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DEPARTMENT OF **PRIMARY INDUSTRY AND FISHERIES**

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Research Needs to Align with Commercial Practice. Alternative Concept for Market Access Protocol.

Bob Williams

14th August 2014

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Background

The consumer today has an expectation that seasonal commodities are available all year round.

To achieve this the producer either has to manipulate the plants genetics or the plants phenology (longan) or.

Product is sourced from different production regions around the world – export trade.

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The Challenge with Export.

The challenge with export is

- providing the consumer with an attractive product,
- the logistics of moving the product considerable distances,
- meeting the market access trade of the importing country, and
- making profit for the producer

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Australian Mango Export Chain.

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Australian Mango Export Chain.

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Australian Mango Export Chain.

Commercial harvest of mangoes in Australia

Mature Firm Green

- Dry matter >14% <16.5%
- Flesh colour as per industry standard





Defects
NO defects

Class 1
Export grade

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Steps in the logistics of Mango

Process	Time Interval
Harvest, hold and cool fruit	Day 1
Package fruit	Day 2
Cool fruit to 14^0 C	Day 3
Transport fruit to Disinfestation Facility	Day 8
Disinfestation process	Day 10
Sea freight to China at 14^0 C	Day 31
Ripening on arrival	Day 35
Distribution to supermarket	Day 36.

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Fruit Fly Market Access

Summary of export requirements from Australia

Vapour Heat Treatment (VHT) for fruit fly is mandatory for all mangoes being exported to China, Korea and Japan.

Schedule	Innermost fruit pulp temperature (°C)	Treatment period (consecutive minutes)
1	47 °C or above	• 15 minutes
2	46 °C or above	• 20 minutes

New Zealand.

Irradiation dose rates

- ICA 55 recommends
  - 150 Gy for Fruit fly only
  - 300 Gy for Mango Seed Weevil plus fruit fly.
- All mango varieties .

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Current Market Access Protocol for China

Work Plan 2010

- Orchards, packhouses, treatment and load out facilities must be certified and registered.
- Orchards must be registered free of;
  - Orange fruit borer *(Isotenes miserana)*
  - Bacterial black spot *(Xanthomonas campestris pv mangiferaeindica)*
  - Mango seed weevil *(Steronochetus mangiferae)*
- Vapour Heat Treatment mandatory to disinfest against fruit flies.
- All varieties of mango are permitted under this protocol.

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Current Fruit Fly Market Access Protocol

What research data is this market access protocol based on?

The evidence that mangoes are a host of Fruit Fly!

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Fruit Fly Market Access

Treatment Options

- Vapour Heat
- Hot Water
- Irradiation

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Fruit Fly Market Access

Does this actually happen with mature hard green mangoes?

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Fruit Fly Market Access
An Alternative Option

The Driver.

All commercially harvested mangoes are not mature and soft when harvested. They are mature hard green.

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Researchable Questions.

1. Are mature hard green mangoes a host of fruit fly?
2. At what stage of maturity do mangoes become susceptible to fruit fly?
3. What is the correlation between fruit fly pressure and fruit maturity?

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Fruit Fly Market Access
An Alternative Option

Testing the accepted

- Two pest species
- Mangoes 4 Varieties
- Four production areas
- Fruit fly trapping program to determine populations pressure.
- Fruit collection at harvest.
- No field treatments to manage fly populations.

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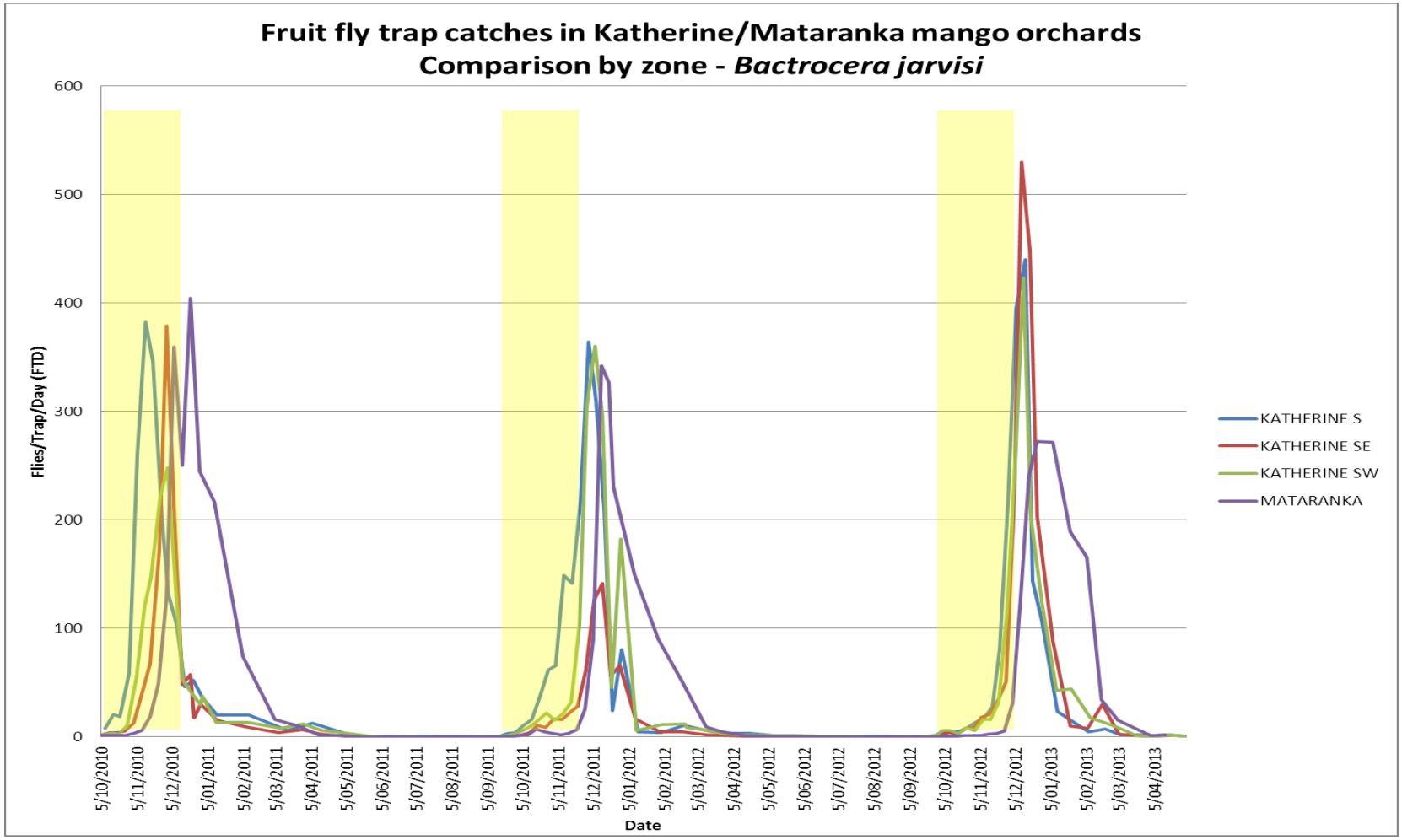
Results: trapping grid – Katherine area



