United Nations Environment Programme
برنامج الأمم المتحدة للبيئة • 联合国环境规划署
PROGRAMME DES NATIONS UNIES POUR L'ENVIRONNEMENT • PROGRAMA DE LAS NACIONES UNIDAS PARA EL MEDIO AMBIENTE
ПРОГРАММА ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ ПО ОКРУЖАЮЩЕЙ СРЕДЕ
UNEP

Your reference:

Our reference: OzL./MBTOC-CUN/USA/MS/gao **Date:** 18 March 2005

Dear Sir,

Re: Review of Critical-Use Nominations for Methyl Bromide - USA

Please refer to the on-going review process of nominations for critical-use exemptions for methyl bromide.

I am forwarding for your attention the second set of questions from Methyl Bromide Technical Options Committee on nominations related to soil applications.

I would appreciate it if your response and any questions you may have are directly sent to the Co-chairs of the Committee at the addresses provided below with a copy to the Secretariat.

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Yours sincerely,

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UNITED STATES:

US CUCURBITS:

1. In this nomination there are differences (in some cases important ones) between the crop areas stated in the CUNs and those used as a basis for the requested amounts- and the official USDA statistics for these crops. For example Michigan does not appear to be an eggplant producer according to USDA´s statistics; or the "*other south-eastern states*", with the only exception of North Carolina. Could the Party please confirm which figures in the nomination are correct and the official source of this information.
2. Could the Party please confirm what data it has used to validate the areas cropped with cucurbits that are affected by Karst geology areas.

US PEPPERS

1. Please provide official statistics of pepper production in the States of Alabama, Arkansas, Kentucky, Louisiana, South Carolina, Tennessee, and Virginia and MB use in those States.
2. Total area to be treated with the MB in Florida (Tables 8.1&12.1) is 8,417 ha, while total area in the State is 7,893 ha (table 7.1). Please explain?
3. Please provide accurate information, on a county basis, about yellow and purple nutsedge high and moderate infestations and its coincidence within pepper crop areas for the Southeast States, Georgia and Florida.
4. Please provide accurate information, on a county basis, about occurrence of the karst geology phenomena and its coincidence with pepper crop areas for the States of Georgia and Florida.
5. California: area treated in 2002 was 121 ha (table 12.1), while MB is requested for 759 ha. Please explain?
6. For the control of *Phytophthora* in Michigan, 1,3 D + chloropicrin is a key alternative with efficacy comparable to MB. According to the CUN, the main problem for its adoption is a potential delay in planting as long as 28 days low soil temperatures. Fumigation operations need to be completed by the first week of May to capture an early market window. In Michigan, Soil temperatures in April vary between 10-15 °C. 1,3 D+Pic can be applied when soil temperature is higher than 5°C as it is the case in Michigan in April. Therefore, can we consider soil temperature as a limiting factor for the soil fumigation with 1,3D+Pic ?.
7. In Michigan, it was stated that the range of yield loss varies between 0% and 6% yield in plots fumigated with 1,3 D+ Pic compared to MB (2003). In a trial undertaken in 2004, yields from pepper plots treated with various alternatives (metham potassium, alone or in combination with chloropicrin, 1,3-D + chloropicrin) are comparable to yields from plots treated with MB + chloropicrin and yields from control plots. These results indicate a very low pest pressure in all treated and control plots. Therefore, if the experiments have been conducted in plots with a very low pathogens pressure, has the *Phytophthora* distribution in Michigan been established? If yes, what is the % of the areas with poor, moderate and high pathogen pressure? Same question for the other pests in the US pepper production states.
8. Important reductions may be obtained by calculating the area with Karst geology where MB can be replaced by Metham Sodium and Pic. What percentage of US pepper production occurs in Karst geology ?
9. Why strip fumigation is not adopted in all the US production areas?

10. Since 2000, in Michigan, about 5% of the acreage has been treated with the 50:50 formulation of methyl bromide and chloropicrin. What are the constraints to increase the use of this formulation? Is it possible to introduce or to increase the use of the formulation in the other states
11. In Southern US and other states, Pepper is generally double-cropped with a cucurbit crop (muskmelon, cucumber, or squash). MB is applied every year. The requested quantity can decrease if MB is applied every two years, as for Michigan. Are there any constraints to adopt this frequency? The party presented also a CUN for cucurbits.
12. The MB formulation adopted is 67:33. Could the formulation 50:50 be adopted?
13. One application of methyl bromide can last more than a year in California and therefore, the frequency of application is once every two years. Why MB in not applied every two years in other states?
14. Locascio et al. (1997) conducted studies on MB alternatives on tomatoes grown in small plots at two Florida locations with high nutsedge infestation. Is there any similar reference for peppers? The yield decrease is probably caused by Fusarium and not by nutsedge.
15. In California, has the area fumigated in 2003 increased or decreased?
16. When the uture plans to minimize MB use are expected to be adopted (VIF, drip irrigation, trials with new alternatives on pepper, MB formulation.)
17. The Party is requested to explain why no large-plot studies have yet been performed to show commercial feasibility of available alternatives in US peppers
18. Will the farm demonstration plots will be implemented in 2005? If yes, please give more details: number, distribution, alternatives etc..
19. The alternative implementation is scheduled for 2010. What will be the strategies to reduce the use and emission of MB during the coming years? (crop rotation, raised crop beds, black plastic, and foliar fungicides. Use of virtually impermeable film (VIF) etc..
20. What is the importance use of HDPE (high density polyethylene) to minimize use and emissions of MB.
21. What are the cultural practices used by the farmers to minimize use and emissions of MB.

US EGGPLANT

1. Experimental results has shown that for the control of *Phytophthora* on eggplant in Michigan, 1,3 D + chloropicrin is a key alternative with efficacy comparable to MB. According to the CUN, the main problem for its adoption is a potential delay in planting as long as 28 days low soil temperatures. Fumigation operations need to be completed by the first week of May to capture an early market window. In Michigan, Soil temperatures in April vary between 10-15 °C. 1,3 D+Pic can be applied when soil temperature is higher than 5°C as it is the case in Michigan in April. Therefore, can we consider soil temperature as a limiting factor for the soil fumigation with 1,3D+Pic ?.
2. Important reductions may be obtained by calculating the area with Karst geology where MB can be replaced by Metham Sodium and Pic. What percentage of US eggplant production occurs in Karst geology ?
3. In Michigan, the formulation 50:50 has been introduced. What are the constraints to increase the use of this formulation in Michigan and also in Florida and Georgia?
4. In some states, e.g. Georgia, eggplant is generally double-cropped with a cucurbit crop (muskmelon, cucumber, or squash). MB is applied every year. The requested quantity can decrease if MB is applied every two years, as it is the case in Michigan. Are there any constraints to adopt this frequency in Florida and Georgia?

