



Give your potatoes a head-start.

EMESTO® Silver

A flowable concentrate systemic fungicide for the control of stem canker and black scurf on potatoes. (*Rhizoctonia solani*)

FUNGICIDE GROUP CODES 7 & 3

Active ingredients:

- Penflufen (SDHI)100 g/l
- Prothioconazole (triazole)18 g/l

18.75 ml / 100 linear meter of each individual potato row.

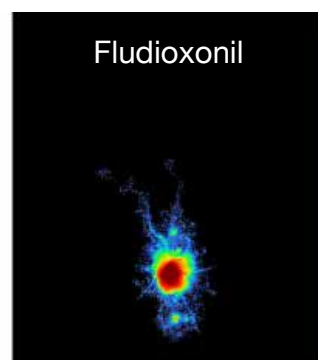
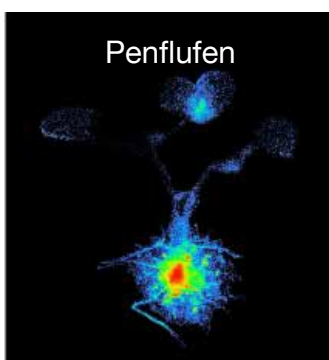


Penflufen *Radiolabelled distribution*

Systemic properties *of penflufen*

Distribution of radiolabelled active after application on microtubers 26 days after sowing.

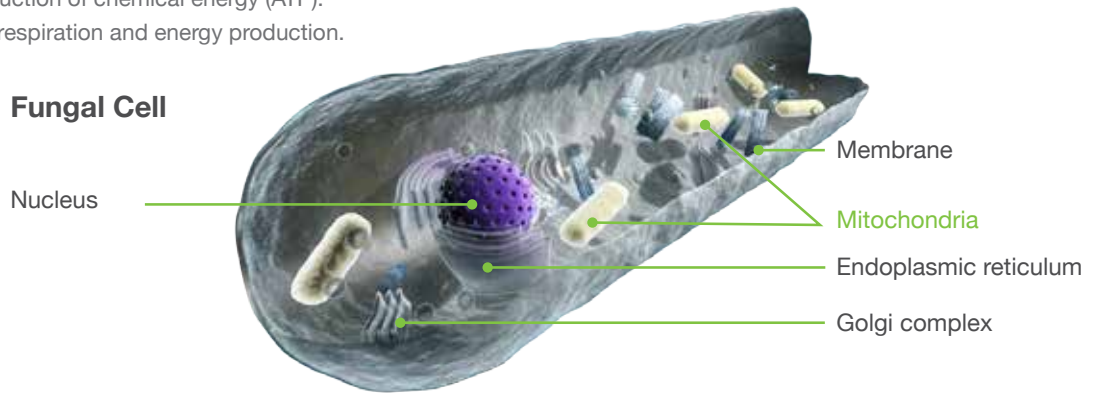
Larger treated zone below the ground protecting young sprouts with Penflufen with minimal translocation to foliar area.



Penflufen *Mode of action*

Biochemical *Mode of action*

In fungi, respiration means production of chemical energy (ATP). Mitochondria are the centre for respiration and energy production.



What is an SDHI ?

SDHI: Succinate DeHydrogenase Inhibitor

The Succinate dehydrogenase is one of the enzymes in the respiratory chain within the mitochondria of the fungus.

EMESTO® SILVER inhibits the Succinate dehydrogenase in the mitochondria and the CYP51, located in the endoplasmic reticulum.

