

METHYL BROMIDE CRITICAL USE RENOMINATION NOMINATION FOR STRUCTURES, COMMODITIES OR OBJECTS

NOMINATING PARTY:

The United States of America

NAME

USA CUN09 POST HARVEST -- DRY, CURED PORK PRODUCTS

BRIEF DESCRIPTIVE TITLE OF NOMINATION:

Methyl Bromide Critical Use Nomination for Post Harvest Use on Dry Cured Pork Products
(Submitted in 2007 for 2009 Use Season)

STRUCTURE, COMMODITY OR OBJECT TREATED:

This sector is for the production of cured meat products, such as country hams. These are produced primarily in the southern U.S. This sector has no viable alternatives available. Heat would destroy the product and phosphine does not control mites on the curing hams. Sulfuryl fluoride was registered in mid-July 2005 for use on this commodity and is currently being tested to determine its efficacy on the primary pests, especially mites.

QUANTITY OF METHYL BROMIDE REQUESTED IN EACH YEAR OF NOMINATION:

TABLE COVER SHEET: QUANTITY OF METHYL BROMIDE REQUESTED IN EACH YEAR OF NOMINATION

YEAR	NOMINATION AMOUNT (METRIC TONNES)*
2009	19.669

*This amount includes methyl bromide needed for research.

SUMMARY OF ANY SIGNIFICANT CHANGES SINCE SUBMISSION OF PREVIOUS NOMINATIONS:

There have been no significant changes since the previous nomination.

REASON OR REASONS WHY ALTERNATIVES TO METHYL BROMIDE ARE NOT TECHNICALLY AND ECONOMICALLY FEASIBLE:

It is common for producers of cured pork products to experience pest pressure from insects such as the ham skipper, the red legged ham beetle, dermestid beetles, and mites. These insects infest and feed on meat as it cures and ages. Environmental conditions (temperature and humidity) in and around the facility strongly influence the level of pest pressure. Under favorable ambient conditions, such as those seen in silo curing, pest pressure increases and a regular fumigation

schedule is recommended. In the U.S., the Food and Drug Administration (FDA) regulates the maximum levels of live or dead insects or insect parts that may be present in stored food products. Food commodities that exceed maximum limits allowed are considered adulterated by FDA and thus unfit for human consumption.

Currently there are no viable alternatives to methyl bromide for the dried meat industry: phosphine does not control mites (a major pest) and heat would alter the product. Sulfuryl fluoride received a recent federal registration and is now being tested for efficacy against the mites and other pests of cured meat products. At the time of this nomination there no alternatives registered for use on hams in the U.S. that would provide the same level of pest control as methyl bromide.

“One misconception about pheromone traps is that a pest population can be controlled by deploying these traps—that is not true for most situations. Traps usually attract only a small percentage of the population that is within the effective range of the trap. Also, female-produced sex pheromones attract only males; the females that lay eggs and perpetuate the infestation are not affected. Since males of the many insect species will mate with multiple females, any males that are not trapped can easily contribute to the production of a subsequent generation of pests. New methods are being researched for using pheromones in pest suppression, but current uses of pheromone traps are best used only for monitoring purposes.” (Arthur and Phillips 2003)

(Details on this page are requested under Decision Ex. I/4(7), for posting on the Ozone Secretariat website under Decision Ex. I/4(8))

This form is to be used by holders of single-year exemptions to reapply for a subsequent year's exemption (for example, a Party holding a single-year exemption for 2005 and/or 2006 seeking further exemptions for 2007). It does not replace the format for requesting a critical-use exemption for the first time.

In assessing nominations submitted in this format, TEAP and MBTOC will also refer to the original nomination on which the Party's first-year exemption was approved, as well as any supplementary information provided by the Party in relation to that original nomination. As this earlier information is retained by MBTOC, a Party need not re-submit that earlier information.

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Following the requirements of Decision IX/6 paragraph (a)(1) [*insert name of Party*] has determined that the specific use detailed in this Critical Use Nomination is critical because the lack of availability of methyl bromide for this use would result in a significant market disruption. Yes No

 Signature Name Date
 Title: _____

CONTACT OR EXPERT(S) FOR FURTHER TECHNICAL DETAILS:

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LIST OF DOCUMENTS SENT TO THE OZONE SECRETARIAT IN OFFICIAL NOMINATION PACKAGE:

1. PAPER DOCUMENTS:		
Title of paper documents and appendices	No. of pages	Date sent to Ozone Secretariat
CUN 09 Post Harvest Dry, Cured Pork Products		
2. ELECTRONIC COPIES OF ALL PAPER DOCUMENTS:		
*Title of each electronic file (for naming convention see notes above)	No. of kilobytes	Date sent to Ozone Secretariat
CUN 09 Post Harvest Dry, Cured Pork Products		

* Identical to paper documents

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APPENDIX A 2009 METHYL BROMIDE USAGE NEWER NUMERICAL INDEX EXTRACTED (BUNNIE). 24	

