Pesticide Regulations & MBR Updates

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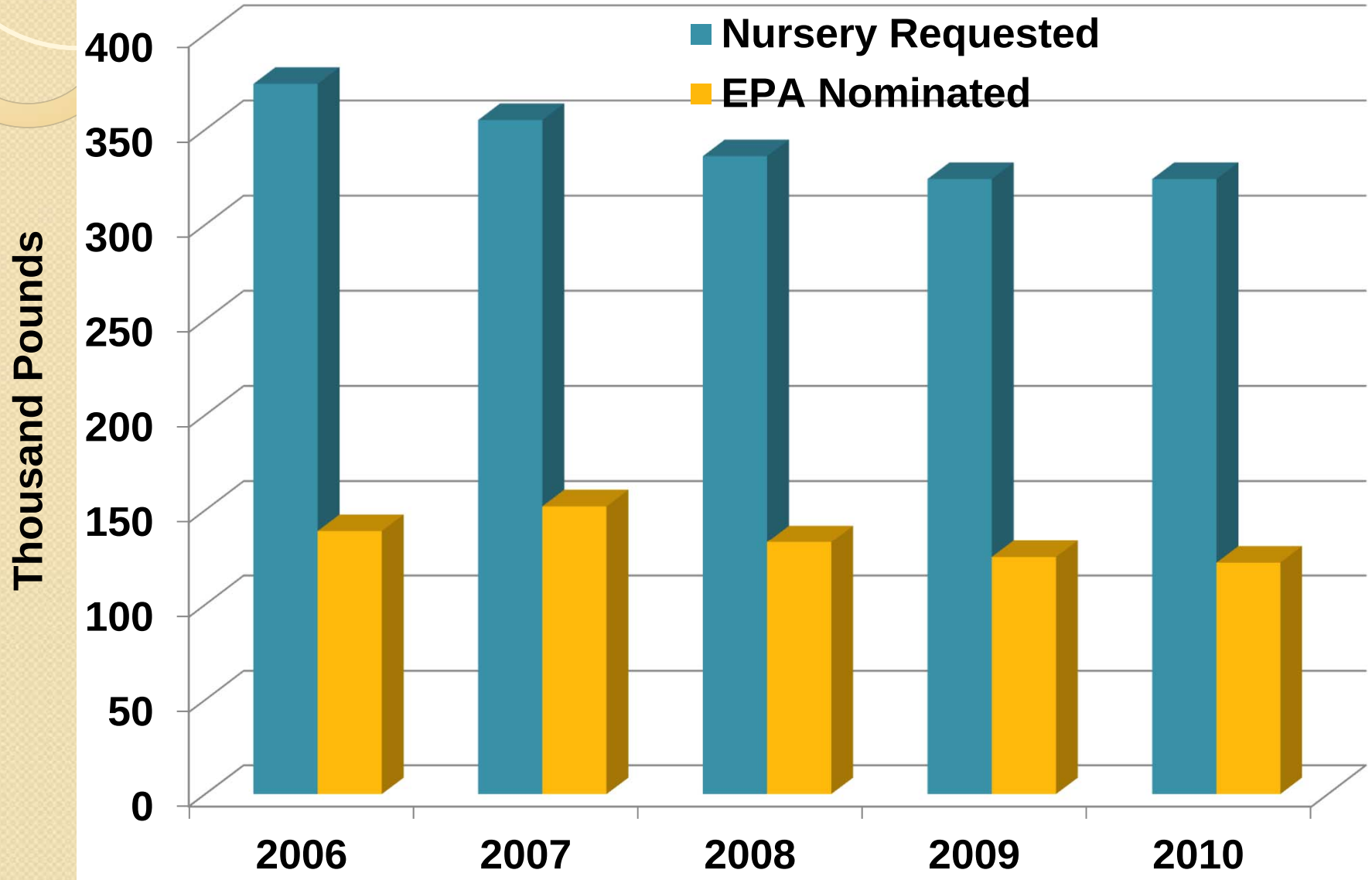
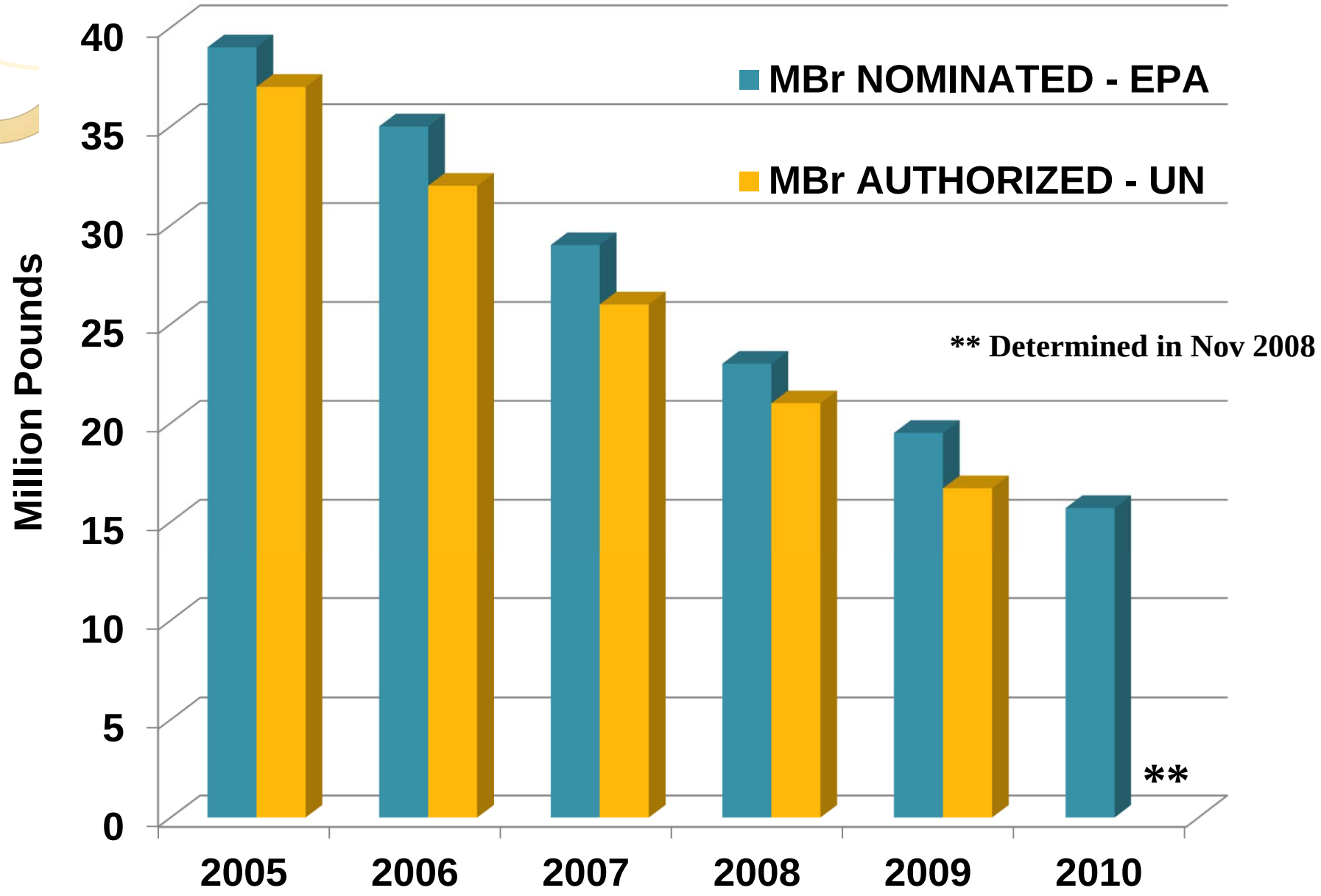
Methyl Bromide Uses

