

# Off-Site Mitigation Measures on Soil Fumigant Labels

Linda O'Connell  
Department of Pesticide Regulation  
Worker Health and Safety Branch

A thick, dark blue horizontal bar with rounded ends is positioned below the text, extending across the width of the text block.

# First Phase of Label Revisions (became effective December 2010)

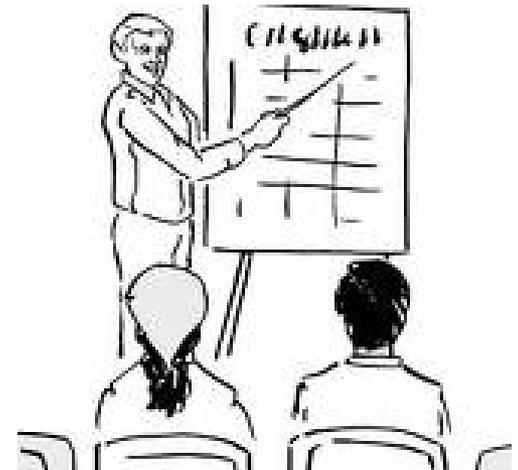
Included the following elements:

- All soil fumigants were classified as restricted use pesticides.
- List of required good agricultural practices.
- Handler respiratory protection.



# First Phase of Label Revisions (continued)

- Tarp restrictions.
- Rate reduction and use limitations.
- Training information for workers.
- Fumigant management plans.



## Second Phase of Revisions (tentatively scheduled for late 2011/early 2012)

This phase will include the following elements:

- Outreach to first responders
- Applicator training.
- Buffer zones.



# Second Phase of Revisions (continued)

- Application restrictions near difficult to evacuate sites.
- Emergency preparedness and response measures.
- Registrant training for first responder and community outreach programs.



*Community Outreach*



# Six categories of application methods allowed on the labels:

- Drip
- Hot gas
- Tarped
- Untarped
- Tree replant
- Greenhouse



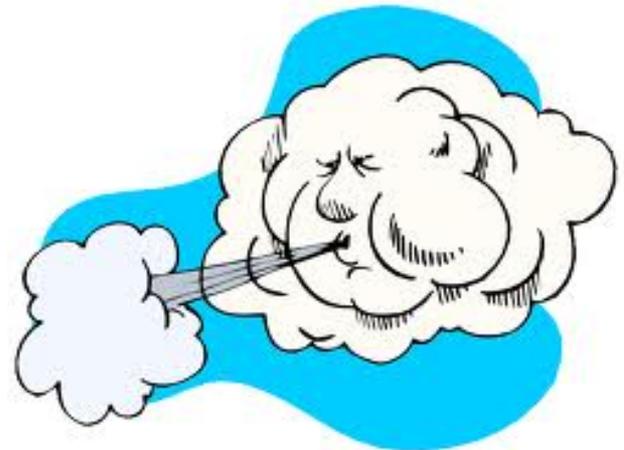
# Requirements that are the same for all application methods:

- Weather
- Soil Preparation
- Soil Temperature
- Soil Moisture



# Weather:

- The weather forecast for the day of the application and the 48 hour period following the fumigation must be checked to determine if unfavorable weather conditions exist or are predicted.

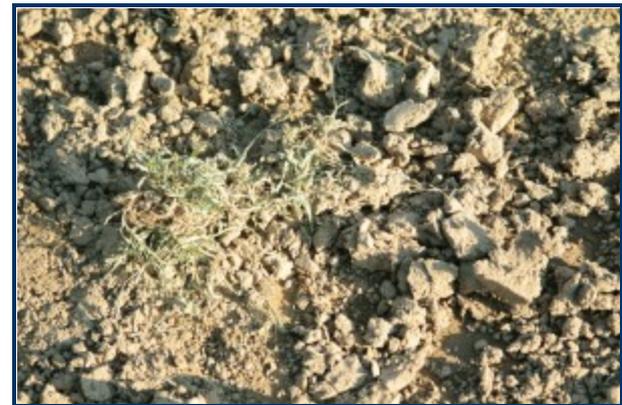


## Weather (continued)

- Wind speed at the field must be at least 2 mph at the start of the application and forecasted to reach at least 5 mph during application. No maximum wind speed.
- Do not apply if a shallow, compressed temperature inversion is forecasted to persist more than 18 consecutive hours during the 48 hours following application.

# Soil Preparation

- Soil must be in good tilth and free of large clods.
- Plant residue that is present must not interfere with the app. or soil seal.



# Soil Preparation

## Methyl Iodide:

- In the event trash pulled up after completing a treatment pass, the trash must be covered with tarp and edges of tarp must be buried under at least 4 inches of compacted soil before making the next pass.

