WORKSHOP ON METHYL BROMIDE ALTERNATIVES FOR STRAWBERRY CROPS IN THE SOUTHERN CONE

Santiago, Chile
24-26 August 2005
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BACKGROUND

The Meeting held in Havana, Cuba, on 24 – 28 May 2004 raised the need to organize a meeting of methyl bromide phase-out Project Managers for the melon sector in Central America and the strawberry sector in South America. These crops are probably the two “hottest spots” for the phase-out of methyl bromide in Latin America and the Caribbean.

The Havana Meeting, held back-to-back with the International Conference on Methyl Bromide Alternatives, was organized by ROLAC (Regional Office for Latin America and the Caribbean). The meeting gathered Ozone Delegates of high consumption countries, representatives of the Ministry of Agriculture and Environment of many countries, members of the MBTOC (Nahúm Marban, Mellanie Miller), and the European Community (Tom Bachelor), UNIDO (Guillermo Castellá) and UNDP (Dominique Kayser).

Methyl Bromide Officer from ROLAC, José de Mesa, visited Chile on 3 November, and one of the outputs of this mission was the recommendation to organize a workshop that include the attendance of an international expert on methyl bromide alternatives for strawberry crops.

As a result, the requested meeting, “International Workshop on Methyl Bromide Alternatives for Strawberry Crops in the Southern Cone” was organized by the United Nations Environment Programme, Regional Office for Latin America and the Caribbean (UNEP/ROLAC) through the Montreal Protocol Compliance Assistance Programme, and held in Santiago, Chile, on 24 – 26 August 2005. Representatives of the Chilean Commission for the Environment (CONAMA) and the Ministry of Agriculture of Chile attended, as well as national ozone officers and heads of methyl bromide phase-out projects in Argentina, Bolivia, Chile and Peru; Mr. Nahum Marban, Co-Chair of the MBTOC; Mr. José Manuel López Aranda, National Director of the Spanish project on methyl bromide alternatives for the strawberry sector. The workshop benefited greatly from the participation of more than 50% of strawberry producers in Chile.

OPENING

The Workshop was officially inaugurated on 24 August at 9:00 a.m. Mr. Jorge Troncoso, Head of the Pollution Control Department of the National Commission for the Environment (CONAMA); Mr. Fernando Peña, Head of the General Secretariat for Farming and Livestock Services (SAG); Mr. Hugo Martínez, Deputy Director of Agricultural Policies and Studies, and Mr. José de Mesa, UNEP-ROLAC Regional Methyl Bromide Phase-Out Strategies Officer, composed the main table. The participants, especially those coming from abroad, were extended a warm welcome, and the importance and perfect timing of this workshop were underline, and a positive outcome was predicted.

José de Mesa remarked that the consumption of the four countries represented on the workshop (Chile, Bolivia, Peru and Argentina) account for more than 50% of the total consumption of methyl bromide in the region, and therefore this meeting was highly representative.
PRESENTATIONS

UNEP

The first presentation was delivered by José De Mesa, Regional Methyl Bromide Strategies Officer (UNEP), who offered a picture of current consumption patterns in the relevant countries, including early phase-out agreements and a general view of the consumption in the region. This presentation served as a basis for further discussions.

José de Mesa also gave a brief description of other cases and countries within the region, and highlighted the strawberry problem in South America. By briefly reviewing some of the other consuming countries he pointed out that the Dominican Republic is in a full phase-out stage, but Chile is a problematic case as its consumption levels have increased in recent years. Argentina’s consumption has also increased, although the country remains in compliance with the Montreal Protocol, but its status before the Multilateral Fund is that of a non-compliant nation. Guatemala has become a difficult case in this year.

Some of the comments raised from this presentation were as follows:

- It would be very useful to have countries like Uruguay or Brazil take part in this kind of meetings and invite them to share their experiences.

MBTOC

Dr. Nahúm Marban came to this Meeting both, as National Coordinator of the Phase-Out Project in Mexico and Co-President of the MBTOC (Methyl Bromide Technical Options Committee). His speech was centered on the questions that may arise on the role of MBTOC and the declaration of critical usages.

He began by discussing the world consumption tendencies and the current MBTOC structure. When explaining critical uses, he based his argument in different decisions adopted by the Executive Committee and the Meeting of the Parties of the Montreal Protocol that is the only decision-making authority. In conclusion, critical uses, according to the Protocol, are applied for Article 2 countries only (developed countries), but the resolutions taken under the Protocol are the ones agreed by the Parties themselves; therefore, these decisions could change in the future, and the current search for alternatives by Article 5 countries (developing countries) could become highly important.