- Critical use exemption – CUE
  - Authorized use of MBr by UN for those sectors/users who have no alternatives
- Quarantine pre-shipment – QPS
  - Authorized use of MBr by EPA / USDA for those sectors/users who need pest-free planting material moved across political boundaries
  - Authorized use by UN and Montréal Protocol

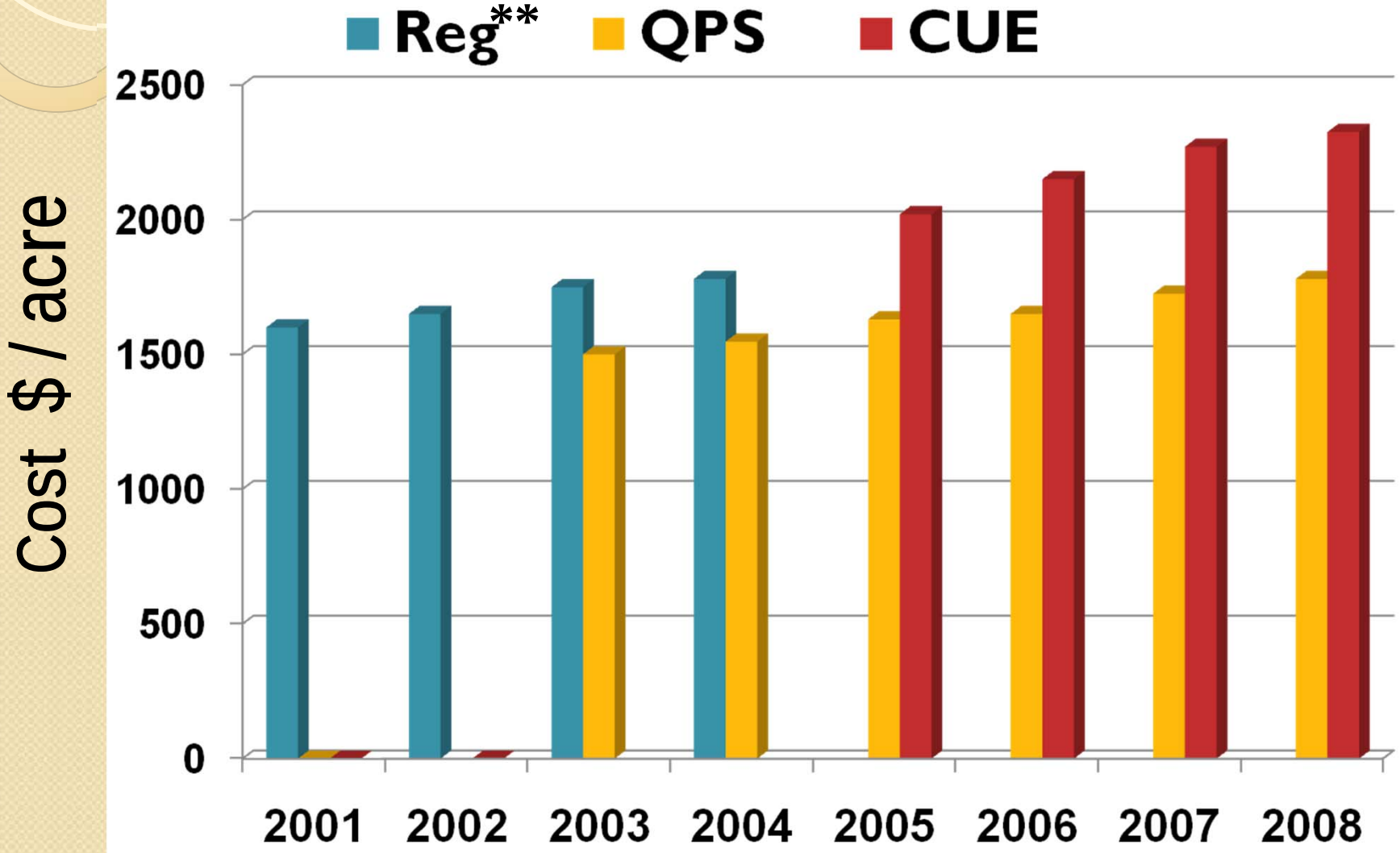
U.S. CUE Nursery Applications



U.S. CUE End-User Applications



Cost & Source of Methyl Bromide



** Pre- Phase out MBr

CUE - Reminder

- Not intended for a “permanent” solution for continued MBr use
- No “cut-off” date for stopping CUE applications
- CFCs still in some use 13+ years after phase-out
- 2008 Application was for 2012 +
- Montreal Protocol & the Clean Air Act was intended to stop the use of MBr

QPS Update

- Alabama, Arkansas, Georgia, Louisiana, Mississippi, Oklahoma, North and South Carolina and Texas have specific language on their plant protection rules that mention the preferred use of MBr to ensure pest-free planting material and certification process.

