Module 5
Soil Fumigant RED Requirements

Protections for Handlers & Workers (2010)
Restricted Use Pesticide Classification

**Before reregistration:**
- Restricted use:
  - *methyl bromide*
  - *1,3-dichloropropene*
  - *chloropicrin*

- **Non**-restricted use products
  - *(most)* *metam sodium/potassium*
  - *(most)* *dazomet*

**After reregistration:** ALL are restricted use
Who is a “handler”?

A person in:

from start of application to end of:

1. application block
   entry restricted period

2. buffer zone
   buffer zone period
Handler activities include:

- Participating in the application
  - as supervisors, loaders, drivers, tractor co-pilots, shovelers, cross ditchers, or as other direct application activities;
- Using air sampling devices to monitor fumigant concentrations;
- Cleaning up fumigant spills
- Handling or disposing of fumigant containers;
- Cleaning, handling, adjusting, or repairing parts of equipment that may contain fumigant residues;
- Installing, repairing, operating, or removing irrigation equipment in application block or buffer zone;
- Entering application block or buffer zone to perform scouting, crop advising, or monitoring tasks;
- Installing, perforating, removing, repairing, or monitoring tarps;
- Performing any handling tasks as defined by the Worker Protection Standard.
Supervision of Handlers

Non-water run applications (e.g., shank, hot gas)
- “Certified applicators must be at the fumigation site in the line of sight of the application and must directly supervise all persons performing handling activities”

Water run applications (e.g., center pivot, drip)
- Certified applicator must be at site to begin the application
- Certified applicator or handlers under supervision of certified applicator must return every two hours to check on application
- Handlers communicate with certified applicator via cell phone or other means
Respiratory Protection for Handlers

If experiencing sensory irritation, handlers must either:

1. Stop work, leave area and monitor air concentrations
   • Resume work only when concentrations are below trigger level and irritation is gone
   OR

2. Wear a respirator & resume work
   - Measure air concentration every 2 hours
   - Stop work if having sensory irritation while wearing respirator, or measured concentration exceeds upper working limit of respirator
   • If still having sensory irritation, can resume work only when concentrations are below trigger level, irritation is gone, and have changed respirator cartridge

Note: air purifying respirators are required for methyl bromide products with less than 20% chloropicrin
Figure A. Requirements when handlers cease operations

1. Handler activity begins. Handlers are NOT wearing APRs.

2. Sensory Irritation

3. Certified applicator in charge decides to cease operations rather than continue with respirators.

4. Handlers must stop work and leave application block and buffer zone.

5. If 2 samples taken at least 15 minutes apart show concentrations are less than the label action level and nobody has sensory irritation, then

6. Resume operations.
Figure B. Requirements when handlers resume work while using a respirator

Handler activity begins. Handlers are NOT wearing APRs.

Sensory Irritation

Certified applicator in charge decides to resume operations.

All handlers in the application block and buffer zone put on an APR. Air monitoring program begins.

Feel irritation through APR, OR monitoring indicates concentrations above max use concentration (MUC) for APR

Handlers must stop work and leave application block and buffer zone.

If, 2 consecutive samples taken at least 15 mins apart, by a handler wearing an APR are above the label trigger level BUT less than the MUC, no sensory irritation is felt, and the cartridge is changed, then

Resume operations wearing an APR. Air monitoring continues.

If 2 consecutive samples taken at least 15 minutes apart, by a handler wearing an APR, are less than the label trigger level and NO sensory irritation, then

Resume operations without an APR or remove respirator.
## Number of Handlers and Respirators Required On-site During Handler Activities

<table>
<thead>
<tr>
<th>Product/Formulation</th>
<th>Min # of Handlers</th>
<th>Min # of Air-Purifying Respirators</th>
<th>Min # of SCBAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl bromide or chloropicrin combo product with ≥ 20% chloropicrin</td>
<td>2</td>
<td>2 Full-face</td>
<td>1</td>
</tr>
<tr>
<td>Methyl bromide product with &lt; 20% chloropicrin</td>
<td>2</td>
<td>2 Half-mask</td>
<td>1</td>
</tr>
<tr>
<td>Metam sodium/potassium</td>
<td>1</td>
<td>1 Full-face</td>
<td>0</td>
</tr>
<tr>
<td>Dazomet</td>
<td>1</td>
<td>1 Full-face</td>
<td>0</td>
</tr>
</tbody>
</table>
Handlers who use respirators must be:

- fit-tested
- trained
- physically fit to wear a respirator*


Module 5: Protections for Handlers & Workers
1. True or False?

