

Trends in disinfestation research . Irradiation and Low Dose Methyl Bromide

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Which technology should you use?



The technology that meets
your trading partners
requirements, maintains
product quality and is the
most economical.

e.g. if a importing country does not permit the use of
irradiation then you will not be using it even though it is a
very efficacious treatment. The same rule applies to
countries that are not permitting the use of methyl bromide

The best Options for Market Access

- Area Freedom/Pest Free Places of Production
- Non Host Status or conditional non-host status

They are the best options

But not always possible





Low-Dose Methyl Bromide Fumigation

Another Alternative for Quarantine Treatments against Fruit Flies

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What is methyl bromide?

MB (g/m ³)	Flesh Temp (°C)	Duration (h)
16	≥32	2
24	26 - 31	2
32	21 - 25	2
40	15 - 20	2
48	10 - 14	2
56	5 - 10	2

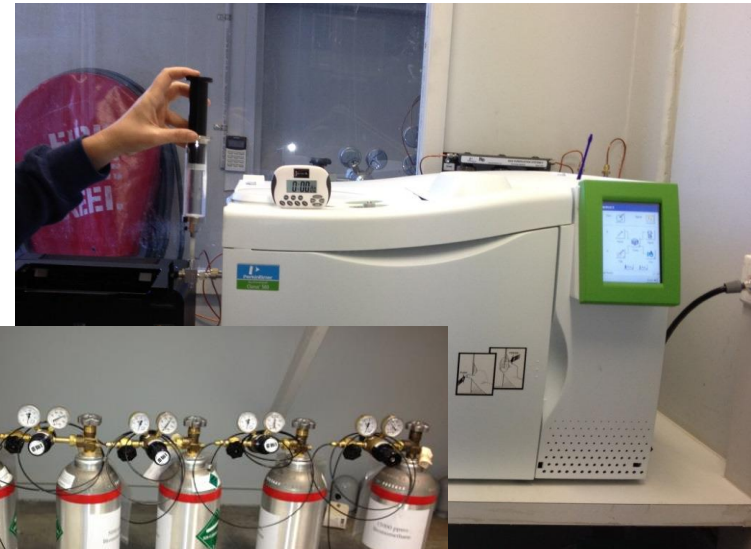


It is a highly toxic fumigant



- It kills virtually everything it comes into contact with including operators who are not careful
- Rumor has it, that it is banned?
- It has been identified as ozone depleting substance
- As use drops the cost will go through the roof?
- As use drops off it will become difficult to source?

So why are we working on it?



Because most of the dot points in the previous slide were rubbish



- It kills virtually everything it comes into contact with including operators who are not careful
- **TRUE. WPHS is paramount**
- Rumor has it, that it has been banned
- **Not for quarantine use unless viable alternatives are available. Would have been stopped in 2005 if this was true.**



- It has been identified as ozone depleting substance **TRUE**
- As use drops the cost will go through the roof **Hasn't happened yet. Fluctuations in the Australian dollar can be more of a problem than price rises.**
- As use drops off it will become difficult to source. **Fumigators are not reporting any problems yet**

It is highly toxic and that is why regulators trust it

- It is highly effective against external and internal pests
 - No other fumigant comes close to it
 - Exporters funded all the initial work and pushed the concept of less fumigant for longer time periods
 - Exporters want a quick treatment (e.g. not a 22 day cold treatment) that is compatible with air freight
 - Regulators trust it.
-
- **THAT IS WHY WE ARE WORKING ON IT**



Investigations into low-dose MB



HAL/ DAFF/Summerfruit Aust. funded research in progress



HAL/DAFF/Ausveg funded research in progress



HAL/Exporter/DAFF/Citrus Aust. funded research in progress



HAL/Exporters/DoA/DAFF funded research project completed. More research required



Discussions with Mango industry regarding research, some preliminary trials undertaken



Discussions with growers/exporter/Ausveg and multiple industries including apples, grapes and strawberries.

