



MINI  
FIELD  
BULLETIN

# Focus potato

FUNGAL DISEASES



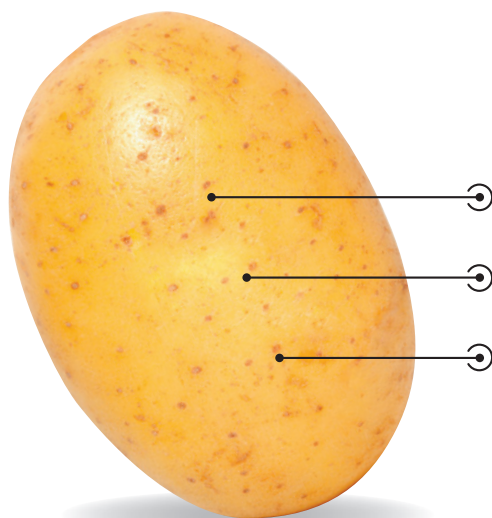
## *Rhizoctonia solani* in potatoes

### Overview

*Rhizoctonia solani* is a tuber- and soil-borne pathogen that causes stem canker and black scurf on potato tubers resulting in quantitative and qualitative losses to potato crops. The implementation of cultural control methods in combination with **Emesto® Silver** plays an important role in managing *Rhizoctonia* inoculum, in return this result in fewer quantities of inoculum, increased yields and higher quality potatoes.

#### **Rhizoctonia promoting factors:**

- Optimal conditions for *Rhizoctonia* infection: dry or heavy and poorly drained, cold soils with temperatures ranging from 13 – 16 °C.
- Tuber-borne inoculum is the main cause for stem canker whereas soil-borne inoculum may result in the development of black scurf.
- Factors slowing plant emergence (e.g., cold weather, deep planting) increase *Rhizoctonia* risk, as potato stems are much less susceptible to attack by *Rhizoctonia* after green tissue develops following emergence.



#### **Emesto® Silver**

Enhanced tuber protection for:



Better Growth



Better Quality



Better Yield

## Rhizoctonia life cycle

Tuber- or soil-borne inoculum germinates at the right environmental conditions (cold wet soils), mycelium colonises on the plant surfaces where nutrients are available. Young, susceptible tissue is penetrated, causing cankers that slow or prevent the plant's ability to function normally. *Sclerotia* form on tubers and in soil, providing inoculum for the following growing season.

