EFFECT OF THE INTERACTION OF VARIETY RESISTANCE AND FUNGICIDE DOSES IN POTATO LATE BLIGHT CONTROL

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Potato crop and late blight in Chile
Integrated Pest Management Vision

Farmer
Genotype frequency of *P. infestans* population in southern Chile using SSR analysis. Seasons 2003/04 to 2011/12

A1, resistant to Metalaxil
Relative Susceptibility to late blight in different commercial potato cultivars in Chile

ANOVA: CV 13.62, p=0.0001, LSD (p=0.05) 10.05.
DSS Chile: www.tizon.inia.cl
Weather station network
Main Objective

To develop an Integrated Pest Management strategy to control late blight in the potato crop in southern Chile
Methodology

• Four Experiment:
  – Irrigation and schedule application of fungicide
  – Irrigation and DSS application of fungicide
  – Dryland and schedule application of fungicide
  – Dryland and DSS applications of fungicide

• Split splot design and 3 repetitions

• Treatment:
  – Fungicide Rate: 0, 50, 75, 100 % of the commercial dose.
    - Clorotalonil 720 (Bravo 1.5 l/ha).
    - Propamocarb + Fluopicolide 687.5 (Infinito 2 L/ha).
  – Three cultivars: Symfonia (R), Patagonia (MR), Yagana (S).
Results
Late blight DSS: Irrigated and dryland field
Effect of application, fungicide rate, cultivar
Irrigation and Schedule application

ANOVA: p doses<0.0001, p cultivar< 0.0001, p doses*cultivar< 0.0001
Dryland and Schedule application

ANOVA: p doses ≤ 0.0001, p cultivar ≤ 0.0001, p doses*cultivar ≤ 0.0001
Irrigation and DSS application

ANOVA: p doses ≤ 0.0001, p cultivar ≤ 0.0003, p doses*cultivar ≤ 0.5394
**Dryland and DSS application**

ANOVA: p doses < 0.0001, p cultivar < 0.0001, p doses*cultivar < 0.0001
Conclusions

• A late blight IPM strategy considers many factors: pathogen, cultivar resistance and environmental conditions

• However, farmers want to know what product to use.

• Then, the information of WHAT, WHEN and HOW MUCH to spray, need to be estimated.

• It was possible to determine significant differences for management, cultivar susceptibility and fungicide rate.

• The interaction rate of fungicide and cultivar susceptibility showed significant differences under most of the conditions evaluated.

• It is possible to reduce the fungicide rate with a more resistant cultivar.
Thank you

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