5. The MB formulation adopted in Florida and in Georgia is 67:33. Could the formulation 50:50 be adopted in these two eggplant producing regions?

6. The party is requested to explain why no large-plot studies have yet been performed to show commercial feasibility of available alternatives in US eggplants

7. Will the farm demonstration plots will be implemented in 2005? If yes, please give more details: number, distribution, alternatives etc.

8. What are the strategies to be adopted in the near future to reduce the use and emission of MB? etc..

9. What is the importance use of HDPE (high density polyethylene) to minimize use and emissions of MB in eggplant production.

10. No reference about grafting on Solanum torvum rootstock is provided. This alternative is widely used and expanding very quickly in the Mediterranean and the Netherlands, as an MB alternative and to increase production. Solanum torvum is fully resistant to fusarium and nematodes, with no problems due to high temperatures. It is used in Central America under very hot conditions. Please clarify the situation in the US?

Double-cropping

1. For Florida, Table 11.1 indicates that most, possibly all, of the CUN crop is double-cropped (page 13). Please clarify what percentage of the eggplant CUN area practices double-cropping in Florida. What are the most common rotational crops in Florida? Table 11.1 indicates peppers, cucurbits; whereas page 7 mentions several other crops as well.

Citations list (section 26)

2. The citations list does not include new research, new communications or other developments since 2003. With only one exception, the citations (including personal communications) in the citations list are dated December 2003 or earlier. Have there been any trials, activities or developments related to eggplant and issues relevant to Decision IX/6 since 2003? If so, please provide information.

Combination treatments with herbicides

3. In Questions sent to the Party on eggplant in June 2003, MBTOC stated that "MBTOC is concerned that much of the research conducted on uses of alternatives is conducted on peppers or tomato and extrapolated to eggplant production, particularly on the impact of nutsedge infestation." Since this is the 3rd year of a CUN request for eggplant in the USA, it is expected that very substantial progress will have been made in research in eggplant by now. Please clarify?

4. The section on Florida (pages 13-20) does not give sufficient consideration to combinations of several fumigants + herbicides/weed control methods. The only fumigant combinations considered in the section on Florida are (a) 1,3-D+ pic (page 13, 17), and (b) 1,3-D + pic + Devrinol + trifluralin (page 15). Although Table C.1 mentions metham with or without pic (page 17) the citation Locascio et al 1997 in fact covers metham alone, therefore Table C.1 relates to metham alone. Please provide information about any other combination treatments, such as several fumigants + herbicides/weed control methods that have been trialled for eggplant in Florida?

5. The CUN for Georgia provides information on several combinations of fumigants (page 25) but does not provide data/information on combinations of fumigants + herbicides/weed control methods. If such combinations have been tested in eggplant, please provide copies of studies or citations?

Yield loss analysis

6. The tables of yield loss analysis for Florida (Table C.1 page 17) and Georgia (Table C.1 page 27) do not appear to be relevant or sufficient. The yield loss table considers only 1,3-D + pic, and metham (alone). (Table C.1 is based only on Locascio et al 1997 (pages 17, 25; Table 16.1 on pages 18, 28) which carried out small-scale trials in another crop (tomato) for

1,3-D+pic, and metham. Although Table C.1 appears to cover metham sodium with or without chloropicrin, the CUN text about the study by Locascio et al (1997) indicates that metham alone was tested.) It is very surprising that by 2005 the CUN does not provide any yield results for eggplant, nor for combinations of fumigants + herbicides/weed control methods, in Florida and Georgia.

7. The sections on yield in Florida and Georgia in the current CUN still rely strongly on other crops. Please provide more information about yield (preferably copies of studies or research reports) of MB alternatives in eggplant in Florida and Georgia, particularly focussing on the following: combinations of fumigants + weed control, using improved application methods which became available in recent years.

8. The table of yield loss analysis for Michigan (Table C.1, page 36) appears to be based entirely on Hausbeck and Cortwright [sic] (2003), a study which is not in the citations list. Table C.1 (on page 36) does not appear to take account of a more recent study by Cortright and Hausbeck (2004), which indicates that 1,3-D + pic provided a higher yield of eggplant than MB (Table 16.2 on page 37). Table C.1 also suggests that the range of yield loss from use of 1,3-D + pic was as high as 95% (page 36). However, experience in use of 1,3-D + pic, in commercial practice and in trials, does not support this degree of loss when appropriate application methods are used, and nutsedge weeds are not key target pests. Please clarify? (The key target pests in Michigan are listed as *Phytophthora capsici* and *Verticillium* spp. only (page 31))

Progress in registrations

9. What progress has been made in registering products for eggplant: (a) iodomethane, (b) herbicides for nutsedge, (c) furfural, (d) others?

Copies of studies

10. Please provide a copy of the following studies:

(a) Study by Culpepper and Langston performed in 2004 in Georgia (CUN pages 19 and 30). There is no citation for this study in the list of citations in the CUN (section 26).

(b) Study by Culpepper (2004) cited on page 29. There is no citation for this study in the list of citations in the CUN (section 26).

(c) Study by Hausbeck and Cortwright (2003) cited in Table C.1, which forms the justification for the yield loss data summary. There is no citation for this study in the list of CUN citations in the CUN (section 26).

(d) Study by Cortright [or Cortrright] and Hausbeck (2004, Evaluation of fumigants for managing Phytophthora crown and fruit rot of solanaceous and cucurbit crops) which is summarised on page 37. Since this appears to be an unpublished study, it would be useful for MBTOC to see the technical details.

Area affected by moderate to severe nutsedge pressure

11. Please provide survey evidence, or similar supporting evidence, on the prevalence of moderate to high nutsedge pressure in eggplant production regions (or eggplant CUN areas) in Florida, by county.

12. The section on Georgia says the area affected by moderate to high nutsedge pressure is considered to be approximately 58% and cites Culpepper (2004) (page 29). MBTOC has requested a copy of this study in the question above. If Culpepper (2004) does not provide data or survey results, or similar supporting evidence, to substantiate the estimated CUN areas subject to moderate to severe nutsedge pressure in Georgia, then please provide additional data.

Telone label relating to Karst geology or topography

13. In March 2004 DAS sent the following information to MBTOC (Executive Summary of Key Issues Pertinent to Use of Telone Products as Alternatives to Methyl Bromide in the US, DAS, March 2004.)