Finally, Dr. Marban explained the following steps to be taken by MBTOC and encouraged the participants to visit the webpage www.teap.org

Comments:

- Most of the participants (stakeholders) are not familiar to the administrative issues of the Montreal Protocol.
Information must be made accessible for producers.

Chile mentioned that several countries of the European Union presented requests for critical uses for strawberry crops, thus adding up to a big amount. This situation is clearly weakening the implementation of Montreal Protocol among Chilean framers.

If consensus is not reached among the countries, conventions are not reached.

Stakeholders should express their needs.

Funds are required for demonstration projects. Mr. de Mesa expressed doubts about the approval of new demonstration projects.

Demonstration projects must include technical arguments.

**CHILE**

Sergio Gonzalez Martineaux, National Coordinator for the Phasing-out of methyl bromide as a pesticide in the production and re-plantation of fruit trees INIA-UNDP project (includes demonstration activities) CHI/01/G61 10/2001 a 03/2007, presented the situation of his country regarding methyl bromide.

Mr. Gonzalez discussed the background of the project including the calculation of the baseline consumption level and the phase-out commitments of Chile before the Montreal Protocol and the Multilateral Fund. Methyl bromide is a pesticide that has been traded for over 40 years to control crops diseases mainly originated in the soil, and to eliminate bugs and rodents. It is used in 8 out of the 13 Chilean regions.

This is a three-stage initiative; the first stage includes the testing of four different alternative technologies in farmer-owned lands, and their viability will be evaluated for the main farming regions. The selected technologies are successfully used in other countries and will be tested and adapted to specific plagues and conditions found in Chile.

The second stage deals with the transfer of these technologies to the farmers, through the implementation of training activities.

The third stage will be the preparation of an action plan and a set of policies to be implemented through volunteer agreements (years 2, 3, and 4).

The activities included under the project are key, particularly given the role of the fruit industry in Chile; the objective of this project is to phase out 126 tons of methyl bromide by 2007.

Mr. González also mentioned the possibility of landing another project aimed at the early phase-out of methyl bromide with World Bank.

Unfortunately, Chile was not able to comply with early phasing out commitments, mainly because of the increased surface area of soil used for crops, both in green houses as in production farms. This particular situation led to a re-negotiation of the early phase-out calendar between the country and the Multilateral Fund, resulting in the cancellation of the early phase-out of methyl bromide imports and the commitment to stick to the amount requested by the Montreal Protocol.
Protocol. This is, for Chile, a maximum of 283 t of methyl bromide a year until 2015; no additional imports will be allowed after that date.

**CHILEAN COMMITMENT BEFORE THE MONTREAL PROTOCOL.**

Mr. Gonzalez detailed the current surface and production amount for the berries sector, which clearly reflects a strong increment in recent years, thus ensuring the continuous growth in the future.

These are the planned activities to face the current situation:
- Incorporate relevant actors of the normative and prosecution areas (SAG, ODEPA, CONAMA)
- Provide technical support to the regulatory authority (test of agronomic efficiency with VIF plastics, test of nematologic tolerance)
- Mark out the universe of users of methyl bromide, to easily direct the training activities (users database)
- decrease the number of demonstrative units (from 60 to 32)
- ease the reduction on the value of the American dollar (decrease the cost of staff; increase INIA participation)
- Accuracy on the training base (INIA instead of INDAP)
- Participate on the creation of the National Action Plan, in case of non compliance by the country to the MP
- adjust the advancement of the Project to the NAP

Finally, Mr. Gonzalez explained the alternatives tested and the ones still in the process of being tested, and highlighted both active as passive steaming, bio fumigation, chemical alternatives
(Metam Sodium, 1,3 D-Bi-chloral propane and/or Chloropicrin, Dazomet), and different use methods, including a quick review of the machinery used in the industry.

At the end of the presentation, Mr. González presented a set of essays performed with methyl bromide alternatives and their results; however, no conclusive results have been achieved at this point. He concluded that it is necessary to run more essays in order to determine viable alternatives to methyl bromide.

