

# BerryQuest International 2022

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**25-28 July**  
Sea World Resort  
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**BQI  
22**

# BerryQuest International 2022

## WEDNESDAY 27 JULY 2022

Traceability & Food Safety: Improving Food Safety of Berries

SP Singh, NSW DPI



**25-28 July**  
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Department of  
Primary Industries



# Improving food safety of berries

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# Consumers

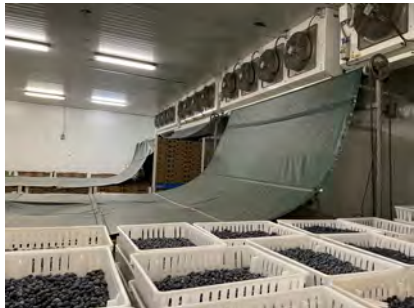
1. Healthy and nutritious
2. High quality
3. Safe
4. Traceable and authentic
5. Sustainably produced and supplied
6. Ethically grown, picked, packed and supplied



# Berries

## Diverse production and postharvest handling methods

- Open field versus protected cropping
- Soil versus soilless production
- Field packing versus packing sheds





# Food Safety Hazards

Physical

physical objects

Chemical

pesticide residues, toxins,  
heavy metals,

Microbial

viruses, bacteria,  
parasites, moulds

Food fraud

mislabelling,  
traceability



# Foodborne illness outbreaks and berries

- Australian grown and packed berries have NEVER been implicated in any foodborne illness outbreak in Australia or elsewhere
- Internationally, fresh berries have been linked to foodborne illness outbreaks (e.g. New Zealand 2002 hepatitis A outbreak linked to fresh blueberries)
- Imported frozen berries have caused hepatitis A outbreaks in Australia (2015 and 2017)



More patients confirmed in multi-state outbreak of hepatitis A linked to blackberries



Hepatitis A outbreak hits 3 states; implicated blackberries sent to 8 others

By News Desk on November 20, 2019

## Hepatitis A outbreak in Saskatchewan linked to organic strawberries

The berries were all purchased between March 5 and 9 at Co-op stores but may have been frozen at home. Hep A symptoms typically appear 14 to 28 days after exposure, but can occur up to 50 days later.

Saskatoon StarPhoenix  
May 27, 2022 • May 29, 2022 • 2 minute read •  Join the conversation



Frozen berries suspected in Swiss norovirus outbreak

By News Desk on August 13, 2021

## Norway: Imported frozen raspberries probable source of hepatitis A outbreak

by PRESS RELEASE

🕒 December 3, 2021 🌐 Europe 💬 No Comments

NewsDesk @infectiousdiseasenews

The source of infection for the national outbreak of hepatitis A was probably imported, frozen raspberries. This is shown by the investigation that the Norwegian Food Safety Authority and the Norwegian Institute of Public Health have carried out in connection with the outbreak, which is now considered over.



Image by J Garpet from Pixabay

The outbreak of hepatitis A lasted from April to October this year and involved 20 infected people.

Tracing of the source shows that the raspberries are probably no longer on the market. The outbreak is therefore considered over, says senior adviser Heidi Lange at the National Institute of Public Health (NIPH).

Of the 20 who are infected, 18 cases have been confirmed and two are probable. Most are well-adults, but the age range is from ten to 80 years, and 65 per cent are men.

The infected lived in different parts of the country:





# 2022 Hepatitis A Outbreak in North America

Multistate Outbreak of Hepatitis A Virus Infections Linked to Fresh Organic Strawberries in the USA & Canada

Fresh organic strawberries, imported from Baja California, Mexico, are the likely source of this outbreak

As of July 19, 2022, there are:

- 28 outbreak-associated cases of hepatitis A reported from 3 US states (18 cases) and 2 Canadian provinces (10 cases)
- 17 people (13 in US and 4 in Canada) have been hospitalized.
- No deaths have been reported.

Source: US CDC, FDA; Canadian Food Inspection Agency



# Prevalence of foodborne pathogens in berries sampled from food businesses

Mean percentage (%) of positive samples for viruses in berries

| Commodity  | Norovirus  | Hepatitis A |
|------------|------------|-------------|
| Raspberry  | 2.6% (12)* | 0.05% (4)   |
| Blueberry  | 2.4% (5)   | -           |
| Strawberry | 1.4% (8)   | 0.3% (4)    |

\*values in brackets are the number of surveys

In an Australia study, hepatitis A and norovirus were not detected in 134 samples of strawberries and 14 samples of blueberries (Hodgson et al., 2015)

# Regulators' perspective

## Food Standards Australia and New Zealand (FSANZ)

*'the protection of public health and safety'*

*'the need for standards to be based on risk analysis using the best available scientific evidence'*

# Regulations and standards are evolving



FSANZ reviewed and then abandoned PPP standard for horticulture in 2014

2012

Volunteer QA programs  
(e.g. Freshcare, SQF, GlobalGAP)



7 foodborne illness outbreaks linked to leafy vegetables, rockmelons and imported frozen berries (2014-2018)

2014

2016



GFSI benchmarked scheme + bolt on



Ministerial food regulation forum asked FSANZ to reassess food standards code

2018

2020

Review of HARPS towards version 2.0

FSANZ proposed PPP standard for berries, leafy vegetables and melons

2022

Regulatory and non-regulatory measures



# What's happening?

- On 8<sup>th</sup> June 2022, the FSANZ Board approved the introduction of three new food standards, **one each for berries**, leafy vegetables and melons.
- On 22<sup>nd</sup> June 2022, FSANZ notified Food Ministers' Meeting (FMM) of its decision.

