Fumigation Management Plan

TriEst
Ag Group, Inc.

Chad Hutchinson, TriEst Ag Group
Director of Research

Fumigation Management Plan...

- Introduction
- Soil Fumigation Basics
- FMP Background
- EPA Website
- Agrian Website
- Summary

TriEst
Ag Group, Inc.

Introduction…

Trical Group

- Trical Inc., Hollister, CA
- TriEst Ag Group,
  - Greenville, NC
  - Tifton, GA
  - Palmetto, FL
- Trident Ag Products, Woodland, WA
- Trinity Mfg, Inc., Hamlet, NC

Introduction…

Other Locations

- Mexico -Trical De Baja
- Honduras-Trical Central America
- Chile-Trical South America
- Europe-Trist

Other Geographies

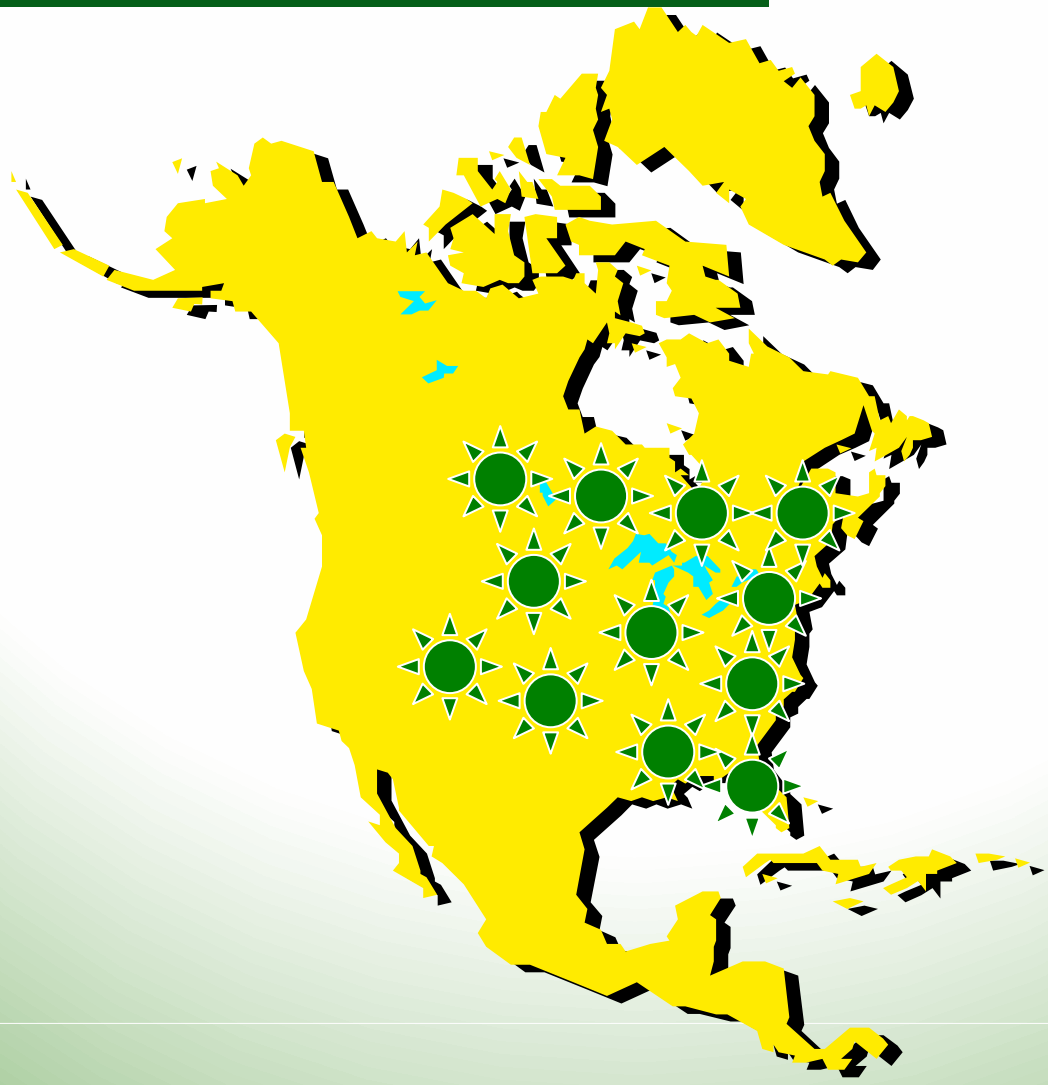
- South Africa
- China
- Australia and NZ

Introduction…

TriEst Ag Group, Inc.