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Part A: INTRODUCTION

Renomination Part A: SUMMARY INFORMATION

1. (Renomination Form 1.) NOMINATING PARTY AND NAME:

The United States of America

USA CUN09 POST HARVEST DRY, CURED PORK PRODUCTS

2. (Renomination Form 2.) DESCRIPTIVE TITLE OF NOMINATION:

Methyl Bromide Critical Use Nomination for Post Harvest Use on Dry, Cured Pork Products (Submitted in 2007 for 2009 Use Season)

3. SITUATION OF NOMINATED METHYL BROMIDE USE (e.g. food processing structure, commodity (specify)):

This sector is for the production of cured meat products, such as country hams. These are produced primarily in the southern U.S. This sector has no viable alternatives available. Heat would destroy the product and phosphine does not control mites on the curing hams. Sulfuryl fluoride was registered in mid-July 2005 for use on this commodity and is currently being tested to determine its efficacy on the primary pests, especially mites.

4. AMOUNT OF METHYL BROMIDE NOMINATED (Give quantity requested and years of nomination):

(Renomination Form 3.) YEAR FOR WHICH EXEMPTION SOUGHT: 2009

TABLE A.1: QUANTITY OF METHYL BROMIDE REQUESTED IN EACH YEAR OF NOMINATION

YEAR	NOMINATION AMOUNT (METRIC TONNES)*
2009	19.669

*This amount includes methyl bromide needed for research.

(Renomination Form 4.) SUMMARY OF ANY SIGNIFICANT CHANGES SINCE SUBMISSION OF PREVIOUS NOMINATIONS (e.g. changes to requested exemption quantities, successful trialling or commercialisation of alternatives, etc.)

There have been no significant changes since the previous nomination.

5. BRIEF SUMMARY OF THE NEED FOR METHYL BROMIDE AS A CRITICAL USE (Describe the particular aspects of the nominated use that make methyl bromide use critical, e.g. lack of economic alternatives, unacceptable corrosion risk, lack of efficacy of alternatives under the particular circumstances of the nomination):

This sector has no viable alternatives available. Heat would destroy the product and phosphine does not control mites on the curing hams. Sulfuryl fluoride was registered in mid-July 2005 for use on this commodity and is currently being tested to determine its efficacy on the primary pests, especially mites.

“One misconception about pheromone traps is that a pest population can be controlled by deploying these traps—that is not true for most situations. Traps usually attract only a small percentage of the population that is within the effective range of the trap. Also, female-produced sex pheromones attract only males; the females that lay eggs and perpetuate the infestation are not affected. Since males of the many insect species will mate with multiple females, any males that are not trapped can easily contribute to the production of a subsequent generation of pests. New methods are being researched for using pheromones in pest suppression, but current uses of pheromone traps are best used only for monitoring purposes.” (Arthur and Phillips 2003)

TABLE A.2 EXECUTIVE SUMMARY*

Region		Gwaltney of Smithfield	National Country Ham Association	Nahunta Pork Center	American Assoc. of Meat Processors	Sector Total
EPA Preliminary Value	kgs	726	1,242	91	18,144	20,202
EPA Amount of All Adjustments	kgs	-	(533)	-	-	(533)
Most Likely Impact Value (kgs)	kgs	726	709	91	18,144	19,669
	1000m ³	55	43	5	907	1,010
	Rate	13	17	20	20	19
Sector Research Amount (kgs)		-	2009 Total US Sector Nomination			19,669

* See Appendix A for a complete description of how the nominated amount was calculated.

6. METHYL BROMIDE CONSUMPTION FOR PAST 5 YEARS AND AMOUNT REQUIRED IN THE YEAR(S) NOMINATED:

TABLE A.3 METHYL BROMIDE CONSUMPTION AND HISTORIC AMOUNTS

Applicant Name	MBR HISTORICAL USE (KILOGRAMS)						
	1999	2000	2001	2002	2003	2004	2005
Gwaltney of Smithfield							
National Country Ham Assoc	363	1,361	907	2,177	1,361	3,266	-
Nahunta Pork Center	749	694	802	791	791	791	-
American Assoc. of Meat Proc	363	109	218	109	109	109	109
SECTOR TOTALS	-	-	902	907	873	888	888
	1,475	2,164	2,829	3,984	3,133	5,053	997
Applicant Name	VOLUME TREATED (1,000 CUBIC METERS)						
	1999	2000	2001	2002	2003	2004	2005
Gwaltney of Smithfield							
National Country Ham Assoc	21	21	21	177	177	177	-
Nahunta Pork Center	38	33	45	43	43	43	-
American Assoc. of Meat Proc	16	5	9	5	5	5	4
SECTOR TOTALS	-	-	42	42	42	42	42
	75	59	118	266	266	266	46
Applicant Name	APPLICATION RATE (KGS/1,000 CUBIC METERS)						
	1999	2000	2001	2002	2003	2004	2005
Gwaltney of Smithfield	17.09	64.07	42.72	12.32	7.70	18.48	#DIV/0!
National Country Ham Assoc	19.68	21.03	18.01	18.60	18.60	18.60	#DIV/0!
Nahunta Pork Center	23.30	23.30	23.30	23.30	23.30	23.30	28.06
American Assoc. of Meat Proc	#DIV/0!	#DIV/0!	0021	0021	0021	0021	0021
SECTOR AVERAGE	19.70	36.73	24.06	14.96	11.76	18.97	21.51