All handlers who use a respirator must be fit tested, trained, and pass a full medical exam.
Review Question

2. How many air purifying respirators must be on site when applying a 100% chloropicrin product?

a. at least one
b. at least two
c. one for each handler
Tarp Perforation & Removal

Perforation
- 5 days after fumigant application is complete

Removal
- 2 hours after perforation is complete

Planting
- Less than 14 days after application:
  - Plant 48 hours after tarp perforation is complete
- 14 days or more after application:
  - Perforate and plant simultaneously
Early Tarp Perforation & Removal

Early removal (before 5 days) for broadcast applications
- Only if integrity of tarp is compromised by adverse weather conditions & tarp poses a safety hazard

Early perforation - flood prevention activities
Tarp Perforation Requirements - Manual Perforation

- May only occur:
  - At the beginning of each row when a coulter blade is used on a motorized vehicle such as an ATV
  - In fields that are 1 acre or less
  - During flood prevention activities
- If these conditions are not met, they must use mechanical methods
Tarp Perforation Requirements - Broadcast Applications

- Must perforate *each panel* of tarp
- Complete before noon
- Cannot perforate if rainfall is expected within 12 hours
Review Questions

3. Under normal conditions, how long must handlers wait before they can perforate tarps?

4. Can planting and perforation take place at the same time? If so, when?

5. True or False?
   Manual perforation is never allowed.
Review Question

6. Seventy-two hours after a broadcast application, part of a tarp blows off a field. The remaining tarp could blow onto a nearby road.

Can the tarp be removed?
Entry Restricted Period

- Old labels allow reentry after 48 hours
- Reentry time lengthened
  - Highly variable fumigant dissipation rate (soil conditions, application method, and tarp type) so could still have high concentrations after 48 hours

Entry Restricted Period ≠ REI
Four Scenarios for Entry Restricted Periods
### Entry Restricted Period by Scenario

<table>
<thead>
<tr>
<th>If application is...</th>
<th>and tarp is...</th>
<th>_______ days after application is completed</th>
<th>workers may enter...</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Untarped</td>
<td>-</td>
<td>-</td>
<td>5 days after application is complete</td>
</tr>
<tr>
<td>2. Tarped</td>
<td>Perforated &amp; Removed</td>
<td>within 14 days</td>
<td>after tarp is removed</td>
</tr>
<tr>
<td>3. Tarped</td>
<td>Perforated BUT Not Removed</td>
<td>within 14 days</td>
<td>48 hours after perforating tarps</td>
</tr>
<tr>
<td>4. Tarped</td>
<td>Perforated and/or Remove</td>
<td>more than 14 days</td>
<td>5 days after application is complete</td>
</tr>
</tbody>
</table>
Scenario 1 - Entry Restricted Period for Untarped Applications

5 days after application is complete

Shank Untarped

Drip Untarped

Center Pivot
Scenario 1 – Example of Entry Restricted Period for Untarped Application

- Application Begins
- Buffer Zone Period Begins
- Entry Restricted Period Begins
- Application Ends
  - 10am Mon
- Buffer Zone Period Ends
  - 10am Weds
- Entry Restricted Period Period Ends
  - 10am Sat

5 days (120 hours)
48 hours

Module 5: Protections for Handlers & Workers
Scenario 2 - Entry Restricted Period for Tarped Applications

If tarps are perforated & removed less than 14 days…

Enter after tarp is removed
Scenario 2 – Example of Entry Restricted Period for Tarped Application

Application Begins

Buffer Zone Period Begins

Application Ends

Buffer Zone Period Ends

Entry Restricted Period Begins

Tarp Perforation Begins

5 days (120 hours)

Tarp Perforation Ends

Buffer Zone Period Begins

Tarp Perforation Begins

48 hours

Tarp Perforation Ends

5 days (120 hours)

Tarp Removal Begins

Tarp Removal Ends

10am Weds

10am Fri

10am Mon

11am Mon

1pm Mon

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Scenario 3 - Entry Restricted Period for Tarped Applications

When tarps remain on field at least 14 days, **but perforated within 14 days**…

→ Enter 48 hours after perforating tarps
Scenario 3 – Example of Entry Restricted Period for Tarped Application

- **Application Begins**
- **Buffer Zone Period Begins**
- **Entry Restricted Period Begins**
- **Application Ends**
- **Buffer Zone Period Ends**
- **Tarp Perforation Begins**
- **Tarp Perforation Ends**
- **Planting Can Begin**

- **5 days (120 hours)**
- **48 hours**
- **3pm Weds**
- **3pm Fri**
- **2pm Weds**
- **2pm Fri**

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Scenario 4 - Entry Restricted Period for Tarped Applications

When tarps remain on field at least 14 days and are *not perforated* for 14 days or more...

Enter after 5 days

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Scenario 4 – Example of Entry Restricted Period for Tarped Application

Application Begins

Buffer Zone Period Begins

Entry Restricted Period Begins

5 days (120 hours)

48 hours

Application Ends
10am Tues

Buffer Zone Period Ends
10am Thurs

Entry Restricted Period Ends
10am Sun

tarps will not be perforated until a month after the application and the tarps will not be removed until 3 months after the application

Tarp Perforation & Planting

14 days

Module 5: Protections for Handlers & Workers
Review Questions

True or False?

7. Handlers can enter a treated field before the entry restricted period expires.

8. An application to a tarped bedded field is completed at 5 pm on Monday. Tarps will not be perforated for 3 weeks. When can workers reenter the field?
9. True or False?

Removing irrigation equipment in the treated area 48 hours after the application has stopped is NOT a handler activity.
Summary

- All soil fumigants will be restricted use
- “Handlers” is defined – and activities listed on label
- Handlers must stop work or wear a respirator if experiencing sensory irritation
- Tarps must remain on treated fields for 5 days after application, with some exceptions
- Only protected handlers can enter the application block during the entry restricted period
- Entry restricted period varies by application scenario
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