- International Group of Companies
- Greenville, NC; Tifton, GA; Palmetto, FL
- Experts in Soil Fumigation
- Experts in Fumigation Equipment
- Agriculture, Golf Courses, Forest Seedling Nurseries, Turf, etc.
- Sales and Service★★★

Introduction…



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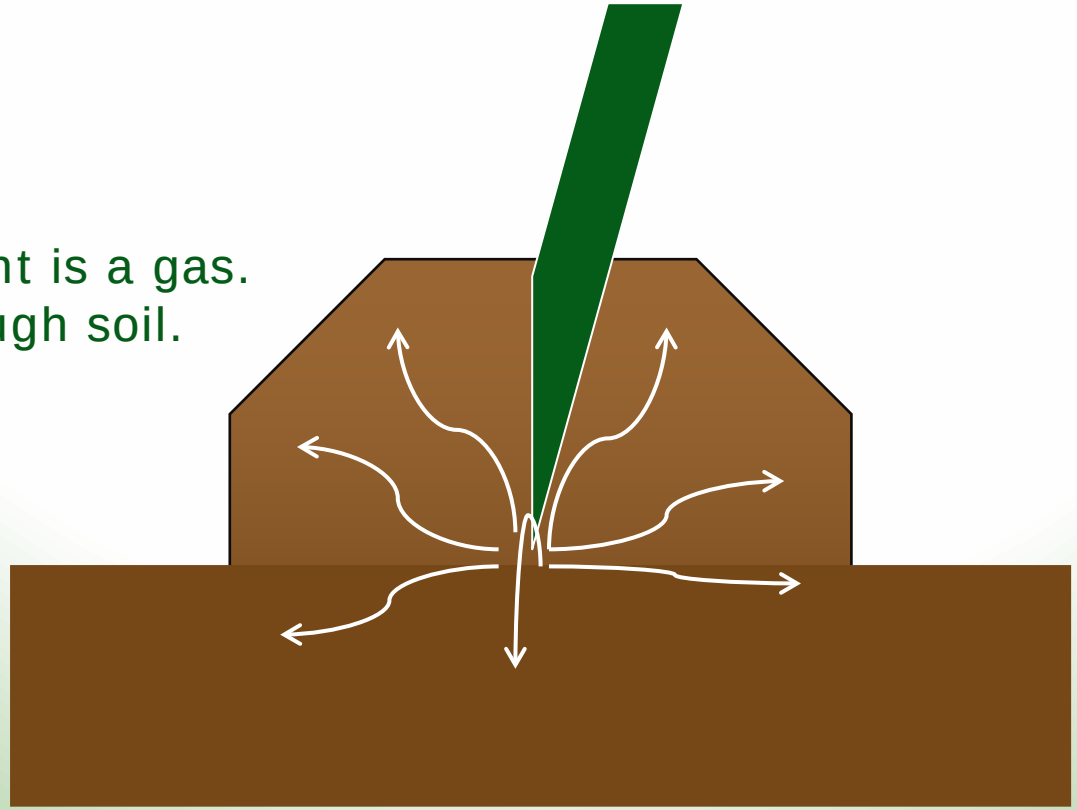
Fumigation Basics…