7. LOCATION OF THE FACILITY OR FACILITIES WHERE THE PROPOSED CRITICAL USE OF METHYL BROMIDE WILL TAKE PLACE (Give name and physical address. Continue on separate sheet(s) as annex to this form if necessary. Number each address from one onwards):

There more than 1,650 pork production facilities in the United States. Of these, approximately 45 facilities require the use of methyl bromide to fumigate dry cured pork products.

General location information for the following facilities is known: Kentucky (Cadiz, Greenville counties), Missouri (California county), North Carolina (Boone, Goldsboro, Smithfield, Wayne counties), Virginia (Surry, Isle of Wight counties), Tennessee (various locations), and South Carolina (various locations).

Renomination Form Part G: CHANGES TO QUANTITY OF METHYL BROMIDE REQUESTED

This section seeks information on any changes to the Party's requested exemption quantity.

(Renomination Form 16.) CHANGES IN USAGE REQUIREMENTS

Provide information on the nature of changes in usage requirements, including whether it is a change in dosage rates, the number of hectares or cubic metres to which the methyl bromide is to be applied, and/or any other relevant factors causing the changes.

There are no changes in the usage requirements in this sector.

(Renomination Form 17.) RESULTANT CHANGES TO REQUESTED EXEMPTION QUANTITIES

TABLE RENOMINATION FORM G.1: RESULTANT CHANGES TO REQUESTED EXEMPTION QUANTITIES

QUANTITY REQUESTED FOR PREVIOUS NOMINATION YEAR:	19.669 MT
QUANTITY APPROVED BY PARTIES FOR PREVIOUS NOMINATION YEAR:	19.669 MT
QUANTITY REQUIRED FOR YEAR TO WHICH THIS REAPPLICATION REFERS:	19.669 MT

PART B: SITUATION CHARACTERISTICS AND MB USE

8. KEY PESTS FOR WHICH METHYL BROMIDE IS REQUESTED:

TABLE B 1. KEY PESTS FOR WHICH METHYL BROMIDE IS REQUESTED

GENUS AND SPECIES FOR WHICH THE USE OF METHYL BROMIDE IS CRITICAL	COMMON NAME	SPECIFIC REASON WHY METHYL BROMIDE IS NEEDED
<i>Necrobia rufipes</i> – common pest	Red Legged Ham Beetle (“Ham Borer”)	The adults feed on the cured meat. The larvae burrow into the meat and/or fat. Insect infested meat is adulterated and cannot be sold. ¹
<i>Piophilha casei</i> – common pest	Cheese/Ham Skipper	The Skippers are larval stages of small flies that burrow into the cured meat.
<i>Dermestes</i> spp-common pest	Dermested beetles	Dermestids feed on meat and are a choking hazard. Insect infested meat is adulterated and cannot be sold
Mite species -- common pest	Ham Mites	These mites feed and breed on the surface of cured meats. Uncontrolled, mite populations can increase rapidly, reaching enormous numbers.

¹ FDA regulations can be found at: <http://www.fda.gov/opacom/laws/fdcact/fdcact4.htm> and <http://www.cfsan.fda.gov/~dms/dalbook.html>.

9. SUMMARY OF THE CIRCUMSTANCES IN WHICH THE METHYL BROMIDE IS CURRENTLY BEING USED (Give ranges of dosage, exposure or temperatures, if appropriate):

TABLE B 2 (A). COMMODITIES

METHYL BROMIDE DOSAGE (g/m³)	EXPOSURE TIME (hours)	TEMP. (°C)	NUMBER OF FUMIGATIONS PER YEAR	PROPORTION OF PRODUCT TREATED AT THIS DOSE	FIXED (F), MOBILE (M) OR STACK (S)
24	Varies	Varies with facility, but typically in excess of 27°C (80°F)	Varies from 2-8 fumigations per year. 3-5 times per year common ¹	Up to 100% in some facilities.	Fixed

- Advise if this information is not available.
 - ** Where only part of a structure is fumigated, count partial fumigations separately in this column
- Add more rows if required

¹ Although the room containing the hams is usually fumigated multiple times during the year, the hams are rarely fumigated more than once unless they are the very premium hams cured more than 120 days. With the long cures re-infestation of the product can occur necessitating an additional fumigation.

