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**ASSISTANCE FOR THE PREPARATION OF A
SURVEY ON THE CONSUMPTION OF METHYL
BROMIDE IN BRAZIL**

FINAL REPORT

September 2004

PROJECT UNIDO - FAPEG

**ASSISTANCE FOR THE PREPARATION OF A SURVEY ON THE
CONSUMPTION OF METHYL BROMIDE IN BRAZIL**

UNIDO PROJECT No. MP/BRA/02/144

FINAL REPORT
SEPTEMBER 2004

Project consultant
Carlos Alberto B. Medeiros

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I - INTRODUCTION

The amount of methyl bromide imported by Brazil dropped dramatically in the last years, particularly after 1998, as shown on Figure 1. The volume imported increased in 2000, however, the simultaneous export of 222 tons (Figure 2) should be considered.

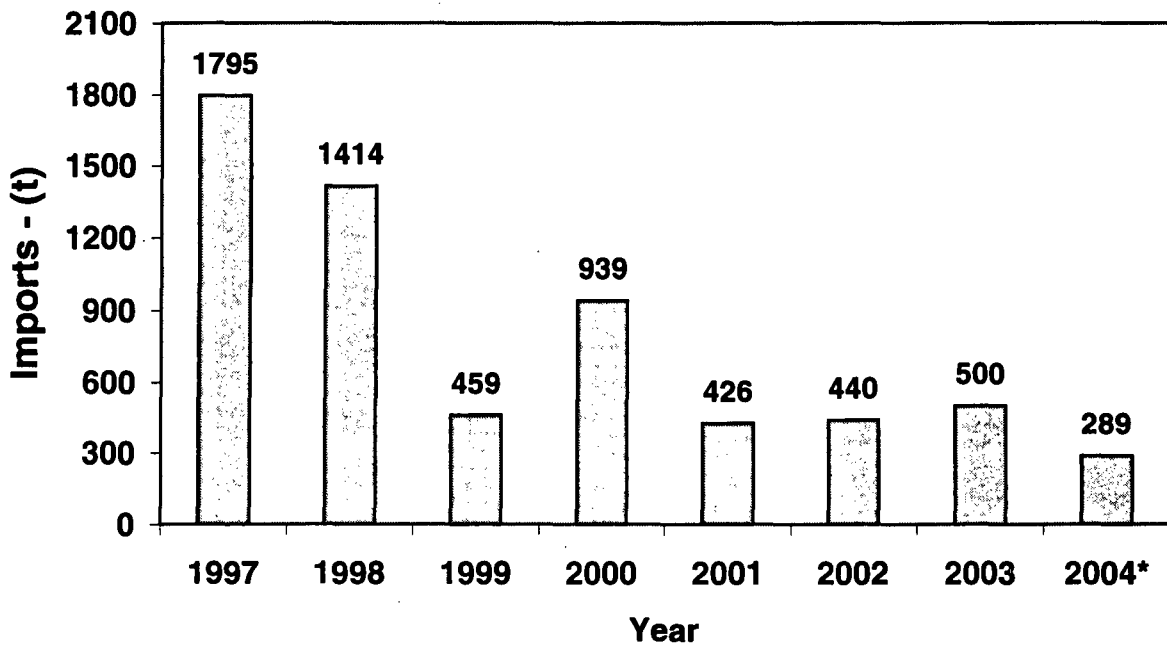
The reduction in the Brazilian imports was caused mainly by the considerably decrease on the consumption of this chemical in the tobacco sector.

United States and Israel are still the main suppliers of methyl bromide to Brazil. From January to August of 2004, Brazil imported 289 tons of methyl bromide, being 181 tons from United States and 108 tons from Israel.

The Brazilian export of methyl bromide in 2003 totaled 86.5 tons. Of this total, 80.5 tons were exported to Argentina, 4.2 tons to India and 1.6 tons to Uruguay. From the total export up to August of 2004, 58% was to Argentina, 38% to Chile and 4% to Bolivia. The average exporting price was US\$ 3.37/IKg (liquid kilograms), almost the double of the importing cost, stimulating the import and subsequent export of methyl bromide to other countries, particularly to South American countries

The agricultural use of methyl bromide basically is for soil fumigation, especially in tobacco and cut flowers, with a small amount being used in some other horticultural crops. Methyl bromide is no longer used for expurgation of stored grains.

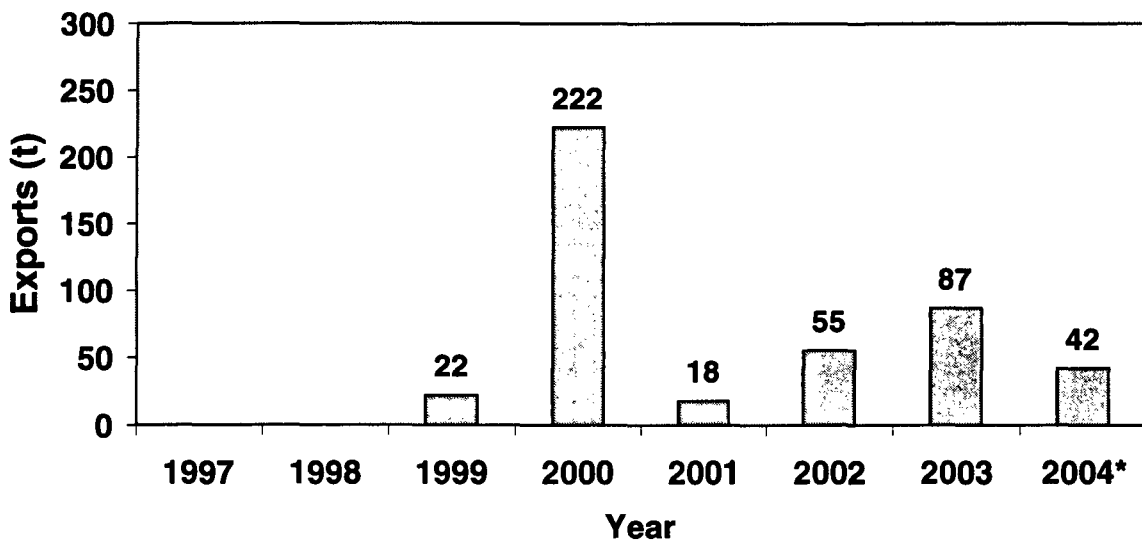
Methyl bromide is also used for quarantine and pre-shipment treatments in specific crops for which there is a previous authorization from the federal government.



* From January to August

Figure 1 - Brazilian imports of methyl bromide

Source: Portal do Exportador



* From January to August

Figure 2 – Brazilian exports of methyl bromide

Source: Portal do Exportador

II - SURVEY ON THE HORTICULTURAL SECTOR

In the horticultural sector the production of flowers is one of the activities that presents a high consumption of methyl bromide, particularly related to flowers of temperate climate. The utilization of methyl bromide in the production of tropical flowers was not detected.

Methyl bromide is also used for soil fumigation in other horticultural products, like onions and strawberries.

In some regions methyl bromide is used mainly for controlling ants. A small amount of this chemical is also used for substrate disinfestation, in the process of seedlings production.

Cut flowers

The Brazilian exports of flowers and ornamental plants have been growing in the last years, reaching 6,575 tons in 2003, with a financial result of US\$ 19.5 million/FOB (Table 1).

The production is concentrated mainly in the state of São Paulo (Table 2); however, the culture of flowers is spreading throughout other states, like Rio Grande do Sul, Pernambuco, Rio de Janeiro, Paraná and particularly Ceará, where this activity is becoming economically more and more important.

Data from Brazilian Institute of Floriculture (Ibraflor, 2002) indicate a production area in Brazil around 6,000 ha, with more than 2,500 growers involved. The mean size of the cultivated area varies from 0.8 to 6.3 ha. The twenty-five municipalities with greater number of farms are shown in Table 3.