- Tennessee and Virginia have the support of the state plant boards, but need rule to be forwarded to their legislative bodies for approval. 'Top 10 list'

- Nursery Cooperative has been contacted for our help in getting similar language in Oregon, Washington and New Jersey.

QPS Update

- 28th Meeting of the Open-Ended Working Group of the Parties to the Montreal Protocol.
- 3-day meeting in Bangkok, Thailand (July 7-10, 2008)
- Methyl Bromide Technical Options Committee (MeBTOC) and Technical Options Committee (TEAP)

  - Day 1 – Concern by EU about US QPS use
  - Day 2 - Release of US QPS use to members
  - Day 3 – "It looks unlikely that there will be any significant controls on QPS for the time being, although the European Commission will continue to try to get something passed."

Risk Mitigation Options to Address Bystander and Occupational Exposures from Soil Fumigant Applications

- Fumigant Risk Mitigation
  - Methyl Bromide
  - Chloropicrin
  - 1,3-Dichloropropene (telone)
  - Metam-sodium/potassium
  - Dazomet/Basamid
  - Iodomethane

Risk Mitigation: Timeline

- November 2006 – Proposed Rules by EPA
- February 2007 – Met with EPA in Washington, DC
- May 2007 – Met with EPA in Fort Meyers, FL
- Oct 2007 – Met with EPA in Glennville, GA
- January 2008 – Deadline for Comments to EPA
- January – July, 2008 - Waiting
- July 10, 2008. Final Rule Released

Risk Mitigation: Proposed Rules

- Items that affected Nursery Production
  - Chloropicrin causes eye irritation
  - Buffer zones, up to 2600 ft from an occupied building; including nursery structures
  - Limiting field application sizes
  - Paying for moving neighbors while you fumigate
  - Notifying neighbors days in advance of fumigation
  - Application rates based on buffer zones
  - Rate reductions based on tarp, field size, application methods
  - Fumigation Management Plans
  - Agricultural Practices Outlined

Risk Mitigation: Final Rule

- Methyl Bromide
  - Mandatory Buffers: Rate x Tarp x Area Matrix Table
  - Sealing, Timing, Rate and Block Limitations
  - Respiratory Protection Requirements: Handlers, Workers
  - Tarp Cutting & Removal Procedures
  - Entry prohibitions: 2 days, 5 days, 2 days
  - Mandatory Good Agricultural Practices (GAP's)
  - Mandatory Fumigant Management Plans (FMP's)
  - Mandatory Emergency Local Preparedness & Response Plans
  - Mandatory Notice to State Pesticide Agencies
  - Mandatory Training and Local Community Outreach Programs

Risk Mitigation: Final Rule

- Methyl Bromide
  - Credits on Buffer Distance for:
    - Kind of tarp used (VIF, TIF up to 25%)
    - Soil organic matter >3% (10%), Soil clay content > 27% (10%)
  - Only CUE and QPS users on label
  - No un-tarped uses of MBr allowed
  - 98:2 Formulations allowed for Forest Nurseries
    - All others must use greater than 2% chloropicrin
  - CUE maximum use of MBr is 260 lbs/ai/acre
    - VA and TN still don't have QPS allowances 
  - Workers permitted under REI guidelines now prohibited
  - Real-time atmospheric Monitoring
    - Area must be monitored at least every 2 hr during fumigation
    - If samples methyl bromide > 1 ppm then respirators must be worn

Methyl Bromide Buffer Zones

Table 3. Tarped Broadcast Buffer Zone Distances (feet)