TABLE B 2 (B). FIXED FACILITIES

TYPE OF CONSTRUCTION AND APPROXIMATE AGE IN YEARS	VOL (m^3) OR RANGE	NUMBER OF FACILITIES (E.G. 5 SILOS)	GASTIGHTNESS ESTIMATE*
More than 42 curing facilities use methyl bromide. The age of the facilities varies.	Varies	Ranges from 1 story to silo facilities.	Varies

*Give gastightness estimates where possible according to the following gastightness scale: 'A' - less than 25% gas loss within 24 hours or half loss time of pressure difference (e.g. 20 to 10 Pa ($t_{1/2}$)) greater than 1 minute; 'B' - 25-50% gas loss within 24 hours or half loss time of pressure difference greater than 10 seconds; 'C' - 50-90% gas loss within 24 hours or half loss time of pressure difference 1-10 second; 'D' - more than 90% gas loss within 24 hours or a pressure half loss time of less than 1 second.

10. LIST ALTERNATIVE TECHNIQUES THAT ARE BEING USED TO CONTROL KEY TARGET PEST SPECIES IN THIS SECTOR *(Include main alternative techniques for situations similar to the nomination such as given in MBTOC and TEAP reports indexed at <http://www.unep.org/ozone/teap/MBTOC>):*

Currently, other than sanitation, no alternative techniques are being used. Sanitation is useful in increasing the time between methyl bromide fumigations but cannot, when used alone, replace methyl bromide fumigations.

The registrant of sulfuryl fluoride is currently testing the efficacy of this potential alternative for the pests of ham in commercial settings. Several of the producers of dry, cured pork products are cooperating with the registrant for these investigations.

PART C: TECHNICAL VALIDATION

Renomination Form Part D: REGISTRATION OF ALTERNATIVES

11. SUMMARISE THE ALTERNATIVE(S) TESTED, STARTING WITH THE MOST PROMISING:

Sulfuryl Fluoride is currently undergoing testing to determine whether it is effective against the key pests, particularly mites, which affect this product. See also Section 12 below.

12. SUMMARISE TECHNICAL REASONS, IF ANY, FOR EACH ALTERNATIVE NOT BEING FEASIBLE OR AVAILABLE FOR YOUR CIRCUMSTANCES (*For economic constraints, see Question 14*):

TABLE C.2.1: TECHNICAL SUMMARY OF INFEASIBILITY OF ALTERNATIVES

No.	METHYL BROMIDE ALTERNATIVE	TECHNICAL REASON (IF ANY) FOR THE ALTERNATIVE NOT BEING FEASIBLE	ESTIMATED MONTH/YEAR WHEN THE TECHNICAL CONSTRAINT <u>COULD BE SOLVED</u>
1	Phosphine alone & in combination	Does not control mites. North Carolina has additional use restrictions.	USG has no legal authority to compel registrations; it can only act on registrations requested by private entities. The timely submission of data to support a registration decision is at the sole discretion of the registrant.
2	Propylene oxide	Not registered for this use in the U.S.	
3	Contact insecticides	None registered for this use in the U.S.	
4	Irradiation	See Note below	
5	Sulfuryl fluoride	Recently received federal registration (July 15, 2005). Sulfuryl fluoride adsorbs to fats. Efficacy studies in commercial settings against the insect and mite pests are being planned.	Unknown

Note: Irradiation does not readily kill exposed insects, but rather prevents further feeding and reproduction. Although unable to feed or reproduce, the surviving insects would still create phytosanitary problems and the high doses required to kill exposed insects may affect product quality. Consumer acceptance of irradiated food would hinder the adoption of this method.

Progress in registration of a product will often be beyond the control of an individual exemption holder as the registration process may be undertaken by the manufacturer or supplier of the product. The speed with which registration applications are processed also can fall outside the exemption holder's control, resting with the nominating Party. Consequently, this section requests the nominating Party to report on any efforts it has taken to assist the registration process, but noting that the scope for expediting registration will vary from Party to Party.

(Renomination Form 11.) PROGRESS IN REGISTRATION

Where the original nomination identified that an alternative's registration was pending, but it was anticipated that one would be subsequently registered, provide information on progress with its

registration. Where applicable, include any efforts by the Party to “fast track” or otherwise assist the registration of the alternative.

Currently there are no identified viable alternatives to the dry cured pork product sector.

USG has no legal authority to compel registrations; it can only act on registrations requested by private entities. The timely submission of data to support a registration decision is at the sole discretion of the registrant. Please see table above for additional detail.

(Renomination Form 12.) DELAYS IN REGISTRATION

Where significant delays or obstacles have been encountered to the anticipated registration of an alternative, the exemption holder should identify the scope for any new/alternative efforts that could be undertaken to maintain the momentum of transition efforts, and identify a time frame for undertaking such efforts.

No chemical companies have submitted a request of a new chemical for registration.

USG has no legal authority to compel registrations; it can only act on registrations requested by private entities. The timely submission of data to support a registration decision is at the sole discretion of the registrant. Please see table above for additional detail. USG endeavors to identify methyl bromide alternatives to move them forward in the registration queue. However USG has no legal authority to compel registrations; it can only act on registrations requested by private entities. The timely submission of data to support a registration decision is at the sole discretion of the registrant.