Methyl bromide

A high percentage of the soils used for growing flowers, especially in the state of São Paulo, is currently fumigated with methyl bromide due to problems from soilborn diseases.

The data on methyl bromide consumption have been acquired through a survey, which included contacts with associations of growers, governmental institutions, reselling companies of agricultural inputs, cooperatives, growers and researchers.

Table 1 - Brazilian exports of alive plants and floriculture products

Year	US\$ FOB (1,000)	Net weight (t)
1994	12,634	4,485
1995	13,903	3,509
1996	11,855	3,154
1997	11,004	3,617
1998	12,042	3,823
1999	13,123	4,567
2000	11,884	4,588
2001	13,286	5,012
2002	15,022	5,482
2003	19,533	6,575
2004*	16,609	5,565

* From January to August
Source: Portal do Exportador

Table 2 – Area (ha) planted with flowers in different states

State	Open field	Greenhouse	Screen house	Total	%
São Paulo	2,529.3	1,092.9	52.9	3,675.1	71.8
Santa Catarina	567.1	22.2	3.3	592.5	11.6
Minas Gerais	37.1	97.5	7.1	141.7	2.8
Paraná	105.5	31.6	1.0	138.0	2.7
Rio de Janeiro	15.5	29.4	91.1	136.0	2.7
Rio Grande do Sul	83.3	42.2	0.2	125.6	2.4
Alagoas	64.3	0.7	1.4	66.3	1.3
Pernambuco	44.6	6.5	2.2	53.2	1.0
Ceará	34.2	10.2	2.5	46.9	0.9
Pará	44.5			44.5	0.9
Bahia	37.2	0.6	3.9	41.8	0.8
Goiás	29.4	0.8	1.4	31.6	0.6
Amazonas	10.1	2.0		12.1	0.2
Espírito Santo	2.1	7.6	0.3	10.0	0.2
Paraíba	3.0			3.0	0.1
Total	3,606.9	1,343.9	167.3	5,118.1	

Source: Ibraflor 2002

Table 3 – The twenty-five Brazilian municipalities with greater number of farms cultivating flowers and ornamental plants

Municipality	State	Number of farms
Atibaia	São Paulo	154
Holambra	São Paulo	67
Cotia	São Paulo	50
São Paulo	São Paulo	50
Ibiúna	São Paulo	46
Mogi das Cruzes	São Paulo	41
Guarapuava	Paraná	33
Barbacena	Minas Gerais	30
Joinville	Santa Catarina	22
Embu	São Paulo	20
Suzano	São Paulo	19
Bragança Paulista	São Paulo	18
Itapecerica da Serra	São Paulo	18
Campinas	São Paulo	17
Rio do Oeste	Santa Catarina	16
São Roque	São Paulo	16
Rio de Janeiro	Rio de Janeiro	15
Arthur Nogueira	São Paulo	14
Corupá	Santa Catarina	14
Guarulhos	São Paulo	13
Jacareí	São Paulo	13
São Sebastião do Caí	Rio Grande do Sul	13
Vargem Grande Paulista	São Paulo	13
Gravatá	Pernambuco	12
Santa Cruz do Sul	Rio Grande do Sul	12

Source: Ibraflor 2002

1 - STATE OF SÃO PAULO

1.1 - Cut Flowers

In São Paulo the production of flowers, is the sector with the highest consumption of methyl bromide. The survey in this state, included four different regions of production of flowers: region of Holambra (including the municipalities of Holambra, Santo Antônio de Posse and Artur Nogueira), region of Atibaia (including the municipalities of Atibaia, Bragança Paulista, Itatiba, Nazaré Paulista, Jarinu and Bom Jesus dos Perdões.), region of Ibiúna

(including the municipalities of Cotia, Ibiúna, Mairinque, São Roque and Varzea Grande Paulista) and the region of the Dutra Road, including the municipalities surrounding the Dutra Road between the cities of Guarulhos and São José dos Campos and also the municipalities of the high Tietê river.

1.1.1- Holambra region

Holambra is one of the most important municipalities in the sector of production of flowers, being characterized by a large number of big farms, with growers using, generally, high technology.

Methyl bromide is widely used in Holambra. Production of flower in this region is highly dependent on methyl bromide use, but this dependency is decreasing with a percentage of growers changing the production system by using steam for soil disinfestation. The use of soil heating techniques for disinfestation is increasing in spite of the high initial investment. Currently, the equipment for applying steam generated from boiling water costs about US\$ 10,000 to 15,000.

Generally the fumigation with methyl bromide is performed by small companies specialized in this kind of work. Most of the methyl bromide utilized comes in cylinders containing 90 Kg of the product. The amount of methyl bromide applied in last year was approximately 32 tons, representing in average 2.7 t/month. In the first four months of this year were applied, in average, 1.8 t/month, indicating a 30% reduction in the consumption.

Persons and institutions contacted:

Instituto Brasileiro de Floricultura - Brazilian Institute of Floriculture - IBRAFLO - Campinas - São Paulo.

Cooperativa Veiling Holambra - Cooperative Veiling of Holambra - Holambra - São Paulo.

Cooperativa Agropecuária de Insumos, Defensivos, Fertilizantes e Sementes Holambra - Agricultural Cooperative of Inputs, Pesticides, Fertilizers and Seeds Holambra - Holambra - São Paulo.

Person contacted - Geraldo D. Masselani - Manager

Empresa Brasileira de Pesquisa Agropecuária – Embrapa Meio Ambiente -
Brazilian Corporation of Agricultural Research - Embrapa Environment -
Jaguariúna - São Paulo

Person contacted: Raquel Ghini - Researcher

Instituto Agronômico de Campinas - Agronomic Institute of Campinas -
Campinas - São Paulo

Person contacted: Antônio Tombolato - Researcher

Desinfectec Comércio e Serviços Agrícolas Ltda – Desinfectec Commerce and
Agricultural Services – Santo Antônio de Posse – São Paulo

Person contacted: Christian Bock – Agronomist

Henrique Luiz Reijers – Grower – Holambra – São Paulo

1.1.2 - Atibaia region

Differently from Holambra, this area is characterized by the presence of small farms. The municipality of Atibaia has more than 150 farms involved in the production of flower and ornamental plants. In this region, considering the municipalities of Atibaia, Bragança Paulista, Itatiba, Nazaré Paulista, Jarinu, and Bom Jesus dos Perdões, around 1,200 ha are cultivated with flowers.

The Association of Growers of Flowers and Ornamental Plants of Atibaia - Pró-flor, is the association that provides technical and commercial assistance to the growers.

Methyl bromide is largely used for soil fumigation in this region. Since in this area predominates small farms, all the methyl bromide applied comes from cans containing 680 g of the product. The data collected in that region showed a total of 60.3 tons of methyl bromide applied last year.

Persons and institutions contacted:

Associação dos Produtores de Flores e Plantas Ornamentais de Atibaia – Pró-Flor - Association of Growers of Flowers and Ornamental Plants of Atibaia - Atibaia - São Paulo.

Person contacted: Humberto Rosente - Administrative Manager

Job Agro Comercial Ltda - Company reseller of agricultural inputs - Atibaia - São Paulo

Person contacted - Job José Silva - Manager

Proagro - Company reseller of agricultural inputs - Atibaia - São Paulo

Agro-Aliança – Reselling store of agricultural inputs - Atibaia - São Paulo

1.1.3 – Ibiúna region

The municipalities of Ibiúna, Cotia, São Roque, Varzea Grande Paulista, and Mairinque, with approximately 130 farms, are included in this region. The amount of methyl bromide utilized for soil fumigation in the last year was estimated in 28.6 tons.