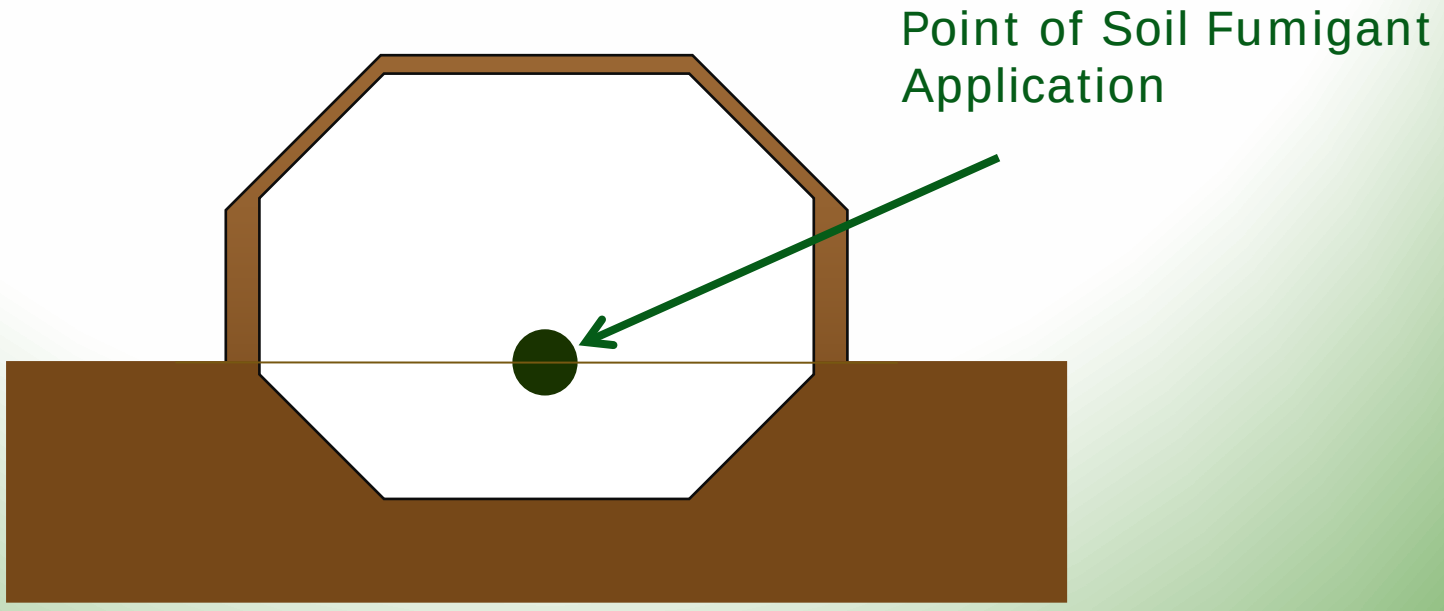
Soil Fumigant Injection Shank

Soil fumigant is a gas.
Moves through soil.



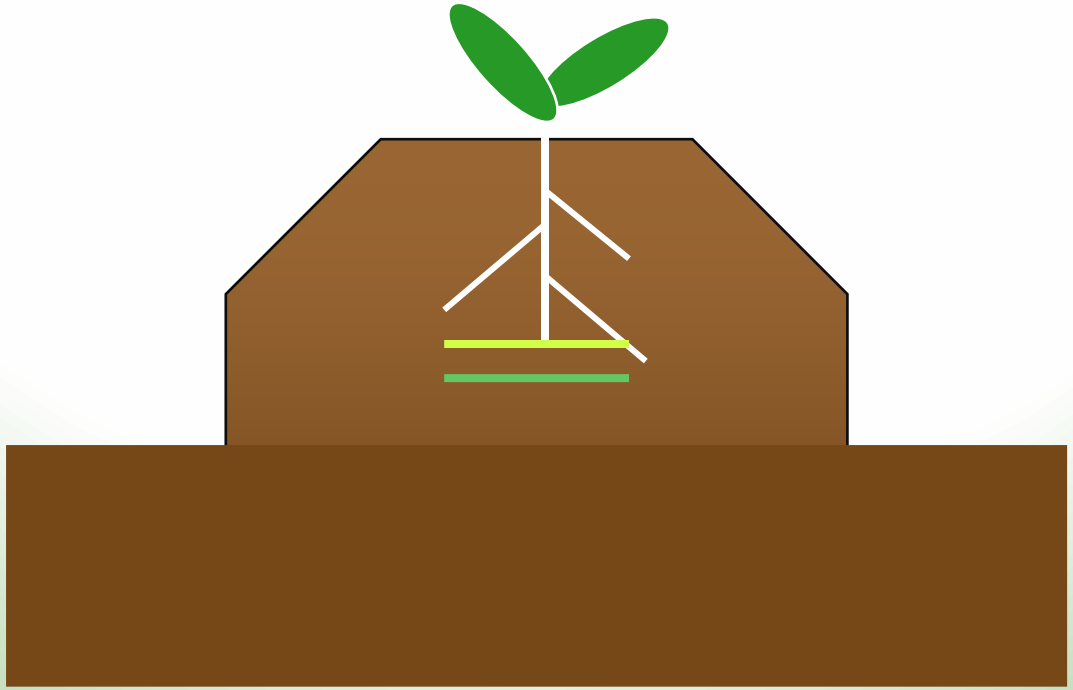
Fumigation Basics…

Fumigant Concentration x Exposure Time
= DOSE



Fumigation Basics…

Plant after soil fumigant concentration dissipates.



