Alternative carriers for Folicur – at sowing applications

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Project VN05010

Background

- In 1990s, Folicur-lime super was found to be the most effective treatment for white rot control. This resulted its registered use in Tasmania.
- Growers in Tasmania rely solely on Folicur-lime super, applied at sowing for white rot control. Lime super production stop in 2007, other alternative carriers must be considered.
- Increased white rot incidence observed in recent years, raising concerns on the efficacy of Folicur.

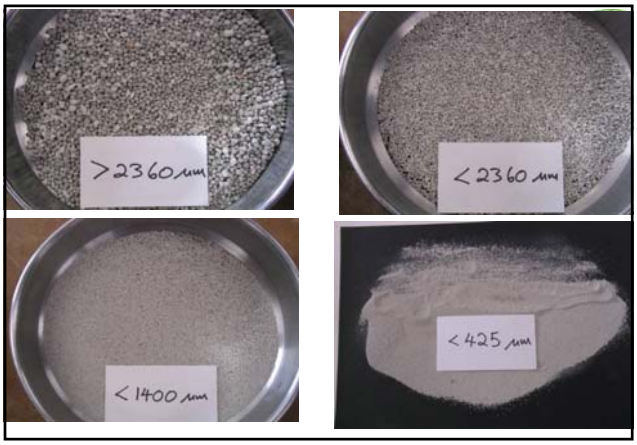
Objectives

- Investigate efficacy and persistence of Folicur
- Determine levels of actives in Folicur-lime super
- Development of alternative carriers

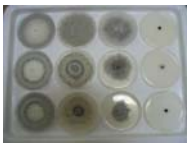
Methodology

Laboratory studies (2006-2007)

- Folicur – sensitivity of pathogen
- Folicur – persistence/degradation in soil
- Folicur distribution on lime super/fertiliser mix
- Application method vs product levels in granules
- Alternative fungicide carriers



Laboratory Studies 2006-2007



Folicur (tebuconazole)

- No fungicide resistance
- No enhanced fungicide breakdown

Folicur in lime super

- Lime super – abrasive, low absorption capacity
- Fungicide in fine dust particles, not ideal for even mixing with fertilisers
- Only ~ 50% fungicide applied recovered from treated fertilisers
- Poor & uneven fungicide distribution in treated fertilisers

Other factors contributing to poor disease control

- Higher disease pressure – more paddocks infected by white rot
- Change to warmer soil temperature ??

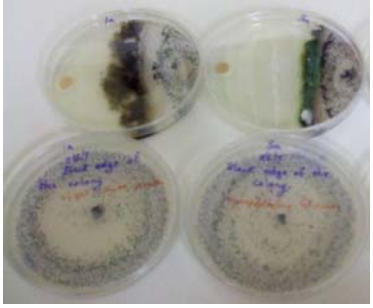
Alternative carriers

Field studies (2007-2008)

- Alternative carriers & alternative fungicides - toxicities
- Field evaluations of in-furrow granule applications (3 trials)
  - Single super vs lime super (by fertiliser depot)
  - Bentonite clay (Eureka)
  - Slow release granules (Crop Care)
  - Precision Gandy Applicator for low application rates

Fungistatic vs fungitoxic

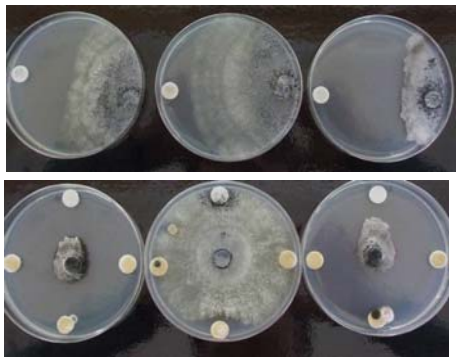
Bayfidan Folicur



Both fungicides are fungistatic, preventing pathogen growth but doesn't kill it.

Fungus able to grow again normally when removed from fungicide plates.

Fungicide placement for maximum pathogen control

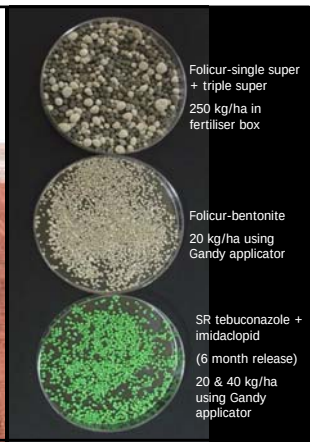


Particle size and number will affects fungicide placement and distribution in soil.

Bayfidan **Filan** **Folicur**

Carriers - optimum partical size & application rate

Optimum carrier size is 1-2 mm

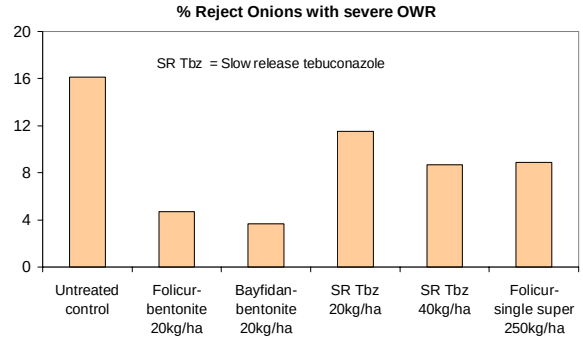


Kindred Trial – 2007/08

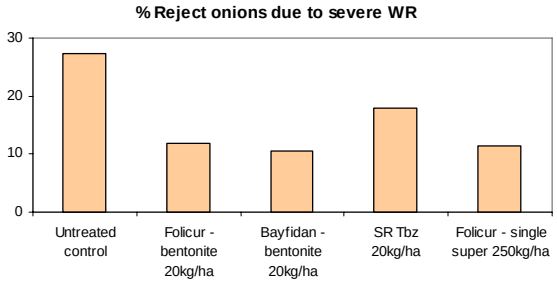
Forthside Trial – 2007/08

Forth Trial – 2007/08

Field Trial, Kindred 2007/08 - within commercial crop



Field Trial, Forthside Research Station 2007/08



Bayfidan-bentonite – reduce plant density & delay growth

Phytotoxicity test

(treated bentonite placed below filter paper)

Water control

Bayfidan-bentonite
– moderate solubility, phytotoxic at sowing

Folicur-bentonite
– low solubility, not phytotoxic

Outcomes - Summary

Efficacy of Folicur

- No fungicide resistant isolates
- No enhanced degradation in soils

Fungicide options

- Bayfidan – effective at 1.5 L/ha but phytotoxic at sowing
- Folicur – effective at 1.0 L/ha & not phytotoxic at sowing
- SR tebuconazole – need fine tuning with slow release formulation

Recommendations

- Folicur-single super – effective in preventing/reducing white rot ~ $270/ha
- Folicur-bentonite – estimated cost ~ $150/ha when applied at 20 kg/ha
  - must apply with Gandy applicator

Acknowledgments

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