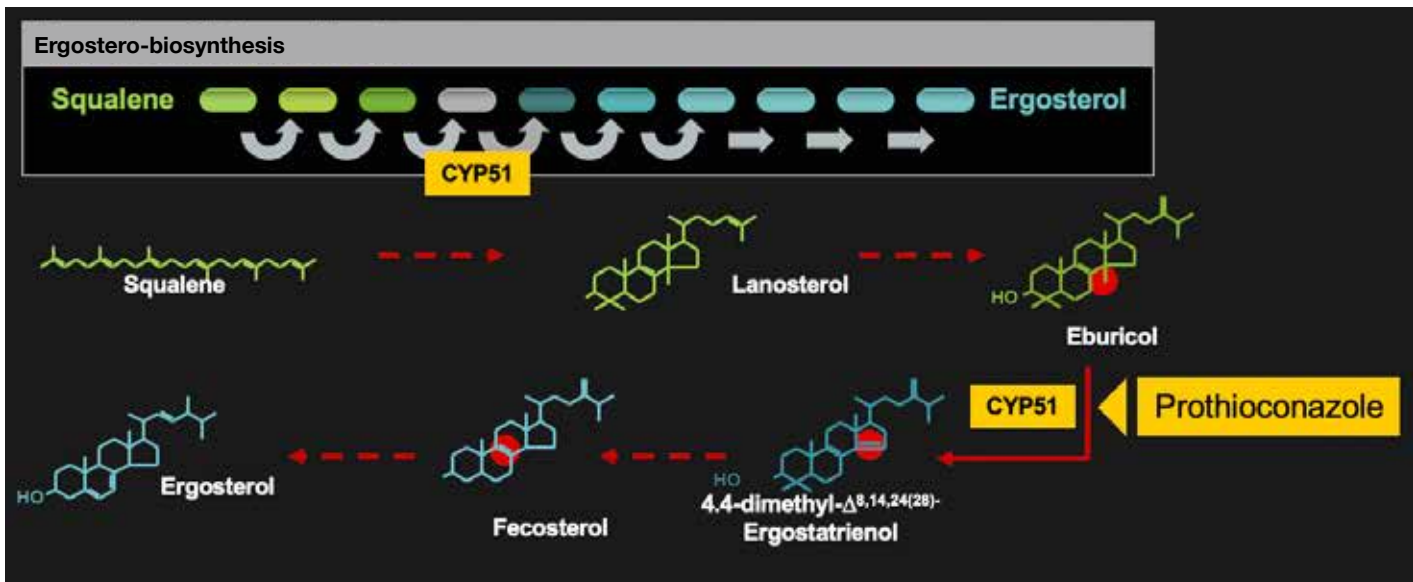
The production of energy is stopped and the formation of the cell membrane is blocked.

The respiratory chain is responsible for the production of chemical energy (ATP) in the fungal cell.

Prothioconazole *Mode of action*

What is a triazole?

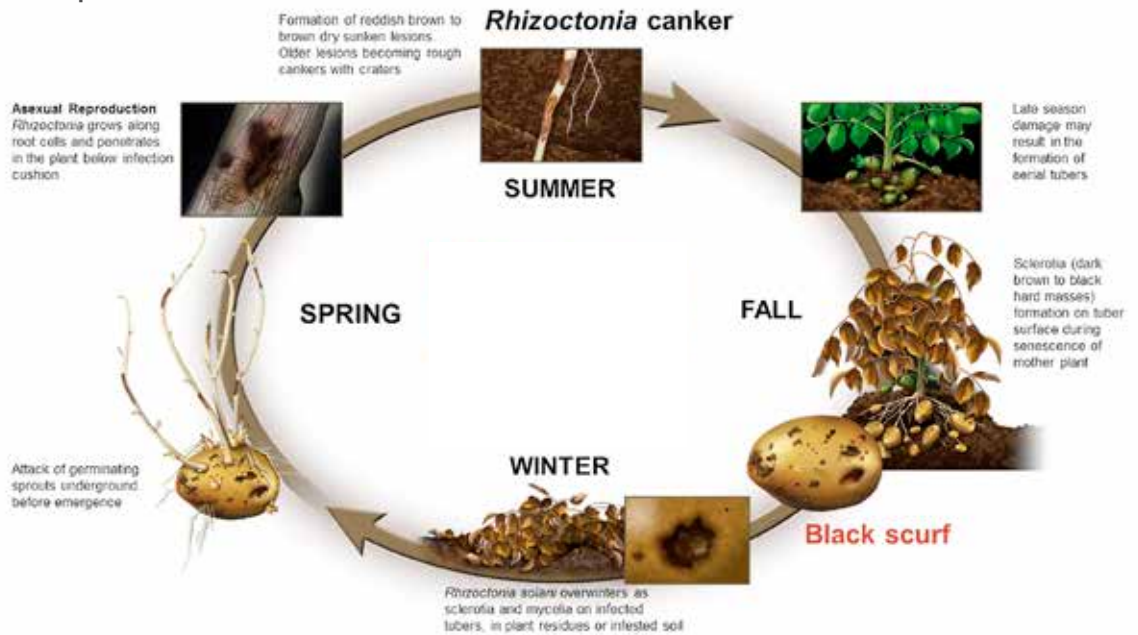
Prothioconazole inhibits the enzyme CYP51, Ergosterol production is stopped. Prothioconazole blocks the formation of cell membranes.