Work Plan for 2006-2007:

- Training courses on steaming (including a demonstration of alternative products), according to the Ministry of Agriculture and Livestock Cadastre:
  - 1 on the RM (INIA-Los Tilos), August 17th and 18th, 2005
  - 2 on the V Region (La Ligua and Quillota), September 1st and 9th, 2005
  - 1 on the IV Region (Ovalle), September 28th or October 5th, 2005
  - 1 on the VIII Region (Los Angeles), differed to 2006 (waiting for the results on the berries demonstrative unit, in Chanco)
- Direct Advisory work to two large methyl bromide Consumers
- Talks to Technological Transfer Groups in INIA, covering diverse sectors (fruits, vegetables) and follow up on farmers (small, large)
- Regional Informative Seminars:
  - 1 on the IX Region (including the X Region), for 2006
  - 1 on the VII Region (on INIA-Raihuen), including tomato producers from Colin, for November or December 2005
- Nematologic Tolerance Test, to support SAG normative decisions that will reduce pressure to use Me Br:
  - 8 species (cherry, damask, plum, peach, pear, vine, apple, almond)
  - 4 kind of nematodes (Meloidogyne, Pratilenchus, Xiphinema, Tylenchulus semi penetrants)
  - Test in pots, in green houses of INIA-La Platina
  - 5 treatments, 4 repetitions and 4 pots by repetition
  - Total amount of pots: 2,000
  - Duration: season 2005/06
- Technology Transfer Groups (GTT); fruit and vegetables, small and large producers.
- Publish a book/technical booklet with all training materials used
- Publish a series of informative papers
ARGENTINA

The presentation on methyl bromide in Argentina was delivered by Juan Carlos Zembo, Project Coordinator. The UNIDO project Phasing-out methyl bromide as a pesticide for soil and sub stratums in berries, vegetables and ornamental crops in greenhouses (Proj. MP/ARG/00/0033) is being implemented by INTA.

Argentina, just like Chile, has renegotiated its agreements with the Multilateral Fund, synchronizing its phasing-out schedule with the calendar under the Montreal Protocol.

The objective of this project is to facilitate the replacement of methyl bromide, using viable alternatives previously tested, like Metam Sodium, water steam, plus all those adaptable to the agro-ecological conditions of relevant areas and the overall strategy, including:

- Information exchange
- Tests and demonstrations in all productive areas (adapt and transfer).
- Work on a case-by-case basis (adjustment to different situations)
- Train private technical advisors
- Train producers
- Train the labour

Mr. Zembo discussed the background of the project, the berries production areas, the evolution of the sub-phases and production in recent years, perspectives for the years to come and how these conditions affect the overall project.
Some of the partial results of the project are the implementation of innovative techniques that have increased productivity, such as:

- High production crops
- Polietalon mulching of the soil
- Higher quality and supply of different types of plants
- Changes on the harvesting seasons (depending on the type of plant)
- Promotion of pressurized and localized irrigation plus fertirrigation
- Promotion of protection systems (micro tunnels)
- Disinfection of the soil in greenhouses and fruit production facilities

A detailed presentation on the results of different tests followed (Metam Sodium, steam, Dichlorine propane…) including different varieties (Camarosa, Big Eye…) and under diverse production circumstances in several production zones (Coronda, Mendoza…), including cost studies.

The following conclusions were pointed out:

- Disinfection by methyl bromide yielded more stable results than the ones for Metam sodium in the period of observation
- Variation on results for Metam Sodium could be explained by changes in water quality, deficient soil preparation, and use problems.
- Non availability of alternative fumigants for the national market of agro-chemicals weakened the substitution process
- Use of steam is limited to special situations, such as the production of certified plants, and differentiated fruit (PI and PO)
- The adjustment on the use techniques for Metam sodium, and the promissory results of other tested fumigants (M. ammonium, M potassium and 1,3 D+Cpic) will allow the consolidation of the substitution process.

BOLIVIA

José Laime presented Bolivia’s project, subsidized by UNDP. The berries area is located in Tarija, in the southern part of the country, although the project covers other regions: La Paz, Cochabamba and Santa Cruz.

The following institutions are involved in the project:

- Juan Misael Caracho Autonomus University.
- Intercomunal “Diogracio Vides”
- Farming Department Service (SEDAG)
- Fruit Harvesters Association of Tarija (AFRUTAR)
- Direction of Natural Resources and the Environment – Tarija Office.

