

# **Methyl Bromide and The Montreal Protocol: An update on the Critical Use Exemption and Quarantine Pre-Shipment Process**



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# METHYL BROMIDE

- Naturally occurring molecule
- Boils at 38.5 degrees F
- 3.27 times heavier than air
- Practically insoluble
- Odorless and Colorless
- Semi-selective in its toxicity to soil-borne organisms
- Wide-scale use in forest-tree nurseries is indicative of its favorable Cost:Benefit ratio



# Montreal Protocol - 1991

- Listed MBr as Class 1 ozone-depleting substance
- Gradual Phase out began in 1999
- Complete phase out in January 2005 under the Clean Air Act
- MP allows the Critical Use Exemption (CUE) process
- MP allows Quarantine Pre-Shipment (QPS) exemption
- Emergency uses


# MP & MBr SUPPLY

- Critical use exemption - CUE
- Inventory / stock piles
  - (pre MBr phase out)
- Quarantine pre-shipment - QPS

# Montreal Protocol & CUE

- **In the CUE process, the U.S. government nominates uses for "approval" on behalf of U.S. interests and must defend the nominations and effectively persuade the international committee which make recommendations to the Parties that there is in fact a critical need.**
- **The U.S. government decides what to nominate based on the review of application materials by EPA, USDA and the State Department determines that "emergency conditions exist."**
- **Under the CUE program the applicants must demonstrate that there are no technically and economically feasible alternatives, that associated use and emissions from MBr are minimized, and that there have been and will be past and future efforts to find alternatives.**

For EPA Use Only ID # \_\_\_\_\_  
SECTOR \_\_\_\_\_

	<p align="center"><b>UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460</b></p>
<p align="center"><b>2006 Application for Critical Use Exemption of Methyl Bromide for Pre Plant Use in 2008 and beyond in the United States</b></p>	
<p><b>WHY IS THIS INFORMATION NEEDED?</b></p>	<p>Under the Clean Air Act and the international treaty to protect the ozone layer (the Montreal Protocol on Substances that Deplete the Ozone Layer), the production and import of methyl bromide was phased out in the United States on January 1, 2005. This application seeks information to support a U.S. request to produce and import methyl bromide for certain critical uses and circumstances beyond this 2005 phaseout date.</p>
	<p>The information in this application will be used to review whether your use of methyl bromide is "critical" because no technically and economically feasible alternatives are available. In order to estimate the loss as a result of not having methyl bromide available, EPA needs to compare data (yields, crops/crop groupings, prices, revenues and costs) for your use of methyl bromide with uses of alternative pest control regimens.</p>
<p>The information contained in this application is critical to process and assess the need for methyl bromide. Filling out this application in its entirety will bolster the U.S. government's ability to strengthen the nomination package for the international review boards.</p>	
<p><small>Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. Public reporting burden for this collection of information is estimated to average 324 hours per response and assumes a large portion of applications will be submitted by consortia on behalf of many individual users of methyl bromide. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a current OMB control number.</small></p>	

# CUE Application Administered by EPA

**Methyl Bromide Critical Use Exemption Process**  
**2007 Methyl Bromine Usage Numerical Index (BUNI)**

Date: **1/28/2005**  
 Sector: **FOREST SEEDLINGS**

Average Hectares in the US:  
 % of Average Hectares Requested:

**51,506**  
**2%**

2007 Amount of Request				2001 & 2002 Average Use*			Quarantine and Pre-Shipments <sup>1</sup>	Regional Hectares**		Research Amount (kgs)
REGION	Kilograms (kgs)	Hectares (ha)	Use Rate (kg/ha)	Kilograms (kgs)	Hectares (ha)	Use Rate (kg/ha)		2001 & 2002 Average	% of Request	
Southern Forest Nursery Mgmt. Coop.	246,032	668	375	246,032	656	375	60%	Not Available	0	
International Paper	26,380	127	208	26,759	108	241	18%			
Illinois Department of Natural Resources	4,284	18	238	3,822	15	263	60%			
Weyerhaeuser (SE)	17,882	63	338	22,970	63	367	38%			
Weyerhaeuser (NW)	18,835	78	224	15,886	67	236	38%			
NE Forest & Conservation Nursery Assoc.	31,822	83	343	26,558	76	349	60%			
Michigan Seedling Association	8,908	28	287	9,417	35	269	0%			
Michigan Herbaceous Perennials	4,783	12	382	50,723	129	392	0%			
TOTAL OR AVERAGE	355,166	1,059	335	412,167	1,148	359	30%			

