SOUTH AUSTRALIAN RESEARCH & DEVELOPMENT INSTITUTE
PIRSA

BUDMON & ONFIT

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PREMIUM FOOD AND WINE FROM OUR CLEAN ENVIRONMENT

SOUTH AUSTRALIA

Government of South Australia
Primary Industries and Regions SA

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SOUTH AUSTRALIAN RESEARCH AND DEVELOPMENT INSTITUTE

BUDMON & ONFIT

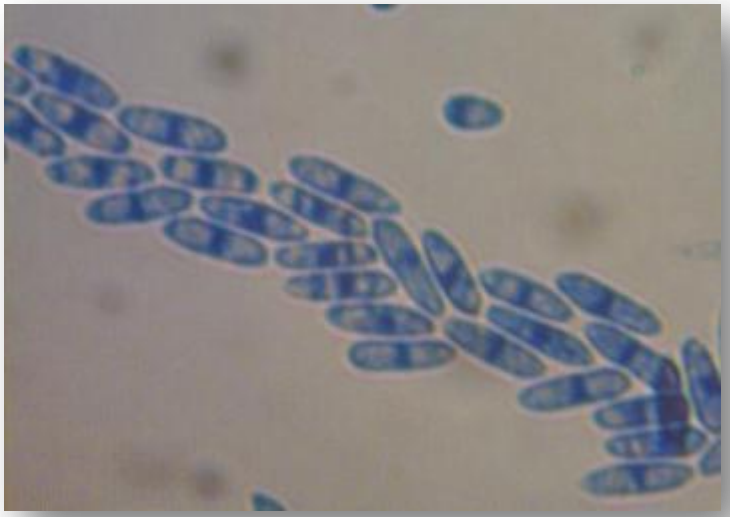
- Why
- What
- How
- So what?

Why: 1. *Botryosphaeria*

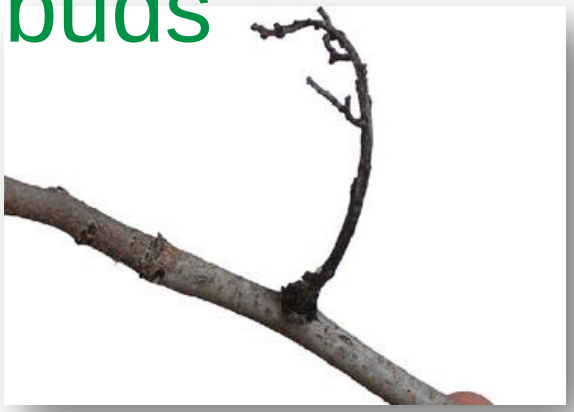
- Panicle and shoot blight caused by *Botryosphaeria sp.*
- *B. dothidea* formally reported in Australia 2012
- *B. parva* also identified in 2009 from bud dissections

Why: 2. Anthracnose

- Caused by *Colletotrichum acutatum*
- First identified in Australia 2001
- Detected at low levels in buds 2009
- Major issue in 2010/11 season with wet weather



Both overwinter in shoots and buds



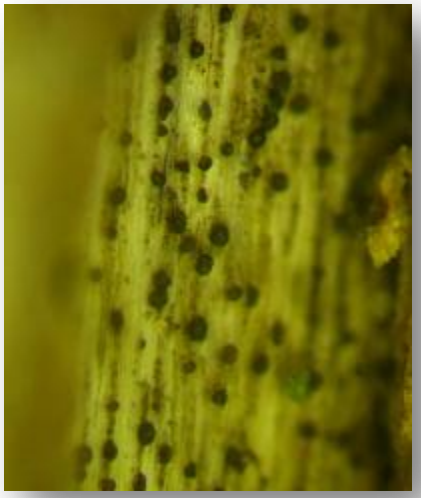
Botryosphaeria:

- Rain spreads spores to newly formed buds
- *Botryosphaeria* can infect buds as soon as they develop
- Can kill buds
- Can exist in latent form and buds appear healthy

Colletotrichum:

- Latent infection known in flowers and buds in some crops

Both need water for infection



Botryosphaeria:

- 4mm rain
- >10°C (opt. 30°C)
- Spores germinate ~1.5 hrs wetness
- Field infection 9-12 hrs

Colletotrichum:

- ?
- >15°C (opt. 25°C)
- Spores germinate <3 hrs wetness
- ?

What: BUDMON

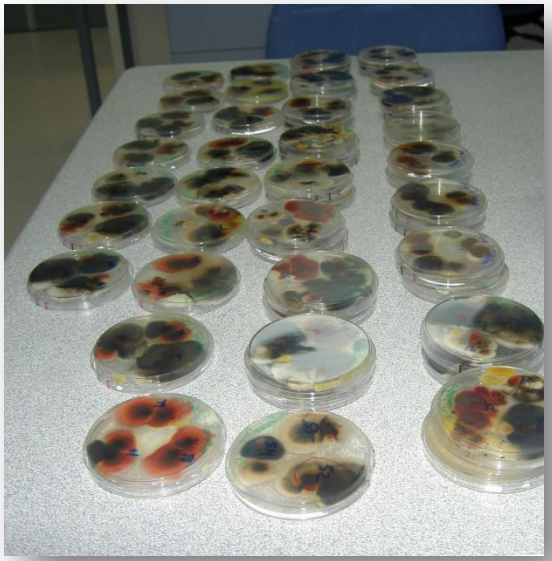
- **BUD MON**itoring during dormancy
- Used in the USA for prediction of disease risk at harvest for *Botryosphaeria*

How: BUDMON

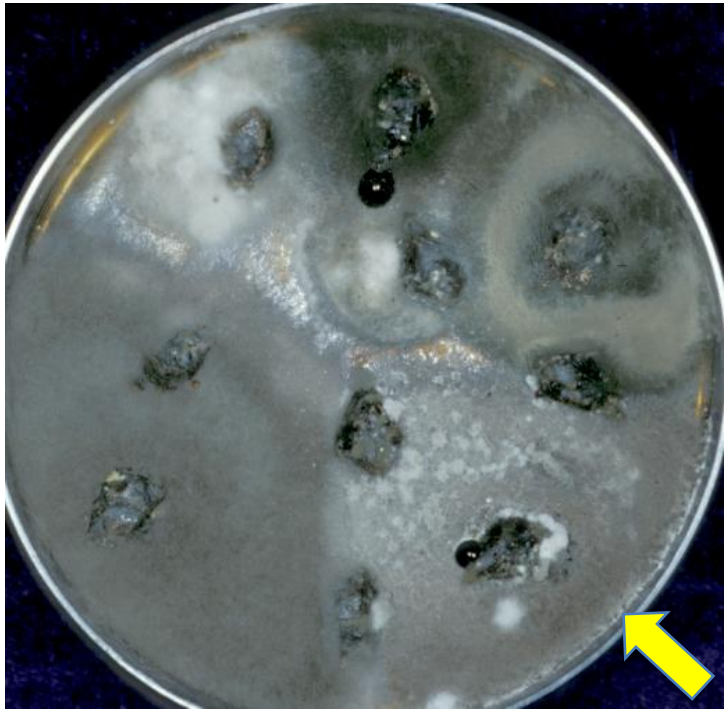
- Collect 100 flower or vegetative buds at random from block during dormancy
- Send to laboratory

