

# The role of biosurfactants and chemical surfactants on head rot of broccoli

## IN TASMANIA, AUSTRALIA



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### Objectives

- To determine the cause of head rot of broccoli grown for processing in Tasmania.

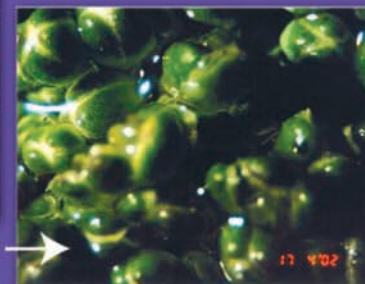
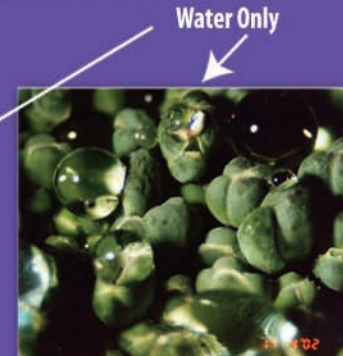
### Bacterial rot

- most common cause of broccoli head rot



### Wetting of broccoli heads

- predisposes them to bacterial rot

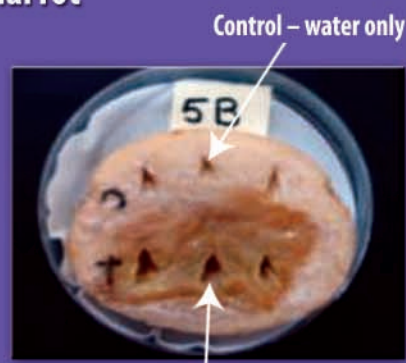


### Fluorescent *Pseudomonas* spp

- commonly found in association with bacterial rot



*Pseudomonas* bacteria fluoresce under UV light on King's B medium



Bacteria with pectin degrading enzyme

### Lab test - spray adjuvants

Bond Nufilm Agridex

Agral 3-18ml/100L

Activator 30-120ml/100L



Control

### Fungal rot

- mainly caused by *Sclerotinia* & *Botrytis*



### Lab test - after 2 days

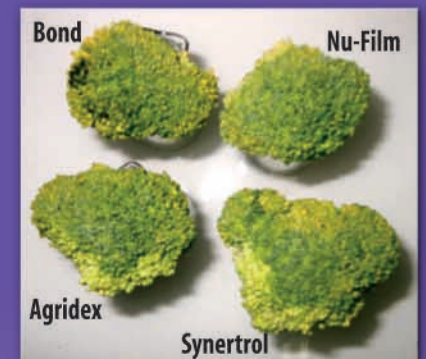
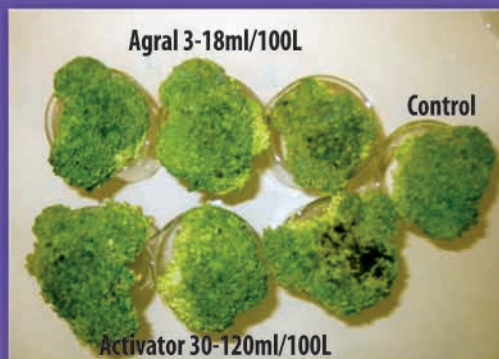
Agral 3-18ml/100L

Bond

Nu-Film

Agridex

Synertrol



High rates of some wetters can predispose florets to bacterial rot

### Research outcomes

- The virulence of the bacterial strains is closely linked to the production of pectin degrading enzymes and biosurfactant (surface wetting) activities.
- Pseudomonas marginalis* is the most pathogenic bacteria with both high surfactant activity and pectin degrading enzymes. This bacteria does not require damaged florets for entry.
- Other bacteria, without these properties, require damaged and continuous wetting of florets to cause rot.
- High rates of the wetting agents Agral & Activator can predispose broccoli heads to rot by non-pathogenic bacteria.

### Acknowledgments

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