2007 Nomination Options	Subtractions from Requested Amounts (kgc)					Combined Impacts Adjustment (kgc)		MOST LIKELY IMPACT VALUE		
REGION	2007 Request	(-) Double Counting	(-) Growth	(-) Use Rate Adjustment	(-) QPS	HIGH	LOW	Kilograms (kgc)	Hectares (ha)	Use Rate (kg/ha)
Southern Forest Nursery Mgmt. Coop.	246,032	67,693	-	12,052	83,143	83,143	83,143	83,143	238	360
International Paper	26,380	-	-	-	4,101	22,279	22,279	22,279	107	208
Illinois Department of Natural Resources	4,284	-	442	-	1,911	1,911	1,911	1,911	7	283
Weyerhaeuser (SE)	17,882	-	-	-	6,736	11,226	11,226	11,226	33	338
Weyerhaeuser (NW)	18,835	-	1,049	-	6,250	9,637	9,637	9,637	43	224
NE Forest & Conservation Nursery Assoc.	31,822	-	5,363	-	13,279	13,279	13,279	13,279	38	343
Michigan Seedling Association	8,908	-	-	-	-	6,908	6,908	6,908	28	287
Michigan Herbaceous Perennials	4,783	-	-	517	-	4,246	4,246	4,246	12	360
<b>Nomination Amount</b>	<b>355,166</b>	<b>287,473</b>	<b>280,618</b>	<b>268,049</b>	<b>152,629</b>	<b>152,629</b>	<b>152,629</b>	<b>152,629</b>	<b>506</b>	<b>302</b>
<b>% Reduction from Initial Request</b>	<b>0%</b>	<b>19%</b>	<b>21%</b>	<b>25%</b>	<b>57%</b>	<b>57%</b>	<b>57%</b>	<b>57%</b>	<b>52%</b>	<b>10%</b>

Adjustments to Requested Amounts	Use Rate (kg/ha)		(%) Karst Topography		(%) 100 ft Buffer Zones		(%) Key Pest Distribution		Regulatory Issues (%)		Unsuitable Terrain (%)		Cold Soil Temp (%)		Combined Impacts (%)	
REGION	Low	EPA	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	HIGH	LOW
Southern Forest Nursery Mgmt. Coop.	375	350	0	0	0	0	100	100	0	0	0	0	0	0	100%	100%
International Paper	208	208	0	0	0	0	100	100	0	0	0	0	0	0	100%	100%
Illinois Department of Natural Resources	263	263	0	0	0	0	100	100	0	0	0	0	0	0	100%	100%
Weyerhaeuser (SE)	336	336	0	0	0	0	100	100	0	0	0	0	0	0	100%	100%
Weyerhaeuser (NW)	224	224	0	0	0	0	100	100	0	0	0	0	0	0	100%	100%
NE Forest & Conservation Nursery Assoc.	343	343	0	0	0	0	100	100	0	0	0	0	0	0	100%	100%
Michigan Seedling Association	267	267	0	0	0	0	100	100	0	0	0	0	0	0	100%	100%
Michigan Herbaceous Perennials	392	350	0	0	0	0	100	100	0	0	0	0	0	0	100%	100%

