



Testing products for control of Psa

July 2011



Control option for Psa around the world



France



Italy



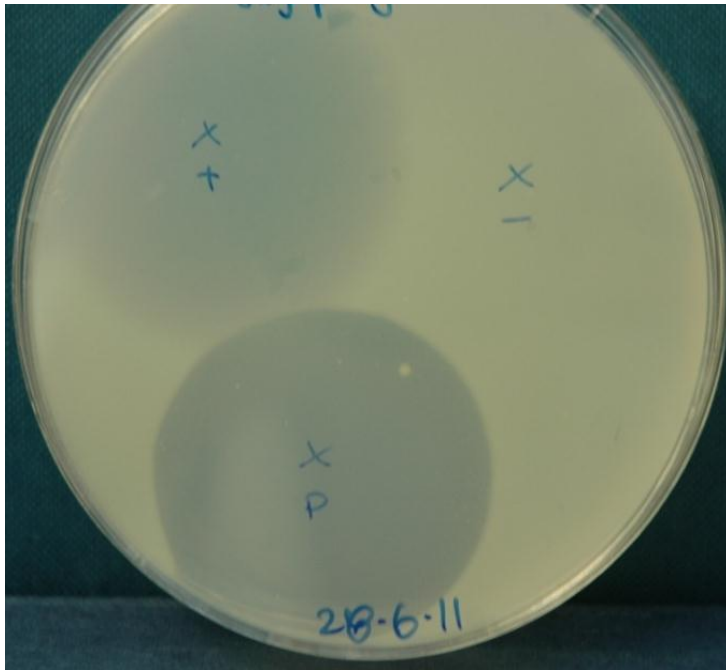
Korea



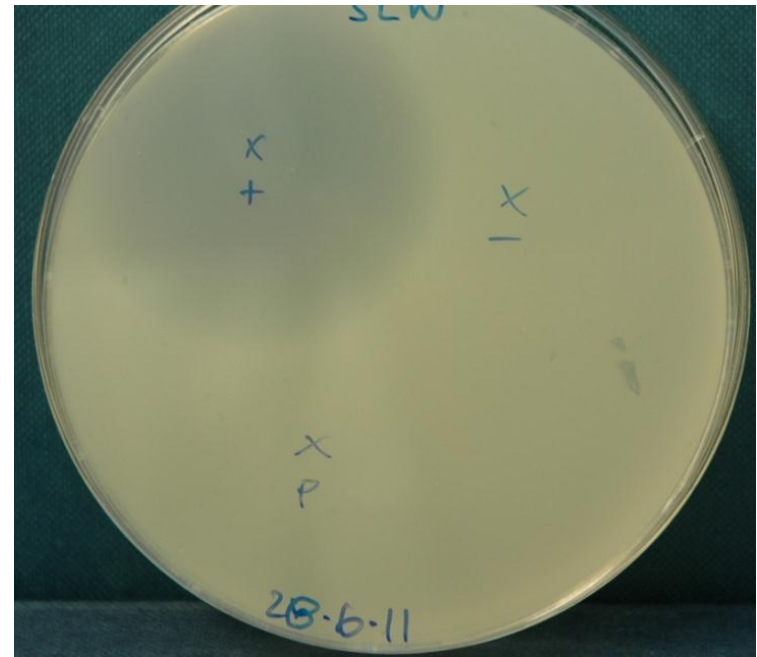
Evaluation Process



The Agar Diffusion Assay: a simple high throughput assay



Positive Result

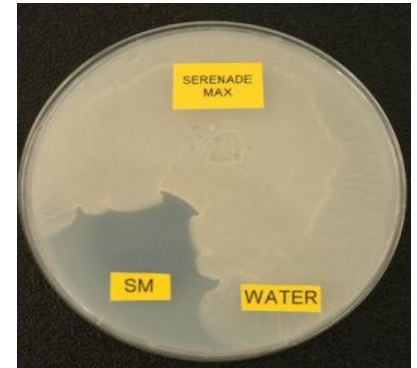


Negative Result

Value and limitation of the Agar Diffusion Assay

Limitations:

- Valid only for products which act directly on the pathogen (not elicitor type products)
- Difficult to use with biological control agents (multiply too fast, or antibiotic not active on growing medium,
- biological control agent works by competing for
- food and nutrients)
- Some products will precipitate in agar (copper hydroxyde)
- Some products will diffuse throughout the plate and never reach the concentration at which they kill the pathogen



Value:

