Quarantine Use of Methyl Bromide in the U.S. - What are the Numbers?

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Quarantine use of methyl bromide is exempted by the Montreal Protocol and the U.S. Clean Air Act from the impending ban. In order to insure that sufficient methyl bromide is manufactured for quarantine needs, a realistic estimate of recent usage was desired. Quarantines are used to prevent movement of pests from the U.S. to our trading partners, to protect the U.S. from introduction of pests from other countries, to prevent the interstate movement of pests (federal domestic quarantines and state exterior quarantines), and to prevent intrastate movement of pests (state interior quarantines). Quarantine requirements are dynamic, changing as pest outbreaks occur (Mediterranean fruit fly), new pests are identified (Asian long-horned beetle), and new trading partnerships develop. Complete records of the methyl bromide used to meet these quarantine requirements are not required, and in many cases have not been kept. Finding solid numbers on the amount of methyl bromide used for quarantine purposes has been impossible for many commodities. Even locating information to *estimate* quarantine methyl bromide use has proven to be a formidable challenge.

Imports. The import sector is the one area for which solid information is available. All quarantine use of methyl bromide on imports is logged into a database maintained by USDA's Animal and Plant Health Inspection Service (APHIS). A summary of this information is given in Tables 1 and 2.

Table 1. Quarantine use of methyl bromide for imports.

	1996		1997		1998	
	Lbs.	**% ***	**Lbs.**	**% ***	**Lbs.**	**% ***
Fruit	195,934	49%	208,446	58%	173,970	62%
Cotton	89,126	22%	34,493	10%	1,664	<1%
Vegetables	38,208	9%	38,120	11%	37,976	14%
Khapra Beetle	27,427	7%	20,380	6%	16,132	6%
Wood Borer	16,912	4%	11,351	3%	17,736	6%
Other	34,858	9%	44,403	12%	33,796	11%
Total	402,465		357,193		281,274	

* % of Total quarantine use for imports.

Table 2. Quarantine use of methyl bromide for imports by country of origin.

	% of Total Import Quarantine Use		
Country of Origin	**1996**	**1997**	**1998**
Chile	45%	55%	59%
Argentina	8%	3%	<1%
India	7%	6%	6%
Costa Rica	5%	5%	5%

Exports. No comprehensive records on quarantine methyl bromide use for exported commodities exist. Information was collected from commodity groups, county ag commissioners, APHIS, USDA's Economic Research Service, and fumigation companies. Some commodity groups keep records on how much methyl bromide has been used to meet quarantine requirements. In other cases, amounts must be estimated based on the amount of a commodity that is shipped to countries with quarantine requirements. These estimates represent the minimum amount of methyl bromide, since the amount required for a fumigation to meet quarantine requirements is based on the size of the fumigation chamber, not on how much commodity is in the chamber. A chamber at one-quarter, one-half, or full capacity requires the same amount of methyl bromide. Estimates based on amount of product shipped, generally assume that chambers are run at full capacity. A further complication is that some quarantine requirements apply to a commodity originating from a certain state or region and/or destined for a certain region in a country and/or only during a certain time of the year, but the export records do not record regions of origin or destination. Low end estimates from the information received so far, indicates export quarantine use of methyl bromide exceeded 216,198 pounds in 1996; 252,377 pounds in 1997; and 259,908 pounds in 1998. One further complication is dunnage. Some countries now require methyl bromide fumigation of any wood packing crates, skids, or other packing material. Information on fumigation of dunnage for exports was received from only one fumigation company at one port. This one company reported usage of an average of 49,000 pounds per year for dunnage or approximately 20% of the total amount of methyl bromide that has been identified so far as export quarantine use. Small specialty items, such as salal leaves and pine cones being shipped to Mexico, are small by themselves, but the combined usage of many small, and often overlooked, commodities might be significant. More information is needed to make realistic estimates of the amount of methyl bromide needed to meet quarantine requirements in the export sector.

Interstate/Intrastate. Information for this sector was collected primarily from state Departments of Agriculture. Examples of interstate/intrastate quarantines are gypsy moth on plant material, household goods, and mobile homes; citrus pests and blueberry maggot in fruit originating in Florida or Texas and destined for California; Mediterranean fruit fly between and within states, and agricultural equipment moving from areas infested with the golden nematode. Not all state Departments of Agriculture track the quarantine use of methyl bromide, so again, the estimates are undoubtedly at the low end. Over the years 1996 - 1998, minimum usage of quarantine methyl bromide for the interstate/intrastate sector has exceeded an average of 30,000 pounds per year.

Quantifying the amount of methyl bromide used to meet quarantine requirements is not a trivial task. Additional sources of information have yet to be identified and additional estimates have yet to be made. The numbers currently available, are definitely low end estimates, and large segments, such as dunnage, are not yet adequately represented. We welcome any additional sources of information.

We gratefully acknowledge the many, many sources of information who have taken the time to share their data with us.