Block size (acres)	Broadcast Equivalent Application Rate (lb ai/acre)														
	43	**75**	**108**	**134**	**161**	**188**	**215**	**242**	**269**	**296**	**323**	**350**	**377**	**403**	**430**
1	25	25	25	25	25	25	25	25	25	25	25	50	75	100	125
5	25	25	25	60	90	120	150	210	265	320	375	450	525	600	675
10	25	25	25	95	165	235	300	385	465	545	625	700	775	850	925
20	25	25	25	145	265	385	500	625	750	875	1000	1115	1225	1340	1450
30	25	38	50	210	365	520	675	835	980	1145	1300	1440	1575	1115	1850
40	25	75	125	310	490	770	850	1035	1215	1395	1575	1760	1940	2120	2300
60	25	115	200	425	650	875	1100	1350	1595	1840	2085	2330	2570	2810	3050
80	25	165	300	565	825	1090	1350	1660	1965	2270	2575	2865	3150	3440	3725
100	25	200	375	690	1000	1315	1625	1985	2340	2695	3050	3375	3700	4025	4350

Risk Mitigation: Final Rule

- Chloropicrin
  - Mandatory Buffers: Rate x Tarp x Area Matrix
  - Required posting signs along buffers
  - Real-time monitoring for out-gassing (48 hrs)
  - Respiratory Protection: Handlers, Workers
  - Entry prohibitions: 2 days, 5 days, 2 days
  - Mandatory Good Agricultural Practices (GAP's)
  - Mandatory Fumigant Management Plans (FMP's)
  - Emergency Local Preparedness & Response Plans
  - Mandatory Notice to State Pesticide Agencies
  - Mandatory Training and Local Community Outreach Programs

Risk Mitigation: Final Rule

- Chloropicrin
  - Credits on Buffer Distance for:
    - Kind of tarp used (VIF, TIF, up to 40%)
    - Soil organic matter >3% (10%)
    - Soil Clay content > 27% (10%)
    - Symmetry Application System (10%)
    - Potassium thiosulfate (KTS) applied on tarp (5%)
  - Real-time atmospheric Monitoring
    - Area must be monitored at least every 2 hr during fumigation
    - If samples chloropicrin > 0.15 ppm then respirators must be worn

Chloropicrin Buffer Zones

Table 2. Tarp Bedded and Broadcast Buffer Zone Distances (feet)																
Block Size (acres)	Broadcast Equivalent Application Rate (lb ai/acre)															
	35	**52.5**	**70**	**87.5**	**105**	**122.5**	**140**	**157.5**	**175**	**192.5**	**210**	**245**	**262.5**	**280**	**315**	**350**
1	25	25	25	25	25	50	75	100	125	135	150	175	225	250	275	325
5	25	25	25	25	50	75	125	175	225	275	300	375	450	475	550	625
10	25	25	50	75	100	175	250	350	400	450	550	650	700	750	900	1000
20	25	35	50	125	250	350	450	550	650	750	850	1025	1150	1225	1375	1575
30	25	35	70	200	350	475	600	750	900	1000	1100	1400	1500	1575	1825	2075
40	25	50	100	275	425	600	750	900	1050	1200	1400	1675	1775	1975	2250	2500
50	35	50	150	350	500	700	900	1100	1250	1425	1575	1975	2175	2375	2675	2950
60	50	75	200	400	600	800	1050	1225	1450	1625	1825	2275	2375	2575	2950	3350
80	50	100	275	500	750	1000	1250	1475	1775	2175	2325	2775	2950	3150	3750	4150
120	75	175	400	700	1050	1375	1675	2050	2375	2775	3150	3725	4000	4350	P	P

Fumigant & Buffer Zone Comparisons

Fumigant & Use Rate	Block Size (ac) / Minimum Buffer Zone (ft)		
	5	10	20
Methyl Bromide - (350 lbs ai/acre)	450 ft	700 ft	1115 ft
Chloropicrin - (300 lbs ai/acre)	550 ft	900 ft	1375 ft
Metam Sodium - (300 lbs ai/acre)	88 ft	175 ft	269 ft
Dazomet - (400 lbs ai/acre)	150 ft	239 ft	440 ft

Risk Mitigation: Buffer Zones

- Extends from the edge of the application block equally in all directions.
- Application block is any field or portion of field treated with a fumigant in any 24 hr period.
- All non-handlers = field workers, nearby residents, pedestrians, bystanders, etc. must be excluded from the buffer zone during the buffer zone period.
- Buffer Zone Period begins when the fumigant is dispensed to the soil within the application block and lasts for minimum of 48 hrs after completion.

