

Trevelyan's Psa Trials

Thursday 9th February 2012

Presented by James Trevelyan.

Dr Jenny Aitken of the Tree Lab



- Jenny is a well published Scientist with a Phd in Plant tissue culture.
- Jenny established the Tree Lab business, and has operated it for the last 10 years.
- Has been a kiwifruit grower.

Trials

- Seedling resistance
- Product testing

Seedling Resistance

- Looking for a chance seedling which is resistant to PSA-V
- Germinated approx. 2500 seedlings
- Both Hayward and Hort16A
- Need to screen a lot of seedlings
 - 10,000 or maybe even more
- We have developed a method to screen seedlings and are about to begin the screening process.

Product testing

List of products

- Oxywash 3000
- Omniwet
- Angro + Oxywash
- Liquicop
- Sporekill + Omniwet
- CitroX
- HiCane
- BackKill
- Oxywash + Liquicop
- Omniwet + Liquicop
- Sporekill + Liquicop
- Sporekill
- Serenade Max
- Plant Shield (Seaweed carrier)
- Plant Shield (Tech. grade carrier)
- Superzyme
- Nordox
- OmniGel
- White Vinegar
- Colloidal Silver

List of products (cont)

- Hydrogen peroxide
- CitroX BC
- Propolis
- Graphic
- Lema Oil
- Plant Shield (Pham. grade carrier)
- Plus many combinations of these

Product testing methods

1. PSA-V infected leaves are placed on the Agar/product mix
2. PSA-V is spread on top of the Agar/product mix in a known pattern.

Method 1

- Product is mixed in with the Agar
- PSA-V infected leaves are placed on the Agar/product mix
- Level of bacterial growth assessed up to 14 days, using a scale from 0 to 5

Method 1



Method 2

- Product is mixed in with the Agar
- PSA-V is spread on top of the Agar mix in a known pattern
- Level of bacterial growth assessed up to 14 days, using a scale from 0 to 5

Method 2



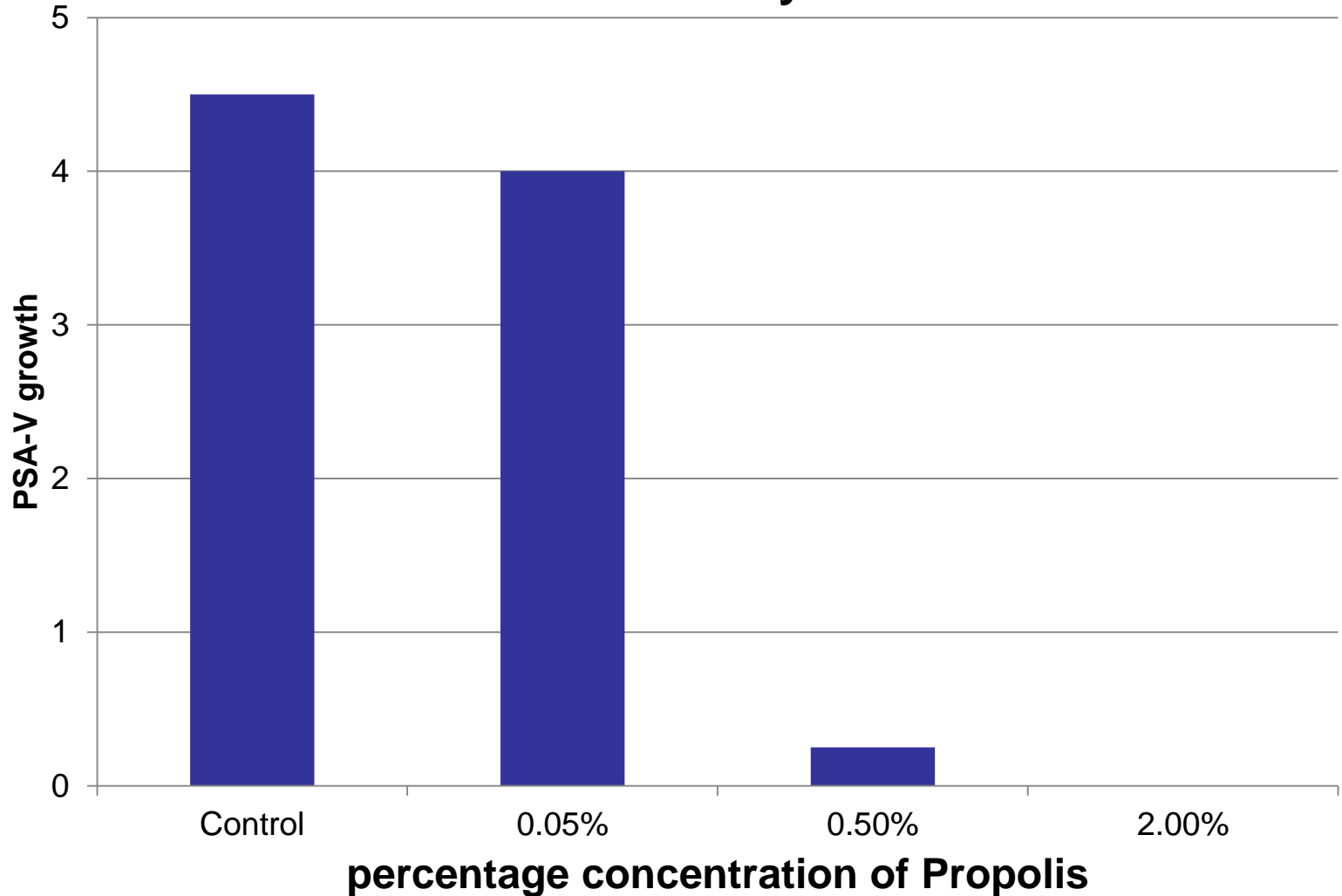
Promising Products outside of the KVH testing program