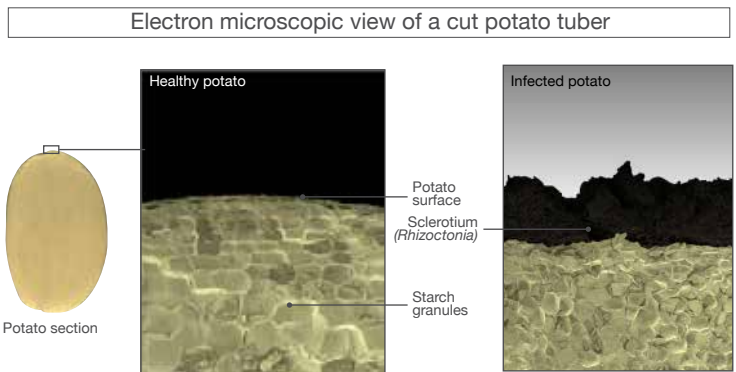
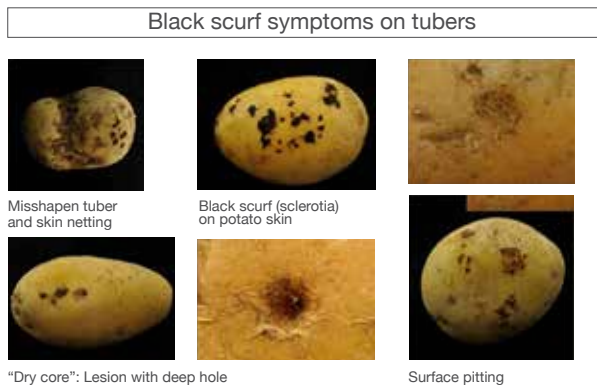
Spectrum of efficacy

Black Scurf - *Rhizoctonia solani*

Disease cycle *Rhizoctonia* in potatoes



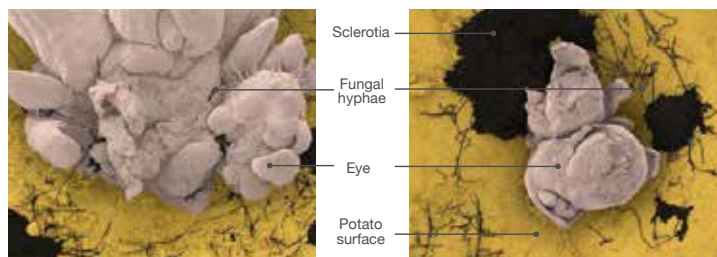
Black scurf symptoms on tubers



Sclerotia of *Rhizoctonia solani* present on tubers are mainly superficial with a single anchor point.

Black scurf *Rhizoctonia solani*

Electron microscopic view of the infected tuber surface



Hyphae of *Rhizoctonia solani* infect buds, grow in sprouts leading to stem, stolon and root canker.