Other Considerations	Dichotomous Variables (Y/N)						Other Issues		Economic Analysis				Quality/Time/Market Window/ Yield Loss (%)		Marginal Strategy	
REGION	Strip Seed Treatment	Currently Use Alternatives?	Research / Transition Plans	Tarps / Deep Injection Used	Prescribed Cert. Requirement	Change from Prior CUE Request (+/-)	Verified Historic MB Use/ State	Frequency of Treatment (# of Times per Year)	Loss per Hectare (US\$/ha)	Loss per Hectare of MB (US\$/ha)	Loss as a % of Gross Revenue	Loss as a % of Net Revenue				
Southern Forest Nursery Mgmt. Coop.	No	Yes	Yes	Tarp	Yes	0	No	1x/4years	\$ 3,448	\$ 37	10%	22%	0		metam/Pic or 1,3-DiPic	
International Paper	No	Yes	Yes	Tarp	Yes	-	No	1x/4years	\$ 3,536	\$ 68	11%	25%	3% Yield Loss		1,3-DiPic	
Illinois Department of Natural Resources	No	Yes	Yes	Tarp	Yes	0	No	1x/1year	\$ 7,776	\$ 30	4%	6%	3% Yield Loss		metam/Pic or 1,3-DiPic	
Weyerhaeuser (SE)	No	Yes	Yes	Tarp	Yes	0	No	1x/4years	\$ 1,578	\$ 19	6%	16%	3% Yield Loss		metam/Pic or 1,3-DiPic	
Weyerhaeuser (NW)	No	Yes	Yes	Tarp	Yes	-	No	1x/3years	\$ 2,124	\$ 24	11%	25%	3% Yield Loss		metam/Pic or 1,3-DiPic	
NE Forest & Conservation Nursery Assoc.	No	Yes	Yes	Tarp	Yes	-	No	1x/1-3years	\$ 6,738	\$ 39	14%	42%	3% Yield Loss		metam/Pic or 1,3-DiPic	
Michigan Seedling Association	No	Yes	Yes	Tarp	Yes	-	No	1x/3-4years	\$ 5,365	\$ 60	4%	11%	3% Yield Loss		metam/Pic	
Michigan Herbaceous Perennials	No	Yes	Yes	Tarp	0	0	No	1x/2-3years	\$ 28,151	\$ 144	21%	37%	5% Yield Loss		1,3-DiPic	

Notes: \* International Paper and Weyerhaeuser (SE) were included in the Southern Forest Nursery Management Cooperative, therefore they were removed from the Southern Forest Cooperative application as double counting.

