



- Doing a World of Good

Vapam[®] and K-PAM[®]
Soil Fumigant
Phase II Label Update

2011 Label Changes (Phase I)

- **Personal Protective Equip changes**
- **5 day re-entry**
- **Good Agricultural Practices**
- **Fumigation Management Plans**
- **Became Restricted Use (EPA)**
- **Site Monitoring (EPA)**
- **Posting Requirements (EPA)**
- **Handler/Applicator Training (EPA)**

Metam Sodium/Potassium

2012 Label Changes (Phase II)

- **New label approved by EPA during the 2nd Quarter of 2012.**
- **Operate on New Label December 1, 2012.**
- **2012 label requirements: Buffer zones, Buffer credits, Buffer monitoring, Overlap restrictions.**
- **New EPA required training course certification.**

Metam Sodium/Potassium

2012 Label Changes (Phase II)

- **Private Applicator online training required every 3 years.**
- **QAL & OAC with a category O are not required any additional training except County conditions.**
- **Online Module courses 1-4 on fumigation.**
- **Complete Active Ingredient Module(s).**
- **www.fumiganttraining.com**

Handlers

- Metam training does not replace several separate training requirements for pesticide handlers.
 - Pesticide handler training
 - Worker Protection Standard (WPS) training
 - Hazard communication training
 - Respirator training
- Metam training is provided to address the special characteristics of the product and is not meant to replace other essential training programs.

Handlers


- 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.

Metam General Precautions

Posting Specific for Soil Fumigation

- **Restricted-Entry interval – 5 days**
- **Field Posting – Every corner, every entrance and every 600 foot on a well traveled road**

DANGER/PELIGRO
AREA UNDER
FUMIGATION



DO NOT ENTER

FUMIGATED ON: _____ DATE _____ TIME _____


METAM SODIUM PRODUCT IN USE

NAME OF APPLICATOR _____ PHONE NUMBER _____

ADDRESS _____



KEEP OUT - NO ENTRE



PESTICIDES IN IRRIGATION WATER
PESTICIDAS EN AGUA DE RIEGO

Fumigated on: _____ Date _____ Time _____
(METAM SODIUM) Fumigant in use

Product Name _____

Name of Applicator _____ Phone Number _____

Address _____

Metam Safety

Personal Protective Equipment (PPE)

- **Handlers wearing chemical resistant suit are limited to 30 min. in any 60 min. period.**
- **Protective eyewear are to be of the sealing, non-venting type.**
- **Respirators must be 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 (NOISH approval number prefix TC-14G)**

Metam Safety

Respiratory Protection and Stop Work Triggers

- **If a handler experiences sensory irritation then either:**
 - * **a respirator must be worn by all handlers who remain in the application block or surrounding buffer zone, or**
 - * **Operations must cease and handlers not wearing an air-purifying respirator must leave the application block and surrounding buffer zone.**
- **Respirators may be removed when 2 consecutive air samples taken at least 15 min. apart (at the site of irritation) are less than 600 ppb MITC providing handlers no longer experience sensory irritation. During the collection of air samples, an air purifying respirator must be worn by the handler taking the air samples.**

Metam Safety

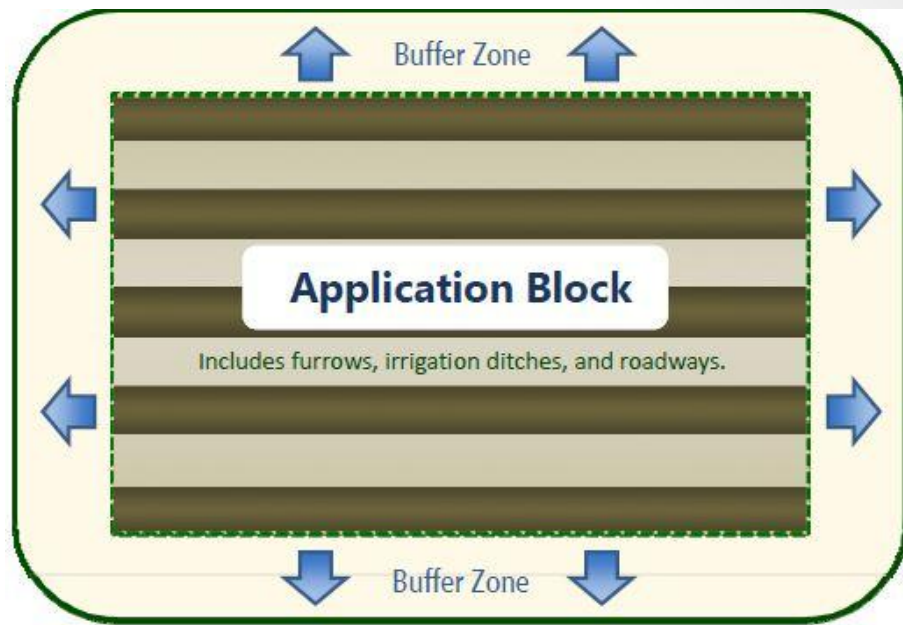
Respiratory Protection and Stop Work Triggers