Risk Mitigation: Buffer Zones

- Only authorized handlers, properly trained and equipped may enter the buffer zone during the buffer zone period (No REI).
- Buffer zones from multiple application blocks may not overlap.
- No fumigant application may occur within 0.25 mile (1320 ft) of a school, day care center, nursing home, assisted living facility, elder care facility, hospitals, in-patient clinics or prisons.
- No occupied structure of owner/operator permitted in buffer zones.

Risk Mitigation: Buffer Zones

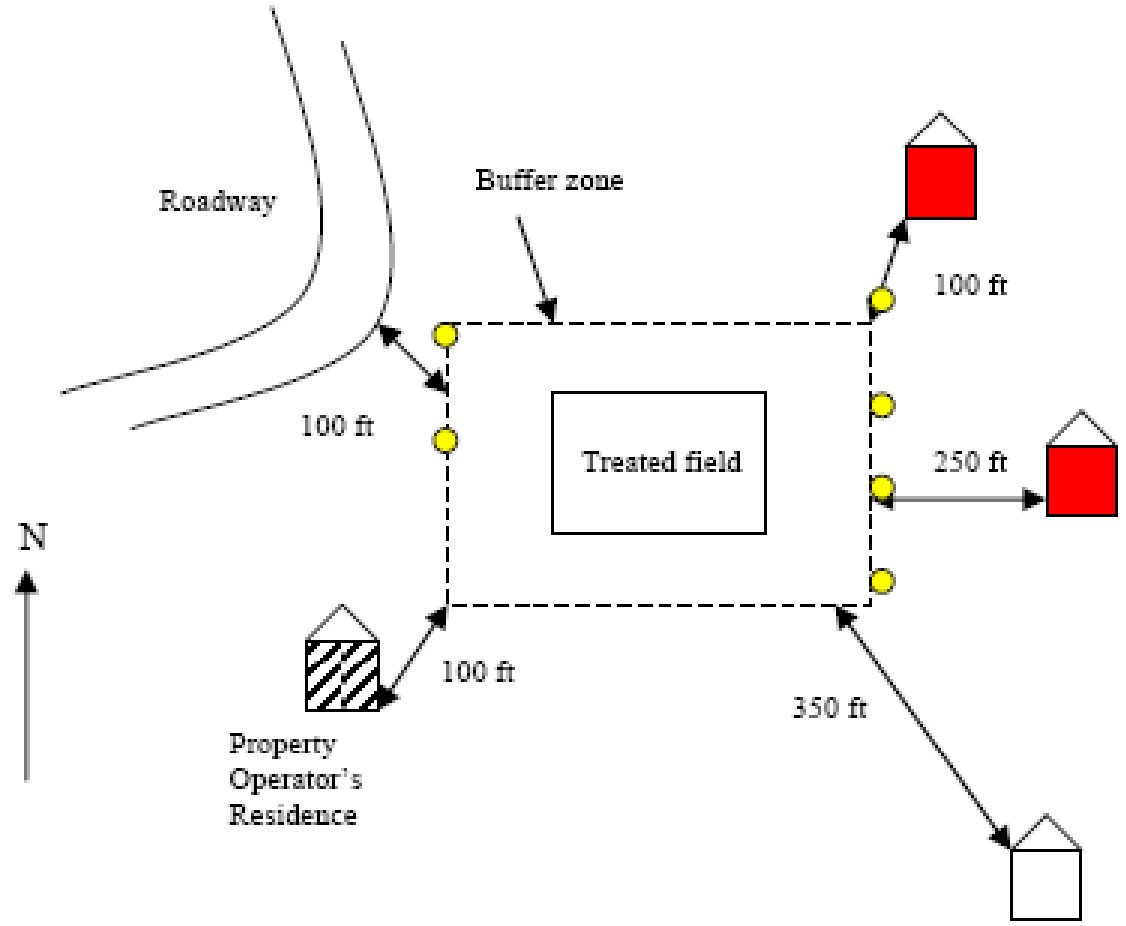
- Buffer zones may not include residential areas or areas that people may occupy or outdoor residential areas such as lawns, gardens, or play areas, unless:
  - Occupants provide written agreement that they will voluntarily vacate the buffer zone during the entire buffer zone period, and:
  - Re-entry by occupants must not occur until
    - The buffer zone period has ended &
    - Two consecutive air samples for fumigant have been taken in the structure at least 1 hr apart and have less than 1 ppm MBr and less than 0.15 ppm Chloropicrin