Mr. Laime offered a detailed explanation of the berries production methods implemented in Bolivia and alternatives used. He shared a good number of photographs with the group.
He also explained that the main plagues and diseases faced in berries plantations are:

**Fungal Diseases**
- *Phytophthora fragariae*
- *Verticillium albo-atrum*
- *Sphaeroteca macularis)*
- *Mycosphaerella fragariae*
- *Botritis cinerea*

**Plagues**
- *Tetranychus urticae*
- Plagues from decomposed manure

As the following consumption graph shows, Bolivia is in a very good position to comply with the project goals. The country did not register any methyl bromide imports in 2004, and Álex Suárez, the Ozone Officer, reported that no additional imports are expected under regular circumstances.
Mr. Luis Gomero Osorio, Consultant of OTO Peru and Coordinator of Institutional Development RAAA, delivered a two-part presentation on the situation of methyl bromide in Peru. During the first part Mr. Gomero discussed the development of the methyl bromide phasing-out project in Peru that was completed in 2003. This project was extremely successful and put an end to methyl bromide imports.

The chosen alternatives (steaming, Trichoderma...) for the above mentioned crops were highly successful, but the strawberry sector was not included in the project because no methyl bromide was used in this field during the relevant timeframe.

The second part of the presentation was about INCAFRUT, a Peruvian company that started to produce strawberries in 2001 and considers the use of methyl bromide necessary.

INCAFRUT’s imports proposal is virtually unfeasible given the commitments of Peru to the Montreal Protocol (imports limited to a maximum of one ton, i.e., 80% of the baseline consumption). In addition to that, methyl bromide lacks registration in this country.

Despite these difficulties and in consideration of the company’s insistence to import methyl bromide, the Ozone Technical Office (OTO) of Peru organized an international mission in January 2005 with the participation of Juan Jesús Medina, Spanish expert, Marta Pizano, Multilateral Fund Consultant, and José de Mesa, UNEP Officer.

As a result, the company committed to run a trial implementation of alternatives in two campaigns with bromide provided by the Peruvian Government and based on a previously coordinated selection by the Spanish consultant.

The company also committed to the following:

The chosen alternatives (steaming, Trichoderma...) for the above mentioned crops were highly successful, but the strawberry sector was not included in the project because no methyl bromide was used in this field during the relevant timeframe.

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As a result, the company committed to run a trial implementation of alternatives in two campaigns with bromide provided by the Peruvian Government and based on a previously coordinated selection by the Spanish consultant.

The company also committed to the following:
Prepare a comparative evaluation on methyl bromide alternatives.

The selected alternatives to be compared to methyl bromide are:

Test the effect of Telopic
Test the effect of sun bathing and bio-fumigation
Test the effect of antagonist mushrooms Trichoderma spp

The company will provide the land for the evaluation, prepare the relevant evaluations for two campaigns and cover all related costs.

SENASA and OTO/Peru committed to:

Provide, according to the conditions settled by SENASA and OTO/Peru, the required methyl bromide either seized or in stock to be used for the field evaluation and for the projected area for Strawberry crops (14 has).

SENASA, OTO/Peru and the Agricultural University should assign their technicians as supervisors of the evaluation process of these alternatives.

The results will determine the technical option to disinfect the strawberry production soil.

SPAIN

José Luis López Aranda is a top-notch expert in methyl bromide alternatives for strawberry crops. He presented the results of the projects that the Spanish Government has been developing in the last 8 years in this sector, including two sub-projects: one for bromide alternatives in greenhouses, and another for strawberry production.

The information provided by Mr. López Aranda was vast, and this report only summarizes the main results and conclusions. However, all participants will have access to Mr. López’s presentations in e-format.

GREENHOUSES

The implementation of the project dates back to 1998 and all the potentially useful alternatives were tested for a total of 22 theses, including same alternatives, different dosages and some combinations.

Conclusions 1998-2002

- Chloropicrin, Telopic and Dazomet were similar to methyl bromide+pic regarding the greenhouse diseases control.
Telopic and methyl bromide+pic, used at a 50% of the dosage under VIF plastics efficiently decrease diseases of greenhouse soil.

All the fumigants will decrease quantitatively the micro flora of the soil

- The less significant reduction was produced by: Metam sodium, Metam potassium and DMDS.

Just MB+pic and Dazomet caused a qualitative change on the micro flora.

Conclusions 2002-2004

All the fumigants decrease quantitatively the micro flora of the soil.

The less significant reduction was produced by DMDS and propylene Oxide.

Just MB+pic and Dazomet cause a qualitative change on the micro flora.

Conclusions: soil mushrooms

Control is not a limiting factor on the search for methyl bromide alternatives in the berries sector in greenhouses.

Conclusions: weeds

Results in 2003 show that Telopic, Metam Sodium (MS) + Pic, and Dazomet were equivalent to MB+Pic.

