PROTECTED VEGETABLE PRODUCTION IN MEDITERRANEAN REGION WITHOUT THE USE OF METHYL BROMIDE

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ALFA AGRICULTURAL SUPPLIES S.A.

THE INTRODUCTION OF CHLOROPICRIN IN GREECE AS ALFA's PROPOSAL FOR THE REPLACEMENT OF METHYL BROMIDE.

GREENHOUSE AREAS OF GREECE AND THE HECTARES CULTIVATED

GREENHOUSE CULTIVATIONS
(in Ha)

	Tomato	Cucumber	Pepper	Eggplant	Others
1999	2500	950	750	500	500
2000	2300	1200	1000	400	300
2001	2500	1000	700	500	500
2002	2400	1000	600	700	500
2003	2600	1200	700	400	100

HISTORICAL ANALYSIS

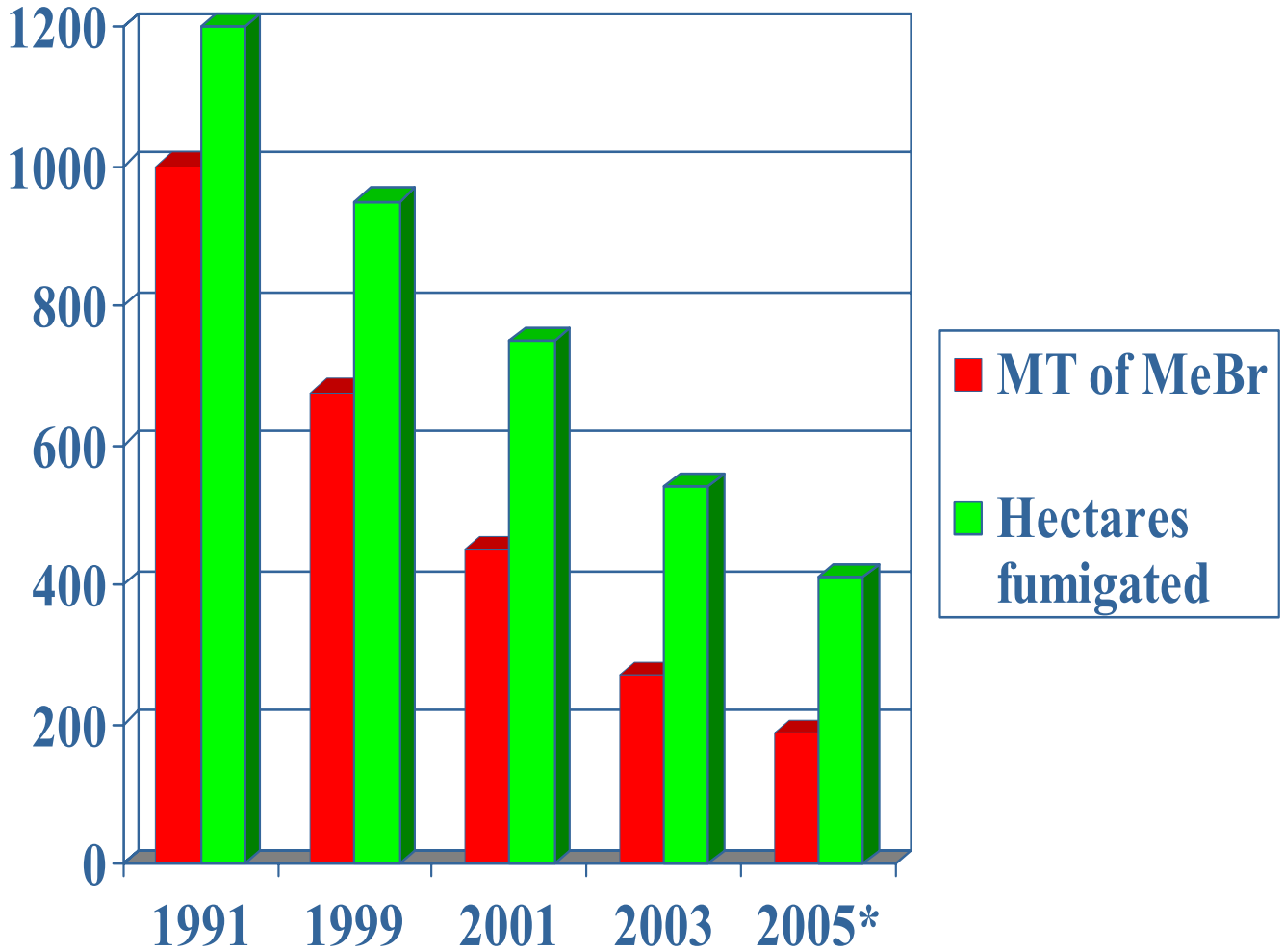
- Starting from **1992** (1000 MT) Methyl Bromide consumption was reduced to today's noted figures (186 MT). Farmers used Methyl Bromide in disposable cans (681 gr), and common plastic. They used a dosage of 850 kg/ha