Persons and institutions contacted:

Coordenadoria de Assistência Técnica Integral de São Paulo – CATI -
Coordination of Integral Technical Assistance of São Paulo - Ibiúna - São Paulo

Agrimilênio - Company reseller of agricultural inputs - Ibiúna - São Paulo

Person contacted: Luiz Ayres - Manager

Big Solo - Company reseller of agricultural inputs - Ibiúna - São Paulo

Artur Suguimoto – Grower – Ibiúna – São Paulo

Takeshi Saito – Grower – Ibiúna – São Paulo

1.1.4 - Dutra Road region

In this region were included the municipalities surrounding the Dutra Road between the cities of Guarulhos and São José dos Campos (Guarulhos, Arujá, Itaquaquetuba, Moji das Cruzes, Santa Izabel, Guararema, Jacareí, São José dos Campos and Taubaté) and the municipalities of the high Tietê river (Ribeirão Pires, Ferraz de Vasconcelos, Poá, Suzano, Salesópolis and

Biritiba Mirim) totaling around 300 farms cultivating approximately 1,000 ha of flowers and ornamental plants.

Some of the growers (30%) have technical support from the Association of Growers of Flowers of Via Dutra Region - AFLORD, a well-organized association with four agronomists to assist the farmers.

Flowers and ornamental plants in this region are cultivated mostly in pots, using substrate as a growing media, which generally is disinfested using steam, when needed. For that reason the consumption of methyl bromide is low if compared to other regions of São Paulo. The total methyl bromide utilized for soil disinfestation on that region was approximately 9,4 tons last year. Methyl bromide consumed from January to August of 2004 totalized 4,5 tons.

Persons and institutions contacted:

Associação dos Floricultores da Região da Via Dutra – AFLORD - Association of Growers of Flowers of Via Dutra Region - Arujá - São Paulo

Persons contacted - Sílvia Megumi Kato - Agronomist; Rosana Tiessui Hagio - Agronomist

1.1.5 – Summary of methyl bromide consumption in flowers and ornamental plants in the state of São Paulo

Table 4 - Annual methyl bromide consumption in the flower sector in São Paulo

State / Region	Consumption (t)
São Paulo	
Holambra region	32.0
Atibaia region	60.3
Ibiúna region	28.6
Dutra road region	9.4
Other regions	28.0
Total	158.3

1.2 - Other horticultural products

Methyl bromide is also consumed in other activities, like production of vegetables, mushrooms and specially strawberries. The state of São Paulo is the second largest strawberry producer. The commercial production of strawberries initiated in the municipalities of Suzano and Itaquera, expanding to Jundiaí and later to Atibaia, where the production reached great expression. Atibaia concentrates around 60% of the state production.

The consumption of methyl bromide in other horticultural products, besides cut flowers, was estimated in 8.3 tons last year.

2 - STATE OF MINAS GERAIS

2.1 - Cut flowers

Minas Gerais is the third largest state producer of flowers in Brazil. The production is concentrated mainly in the municipalities of Barbacena, Antônio Carlos and Munhoz, this last one in the border with São Paulo. Barbacena is the most traditional municipality in the production of cut flowers, especially roses, yielding around three millions units per month.

To avoid problems with soil born diseases and nematodes in the production of roses, it is a common practice in the region of Barbacena to replace the soil when the plants are eliminated, after six to eight year of planting. No significant consumption of methyl bromide for soil disinfestation was identified in this production system.

Persons and institutions contacted:

Associação Barbacenense dos Produtores de Rosas e Flores - Abarflores -
Association of Growers of Roses and Flowers of Barbacena - Barbacena -
Minas Gerais

Serviço de Apoio às Micro e Pequenas Empresas de Minas Gerais - Sebrae -
MG - Service of Support to the Small Companies of Minas Gerais - (Supporting
growers of flowers) - Barbacena - Minas Gerais

Person contacted - José Avelino dos Santos Esteves

Horta Técnica - Reselling store of agricultural inputs - Barbacena - Minas Gerais

Person contacted - Pedro Gonçalves - Agronomist

Campo Verde - Reselling store of agricultural inputs - Barbacena - Minas Gerais

Person contacted - Vander Wagner de Oliveira - Manager

Tropical Agrícola - Reselling store of agricultural inputs - Barbacena - Minas Gerais

Luiz Gonzaga Dorneles - Grower - Alfredo Vasconcelos - Minas Gerais

Jair Marciano da Silva - Grower - Barbacena - Minas Gerais

Sheila Brandão Loschi - Grower - Barbacena - Minas Gerais

2.2 - Other horticultural products

The state of Minas Gerais is the largest producer of strawberries in Brazil, yielding yearly around 30 thousand tons. Pouso Alegre in the south, and Alfredo Vasconcelos and Barbacena in the Zona da Mata region are the main municipalities involved. Small amount of methyl bromide is consumed for soil disinfection in the production of strawberries on those regions.

Minas Gerais is also the state with the largest area planted with coffee, approximately 1,2 millions hectares. The production of coffee is the most important agricultural activity in this state, particularly in the south, in the region of Varginha. Considering 3 to 5 thousand plants per hectare, the amount of seedlings needed for renewing the planted area is very high. The coffee seedlings are produced in small plastic bags filled with substrate, normally a mixture of soil (from sub soil) and organic matter (manure). Few growers are using methyl bromide for substrate fumigation. Mostly of the methyl bromide consumed in this region is used for controlling ants.

The consumption of methyl bromide in the state last year was estimated in 4.2 tons.

Persons and institutions contacted

Empresa de Assistência Técnica e Extensão Rural do Estado de Minas Gerais -
- Escritório de Barbacena - Company of Technical Support and Extension
Service of Minas Gerais - Office of Barbacena

Person contacted - Antônio Carlos Fonseca Agronomist

Empresa de Assistência Técnica e Extensão Rural do Estado de Minas Gerais -
- Escritório de Pouso Alegre - Company of Technical Support and Extension
Service of Minas Gerais - Office of Pouso Alegre

Person contacted – Orlando Regis Teixeira - Agronomist

Instituto Mineiro de Agropecuária – IMA - Institute of Agriculture of Minas Gerais
– Varginha – Minas Gerais

Person contacted – Ronaldo Vilasboas - Agronomist

Cooperativa dos Cafeicultores da Zona de Varginha Ltda – Cooperative of
Coffee Growers of Varginha Region – Varginha – Minas Gerais

Person contacted - Adilson Lourenço – Sales manager

Cooperativa dos Cafeicultores de Três Pontas Ltda – Cooperative of Coffee
Growers of Três Pontas – Três Pontas – Minas Gerais

Person contacted - Marcio Vinicius M. Ferreira – Agronomist

Taki Agro Ltda - Reselling store of agricultural inputs – Pouso Alegre – Minas
Gerais

Person contacted – Cláudio Takigone - Manager

Ceres-Agro - Company reseller of agricultural inputs – Pouso Alegre – Minas
Gerais

Person contacted – João Júnior - Manager

Comercial Suzuki - Reselling store of agricultural inputs – Pouso Alegre – Minas
Gerais

Ponto Rural - Reselling store of agricultural inputs – Varginha - Minas Gerais

Person contacted – Aníbal Rego - Agronomist

Guilherme Salgado Rezende – grower (coffee seedlings) – Varginha – Minas Gerais

3 - STATE OF RIO DE JANEIRO

3.1 - Cut flowers

The climate conditions in the mountains of the state of Rio de Janeiro, make the production of flowers an important activity in that region, especially in the municipalities of Nova Friburgo and Petrópolis, where most of the production is concentrated. No significant consumption of methyl bromide was identified in the production system of flowers in this state.

Persons and institutions contacted

Empresa de Assistência Técnica e Extensão Rural do Estado do Rio de Janeiro
- Escritório de Nova Friburgo - Company of Technical Support and Extension Service of the State of Rio de Janeiro - Office of Nova Friburgo.