# Soil Temperature:

- If air temperatures have been above 100 deg. F in any of the 3 days prior to application, then soil temperature must be measured and recorded.



# Soil Temperature:

## 1,3-D:

- The minimum soil temperature at the depth of injection is 40°F; the maximum must not exceed 90°F.

## 100% Chloropicrin:

- must not exceed 90°F.

## Methyl Iodide:

- Must not be less than 55°F or above 90°F.

# Soil Moisture:

- The soil must be moist 9 in. below the surface. If insufficient the moisture must be adjusted.
- There should be 50 to 75 percent available soil water moisture.



# Drip Application Methods:

	<b>1,3-D</b>	<b>100% Chloropicrin</b>	<b>Methyl Iodide</b>
Dripline Placement	Either on surface or buried at least 5 inches deep	Untarped – at least 5 inches deep Tarped – no depth requirement	2-4 inches deep
Tarp Required	Yes	No	Yes – highly retentive tarps
Days Before Perforation Allowed	5	5	14
Buffer Zone	100 feet. No buffer zone if another application is not made to the field for at least 3 years.	None	100 – 410 feet
Acreage Limitation	None	None	30 Acres

# Tarped Application Methods:

	<b>1,3-D</b>	<b>100% Chloropicrin</b>	<b>Methyl Bromide</b>	<b>Methyl Iodide</b>
Application Depth	Broadcast: 8 in. Bedded: 8 in.	Broadcast: 8 in. Bedded: 8 in.	Broadcast: 8 in. Bedded: 8 in.	Broadcast: 6 in. Bedded: 6 in.
Specific Type Tarp Required	no	no	Yes, by DPR regulations	Yes, by label requirement
Days Before Perforation Allowed	5	5	5	14
Buffer Zone	100 feet. No buffer zone if another applic. is not made to the field for at least 3 yrs.	None	100 – 4600 feet	Broadcast: 200 – 725 feet Bedded: 200 – 1395 feet
Acreage Limitation	None	None	100 Acres	20 Contiguous Acres

# Untarped Application Methods:

	<b>1,3-D</b>	<b>100% Chloropicrin</b>
Application Depth	Broadcast: 12 in. Bedded: 12 in. Deep: 18 in.	Broadcast: 12 in. Bedded: 10 in. Deep: 18 in.
Buffer Zone	100 feet. No buffer zone if another application is not made to the field for at least 3 years.	None
Acreage Limitation	None	None

# Greenhouse Applications: Drip 1,3-D and 100% Chloropicrin

- The maximum area that can be treated is 50,000 ft<sup>2</sup>.
- All applications must be tarped.
- During the application, keep doors, vents and windows to the outside open and fans or other mechanical ventilation systems running within the application block.
- Leaks through which gases could enter adjacent enclosed areas must be sealed.

# Tree Replant Applications: 1,3-D and Methyl Bromide

- This application method is applied to individual tree sites in an existing orchard where shank or drip applications are not possible.
- The maximum rate for applications to individual tree holes using hand-held equipment is 1.0 lb Product/100 ft<sup>2</sup> in light soils and 1.5 lb Product/100 ft<sup>2</sup> in fine-textured soils.

# Tree Replant Applications: 1,3-D and Methyl Bromide (continued)

- The fumigant must be injected at least 18 inches into the soil.
- Maximum acreage limitation is 40 acres for methyl bromide.



# Hot Gas Application: Methyl Bromide Only

## Outdoor applications:

- All applications must be tarped.
- A maximum of 10 acres allowed for outdoor hot gas applications.



# Hot Gas Application: Methyl Bromide Only (continued)

## Preplant Soil Fumigations in Greenhouses:

- During the application, keep doors, vents and windows to the outside open and fans or other mechanical ventilation systems running within the application block.
- Leaks through which gases could enter adjacent enclosed areas must be sealed.
- A maximum of 45,000 ft<sup>2</sup> for greenhouse hot gas applications.

# Hot Gas Application: Methyl Bromide Only (continued)

## Hot Gas Applications to Soil and Potting Mixes:

- Fumigation should take place outdoors or in a well ventilated area away from desirable plants or occupied buildings.
- The soil/potting mix material must be at least 60°F but must not exceed 90°F. The material must be loose and moist enough for good seed germination.
- To ensure a good seal, pile the potting soil mix material on a concrete floor or wet ground.

## Hot Gas Application: Methyl Bromide Only (continued)

- Pile to a depth of 18 inches. Piles two to three feet high can also be treated provided perforations are made in the pile surface at one foot intervals to assist penetration.
- Cover with a tarp that is 4 mil or greater in thickness.
- Seal the edges of tarps by burying, covering with moist sand, or soil or by means of sand snakes.

# The End or... just the Beginning?