Fumigation Basics…

Fumigation Basics…

Ornamental nurseries

Reforestation nurseries

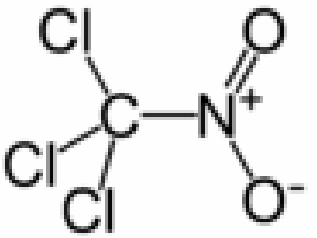
Strawberry and raspberry plant production

Fumigation Basics…

- Methyl Bromide (MBr)
- Chloropicrin (Pic)
- Telone II (1,3-dichloropropene)
- Metam Sodium (Vapam, Sectagon)
- Basamid
- Methyl Iodide (Midas)
- DMDS (future)

Fumigation Basics…

Chloropicrin (Pic)



- Best fungicidal fumigant available
- Manages soil borne diseases including Verticillium, Fusarium, Phytophthora, Pythium, Rhizoctonia, etc.
- Tarped, non-tarped, and drip applications.
- Broadcast and bed applications
- Applied alone or in combination with Telone II or MBr

Fumigation Basics...

Chloropicrin

Wilhelm S, Storkan RC & Sagen JE, Verticillium wilt of strawberry controlled by fumigation of soil with chloropicrin and chloropicrin-methyl bromide mixtures. *Phytopathology* 51:744-748 (1961).

Munnecke DE, Kolbezen MJ & Bricker JL, Effects of moisture, chloropicrin, and methyl bromide singly and in mixtures on sclerotia of *Sclerotium rolfsii* and *Verticillium albo-atrum*. Phytopathology 72:1235-1238 (1982).

Fumigation Basics…

Fumigation Future

Re-registration Eligibility Decisions – REDs

- 2010 FMPs, rate reductions, PPE changes
- 2011 Buffer zones, notification requirements

Fumigation decisions driven by:

- Regulatory burdens
- Efficacy
- Cost

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FMP Background…

EPA is requiring important new safety measures for soil fumigant pesticides to increase protections for agricultural workers and bystanders – people who live, work, or otherwise spend time near fields that are fumigated. These measures are for the soil fumigants *chloropicrin, dazomet, metam sodium/potassium, and methyl bromide.*

When new fumigant labels appear in the market place in 2010, fumigant users will need to comply with these new requirements.

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Applicator information (name, phone number, license and/or certificate number, employer name, employer address)

General site information

- Application block location (e.g., address or global positioning system (GPS) coordinates)
- Name, address, and, phone number of owner/operator of the application block

General application information (target application date/window, brand name of fumigant, EPA registration number, application method, application rate, injection depth, application block size)

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Tarp information and procedures for repair, perforation and removal (if tarp is used)

- Brand name, lot number, thickness
- Name and phone number of person responsible for repairing tarps
- Schedule for checking tarps for damage, tears, and other problems
- Maximum time following notification of damage that the person(s) responsible for tarp repair will respond
- Minimum time following application that tarp will be repaired
- Minimum size of damage that will be repaired

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Tarp information and procedures for repair, perforation and removal (if tarp is used) (cont')

- Other factors used to determine when tarp repair will be conducted
- Name and phone number of person responsible for perforating and/or removing tarps (if other than certified applicator)
- Equipment/methods used to perforate tarps
- Schedule and target dates for perforating tarps
- Schedule and target dates for removing tarps

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Soil conditions (description of soil texture in application block, method used to determine soil moisture)

Weather conditions (summary of forecasted conditions for the day of the application and the 48-hour period following the fumigant application)

- Wind speed
- Inversion conditions (e.g., shallow, compressed (low-level) temperature inversion)
- Air stagnation advisory

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Air purifying respirators, SCBAs, and other personal protective equipment (PPE) for handlers (handler task, protective clothing, respirator make, model, type, style, and size, respirator cartridge type, respirator cartridge replacement schedule; eye protection, gloves)

Emergency procedures (evacuation routes, locations of telephones, contact information for first responders, local/state/federal/tribal contacts, key personnel and emergency procedures/responsibilities in case of an incident, equipment/tarp/seal failure, complaints, or other emergencies)

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Posting procedures (person(s) who will post signs, dates for posting and for sign removal)

Plan describing how communication will take place between applicator, land owner/operator, and other on-site handlers (e.g., tarp cutters/removers, irrigators) for complying with label requirements (e.g., timing of tarp cutting and removal, PPE)

- Name and phone number of persons contacted
- Date contacted

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Authorized on-site personnel