Person contacted - José Américo Ribeiro Canelas - Agronomist

Empresa de Assistência Técnica e Extensão Rural do Estado do Rio de Janeiro
- Escritório de Petrópolis - Company of Technical Support and Extension Service of the State of Rio de Janeiro - Office of Petrópolis

Person contacted – Nelson Buarque C. Júnior - Agricultural Technician

Comercial Friburguense Ltda - Company reseller of agricultural inputs - Nova Friburgo - Rio de Janeiro

Person contacted - Álvaro Sanglard - Agronomist

Agrícola Itaipava Ltda – Farm of flowers production – Petrópolis – Rio de Janeiro.

3.2 - Other horticultural products

The production of vegetables for supplying the state of Rio de Janeiro is concentrated mainly in the municipalities of Teresópolis, Nova Friburgo and

Petrópolis. Mostly of the seedlings of the different species of vegetables are grown in Styrofoam trays, using substrate as growing media. No significant use of methyl bromide was identified.

Persons and institutions contacted:

Empresa de Assistência Técnica e Extensão Rural do Estado do Rio de Janeiro
- Escritório de Teresópolis - Company of Technical Support and Extension
Service of the State of Rio de Janeiro - Office of Teresópolis

Persons contacted - Maurício dos Santos Reis and José de Castro Macedo -
Agronomists

Casa Rezende - Company reseller of agricultural inputs - Teresópolis - Rio de
Janeiro

MA Monteiro Comercial Agrícola Ltda - Company reseller of agricultural inputs -
Teresópolis - Rio de Janeiro

José Sérgio Batista Patrão - Grower - Teresópolis - Rio de Janeiro

4 - STATE OF PARANÁ

4.1 - Cut flowers and other horticultural products

According with data of Ibraflor (2002) the state of Paraná has the fourth largest area cultivated with flowers and ornamental plants. The production is concentrated mainly in the region of Guarapuava, in the central-south part of the state. In this region the Cooperative of Entre Rios plays an important role providing technical support to the growers. Methyl bromide is no longer used for soil disinfestation in the production system of flowers; being introduced the steam as an alternative for soil treatment.

Methyl bromide has been used for substrate disinfestation for growing pine and eucalyptus seedlings for wood production, and as formicide in the horticultural activity. The yearly consumption was estimated in 2,5 tons.

Persons and institutions contacted

Cooperativa Agrária Mista Entre Rios Ltda - Agricultural cooperative of Entre Rios – Entre Rios – Guarapuava - Paraná

Person contacted – Tayná Jornada Ben - Agronomist

Agrícola Cantelli - Company reseller of agricultural inputs – Guarapuava - Paraná

Person contacted – Cândido Pacheco Bastos Filho - Agronomist

5 - STATE OF SANTA CATARINA

5.1 - Cut flowers

The state of Santa Catarina in the south region, is one of the largest producers of flowers in Brazil. In this state, according to data of Ibraflor (2002), in 2001/2002, the activity of producing flowers and ornamental plants occupied an area of about 600 ha, involving approximately 120 farmers. More recent data (Epagri 2004) indicate that the area has risen to 917 ha. The activity is now involving around 370 growers, distributed in 112 municipalities, producing yearly around 38 million units. The production is characteristic of small farms, with 65% of the growers cultivating area no greater than one ha.

The production is concentrated in the north region of the state, mainly in the municipalities of Joinville and Corupá, in the vale of Itajaí, standing out Blumenau, Laurentino and Rio do Oeste, and in the center coast, in the municipality of Biguaçu.

In this state 98% of the cut flowers are cultivated in open field (Epagri 2004), with a less intensive use of soil, if compared to cultivation in greenhouses or screen houses. For this reason, in that system, problems with soilborn pathogens are less frequent in comparison, for instance, to the intensive production system predominating in São Paulo.

No significant consumption of methyl bromide in this state, related to the production of flowers, was identified.

Persons and institutions contacted:

Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina – EPAGRI – Escritório de Itajaí - Agricultural Research Corporation and Extension Service of Santa Catarina – Office of Itajaí.

Person contacted: Juarez José Vanni Müller - Researcher

Associação dos Produtores de Plantas Ornamentais de Santa Catarina – APROESC - Association of Growers of Ornamental Plants of Santa Catarina – Itajaí – Santa Catarina

Willi kafka – Grower – Rio do Oeste – Santa Catarina

Luiz Bertoldi – Grower – Rio do Oeste – Santa Catarina

5.2 - Other horticultural products

In the state of Santa Catarina, the cultivation of onions is one of the most important agricultural activities. Approximately 24,000 ha are cultivated yearly with this crop, involving small and big farmers. Ituporanga, Alfredo Wagner and Aurora are the municipalities with the largest production. Herbicides and some chemical products for soil disinfestation are used, mainly in seedbeds. Methyl bromide is used especially by small growers, because of the small size of seedbeds and consequent low cost for treating soil with this chemical. Growers with large seedbeds don't use methyl bromide. The amount of methyl bromide consumed last year in onion seedbeds was approximately 3,5 tons.

Persons and institutions contacted:

Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina – EPAGRI – Escritório de Ituporanga - Agricultural Research Corporation and Extension Service of Santa Catarina – Office of Ituporanga

Person contacted: Lúcio Tomazzeli - Researcher

Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina – EPAGRI – Escritório de Alfredo Wagner - Agricultural Research Corporation and Extension Service of Santa Catarina – Office of Alfredo Wagner

Person contacted: Asirto Amboni - Agricultural technician

Sebastião Muller & Arno Zimmerman - Company of onion seeds production - Ituporanga - Santa Catarina

Terra Nova - Comércio de Produtos Agropecuários Ltda - Reselling store of agricultural inputs - Alfredo Wagner - Santa Catarina

Bardt Agropecuária - Reselling store of agricultural inputs - Alfredo Wagner - Santa Catarina

Agropecuária do Zé - Reselling store of agricultural inputs - Alfredo Wagner - Santa Catarina

Person contacted - José Silveira - Manager

Agrovamow - Produtos Agropecuários Ltda - Company reseller of agricultural inputs - Ituporanga - Santa Catarina

Person contacted - Tercílio R. Júnior - Manager

HF Cooperativa Agroindustrial dos Produtores de Hortifrutigranjeiros - Cooperative of growers of horticultural products - Ituporanga - Santa Catarina

Person contacted - Antônio Carlos Gesser - Agronomist

Beto Lehmkuhl Agropecuária - Company reseller of agricultural inputs - Ituporanga - Santa Catarina

6 - STATE OF RIO GRANDE DO SUL

6.1 - Cut Flowers

The production of flowers and ornamental plants in the state of Rio Grande do Sul is concentrated mainly in the regions surrounding the municipalities of Ivoti, Pareci Novo, São Sebastião do Caí, Montenegro and Santa Cruz do Sul. A high percentage of the flowers and ornamental plants are

cultivated in pots, using substrate; therefore methyl bromide is rarely used. For example, in the municipality of Santa Cruz do Sul, around 7 ha of greenhouses are cultivated with flowers and ornamental plants, all produced in pots using substrate as a growing media.

The consumption of methyl bromide for substrate fumigation is around 0,5 ton per year.

