

**Summary: Nomination for Critical Use Exemptions for Methyl Bromide Submitted by the
United States of America on Dec. 22, 2006
[Requests (4,977,968 kg) for 2009 calendar year]**

Nominating Party: United States of America		
1	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Post Harvest Use for Commodities
	Crop Name or Post-Harvest Use	Walnuts, dried fruit (prunes, raisins, figs), dates, and dried beans (garbanzo and blackeye) produced in California
	Quantity of MBr requested in 2009	58,921 kgs
	Reasons alternatives not technically and economically feasible	<p>Phosphine, alone and in combination:</p> <ul style="list-style-type: none"> -- takes longer than methyl bromide -- harvest in autumn when temperatures are lower, requires more product and longer treatment times --shifting to slower product would require new facilities, land acquisition and development --disruption of commodity processing during peak production <p>Heat:</p> <ul style="list-style-type: none"> --unsuitable effects on product: rancidity, "cooking" <p>Sulfuryl Fluoride:</p> <ul style="list-style-type: none"> --May 2005 registration in California for this use. No information regarding efficacy results of commercial application available --not registered for use on beans in California --export issues, since fumigation at peak harvest makes it impossible to separate domestic from export market nuts
2	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Cucurbits Grown in Open Fields
	Crop Name or Post-Harvest Use	Cucurbits (squash, melons, and cucumber) grown in Alabama, Arkansas, Delaware, Georgia, Kentucky, Louisiana, Maryland, Michigan, Mississippi, North Carolina, South Carolina, Tennessee and Virginia.
	Quantity of MBr requested in 2009	411,765 kgs
	Reasons alternatives not technically and economically feasible	<p>Michigan:</p> <p>1,3-D+chloropicrin:</p> <ul style="list-style-type: none"> -low soil temperatures are below label requirements for alternatives -mandatory 30 m buffer for treated fields (due to human health concerns) -delay in planting (phytotoxicity issue), which results in missing key market windows and premium prices -not as efficacious as MBr; small field trials showed yield reductions <p>Southeastern U.S.:</p> <p>1,3-D+chloropicrin:</p> <ul style="list-style-type: none"> -limited in GA due to karst geology -extended planting delay (phytotoxicity issue), which results in missing key market windows and premium prices -not as efficacious as MBr, especially on nutsedge <p>Metam-Sodium:</p>

		<ul style="list-style-type: none"> -inconsistent control of nematodes and nutsedges -more sensitive to moisture, therefore distribution problem in many soils -more sensitive to cold, so very problematic for Michigan -extended planting delay (phytotoxicity issue), which results in missing key market windows and premium prices
3	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Eggplant Grown in Open Fields
	Crop Name or Post-Harvest Use	Eggplant grown in Florida, Georgia, and Michigan.
	Quantity of MBr requested in 2009	62,789 kgs
	Reasons alternatives not technically and economically feasible	<p>Michigan:</p> <ul style="list-style-type: none"> 1,3-D+chloropicrin: <ul style="list-style-type: none"> -low soil temperatures -mandatory 30 m buffer for treated fields (due to human health concerns) -delay in planting (phytotoxicity issue), which results in missing key market windows and premium prices -not as efficacious as MBr; small field trials showed yield reductions <p>Southeastern U.S.:</p> <ul style="list-style-type: none"> --1,3-D+chloropicrin: <ul style="list-style-type: none"> -limited in FL and GA due to karst topographical features in all areas plus other soil restrictions in Florida. -extended planting delay (phytotoxicity issue), which results in missing key market windows and premium prices -not as efficacious as MBr, especially on nutsedge <p>Metam-Sodium:</p> <ul style="list-style-type: none"> -inconsistent control of nematodes and nutsedge -more sensitive to moisture, therefore distribution problem in many soils -more sensitive to cold, so very problematic for Michigan -extended planting delay (phytotoxicity issue), which results in missing key market windows and premium prices
4	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Post-Harvest Use in Food Processing Plants
	Crop Name or Post-Harvest Use	Rice mills, flour mills, pet food manufacturing facilities, and bakeries
	Quantity of MBr requested in 2009	291,418 kgs
	Reasons alternatives not technically and economically feasible	<p>Phosphine, alone and in combination:</p> <ul style="list-style-type: none"> --limited because of corrosion to electrical equipment --takes longer, thereby delaying plant operations --temperature sensitive --some reports of resistance in stored product pests <p>Heat:</p> <ul style="list-style-type: none"> --takes longer, thereby delaying plant operations --constraints due to structure materials of buildings --cost typically very high

