BAYER

BULLETIN

Late blight *on potatoes*

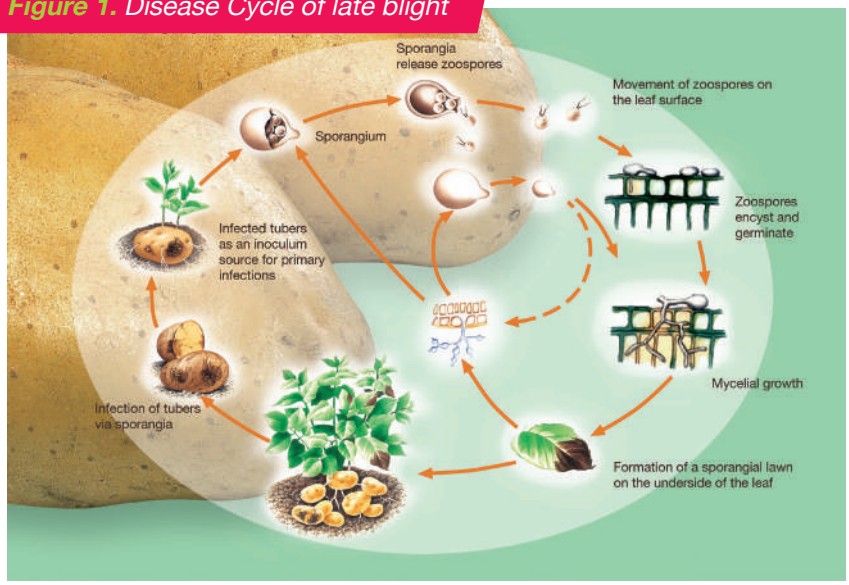
Late blight Population Dynamics

Late blight caused by the specialised, fungal pathogen Phytophthora infestans is the greatest threat to potato crops. All disease begins with this primary inoculum, but it is multiple cycles of stem and leaf infection that drive disease within the growing crop. Given the right conditions initial infection develops into an epidemic that can rapidly destroy crops.

The Life Cycle

The late blight pathogen can reproduce sexually and asexually. Fortunately, in South Africa only the asexual stage has been identified as the sexual stage is known to develop resistance rapidly.

Figure 1. *Disease Cycle of late blight*



Typical late blight symptoms




Ideal late blight Disease Conditions

// Day temperatures between 15 and 24 ˚C
// Night temperatures no less than 10 ˚C
// Free moisture must be present on the plant
// Relative humidity of 90 % and above
// Require high humidity or free water for pathogen spores to infect

Resistance Management (www.frac.com)

Late blight has been proven to develop resistance to continuous use of the same fungicidal modes of action. This has been reported in South Africa and it is advisable to consider the following to delay resistance:

// Monitoring of disease incidence, forecasting or warning systems.
// Where the risk of resistance has been identified, strategies which include the use of multiple fungicides with different modes of action are required.
// Alternate a systemic product such as **INFINITO®** with a contact mode of action such as **ANTRACOL®** as explained in **Fig. 2.**
// Fungicide usage and disease pressure should be professionally reviewed to monitor the success of plant protection measures.
// Refer to the product label to ensure that products from different modes of action are alternated. More information is available on https://www.frac.info/.

Characteristics of Late Blight Fungicides

Fungicides play a key role in the integrated control of late blight.
The threshold for late blight is zero to avoid infection.

Fungicide types:

// **Protectant or Contact fungicides –** Spores are killed before or upon germination or penetration. The fungicide must be present on or in the leaf or stem surface before spore germination or penetration occurs.
// **Curative –** The fungicide is active against the pathogen during the immediate post infection period but before symptoms become visible i.e. during the latent period.
// **Anti Sporulant –** Lesions are affected by the fungicide decreasing sporangiophore formation and/or decreasing the viability of the sporangia formed.

*Late blight control strategies are primarily preventive by spraying contact fungicides such as **ANTRACOL®**. When weather conditions are conducive to late blight, a curative and anti-sporulant such as **INFINITO®** can be applied to ensure the crop is fully protected by the previous spray. Keep in mind that symptoms take 2 - 3 days to express and curative products should be applied before symptoms are observed.*

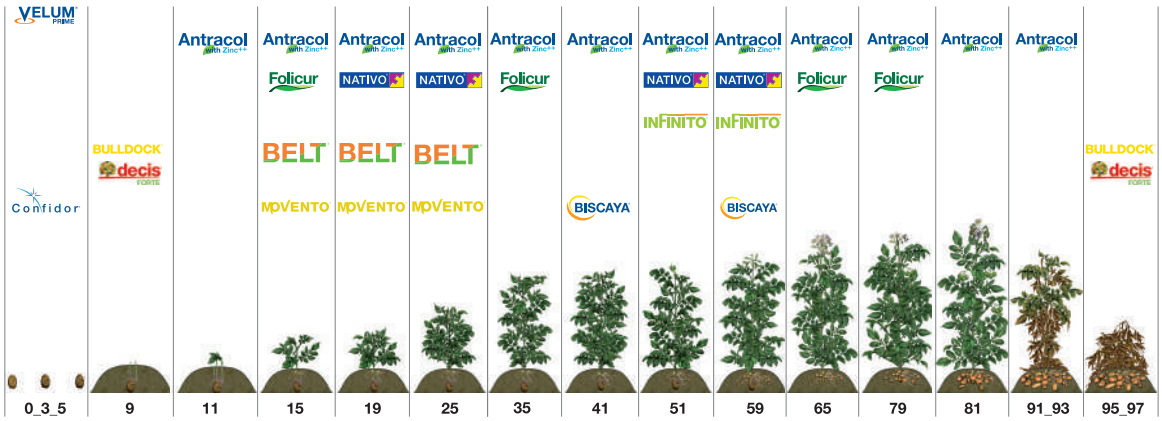
Contact Control with Antracol®:

*// **ANTRACOL®** is a multisite preventative fungicide with the active ingredient Propineb.*
// When applied to plants the active ingredient is distributed and adheres particularly well on to the plant surfaces, but it does not penetrate inside the plant tissues.
// Only treated plant parts are protected.
// The micro-nutrient zinc in Propineb is present in a complex form which is easily taken up by plants. Zinc plays an important role in biochemical pathways of a plant.
*// **ANTRACOL®** as a WP formulation dissolve well in water - Wear on nozzles is dramatically lower than other multisite fungicides.*

Systemic control with Infinito®:

// It is a co-formulation of Fluopicolide and Propamocarb; active substances which work hand in hand to protect every part of the potato plant – leaves, stems, tips and tubers.
*// **INFINITO®** attacks the late blight pathogen at every stage of its life cycle as highlighted in **Fig 2.***

Fig 2: Example of a Crop Protection Programme on Potatoes



Bayer (Pty) Ltd. Reg. No. 1968/011192/07
27 Wrench Road, Isando, 1601
PO Box 143, Isando, 1600,
Tel: +27 11 921 5002

www.cropscience.bayer.co.za
www.bayer.co.za

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