How: BUDMON

- Surface sterilise
- Plate and incubate for 5-7 days



How: BUDMON



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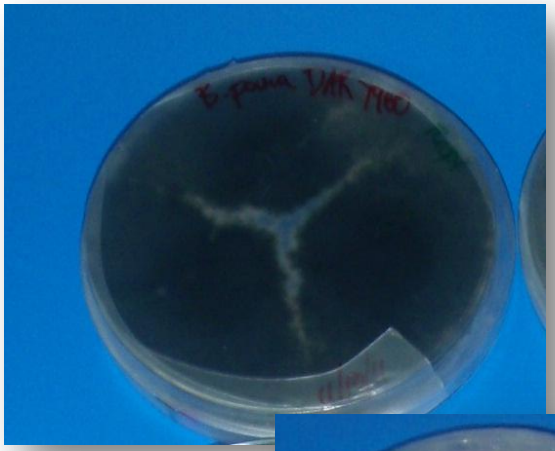
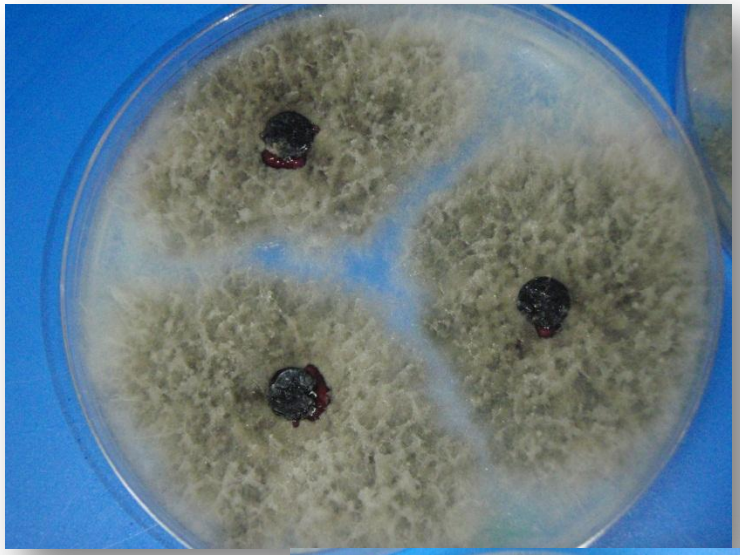
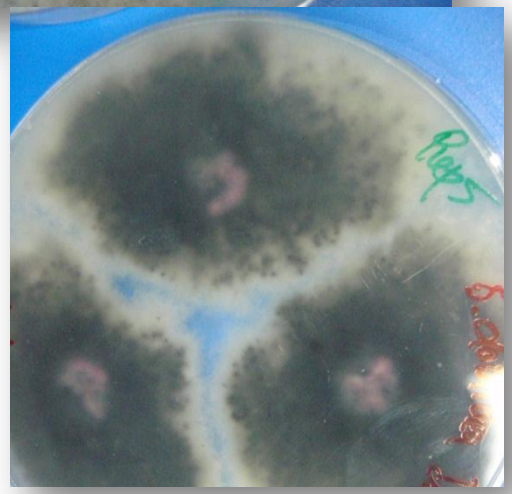
Botryosphaeria