Risk Mitigation: Buffer Zones

- Buffer zones may not include publicly owned and/or operated areas; parks, right-of-ways, side walks, paths, athletic fields, parks: Unless,
  - The area is not occupied during the buffer zone period, and
  - Entry by non-handlers/bystanders is prohibited during the buffer zone period, and
  - Written permission to include the publicly owned operated is obtained from the appropriate state and local authorities responsible for management of the area

Buffer Zones: Posting

Figure 3. Posting Example



Red Houses = Structure within 300 feet of the buffer zone edge. Yellow dots = posted signs

Risk Mitigation: GAPs

- Good Agricultural Practices
  - A written Tarp use and removal plan
  - Weather Condition Limitations (wind, inversions, etc.)
  - Soil Temperature Limitations (max and min)
  - Soil Moisture Requirements
  - Soil Preparation Requirements
  - Soil Sealing Requirements

Fumigation Management Plans

- FMP's - Required prior to fumigation
  - **General Nursery Information (Name, maps, sketch, buffers, structures)**
  - **Applicator Information (Name, License, Certification, etc)**
  - **Application Procedures (Fumigation window, rates, product, method)**
  - **Good Agricultural Plans (Document each fumigation episode)**
  - **Buffer Zones (How they were determined?)**
  - **Respirator and Protection Equipment (Training, certification, etc)**
  - **Air Monitoring Plans (Methods to collect, when, where, who?)**
  - **Posting Steps (Who posted, when, where, why)**
  - **Nursery Specific Response and Management (Fumigation, Notification)**
  - **State Agency Notification (Who, when, what)**
  - **Communication plans (Who does monitoring, cutting, removing?)**
  - **Record Keeping Procedures (Who keeps records and where?)**
  - **Emergency Procedures (What happens if ppms > limit?_**
  - **Hazard Communications (MSDS, etc)**

Risk Mitigation: On-site Monitoring

- As an alternative to on-site monitoring, (*after the application has ceased)* the certified applicator supervising the fumigation would need to ensure that residences and businesses that meet the notification criteria and have been provided the information at least 48 hours prior to fumigant application in a specified field.

If the buffer zone less than or equal to:	**People within this distance from the buffer zone must be informed:**
Buffer ≤ 100 feet	50 feet
100 feet < Buffer ≤ 200 feet	100 feet
200 feet < Buffer ≤ 300 feet	200 feet
Buffer > 300 feet	300 feet

Risk Mitigation: Timeline

- **Nov 2007 – Proposed Rules Released for Comment**
- **July 2008 – Federal Register Notice opens 60-day comment period**
- **Fall 2008 – Comment period closes**
- **Late 2008 – EPA considers comments, develops responses**
- **Early 2009 – EPA issues RED amendments if needed and issues product specific and generic data call-ins (DCIs)**
- **2009 – Registrants begin implementing training and community outreach and education programs**
- **Late 2009 – Product data and revised labels submitted to EPA**
- **Early 2010 – EPA reviews, approves new soil fumigant labels**
- **Mid 2010 – New labels begin appearing in the field**

- **2013 – EPA begins reevaluation of soil fumigants under the Registration Review program.**

Risk Mitigation: Economics

"The trade off to growers, however, will be some combination of more trips to fumigate the field, use of more expensive high barrier film, delays in planting due to longer fumigation operations, and more trips to the field for planting and other operations if fumigating in smaller blocks results in staggered operations. Some of these costs could be substantial."

Biological and Economic Analysis Division (BEAD) EPA, June 24, 2008

Risk Mitigation: What needs to be done?

- Mitigation Rules are set ??
- Comment Period – ‘implementation of rules”
- Only Congress can affect EPA
- Agricultural Committee Hearings
- Contact: Senators, Representatives, Lobbyists
- Outline the economic & dollar effects of these Mitigation Rules on the production of your seedlings and business.

EPA – Glennville, GA