Persons and institutions contacted:

Associação Riograndense de Empreendimentos de Assistência Técnica e Extensão Rural – Emater - RS – Escritório de Ivoti - Association of Technical Assistance and Extension Service of Rio Grande do Sul – Office of Ivoti

Person contacted: Laerte José C. Silva - Agronomist

Associação Riograndense de Empreendimentos de Assistência Técnica e Extensão Rural – Emater - RS – Escritório de São Sebastião do Caí - Association of Technical Assistance and Extension Service of Rio Grande do Sul – Office of São Sebastião do Caí - Rio Grande do Sul

Person contacted: Maurício Finckler - Agronomist

Associação Riograndense de Empreendimentos de Assistência Técnica e Extensão Rural – Emater - RS – Escritório de Pareci Novo - Association of Technical Assistance and Extension Service of Rio Grande do Sul – Office of Pareci Novo - Rio Grande do Sul

Person contacted: Nilo Campos Teixeira - Agronomist

Associação Riograndense de Floricultura – Aflori - Association of Floriculture of Rio Grande do Sul State – Porto Alegre – Rio Grande do Sul

Person contacted – Elisabeth Stumpf – Regional Coordinator

Associação Sul Flores – Asflores – Association of growers of flowers of Santa Cruz do Sul - Santa Cruz do Sul – Rio Grande do Sul

Person contacted – Erna Eugênia Herberts – President and grower

6.2 - Other horticultural products

Other horticultural activities with potential of using methyl bromide are the onion and strawberry production.

The onion cropping is concentrated mainly in the southeast region of the state; in the municipalities of São José do Norte, Pelotas, Rio Grande and Canguçu, totaling approximately 7,000 ha, 50% of the planted area of the state. Methyl bromide is not used in this production system.

Rio Grande do Sul is the third largest state producer of strawberries. The production is concentrated in three different regions: region of Vale do Rio Caí (Vale of Caí river) in the municipalities of Estrela, Feliz, Bom princípio, São Sebastião do Caí, Linha Nova and São José do Hortêncio, where around 5 tons are yielded yearly; region of mountains, in the municipalities of Caxias.do Sul, Flores da Cunha and Bento Gonçalves; and in the south region of the state, mainly in the municipalities of Pelotas, Turuçu, São Lourenço do Sul and Canguçu. Methyl bromide is rarely used in the production of strawberry seedlings.

The amount of methyl bromide used in the horticultural production last year in Rio Grande do Sul was estimated in 1,6 tons.

Persons and institutions contacted:

Associação Riograndense de Empreendimentos de Assistência Técnica e Extensão Rural – Emater RS – Escritório Central – Porto Alegre - Association of Technical Assistance and Extension Service of Rio Grande do Sul – Central Office – Porto Alegre – Rio Grande do Sul

Person contacted - Jandir Vicentini Esteves - State technical assistant.

Associação Riograndense de Empreendimentos de Assistência Técnica e Extensão Rural – Emater - RS – Escritório de Pelotas - Association of Technical Assistance and Extension Service of Rio Grande do Sul – Office of Pelotas - Rio Grande do Sul

Person contacted - Luiz Carlos Migliorini - Agronomist

Associação Riograndense de Empreendimentos de Assistência Técnica e Extensão Rural – Emater - RS – Escritório de Bom Princípio - Association of Technical Assistance and Extension Service of Rio Grande do Sul – Office of Bom Princípio - Rio Grande do Sul

Person contacted - Leneu Brauth – Agronomist

Agropel - Reselling store of agricultural inputs - Pelotas - Rio Grande do Sul

Person contacted - Alberto Dolinsky - Manager

Compagro - Reselling store of agricultural inputs - Porto Alegre - Rio Grande do Sul

Agrimar – Company reseller of agricultural inputs - Porto Alegre - Rio Grande do Sul

Cemeagro - Reselling store of agricultural inputs - Porto Alegre - Rio Grande do Sul

7 - STATE OF CEARÁ

7.1 - Cut flowers and other horticultural products

The horticultural production in the state of Ceará is distributed in four different Agropolos (regions where the agricultural production is concentrated): Metropolitan Agropolo (surrounding the state capital, Fortaleza), Agropolo of Ibiapaba (in the mountains of Ibiapaba – west region); Agropolo of Cariri (in the south region of the state) and Agropolo of Low Jaguaribe (in the lowest part of the Jaguaribe river).

Those Agropolos are responsible for most of the state production of melon, passion fruit, mango, grapes, pepper, carrot, onion, lettuce, tomato and flowers.

In the last five years the production of flowers in the state of Ceará had a significant increase. Five years ago only 20% of the flowers commercialized in Ceará were produced in the state; at present days this participation jumped to

80% and continues to increase. Some growers are producing roses mainly for exportation to other countries.

The Agropolo of Ibiapaba situated in the mountains of Ibiapaba, 900 m over the sea level, in the west region, includes the municipalities of Carnaubal, Croatá, Guaraciaba do Norte, Ibiapina, Ipu, São Benedito, Tianguá, Ubajara and Viçosa do Ceará.

The climate conditions make this Agropolo the most important in the agricultural production. More than 1,000 ha are cultivated with passion fruit and approximately 250 ha with tomatoes and pepper. The seedlings are prepared in trays using substrate, and methyl bromide is not used in the process.

This is the main region where cut flowers, particularly roses, are produced. Approximately 35 ha, all under greenhouses, are cultivated with flowers. Mostly of the growers are using coconut fiber as a growing media and methyl bromide is not used. The most important companies are: Roberto Reijers, located at São Benedito, cultivating the largest area, 20 ha of cut flowers, especially roses; Geraldo Reijers and Henrique Reijers, located at Ubajara, cultivating 2 ha, area that is being expanded to 6 ha; Cea Rosa with 3,5 ha of flowers, expanding to 5 ha up to the end of the year

The Metropolitan Agropolo surrounding the state capital, Fortaleza, includes two different regions, the coast region (municipalities of Aquiraz, Cascavel, Caucaia, Euzébio, Itaitinga, Maracanaú, Maranguape, Paracuru, Paraipaba, Pentecostes, Pindoretama, São Gonçalo do Amarante, and São Luis do Curu), and region of mountains of Baturité (municipalities of Aratuba, Baturité, Guaramiranga, Mulungu, Pacoti, Palmácia and Redenção). Most of the production of flowers is concentrated in the municipalities of Guaramiranga and Baturité, occupying area around 15 ha. The production of tomatoes is increasing, mainly in the municipalities of Aratuba and Mulungu. No significant consumption of methyl bromide was detected.

The Agropolo of Low Jaguaribe includes the municipalities of Alto Santo, Aracati, Icapuí, Itaiçaba, Jaguaretama, Jaguaruana, Jaguaribara, Limoeiro do Norte, Morada Nova, Palhano, Quixerê, Russas, São João do Jaguaribe and Tabuleiro do Norte.

Ceará has the second largest production of melons in Brazil. The Agropolo of Low Jaguaribe is the most important in the melon production.

Approximately 4,400 ha are cultivated with melons, mainly in the municipalities of Quixerê, Aracati, Icapui e Itaiçaba. No significant consumption of methyl bromide was detected in this production system.

The Agropolo of Cariri, in the south part of the state, includes the municipalities of Abaiara, Barbalha, Brejo Santo, Crato, Jardim, Juazeiro do Norte, Mauriti, Milagres and Missão Velha. Some growers in the municipality of Crato are starting the cultivation of cut flowers, totaling an area of approximately 2 ha.

Considering the four Agropolos of the state, no significant consumption of methyl bromide was detected.

Persons and institutions contacted:

Instituto Agropolos do Ceará - Institute Agropolos of Ceará - Ceará State Government - São Benedito - Ceará.

