

Export market access options for Australian blueberries

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Growing exports are a key priority for the blueberry industry. Australia is a high cost and high-quality producer where exports will be essential to capture high value export markets. However, due to the presence of quarantine insect pests such as fruit fly, these exports can be limited with quarantine restrictions. Overcoming these technical barriers to market access will be crucial to the future of the blueberry industry.

Export market access can be achieved with pre- and postharvest management. Preharvest management of quarantine pests such as the use of area freedom strategies are an important market access tool. However, the use of end-point postharvest market access treatments is essential to guarantee ultimate pest freedom. These treatments include cold treatment, methyl bromide fumigation and irradiation. While not all markets accept these phytosanitary treatments and their effect on product quality can be variable, it is important to optimise market access opportunities. Each market access treatment has its own benefits and disadvantages which are outlined here and summarised in Table 1.

Cold treatment

Cold treatment is a standard market access treatment in which the fruit is treated in cold temperatures (e.g. 1°C) for at least 14 days. This cold treatment time has been shown to kill any fruit fly egg or larvae inside the fruit. Blueberries are well suited to cold treatment, as the ideal storage temperature of blueberries is 0°C to 1°C. The treatment must be conducted under tight parameters with no breaks in the treatment. As blueberries are perishable, the major disadvantage of cold treatment is the relative long treatment time (> 14 days). This long treatment time restricts marketing and flexibility.

COLD TREATMENT

BENEFITS

- Important tool in market access toolbox as it is efficacious and accepted
- Blueberries store best in low temperatures
- No chemicals or residues
- Registered cold treatment facilities available
- No packaging issues (MAP)
- Potential in-transit treatment using lower cost shipping

DISADVANTAGES

- Fruit quality declines with storage
- Long treatment times limit marketing flexibility
- Limits natural marketing advantages of using air freight to nearby Asian markets
- Verification and potential breaks in cold treatment – invalidates treatment

Methyl bromide fumigation

Methyl bromide is an effective general biocide and has been the primary fumigant used for market access across a range of horticulture commodities for many years. However, due to its ozone depleting properties, it has been on the list for phasing out under the Montreal Protocol*.

Methyl bromide had been relatively inexpensive and easy to use, but its cost has risen due to supply and demand issues.

It is a relatively quick treatment, but the major disadvantage is that the treatment must occur at relatively high treatment temperatures, for example 17°C. As the ideal storage temperature of blueberries is low (1°C), heating the fruit up to 17°C, treating and degassing the fruit and then returning the fruit to its ideal storage temperature is not ideal. However, methyl bromide treatment is widely accepted and used as a market access treatment around the world.

METHYL BROMIDE FUMIGATION

BENEFITS

- Important tool in market access toolbox as it is efficacious and accepted
- Long accepted history of use and trade
- Short term treatment (hours)
- Many registered methyl bromide facilities

DISADVANTAGES

- Treatment must be at high temperatures (e.g. 17°C). This results in breaking the cool chain (i.e. heating / treatment + de-gassing / cooling fruit of whole fruit pallet(s))
- Potential quality issues (e.g. fruit softening)
- Packaging issues (box design)
- Re-capture technology
- WHS / EPA issues with use of methyl bromide
- Uncertain future

Phytosanitary irradiation

The use of irradiation as a market access treatment is efficacious and there is a general treatment dose for a range of insect pests. There are no pathways for the export of Australian blueberries treated with irradiation currently, but many important blueberry export markets such as New Zealand and Vietnam are importing other Australian fruit (such as table grapes) which have been treated in this manner. Australian exports of irradiated produce continue to grow with Australian mangoes exported to the USA and Australian cherries to Vietnam as major export markets which accept irradiation as a phytosanitary treatment.

There are generic international insect treatment protocols which use irradiation, and many countries are now utilising irradiation for exports (e.g. USA, Peru, India, Vietnam). In Australia, there has been record growth with the use of irradiation for both domestic and export shipments. This has been assisted with FSANZ recently approving the use of irradiation for treatment of all fruit and vegetables.

While there are currently no export pathways for irradiation, it is important to keep this treatment in mind to put into the blueberry market access toolbox in the future as it provides some commercial benefits.

PHYTOSANITARY IRRADIATION

BENEFITS

- Important potential tool in market access toolbox
- Short term treatment
- Generic treatment
- Can be applied with no break in cool chain
- No packaging issues

DISADVANTAGES

- Currently not accepted by importing countries for blueberries
- Potential market / consumer acceptance issues
- Potential fruit quality issues
- Limited treatment facilities – Steritech facilities in Brisbane and Melbourne

Table 1. Summary of phytosanitary market access treatments for blueberry exports.

	COLD TREATMENT	METHYL BROMIDE FUMIGATION	PHYTOSANITARY IRRADIATION
Example of treatment	1°C for 14 days	32 g methyl bromide per m³ at 15°C for 3.5 hrs	150 Gray
Air freight compatible	Limited	Yes	Yes
Acceptance of treatment	General	General	No current markets
Additional packaging requirements	None	None	None
Maintenance of cold chain	Yes	No	Yes
Potential chemical residues	No	Yes	No
Relative cost of treatment	Medium	Medium	High
Availability of treatment	Registered grower and packing facilities	Registered grower and commercial facilities	Limited. Brisbane and Melbourne
Effect on fruit quality	None, just long storage time effects	Potential impact	Potential impact
Summary	Treatment time is too long	Chemical fumigant that disrupts cool chain	Limited market acceptability

*** The Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol) is an international agreement made in 1987, which has achieved universal ratification. It was designed to stop the production and import of ozone depleting substances and reduce their concentration in the atmosphere to help protect the earth's ozone layer.**

The next issue of the 'Australian Berry Journal' will outline the results of a comparative fruit storage trial conducted by NSW Department of Primary Industries. This storage trial compared the effects of these different commercial market access treatments (cold treatment, methyl bromide fumigation and irradiation) on fruit quality out-turns of Southern Highbush '1111' blueberry fruit from three different growers.



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