How: BUDMON



B. parva

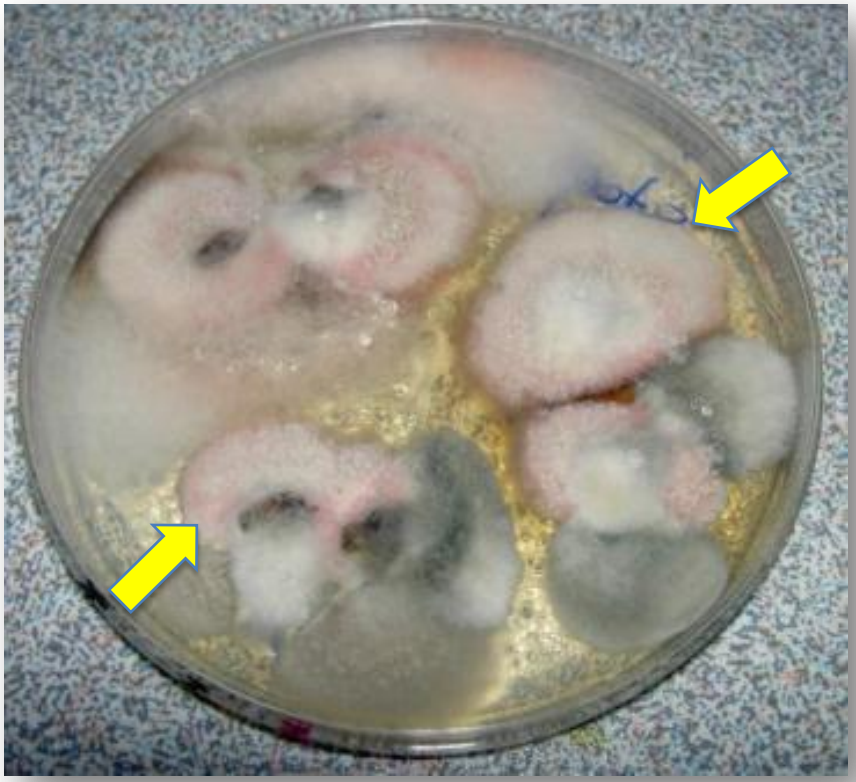




B. dothidea

Botryosphaeria

How: BUDMON



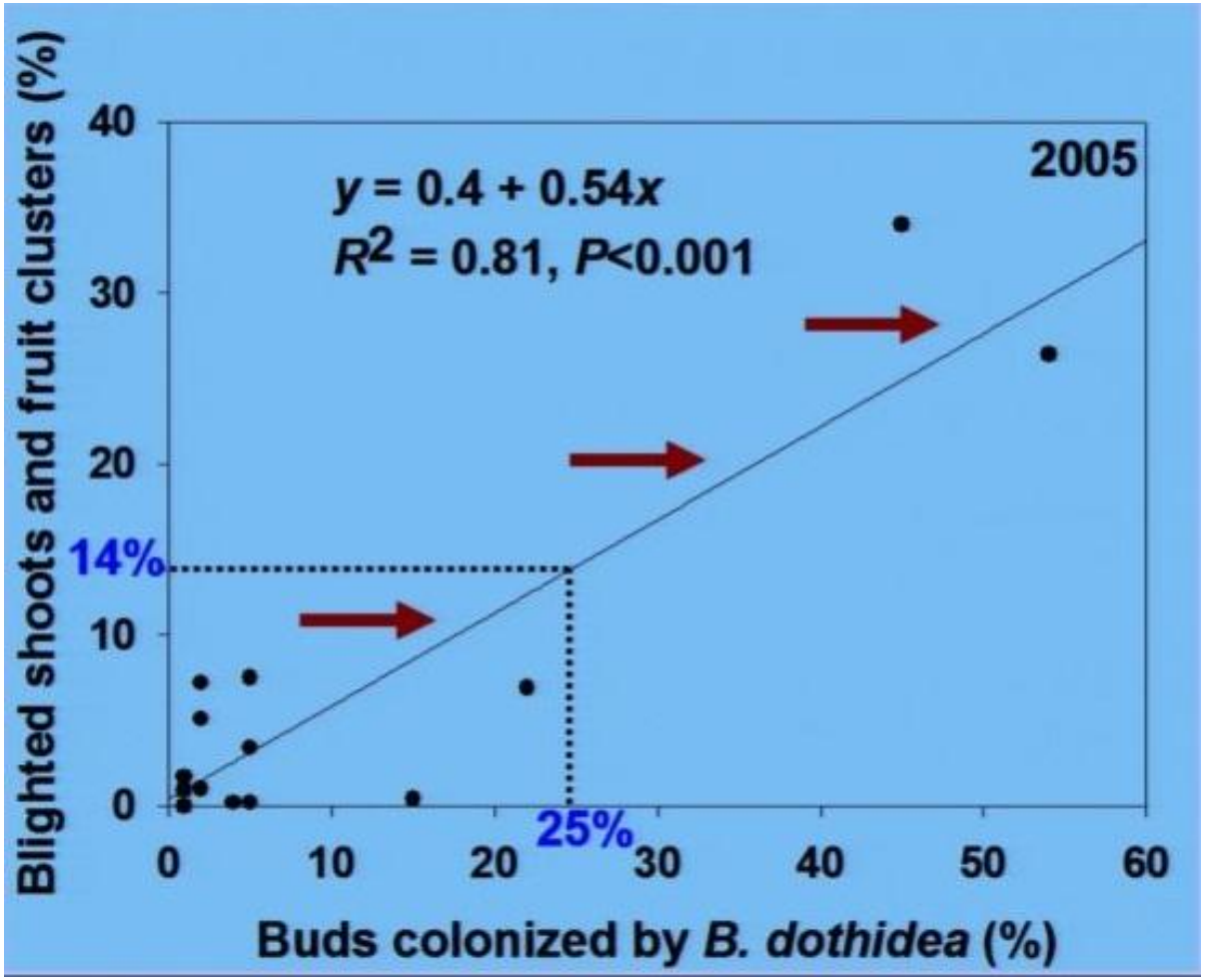
Colletotrichum

So what? BUDMON – USA *Botryosphaeria*

- 0%: no disease expected
- 1–3%: low levels of disease
- 4–8%: moderate levels of disease
- ≥9%: high levels of disease expected

Consider treating when results show moderate to high risk.