- Names, addresses and phone numbers of all handlers
- Employer name, addresses, and phone numbers for all handlers
- Tasks that each handler is authorized and trained to perform
  - For handlers designated to wear respirators (air purifying respirator or SCBA)
  - Date of medical qualification for respirator(s) that each handler is designated to wear
  - Date of training for respirator(s) that each handler is designated to wear
  - Date of fit testing for respirator(s) that each handler is designated to wear

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Air monitoring plan

- For handlers without respiratory protection:
  - If sensory irritation is experienced, indicate whether operations will be ceased or operations will continue with respiratory protection
  - If intend to cease operations when sensory irritation is experienced, provide the name, address, and phone number of the handler that will perform monitoring activities prior to operations resuming

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Air monitoring plan (cont')

- For handlers with respiratory protection:
  - Representative handler tasks to be monitored
  - Monitoring equipment to be used and timing of monitoring
- For monitoring the breathing zone when using methyl bromide formulations with < 20% chloropicrin:
  - Representative handler tasks to be monitored
  - Monitoring equipment to be used and timing of the monitoring

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Good Agricultural Practices (GAPs)

- Description of applicable mandatory GAPs
- Measurements and documentation to ensure GAPs are achieved (e.g., measurement of soil and other site conditions)

Description of hazard communication (The application block has been posted in accordance with the label. Pesticide product labels and material safety data sheets are on-site and readily available for employees to review.)

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Record-keeping procedures (the owner/operator of the application block, as well as the certified applicator, must keep a signed copy of the site-specific FMP for 2 years from the date of application)

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

For situations where an initial FMP is developed and certain elements do not change for multiple fumigation sites (e.g., applicator information, authorized on-site personnel, 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.
- Recordkeeping requirements are followed for the entire FMP (including elements that do not change).

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Elements of FMPs

Once the application begins, the certified applicator must make a copy of the FMP available for viewing by handlers involved in the fumigation. The certified applicator or the owner/operator 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 available when requested by local/state/federal/tribal emergency response and enforcement personnel.

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Post Application Summary

New Requirements for Post-Application Summaries

Within 30 days of completing the application portion of the fumigation process, the certified applicator supervising the application must complete a post-fumigation application summary that describes any deviations from the FMP that have occurred, measurements taken to comply with GAPs as well as any complaints and/or incidents that have been reported to him/her.

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Post Application Summary

Actual date of the application, application rate, and size of application block fumigated

Summary of weather conditions on the day of the application and during the 48-hour period following the fumigant application

Soil temperature measurement (if air temperatures were above 100 degrees F in any of the 3 days prior to the application)

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Post Application Summary

Tarp damage and repair information (if applicable)

- Location and size of tarp damage
- Description of tarp/tarp seal/tarp equipment failure
- Date and time of tarp repair

Tarp perforation/removal details (if applicable)

- Description of tarp removal (if different than in the FMP)
- Date tarps were perforated
- Date tarps were removed

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Post Application Summary

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
- Description of control measures or emergency procedures followed after complaint

Description of incidents, equipment failure, or other emergency and emergency procedures followed (if applicable)

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Post Application Summary

Details of elevated air concentrations monitored (if applicable)

- Location of elevated air concentration levels
- Description of control measures or emergency procedures followed
- Air monitoring results
- When sensory irritation experienced:
  - Date and time of sensory irritation
  - Handler task/activity
  - Handler location where irritation was observed
  - Resulting action (e.g., cease operations, continue operations with respiratory protection)

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Post Application Summary

Details of elevated air concentrations monitored (if applicable) (cont'd)

- When using a direct read instrument for breathing zone sample:
  - Sample date and time
  - Handler task/activity (if applicable)
  - Handler location
  - Air concentration
  - Sampling method

Date of sign removal

Any deviations from the FMP

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Post Application Summary

In addition to recordkeeping requirements from 7 CFR part 110 “Recordkeeping Requirements for Certified Applicators of Federally Restricted Use Pesticides,” this decision requires that both the certified applicator and owner/operator of the application block keep a signed copy of the post-application summary record for 2 years from the date of application.

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

FMP Background…

Post Application Summary

Applicators and other stakeholders have the flexibility to use EPA's template, prepare their own FMP templates, or use other commercially available software with certain elements listed above in check-list and/or fill in the blank format.

A second phase of risk mitigation measures, including buffer zones, will appear on fumigant labels in late 2011. The Fumigant Management Plan and Post-Application Summary will be updated to include these new measures.