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Method: fruit assessments

- So far assessed over 100,000 commercially harvested fruit
- Collect untreated fruit at shed
- Measure maturity / fruit quality on sub-sample
- Hold 12-14 days at 22^{o}C

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Method: fruit assessments

Fruit quality assessments for each batch of fruit collected

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Method: fruit assessments

Cutting fruit to assess presence/absence of fruit fly larvae

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Conclusions

Total fruit assessed over four years. >100,000

The evidence to date;

When mangoes are harvested at the mature hard green stage, without any skin damage (cuts, cracks, scratches), the two Fruit Fly species within Northern Territory, appear not to favour the fruit at this stage or the eggs are not able to develop.

Commercial harvest of mangoes in Australia

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Fruit Fly Market Access
An Alternative Option

Next Steps

- Field caged trials
  - Range of fruit maturity
- Determine why FF are not attacking fruit
  - Resin/sap pressure in fruit skin
  - Efficacy of sap to kill FF eggs

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Fruit Fly Market Access
An Alternative Option

What have we learned?

Market access principles need to be based on commercial practices.

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Come across

www.mango2015.com.au

28 September - 2 October
2015
Darwin, Australia

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MANGO SYMPOSIUM

ISHS
International Society for Horticultural Science

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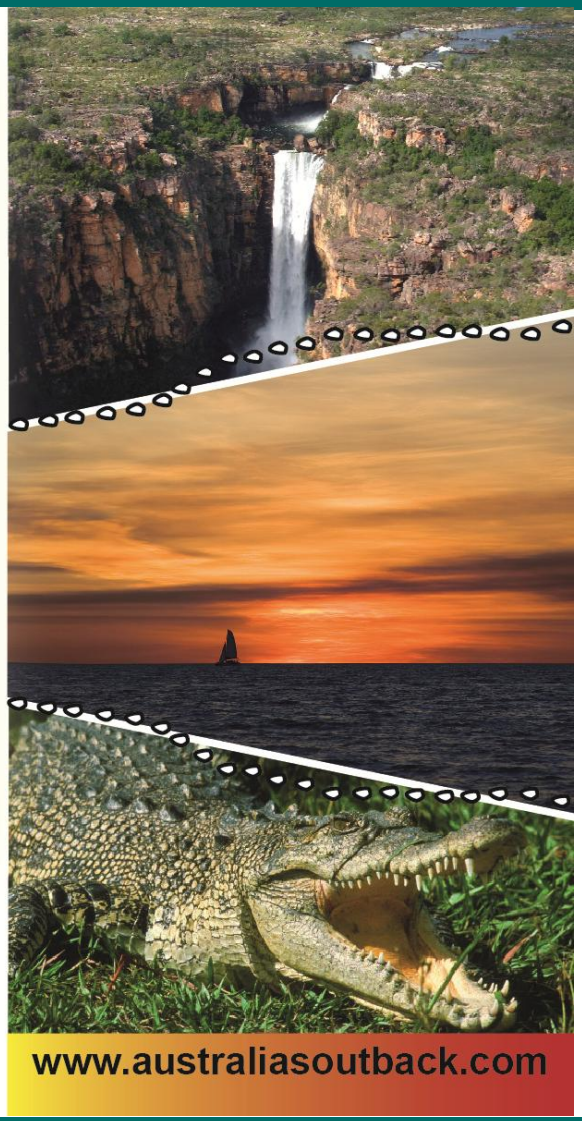

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