		<p>Sulfuryl Fluoride: --Registered in U.S. for flour and rice mills (January 2004; CA registered May 2005); also registered in July 2005 for food processing plants & pet foods by USEPA, but not CA. --efficacy is temperature dependent --requires applicator training --industry is trying to learn how to incorporate into their IPM/best management practices --costs often higher (8% to 200% above Mbr)</p>
5	Descriptive Title of Nomination:	Methyl Bromide (MB) Critical Use Nomination for Preplant Soil Use for Forest Seedlings
	Crop Name or Post-Harvest Use	Conifer and hardwood seedlings
	Quantity of MBr requested in 2009	125,728 kgs
	Reasons alternatives not technically and economically feasible	<p>1,3-D+chloropicrin: --not effective against moderate to high populations of nutsedge --has resulted in low quality and fewer seedlings</p> <p>Metam-sodium+chloropicrin: --too long to rotovate or incorporate metam sodium followed by chloropicrin --tarping with metam sodium + chloropicrin is difficult because of slower off-gassing and the creation of worker risks --severe crop injury has occurred, litigation still pending</p>
6	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination For Post Harvest Use on Dry Cured Pork Products
	Crop Name or Post-Harvest Use	Cured meat products, such as country hams
	Quantity of MBr requested in 2009	19,669 kgs
	Reasons alternatives not technically and economically feasible	<p>Phosphine: --not registered in all states --not efficacious against mites</p> <p>Heat: --would effect the final product (rancidity, cooking)</p> <p>Sulfuryl Fluoride: --Federal Registration July 15, 2005 --not tested in commercial setting --no efficacy data on target pests, especially mites</p>
7	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Fruit, Nut and Flower Nurseries
	Crop Name or Post-Harvest Use	Nursery-grown raspberry, roses, and deciduous tree planting material
	Quantity of MBr requested in 2009	45,282 kgs
	Reasons alternatives not technically and economically feasible	<p>Alternatives are not recognized to qualify for certification of "free of especially injurious pests and disease symptoms" (Cal Dept Food Agric, 1996) Significant economic losses if stock not certified -1,3-D has township caps in California</p> <p>Roses: 1,3-D -1,3-D may be used if: field never previously infested with nematodes, and soil moisture levels not higher than 12% (i.e.</p>

		only sandy soils) - township cap issue in California restricts total usage
8	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Orchard Replant
	Crop Name or Post-Harvest Use	Stone fruit, almond, and walnut orchards, and table grape and raisin vineyards, in California
	Quantity of MBr requested in 2009	314,007 kgs
	Reasons alternatives not technically and economically feasible	Used once in life of orchard to establish trees & vines for 20-40 years to combat "orchard replant disorder" 1,3-D: --1990's label rate and use restrictions reduced efficacy in replant situations --most effective in sandy soils, not effective in soils with higher than 12% moisture levels --township caps in California Resistant rootstock to the specific pests present in these soils does not exist at this time
9	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Cut Flower and Bulb Ornamentals Grown in Open Fields or in Protected Environments
	Crop Name or Post-Harvest Use	Ornamental Cut Flowers and Bulbs
	Quantity of MBr requested in 2009	137,776 kgs
	Reasons alternatives not technically and economically feasible	--1,3-Dichloropropene + chloropicrin: California -1,3-D use is limited by township caps, buffer zones, and plant back times, which could affect some rotations. -1,3-D cannot be used in greenhouses. -Limitations to chloropicrin include buffer zones, poorer weed control than methyl bromide, and that it may not currently be used in greenhouses; reluctance to use chloropicrin in many areas due to the proximity of cut flower fields to residences. -Consistent efficacy has not been seen in California Florida -1,3-D is limited by the plant-back interval, the lack of weed control, and the lack of equipment necessary to fumigate with 1,3-D. -Limitations to chloropicrin include poorer weed control than methyl bromide, and a reluctance to use chloropicrin in many areas due to the proximity of cut flower fields to residences. -In Florida, 1,3-D + chloropicrin, followed by metam sodium a week later, has shown control of diseases and nematodes, but does not adequately control weeds. Michigan -Not effective on its own --Metam sodium + chloropicrin: -Weed and nematode control not adequate with this combination -These chemicals would have to be applied separately, requiring two applications.