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

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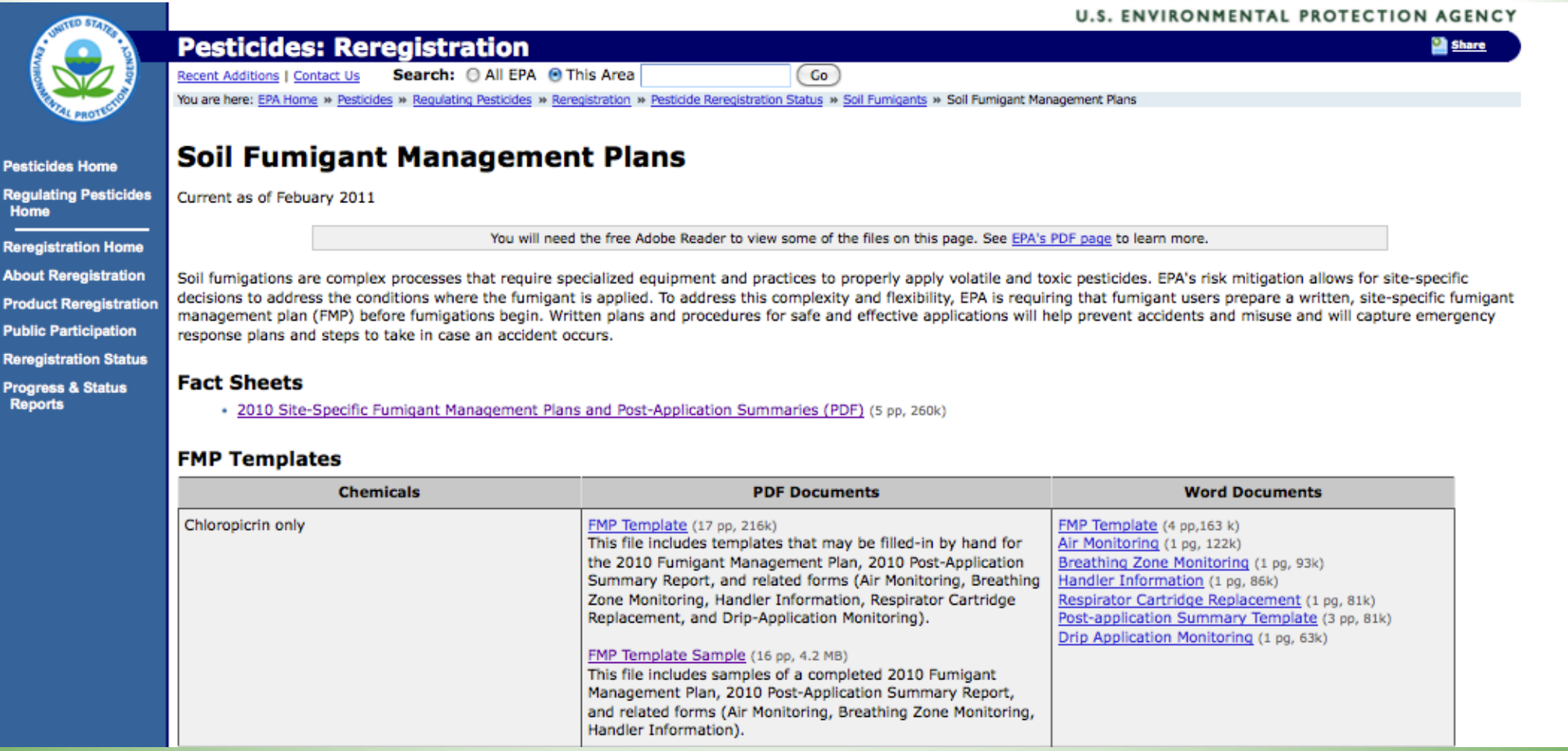
EPA Website…

EPA Website

http://www.epa.gov/opp00001/reregistration/soil_fumigants/soil-fum-mgmt-plans-templates.html

http://www.epa.gov/opp00001/reregistration/soil_fumigants/factsheets/sfm-sitespec-mgmnt-plns-upd.pdf

EPA Website…



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Pesticides: Reregistration

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- Product Reregistration
- Public Participation
- Reregistration Status
- Progress & Status Reports

Soil Fumigant Management Plans

Current as of Febuary 2011

You will need the free Adobe Reader to view some of the files on this page. See EPA's PDF page to learn more.

Soil fumigations are complex processes that require specialized equipment and practices to properly apply volatile and toxic pesticides. EPA's risk mitigation allows for site-specific decisions to address the conditions where the fumigant is applied. To address this complexity and flexibility, EPA is requiring that fumigant users prepare a written, site-specific fumigant management plan (FMP) before fumigations begin. Written plans and procedures for safe and effective applications will help prevent accidents and misuse and will capture emergency response plans and steps to take in case an accident occurs.