- "A 'karst geology' statement appears on all Telone labels. This statement is intended to restrict the use of Telone products in areas where applications or seepage from applications may infiltrate groundwater.
- Use of Telone C-35 (and all other Telone products) is permitted in areas where there is an impeding layer (such as a spodic or argillic layer) that supports seepage irrigation and prevents ground water infiltration. Refer to label wording.
- The term 'karst geology' does not have a clear definition nor can an area of 'karst geology' be recognized from the growers' perspective or from an enforcement perspective.
- Dow AgroSciences (DAS) and the Florida Department of Agriculture and Consumer Services (FL DACS) have agreed to change this confusing wording from 'karst geology' to 'karst topography' which is definable and recognizable from both a growers perspective and enforcement perspective (see Appendix 2).

"DAS has worked with the Florida Department of Agriculture and Consumer Services (DACS) to clarify this confusion. The proposal is to change the terminology to 'karst topography.' This is a definable term and 'karst topography' can be recognized by such surface features as sink holes or disappearing streams which are characteristic of karst areas. Florida DACS agrees with this refinement and has written a letter to the EPA in support of the proposal to amend and clarify the label in this way. A copy of DACS letter to EPA and the proposed wording for the label amendment are provided…."

That was the status as reported by DAS in March 2004. The Party is requested to clarify if Florida DACS and the EPA have amended the labels for Telone products so that its use is restricted to areas of 'karst topography' as described above.

14. The table below indicates soils in 7 counties of Florida, based on SSURGO and row cropland use from the Florida Geographic Data Library. Source: ABG. 2002. Analysis of Methyl Bromide Replacement with Telone in Strawberries in California and Florida and Tomatoes in Florida. Report commissioned by DAS. Does the Party agree with the analysis in the table below? If not, please send corrections or alternative data.

15. What proportion of the eggplant CUN area in (a) Florida and (b) Georgia has an underlying impeding layer (eg. spodic, argillic layers)?

Analysis of Florida soils in 7 counties, based on SSURGO and row cropland use from the Florida Geographic Data Library. ABG, 2002.

	Spodic/Argillic Layer		No Spodic/Argillic Layer		Non-soil Area		Total Acres
County	Acres	% of Total	Acres	% of Total	Acres	% of Total	Acres
Collier	39,748	83.7	7,555	15.9	210	0.4	47,513
Gadsden	41,433	97.3	987	2.3	184	0.4	42,604
Hendry	10,212	75.4	3,320	24.5	3	0.0	13,535
Hillsborough	23,795	83.8	4,361	15.4	228	0.8	28,384
Lee	9,879	90.7	821	7.5	188	1.7	10,888
Manatee	47,159	98.5	553	1.2	145	0.3	47,857
Palmbeach	25,941	77.5	7,357	22.0	172	0.5	33,470
Total	198,167	88.4	24,954	11.1	1,130	0.5	224,251

Market windows

13. The CUN section on Michigan states that fumigation practices must be completed by first week of May to allow growers to "capture the early market (July – September)" (page 32). Does "first week" mean that planting needs to take place during the first week, or during the 2nd week of May? Does the entire period of July-September comprise the "early" market? Please provide price data for eggplant during the weeks of harvest in Michigan. Since

market window is a major basis for the eggplant CUN it is not appropriate to use price data for peppers as stated in the CUN (page 45).

14. Eggplant growth is curtailed at temperatures below 16°C (page 7), and cold temperatures injure this crop. In Michigan the outside temperature is reported to be 12°C on average in May, the month when eggplant is planted (page 32). When using MB at present, what is the date of first harvest, and yield at first harvest, if eggplant is planted in (a) the 1st week of May, (b) the 2nd week of May, and (c) 3rd week of May?

Clarification of BUNI data

15. The BUNI (page 51) lists metham + pic as the marginal strategy used for Florida and Georgia in the yield loss analysis. However, according to the CUN text sections on Florida and Georgia, metham (alone) was used in the analysis (as described above in Q5).

The BUNI mentions frequency of MB treatment as 1/year for Michigan (page 51), however the CUN states "1 time every 2 years" (page 31).
Please clarify.

FRUIT, NUT AND FLOWER NURSERIES

Please respond to these questions for the fruit, nut, and flower nursery production remaining in the nomination after subtractions were made for QPS and growth adjustments. Please answer for each of the 3 categories "Raspberries", "Fruit and Nut Trees", and "Roses".

Certification Questions

1. Is 100% of this nomination for certified propagative material?

2. Is participation in the certification program mandatory or voluntary? Please provide copy of certification requirements

3. Are the requirements of the certification program specified in local, regional, or national regulations?

3. Is the certification required to export the propagative material within regional, State or international countries (Please specify)?

5. What are the certification standards? For example, must be free of specific pests or pathogens, must be free of all pests and pathogens, tolerance levels, plant must be of a certain size, etc.

6. Is the use of methyl bromide mandated for certification? Is a minimum rate of methyl bromide specified?

7. Are there soil disinfestation measures other than MB that are approved for certification either for specific crops/growing conditions or broadly for many crops/growing conditions? Why can't these be used in the circumstances of the nomination?

8. Please provide data demonstrating that MB results in pest/pathogen-free propagative material. Some data are presented in Section 16 for nematodes on roses and trees, but no pest data is presented for raspberries.

9. Please provide data showing that MB alternatives either can or cannot meet pathogen/pest-free level required for certification by providing data comparing pest/pathogen populations on propagative materials grown in 1) soil treated with methyl bromide, 2) untreated soil, 3) 1,3-D and chloropicrin alone and in combination, and 4) other relevant alternatives. While plant growth data are useful, they do not substitute for pest/pathogen data if the certification requirement is for pest/pathogen-free propagative material. Some data are presented in Section 16 for nematodes on roses and trees, but no pest data is presented for raspberries.

10. What are the consequences of not meeting the pest/pathogen-free standards? For example, propagative material cannot be sold, material can be sold as lower quality/lower price, propagative materials must be treated before selling to kill pest/pathogen (e.g. hot water dips, etc.), etc.

11. If certification isn't mandated by law or regulation, is it used as a quality standard demanded or expected in order to market the crop? Why can't MB alternatives be used to meet the quality standard?

12. What are the consequences of not meeting the quality standard? For example, inability to sell crop, lower price for crop, etc.

General Questions

13. 90% of raspberry, 99% of rose, and 100% of Fruit & Nut tree's original requests were removed from the nomination as meeting the criteria of QPS. What is the difference between QPS and non-QPS raspberry, fruit and nut tree, and rose nursery production?

14. Party states the proportion of the crop grown with MB is not available. However this information is very important. Can the Party make an "educated guess" at the crop proportion grown with (or without) methyl bromide?

15. Iodomethane might be registered soon by the EPA. Party is requested to provide information on the possibility of reducing methyl bromide use in 2007 if iodomethane is registered.

Raspberry Questions

16. In section 11ii, Party states "Soil moisture is an important determinant of capacity of 1,3-D efficacy (5)." (5) appears to be a reference for this statement, but no corresponding list of numbered references is provided. Please provide this reference.