- **Direct read monitoring devices such as Draeger or Sensidyne are approved. The devices must have a sensitivity of a least 600 ppb (0.6 PPM) for MITC.**
- **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 wearing respirator air samples must be collected at least every 2 hours.**
- **If a handler wearing a respirator experiences sensory irritation or an air sample is 6000 ppb or greater then all handler activities must cease and handlers must be removed from the application block and surrounding buffer zone.**
- **Work may resume if 2 consecutive air samples are less than 6000 ppb and respirator (with new cartridges) is worn and sensory irritation is not experienced.**

Site Monitoring

- **Ground applications:** The certified applicator must be at the site, in line of sight of the application and directly supervise all handlers at all times.
- **Chemigation applications:** The certified applicator must be at the site in the line of sight of the application to start the application including set up, calibration, and start. May leave after start up but must return every 2 hours to monitor. A trained handler may perform the monitoring functions if under the supervision of certified applicator & able to be in direct communication with the certified applicator at all times.

Buffer Zones



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 last for a minimum of 48 hours after the application is complete. Non-handlers must be excluded for the buffer zone during the buffer zone period.

Buffer Zones

Buffer Zone Proximity

- Before the start of application, the certified applicator must determine whether their buffer zone will overlap any metam sodium and metam potassium (or other MITC generating pesticides) buffer zone(s).
- To reduce the potential for off-site movement from multiple fumigated fields, buffer zones from multiple metam sodium and metam potassium (or other MITC generating pesticides application blocks must not overlap UNLESS:
- A minimum of 12 hours have elapsed from the time the earlier application(s) for which a buffer is in place end(s) until the later application begins.

Buffer Zones

Buffer Zone Proximity

- Emergency preparedness and response measures have been implemented if there are any residences or businesses within 300 feet of any of the buffer zones.
- A buffer zone may NOT overlap buffer zones from other application blocks which are already in effect UNLESS both application blocks are treated using low release height-solid stream center pivot systems. The 12 hour waiting period does not apply in this instance.

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:
- The storage buildings are not occupied during the buffer zone period, and
- The storage buildings do not share a common wall with an occupied structure.

Buffer Zones

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:**
- **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**
- **Reentry by occupants and other non-handlers must not occur until,**
 - The buffer zone period has ended, and
 - Sensory irritation is not experienced upon re-entry.

Buffer Zones

Areas not under the control of the owner of the application block

- **Buffer zones must not include agricultural areas owned and/or operated by persons other than the owner of the application block, UNLESS:**
 - **The owner of the application block can ensure that the buffer zone will not overlap with a metam sodium and metam potassium (or other MITC generating pesticides) buffer zone from any other property owners, except as provided in the Buffer Zone Proximity section, and**
- **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

Areas not under the control of the owner of the application block

- **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.)

Buffer Zones

Areas not under the control of the owner of the application block

- **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:**
- **The area is not occupied during the buffer zone period,**
- **Entry by non-handlers is prohibited during the buffer zone period, and**
- **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**

Buffer Zones

Difficult to Evacuate Sites:

- Pre-K to Grade 12 schools.
- State licensed daycare centers.
- Nursing homes, assisted living facilities.
- Hospitals, in-patient clinics.
- Prisons.

Buffer Zones

BUFFER RESTRICTIONS FOR DIFFICULT TO EVACUATE SITES

- 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.

Buffer Zones

Triggers for Emergency Preparedness and Response Measures:

- The buffer zone is greater than 25 feet or 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

Buffer Zones

Triggers for Emergency Preparedness and Response Measures:

- 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 of application blocks overlap, and there are residences or businesses within 300 feet from the outer edge of the buffer zone.