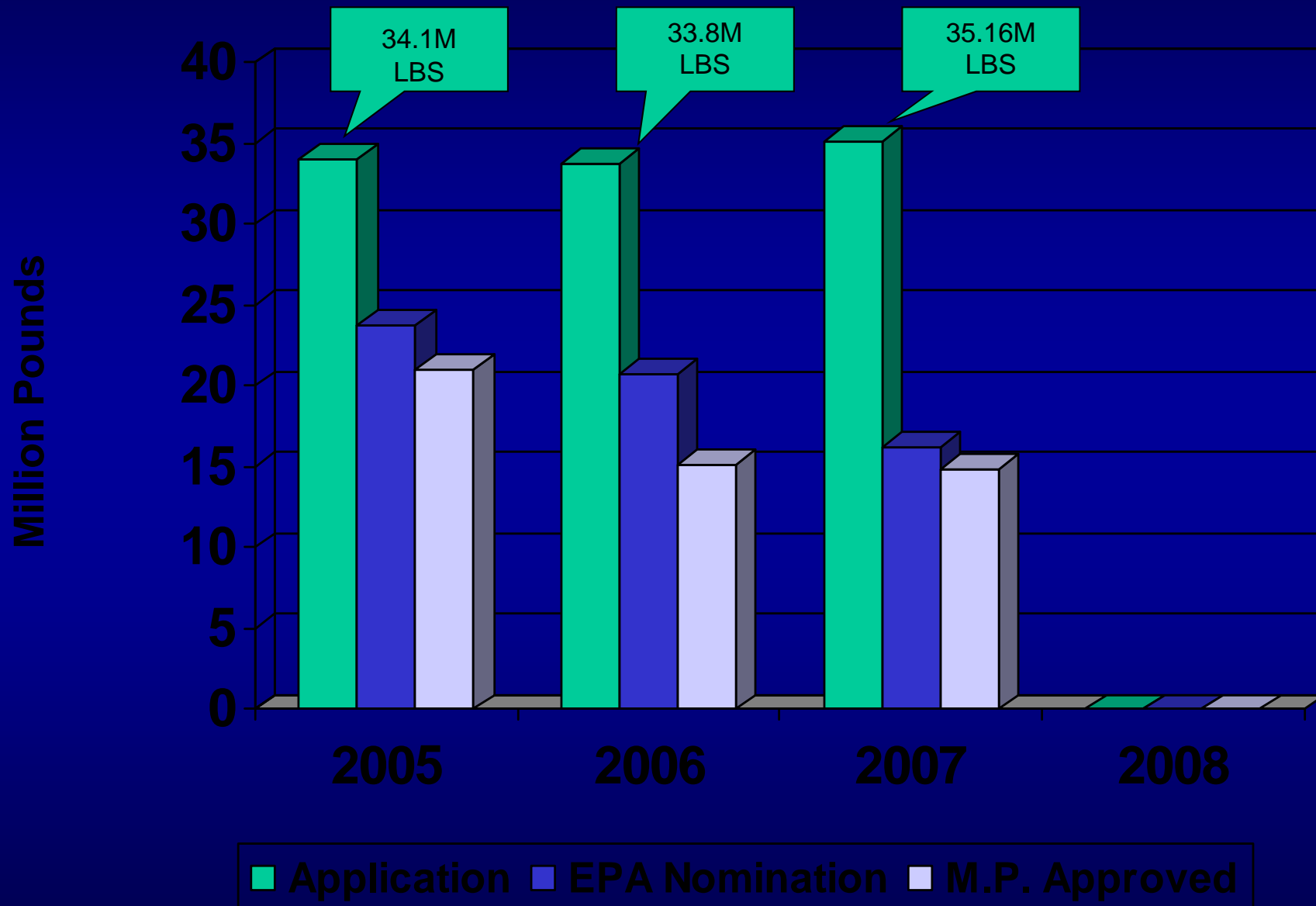
<sup>1</sup> EPA believes that Michigan Seedling Association and Michigan Herbaceous Perennials have already subtracted their QPS amounts from their application and their application reflects methyl bromide critical use for crops that do not fall under QPS requirements. All other applications are adjusted for EPA QPS estimates.

Conversion Units: 1 Pound = 0.453592 Kilograms 1 Acre = 0.404686 Hectare Most Likely Impact Value: High 24% Low 77%