Person contacted - Antônio Augusto Pereira de Souza - Manager of Irrigated Agriculture - Agropolo of Ibiapaba

Secretaria do Desenvolvimento Local e Regional – Escritório Ibiapaba - Secretariat of the Local and Regional Development - Ceará State Government – Office Ibiapaba - São Benedito - Ceará

Person contacted - Aníbal José de Souza - Manager

Company Cea Rosa - Grower (flowers) - São Benedito - Ceará

Person contacted - Júlio Contello - Agronomist

Company Roberto Reijers – Grower (flowers) - São Benedito – Ceará -

Person contacted - Elísio Sampaio – Agronomist

Company of Geraldo Reijers and Henrique Reijers – Grower (flowers) - Ubajara – Ceará

Person contacted - Ari Santana Lacerda - Agronomist

Company Itaucira Agropecuária S.A. - Grower (melons) - Itaiçaba - Ceará

Person contacted - Sílvio Ramalho Dantas - Manager

Agropecuária Ducampo – Company reseller of agricultural inputs

Person contacted - Marcelo A. Gurgel – Manager

Casa do Criador – Reselling store of agricultural inputs - Acarati – Ceará

Fazenda Venezuela – Francisco José Linhares – Grower (flowers) –
Guaramiranga - Ceará

Maria de Lourdes Alves de Oliveira – Grower (flowers) – Baturité - Ceará

Ricardo Câmara – Grower (flowers) – Guaramiranga – Ceará

8 - STATE OF PERNAMBUCO

8.1 - Cut flowers

The Agreste of Pernambuco is the main region of flower cultivation in this state. The production is concentrated mainly in the municipalities of Barra da Guabiroba, Bonito, Camocim de São Felix, Chã Grande, Garanhuns and Gravatá. Around 110 growers cultivate near 60 ha of different species of flowers. Methyl bromide is used, particularly for growers cultivating chrysanthemums, for nematode control. The amount used for this purpose was approximately 8,1 tons in the last year.

Persons and institutions contacted:

Associação dos Produtores de Flores do Agreste de Pernambuco - Florape -
Association of Producers of Flowers of the Agreste of Pernambuco - Gravatá -
Pernambuco

Person contacted - Lorenzo Zarzar - Vice-President

Casa do Produtor Rural do Bonito - Reselling store of agricultural inputs -
Bonito - Pernambuco

Casa do Agricultor do Bonito - Reselling store of agricultural inputs - Bonito -
Pernambuco

Agroshop Ltda - Reselling store of agricultural inputs - Bonito - Pernambuco

Casa do Agricultor - Reselling store of agricultural inputs - Gravatá - Pernambuco.

Gravatá Agrícola - Reselling store of agricultural inputs - Gravatá - Pernambuco

Casa Plante Bem - Reselling store of agricultural inputs - Gravatá - Pernambuco

Hiromi Kubo - Grower - Barra de Guabiraba - Pernambuco

João Salgado - Grower - Gravatá - Pernambuco

8.2 - Other horticultural products

The municipality of Bezerros in the Agreste region, is one of the greatest producers of vegetables, especially tomatoes, with an area of approximately 600 ha. The seedlings are produced in Styrofoam trays, filled with substrate. Methyl bromide is not used in this process.

Another region with expressive production of vegetables, flowers and fruits, is the region of Petrolina in the vale of São Francisco River. The appropriate climate makes possible the production of several species of horticultural products. The production of onions, which is potentially a methyl bromide consumer, occupies approximately 3,000 ha in this region. No methyl bromide consumption was identified on the region of Petrolina.

Persons and institutions contacted:

Empresa Pernambucana de Pesquisa Agropecuária - IPA – Petrolina - Agricultural Research Corporation of Pernambuco State - Petrolina - Pernambuco

Person contacted - José Hugo Caxias - Agronomist

Empresa Brasileira de Pesquisa Agropecuária – Embrapa - Centro de Pesquisa Agropecuária do Trópico Semi-Árido - Brazilian Corporation of Agricultural Research - Center of Agricultural Research of the Semi-Arid Tropic - Petrolina - Pernambuco

Person contacted - Nivaldo Duarte Costa - Researcher

Casa do Plantio Comércio e Representações Ltda - Company reseller of agricultural inputs - Bezerros - Pernambuco

Person contacted - Peter Halász Gali - Agronomist

Juagro Produtos e Máquinas Agrícolas - Company reseller of agricultural inputs - Petrolina - Pernambuco

Person contacted - Gleidson R. B. da Silva - Agricultural technician

Solução Agrícola do Vale - Reselling store of agricultural inputs - Petrolina - Pernambuco

Person contacted - Rogério B. Amorim - Manager

9 - STATE OF ALAGOAS

9.1 - Cut flowers and other horticultural products

The production of flowers in the state of Alagoas is concentrated in the Vale do Paraíba region (Vale of Paraíba river) and Vale do Mundaú (Vale of Mundaú river) in the municipalities of Pilar, Atalaia, Rio Largo, Riacho Doce and Marechal Deodoro. No significant consumption of methyl bromide was identified in this segment.

The region surrounding the municipality of Arapiraca in the central part of Alagoas is the main area of horticultural crops. No consumption of methyl bromide was detected in this region.

Persons and institutions contacted:

Associação dos Produtores de Flores e Plantas Ornamentais do Estado de Alagoas – Afloral

Person contacted - Francisca de Almeida Freitas - President

Secretaria Municipal de Agricultura - Municipal Secretariat of Agriculture - Arapiraca - Alagoas

Person contacted - Bento Claudino da Silva - Agronomist

Secretaria Estadual de Agricultura - Secretariat of Agriculture of Alagoas

Person contacted - Humberto Vitorino dos Santos - Agronomist

Schoenherr & Cia Ltda. - Rural Produtos Agropecuários - Company reseller of agricultural inputs - Arapiraca - Alagoas

Person contacted - João de Deus Guimarães da Silva - Sales Manager

R. B. Dantas & Cia. Ltda - Coagro - Company reseller of agricultural inputs - Arapiraca - Alagoas

10 - STATE OF BAHIA

10.1 - Horticultural products

The production of flowers in the state of Bahia is a new activity, with no use of methyl bromide.

Considering its potential of consumption of methyl bromide, the production system of onions in the São Francisco vale (part that belongs to Bahia) was analyzed. The region surrounding the municipality of Juazeiro is the main area where onions are produced, totaling around 3,100 ha. No consumption of methyl bromide in the onion seedbeds was detected.

Persons and institutions contacted:

Juagro Produtos e Máquinas Agrícolas - Company reseller of agricultural inputs - Juazeiro - Bahia

Person contacted - Jô Tamai - Agronomist

Fertilplante - Reselling store of agricultural inputs - Juazeiro - Bahia

Person contacted - Ednaldo C. Melo - Agricultural technician

11 - STATE OF MATO GROSSO DO SUL

11.1 – Horticultural products

The horticultural production in the state of Mato Grosso do Sul is concentrated mainly in the region surrounding the capital city, Campo Grande.

In that region, approximately 250 ha are cultivated with tomato, onion, pepper and leaf-vegetables.

Another important activity in this state is the reforestation, destined to the wood production. Problems with ants are common in the reforestation areas, however, in the visited companies methyl bromide is not used for controlling ants.

The methyl bromide consumption in Mato Grosso do Sul dropped dramatically in the past five years, from 22 tons in 1998 to approximately 2.1 tons in the last year. Most of the methyl bromide consumed is used as formicide.