17. Section 13 states that 1,3-D could possibly be considered a cost effective alternative where soil conditions and township caps allow. BUNI does not indicate any adjustments for Regulatory Issues or Soil conditions (unsuitable terrain?) for raspberries. Does this mean that there are no regulatory or soil conditions restricting use of 1,3-D for the raspberry production areas in this CUN? If there are no restrictions on 1,3-D and it is effective, why is methyl bromide needed? If there are regulatory or soil conditions restricting use of 1,3-D, please state % of nomination impacted by these restrictions.

18. Party states "container-grown plants produce shorter or curved roots. . . .any reduction in surface area would reduce the number and/or quality of new canes." Please supply a reference for this information.

Fruit and Nut Tree Questions

19. Is "incompatible soil moisture" include in the "Unsuitable Soil Terrain" column of the BUNI?

20. Text states that 65% of the area cannot be treated with 1,3-D because of incompatible soil moisture or soil type, or township caps, but BUNI does not show any adjustments for Regulatory Issues or Unsuitable Terrain. Please provide information on the % of the nomination for Trees that is impacted by township caps and soil moisture/soil type restrictions.

21. Could a 67:33 formulation of methyl bromide:chloropicrin be used to reduce the amount of methyl bromide use in fruit and nut tree nursery production? If not, why?

Rose questions

22. Table 13 indicates that 1,3-D could be an alternative if no restrictions apply. It further states that "US nomination is for areas where 1,3-D is not effective". Does the Party mean "not available"? If 1,3-D is considered not effective, state the conditions under which it is not effective and the % of the nomination impacted by these conditions. No adjustments for Unsuitable Soils is given in BUNI. If soil moisture or soil type is restricting uptake of alternatives, please state the percentage of the nomination impacted by these restrictions.

23. Could a 67:33 formulation of methyl bromide:chloropicrin be used to reduce the amount of methyl bromide use in rose nursery production? If not, why?
24. Although Party states that 1,3-D is a technically feasible alternative wherever restrictions do not limit its use, no economic analysis is included with the nomination. Such an analysis is essential for MBTOC to carry out an economic feasibility analysis. Is it the position of the Party, that if 1,3-D is technically feasible for this CUN, it is also economically feasible?

25. Party is requested to clarify what measures will be taken to reduce and phase-out MB use in the coming years.

US FOREST SEEDLINGS

Please respond to these questions for the forest seedling production remaining in the nomination after subtractions were made for QPS, double-counting, growth, and rate adjustments.

Certification Questions

1. What % of this nomination is for certified forest seedlings? If 0%, please go to question #13 below.

2. Is participation in the certification program mandatory or voluntary?

3. Are the requirements of the certification program specified in local, regional, or national regulations?

4. Is the certification required to export the forest seedlings?

5. What are the certification standards? For example, must be free of specific pests or pathogens, must be free of all pests and pathogens, plant must be of a certain size, etc.

6. Is the use of methyl bromide or other alternatives mandated for certification? Is a minimum rate of methyl bromide or other alternatives specified?

7. Are there soil disinfestation measures other than MB that are approved for certification either for specific crops/growing conditions or broadly for many crops/growing conditions? Why can't these be used in the circumstances of the nomination?

8. Please provide data demonstrating that MB results in pest/pathogen-free propagative material.

9. Please provide data showing that MB alternatives either can or cannot meet pathogen/pest-free level required for certification.

10. What are the consequences of not meeting the pest/pathogen-free standards? For example, propagative material cannot be sold, material can be sold as lower quality/lower price, propagative materials must be treated before selling to kill pest/pathogen (e.g. hot water dips, etc.), etc.

11. If certification isn't mandated by law or regulation, is it used as a quality standard demanded or expected in order to market the crop? Why can't MB alternatives be used to meet the quality standard?

12. What are the consequences of not meeting the quality standard? For example, inability to sell crop, lower price for crop, etc.

General Questions

13. Table 16 reports data for numerous weed control trials. Only 2 trials report data on disease control, both of which show alternatives providing good control. Are there other data that show less disease control with alternatives, or is the basis for this CUN primarily the need for weed control?

14. Are there published references to the data reported in Table 16?

15 . Does Table 16 report results across all regions in the CUN? If not, what regions are the data from?

16. Methyl bromide use rates reported in Section 9 of the CUN vary from 21.0 to 39-7 g/m^2. The lower rates are being used by regions who are using a higher % of chloropicrin in the formulation. Why can't the higher chloropicrin % and lower methyl bromide rates be used in all regions?

17. 0-50% of each applicant's original request was removed from the nomination as meeting the criteria of QPS. What is the difference between QPS and non-QPS forest seedling production?

18. Is halosulfuron or trifloxysulfuron registered for weed control in forest seedling production? If not, is future registration planned? If not, why?

19. Several regions fumigate only once every 2, 3, or 4 years, rather than annually and point out that use of an alternative might require annual fumigation which could impact cost and increase the amount of pesticides in the environment. Please present economic data showing the projected impact of more frequent fumigations with alternatives. Besides economic and environmental burdens, are there any other reasons that annual fumigation with a methyl bromide alternative would not be feasible?

20. In section 13, inconsistent results in weed control with dazomet and metham sodium are cited. Is the inconsistent weed control a problem in the 1st, 2nd, 3rd, and/or 4th crop following fumigation?

21. The Weyerhauser-West region mentioned control of *Phytophthora ramorum* as one reason methyl bromide is needed. Isn't this pathogen a quarantine pathogen?

22. The amounts of methyl bromide stated in tables 8.2, 8.3, 8,5 8.6, 8.7 and 8.8 are not consistent with the amounts stated in table A.1. Please clarify the correct amounts.

23. Actual dose rates of region B (Page 22) and D (Page 27) increased in 2003 compared to 2002. Please explain why the dose rates increased.

24. In region D, a formulation of 90:10 methyl bromide:chloropicrin was used during 2000-2002. Why did use return to the 98:2 formulation in 2003?

25. Party considers containerized or substrate production too expensive for tree seedlings and includes some economic considerations. However, there is no specific validation of the economics for herbaceous perennials (e.g. Delphinium, Hostas, Phlox) also included in this nomination. These species are different from trees with respect to cropping cycle, use, etc, and are propagated in plug trays or liners with different kinds of substrates in many countries and even in the United States (e.g. see reference below). Please present information on why the containerized or substrate production cannot be used foe the specific circumstances of this nomination.
Reference: Styer, R.C. and D.S. Koranski 1997. Plug and Transplant production - a Grower's Guide. Ball Publishing, USA, 373 pp.

