

# Personal Protective Technology Use Among North Carolina Farms Applying Soil Fumigants

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## Overview – Re-registration Eligibility Decisions (REDs)

•EPA routinely reviews pesticide registration packages to verify compliance with current guidelines

•The following fumigants were reviewed as a cluster but separate REDs were issued:

- Methyl Bromide
- Chloropicrin
- Metam Sodium/Metam Potassium
- Dazomet

## Risk Mitigation Measures Summary

### Phase 1: 2010 Labels – 2011 Implementation

- Restricted use classification
- Re-entry restrictions
- Safety information for handlers
- Mandatory good agricultural practices (GAPs)
- Fumigant Management Plans
- Handler respiratory protection**

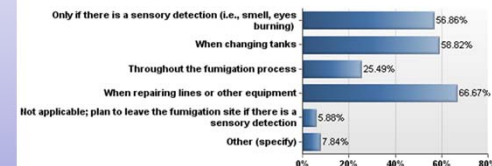


### Phase 2:

- Buffers and buffer posting
- Buffer zone monitoring and/or neighbor notification
- Restrictions near difficult to evacuate sites
- Registrant-provided training for applicators and community outreach programs

## Tasks Associated with Respiratory Protection

Although Risk Mitigation Measures require respiratory protection in the event of a sensory detection and individuals plan to continue working, respondents indicate that they are more likely to use respiratory protection when repairing lines or other equipment.



## Overview – Toxicity

Fumigant	Health Effects	Regulatory Basis
Metam Sodium	Liquid formulation that rapidly converts to MITC; causes eye irritation and respiratory problems	Human eye irritation study
Chloropicrin	Eye, nose, throat, and upper respiratory irritation	Human eye irritation study
Methyl Bromide *	General neurotoxic & developmental effects; depletion of ozone layer	Rabbit Developmental Study

\*Products containing methyl bromide also contain chloropicrin at irritating concentrations

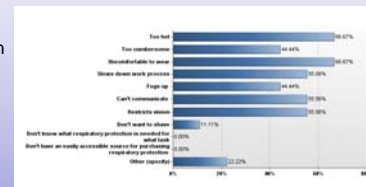


## Handler Respiratory Protection

- New labels require handlers to stop work or use respirators if air concentrations exceed acceptable limits. For most activities, sensory detection triggers respiratory protection requirements or handlers have to cease work and leave application block
- At least 1-2 handlers (depending on product) must have air-purifying respirator available and have been fit-tested, trained, and medically cleared for respirator use

## Barriers to Use of Respiratory Protection

Respondents selected heat, discomfort, and impaired function as primary barriers to use of respiratory PPE.



## EPA Concerns and REDs

### Concerns

- Current use practices and product labels were not providing workers and bystanders with adequate protection to prevent inadvertent exposure to fumes
- Need to ensure a level playing field across all soil fumigants and geographical regions

### REDs

- Regulatory decisions issued July 2008 with additional public comment on implementations aspects
- Widespread feedback that risk mitigation measures (RMMs) were excessive
- Final amended decisions in June 2009 with revised labels effective December 31, 2010
- Risk Mitigation Measures implemented in two phases – 2011 and 2012

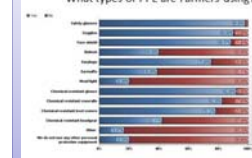
## Study Population, Methods, & Response Rate

- Study population consisted of 700 farmers & farmworkers receiving medical clearance and respirator fit testing in 2011 through the North Carolina Agromedicine Institute's Risk Mitigation Measures (RMM) project to comply with EPA Phase I RMM for soil fumigants
- Study instrument consisted of a 32 question survey with 'check all that apply', single choice, yes/no, short answer, and open ended questions
- Questions addressed services received through RMM project, information on crops, location, and acreage being fumigated, personal protective equipment use, and respondent demographics.
- Link to complete survey electronically was emailed to participants in Spring 2011. Due to low response rate, hard copies of survey were mailed in Summer 2011 with preaddressed return envelopes enclosed.
- Response rate after both rounds of dissemination was ~ 10%



## Other PPE Being Used

### What types of PPE are Farmers using?



The majority of farmers report use of:

- eye protection (i.e., goggles, safety glasses, face shield)
- skin protection (i.e., gloves, coveralls, boot covers)
- hearing protection (i.e., ear muffs, ear plugs)

## Conclusions

- Response rate may be increased by shorter survey administered in person at farm shows, commodity meetings, pesticide applicator trainings
- Heat, comfort, & function should be considered when designing respiratory protection
- Respondents are aware of potential risks for exposure other than those related solely with fumigant application.

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