BUDMON – USA *Botryosphaeria*



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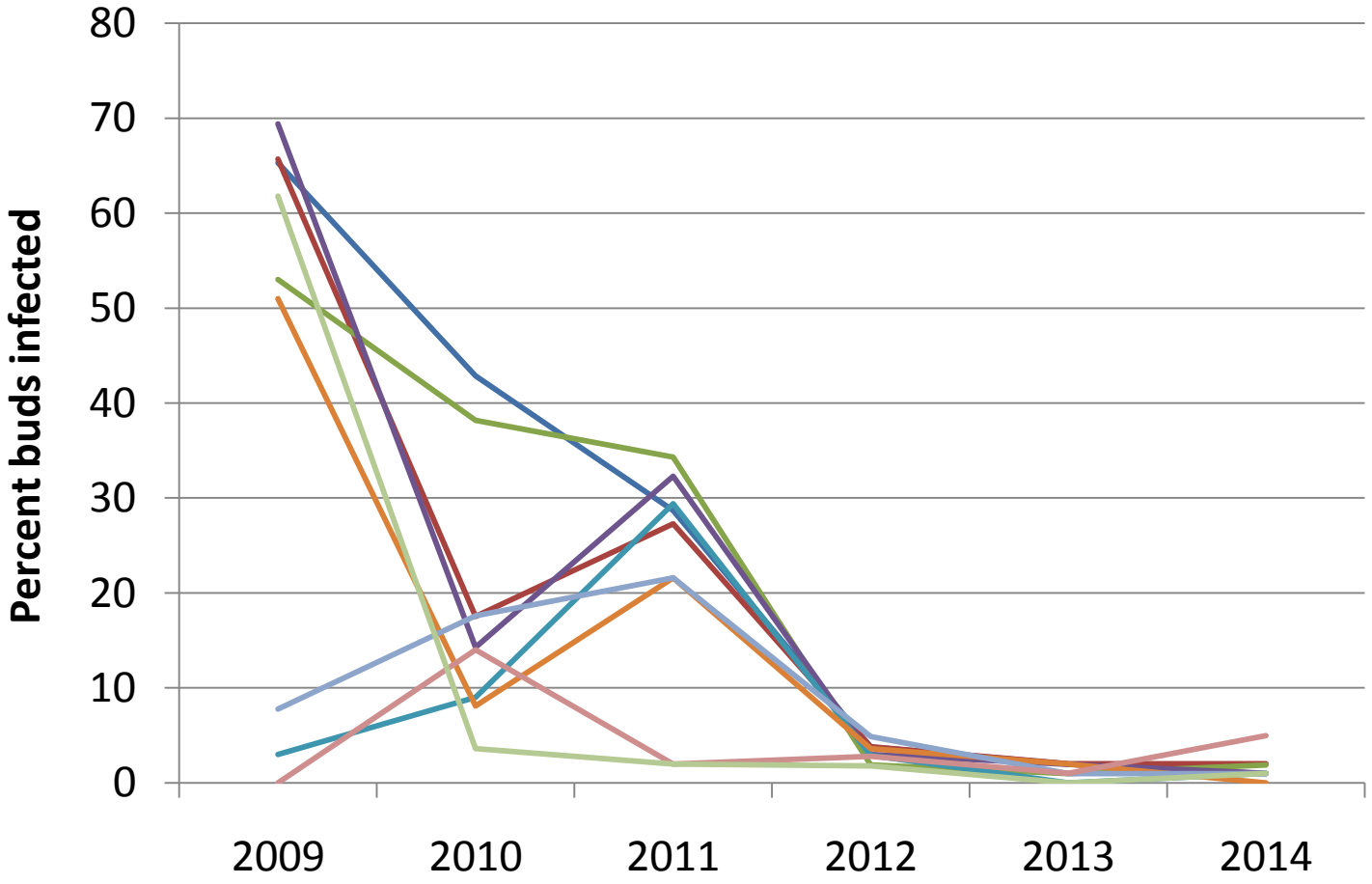