US ORCHARD REPLANTS

1. Based on the information in the text and in the BUNI, it appears that methyl bromide is nominated for critical use in 3 situations:

- where the “key pest” is/are the causal agent(s) of Replant Disorder which has an unknown etiology (35-50% of the stone fruit area, 35% of the grape area, 85% of the walnut area, and 35-50% of the almond area);
- where the primary pests are nematodes and maximum allowed rate of 1,3-D is not effective due to fine-textured soils and/or inability to sufficiently the dry the soil at the deeper depths to the level required for effective use of 1,3-D (35-50% of area for all 4 crops)
- where primary pests are nematodes and Township caps prevent the use of 1,3-D, which would otherwise be expected to be effective (2-8% of area for all 4 crops)

Please confirm if this is a correct understanding of the nomination. If it is not correct, please clarify.

1. For those areas, where the primary pests are nematodes, but 1,3-D cannot effectively be used (situations #2 and #3 above), please clarify why metham sodium, alone or combined with chloropicrin, is not an effective MB alternative and provide references.

2. In Table 7.1, Average Total Replant Area in 2001 and 2002 and Proportion of Total Replant Area Treated with Methyl Bromide are given only for almonds and are designated as “Not Available” for stone fruit, grape, and walnut. Has this information become available in the time since the nomination was prepared? If so, please provide this info.

3. In Table 8.1 (and in the BUNI), the footnotes indicate that some of the stone fruit and almond area is strip fumigated. Please clarify if the application rate of active ingredient (336 and 364 kg/ha) in the table is the rate per treated unit of area in the strips or how this value was calculated.

4. What were the primary pests in the trial in table 16.1 Stone fruit – specific nematodes, specific fungi, or the unknown replant disorder causal agent(s)?

5. In table 11.1 Grapes, the soil type is given as “light”, but BUNI shows that 35-50% of the grape area is impacted by Unsuitable Soil. Since it is not due to fine-textured soils, is the Unsuitable Soil due to inability to dry down the deeper soil depths? Please clarify.

6. In Table 11.1 Walnut, soil type is given as 40% medium and 30% heavy. BUNI states that 35-50% of the area is impacted by unsuitable soils. Does that mean that some of the area with medium soil types can use alternatives? Which alternatives have been successfully used?

7. In Section 11ii Walnut, the nomination states that 70% of walnut orchard situations are impacted by soil moisture restrictions and township cap restrictions. BUNI shows 35-50% impacted by Unsuitable Soils and 2-8% impacted by Regulatory Issues. If there was no overlap between the two areas, the maximum in the BUNI for Unsuitable Soil and Regulatory restrictions would be 58%. What alternatives are being used in the remaining 12% of the area? Please clarify.

8. Is the soil moisture restriction mentioned in section 11ii-Walnut due to surface soil conditions as stated here, or due to deeper soil moisture conditions as described elsewhere in the CUN, or to some combination of both? Please clarify.

9. Table 16.1 Walnuts refers the reader to Table 16 for stone fruit, grapes and almonds. Are there no data for Replant Disorder or nematode control available on walnuts? If such data are available, please provide.

10. Table 10.1-Almonds states that 30% of the area is impacted by Township caps and 65% by soil moisture issues. BUNI states that only 2-8% of the requested area is impacted by Township caps and 35-50% impacted by Unsuitable Soil issues. What alternatives are being used on the 22-28% of the area impacted by Township Caps, but not requesting critical use MB and on the 15-30% impacted by soil moisture issues, but not requesting MB? Why can these alternatives not be used on the remaining area?

11. In Table 16.1 – Almond, what were the primary pests in the trial – specific nematodes, specific fungi, or the unknown replant disorder causal agent(s)?

12. In Section 23, the nomination states that orchard replant research will require 1658 kg per year of MB for 2005 and 2006. This is the 2007 nomination, and BUNI shows a research amount of 1658 kg, so is it accurate to say that 1658 kg of MB is also needed for research in 2007?

US ORNAMENTALS

1. MBTOC is still not clear as to the proportion of the cropping area that is presently treated. In the BUNI form at the end of the nomination there is a column labeled "regional areas" where 11% is indicated for California and 90% for Florida. Party is asked to clarify if this corresponds to the treated area.

2. Acreages submitted by Party for the American Flower industry do not seem to coincide with those appearing in official publications such as **USDA *Floriculture and Nursery Crops Situation and Outlook Yearbook/ FLO- 2004/Junie, 2004*** **www.ers.usda.gov**

IN CALIFORNIA

3. Party states that regulatory constraints such as township caps restrict MB use in California. MBTOC is not clear as to what percentage of the cropping area is affected by this restriction. Party states that "It is expected that about 30% of the 2000 fumigated area could not have used 1,3-D at the current 2x cap which is expected to apply through at least 2004". MBTOC requests Party to confirm that this holds for 2007. The BUNI form states that township caps (regulatory issues) affect between 31 and 44% of area.

IN FLORIDA

4. Party states that buffer zones restrict use of 1,3-D because often flowers are produced on small parcels of land, often near homes. 1,3-D cannot be used in greenhouses. Party is asked to confirm what proportion of the cropping area is affected by this issue. On p. 55 Party states that buffer zones "will reduce cropping area by 10%". The BUNI however allocates a 0 under the buffer zone column for both California and Florida, although it cites karst topography as affecting 40% of area in Florida.

USA STRAWBERRY FRUIT

Data on MB usage

1. On page 38, the dosage rate of MB active ingredient in kg/ha in 2003 is shown as increased to 24.7kg/ha from 18.5kg/ha in the previous year. The Party is requested to provide MBTOC with information on the reason why.

2. Page 11 stated that the formulation of MB/CP is 98:2 in Florida, while Page 76. stated is 67:33 or 50:50. Which formulation is correct?

3. The CUN does not explain fully why this sector cannot adopt 50:50 MB/Pic in Florida and eastern states, and 57:43 (or 50:50 if registered) in California.

4. What statistics are available on the use of 1,3-D, chloropicrin, metham, other combinations of fumigants or chemicals, and other types of alternatives, for strawberry fruit in Florida, California and eastern states for 2002, 2003 and 2004? MBTOC would appreciate information on recent trends.

VIF

5. VIF has been in commercial use in most regions of the EC for several years, because it has been a legal requirement for four years. Substantial trials were conducted in several countries and climates. At this stage, there is little technical justification for not adopting VIF, since there is substantial practical experience with this technology in many different types of cropping systems. What are the limiting impediments (if any) to the widespread adoption of this proven emission reduction technology?

Economic issues

6. Concerning table 21.1, table 22.1 and table E.1,E.2 andE.3:

(1) Please check the accuracy of Table 21.1 (copied in Annex 2 below). Are the operating costs the same for methyl bromide and other alternatives? Are the operating costs the same over three years? For example, in this period it is likely that the cost of MB will increase. Please provide the actual costs in 2004 and 2005 and estimated cost in 2006..