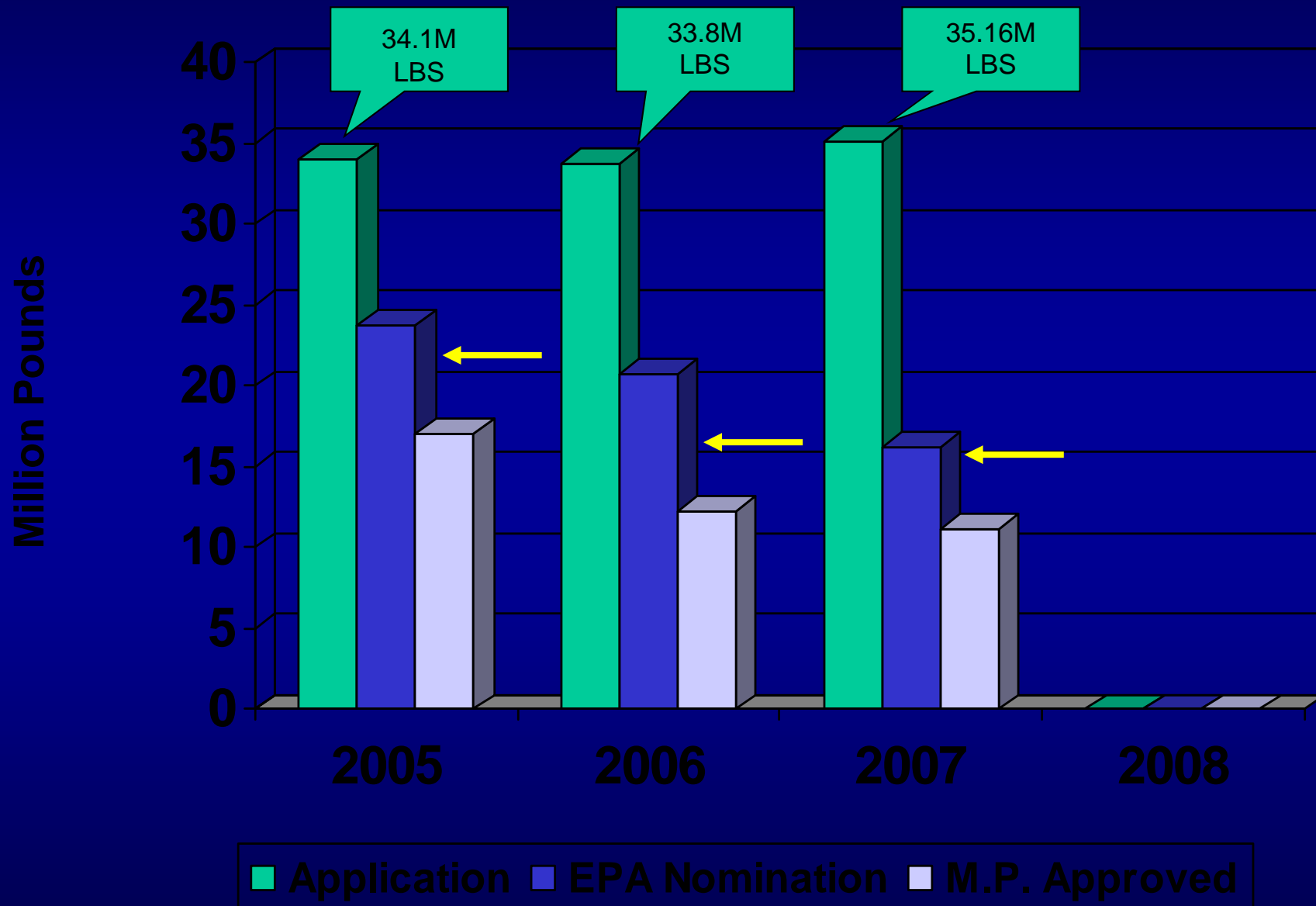
# Approved CUEs

- Pre-plant Users (8)
  - International Paper Nurseries
  - Weyerhaeuser Nurseries
  - AU Nursery Cooperative
  - Michigan Nurseries
  - Nursery Technology Cooperative
  - 17 Public State Nurseries
- Post-harvest Users (2)

# U.S. CUE End-User Applications



# U.S. CUE End-User Applications



# CUE

- Not intended for a “permanent” solution for continued MBr use
- No “cut-off” date for stopping CUE applications
- CFCs still in some use 12+ years after phase-out
- MP & CAA was intended to stop the use of MBr

# Montreal Protocol & QPS

- Article 2H of the Montreal Protocol, paragraph 6 states that:  
  
“ the calculated levels of consumption and production under this Article shall not include the amounts used by the Party for quarantine and pre-shipment applications”

# Montreal Protocol & QPS

- 2003 EPA ruled that nurseries that ship seedlings across state lines (inter-state) qualify for QPS MBr
- 2004 EPA ruled that nurseries that **do not** ship seedlings across state lines (intra-state) **do not** qualify for QPS MBr