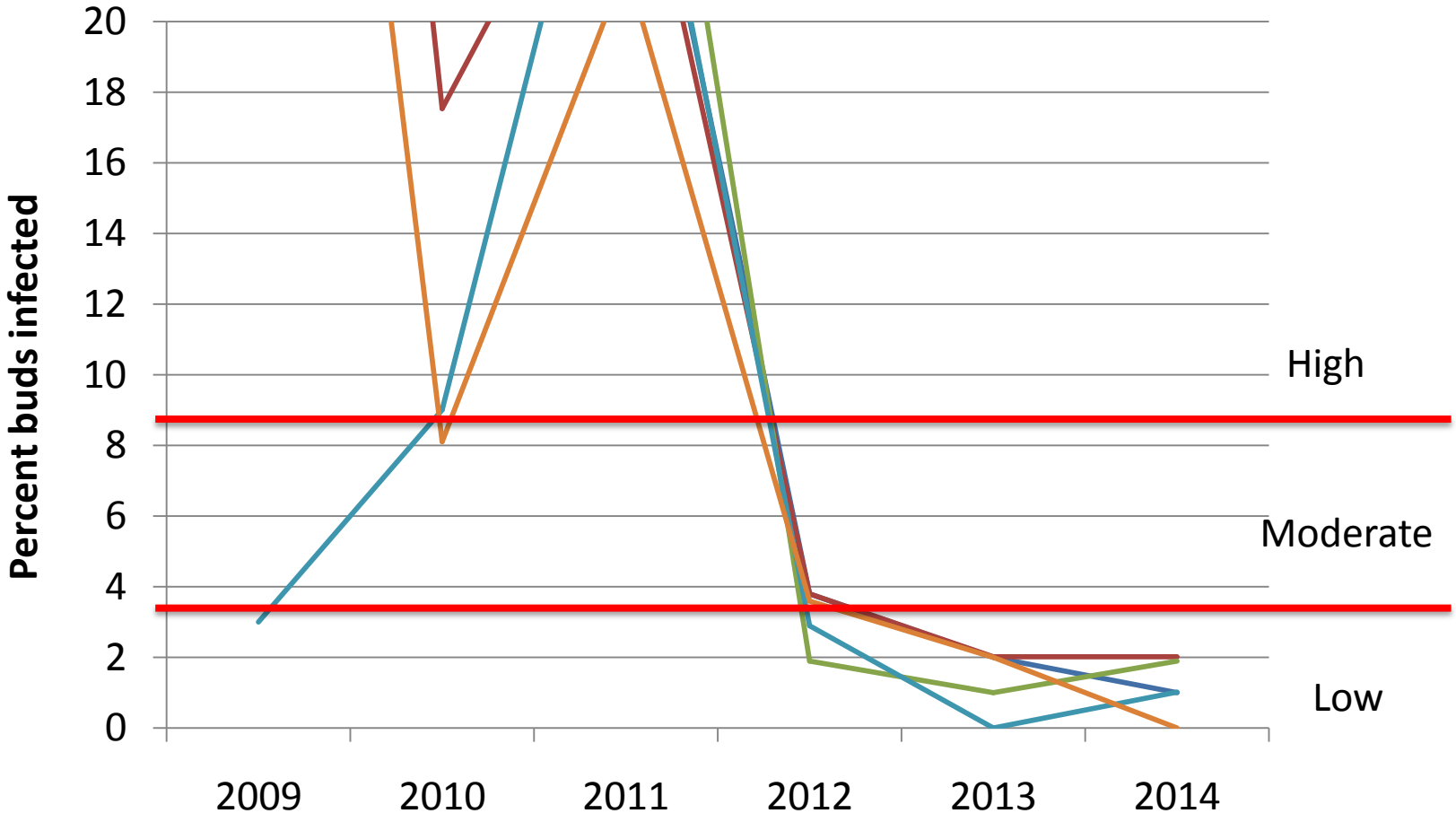
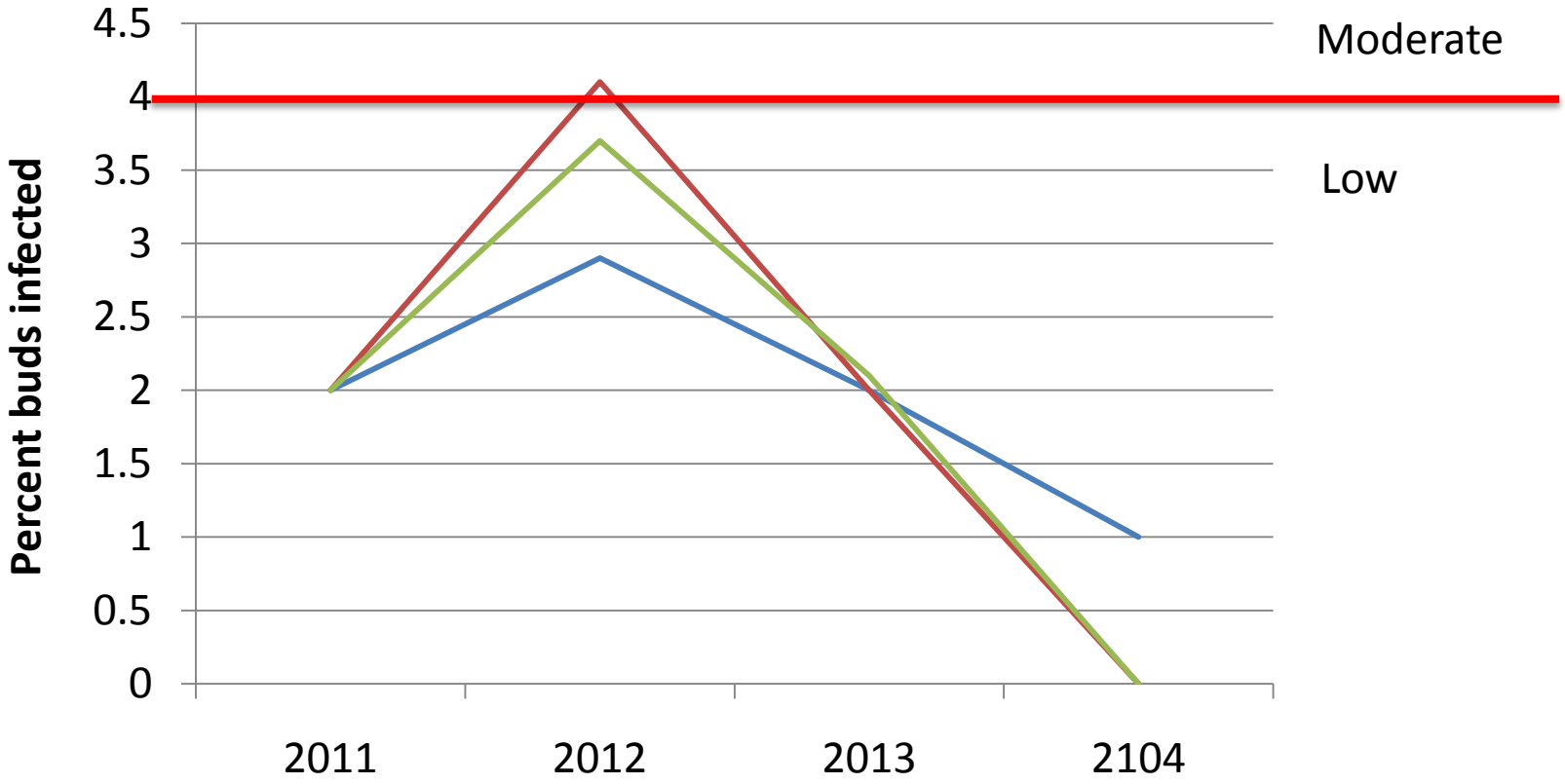
BUDMON – AUS *Botryosphaeria*