- **1996** with the restriction of the Montreal Protocol farmers started usin VIF plastic and decreased the dosage rates of Methyl Bromide.

- **2000** VIF plastic became common the dosage rates were decreased today's levels, of 450 kg / ha, and in low disease pressure areas they use band applications.

- On **18-12-2003** Greece finally canceled the registration of Methyl Bromide cans. This measure agitated the market since only 3 fumigati units were operating and could not cope with the demand.

METHYL BROMIDE CONSUMPTION AND HECTARES FUMIGATED



TODAY

- On **05-09-2003** Alfa S.A. registered Chloropicrin with the Greek Ministry of Rural Development and Food as a soil fumigant for Greenhouses.

- On **07-10-2003** with the assistance of S.I.S Italy, Alfa S.A. carried out 6 demo trials in Greece.


F.Y.R.O. MACEDONIA
BULGARIA
Black Sea
TURKEY
Struma
ALBANIA
Thessaloníki
Thásos
Sea of Marmara
KHALKIDHIKÍ
Mt. Olympus
Corfu
PINDUS MTS.
Límnos
Ioánnina
Lárisa
Vólos
Aegean Sea
Ionian Is.
Ithákí
Lésvos
TURKEY
Euboea
Khíos
ATHENS
Pátrai
Ándros
Sámos
Kefallinía
Corinth
Piraeús
Ionian Sea
Náxos
GREECE
Mílos
Kos
Cyclades Is.
PELOPÓNNISOS
Sea of Crete
Rhodes
Rhodes
Khaniá
Iráklion
Dodecanese
Mediterranean Sea
Crete