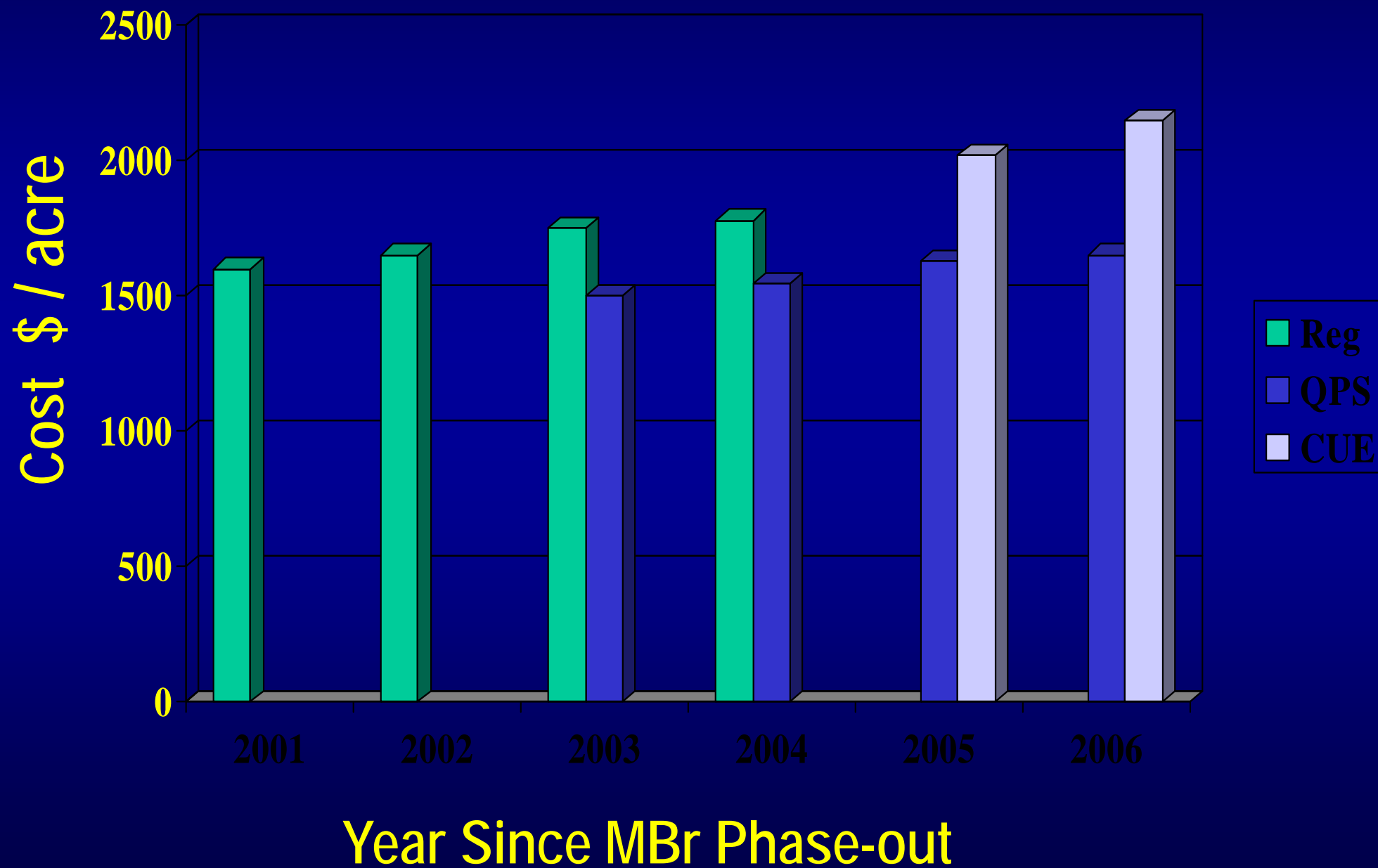
# **QPS & State Regulations**

- **2004 ruling, EPA pointed out that a few states' have rules that allow intra-state use of QPS.**
- **Working with “language writers” brought new rules to the State Plant Protection Officers of the 11 southern states.**
- **Collaboration with the individual state plant boards has resulted in Mississippi and Alabama both with Intra- and Inter-State QPS rules in place.**

# **QPS & State Regulations**

- **Forest-tree nurseries in Alabama and Mississippi can use QPS MBr and do not need to use CUE MBr.**
- **Continually interacting with the other SPPOs to encourage them to propose language that would allow QPS MBr on both Intra- & Inter-state shipment of forest tree seedlings.**
- **Georgia, North & South Carolina, Arkansas, Virginia, Tennessee, Louisiana, Texas, Oklahoma in various stages of acting.**