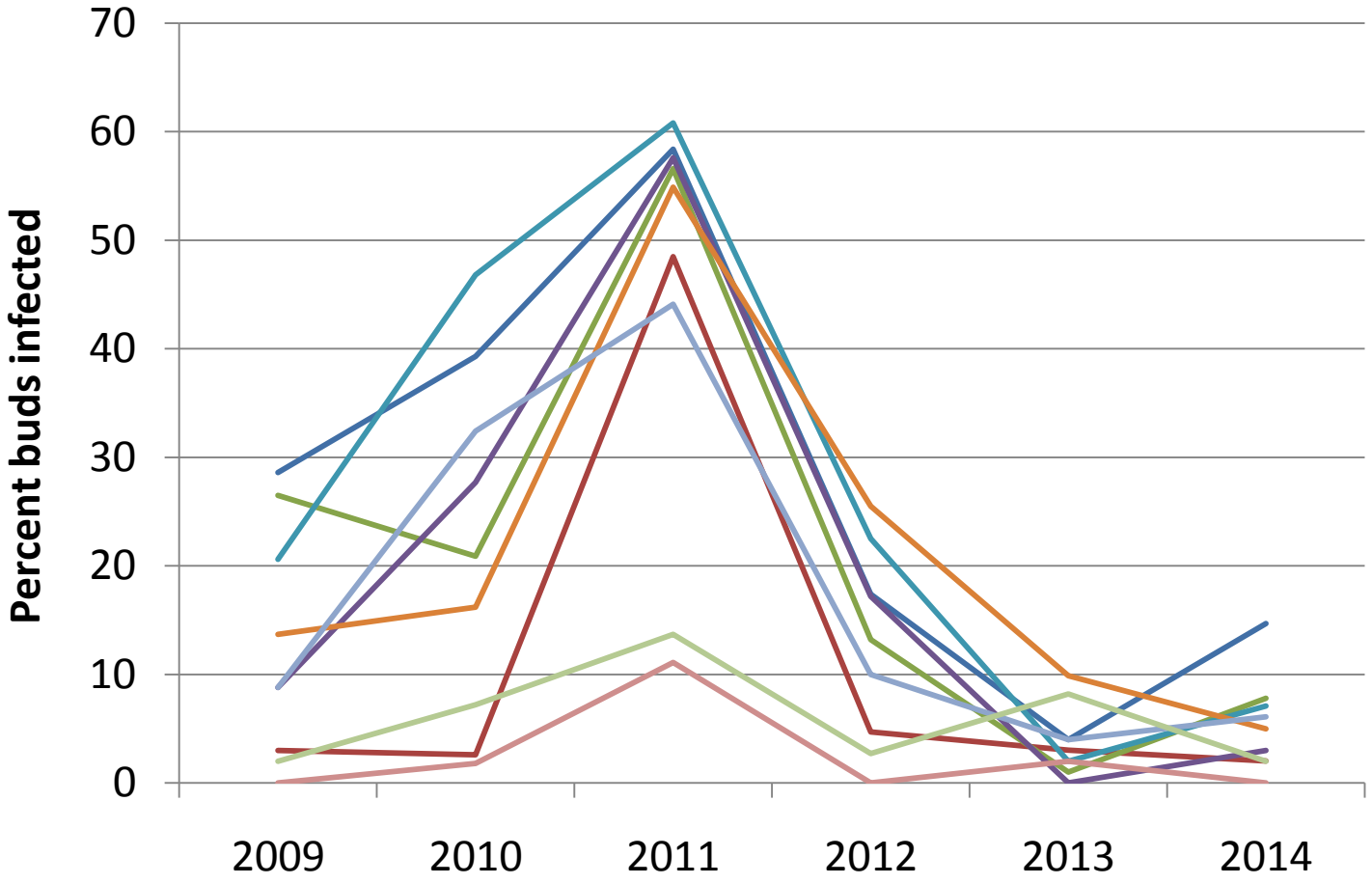
BUDMON – AUS *Botryosphaeria*



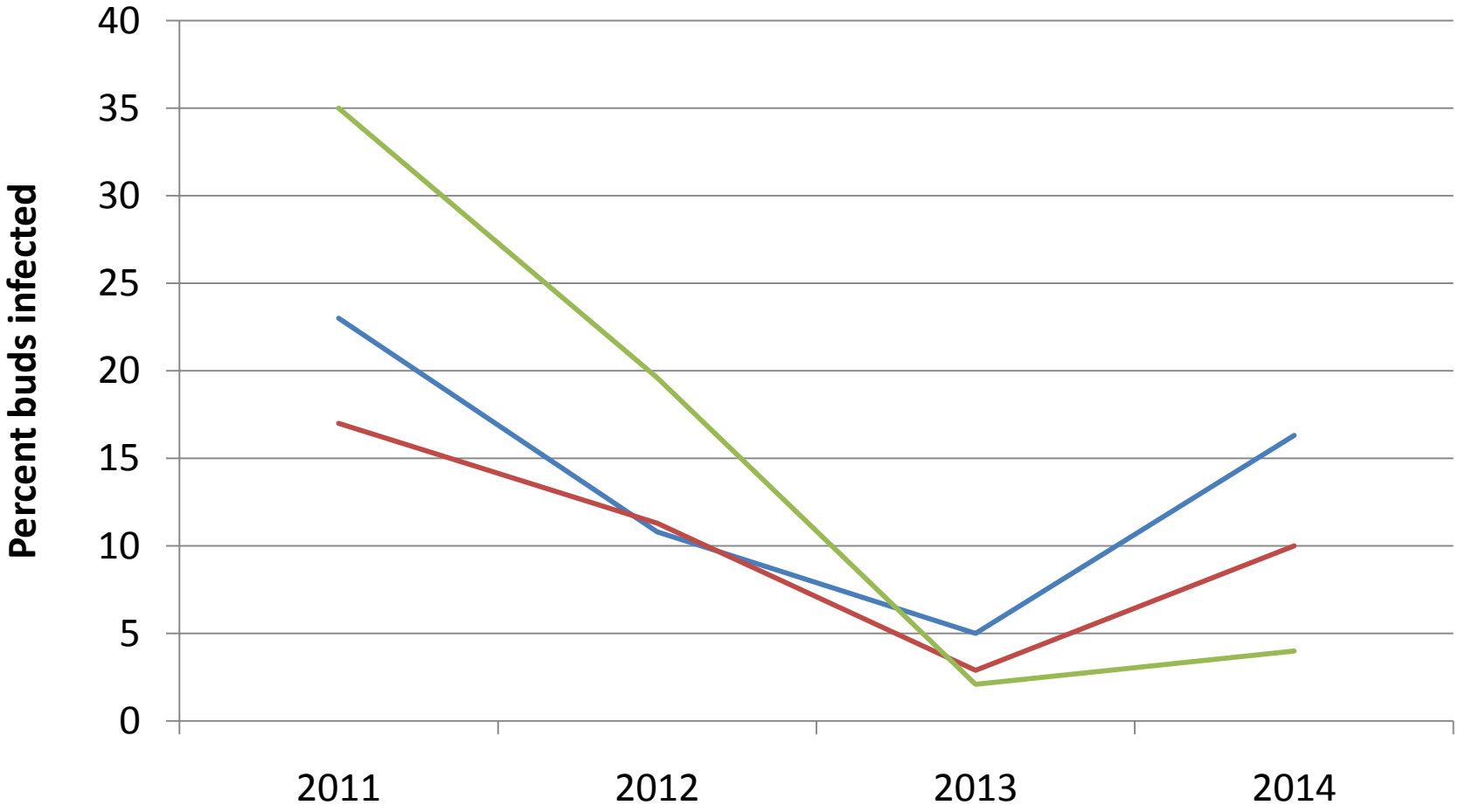
BUDMON – AUS *Botryosphaeria*



BUDMON - *Colletotrichum*



BUDMON - *Colletotrichum*



What: ONFIT

- **O**ver **N**ight **F**reezing & **I**ncubation **T**est on immature fruit
- Killing fruit and leaf tissues triggers latent growth of many fungi eg *Botrytis*, *Monilinia*
- Freezing replaced paraquat
- Used in the USA for disease thresholds for fungicide management of *Botryosphaeria*