Buffer Zones

Triggers for Emergency Preparedness and Response Measures:

Buffer Zone Size	Distance to Occupied Area
25 Feet	0
>25 FT \leq 100FT	50FT
>100FT \leq 200FT	100FT
> 200FT \leq 300FT	200FT
> 300 FT	300FT

Buffer Zones

Buffer Zone Monitoring

- 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 25 feet, then neither the Fumigant Site Monitoring nor the Emergency Preparedness and Response requirements are applicable

Buffer Zones

Buffer Zone Monitoring

- No Buffer Zone monitoring is required if:
- Response Information for Neighbors is provided.

Buffer Zones

Response Information for Neighbors

- The certified applicator supervising the application (or someone under his/her supervision) must ensure that residences and businesses that trigger the requirement have been provided the emergency 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. After 4 weeks, the information must be delivered again.

Buffer Zones

Response Information for Neighbors

- The general 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.

Buffer Zones

Buffer Zone Monitoring

(Rather than providing response info for neighbors.)

- From the start of the application until the buffer zone period expires, a certified applicator or someone 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

Buffer Zones

Buffer Zone Monitoring

(Rather than providing response info for neighbors.)

- **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.**

Buffer Zones

EMERGENCY RESPONSE PLAN

- The certified applicator must include in the FMP a written emergency response plan that identifies:
 - Evacuation routes and assembly sites,
 - Locations of telephones,
 - Contact information for company safety personnel, first responders, and local/state/federal/tribal personnel, and
- Emergency procedures/responsibilities (e.g., applying water seal to the field, repairing tarps, fixing equipment, evacuating upwind, preventing site entry by unauthorized personnel) if:
 - o there is an incident,
 - o sensory irritation is experienced outside of the buffer zone, and/or there are equipment/tarp/seal failure or complaints, or other emergencies.

Buffer Zones

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 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, pivot roads, 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.

DO NOT ENTER/
NO ENTRE



FUMIGANT _____
PRODUCT _____
Fumigant BUFFER ZONE
Certified applicator
in charge of the fumigation: _____
Phone: _____

Buffer Zones

Posting Fumigant Buffer Zones

- 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.
- 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.



FUMIGANT _____
PRODUCT _____
Fumigant BUFFER ZONE
Certified applicator
in charge of the fumigation: _____
Phone: _____

