New experiences on the control of late blight 2008

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Recent experiences

- A2 established in all important European potato areas:
  - More aggressive Phytophthora infestans
  - Earlier first infections
  - “Blue 13”
- Increased levels of metalaxyl resistance
- Rainy conditions during potato season 2007 & 2008
- Alternaria moving North (climate change)
Genotyping findings UK 2003 – 2007
Dominance change A1/A2: Blue 13: metalaxyl resistant A2

Source:
David Cooke (2008)
Activity on indirect germination

- Sporangia
- Zoospore release
- Zoospore mobility
- Encystment
- Cyst germination
- Germ tube growth
- Mycelial growth & Sporulation
**Consento in the Active Growing Phase**

- Fundament for Early Blight control
  - Early Blight inoculum develops early season
  - Best overall control starts with early season control
  - Consento is a Late + Early Blight fungicide
    - Early positioning is basis for successful Early Blight control
    - Cost effective prevention (built-in Early Blight control)
      - No need for a specific Early Blight fungicide in tank mix
      - Avoids expensive late season corrections
Fenamidone efficacy on A1 and A2 mating type

Fenamidone: EC 50 value for A1 and A2 mating type

<table>
<thead>
<tr>
<th>Type</th>
<th>EC 50 (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 1</td>
<td>5.8 – 12</td>
</tr>
<tr>
<td>A 2</td>
<td>3.4 – 9.4</td>
</tr>
<tr>
<td>A 2 Blue 13</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Conclusion:
- There is no difference in EC 50 values for A1 and A2
- Fenamidone is effective on both A1- A2 mating type of P. infestans
- Fenamidone is effective on A2 strain blue 13

Source: BCS Fungicide Research Lyon, France.
Fenamidone efficacy on metalaxyl resistant isolates

Fenamidone: IC 90 value for metalaxyl sensitive and resistant strains

<table>
<thead>
<tr>
<th>Strain P. infestans</th>
<th>characteristic</th>
<th>Fenamidone</th>
<th>Metalaxyl</th>
</tr>
</thead>
<tbody>
<tr>
<td>F 19</td>
<td>metalaxyl resistant</td>
<td>IC₉₀ 20 ppm</td>
<td>IC₉₀ 100 ppm</td>
</tr>
<tr>
<td>F 495</td>
<td>metalaxyl sensitive</td>
<td>IC₉₀ 15/20 ppm</td>
<td>IC₉₀ 1 ppm</td>
</tr>
</tbody>
</table>

- No cross resistance between fenamidone and metalaxyl
- Fenamidone is effective on metalaxyl resistant P. infestans
Tattoo C and Consento are equivalent in performance at 2.0 l/ha.

Source: 33 trials BCS Europe
Consento efficacy level compared to common standards for Late Blight control

Source: mean of 4 trials BCS France and Germany 2008
Consento Rainfastness field performance

Good control under rainy conditions (daily rain-mid July 2007)

Source: BCS trial Langförden, Germany, 2007 - Foliar sprays applied weekly until 06-08-2007
Consento protection of new growth

Redistribution of fenamidone to new leaves

Bud treated with radio-labelled fenamidone  Redistribution of fenamidone into developing leaf
Consento efficacy on new developed leaves

- Consento provides good level of late blight control on new developed leaves
Consento early positioning basis for effective Alternaria control

Source: Mean of 2 trials BCS Germany 2006
Tyfon – (Consento)

Use & Experience in the Nordic Countries

Oluf Juhl

Potato Crop Manager Nordics
Overall Strategy

- To use Tyfon during the periods where its systemic / translaminar properties can make a difference
- To utilize the systemicity of Tyfon to protect new growth in the rapid growth phase
- To utilize the translaminar properties of Tyfon to protect the undersides of leaves
- To utilize the efficacy against *Alternaria*
Very High Disease Pressure

AGRSCI - Flakkebjerg

Disease Pressure

Source Trialserie 07562
(DJF Flakkebjerg)
Variety: Oleva
12 treatments:
11 June – 5 September
(1x per week)

Untreated
0.4 ltr Shirlan
2 x 2 x 2.0 ltr Tyfon

= Tyfon appl.

Bayer CropScience
Lower Disease Pressure

North Jutland

Source triasering 07562 (North Jutland)
Variety: Kuras
14 treatments:
18 June – 11 September (1x per week)

Untreated
0.4 ltr Shirlan
2 x 2 x 2.0 Tyfon

Disease Pressure

- Untreated
- 0.4 ltr Shirlan
- 2 x 2 x 2.0 Tyfon

= Tyfon appl.
When did you use Tyfon in your potato field....?

Heavy attack and late delivery in DK 2007

% of answers

- Strongly preventive
  - Preferable
- Curative (at first spot)
  - Acceptable
- Eradicant (on established attack)
  - Wrong timing

When did you use Tyfon in your potato field...

- NO (08)
- FI (08)
- DK (07)
Did you get a satisfactory effect....?

Used Tyfon on established late blight
Summary: Consento in the Active Growing Phase

- Consistent Late Blight control
  - Meets efficacy level of common standards
  - Protects new growth
  - Controls Direct & Indirect germination
  - Evenly effective on A1 & A2 mating type
  - Rainfast

- Fundament for Early Blight control

- Sustainability
  - The perfect partner for resistance management
Effective protection meets quality requirements.