

METHYL BROMIDE

ESTIMATED QUARANTINE USE OF METHYL BROMIDE IN THE UNITED STATES

Following on from an article in the last issue of *Pesticide Outlook* (Ragsdale and Vick, 2001), S. M. Schneider and K. W. Vick from the USDA-ARS at Fresno, CA and Beltsville, MD, respectively, give some recent estimates of quarantine use of methyl bromide in the USA

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 ensure that sufficient methyl bromide is manufactured for quarantine needs, a realistic estimate of recent usage is 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. A summary of the information obtained during this study is given in Table 1.

Table 1. Estimated Quarantine Use of Methyl Bromide in the U.S. in Pounds (wt.)

	1996	1997	1998
Import	398,104	355,163	277,980
Export	*220,559	*254,407	265,533
Interstate	28,535	31,308	28,533
TOTAL	647,198	640,878	572,046

*Does not include cotton.

Export values are low estimates based on available information.

Information from multiple sources.

Imports

All quarantine use of methyl bromide on imports is logged into a database maintained by USDA's Animal and Plant Health Inspection Service (APHIS). The import database is the most complete segment of quarantine use data in the U.S. The APHIS database can be searched and sorted by country of origin, type of commodity, port of entry, and

Table 2. Percent of Total Import Quarantine Use of Methyl Bromide in the U.S by Country of Origin

Origin	1996	1997	1998
Chile	45	55	59
Argentina	8	3	1
India	7	6	6
Latvia	5	3	—
Costa Rica	5	5	5
Italy	4	4	3
Belize	2	4	4
China	2	1	3
All Others	22	19	19

Information from APHIS database.

amount of methyl bromide used. Table 2 is a summary of methyl bromide used by country of origin. One country, Chile, accounts for 45–59% of all import methyl bromide use. Table 3 summarizes quarantine fumigation of imports by type of commodity or target pest, depending on how the data was recorded by APHIS personnel.

Table 3. Import Quarantine Use of Methyl Bromide in the U.S. in Pounds (wt.)

	1996	1997	1998
Fruit	190,461	208,446	173,970
Cotton	89,126	34,494	1,664
Vegetables	38,208	38,120	37,976
Khapra Beetle	27,427	20,380	16,132
Wood borer	16,912	11,352	17,736
Equipment/Soil	13,536	19,768	18,500
Snail	10,486	10,581	5,156
Flowers	5,473	4,213	3,866
Non-Plant	3,646	2,004	838
Herbs/Spices	1,056	3,631	1,258
Seed	658	1,206	320
Plant Material	458	500	401
Logs	319	0	0
Other	338	468	163
TOTAL	398,104	355,163	277,980

Information from APHIS database.

Exports

No comprehensive records on quarantine methyl bromide use for exported commodities exist in the U.S. Information was collected from commodity groups, county agriculture commissioners, APHIS, USDA's Economic Research Service, and fumigation companies. A summary of the available information is given in Table 4. Some countries now require methyl bromide fumigation of any dunnage (wood packing crates, skids, or other wood 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. A complete reporting of dunnage from all ports would likely increase greatly the overall estimate of quarantine methyl bromide use. Data obtained from industry on fumigation of cotton exports cover only 1998. Small specialty items, such as salal leaves and pine cones shipped to Mexico, are small by themselves, but the combined usage for many small, and often overlooked, commodities can be significant. It is likely that many of these specialty items are not represented in the information available to date. More information is needed to make realistic estimates of the amount of methyl bromide needed to meet quarantine requirements in the export sector. Until that information is available, the numbers presented here serve as a low-end estimate of export use of methyl bromide for quarantine purposes in the U.S.

Table 4. Estimated Export Quarantine Use of Methyl Bromide in the U.S. in Pounds

	1996	1997	1998
Fruit & Nut	142,714	175,038	136,585
Dunnage*	>48,750	>45,725	>52,670
Logs, Oak	29,095	33,644	44,856
Cotton	?	?	31,300
Plant Material			122
TOTAL	>220,559	>254,407	>265,533

Dunnage estimates are from a single fumigation company at a single port, and therefore only a portion of the actual use. Information from multiple sources.

Interstate

Information on interstate/intrastate quarantine use of methyl bromide was collated 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 Arizona or California; Mediterranean fruit fly between and within states, and agricultural equipment moving from areas infested with the golden nematode. Many state Departments of Agriculture do not track the quarantine use of methyl bromide, so the estimates are undoubtedly low.

Conclusion

Quantifying the amount of methyl bromide needed to meet quarantine requirements (import, export and interstate) is not a trivial task. The numbers currently available, are definitely low estimates, and large segments, such as dunnage, are not adequately represented. As the record-keeping requirements for quarantine use of methyl bromide increase, the amount and reliability of information will also increase. Ultimately, this will result in a much more realistic estimate of the amount of methyl bromide needed to meet quarantine requirements for the import, export and interstate movement of commodities, equipment, plants, soil and packing materials in the U.S.

The authors gratefully acknowledge the many, many sources of information who have taken the time to share their data with them.

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