Buffer Zones

DO NOT ENTER/
NO ENTRE

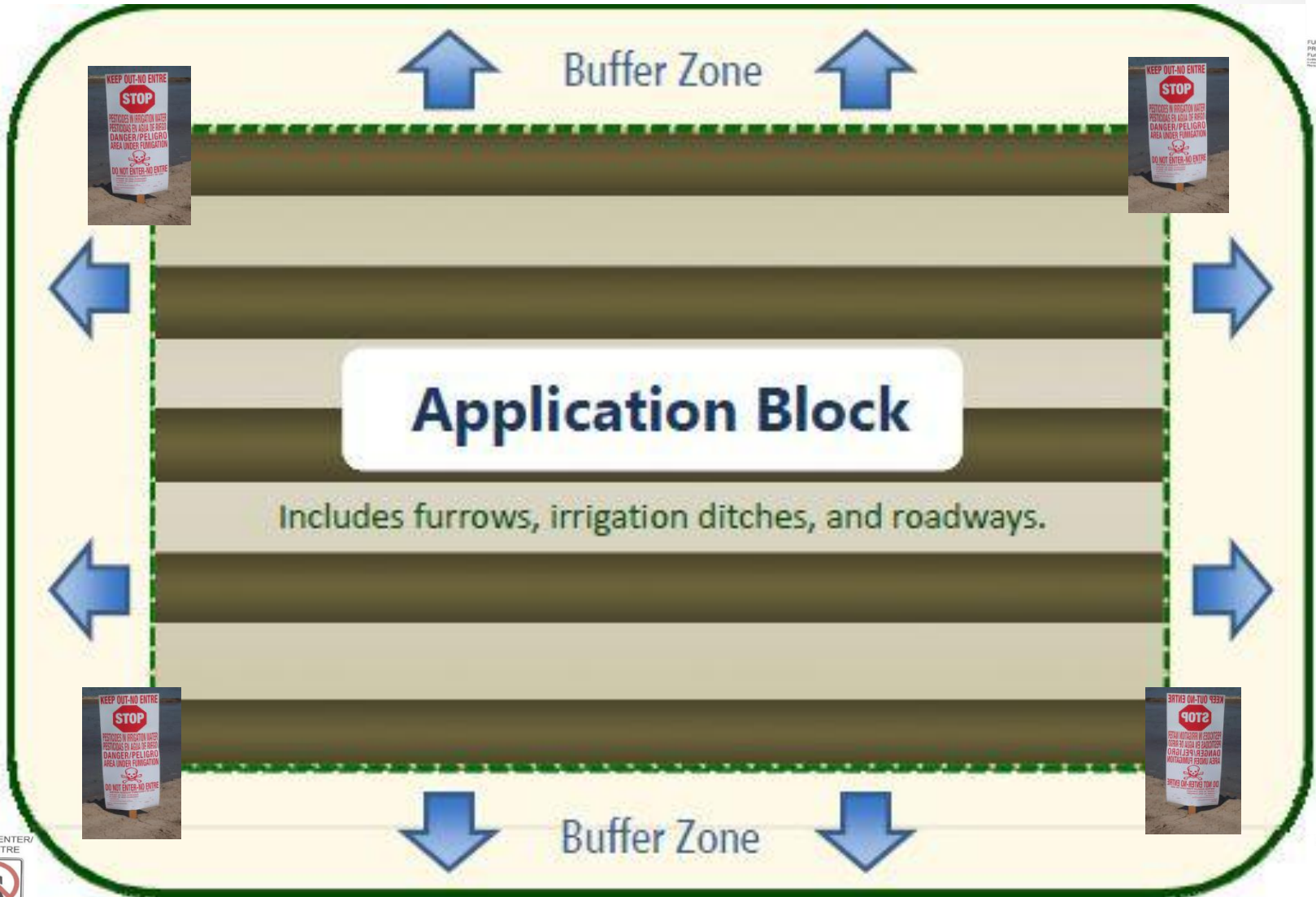


FUMIGANT
PRODUCT
Fumigant BUFFER ZONE

DO NOT ENTER/
NO ENTRE



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PRODUCT
Fumigant BUFFER ZONE



DO NOT ENTER/
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PRODUCT
Fumigant BUFFER ZONE

Buffer Zones

Buffer Zone Credits (Max Credit 80%)

Soil Temp $\leq 50^{\circ}$ F	10%
High Barrier Tarp	10 or 20 or 30%
$\geq 1\%$ - 2% OM	10%
>2% - 3% OM	20%
>3%	30%
Clay content $\geq 27\%$	10%

Buffer Zones

Tarp Credits

- **10 % reduction in buffer zone distance, IF using Canslit Metalized Black, Canslit Metalized White, Pliant Metalized, Olefinas Embossed VIF, Guardian AgroPlastics VIF, Cadillac VIF, Ginegar VIF, XL Black Blockade (0.00125”), Pliant Blockade, or FilmTec VIF tarps.**
- **20 % reduction in buffer zone distance, IF using Mid South VIF, Dow SARANEX A, Dow SARANEX B, Ginegar Ozgard, Hytiblock 7 Black (0.00125”), Hytibar (1.5 mil), Klerks VIF, or Klerk Hytibar VIF tarps.**
- **30% reduction in buffer zone distance, IF using Eval/Mitsui TIF (1.38 mil), Berry EVOH-Supreme Barrier, AEP-One, Berry EVOH-High Barrier, Berry High Barrier w/improved toughness, Raven TIF “VaporSafe™” (1.0 mil), or Raven TIF “VaporSafe™” (1.4 mil) tarps.**

Buffer Zones

Buffer Zone Tables

Please Refer to the Label

- **Shank Injection Application -Broadcast Page 38**
- **Shank Injection Application -Broadcast with Water Seal Page 39**
- **Shank Injection Application -Bedded Page 40**
- **Spray Blade and Rotary Tiller – Page 41**
- **Center Pivot and Lateral Move - High Release Height Page 42**
- **Center Pivot and Lateral Move - Med Release Height Page 43**
- **Center Pivot and Lateral Move - Low Release Height Page 44**
- **Solid Set Sprinkler - Page 45**
- **Drench Application - Page 46**
- **Drip Application - Page 47**
- **Flood Basin, Furrow, and Border Application - Page 48**
- **Weed Sprayer Application - Page 49**