The USDA maintains an extensive technology transfer system, the Agricultural Extension Service. This Service is comprised of researchers at land grant universities and county extension agents in addition to private pest management consultants. In addition to these sources of assistance for technology transfer, there are trade organizations and grower groups, some of which are purely voluntary but most with some element of institutional compulsion, that exist to conduct research, provide marketing assistance, and to disseminate “best practices”. The California Strawberry Commission is one example of such a grower group.

(Renomination Form 13.) DEREGISTRATION OF ALTERNATIVES

Describe new regulatory constraints that limit the availability of alternatives. For example, changes in buffer zones, new township caps, new safety requirements (affecting costs and feasibility), and new environmental restrictions such as to protect ground water or other natural resources. Where a potential alternative identified in the original nomination’s transition plan has subsequently been deregistered, the nominating Party would report the deregistration, including reasons for it. The nominating Party would also report on the deregistration’s impact (if any) on the exemption holder’s transition plan and on the proposed new or alternative efforts that will be undertaken by the exemption holder to maintain the momentum of transition efforts.

No chemicals have been de-registered. However, methyl bromide use on structures, commodities, and post harvest treatments is undergoing reregistration in the US. The proposed mitigations for that reregistration include a fumigation management plan, treatment buffers to

enhance worker safety and ventilation buffers to enhance bystander safety. The proposed buffers are based primarily on use rate, total amount of methyl bromide used, and the type and duration of aeration.

An additional complication in forecasting changes in the registration of alternatives is that under the US federal system individual states may impose restrictions above those imposed at the Federal level. Examples of these additional restrictions may include increasing buffer zones around facilities and chambers and requiring capture and destruction technology.

PART D: EMISSION CONTROL

**Renomination Form Part E: IMPLEMENTATION OF MBTOC/TEAP
RECOMMENDATIONS**

13. HOW HAS THIS SECTOR REDUCED THE USE AND EMISSIONS OF METHYL BROMIDE IN THE SITUATION OF THE NOMINATION? *(Describe procedures used to determine optimum methyl bromide dosages and exposures, improved sealing processes, (refer to gastightness standards given in Question 9(b) above) monitoring systems and other activities that are in place to minimise dosage and emissions).*

Nahunta and Gwaltney of Smithfield built new facilities that are very gas tight and consolidated buildings to reduce their request of methyl bromide last year. (USG had already assumed that all facilities have attained a necessary level of gastightness and so have reduced their request. This development will not change the US request.) This year Edwards of Surry have also made these accommodations. In addition, members of this sector are participating in research to improve the gastightness and sanitation of their facilities in order to reduce emissions and number of fumigations.

Survey results are presented in Section C (ii) below.

This industry has made improvements in sealing their facilities, and is continuing to make the necessary updates to their facilities to improve sealing, thereby reducing emissions. However, many of the members of this sector are small operations and have a slim profit margin. Renovating their facilities requires capital which they not do have, thus, it is taking longer for all the businesses to make the improvements .

As discussed above, however, improved sealing and sanitation does not necessarily eliminate the pest problems which trigger fumigation.

In addition, members of this industry are cooperating with the registrant of sulfuryl fluoride to investigate the efficacy of this chemical under commercial conditions. Experiments are underway to study the effects in curing facilities of sulfuryl fluoride on ham skippers, red-legged ham beetles, and mites. At the time of this submission, results of the preliminary investigations were not available.

The Methyl Bromide Technical Options Committee and the Technology and Economic Assessment Panel may recommended that a Party explore and, where appropriate, implement alternative systems for deployment of alternatives or reduction of methyl bromide emissions.

Where the exemptions granted by a previous Meeting of the Parties included conditions (for example, where the Parties approved a reduced quantity for a nomination), the exemption holder should report on progress in exploring or implementing recommendations.

Information on any trialling or other exploration of particular alternatives identified in TEAP recommendations should be addressed in Part C.

(Renomination Form 14.) USE/EMISSION MINIMISATION MEASURES

Where a condition requested the testing of an alternative or adoption of an emission or use minimisation measure, information is needed on the status of efforts to implement the recommendation. Information should also be provided on any resultant decrease in the exemption quantity arising if the recommendations have been successfully implemented. Information is required on what actions are being, or will be, undertaken to address any delays or obstacles that have prevented implementation.

USDA has several grant programs that support research into overcoming obstacles that have prevented the implementation of methyl bromide alternatives. In addition, USEPA and USDA jointly fund an annual meeting on methyl bromide alternatives. At this year's meeting (held in November in Orlando, Florida) sessions were to assess and prioritize research needs and to develop a use/emission minimization agenda for methyl bromide alternatives research.

See above.

PART E: ECONOMIC ASSESSMENT
Renomination Form Part F: ECONOMIC ASSESSMENT

**14. (Renomination Form 15.) ECONOMIC INFEASIBILITY OF ALTERNATIVES –
Methodology**

An economic analysis was not conducted because this sector has no technically feasible alternatives.