Nevertheless, this result contradicts those of the 2003 and 2004 tests showing that weeds control was only satisfactory when MB+pic was used.

Results for weeds control are not consistent yet (variable).

Conclusions production of daughter plants

After 7 years, we found a high variability for plants production using alternative treatments to MB+pic.

Opposite to these results, MB+pic (50-50) injected to the whole area under transparent poly etalon film has shown optimal results in all the tested places, tests and years.

Results for plants production are still inconsistent (variable).

STRAWBERRY (PRODUCTION)
An important effort is being made to search for alternatives within the context of National Project INIA since 1997/1998 to substitute methyl bromide and comply with the Montreal Protocol and norm 2037/2000 of the UE.

After explaining the different methods and alternatives, Mr. López explained the following conclusions for the strawberry production sector:

In a broad sense, VIF plastics are efficient to improve results to chemical alternatives; nevertheless, the dosage should be increased at least 65-70% from the standard dosage under PE.

DMDS, DMDS VIF (400 kg/ha) work much better than DMDS LDPE (800 kg/ha).

Combinations of DMDS-Pic under black VIF could be a viable alternative to methyl bromide.

In the case of Dazomet (BasamidTM) different use techniques have produced little differences on the results.

For PropozoneTM under PE there is evidence that the dosage used, 30 gallons/acre, is not enough. It should be increased up to 40 gallons/acre (PE) or 25-30 gallons/acre (VIF).

As in recent years, the outputs obtained for 1,3D-pic Telopic and Chloropicrin alone have been satisfactory and even similar to the methyl bromide-pic (50-50) standard.

As in other major harvesting zones for strawberry (California, Florida, Italia), the mixture of 1,3-Di-chlorine propane + chloropicrin (1,3-D+pic), tested for the first time in the United States as Telone C-35, has turned out to be the most promising alternative to methyl bromide from the technical and agricultural point of view.

**CHILE**

Arturo Correa Briones, Head of the Sub-department of Fertilizers, Pesticides for the Farming and Livestock Services, together with Ana Silva, from the same organization, explained the institutional measures that have been implemented to trace imported methyl bromide and the measures to be implemented in the future.

The methyl bromide phasing-out project implemented by INIA has the following objectives:

**General Objective**
- To implement official actions as a tool to comply with international commitments, help protect the environment and minimize risks to human health.

**Specific Objectives**
- To create databases and tracking systems from the importing of methyl bromide to its final use.
To submit legal proposals leading to the correction of deficiencies in the use and handling of pesticides.

Regarding internal control of methyl bromide, the officers demonstrated the different methods used to know who the importers and users are, currently allowing an accurate account of the quantities and use zones for methyl bromide for the whole country. Amounts of substance and names of users were shown.

This study concluded that the vast majority of the greenhouses are not aware of the existing alternatives to methyl bromide, steaming being the most popular.

The following work plan will be implemented:

- **Imports**
  - Report every import of any agricultural methyl bromide-based pesticides to the Sub-department of Pesticides and Fertilizers

- **Greenhouses**
  - Develop information and awareness activities
  - Training on methyl bromide substitution techniques and/or non-ODS.
  - 2005 activities will be coordinated by INIA and supported by SAG.

- **Distributors**
  - Establish areas of greatest fumigant consumption
  - Development of an identification plan of users and final use associated crops.

- **Quarantine and Pre-shipment Treatments**
  - Report every import of 100% concentrated methyl bromide to the Sub-department of Pesticides and Fertilizers. Differentiate them from other concentrations in the market

- **Agricultural Efficiency Study by INIA**
  - Results are satisfactory, as changes on the products labels will be allowed (dosage, concentration, covering plastic).

- **Follow up to establish the efficiency of these reduction measures and decide future actions.**

Later, two strawberry farmers, Eduardo Pinochet and Jaime Maruri, presented the point of view of Chilean farmers. They presented a detailed description of the berries sector in Chile and how the Protocol affects the current production patterns.

Mr. Pinochet and Mr. Maruri expressed their discomfort because the strawberry production sector (greenhouses and farmers) did not have a say in the negotiations between the Government of Chile and the Montreal Protocol Secretariat. They also felt excluded from the negotiations with the different Implementing Agencies in charge of the methyl bromide phasing-out projects.
in Chile. At first they were sceptical of how the methyl bromide consumption baseline was calculated (media of imports for years 1995-1998) because they believed it was against their interests (the experts explained the calculation methods valid for all Montreal Protocol Parties).