Buffer Zones

Broadcast Equivalent Rate

Banded Applications

Pounds or Gallons Product/ treated acre applied in the strip or bed	x	<u>Strip or Bed Bottom width (inches)</u> Center to Center Row Spacing (inches)	=	Broadcast Equivalent Rate (pounds or gallons product per acre)
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Broadcast Rate (applied in a band)

- X % of row treated (60" center to center, 30" treated= 50%)
- 38 gal/ac. X 50% = 19 gal/ac. Broadcast EQ

(This matters because the buffer zone distance is calculated on the Broadcast EQ)

Buffer Zones

Buffer Zone Example

Shank, Bedded, Tarped

- 30 acres
- 35 gpa (150 ai)
- 1.1% OM
- Dow SARANEX B tarp
- Soil Moisture 65%
- Clay content 13%
- Soil temp. 60° F
- Row spacing 60", treated area 30"

Buffer Zones

Buffer Zone Example

- **Broadcast EQ rate: (% of row treated = 50%) 50% of row rate (50% of 150 ai = 75ai Broadcast EQ)**
- **Gross buffer = 75' (from look up table)**
- **10% for 1.1 % OM**
- **20% for Dow tarp (from tarp look up table)**
- **Buffer Credits: 30% total, 75' – 22.5' (30% of 75')
= 52.5' net buffer zone**

Fumigation Management Plan

FMP

- Must be completed before the application.
- A post FMP must be completed within 30 days after the application.
- Must be kept for two years.
- www.cdpr.ca.gov/doc/enforce/prenffrm/prenfmnu.htm
- www.agrian.com
- www.cdms.net
- www.epa.gov/oppsrrd1/reregistration/soil_fumigants

Fumigation Management Plan

FMP Additions after 12/1/2012

- Buffer zones.
- Buffer zone posting.
- Monitoring/notification requirements.
- Emergency response.

Fumigation Management Plan

FMP Additions after 12/1/2012

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.
- Locations of difficult to evacuate sites with distances from the application block labeled.

Fumigation Management Plan

FMP Additions after 12/1/2012

- Certified Applicator Supervising the Application must include on the FMP his/her:
- Date and location of completing EPA approved soil fumigant, registrant provided training program for certified applicators.

Fumigation Management Plan

FMP Additions after 12/1/2012

- Application method.
- Injection depth.
- Application rate from lookup table on label.
- Application block size from lookup table on label.
- Credits applied and measurements taken (if applicable)
 - *Tarp brand name, lot number, thickness, manufacturer, batch number, and part number.
 - *Organic matter content .
 - *Clay content.
 - *Soil temperature.

Fumigation Management Plan

FMP Additions after 12/1/2012

- Buffer zone distance.
- 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.

Fumigation Management Plan

FMP Additions after 12/1/2012

- Posting of Fumigant Treated Area and Buffer Zone
- Person(s) who will post and remove (if different) Fumigant Treated Area and Buffer Zone signs.
- Location of Buffer Zone signs.

Fumigation Management Plan

FMP Additions after 12/1/2012

Site specific Buffer zone monitoring:

(rather than providing Response info for neighbors)

- When and where conducted; minimum of 8 times, 4 per day:
 - *1 hour before sunset,
 - *during the night,
 - *1 hour after sunrise, and
 - *during daylight hours.
- Who monitored the buffer zone (could be different people at the various times).

Fumigation Management Plan

FMP Additions after 12/1/2012

Emergency response plan for Buffer Zone sensory irritation (and action taken, if applicable).

Information Resources

- Participants are encouraged to contact Amvac for further information on Metam products
 - **Amvac Telephone: 1-888-468-2726**
 - **Amvac Internet: <http://www.amvac-chemical.com>**
- Metam Resources
 - www.agrian.com
 - www.cdms.net
 - www.cdpr.ca.gov
 - [www.epa.gov/oppsrrd1/reregistration/soil fumigants/](http://www.epa.gov/oppsrrd1/reregistration/soil_fumigants/)
 - www.fumiganttraining.com

EPA Fumigation Certification

- *All private Applicators are required to complete an EPA approved course every 3 years.*
- *www.fumiganttraining.com*
- *You must achieve a score of 70% to pass.*
- *Certification will be emailed to participants who have passed.*