Fact Sheets

- 2010 Site-Specific Fumigant Management Plans and Post-Application Summaries (PDF) (5 pp, 260k)

FMP Templates

Chemicals	PDF Documents	Word Documents
Chloropicrin only	FMP Template (17 pp, 216k) This file includes templates that may be filled-in by hand for the 2010 Fumigant Management Plan, 2010 Post-Application Summary Report, and related forms (Air Monitoring, Breathing Zone Monitoring, Handler Information, Respirator Cartridge Replacement, and Drip-Application Monitoring). FMP Template Sample (16 pp, 4.2 MB) This file includes samples of a completed 2010 Fumigant Management Plan, 2010 Post-Application Summary Report, and related forms (Air Monitoring, Breathing Zone Monitoring, Handler Information).	FMP Template (4 pp,163 k) Air Monitoring (1 pg, 122k) Breathing Zone Monitoring (1 pg, 93k) Handler Information (1 pg, 86k) Respirator Cartridge Replacement (1 pg, 81k) Post-application Summary Template (3 pp, 81k) Drip Application Monitoring (1 pg, 63k)

EPA Website…

2010 SOIL FUMIGANT MANAGEMENT PLAN (CHLOROPICRIN PRODUCTS)

The below text fields will expand as the text is entered. After completing each field, use *Tab key* to go to next text field or check box.

I. Certified Applicator Supervising the Fumigation			
Name:	Phone number:	License and/or certificate number:	☐ Commercial applicator ☐ Private applicator
Employer name:	Employer address:		

II. General Site Information
Application block/field location (e.g., county, township-range-section quadrant), address, or global positioning system (GPS) coordinates:

III. Owner/operator of Application Block		
Name:	Address:	Phone number:

IV. Recordkeeping
☐ The owner/operator of the application block has been informed that he/she as well as the certified applicator must keep a signed copy of the site-specific FMP and the post-application summary for 2 years from the date of application.

V. General Application Information			
Target application date/window:	EPA Registration Number:	Fumigant Product Name:	
Application method: ☐ Tarp bedded ☐ Tarp broadcast ☐ Untarp bedded ☐ Untarp broadcast ☐ Deep untarp broadcast ☐ Tarp drip ☐ Untarp buried drip ☐ Hand held probes (tree hole)	Application Rate (lbs or gallons of product/treated acre):	Injection Depth (inches):	Application Block Size (acres):

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CUSTOMER LOG IN : Email / User Name GO

AGRIAN
Ag Data from Field to Fork

Home About The Agrian Advantage Products Advertising News Support

More than ever, people want to know where their food comes from, how it was grown, harvested, processed and packaged. That presents a challenge for everyone in the food supply chain.

Agrian offers **the only agridata tracking system that's comprehensive, easy to use, and widely adopted.** It makes vital information about the food supply easy to enter, access and share securely, via the Internet.

For every player in the food supply chain -- growers, crop advisors, applicators, processors, handlers and shippers - Agrian offers the most integrated solution to the growing demand for data about food.

From field to fork, Agrian has you covered.

Attend an upcoming Agrian user training class, or view our help videos.
Click Here for details.