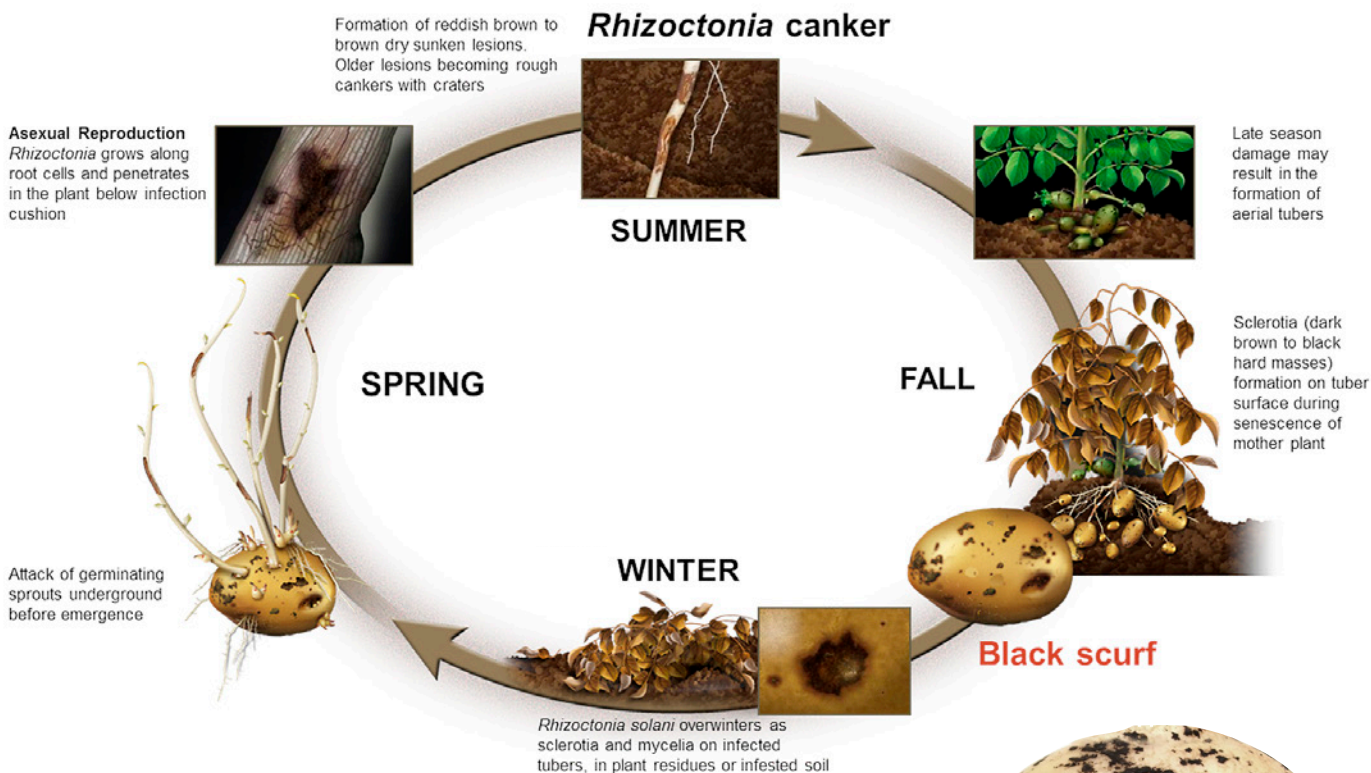


Figure 1

## Symptoms

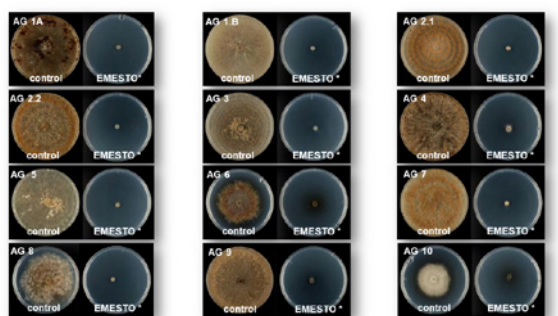
Symptoms can be observed on plant structures above and below the soil, which are known as black scurf (Fig 2a), *Rhizoctonia* infected tubers visible with formation of *sclerotia*, and stem canker (Fig 2b), infection of growing plants visible formation of brown sunken lesions. Tuber-borne inoculum is responsible for stem cankers and occurs early in the season. Whereas soil-borne inoculum causes the more noticeable signs of *Rhizoctonia* disease, black scurf, and develops later in the growing season on tubers. The severe lesions caused by stem canker adversely affect the emergence of sprouts and result in an uneven and poor plant stand. Additionally, stolons of diseased plants may be deformed and unable to transport starch produced by leaves to the developing tubers resulting in unmarketable, small, green tubers known as aerial tubers. Black scurf further reduces the marketability of potatoes severely and the need for effective control methods is high.

## Control

In order to effectively manage *Rhizoctonia* and control stem canker and black scurf on potatoes an integrated management approach is required. Chemical control plays a key role in managing *Rhizoctonia* inoculum. Application of **Emesto® Silver** results in fewer infected tubers ensuring increased yields, and higher quality potatoes. High levels of efficacy against all anastomosis groups of *Rhizoctonia solani* have been proven in lab bioassays. Field trials showed that **Emesto® Silver** increases yield by 5%.



Figure 2





## Emesto<sup>®</sup> Silver

**Emesto<sup>®</sup> Silver** is a multi-active systemic fungicide with two different modes of action, limiting the development of resistance.

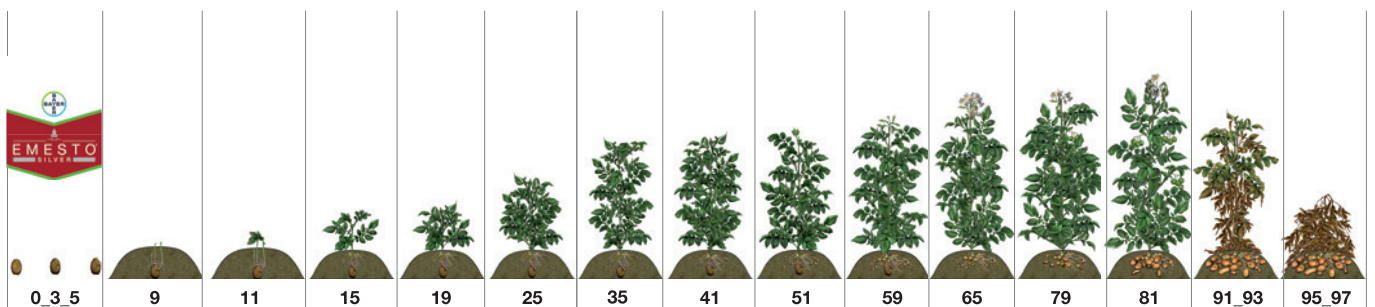
<b>Active Ingredient:</b>	<b>Penflufen</b>	<b>Prothioconazole</b>
<b>Chemical class:</b>	Pyrazole- carboxamides	Triazolinthione
<b>FRAC Group:</b>	7	3
<b>Target enzyme:</b>	Succinate dehydrogenase	C14 demethylase dehydrogenase (CYP 51)
<b>Mode of Action:</b>	SDHI: Succinate dehydrogenase Inhibitor	Sterol biosynthesis in membranes

## Benefits of Emesto<sup>®</sup> Silver

- Enhanced crop establishment
- Production of strong, healthy plants
- Increased yields
- Higher quality potatoes
- More marketable potatoes

## Application

Correct application of **Emesto<sup>®</sup> Silver** is vital to ensure effective control of *Rhizoctonia*. Implementation of effective *Rhizoctonia* disease management strategies begins at the earliest stage of potato production. In-furrow fungicide application at planting resulted in improved control of the *Rhizoctonia*.



**Emesto<sup>®</sup> Silver** Reg. No. L11148 Act No. 36 of 1947. Contains Penflufen and Prothioconazole (Caution).  
**Velum<sup>®</sup> Prime** Reg. No. L9965 Act No. 36 of 1947. Contains Fluopiram (Pyridinylethylbenzamide) (Caution).  
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