		<p>California</p> <ul style="list-style-type: none"> -limitations to metam sodium include buffer zones, greenhouse uses are not labeled, and plant back restrictions; inconsistent efficacy -limitations to chloropicrin include buffer zones, poorer weed control than methyl bromide, and that it may not currently be used in greenhouses; reluctance to use chloropicrin in many areas due to the proximity of cut flower fields to residences. <p>Florida</p> <ul style="list-style-type: none"> -Some caladium growers use metam sodium to suppress pest populations between methyl bromide treatments. While this reduces the number of times methyl bromide must be applied, it does not eliminate the need for methyl bromide. -must meet certification requirements (free of nematodes) for certain markets (several U.S. states and some international markets) -limitations to chloropicrin include poorer weed control than methyl bromide and a reluctance to use chloropicrin in many areas due to the proximity of cut flower fields to residences. <p>Michigan</p> <ul style="list-style-type: none"> -Buffer zones make this alternative difficult and it cannot be used on small parcels of land. Pest populations also build up over time. <p>Grafting, Resistant rootstock, Plant breeding, Resistant cultivars:</p> <ul style="list-style-type: none"> -Given the thousands of varieties of ornamentals, plant breeding or developing resistant cultivars for each variety, each with unique pest problems is not practical. -Choices of ornamentals to grow are market driven. <p>Soilless culture / Substrates /plug plants:</p> <ul style="list-style-type: none"> Generally not feasible, especially for deeper rooted crops and on large acreage.
10	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Peppers Grown in Open Fields on Plastic Tarpaulins
	Crop Name or Post-Harvest Use	Peppers grown in Alabama, Arkansas, California, Florida, Georgia, Kentucky, Louisiana, Michigan, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia
	Quantity of MBr requested in 2009	783,821 kgs
	Reasons alternatives not technically and economically feasible	<p>Southeastern U.S.:</p> <ul style="list-style-type: none"> --1,3-D+chloropicrin: <ul style="list-style-type: none"> -limited in FL and GA due to karst geology in all areas plus other soil restrictions in Florida. -extended planting delay (phytotoxicity issue), which results in missing key market windows and premium prices -not as efficacious as MBr, especially on nutsedge -- Metam-Sodium: <ul style="list-style-type: none"> -inconsistent control of nematodes and nutsedges -more sensitive to moisture, therefore distribution problem in many soils -extended planting delay (phytotoxicity issue), which results in missing key market windows and premium prices <p>Michigan:</p>

		<p>--1,3-D+chloropicrin: -low soil temperatures -mandatory 30 m buffer for treated fields (due to human health concerns) -delay in planting (phytotoxicity issue), which results in missing key market windows and premium prices -not as efficacious as MBr; small field trials had yield reductions</p> <p>California: --1,3-D+chloropicrin: -long periods of rainy, cloudy weather results in conditions similar to Michigan (low soil temperatures and wet soils) -mandatory 100 m buffer for treated fields -delay in planting (phytotoxicity issue), which results in missing key market windows and premium prices -growers reporting lack of efficacy for both pests township caps</p>
11	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination For Post-Harvest Use By NPMA For Facilities and Commodities
	Crop Name or Post-Harvest Use	Commodities and food processing plants treated by National Pest Management Association (NPMA) members, not included in other US CUEs: spices and herbs, cocoa beans, cheese, processed foods not included in other sectors.
	Quantity of MBr requested in 2009	117,779 kgs
	Reasons alternatives not technically and economically feasible	<p>Phosphine, alone and in combination: -- takes longer than methyl bromide --shifting to slower product would require new facilities, land acquisition and development --disruption of commodity processing during peak production --corrosion of metals</p> <p>Heat: --unsuitable effects on product: rancidity, "cooking"</p> <p>Sulfuryl Fluoride: --recent Federal registration: July 15, 2005. -- need experiences and time to incorporate into IPM and best management plans --efficacy is temperature dependent --requires applicator training --costs may be higher</p>
12	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Strawberries Grown for Fruit in Open Fields
	Crop Name or Post-Harvest Use	Strawberry production in California, Florida, and states in the eastern U.S. (Alabama, Arkansas, Georgia, Illinois, Kentucky, Louisiana, Maryland, Mississippi, New Jersey, North Carolina, Ohio, South Carolina, Tennessee, and Virginia).
	Quantity of MBr requested in 2009	1,336,754 kgs
	Reasons alternatives not technically and economically feasible	<p>California: 1,3-D+chloropicrin: -less effective against diseases and weeds</p>