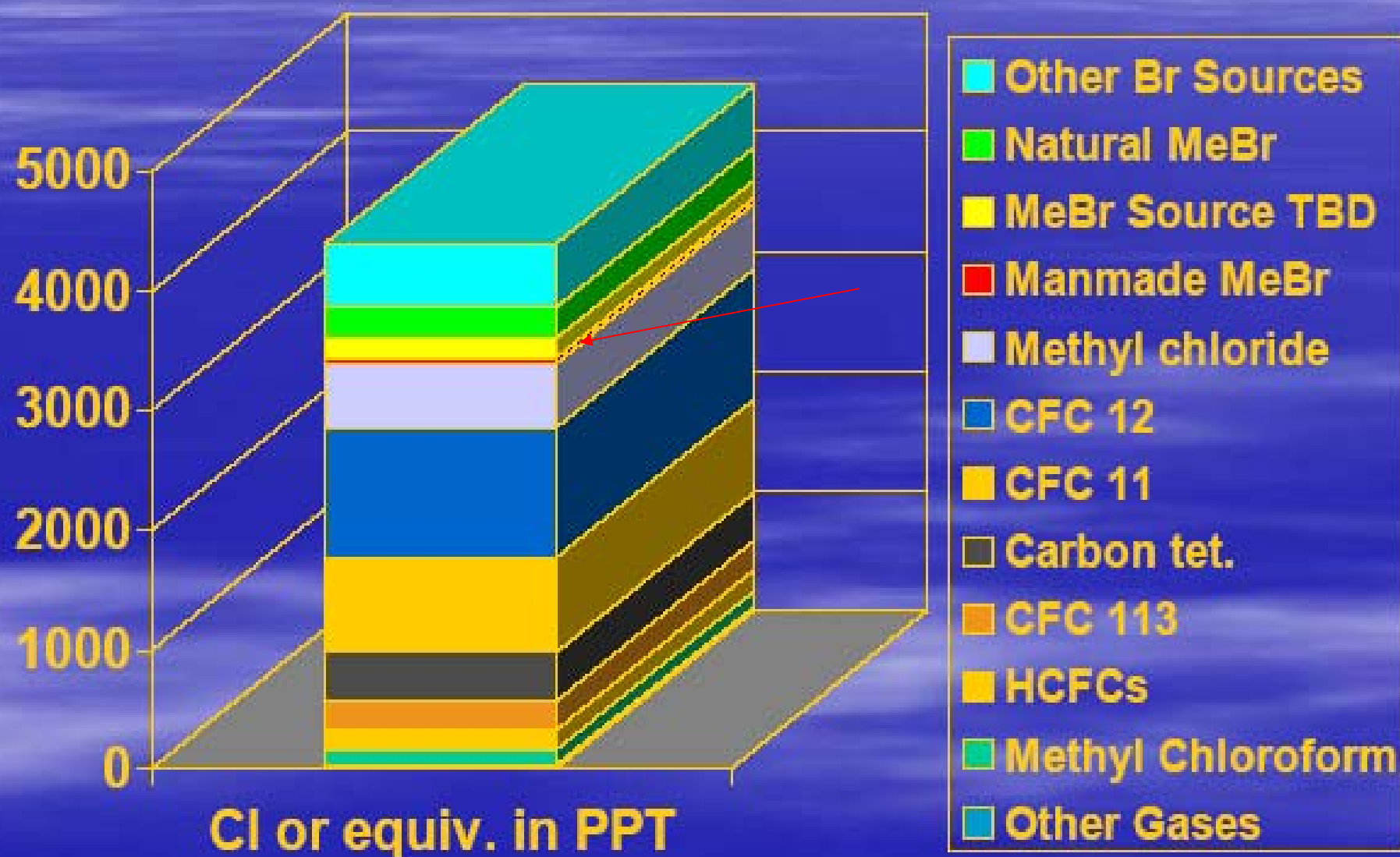
# Cost & Source of MBr



# MBR SUPPLY

- Critical use exemption - CUE
- Inventory / Stock pines
  - pre MBr phase out
- Quarantine pre-shipment - QPS

# ODP Sources in Stratosphere



**There is a theory which states if ever anybody discovers exactly what the Universe is for and why it is here, it will instantly disappear and be replaced by something even more bizarre and inexplicable.**

**There is another theory which states that this has already happened.**

**Douglas Adams**