protection against tuber blight – modes of action

Roel Wanningen, Bayer CropScience
introduction

- Infinito presented at previous Workshops
  - translaminar activity
  - spore viability
  - sporicidal activity
- rated for leaf and tuber blight protection
- and established in the European market as a key product against late blight
this summary

- expression of the multiple action of Infinito in field performance –
  
a product categorized as ‘translaminar+systemic’ providing tuber blight protection:
  
how does it work?
tuber protection

- spore inactivation
- sporulation reduction
spore inactivation
**sporicide activity**

- cover sprays from emergence
- 3 weekly experimental treatments from mid-late flowering
- no leaf blight epidemic in the canopy
- broadcast inoculation with spore overload 2 days after EXP3
- canopy desiccation 1 day later
- harvest approx 3 weeks after desiccation


Field study on impact of spray deposits on tuber blight – comparison of products applied 3x at weekly intervals
sporicide activity and tuber blight control

Field study on sporicidal activity of spray deposits on tuber blight– comparison of products applied 3x at weekly intervals


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<th>incidence (%)</th>
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spore production
- 4 experimental treatments from late flowering
- broadcast inoculation between EXP1 and EXP2
- leaf blight epidemic in the canopy
- collection of leaflets with a single lesion 1-3 days after EXP2, 3 and 4
- harvest approx 2 weeks after desiccation
leaf blight epidemic and tuber blight

PPO – The Netherlands 2009
Field study on sporulation parameters – comparison of products applied 4x at weekly intervals
sporulation reduction

contact fungicides

Infinito
lesion size reduction

contact fungicides

Infinito
sporulation parameters (mean of 3 assays)

- lesion size
- spores per cm² lesion
- spore production per lesion

UTC = 100

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Field study on sporulation parameters – comparison of products applied 4x at weekly intervals

PPO – The Netherlands 2009
Field study on sporulation parameters – comparison of products applied 4x at weekly intervals
evolution in time

lesion size

UTC = 100

2 applications

UTC
Infinito
Shirlan
Ranman
Dithane

1.6
0.4
0.2
2.0

3 applications

UTC
Infinito
Shirlan
Ranman
Dithane

1.6
0.4
0.2
2.0

4 applications

UTC
Infinito
Shirlan
Ranman
Dithane

1.6
0.4
0.2
2.0

PPO – The Netherlands 2009
Field study on sporulation parameters – comparison of products applied 4x at weekly intervals
leaf and tuber blight

Field study on sporulation parameters – comparison of products applied 4x at weekly intervals
tuber protection
tuber protection

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BCS – The Netherlands 2006-2011
Product comparison in a program of sequential sprays at weekly intervals
conclusions

- Data presented in this summary confirm the existence of
  - direct sporicide activity of Infinito present at the canopy surface
  - anti-sporulant activity via reduction of lesion growth and spore production

- resulting in solid protection against tuber blight

  ..both in specific field trial set-ups and in BCS trials with spray sequences
acknowledgements

- HLB
- PPO-AGV
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- Proeftuin Zwaagdijk
- country team BCS The Netherlands