

# Managing Late Blight in Irish Potatoes

## Current Management Approaches and Potential New Strategies

Presenter: Mike Bernard, Plant Protection Advisor to RADA - WUSC Caribbean Volunteer



PROMOTION OF REGIONAL OPPORTUNITIES FOR PRODUCE  
THROUGH ENTERPRISES AND LINKAGES (PROPEL)

Funded by the  
Government  
of Canada

Canada

# Goals of Late Blight Management

- ▶ The ultimate goal of late blight management in Irish potatoes is to put more money in farmers' pockets
  - ▶ We can do this by reducing the per acre yield loss of marketable potatoes (more marketable potatoes per acre)
  - ▶ Increasing plant yield by protecting active leaf surface from disease
  - ▶ We can also do this by optimizing the frequency of spraying (less input costs) through correct timing of applications, correct dose rate of fungicides and sprayer calibration (dose/volume rate)
  - ▶ Use of tolerant varieties (other than Spunta)
  - ▶ The challenge is to marry these seemingly opposite aims.

# Maximizing Crop Yield

- ▶ Farmers already do things to maximize yield
  - ▶ Soil testing can help determine most efficient use of fertilizer dollars
  - ▶ Planting to avoid blight-favourable periods is effective
  - ▶ Crop rotation can reduce the incidence of late blight and other problems
  - ▶ Field sanitation and drainage
  - ▶ Use of certified seeds (Elite/Super Elite)
  - ▶ Certified seed, while expensive, can yield more than saved seed

# Tactics For Reducing Crop Loss

- ▶ Experience has shown that prevention is the best approach; once late blight becomes established, it is very difficult, and expensive, to control
- ▶ The traditional approach is to “calendar spray”; once-a-week sprays, usually beginning soon after emergence
- ▶ While this is the best practice at the present, it does have potential downsides
  - ▶ If disease pressure is light, sprays may be unnecessary
  - ▶ Overuse of pesticides can increase development of resistance in the pest

# Current Best Practices

- ▶ Prevention of disease and/or outbreak is always the best practice
- ▶ For late blight in Irish potatoes, the keys are frequent scouting and early detection. If you see early lesions, you must act.



# Prevention and Control

- ▶ Spray field weekly with protectant fungicides
- ▶ Scout field every 2-3 days
- ▶ Look for early infections and consider application of systemic fungicide (Ridomil, Conseto or Diligent) to arrest disease. Then continue with contacts

# Prevention and Control

## Continued

- ▶ It is important to rotate chemicals, using different chemistries, not just different brands (for example, alternate chlorothalonil with mancozeb)
- ▶ Continue to scout the fields even if you are spraying regularly. If there are no signs of infections for an extended period and the conditions don't favour blight, consider reducing spray cycle to 7 days.

# How Can We Reduce Unnecessary Spraying

- ▶ When disease pressure is low, spray at 7 days interval
- ▶ The trick is to know when disease pressure is light:
- ▶ Late blight models, using weather conditions, have been used for many years in Europe and North America
  - ▶ These models need to be tested to make sure they work for Jamaican growing conditions
- ▶ Monitoring spore numbers is a developing technique
  - ▶ Again, usefulness under Jamaican conditions needs to be confirmed

# Reducing The Development of Resistance

- ▶ Rotation of chemistries
  - ▶ Contact fungicides include copper compounds, dithiocarbamates, chlorothalonil, and biologicals
  - ▶ Systemic fungicides- review the list and identify suitable chemistries

# Other Strategies to Reduce Spray Costs

- ▶ Varieties currently popular in Jamaica are all susceptible to late blight
- ▶ More resistant varieties are available but need local testing
- ▶ If possible, planting rows parallel to prevailing winds can reduce the time leaves are wet, which reduces late blight spore germination
- ▶ Susceptible varieties interplanted with resistant varieties can reduce blight incidence on both varieties

# How Do We Get There

- ▶ Farmers can make low or zero cost changes to how they grow potatoes
  - ▶ If possible orient potato rows parallel to prevalent wind direction
  - ▶ Scout fields frequently, for timely application of fungicides
- ▶ Industry has funded research in the past. This needs to be encouraged
  - ▶ Although research has up-front costs, benefits flow to the whole supply chain
  - ▶ Farmers should recognize these industry leaders

# Things Farmers Need Support For

- ▶ Real-time localized weather reports are necessary for blight forecasting
  - ▶ Requires a network of interconnected weather stations reporting conditions every hour
- ▶ Technology compatible with inexpensive cell phones needs to be implemented to push notifications
  - ▶ Partnerships with cell service providers could be forged to deliver alerts to farmers the most economical way
- ▶ Once these systems are in place, they need to interact seamlessly with the model
  - ▶ In a perfect world, weather information is automatically fed into the model which then alerts farmers of blight risk
  - ▶ If properly designed, no human effort is needed

# What the Future Looks Like

- ▶ A validated late blight model, coupled with real-time weather data, will inform farmers when spraying is recommended
  - ▶ In the US, farmers get messages on their phone when blight risk is high
  - ▶ This can reduce spray frequency by up to 35%
- ▶ Farmers plant resistant varieties or mix resistant and susceptible varieties
- ▶ At the end of the day the farmer has more money in his pocket, industry thrives, and Jamaica thrives