**PART F: NATIONAL MANAGEMENT STRATEGY FOR PHASE-OUT
OF THIS NOMINATED CRITICAL USE
Renomination Form Part B: TRANSITION PLANS**

Provision of a National Management Strategy for Phase-out of Methyl Bromide is a requirement under Decision Ex. I/4(3) for nominations after 2005. The time schedule for this Plan is different than for CUNs. Parties may wish to submit Section 21 separately to the nomination.

15. DESCRIBE MANAGEMENT STRATEGIES THAT ARE IN PLACE OR PROPOSED TO ELIMINATE THE USE OF METHYL BROMIDE FOR THE NOMINATED CRITICAL USE, INCLUDING:

1. Measures to avoid any increase in methyl bromide consumption except for unforeseen circumstances;
2. Measures to encourage the use of alternatives through the use of expedited procedures, where possible, to develop, register and deploy technically and economically feasible alternatives;
3. Provision of information on the potential market penetration of newly deployed alternatives and alternatives which may be used in the near future, to bring forward the time when it is estimated that methyl bromide consumption for the nominated use can be reduced and/or ultimately eliminated;
4. Promotion of the implementation of measures which ensure that any emissions of methyl bromide are minimised;
5. Actions to show how the management strategy will be implemented to promote the phase-out of uses of methyl bromide as soon as technically and economically feasible alternatives are available, in particular describing the steps which the Party is taking in regard to subparagraph (b) (iii) of paragraph 1 of Decision IX/6 in respect of research programmes in non-Article 5 Parties and the adoption of alternatives by Article 5 Parties.

The U.S. has submitted the National Management Strategy in accordance with Decision IX/6.

RENOMINATION FORM PART C: TRANSITION ACTIONS

Responses should be consistent with information set out in the applicant's previously-approved nominations regarding their transition plans, and provide an update of progress in the implementation of those plans.

In developing recommendations on exemption nominations submitted in 2003 and 2004, the Technology and Economic Assessment Panel in some cases recommended that a Party should explore the use of particular alternatives not identified in a nomination's transition plans. Where the Party has subsequently taken steps to explore use of those alternatives, information should also be provided in this section on those steps taken.

Questions 5 - 9 should be completed where applicable to the nomination. Where a question is not applicable to the nomination, write "N/A".

(Renomination Form 6.) TRIALS OF ALTERNATIVES

Where available, attach copies of trial reports. Where possible, trials should be comparative, showing performance of alternative(s) against a methyl bromide-based standard

(i) DESCRIPTION AND IMPLEMENTATION STATUS:

A Proposal submitted to USDA CSREES Integrated Research, Education, and Extension Competitive Grants Program- Methyl Bromide Transitions by Mikel, W.B., Schilling, M.W., Hanson, D.H., and Rentfrow, G. 2006. Evaluation of Methyl bromide emissions and potential fumigation alternatives in dry cured ham production. Seed money was given for this proposal to determine the extent of mite and beetle infestations and methyl bromide use in the industry through audits and surveys.

(ii) OUTCOMES OF TRIALS: *(Include any available data on outcomes from trials that are still underway. Where applicable, complete the table included at [Appendix I](#) identifying comparative disease ratings and yields with the use of methyl bromide formulations and alternatives.)*

The information that Mikel, et al, have obtained so far is below. It will also be presented at the methyl bromide alternatives conference in Orlando.

- Twenty dry cured ham processing plants were surveyed (17 of these 20 plants were audited) in North Carolina (12 plants), Virginia (3 plants), and Kentucky (5 plants) to determine the extent of ham mite (*Tyrophagus putrescentiae*) and red legged beetle (*Necrobia rufipes*) infestations in dry cured ham products.
- Sixty-five percent of the plants that were surveyed report using methyl bromide as a fumigant to control mite and/or red legged beetle infestations in their hams. Methyl bromide usage was 67, 60, and 67 % for plants in North Carolina, Kentucky, and Virginia, respectively. It was also reported that fumigation occurs from 1 to 5 times per year when methyl bromide is used by a plant.

Since seven plants that were surveyed did not report problems with mite or beetle infestations, an attempt was made to determine why these plants do not report problems.

- There were a total of 15 processors that aged hams for less than 5 months and 7 processors that aged hams for 6 months or longer. Six out of seven processors who aged hams for longer than five months reported problems with ham mites and/or red legged beetles.
- In North Carolina, 6 out of the 11 plants with aging times less than 5 months reported infestation problems.
- In Virginia, 2 out of 3 of the plants that aged hams for less than 5 months reported problems with mites, but these 2 processors also produce ham that is aged for 6 months or longer.
- In Kentucky, the only plant that solely produces hams aged for less than 5 months reported no infestation problems, and one plant that ages their hams for 6 months reported no problems with infestations. From these results, it is apparent that aging times of longer than 5 months causes an increased risk for infestation with mites and beetles.
- Aging for shorter times than 5 months does not assure processors that infestation problems will not occur, and long aging times (≥ 6 months) are necessary to obtain desired flavor and product quality that meets niche markets.