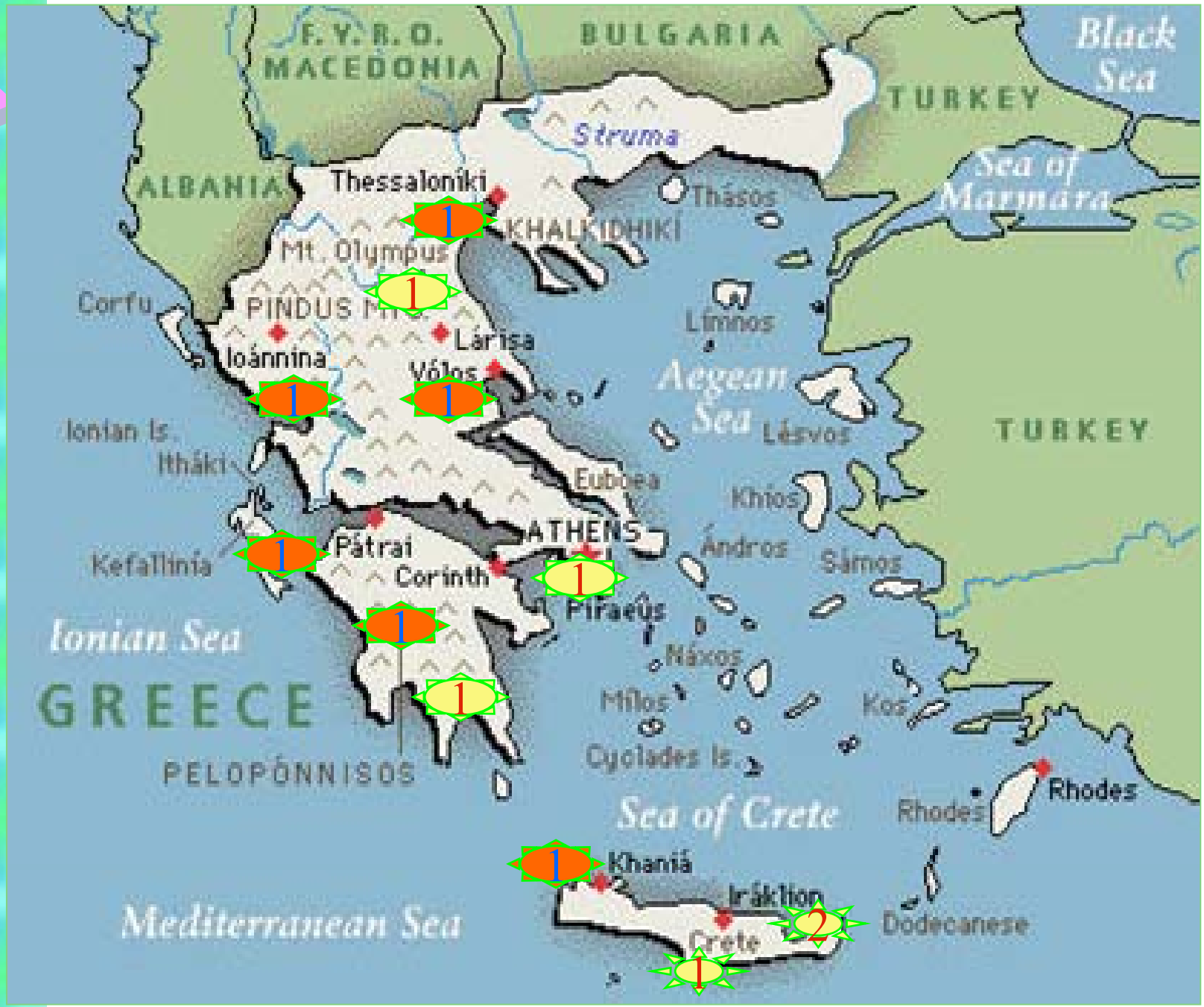
TRIPICRIN DEMO TRIALS 2003-2004

Number	Region	Crop/ Acreage	Application		Planting	Target	YIELD TN/HA	VARIETY	OTHER PRODUCTS APPLIED	
			Date	Product Dose -Rate	Date				Name	Date
1	Katerini (N. Greece)	Strawberry/ 300 m²	8/10/03	TRIPICRIN 300 Kg/Ha	28/10/03	Mainly soil born diseases and some	30 (48000plants/ ha)	KAMAROSA	-	-
2	St. George (N. Greece)	Pepper/ 750 m²	7/10/03	TRIPICRIN 350 Kg/Ha	2/3/2004	Nematodes and soil born diseases (mainly Fusarium sp)	60 (27000plants/ ha) Yield was reduced	LAMUO	-	-
3	Pyrgos (S. Greece)	Tomato/ 1000 m²	12/10/03	TRIPICRIN 350 Kg/Ha	11/11/03	Nematodes and soil born diseases (mainly Pyrenochetae)	200 (25000plants/ ha)	BELLADONA	Acylon Combi (metalaxyl + folpet)	18/11/03
									RIDOMIL (metalaxyl)	30/12/ 03
4	Lakonia (S. Greece)	Eggplant/ 2.500 m²	11/10/03	TRIPICRIN 350 Kg/Ha	20/2/04	Nematodes and soil born diseases	100 (25000plants/ ha)	TSAKONIKI	-	-
5	Tymbaki (Grete)	Tomato/ 1.800 m²	10/10/03	TRIPICRIN (250 Kg/ Ha) +CONDOR (250 Kg/ Ha)	27/10/03	Nematodes soil born diseases (mainly Fusarium sp)	140 (25000plants/ ha)	BELLADONA	Nemacur (fenamiphos) Mirage (prochloraz)	16/12/ 03
6	Ierapetra (Grete)	Tomato/ 2.750 m²	9/10/03	TRIPICRIN 30 Kg/Ha	24/10/03	Mainly Fusarium sp. and some	200 (16000plants/ ha)	ELECTRA	Terrazole (ethidiazole)	31/10/ 03
									Nemacur	5/12/0 3
									Vydate	16/1/0 4