## **New Food Standard for Berries:**

- ✓ Introducing a combination of regulatory and non-regulatory measures
- ✓ Existing food safety schemes meet the new standard
- ✓ States and territories (e.g. NSW Food Authority) responsible for implementation
- ✓ For the berries sector, a guidance document has been prepared in lieu of a compliance plan
- ✓ An implementation period of 18 months is proposed from the date standards would be gazetted and registered as a legislative instrument.

# Primary Production and Processing Standard for Horticulture (Berries)

1. notification of business
2. traceability of produce
3. management of water as an input
4. construction and cleanliness of premises & equipment
5. skills and knowledge
6. health and hygiene
7. sale and supply of safe produce.



- Industry's food safety capacity building
- Science-based best practice resources
- Technology solutions to manage food safety





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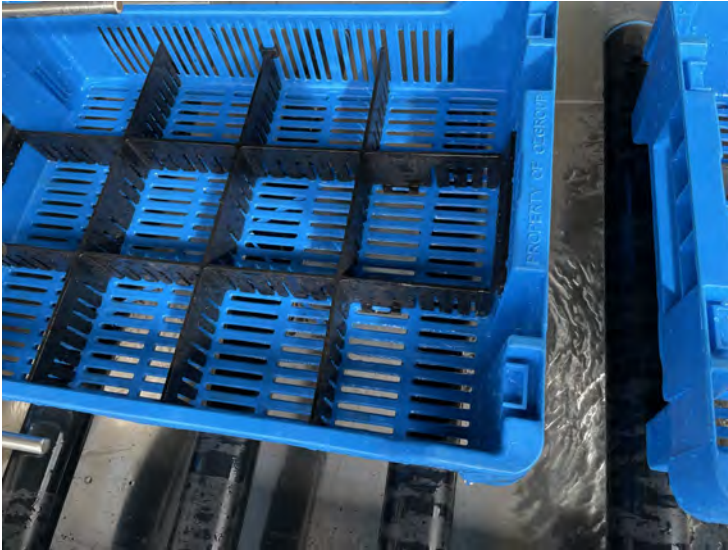
# Water quality: monitor-monitor-monitor





# Harvest containers

Clean and sanitise after each use



Clean using food-grade detergents  
and drinking quality water

STEP 1



Sanitise in a food-grade disinfectant

STEP 2

# Workers health and hygiene

Berries are MANUALLY harvested and handled exposing the fruit to workers.

No postharvest washing/sanitisation step

- Sick workers
- Personal hygiene



FEELING  
UNWELL?



Do NOT come to  
work if you are  
feeling unwell

Tell your supervisor  
immediately

# A new postharvest solution to manage food safety and decay- supercharged air (cold plasma)



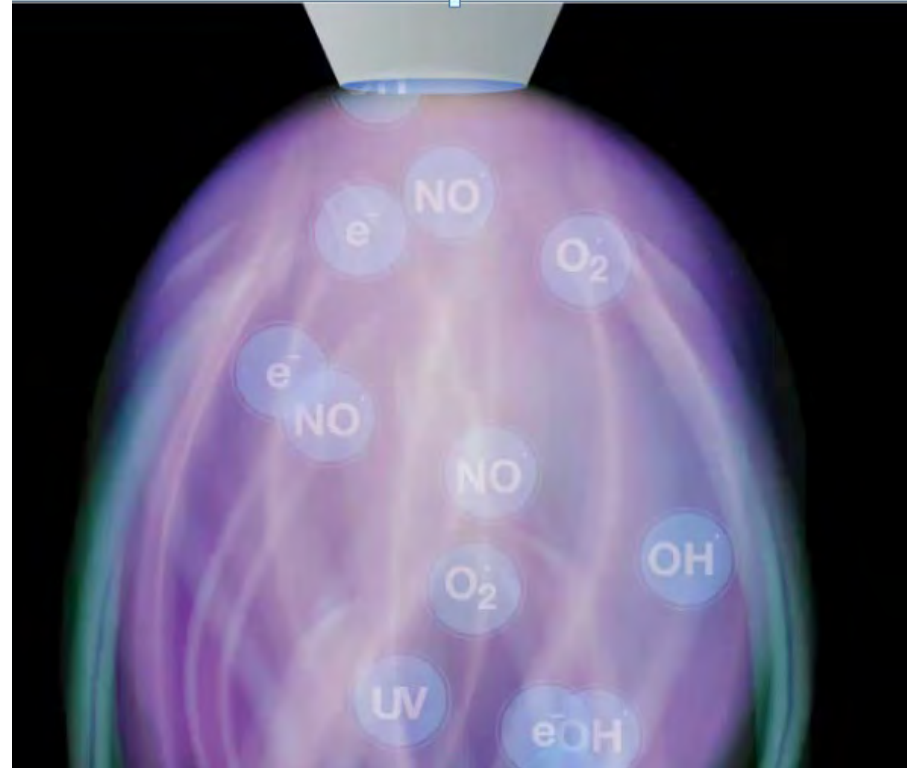
Developed a new decontamination tool to improve food safety and control postharvest decay in horticultural products



# What is Supercharged air (cold plasma)?

generated by applying an electric current to normal air or gas

energised air containing highly reactive species such as free radicals, ions, electrons, UV etc.





# Mode of action of supercharged air



# Potential benefits for berries

- Kills or inactivates pathogens
  - **bacteria, moulds, and viruses**
- Short treatment time
- No residues after treatment
- Dry postharvest treatment





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## FOOD SAFETY HELPDESK

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On-farm and postharvest  
food safety risk management

Science-based best practice

Upcoming primary production and  
processing (PPP) standard for horticulture  
(berries, melons and leafy vegetables)

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# Acknowledgements



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