There are also trials sponsored by Dow AgroSciences into the efficacy of sulfuryl fluoride on dry, cured pork products in commercial settings. These experiments are ongoing and no data are yet available.

(iii) IMPACT ON CRITICAL USE NOMINATION/REQUIRED QUANTITIES: *(For example, provide advice on any reductions to the required quantity resulting from successful results of trials.)*

During the preparation of this nomination the USG has accounted for all identifiable means to reduce the request. Specifically, approximately 15 million kilograms of methyl bromide were requested by methyl bromide users across all sectors. USG carefully scrutinized requests and made subtractions to ensure that no growth, double counting, inappropriate use rates on a treated hectare basis was incorporated into the final request. Use when the requestor qualified under some other provision (QPS, for example) was also removed and appropriate transition given yields obtained by alternatives and the associated cost differentials, was factored in. As a result of all these changes, the USG is requesting roughly 1/3 of that amount.

The USG feels that no additional reduction in methyl bromide quantities is necessary, given the significant adjustments described above.

(iv) ACTIONS TO ADDRESS ANY DELAYS/OBSTACLES IN CONDUCTING OR FINALISING TRIALS:

Research takes both time and money. The above experiments are continuing and require more time in order to complete. After the data are analyzed, the results will dictate what further actions will be needed. Any further investigations will need appropriate funding, most likely through competitive grants.

The USG has the ability to authorize Experimental Use Permits (EUPs) for large scale field trials for methyl bromide alternatives. As with other activities connected with registration of a pesticide, the USG has no legal authority either to compel a registrant to seek an EUP or to require growers to participate.

As noted in our previous nomination, the USG provides a great deal of funding and other support for agricultural research, and in particular, for research into alternatives for methyl bromide. This support takes the form of direct research conducted by the Agricultural Research Service (ARS) of USDA, through grants by ARS and CSREES, by IR-4, the national USDA-funded project that facilitates research needed to support registration of pesticides for specialty crop vegetables, fruits and ornamentals, through funding of conferences such as MBAO, and through the land grant university system. As noted above, USG has provided seed money to fund research into alternatives for methyl bromide use in the production of dry-cured pork products.

(Renomination Form 7.) TECHNOLOGY TRANSFER, SCALE-UP, REGULATORY APPROVAL FOR ALTERNATIVES

(i) DESCRIPTION AND IMPLEMENTATION STATUS:

At current time, there are no available alternatives in this sector for launch and uptake by the industry.

The USDA maintains an extensive technology transfer system, the Agricultural Extension Service. This Service is comprised of researchers at land grant universities, county extension agents, and private pest management consultants. In addition to these sources of assistance for technology transfer, there are trade organizations and grower groups, some of which are purely voluntary but most with some element of institutional compulsion, that exist to conduct research, provide marketing assistance, and to disseminate “best practices.”

(ii) OUTCOMES ACHIEVED TO DATE FROM TECHNOLOGY TRANSFER, SCALE-UP, REGULATORY APPROVAL:

See 7i

(iii) IMPACT ON CRITICAL USE NOMINATION/REQUIRED QUANTITIES: *(For example, provide advice on any reductions to the required quantity resulting from successful progress in technology transfer, scale-up, and/or regulatory approval.)*

The USG feels that no additional change in methyl bromide quantity requested is necessary.

(iv) ACTIONS TO ADDRESS ANY DELAYS/OBSTACLES:

Research takes both time and financial resources. The above experiments are continuing and require more time in order to complete. After the data are analyzed, the results will dictate what further actions will be needed. Any further investigations will need appropriate funding, most likely through competitive grants. In addition, extension education (publications, websites) and industry engagement via trade-shows and conferences, and other venues (like the Methyl Bromide Alternatives Outreach Annual Meetings) will be pursued. Some groups will hold hands-on training and demonstrations.

USG has no legal authority to compel registrations; it can only act on registrations requested by private entities. The timely submission of data to support a registration decision is at the sole discretion of the registrant. Please see table above for additional detail.

(Renomination Form 8.) COMMERCIAL SCALE-UP/DEPLOYMENT, MARKET PENETRATION OF ALTERNATIVES

(i) DESCRIPTION AND IMPLEMENTATION STATUS:

These issues are discussed in the National Management plan for methyl bromide submitted previously.

(ii) IMPACT ON CRITICAL USE NOMINATION/REQUIRED QUANTITIES: *(For example, provide advice on any reductions to the required quantity resulting from successful commercial scale-up/deployment and/or market penetration.)*

The USG feels that no additional change in methyl bromide quantity requested is necessary.

(iii) ACTIONS TO ADDRESS ANY DELAYS/OBSTACLES:

USG has no legal authority to compel registrations; it can only act on registrations requested by private entities. The timely submission of data to support a registration decision is at the sole discretion of the registrant. Please see table above for additional detail

The USDA maintains an extensive technology transfer system, the Agricultural Extension Service. This Service is comprised of researchers at land grant universities and county extension agents in addition to private pest management consultants. In addition to these sources of assistance for technology transfer, there are trade organizations and user groups, some of which are purely voluntary but most with some element of institutional compulsion, that exist to conduct research, provide marketing assistance, and to disseminate “best practices”.

