	193	220	242
30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	66	105	140	176	212	248	286	325	363	396
35	30	30	30	30	30	30	30	30	30	30	30	61	94	124	154	187	220	275	330	358	385	429	473	517	556
40	30	30	30	30	30	30	32	36	41	45	50	103	157	187	217	250	283	358	432	473	514	564	613	663	707
45	30	30	30	30	30	30	36	45	54	63	72	146	220	250	281	314	347	440	534	589	644	699	754	809	858
50	30	30	30	30	30	30	52	76	100	124	149	206	264	314	363	410	457	531	605	657	710	765	820	875	924
55	30	32	37	42	47	72	97	123	148	173	238	303	359	415	459	503	589	674	734	795	850	905	960	1009	
60	30	37	47	56	66	92	119	145	172	198	270	341	404	468	509	550	646	743	811	880	935	990	1045	1095	
65	30	44	61	77	94	121	149	176	204	231	314	396	454	512	561	611	715	820	875	930	990	1051	1111	1166	
70	30	50	72	94	116	145	174	203	232	261	353	446	510	575	627	679	787	894	968	1042	1119	1196	1273	1345	
75	30	55	83	110	138	168	199	230	261	292	393	495	567	638	693	748	858	968	1062	1155	1249	1342	1436	1524	
80	33	59	88	117	147	180	212	245	278	311	419	528	604	681	739	798	915	1033	1132	1232	1332	1431	1531	1625	
85	33	62	94	125	156	191	226	261	295	330	446	561	642	723	785	848	972	1097	1203	1309	1415	1521	1627	1727	
90	33	66	99	132	165	202	239	276	313	350	472	594	680	766	832	898	1030	1162	1274	1386	1498	1610	1723	1828	
95	39	70	105	139	174	213	252	291	330	369	498	627	718	808	878	947	1087	1226	1345	1463	1581	1700	1818	1930	
100	39	73	110	147	183	224	265	307	348	389	524	660	755	851	924	997	1144	1291	1415	1540	1665	1789	1914	2031	

Table 10. Drip Tarp Greenhouse Buffer Zone Distances in Feet

Application Block Size (square feet)	Buffer Zone (feet)
≤ 25,000	25
> 25,000 and ≤ 30,000	50
> 30,000 and ≤ 35,000	75
> 35,000 and ≤ 40,000	100
> 40,000 and ≤ 45,000	115
> 45,000 and up to 50,000	130

### Buffer Zone Credits

The buffer zone distances for TRI-CLOR FUMIGANT 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 Symmetry™ application system is used with a tarp that qualifies for a credit and the application rate is ≤ 100 pounds a.i./treated acre. The 10% credit for the Symmetry™ application system is added to the buffer zone credit for the tarp. For example if the Symmetry™ application system is used with a tarp that qualifies for a 40% credit the total credit for the tarp and the application system would be 50%.
- 15% reduction in buffer zone distance, IF potassium thiosulfate (KTS) is applied at a minimum rate of 300 pounds per acre.
- 15% reduction in buffer zone distance, IF ¼ to ½ inch of water is applied.
- 10% reduction in buffer zone distance, IF the organic content of the soil in the application block is ≥ 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 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/index.htm](http://www.epa.gov/pesticides/reregistration/soil_fumigants/index.htm)
  - The Buffer Zone signs must contain the following information:
    - The 'Do Not Walk' symbol
    - DO NOT ENTER/NO ENTRE,
    - TRI-CLOR FUMIGANT (Chloropicrin) 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 failures 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 supervising the application 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
    - Symmetry™ application system
    - Potassium thiosulfate
    - Water seal
    - 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
    - Protective eyewear (not goggles)
    - Chemical-resistant gloves
    - Air-purifying respirators
      - Respirator make, model, type, style, size, and cartridge/canister type
    - SCBAs
      - Respirator make, model, type, style, size
    - 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 [www.epa.gov/fumigantraining](http://www.epa.gov/fumigantraining) for the active ingredient(s) in this product.
  - For handlers designated to wear respirators (air-purifying respirator or SCBA):
    - 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 2 handlers have 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.
- Drip 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.
- 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 application. 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).
- 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.

**Spill and Leak Procedures**

Evacuate everyone from the immediate area of the spill or leak. For entry into affected area to correct problems, wear the personal protective equipment specified in the *Personal Protective Equipment (PPE)* section of this labeling. Move leaking or damaged containers outdoors or to an isolated location. Observe strict safety precautions. Work upwind, if possible. Allow spilled fumigant to evaporate or to absorb onto vermiculite, dry sand, earth, or similar absorbent material. Dispose of contaminated material on site or at an approved disposal facility. Only correctly trained and PPE-equipped handlers are permitted to perform such cleanup. Do not permit entry into the spill or leak area by any other person until the concentration of chloropicrin is measured to be 0.15 ppm or less.

**Warning Agent**

TRI-CLOR FUMIGANT may be used as a warning agent prior to fumigating with an EPA-registered sulfuryl fluoride product. When used as a warning agent prior to sulfuryl fluoride fumigations, users must follow requirements on the EPA-registered sulfuryl fluoride product.

***TRI-CLOR FUMIGANT is compatible  
when mixed with Chlorinated C<sub>3</sub> Hydrocarbons.***

### Storage and Disposal

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

**Pesticide Storage:** Store in a dry, cool, well-ventilated area under lock and key. Post as a pesticide storage area.

**Pesticide Disposal:** Pesticide 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 by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. When a cylinder is partially full, and there is no further requirement for the product, return the cylinder to the registrant or distributor. Replace safety cap and valve protection bonnet before shipping container.

**Container Handling:** Store cylinders upright, secured to a rack or wall to prevent tipping. Do not subject cylinders to rough handling or mechanical shock such as dropping, bumping, dragging, or sliding. Do not use rope slings, hooks, tongs or similar devices to unload cylinders. Transport cylinders using hand truck, fork truck or other device to which the cylinder can be firmly secured. Do not remove valve protection bonnet and safety cap until immediately before use. Replace safety cap and valve protection bonnet when cylinder is not in use.

**Return of Containers:** Cylinders are the property of the registrant or distributor and must be returned promptly after use. Do not ship cylinders without safety caps or valve protection bonnets.

**Refillable Container:** Only the registrant or distributor is allowed to refill this container. This container can be refilled with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

**Container Disposal:** To clean the container before final disposal, remove any remaining liquid from the container, using dry air pressure if necessary. Allow container to aerate for at least 5 days. After aeration, wash container using hot water; then offer container to qualified reconditioner or dispose of as directed by State or local regulations.

### WARRANTY

Seller warrants that this product conforms to the chemical description on its label and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use. To the extent consistent with applicable law, neither this warranty nor any other warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE, express or implied, extends to the use of this product in a manner contrary to its label.

# Tri-Clor Fumigant

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