Persons and institutions contacted:

Idaterra – Escritório Central - Institute of Extension Service of Mato Grosso do Sul – Central office - Campo Grande - Mato Grosso do Sul

Person contacted - Alexandre Luís Giehl

Idaterra – Escritório de Aquidauana - Institute of Extension Service of Mato Grosso do Sul – Office of Aquidauana – Aquidauana - Mato Grosso do Sul

Person contacted – Mario Cezar Gomes – Agronomist

Idaterra – Escritório de Miranda - Institute of Extension Service of Mato Grosso do Sul – Office of Miranda – Miranda - Mato Grosso do Sul

Person contacted – Reinaldo Chagas - Agronomist

Cooperativa Agrícola de Campo Grande Ltda - Cooperative of growers of horticultural products - Campo Grande - Mato Grosso do Sul

Person contacted - Cloilton Brahin - Manager

Ramires Reflorestamentos Ltda – Reforestation company – Ribas do Rio Pardo - Mato Grosso do Sul

Person contacted: Rogério Rezende Malheiros - Forest engineer

ADM Reflorestamento – Reforestation company – Ribas do Rio Pardo - Mato Grosso do Sul

Apoio Rural - Reselling store of agricultural inputs - Campo Grande - Mato Grosso do Sul

Person contacted - William Pereira Queiroz - Sales Manager

Agrolider Agropecuária – Reselling store of agricultural inputs - Campo Grande - Mato Grosso do Sul

12 – Summary of methyl bromide consumption on the horticultural sector

Table 5 - Methyl bromide consumption in the horticultural sector in 2003

Region/State	Consumption (t)	
	Cut flowers	Other products
Southeast Region		
São Paulo	158.3	8.3
Minas Gerais	-x-	4.2
Rio de Janeiro	-x-	-x-
South Region		
Paraná	-x-	2.5
Santa Catarina	-x-	3.5
Rio Grande do Sul	0.5	1.6
Northeast Region		
Ceará	-x-	-x-
Pernambuco	8.1	-x-
Alagoas	-x-	-x-
Bahia	-x-	-x-
Center west Region		
Mato Grosso do Sul	-x-	2.1
Total	166.9	22.2
General Total		189.1

III - SURVEY ON THE TOBACCO SECTOR

Brazil is the highest exporter and the second largest tobacco producer in the world. The total production in the 2003/2004 crop was around 870 thousand tons (Table 6) overcome only by China.

The main areas involved in the tobacco production are south and northeast of Brazil. In the south, the states of Paraná, Santa Catarina and Rio

Grande do Sul produce more than 96% of the total national production. The production is completed in the northeastern states of Bahia and Alagoas.

Methyl bromide in tobacco is used for seedbed fumigation, mainly to protect the crop from weeds, nematodes and soil born pathogens. From 1992 to 1999 the annual consumption of methyl bromide in tobacco fluctuated approximately between 600 and 700 tons. In the beginning of the years 2000 this consumption started to drop dramatically, as a result of a change in the seedlings production system, with the soilless floating tray system being adopted by a high percentage of growers.

The floating tray system has been used with good results. However, in spite of the threat to the human health and to the environment, some growers are still using methyl bromide in seedbeds. One of the reasons pointed out by some growers is that the plants originated from seedlings produced in the tray system have shallow root systems and as a consequence they are more susceptible to lodging. An other concern of some growers, is that any disease affecting a seedling in the tray system, can easily contaminate the entire pool, reducing enormously the amount of seedlings available for transplanting. Other growers have adopted the tray system, but they maintain a small seedbed just in case of some problem with the float system or in case of an increase in the planting area be wanted.

Table 6. – Brazilian tobacco 2003/2004 crop

States	Growers	Area (ha)	Production (t)
South Region			
Rio Grande do Sul	96,180	207,090	437,430
Santa Catarina	59,850	137,380	266,760
Paraná	34,240	66,820	132,720
<i>Sub total</i>	<i>190,270</i>	<i>411,290</i>	<i>836,910</i>
Other states	36,380	32,560	31,590
Total	226,650	443,850	868,500

Source - Afubra

1 - SOUTH REGION

Encouraged by the increasing price of tobacco in the international market, the three southern states of Brazil, expanded the planted area in the last years. Rio Grande do Sul is still the highest producer of tobacco with a cultivated area of approximately 207 thousand hectares, 46% of the country total, and also has the highest production, 437 thousand tons, 50% of the Brazilian production.

The number of municipalities planting tobacco in the three southern states increased from 650 to 759 between 2001/2002 and 2003/2004. In the same period of time the total number of growers involved rose from 153,130 to 190,270. Data from Afubra indicate that growers plant on average 2,1 hectares of tobacco in farms with approximately 18,5 ha, where tobacco takes up 14% of the cultivated area.

The amount of methyl bromide commercialized by AFUBRA and by the Tobacco Companies associated to SINDIFUMO, in the first semester of 2003 was around 40 tons, which was the remaining existing stock. Therefore, this amount does not represent the total consumption in tobacco in 2003/2004. For completing their needs growers acquired methyl bromide from other reselling stores and directly from the importing companies. Since 2003 AFUBRA and the Companies represented by SINDIFUMO are no longer commercializing methyl bromide.

Data from SINDIFUMO, AFUBRA and from tobacco companies indicate that in the 2004/2005 season 7 to 12% of the growers in the three states of south of Brazil are still using methyl bromide on seedbed fumigation.

Based on data from AFUBRA, SINDIFUMO, Tobacco Companies and from data on the amount commercialized by unions of rural workers and by reselling companies of agricultural inputs, the total amount of methyl bromide used in the three states of southern Brazil in the 2004/2005 crop was estimated in 124,4 tons (Table 7).

Persons and institutions contacted:

Associação dos Fumicultores do Brasil - AFUBRA - Brazilian Association of Tobacco Growers - Santa Cruz do Sul - Rio Grande do Sul

Person contacted - Jorge Kämpf - Director

Sindicato da Indústria do Fumo no Estado do Rio Grande do Sul - SINDIFUMO - Union of the Tobacco Industry of the State of Rio Grande do Sul - Santa Cruz do Sul - Rio Grande do Sul

Person Contacted: Leon Rivail Faller – Administrative assistant

Souza Cruz – Tobacco Company - Santa Cruz do Sul – Rio Grande do Sul

Person contacted – Carlos Roberto Vieira Palma – Territorial leaf production manager

Universal Leaf Tabacos Ltda – Tobacco Company – Santa Cruz do Sul – Rio Grande do Sul

Persons contacted – Ernesto Benetti – Agronomist Research & Development and Sérgio Angelo Willani – Supervisor of Research and development

Sindicato dos Trabalhadores Rurais de Santa Cruz do Sul - Setor de Insumos Agrícolas - Union of the Rural Workers of Santa Cruz do Sul - Sector of Agricultural Inputs - Santa Cruz do Sul - Rio Grande do Sul

Sindicato dos Trabalhadores Rurais de Vera Cruz - Setor de Insumos Agrícolas - Union of Vera Cruz's Rural Workers - Sector of Agricultural Inputs - Vera Cruz - Rio Grande do Sul

Comércio Frolin & Seelig - Reselling store of agricultural inputs - Vera Cruz - Rio Grande do Sul

Loreno Frey - Grower - Vera Cruz -Rio Grande do Sul

2 - NORTHEAST REGION

2.1 – State of Alagoas

The planted area with tobacco in the state of Alagoas increased this year to approximately 25,000 hectares involving near 5,000 growers, as a response to increasing prices in the international market. Methyl bromide is no longer used in the production system, with some growers even using soil solarization for controlling weeds and soil pathogens in seedbeds.

Persons and institutions contacted:

Secretaria Municipal de Agricultura - Municipal Secretariat of Agriculture -
Arapiraca - Alagoas

Person contacted - Bento Claudino da Silva - Agronomist

Secretaria Estadual de Agricultura - Secretariat of Agriculture of Alagoas –
Arapiraca - Alagoas

Person contacted - Humberto Vitorino dos Santos - Agronomist

Schoenherr & Cia Ltda. - Rural Produtos Agropecuários - Company reseller of
agricultural inputs - Arapiraca - Alagoas

Person contacted - João de Deus Guimarães da Silva - Sales Manager

R. B. Dantas & Cia. Ltda - Coagro - Company reseller of agricultural inputs -
Arapiraca - Alagoas

2.2 – State of Bahia

Data from the State Secretariat of Agriculture, Irrigation and Land Reform, show that the state of Bahia planted in 2003 around 12,500 ha of tobacco, producing 11,235 tons. As occurred in other states, the planted area increased in 2004, motivated by the increasing tobacco prices.

The amount of methyl bromide used this year for seedlings production was approximately 7.5 tons. Around 20% of the total of methyl bromide consumed was used for tray disinfection.