(2) Concerning Table E.1 (Page 50) for California, if the figure of table 21.1 is as it is, the figure of table E.1 should be changed as shown in red colour in Annex 2 below. Please check it whether it is appropriate or not.

(3) Concerning the Table E.2 (Page 51) for Florida and Eastern United States, figures should be changed to the ones written in red below.

7. What prices and doses were used for each alternative chemical product in the economic tables? What are the current commercial prices of these products in 2005, in each region?

Efficacy / yield loss

8. Could the Party please indicate the treated area percent proportion compared to one hectare in Eastern USA and Florida with bed/strip treatment system? Is MB bed/strip treatment effective for the control of nematodes and nutsedge?

9. In Table 16.1 on effectiveness of alternatives for 'key pest 1 yellow nutsedge' (page 21-22) the first study indicated that MB/CP (at 392 kg/ha) gave no significant difference in native weed biomass compared with alternatives chloropicrin and 1,3-D/CP (especially at higher rates, and/or with VIF), in control of 'Key pest yellow nutsedge'. The second and third study in Table 16.1 indicated that certain doses of alternatives, chloropicrin, 1,3-D/CP and MS (35 gal drip) provided higher yield than MB/CP. However, the estimates of yield loss in Table C.1 in California, eastern states and Florida (pages 23, 33 and 43) appear to be taken only from Shaw and Larson (1999) and Locascio (1999). More recent studies, using improved application methods and other combinations of fumigants/chemicals have been carried out since that time. Such studies, using the better application methods and know-how currently available, should form the basis for the yield analysis.

Steep slopes

10. On steep slopes, it is feasible to use shank injection for alternative fumigants. This is the method currently used for MB, according to the CUN (page 15). The CUN does not adequately explain why shank injection could not be used for alternatives on steep slopes.

Dates of planting, harvest, rotational crops

11. Please provide more precise dates of planting and harvest (start / finish) and key market windows for: Northern California, southern California, Florida and eastern states. Where rotational crops are common, please identify them and provide planting and harvest dates, for each region.

Nutsedge

12. Could the Party please give more information about the way in which nutsedge propagates or is spread? MB itself provides incomplete control. Which cultural control practices have been investigated for nutsedge control in strawberry fruit?

~~13.~~ Why is it not considered feasible to use herbicides to control nutsedge before transplanting strawberry? The CUN does not provide a detailed update on progress in examining and registering herbicides for the control of nutsedge in strawberry fruit. Please provide an update.

Nematicides

14. Fosthiazate, a nematicide, was registered by USEPA a couple of years ago. The Party is requested to provide MBTOC with the information on registration and deployment in the strawberry industry, in each relevant region (California, Florida, eastern US).

Supporting data on area affected by moderate to severe pest pressure

15. The previous CUN stated that the area (hectares) affected by moderate to severe key pests (eg. nutsedge) was derived from informal sources such as websites, discussions with researchers and growers etc. Is additional data now available to substantiate these informal sources? Have any surveys been carried out on the extent and severity of key target pests that form the basis of the CUNs in (a) Florida, (b) eastern states, and (c) California? If so, MBTOC would be grateful to receive copies of the detailed survey results.

Regulatory restrictions on 1,3-D

16. MBTOC recognizes that regulatory restrictions restrict the use of 1,3-D in certain regions. Some other fumigants/chemicals have been found effective in controlling the key nematode species affecting strawberry fruit production. To what extent can these techniques be adopted in the areas where 1,3-D cannot be used for regulatory reasons? Please re-calculate the CUN tonnage to take full account of other available treatments/combinations in areas affected by regulatory restrictions on 1,3-D.

17. Are there different definitions for 'karst geology' and 'karst topography'? The CUN cites a Registration Eligibility Decision for 1,3-D from 1998 (page 45). We understand that some label changes were proposed relating to karst topography. Have any changes been made in the federal, state or county restrictions, labels or other controls relating to karst geology/topography in the last few years? If so, what are the current restrictions relating to karst? If these changes will mean that 1,3-D can be used on a larger area than estimated in the CUN, please provide up-dated calculations of hectares.

Information relating to potential adoption time (Annex I of Prague MOP)

18. For each region (California, Florida and eastern states), please estimate: (a) the number of fumigation companies that currently provide MB fumigation services to growers, (b) the estimated number of growers in each region, and (c) the number and types of government and private training and extension facilities and personnel available to the strawberry sector.

Other information

19. If you are aware of any additional information that would assist MBTOC/TEAP to make a complete technical and economic evaluation of the CUN, as defined in Decision IX/6, we would be very grateful to receive the information.

ANNEX 1

AMOUNT OF MB USED/REQUESTED, NO OF YEARS REQUESTED & HISTORIC USE:

_____	1998	1999	2000	2001	2002	2003	2004	2005	2006	Formulation	Proportion of Use
California	1,928	2,264	1.919	1,611	1,592	1,651			1087	Mostly 67:33 (Flat Fume)	

MB Dosage rate g/m^2	26	27.5	24.4	19.1	20.1	20.1			20.1		
MB+CP Dosage rate g/m^2	38.8	41.0	36.4	28.5	30.0	30.0					
Eastern USA	317	239	254	274	283	320			230	67:33 (Bed)	
Dosage rate g/m^2	22	15.1	15.0	15.1	15.1	15.1			15.1		
MB+CP Dosage rate g/m^2	32.8	22.5	22.4	22.5	22.5	22.5					
Florida	551	464	471	486	516	708			296	98:2 (strip)	
Dosage rate g/m^2	22.0	18.5	18.8	18.5	18.5	24.7			18.5		
MB+CP Dosage rate g/m^2	22.4	18.9	19.2	18.9	18.9	25.2					

ANNEX 2

21. Operating Costs of Alternatives Compared to Methyl Bromide Over 3-Year Period:

TABLE 21.1: Operating Costs of Alternatives Compared to Methyl Bromide Over 3-Year Period

Region	Alternative	Yield*	Cost in year 1 *(US$/ha)*	Cost in year 2 *(US$/ha)*	Cost in year 3 *(US$/ha)*
California	**Methyl Bromide**	**100%**	**$65,888**	**$65,888**	**$65,888**
	Chloropicrin + Metham sodium	73%	$65,683	$65,683	$65,683
	1,3-D + chloropicrin	86%	$65,664	$65,664	$65,664
	Metham Sodium	70%	$65,684	$65,684	$65,684
Florida	**Methyl Bromide**	**100%**	**$44,254**	**$44,254**	**$44,254**
	1,3-D + chloropicrin	86%	$43,030	$43,030	$43,030
	Chloropicrin + Metham Sodium	73%	$39584	$39584	$39584
	Metham Sodium	70%	$38,818	$38,818	$38,818
Eastern United States	**Methyl Bromide**	**100%**	**$29,482**	**$29,482**	**$29,482**
	Chloropicrin + Metham sodium	73%	$30,555	$30,555	$30,555
	1,3-D + chloropicrin	86%	$31,658	$31,658	$31,658
	Metham Sodium	70%	$30,270	$30,270	$30,270