- HiCane
- Propolis
- Plant Shield

HiCane

- HiCane
 - Showed a great knockdown effect, down to 0.1%
 - Not a viable option
 - Environmental issues
 - Banned in Europe
 - Kills grass hence will not be kind on the canopy
 - Very toxic

**The Effects of Various Concentrations of
Propolis
on Growth (average) of PSA-V after 11 days.
0 = No Growth 5 = Heavy Growth**

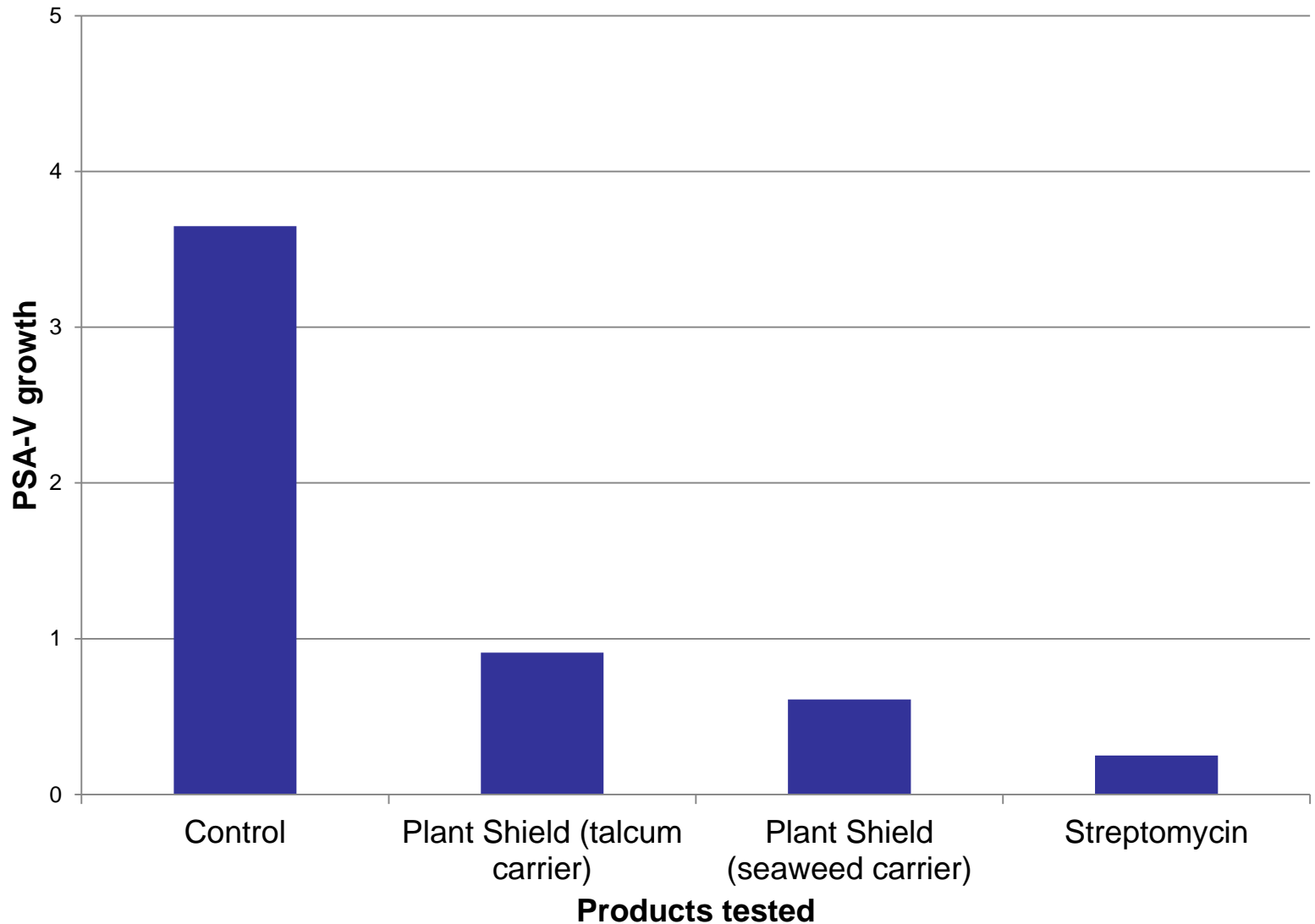


Propolis

- Propolis
 - 0.5% propolis stops PSA-V growth
 - Cost issues
 - Need to ascertain what the active properties are, and whether we can use a synthetic products to reduce cost.

The Effects of Various Plant Shield Formulations on Growth (average) of PSA-V after 5 days.

0 = No Growth 5 = Heavy Growth



Plant Shield Formulations

- Contains 3 bacteria
 - *Pseudomonas fluorescens* (strain KACC 10917)
 - *Bacillus subtilis* (strain ATCC 6051)
 - *Bacillus pumilus* (strain KACC 10917)
 - Carrier

Plant Shield

- Carriers
 - Brown formulation – uses a seaweed carrier.
 - White formulation – Pharmaceutical talcum carrier.

Plant Shield Conclusions

- Plant Shield (Seaweed carrier) effective
- Plant Shield (Talcum carrier) similar effect as Plant Shield (Seaweed carrier)

What next?

- KVH will include Plant Shield in the next range of Field Trials.
- Seedlings grown in a medium with and without Plant Shield, are being sent to Plant and Food for PSA-V testing.
- Continue to screen products and develop opportunities as they arise.

Acknowledgements

- Dr Jenny Aitken.
- Richard Udy.
- Phil Alison.