- High throughput assay, check the characteristics of the products or the sample

Agar Diffusion Assays



Greenhouse testing



Reading the greenhouse testing



1 = 10 %



2 = 25 %



3 = 50 %



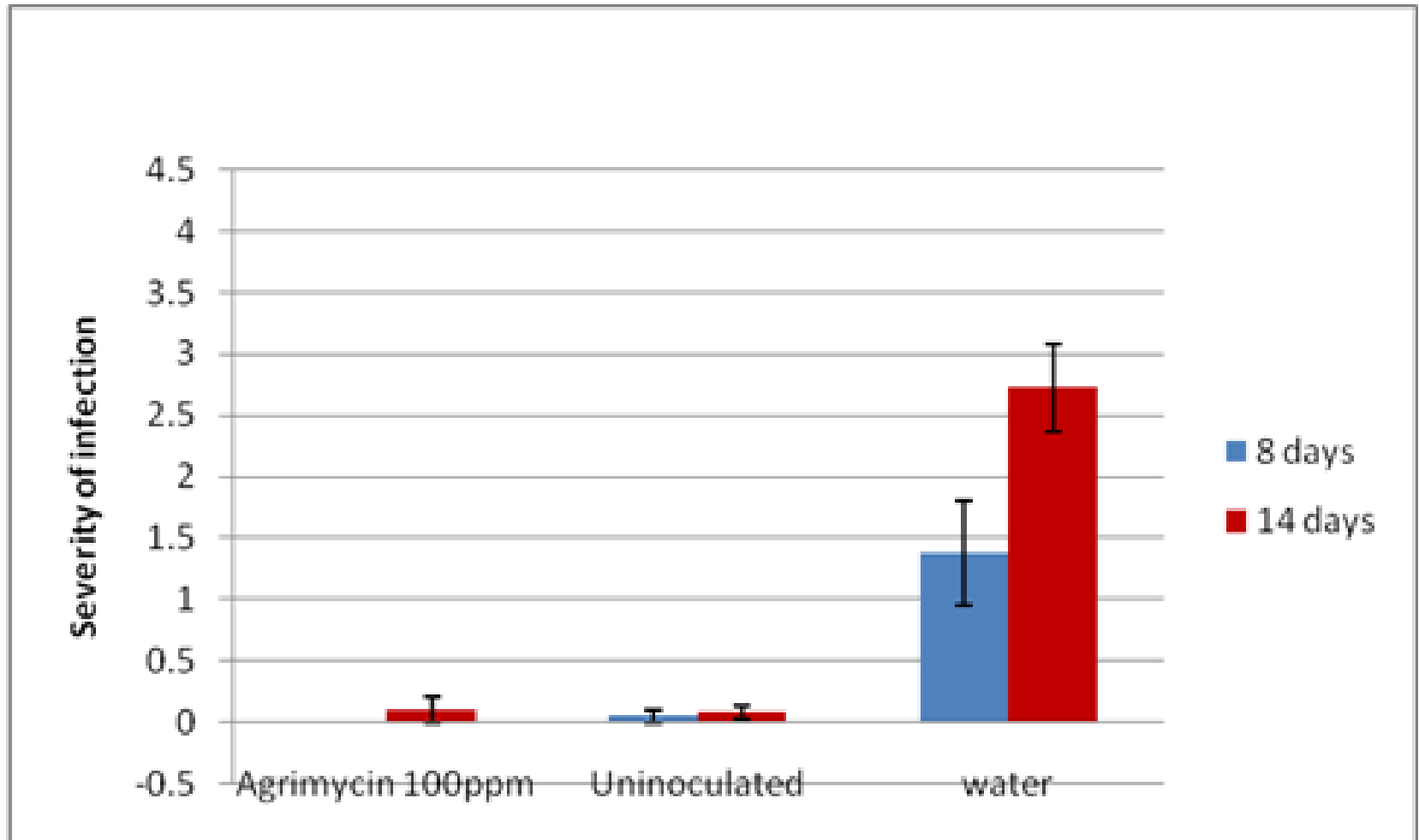
4 = 75 %

Limitations of the greenhouse testing

- Seedlings are not genetically homogeneous material
- Limited number of plants and space in growth chamber
- Seedlings might react differently from adult plants
- Bruno plants might not represent how commercial cultivars would react
- Conditions might be too conducive for disease masking the effect of some product
- Artificial environment: might not allow the product to perform



Results with streptomycin on 'Bruno' seedlings



Current status with new products

- We have received support from the government regarding fast-tracking of products through ACVM and EPA wherever possible
- A number of products that have shown promise have had applications made to ACVM and/or EPA, including Streptomycin



Conclusions

- *In vitro* and *in vivo* assays are extremely valuable to determine rapidly and out of the growing season which products have the best potential to reduce incidence of Psa in spring
- No assay is perfect
- Some promising results need confirmation in the field

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