** As percentage of typical or 3-year average yield, compared to methyl bromide.*

22. Gross and Net Revenue

TABLE 22.1: YEAR 1, 2, 3 GROSS AND NET REVENUE

Year 1, 2, 3			
Region	Alternatives *(as shown in question 21)*	Gross revenue for last reported year *(US$/ha)*	Net Revenue for last reported year *(US$/ha)*
California	**Methyl Bromide**	**$76,252**	**$10,363**
	Chloropicrin+ Metham sodium	$55,664	($10,020)
	1,3-D chloropicrin	$65,548	($3,840)
	Metham Sodium	$53,376	($12,307)
Florida	**Methyl Bromide**	**$55,168**	**$10,914**
	1,3-D + chloropicrin	$47,224	$4,194
	Chloropicrin + Metham Sodium	$40,273	$689
	Metham Sodium	$38,728	($90)
Eastern United States	**Methyl Bromide**	**$51,892**	**$22,410**
	Chloropicrin+ Metham sodium	$37,881	$7,327
	1,3-D chloropicrin	$44,608	$12,950
	Metham Sodium	$36,624	$6,054

Measures of Economic Impacts of Methyl Bromide Alternatives

California - Table E.1: Economic Impacts of Methyl Bromide Alternatives

CALIFORNIA	Methyl Bromide	Pic+Metham Sodium	1,3-D+Pic	Metham Sodium
Yield Loss (%)	0%	27%	14%	30%
Yield per Hectare (Fresh)	48,438	35,359	41,639	33,906
* Price per Unit (US$)	$1.71	$1.62	$1.62	$1.62

= Gross Revenue per Hectare (US$)	$76,252	$55,684	$65,548	$53,376
- Operating Costs per Hectare (US$)	$65,888	$65,888	$65,888	$65,888
= Net Revenue per Hectare (US$)	$10,364	$-10,204	$-340	$-12,515
Loss Measures				
1. Loss per Hectare (US$)	$0	17,792	11,817	19,474
2. Loss per Kilogram of Methyl Bromide (US$)	$0	88.19	58.57	96.52
3. Loss as a Percentage of Gross Revenue (%)	0%	24%	16%	26%
4. Loss as a Percentage of Net Revenue (%)	0%	131%	87%	144%

Florida - Table E.2: Economic Impacts of Methyl Bromide Alternatives

FLORIDA	Methyl Bromide	1,3-D+Pic	Pic+Metham Sodium	Metham Sodium
Yield Loss (%)	0%	14%	27%	30%
Yield per Hectare	5,046	4,319	3,683	3,542
* Price per Unit (US$)	$10.93	$10.93	$10.93	$10.93
= Gross Revenue per Hectare (US$)	$55,168	$47,224	$40,273	$38,728
- Operating Costs per Hectare (US$)	$44,254	$43,030	$39,584	$38,818
= Net Revenue per Hectare (US$)	$10,914	$4,194	$689	$—90
Loss Measures				
1. Loss per Hectare (US$)	$0	$6,720	$10,225	$11,004
2. Loss per Kilogram of Methyl Bromide (US$)	$0	$33	$51	$55
3. Loss as a Percentage of Gross Revenue (%)	0%	14.4%	27.0%	29.8%
4. Loss as a Percentage of Net Revenue (%)	0%	62%	94%	101%

Eastern United States - Table E.3: Economic Impacts of Methyl Bromide Alternatives

EASTERN UNITED STATES	Methyl Bromide	Pic+Metham Sodium	1,3-D+Pic	Metham Sodium
Yield Loss (%)	0%	27%	14%	30%
Yield per Hectare	22,417	16,364	19,270	15,692
* Price per Unit (US$)	2.59	2.59	2.59	2.59
= Gross Revenue per Hectare (US$)	51,892	37,881	44,608	36,324
- Operating Costs per Hectare (US$)	29,482	30,555	31,658	30,270
= Net Revenue per Hectare (US$)	22,410	7,327	12,950	6,054
Loss Measures				
1. Loss per Hectare (US$)	$0	14,942	9,319	16,215
2. Loss per Kilogram of Methyl Bromide (US$)	$0	99.49	62.05	107.96
3. Loss as a Percentage of Gross Revenue (%)	0%	29%	18%	31%
4. Loss as a Percentage of Net Revenue (%)	0%	67%	42%	73%

US Strawberry nurseries

1. What are the constraints to much wider use of VIF, combined with MB and other fumigants as 1,3-D and Pic, where applicable combined with solarization.

Certification:

2. Is 100% of this nomination for certified propagative material?

3. Has part of the nomination been exempted under QPS? Specify amount/proportion XXt(eg 80%)?

4. Is participation in the certification program mandatory or voluntary? Please provide copy of certification requirements

5. Are the requirements of the certification program specified in local, regional, or national regulations?

6. Is the certification required to export the propagative material within regional, State or international countries (Please specify)?

7. What are the certification standards? For example, must be free of specific pests or pathogens, must be free of all pests and pathogens, tolerance levels, plant must be of a certain size, etc.

8. Is the use of methyl bromide mandated for certification? Is a minimum rate of methyl bromide specified?

9. Are there soil disinfestation measures other than MB that are approved for certification either for specific crops/growing conditions or broadly for many crops/growing conditions? Why can't these be used in the circumstances of the nomination?

10. Please provide data demonstrating that MB results in pest/pathogen-free propagative material.

11. Please provide data showing that MB alternatives either can or cannot meet pathogen/pest-free level required for certification by providing data comparing pest/pathogen populations on propagative materials grown in 1) soil treated with methyl bromide, 2) untreated soil, 3) 1,3-D and chloropicrin alone and in combination, and 4) other relevant alternatives. While plant growth data are useful, they do not substitute for pest/pathogen data if the certification requirement is for pest/pathogen-free propagative material.

12. What are the consequences of not meeting the pest/pathogen-free standards? For example, propagative material cannot be sold, material can be sold as lower quality/lower price, propagative materials must be treated before selling to kill pest/pathogen (e.g. hot water dips, etc.), etc.

13. If certification isn't mandated by law or regulation, is it used as a quality standard demanded or expected in order to market the crop? Why can't MB alternatives be used to meet the quality standard?

14. What are the consequences of not meeting the quality standard? For example, inability to sell crop, lower price for crop, etc.