Remark:In all cases demos were successful except of the demo Nr. 2 where yield was reduced by 50 % approximately because of phytopthora reinfestation provoked by infested soil- heating equipment

FUMIGATION UNITS

Alfa invested in the formation of 6 fumigation units with 6 more to be delivered to our dealers by 31-01-2005.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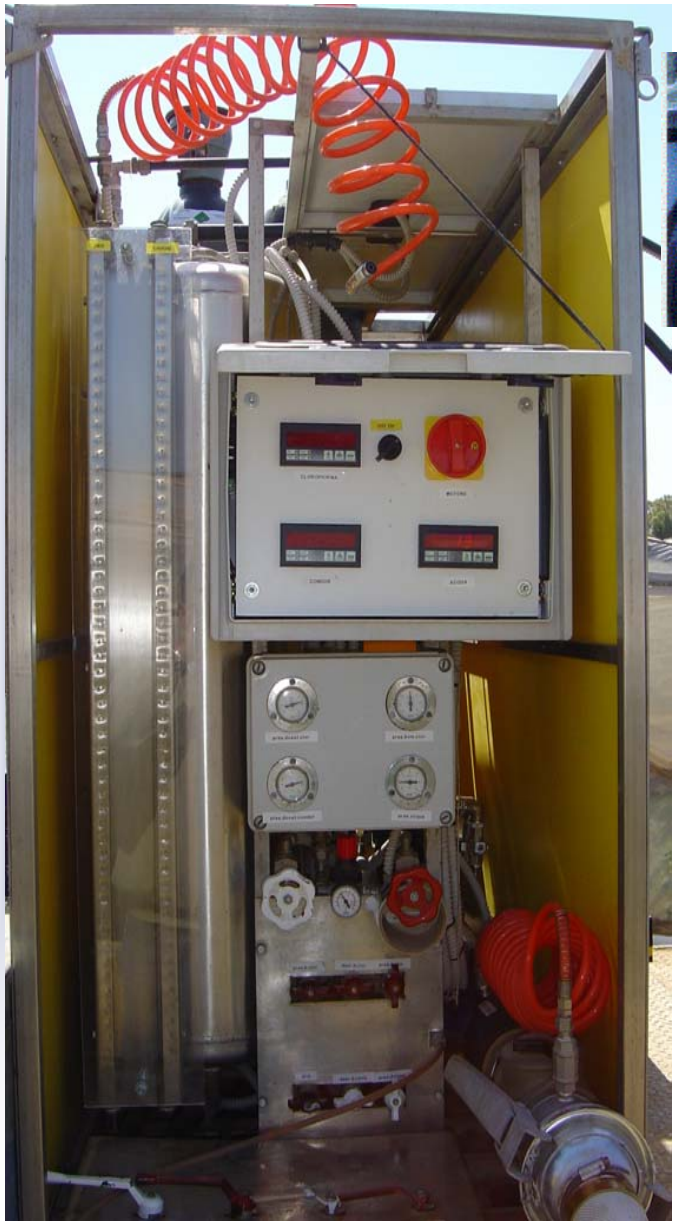
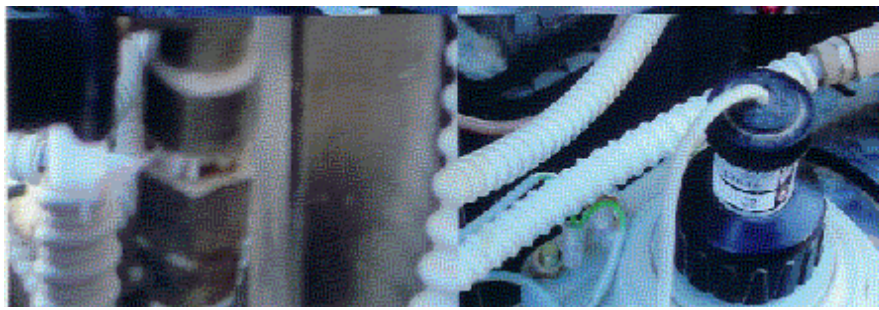
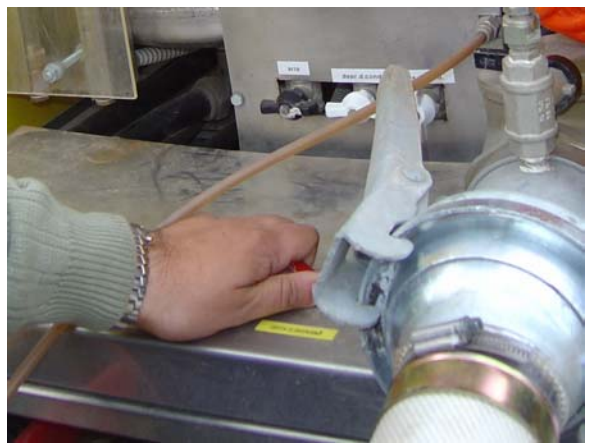
APPLICATION MACHINE & SAFETY FEATURES