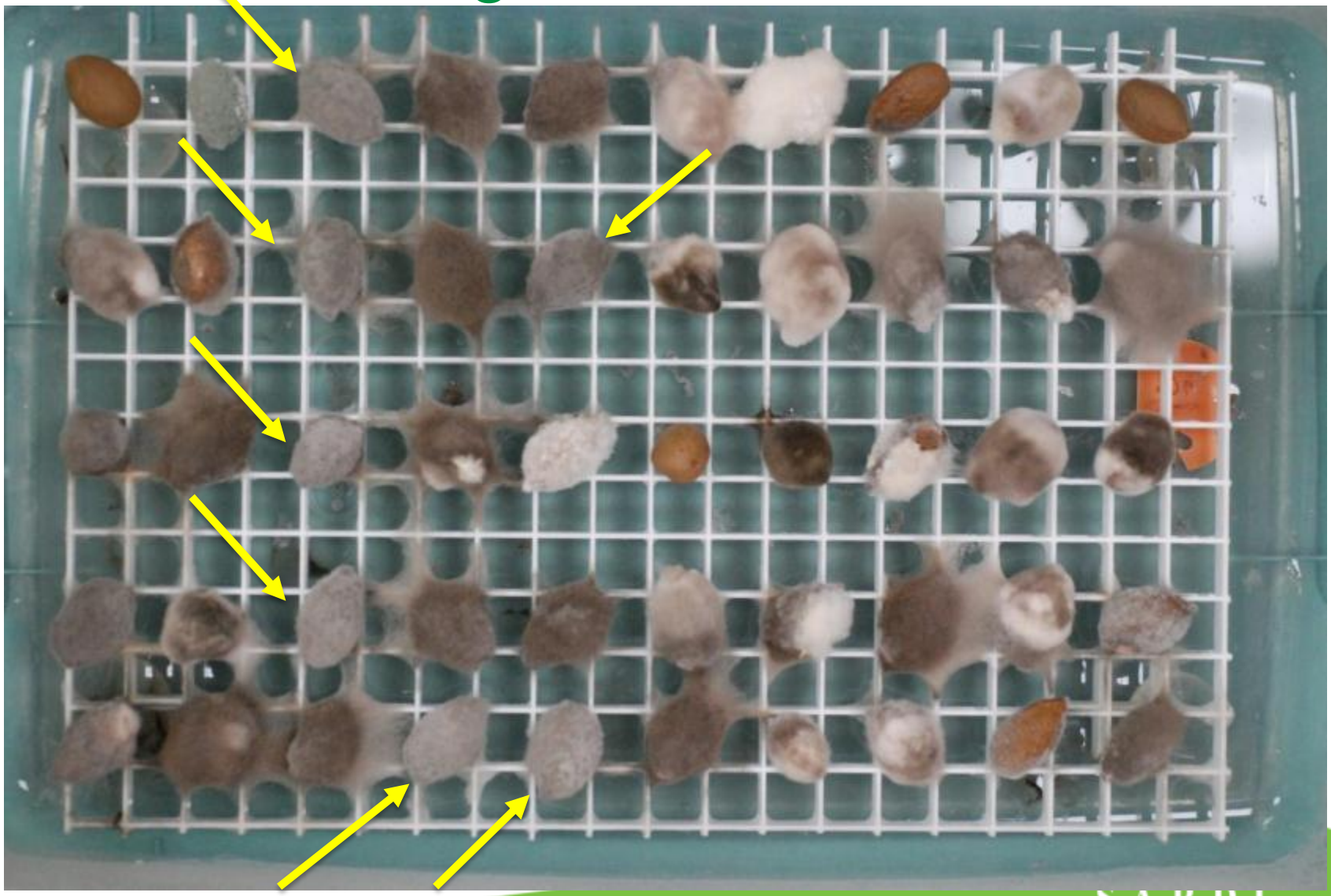
How: ONFIT

- Collect 100 immature fruit at random from block
- Send to laboratory

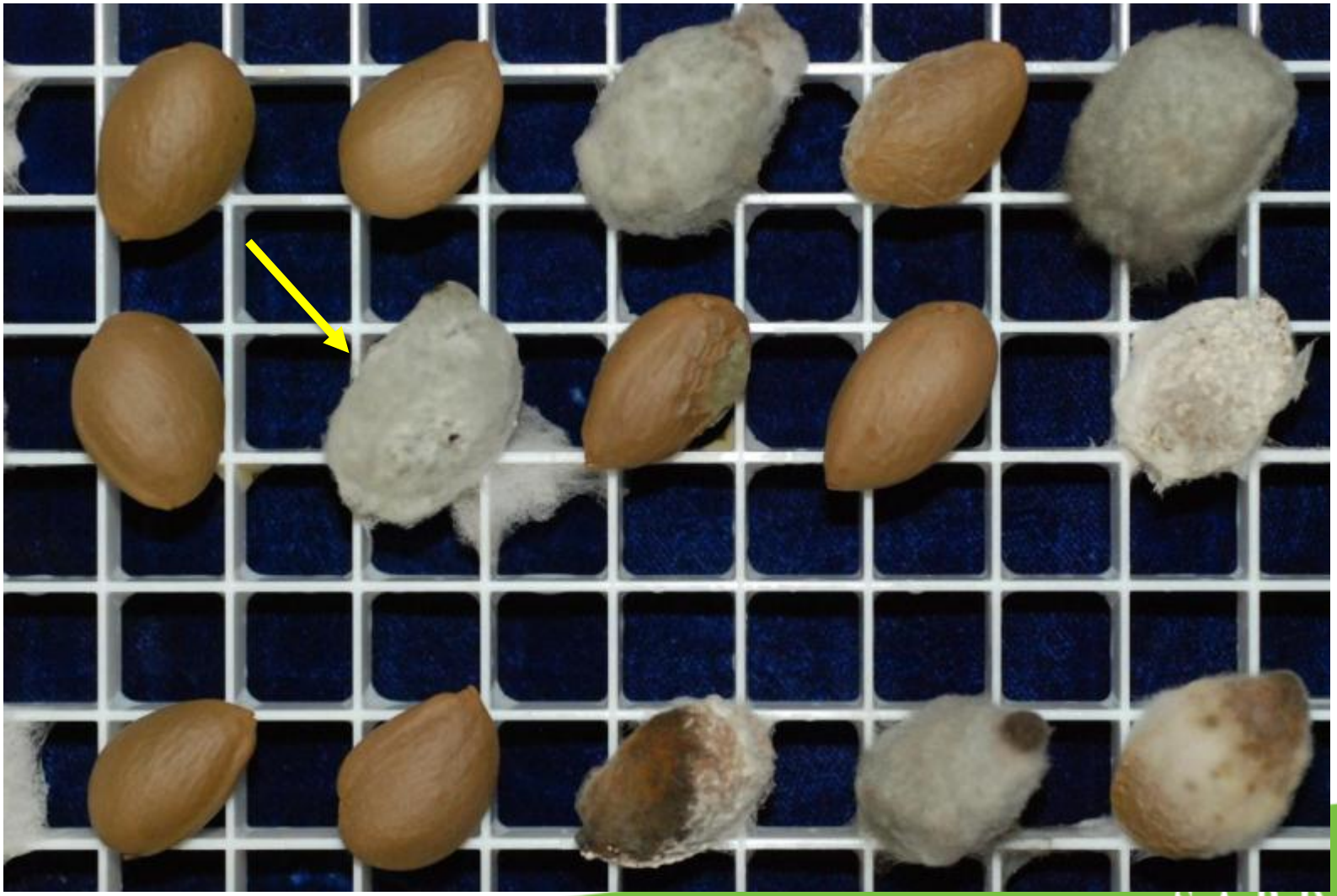
How: ONFIT

- Surface sterilise
- Freeze overnight
- Incubate in high humidity for ~7 days

ONFIT testing



ONFIT testing



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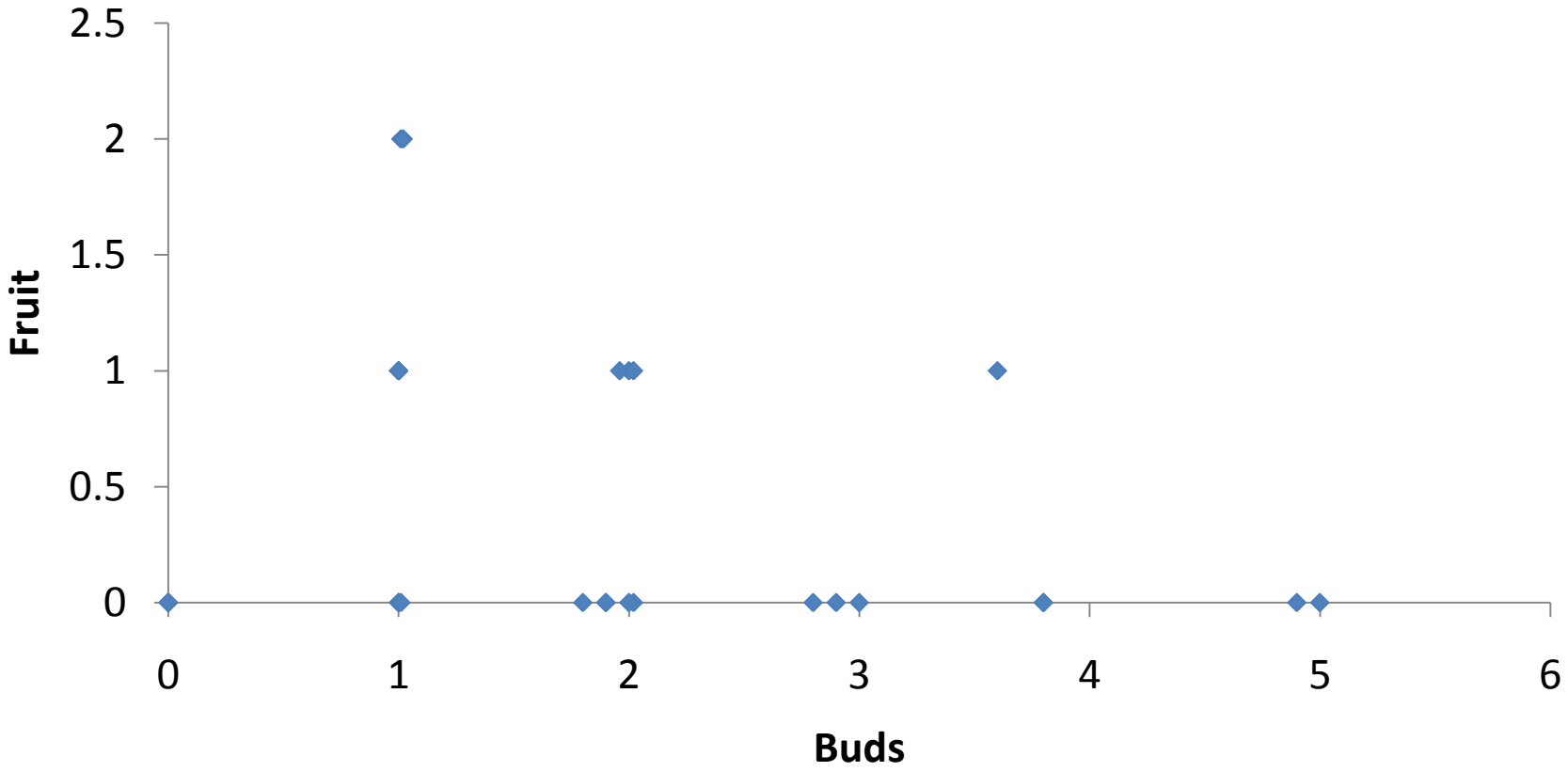
So what? ONFIT – USA *Botryosphaeria*

- 0 %: no additional treatment is needed
- 1–3%: one fungicide application - treat mid summer (USA last week June or first week July)
