Resistance of Sárpo clones to the new strain of *P. infestans*, Blue 13.

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Over the last few years, Sárpo clones have shown very high resistance to blight populations in UK and Europe.

Blight populations have now changed significantly.

How has resistance of Sárpo clones fared relative to other resistant clones?
PHENYLAMIDE resistance will be the main blight control challenge this season and to tackle it effectively programmes need to be constructed in two distinct phases.

Last year the frequency of A2 mating types increased dramatically and the highly aggressive 'Blue 13' strain dominated the population from the start of the season throughout the country. And in recent fungicide sensitivity tests all 'Blue 13' samples showed resistance to phenylamides, including metalaxyl-M.

According to Bayer CropScience blight expert Eileen Bardsley there is every reason to believe that 'Blue 13' will predominate from day one of this season too.

“During rapid canopy growth only systemic fungicides can give new growth the protection it needs. And the only true systemics, unaffected by phenylamide resistance, are the propamocarb-based co-formulations Consento, Merlin and Tattoo. Products with strong tuber blight activity need to be kept back until the canopy is stabilised.”

Dr Mark Palmer, Agrovista technical manager supports this two-phase approach and says it proved its worth under last year’s very high blight pressure. “Where growers used two or three Consento treatments up to canopy complete, then switched to alternating between Infinito (fluopicolide+propamocarb) and Ranman (cyazofamid) defences held up well, both in the field and subsequently in storage.

“Propamocarb is a proven systemic with the mobility to protect rapid growth and the fenamidone component builds in early tuber protection. With an alternative like this available you have to ask: ‘Why run the risk of using a phenylamide when 80 per cent of the blight you’re trying control is likely to be resistant to it?’” said Dr Palmer.
The need for resistance

• CONVENTIONAL GROWING
  Phenylamide resistance of Blue 13
  Need to reduce inputs – public concern over chemical residues in food
  Cost of fungicide and its application

• ORGANIC
  Withdrawal of copper based fungicides
  Resistant varieties central to blight control in organic systems
Cultivars/Genotypes Assessed

- MAINCROP
  Sárpo Mira and Axona (Nationally Listed)
  Sárpo Will (submitted 2007)
  Robijn and Bintje (EUCABLIGHT standards)
  LadyBalfour (NIAB blight resistance score of 7 – widely grown organically in UK).
Cultivars/Genotypes Assessed

- **EARLY**
  - Sárpo Una (submitted for NL 2006)
  - Sárpo Val (being considered for NL submission 2009)
  - Escort and Eerstelling (EUCABLIGHT standards)
  - Orla (“the most blight resistant early available” – NIAB score of 8)
Methods of Assessment

• 2005 & 2006
  Field trials only
  Natural infection with spreader rows

• 2007 & 2008
  Field trials inoculated with Blue 13. Use of infector plants.
  Whole plant testing – inoculated plants in greenhouse
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Field Trials - Methods

• Infector plants of cv Bintje (highly susceptible)
• Sprayed with suspension of Blue 13 zoospores/sporangia
• Leaf samples taken mid and late epidemic for genotyping to determine whether Blue 13 still present in trial
### rAUDPC - maincrop

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Whole Plant Inoculation

• Plants grown as single stems from stem cuttings
• Inoculated c6 weeks from planting
• Greenhouse misting used to maintain leaf wetness
• Plants scored using Malcolmson’s 1-9 scale (Cruickshank et al, 1982)
Summary and Conclusions

- Field trials in Wales with Blue 13 show more blight in all clones.
- Wet weather coincided with Blue 13 infection.
- Ranking of resistance of all clones remained virtually the same 2005 – 2008.
- Best Sárpo clones still show useful resistance.
- Other trials in UK – similar results.
Summary and Conclusions (2)

- Whole plant inoculation confirms Blue 13 more aggressive than Pink 6 A1 strain
- Message to grower: varieties with intermediate resistance fail in presence of Blue 13 and wet weather
- Further work needed to assess aggressiveness of Blue 13 to new Sárpo clones
Cv Robinta
Sárpo clones in background
Acknowledgements

• Staff of Henfaes Research Centre
• Mr. Roger Tebbutt for hosting trials in Wales
• EUCABLIGHT partners
• SCRI