Persons and institutions contacted

Sindicato da Indústria do Fumo da Bahia - Union of the Tobacco Industry of the State of Bahia – Cruz das Almas - Bahia

Ermor Tabarama - Tabacos do Brasil Ltda - Tobacco Company – Cruz das Almas - Bahia

Person contacted - Hilton Fensterseifer - Agronomy Manager

Grama - Grandes Marcas Agropecuárias - Company reseller of agricultural inputs - Feira de Santana - Bahia

Riagro Produtos Agropecuários - Company reseller of agricultural inputs - Feira de Santana - Bahia

Person contacted - Jorge Lyra - Sales Manager

3 – Summary of methyl bromide consumption on the tobacco sector

Table 7 – Methyl bromide consumption in the tobacco sector in 2004

State	Consumption (t)
South Region	
Rio Grande do Sul	62.7
Santa Catarina	41.5
Paraná	20.2
<i>Sub total</i>	<i>124.4</i>
Northeast Region	
Alagoas	-x-
Bahia	7.5
<i>Sub total</i>	<i>7.5</i>
Total	131.9

IV – SURVEY ON THE GRAIN STORAGE SECTOR

The Secretary of Agricultural Defense of the Ministry of Agriculture, Livestock and Provisioning - MAPA; the Director President of the National Agency of Sanitary Vigilance - ANVISA and the President of the Brazilian Institute of the Environment and Renewable Natural Resources – IBAMA, according to the Art. nº 1 of the Normative Instruction nº.1 of September 10, 2002 (Annex 1), have decided:

“To prohibit the use of Methyl Bromide for expurgation of cereals and stored grains”.

According to this Normative Instruction, the use of methyl bromide is no longer allowed in grain storage facilities. Phosphine is the only product used at present time to prevent economical damage caused by insects on stored grains.

Persons and institutions contacted

Companhia Estadual de Silos e Armazéns - CESA - State Company of Silos and Warehouses – Porto Alegre - Rio Grande do Sul

Person contacted - Luiz Carlos Hackbardt de Oliveira - Technical manager

Delegacia Federal de Agricultura – Ministério da Agricultura - Federal Office of Agriculture - Ministry of Agriculture – Belo Horizonte - Minas Gerais

Person contacted: Maria Graciete Ferreira – Agronomist.

V – SURVEY ON QUARANTINE AND PRE-SHIPMENT TREATMENTS

According to data provided by the Ministry of Agriculture, the consumption of methyl bromide for quarantine and pre-shipment treatments in 2003 was 51.5 tons. During the two first trimesters of 2004 the consumption reached the amount of 47.8 tons (Table 8).

Table 8 - Methyl bromide consumption in quarantine and pre-shipment treatments

Trimester	Consumption (t)	
	Year 2003	Year 2004
1°	5.6	19.8
2°	10.6	28.0
3°	14.7	
4°	20,7	
Total	51.6	47.8

Source - Ministry of the Agriculture, Livestock and Provisioning - MAPA

Person and institutions contacted

Ministério da Agricultura Pecuária e Abastecimento - Secretaria de Defesa Agropecuária - Ministry of the Agriculture, Livestock and Provisioning - Secretariat of Agricultural Defense – Brasília – Distrito Federal

Person contacted - Jesulindo Nery de Souza Júnior – Agronomist

VI – SUMMARY OF METHYL BROMIDE CONSUMPTION IDENTIFIED BY THE SURVEY

Table 9 – Methyl bromide consumption in the different sectors surveyed

Sector	Consumption (t)
Horticulture ⁽¹⁾	189.1
Tobacco ⁽²⁾	131.9
Grain Storage	-x-
Quarantine and Pre-shipment ⁽³⁾	83.2
Total	404.2

(1) - Consumption of 2003

(2) - Consumption of 2004

(3) - Consumption of last twelve months

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EPAGRI - Epagri estimula produção de flores e plantas ornamentais – Informativo Epagri - Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina S.A. on line. 2004

ANNEX 1 -

NORMATIVE INSTRUCTION No. 01 OF SEPTEMBER 10, 2002

SUMMARY

The Secretary of Agricultural Defense of the Ministry of Agriculture, Livestock and Provisioning - MAPA; The Director President of the National Agency of Sanitary Vigilance - ANVISA and the President of the Brazilian Institute of the Environment and Renewable Natural Resources - IBAMA.

Considering the Term of Adjustment of Conduct nº 01/2002 signed by the Secretary of Agricultural Defense of the Ministry of the Agriculture, Livestock and Provisioning, by the President of ANVISA and by the President of IBAMA before the Federal Public Prosecution Service on February 21, 2002;

Considering the decisions taken in the meeting of revaluation of the Methyl Bromide, with the participation of technicians of the National Agency of Sanitary Vigilance - ANVISA, of the Secretariat of Agricultural Defense of the Ministry of the Agriculture, Livestock and Provisioning - SDA/MAPA; of the Brazilian Institute of the Environment and Renewable Natural Resources - IBAMA, and of the Management for Implementation of the Montreal Protocol - MMA, of representatives of the National Union of the Industry of Products for Agricultural Defense - SINDAG and the Federal Public Prosecution Service - MPF;

Considering the uses and the authorized cultures for the product Methyl Bromide;

Considering the need of use of Methyl Bromide for sanitary and quarantine control identified as officially authorized treatments to exterminate, to remove or to tum sterile regulated non quarantiner and quarantiner pests by the use of the Methyl Bromide; and

Considering the need to establish procedures for safe use of the Methyl Bromide in Harbors, Airports and Borders.

Decide:

Art. 1 - To prohibit the use of the Methyl Bromide for treatment of cereals and stored grains and in the post harvest treatment of crops of avocado, pineapple, almonds, plum, hazelnut, chestnut, chestnut-of-cajú, Brazil nut, coffee, copra, citros, apricot, apple, papaya, mango, quince, watermelon, melon, strawberry, nectarine, nuts, pear, peach and grape.

Art. 2 - To determine cronograma for the elimination of the uses of the Methyl Bromide according with the crop or other uses and in the dates below related, could happen anticipation of these in agreement with the technological progresses.

Crops / uses	Deadline
Tobacco	December 31, 2004
Seedbeds of vegetables, flowers and formicide	December 31, 2006
Quarantine and pre-shipment treatment for the authorized crops* in the monograph; and wood treatment used in packing for importation/exportation	December 31, 2015

* The authorized crops for quarantine and pre-shipment procedures are: avocado, pineapple, almonds, cocoa almonds, plum, hazelnut, coffee in grains, chestnut, chestnut-of-cajú, Brazil nut, copra, citros, apricot, apple, papaya, mango, quince, watermelon, melon, strawberry, nectarine, nuts, pear, peach and grape.

Art. 3. Methyl Bromide may be used in quarantine and pre-shipment procedures for non-authorized crops, in an emergencial way, after evaluation by the Technical Committee of Assistance for Pesticides (CTA) that will have up to 48 hours for emission of the decision.

Art. 4. The fumigation operations for quarantine and pre-shipment procedures identified as officially authorized treatments to exterminate, to remove or to turn sterile regulated non-quarantiner and quarantiner pests by the use of the Methyl Bromide are regulated by this Normative Instruction.

Art 7. The producing companies, importers and users of Methyl Bromide, must send quarterly, reports of production, importation and exportation and used amounts of the product, in agreement with model of Quarterly Report of Import and Commercialization of Methyl Bromide, constant of the Annex I, to Secretariat of Agricultural Defense-MAPA, to National Agency of Sanitary Vigilance-ANVISA and to the Brazilian Institute of Environment-IBAMA. The MAPA will send consolidated reports to the Federal Public Prosecution Service.

Art. 10. This Normative Instruction revokes Directory Resolution n. 19, of March 03, 1999, the Normative Instruction n. 45, of July 24, 2002 and other opposite dispositions and goes into effect in the date of its publication.