Summary of Research to date:

Current schedule:

MB (g/m ³)	Flesh Temp (°C)	Duration (h)
16	≥32	2
24	26 - 31	2
32	21 - 25	2
40	15 - 20	2
48	10 - 14	2
56	5 - 10	2

Current research:

Commodity	Methyl Bromide (g/m ³)	Flesh Temp (°C)	Duration (h)	Survivors
Nectarine	19	20	5.5	0
Capsicum	18	16	4	0
Tomato	24	19	4.5	1

Low Dose Methyl

- Requires very high retention rates and good temperature control
- So the days of fumigation under tarps will end
- Highly gas tight chambers makes it easier to use recapture or incineration technology (issue of ozone depletion is addressed)
- It also address a lot of the WPHS issues
- It will also be able to be vented more efficiently which addresses both WPHS and residue issues.
- Methyl bromide is dangerous to handle but this is not an issue for consumer safety

Irradiation in Australia



- FSANZ has now approved over 23 crops that can use irradiation
- Mangoes is an approved crop and irradiation is the only treatment approved for Mango Seed Weevil
- Irradiation is approved by all states and territories and operates under ICA 55

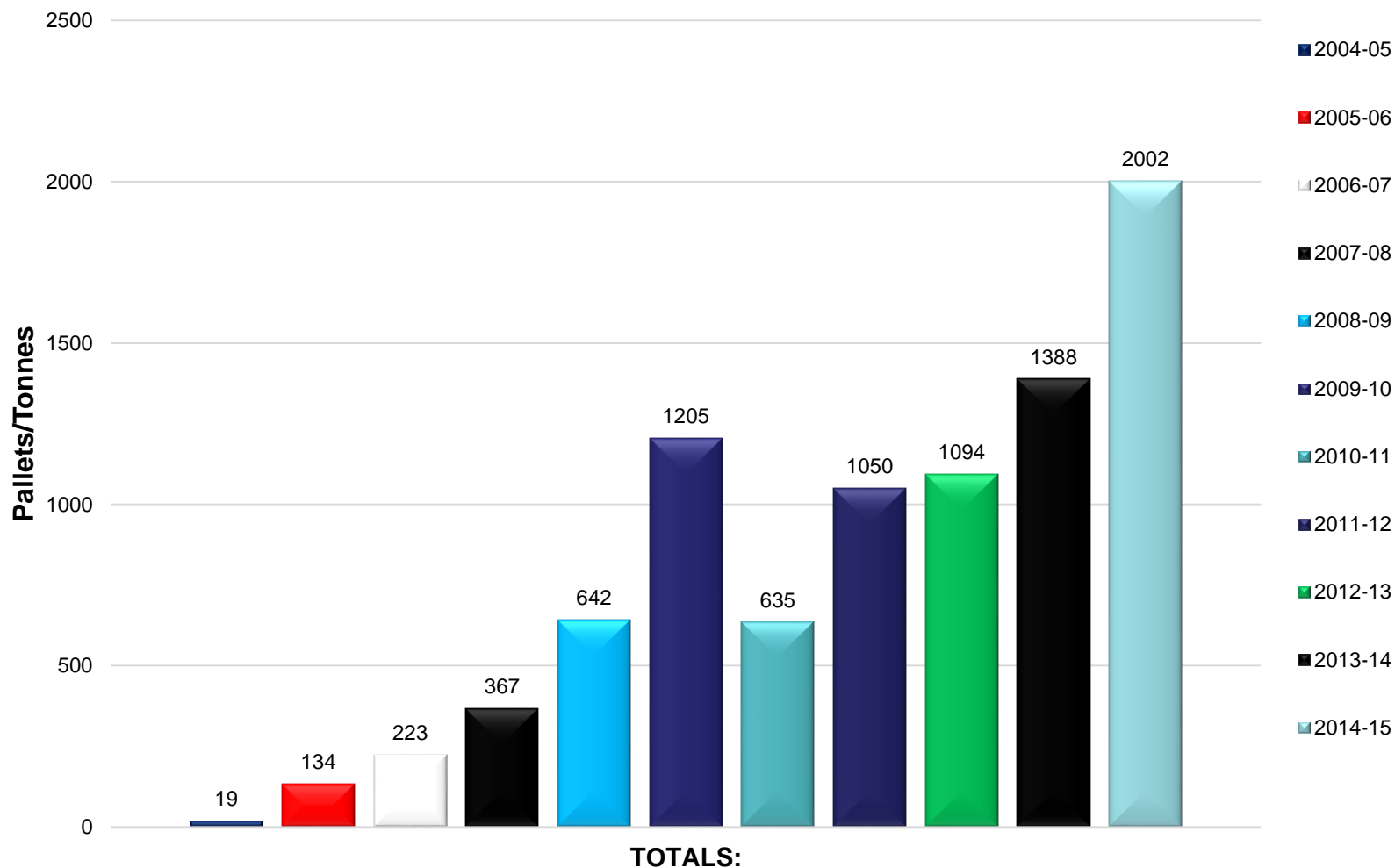
History of Irradiated Export Produce (Tonnes/Pallets)