		<ul style="list-style-type: none"> -long pre-planting restrictions will delay harvesting and market window -hilly terrain problematic -30 m buffer zones in small fields -township caps restrictions -restrictions on high barrier films <p>Metam-sodium:</p> <ul style="list-style-type: none"> -provides inconsistent nematode and weed control -needs sandy soils for even distribution <p>Florida:</p> <p>--1,3-D+chloropicrin:</p> <ul style="list-style-type: none"> -does not adequately control diseases and weeds, especially nutsedge. -buffer zones of 30 m are too constraining for small fields long pre-planting intervals affect cultivar selection, timing of harvest, marketing window options, land leasing decisions and crop rotation schedules - prohibition of use on soils not supporting seepage irrigation limits use <p>--Metam-sodium:</p> <ul style="list-style-type: none"> -provides unpredictable disease, nematode, and weed control. <p>Eastern U. S except Florida:</p> <p>--1,3-D+chloropicrin:</p> <ul style="list-style-type: none"> -does not adequately control diseases and weeds, especially nutsedge. -buffer zones are too constraining for small fields long pre-planting intervals affect cultivar selection, timing of harvest, marketing window options, land leasing decisions and crop rotation schedules - restriction of use on karst topographical features limits use in GA <p>--Metam-sodium:</p> <ul style="list-style-type: none"> -provides unpredictable disease, nematode, and weed control.
13	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Strawberry Nurseries in Open Fields or in Protected Environments
	Crop Name or Post-Harvest Use	Strawberry seedlings in open fields in Southeast U.S. (North Carolina, and Tennessee) and in screen houses in California
	Quantity of MBr requested in 2009	8,837 kgs
	Reasons alternatives not technically and economically feasible	<p>California:</p> <p>1,3-D + chloropicrin:</p> <ul style="list-style-type: none"> -does not adequately control nematodes and diseases to the level required by various state laws -poor weed control -results in yield losses in nursery plants -A 30.5 meter (100 feet) buffer is particularly constraining on smaller fields in predominantly urban fringe areas -Workers require Personal Protection Equipment and become at risk for possible heat exhaustion or heat stroke -A 3-week time interval before planting is required to avoid phytotoxic levels; causing delays in production schedules that could lead to missing specific market windows, thus reducing profit or actually causing a loss for a grower

		<p>Southeast U.S</p> <p>--1,3-D + chloropicrin:</p> <ul style="list-style-type: none"> -does not adequately control nematodes and diseases to the level required by various state laws -poor weed control -results in yield losses in nursery plants -A 30.5 meter (100 feet) buffer is particularly constraining on smaller fields in predominantly urban fringe areas -Workers require Personal Protection Equipment and become at risk for possible heat exhaustion or heat stroke -A 3-week time interval before planting is required to avoid phytotoxic levels; causing delays in production schedules that could lead to missing specific market windows, thus reducing profit or actually causing a loss for a grower
14	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Pre-plant Soil Use for Tomato Grown in Open Fields
	Crop Name or Post-Harvest Use	Fresh market tomatoes produced in California, Michigan and South-Eastern United States (Alabama, Arkansas, Delaware Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, and Tennessee)
	Quantity of MBr requested in 2009	1,245,249 kgs
	Reasons alternatives not technically and economically feasible	<p>Michigan:</p> <p>1,3-D+chloropicrin:</p> <ul style="list-style-type: none"> -low soil temperatures -mandatory 30 m buffer for treated fields (due to human health concerns) -delay in planting (phytotoxicity issue), which results in missing key market windows and premium prices -not as efficacious as MBr; small field trials had yield reductions <p>Southeastern U.S.:</p> <p>1,3-D+chloropicrin:</p> <ul style="list-style-type: none"> - limited in FL and GA due to karst topographical features in all areas plus other soil restrictions in Florida. -extended planting delay (phytotoxicity issue), which results in missing key market windows and premium prices -not as efficacious as MBr, especially on nutsedge <p>Metam-Sodium:</p> <ul style="list-style-type: none"> -inconsistent control of nematodes and nutsedges -more sensitive to moisture, therefore distribution problem in many soils -more sensitive to cold, so very problematic for Michigan -extended planting delay (phytotoxicity issue), which results in missing key market windows and premium prices
15	Descriptive Title of Nomination:	Methyl Bromide Critical Use Nomination for Preplant Soil Use for Sweet Potato Slips in Open Fields
	Crop Name or Post-Harvest Use	Sweet potato plant propagules (slips)
	Quantity of MBr requested in 2009	18,144 kgs

	Reasons alternatives not technically and economically feasible	1,3-D+chloropicrin: -Not permitted for use in California during Dec.-Jan. -Nomination is for use where township caps on 1, 3-D have been exceeded