- >5%: two fungicide applications may be needed – treat mid summer as above; repeat 2 to 3 weeks later

ONFIT vs BUDMON - *Botryosphaeria*



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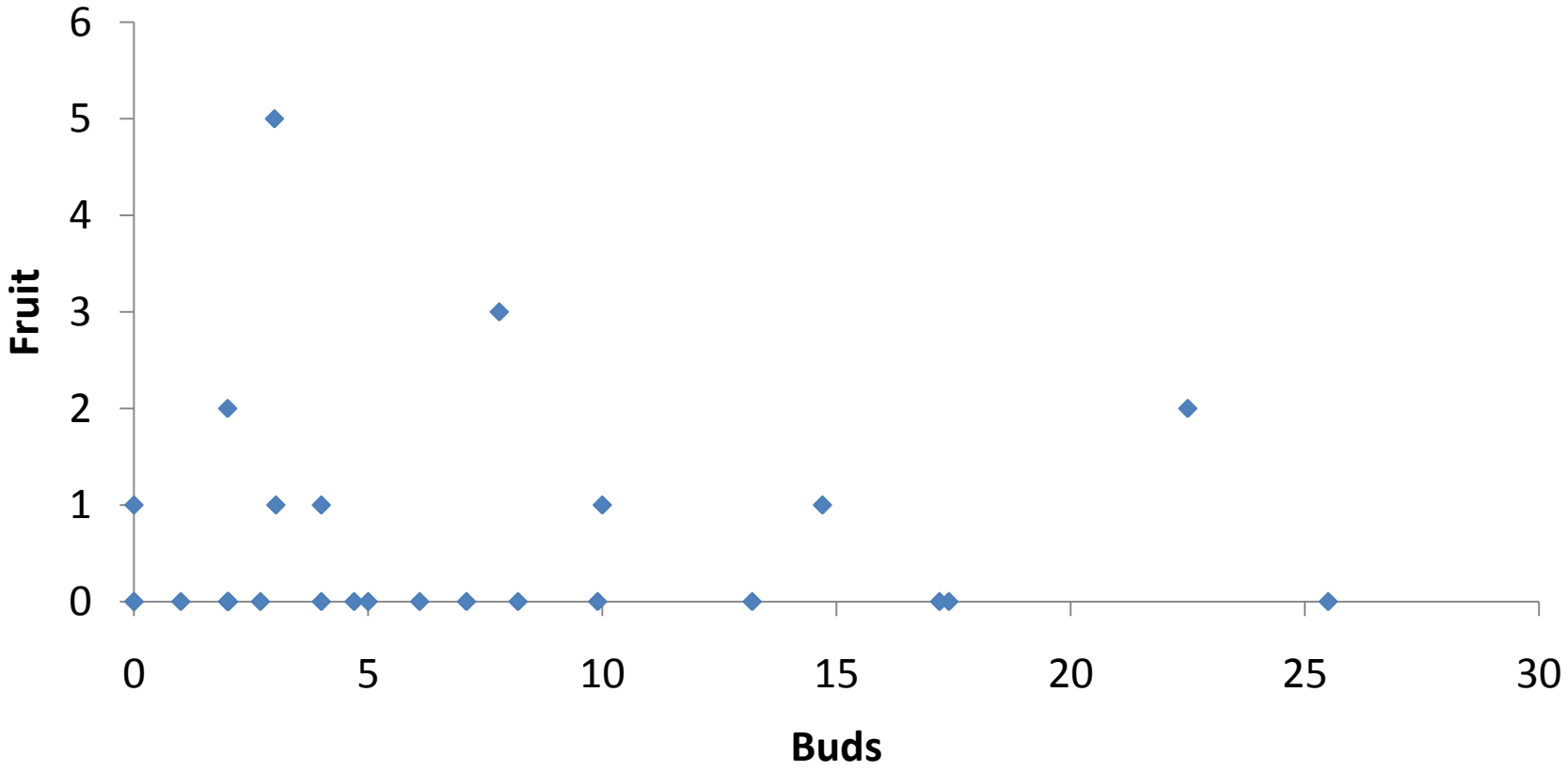
ONFIT vs BUDMON - *Colletotrichum*



BUDMON & ONFIT:

1. Shows trends in orchard – effectiveness of management strategies
2. Correlation with risk potential at harvest? *Needs Australian verification*

Acknowledgements

- Themis Michailides, UC Davis
- Sue Pederick, SARDI
- Australian pistachio growers
- Anyone who's photos I have used

http://pir.sa.gov.au/research/services/crop_diagnostics/horticulture_pathology