Season	2004-05	2005-06	2006-07	2007-08	2008-90	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Mangoes (NZ/U.S/Malaysia)	19	129	201	346	585	1095	620	918	1018	866	1480
Tomatoes (NZ)										413	430
Capsicums (NZ)										58	28
Lychees (NZ)		5	10	20	57	110	15	132	76	29	34
Papaya (NZ)			12	1						22	
Plums (Indonesia)											2
Table Grapes (Indonesia)											28
TOTALS:	19	134	223	367	642	1205	635	1050	1094	1388	2002



* 2010-11 growing season adversely affected by severe weather conditions (cyclones) in some parts of Qld

History of Total Irradiated Australian Produce Exported



* 2010-11 growing season adversely affected by severe weather conditions (cyclones) in some parts of Qld

Eligible commodities and Irradiated imports into the USA.

Australia	Mango and Lychee
Ghana	Eggplant, Okra, Pepper
Hawaii	Abiu, Atemoya, Banana, Breadfruit, Capsicum spp., Carambola, Cucurbita spp., Dragon fruit, Eggplant, Jackfruit, Litchi, Longan, Mango, Mangosteen, Papaya, Sweet potato
India	Mango
Malaysia	Rambutan
Mexico	Carambola, Clementine, Grapefruit, Guava, Mango, Manzano, Sweet lime, Sweet orange, Tangelo
Pakistan	Mango
South Africa	Grapes, Stone fruit, Pear, Persimmon
Thailand	Litchi, Longan, Mango, Mangosteen, Pineapple, Rambutan, Dragon fruit
Vietnam	Dragon fruit, Rambutan

Source: Modified from Roberts, P.

Volumes of imported irradiated fruit to the US

Points to note

- Look at what year this exports commenced.
- You will notice that international imports have only been approved in the last couple of years.
- In most cases there are no alternative treatments approved. Irradiation is the only option (Mexico is an exception).
- The figures are in kg. They look better that way.

Preclearance Totals

(in kg)

	India	Mexico	South Africa	Thailand	Vietnam	Total
2007	0	0	0	195,000	0	195,000
2008	276,000	262,000	0	2,440,000	121,000	3,099,000
2009	132,000	3,559,000	0	2,247,000	117,000	6,055,000
2010	94,000	5,672,000	0	1,540,000	754,000	8,060,000
2011	80,000	5,539,000	0	743,000	1,445,000	7,807,000
2012	217,500	8,349,500	16,500	937,500	1,764,500	11,286,500
2013	283,000	9,526,000	16,500	1,060,500	1,967,500	12,853,500

Acknowledgements:

- Support, assistance and funding:
 - **Alastair Scott**, Hannay Douglas Pty Ltd
 - **David Minnis**, Minnis Horticultural Services
 - **John Moore**, Summerfruit Australia
 - **Bindi Pressler**, 2PH Marketing
 - Thelma Peek, David Mayer, Carole Wright, Jacinta McMahon and Leanne Taylor, DAFF



Horticulture Australia