The producers expressed their concern about the actions that the developed countries are taking regarding critical uses requests, something they consider to be detrimental to the Protocol.

On a more fortunate note, the producers sector was very pleased as they finally have and open discussion forum with many representatives from all the involved sectors. They support a joint work plan for the future that includes adaptation activities and alternatives validation. They were also pleased to learn that a new project that would have advanced the methyl bromide phasing-out schedule was rejected.

UNEP

Mr. de Mesa presented a synthesis of the comments raised during the workshop and the following conclusions and recommendations:

1) The workshop helped to reinforce the communication among the different sectors implied on the phasing-out of methyl bromide and the search for alternatives in Chile. Additional meetings shall be organized in the next months in order to coordinate the implementation of the commitments under the Montreal Protocol.

2) The experiences of the Southern Cone countries and Spain on the search for alternatives to methyl bromide in the strawberry sector lead to the conclusion that di-chlorine propane prepared with chloropicrin is an option similar to bromide for greenhouse plants, but these alternatives are not ready yet. It must be taken into consideration that the use of di-chlorine propane and chloropicrin has not yet been deeply studied for the conditions of the Chilean soils.

3) All the participants found the workshop useful and interesting. Consensus was reached on the 283 tons of methyl bromide consumption until 2015.

4) It was clearly stated that a great amount of critical uses are granted to Article 2 countries, thus weakening Article 5 countries compliance with the Montreal Protocol.

FIELD TRIP

The participants were invited to visit the farms of Mr. Eduardo Pinochet, located in the Curico region, 150 kilometres south of Santiago. The participants asked several questions, exchanged opinions and discussed different production methods and the potential transition to methyl bromide alternatives.
AGENDA

Wednesday, 24 August

8:30 – 9:00  Registration.

9:00 – 10:00  Opening Ceremony
Mr. Jorge Troncoso, Head of Pollution Control Department, CONAMA.
Mr. Fernando Peña, Head of the Division of the General Secretariat, Agriculture and Livestock Services (SAG).
Mr. Hugo Martínez, Deputy Director, Agricultural Policies and Studies (ODEPA).
Mr. José de Mesa, Methyl Bromide Officer, United Nations Environment Programme, Regional Office for Latin America and the Caribbean (UNEP/ROLAC).

10:00 – 10:15  Objectives of the Meeting. Ms. Ana Zúñiga, Ozone Program Coordinator, CONAMA.


10:30 – 11:30  General overview of methyl bromide consumption in South America. Mr. José de Mesa, Methyl Bromide Officer, UNEP/ROLAC.

11:30 – 12:30  Methyl bromide consumption in the strawberry sector and the MBTOC. Mr. Nahum Marban, Co-Chair, MBTOC.

12:30 – 13:00  Q&A Session.

13:00 – 14:30  Lunch

14:30 – 15:15  Methyl bromide phasing-out projects in Chile. Mr. Sergio González, Project Manager, INIA.

15:15 – 16:00  Methyl bromide phasing-out projects in Argentina (strawberry). Mr. Juan Carlos Zembo.
16:00 – 16:15  Coffee-break.

16:15 – 17:00  Methyl bromide phasing-out projects in Bolivia (strawberry). Mr. José Laime.

17:00 – 17:45  Methyl bromide phasing-out projects in Peru. Mr. Luis Gomero Osorio.

17:45 – 18:30  Discussion and comments.

**Jueves, 25 de agosto**

9:00 – 10:30  Presentation on methyl bromide alternatives for the strawberry sector implemented in Spain. Mr. José Manuel López Aranda.

10:30 – 10:45  Q&A Session

10:45 – 11:00  Coffee-break.

11:00 – 11:30  Legal aspects on the use of methyl bromide in Chile. Mr. Arturo Correa, SAG.

11:30 – 12:30  Point of view of Chilean farmers.
Fabiola Becerra, Studies Department Coordinator, FEDEFRUTA.
Jaime Maruri, General Manager, Vivero Llahuen
Eduardo Pinochet, strawberry farmer, Curicó.

12:30 – 13:00  Discussion and comments

13:00 – 14:30  Lunch

14:30 – 17:00  “Regional Strategies for Compliance”. Sharing ideas for the development of methyl bromide alternative strategies. Mr. José de Mesa, Methyl Bromide Officer, UNEP/ROLAC.

**Friday, 26 August**

8:00 – 18:00  Field trip. Visit to the property of Mr. Eduardo Pinochet in Curicó, VII Region (200 km from Santiago).
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