(Renomination Form 9.) CHANGES TO TRANSITION PROGRAM

If the transition program outlined in the Party’s original nomination has been changed, provide information on the nature of those changes and the reasons for them. Where the changes are significant, attach a full description of the revised transition program.

Because there are no technically and economically feasible alternative, there are no changes to the transition program outlined in the original nomination.

See Appendix A

(Renomination Form 10.) OTHER BROADER TRANSITION ACTIVITIES

Provide information in this section on any other transitional activities that are not addressed elsewhere. This section provides a nominating Party with the opportunity to report, where applicable, on any additional activities which it may have undertaken to encourage a transition, but need not be restricted to the circumstances and activities of the individual nomination. Without prescribing specific activities that a nominating Party should address, and noting that individual Parties are best placed to identify the most appropriate approach to achieve a swift transition in their own circumstances, such activities could include market incentives, financial support to exemption holders, labelling, product prohibitions, public awareness and information campaigns, etc.

Same as for Renomination Form 8(i).

PART G: CITATIONS

- Arthur, F. and T. W. Phillips. 2003. Stored-product insect pest management and control, In: Food Plant Sanitation eds: Y. H. Hui, B. L. Bruinsma, J. R. Gorham, W. Nip, P. S. Tong, and P. Ventresca. Marcel Dekker, Inc., New York, pp. 341-358.
- Bell, C.H. 2000. Fumigation in the 21st Century. *Crop Protection*, 19:563-69.
- Fields, P. and N. D. G. White. 2002. Alternatives to methyl bromide treatments for stored-product and quarantine insects. *Annual Review of Entomology* 47:331-59.
- Reddick, Mark. Applicator. Personal Communication on July 31, 2006.
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- Schneider, S.M., E.N. Roskopf, J.G. Leesch, D.O. Chellemi, C.T. Bull, and M.Mazzola. 2003. United States Department of Agriculture – Agricultural Research Service research on alternatives to methyl bromide: pre-plant and post-harvest. *Pest Manag. Sci.* 59:814-826.

APPENDIX A 2009 METHYL BROMIDE USAGE NEWER NUMERICAL INDEX EXTRACTED (BUNNIE)

2009 Methyl Bromide Usage Newer Numerical Index - BUNNIE						Ham	
December 18, 2006	Region	Gwaltney of Smithfield	National Country Ham Association	Nahunta Pork Center	American Assoc. of Meat Processors	Sector Total	Notes
Dichotomous Variables	Currently Use Alternatives?	Yes	Yes	Yes	Yes		
	Pest-free Requirements?	Yes	Yes	Yes	Yes		
Other Issues	Frequency of Treatment of Product	1x per year	1x per year	1x per year	1x per year		
	Quarantine & Pre-Shipment Removed?	Yes	Yes	Yes	Yes		
Most Likely Combined Impacts (%)	Regulatory Issues (%)	0%	0%	0%	0%		
	Key Pest Distribution (%)	100%	100%	100%	100%		
	Total Combined Impacts (%)	100%	100%	100%	100%		
Most Likely Baseline Transition	(%) Able to Transition	0%	0%	0%	0%		
	Minimum # of Years Required	0	0	0	0		
	(%) Able to Transition per Year	0%	0%	0%	0%		
EPA Adjusted Use Rate (kg/1000m3)		13	17	20	20		
2009 Applicant Requested Usage	Amount - Pounds	6,000	2,738	200	40,000	48,938	
	Volume - 1000ft ³	6,240	600	165	59,600	66,605	
	Rate (lb/1000ft ³)	0.96	4.56	1.21	0.67	1	
	Amount - Kilograms	2,722	1,242	91	18,144	22,198	
	Volume - 1000m ³	177	17	5	1,688	1,886	
	Rate (kg/1000m ³)	15	73	19	11	12	
EPA Preliminary Value		726	1,242	91	18,144	20,202	
EPA Baseline Adjusted Value has been adjusted for:		MBTOC Adjustments, QPS, Double Counting, Growth, Use Rate, Miscellaneous Adjustments, and Combined Impacts					
EPA Baseline Adjusted Value	kgs	726	709	91	18,144	19,669	
EPA Transition Amount	kgs	-	-	-	-	-	
EPA Amount of All Adjustments		-	(533)	-	-	(533)	
Most Likely Impact Value (kgs)	kgs	726	709	91	18,144	19,669	
	1000m ³	55	43	5	907	1,010	
	Rate	13	17	20	20	19	
Sector Research Amount (kgs)		-	2009 Total US Sector Nomination		19,669		

1 Pound = 0.453592 kgs
 1 lb/1000 ft³ = 0.0624 kg/1000 m³

1000 cubic feet = 0.028316847 1000 cubic meters
 (ounces/1000 ft³ ~ kg/1000 m³)