AGRIAN LABEL LOOKUP
CLICK TO BEGIN PRODUCT SEARCH

Open your FREE Agrian account now click here

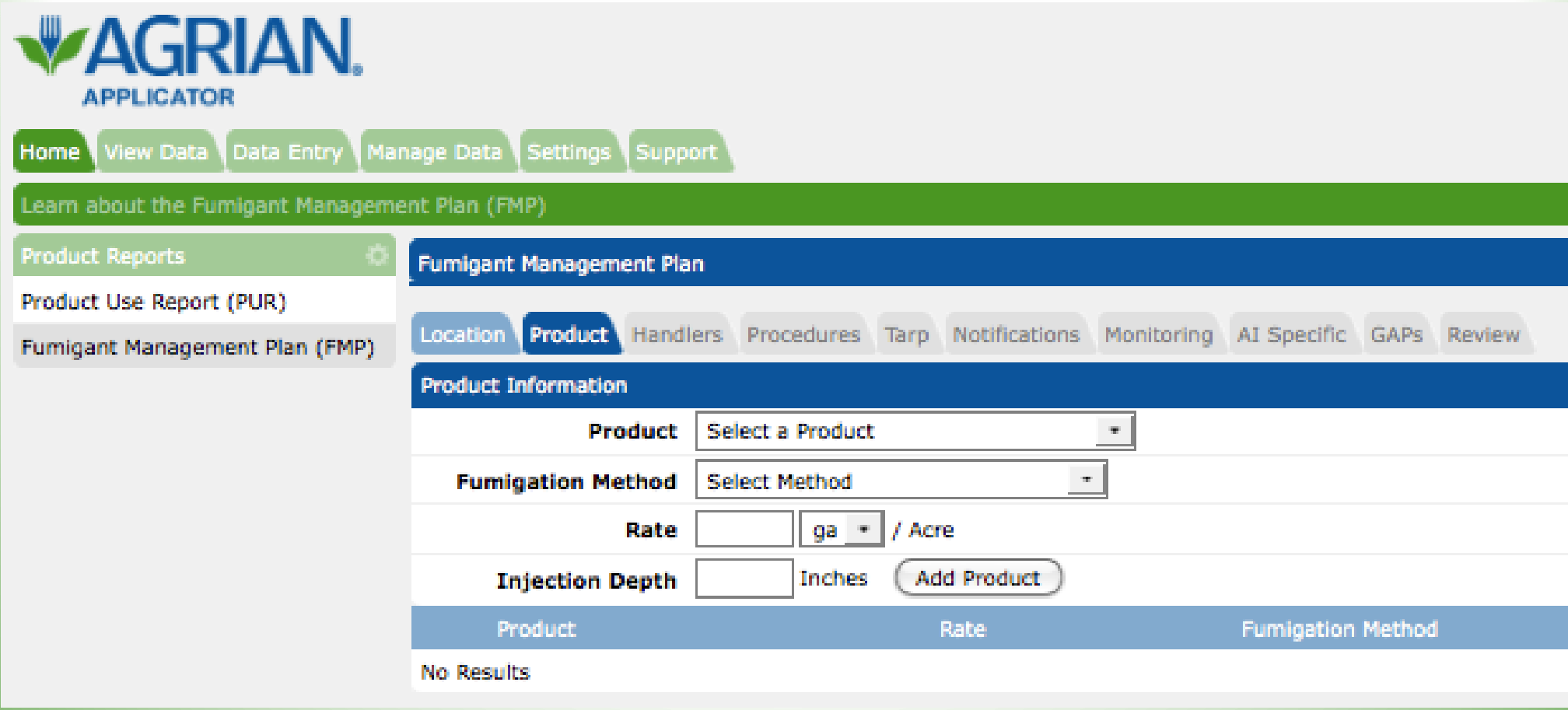
FOR **Growers, Crop Advisors and Applicators**
Track crop data online quickly & easily. Free!

FOR **Food Processors and Food Handlers**
Meet retailer's needs for food data rapidly.

Fumigant Management Plan
Learn about Agrian's free soil fumigant tool.

http://agrian.com/home/

Agrian Website…



http://agrian.com/home/

Soil Conditions

Description of Soil Texture

- ☐ Coarse (sand and loamy fine sand)
- ☐ Moderately coarse (sandy loam and fine sandy loam)
- ☐ Medium (sandy clay loam, loam, and silt loam)
- ☐ Fine (clay, clay loam, and silty clay loam)

Organic Content ○ < 1% ○ ≥ 1%, < 2% ○ ≥ 2%, < 3% ○ ≥ 3%

☐ The air temperature has been over 100 °F in any of the 3 days prior to application start

Method Used to Determine Soil Moisture USDA Feel and Appearance Method

Moisture Percentage 0 to 25 percent

Date/Time Moisture Determined / / - : - -

Weather Conditions

Visit the NOAA National Weather Service at http://www.weather.gov

Target Date / Window 06/27/2011 - 06/27/2011

	Day of Application	48 Hour Period After Application
	☐ Attached to hard copy	☐ Attached to hard copy
Wind Speed		
Inversion Conditions		
Air Stagnation Advisories		
Other		

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Summary

Fumigant Management Plan Required

- Pre-Fumigation
- Post-Fumigation
- Covers all aspects of the fumigation process
- Document through 3rd party all applicable information (i.e. weather)
- Maintain for 2 years after fumigation is complete

Buffer Zone Information Added 2011

TriEst Ag Group, Inc will complete FMP as part of our service

Summary

Thank You

Chad Hutchinson
Mobile: 904 742-2711
Email: chad.hutchinson@me.com

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