US Tomatoes

1. Please discuss the suitability of 1,3-D + Pic injected in areas where field topography make it difficult to use drip application

2. Please discuss the potential for using reduced dosage of 1,3-D + Pic + VIF and/or solarization as an alternative to MB?

3. Combination of fumigants and herbicides are reported as a promising alternative but no clear data (total area, costs, etc.) are given. Please specify?

4. VIF testing goes back to 2003. Is the final data available yet? What are the constraints to much wider use of VIF, combined with MB and other fumigants as 1,3-D and Pic, where applicable combined with solarization.

US TURF

1. The CUN notes that primary MB alternatives for sod production are metham sodium and dazomet, often in combination with chloropicrin and in some cases, depending on pests, 1,3-D (CUN page 7). The CUN also states that "dazomet and metham sodium with chloropicrin have looked as good (statistically) and nearly as good (numerically) in control of nutsedge and weedy grasses as MB at the high use rates for turf (560 kg/ha) (e.g. Unruh and Brecke, 2001; Unruh et al., 2002)" (page 9). It is noted that barrier sheets can also increase the efficacy of metham. The CUN states in several places it is unable to determine yield or quality loss resulting from alternatives "since research shows variability even among MB treatments, depending on location of trials and pest type" (page 13). However, the BUNI takes account only of dazomet (alone). It would be appropriate to revise the BUNI to take account of the leading alternatives for this sector.

2. Q2. The use of improved application methods for metham and dazomet are important, as noted in the CUN. Improved equipment for the application of dazomet for turf. Improved equipment for more uniform distribution of metham sodium is being used in Europe, South America and Africa (eg. rotating-spading injection equipment); and for dazomet in Europe. Has similar equipment that provides a uniform distribution in soil, been examined or used in the USA for turfgrass?

3. Q3. For each state (California, Florida, Georgia, Alabama and Texas) please specify the key target pest species for which alternatives are considered not available, and the precise reasons for the CUN.

4. Q4. Table 14.1: The section pre or post emergent herbicides refers the reader to item 13. However, Item 13 does not appear to provide any discussion on herbicides. Please provide information about pre and post emergent about herbicides.

CERTIFIED SOD

5. Do the sod certification standards in the main CUN states (California, Florida, Georgia, Alabama and Texas) specifically require MB fumigation as a condition of certification? If the certification standards for these states have not been sent to MBTOC previously, please provide copies.

INDUSTRY STRUCTURE

6. How many fumigation companies provide MB as a service to the turf producers in the CUN? Do the current metham sodium users apply metham themselves, or do they use a fumigation company? Approximately how many growers/turf producers are covered by this CUN?

MINIMIZING MB USE AND EMISSIONS

7. This sector appears to have made little or no progress in minimizing MB use and emissions, in contrast with some other sectors/countries. The turf sector wishes to continue using MB:Pic 98:2 in 2007 (Table 8.1 page 8). The sector wants to use a high

dose of MB (480 kg/ha) which is similar to the rate used in 1998 (488 kg/ha). We note that the EPA has reduced the nominated dose to 300 kg/ha. Is it technically feasible to make further reductions prior to or during 2007? If so, please provide details.

8. Barrier films have not been adopted. The CUN mentions that the requesting consortia identified future plans for examining high density polyethylene to reduce MB emissions (page 15), however the CUN does not provide any timelines for introduction of barrier films.

ECONOMIC IMPACT

9. The economic assessment compares MB with dazomet only. This is surprising because research information in the CUN indicates that metham sodium + chloropicrin (+ PV tarp) is a leading alternative. Please provide economic data for this alternative combination, and all other leading combinations.

10. Please provide the current cost of MB (US$/ha) in 2005, and indicate expected price trends for 2007.

ACTIONS TO RAPIDLY DEVELOP AND DEPLOY ALTERNATIVES

11. The CUN does not provide information on what actions will be taken to rapidly develop and deploy alternatives. Please provide this information and timeline.

Sod Production

Please respond to these questions for the sod production remaining in the nomination after subtractions were made for use rate and growth adjustments.

Certification Questions

1. Is 100% of this nomination is for certified propagative material?

2. Is participation in the certification program mandatory or voluntary?

3. Are the requirements of the certification program specified in local, regional, or national regulations?

4. Is the certification required to export the sod?

5. What are the certification standards? For example, must be free of specific pests or pathogens, must be free of all pests and pathogens, plant must be of a certain size, etc.

6. Is the use of methyl bromide mandated for certification? Is a minimum rate of methyl bromide specified?

7. Are there soil disinfestation measures other than MB that are approved for certification either for specific growing conditions or broadly for many growing conditions? Why can't these be used in the circumstances of the nomination?

8. Please provide data demonstrating that MB results in pest/pathogen-free sod.

9. Please provide data showing that MB alternatives either can or cannot meet pathogen/pest-free level required for certification by providing data comparing pest/pathogen populations on propagative materials grown in 1) soil treated with methyl bromide, 2) untreated soil, 3) 1,3-D and chloropicrin alone and in combination, 4) metham sodium/dazomet, and 5) other relevant alternatives. While plant growth data are useful, they do not substitute for pest/pathogen data if the certification requirement is for pest/pathogen-free propagative material.

10. What are the consequences of not meeting the pest/pathogen-free standards? For example, sod cannot be sold, material can be sold as lower quality/lower price, propagative materials must be treated before selling to kill pest/pathogen (e.g. hot water dips, etc.), etc.

11. If certification isn't mandated by law or regulation, is it used as a quality standard demanded or expected in order to market the crop? Why can't MB alternatives be used to meet the quality standard?

12. What are the consequences of not meeting the quality standard? For example, inability to sell crop, lower price for crop, etc.

General Questions

13. The Amount of Nomination (76,112 kg) shown in Table A1 of the Executive Summary does not appear to include the 1,928 kg shown for research in the BUNI. Other U.S. CUNs have included the research amount in the amount shown in the Executive Summary table. Is the nominated amount 76,112 kg or 76,112+1,928 kg = 78,040 kg?

14. Are halosulfuron or trifloxysulfuron registered for use to control nutsedge or other weeds in sod production? If not, will the products be registered in the future?

15. The rate of 48 g/m^2 of methyl bromide is higher than that required by several other certified nursery uses of methyl bromide. What circumstances of the sod production represented in this CUN require the high rate of methyl bromide? Please present data showing that lower rates are not sufficient.

16. Can a formulation with a higher rate of chloropicrin be used for some or all of the circumstances of this nomination, i.e., instead of 98:2, use 70:30 methyl bromide:chloropicrin?

17. The BUNI includes some columns not present in some of the other U.S. nominations, and not explained in the attached footnotes. Please explain what the "% adopt" under the heading "% Adopt New Fumigants" means. Please describe how the value for "% per year" under "% Adopt New Fumigants" was reached.