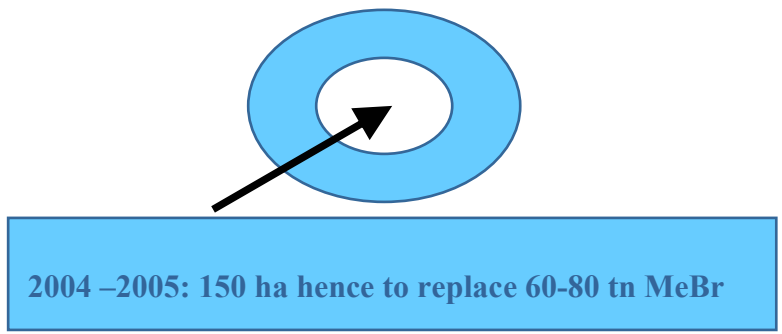
APPLICATION PROCEDURE



ECONOMICS OF NEW METHOD & MARKET AIMS

Table 3: Economic comparison of Chloropicrin +1.3 D and MeBr (Euros)		
	Chloropicrin + 1,3D*	MeBr
2003 2004	6000 6000	4600 *** 6000**

*200 lt Chloropicrin and 200 lt 1.3D
** 500 kg of MeBr
*** Use of 800 cans/hectare (no longer allowed).



CONCLUSION

From the first 38 Hectares commercially fumigated we have seen excellent results in controlling both nematodes and disease infestation in tomatoes, cucumbers, strawberries, peppers, melons and eggplants under protection.

Like in all new methods there are a few obstacles that have to be considered.

- Water volume demand 285 m^3/ha: problems in low water capacity areas (due to delays).

- Time between fumigation and transplanting (20-28 days) (Me Br 7 days).

- Cultivation restrictions of Chloropicrin (not registered for certain crops).

CONCLUSION

We believe that the Commission should :

➔ **Give financial assistance for the acquisition of the necessary equipment for the alternatives application.**

➔ **Give financial assistance for the upgrading of the irrigation systems in certain greenhouse areas as most of the new alternatives require high flow capacity of water per hour.**

➔ **Instruct M.S. regulatory bodies to give priority to registration procedures for products aiming towards the set target (f.e. labe extension of plant protection chemicals, quick registration of vegetable nematode tolerant varieties etc)**

➔ **Coordinate inside the commission the issues of reevaluation of the alternative to Methyl Bromide products. With the 2005 only few months ahead, we cannot but notice with concern that the E.U. farmers are steadily being driven to a most uncompetitive position, due to lack of plant protection tools.**