Rhizoctonia canker

Stem, stolon and root canker



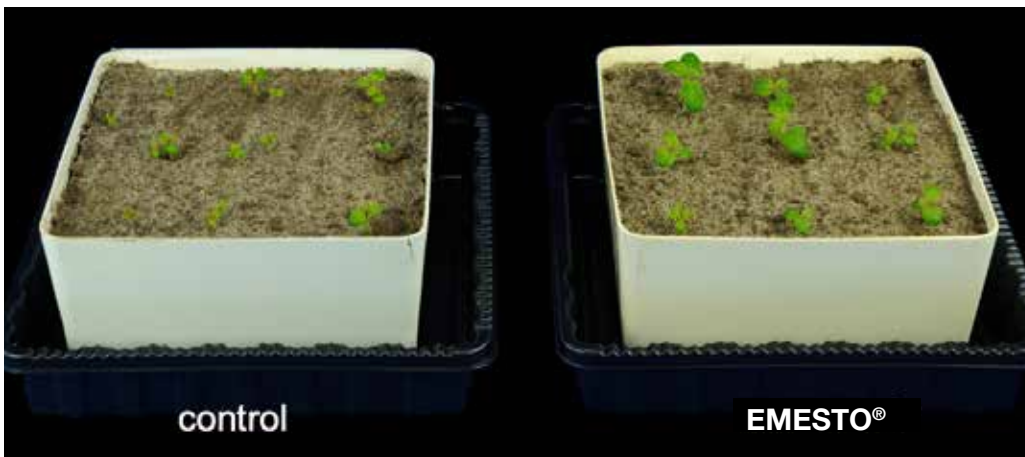
Rhizoctonia solani present on tuber or in the soil infects growing plants generating stem, stolon and/or root canker.

Rhizoctonia *promoting factors*

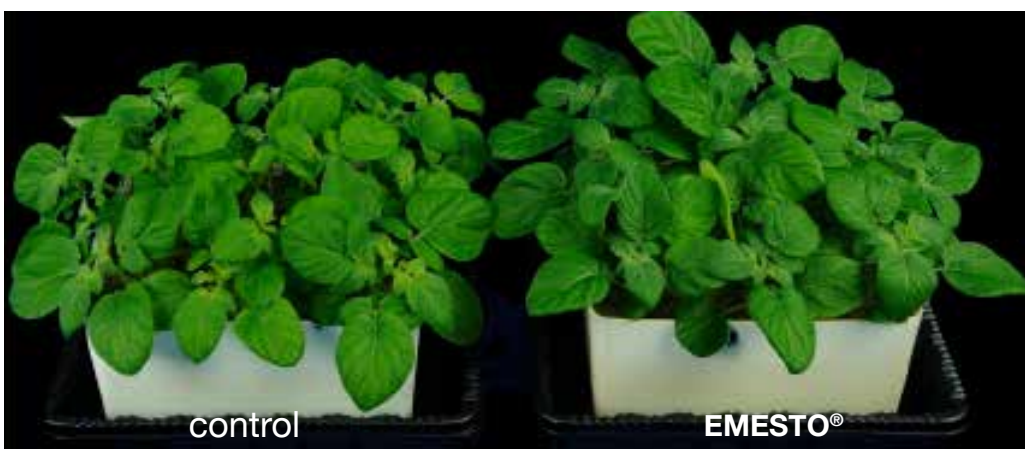
- // Optimal conditions for *Rhizoctonia* infection: dry or heavy poorly drained cold soils with temperatures ranging from 13 - 16 °C.
 - // Tuber-borne inoculum is considered to be key for *Rhizoctonia* canker whereas soil-borne inoculum causes stronger development of black scurf.
 - // All factors slowing emergence (e.g. cold weather, deep planting) increases *Rhizoctonia* risk, as potato stems are much less susceptible to attack by *Rhizoctonia* after green tissue develops following emergence.
 - // Wounding of potatoes (wireworm, insects and plant-parasitic nematodes.)
 - // Frequency of potato crops.
 - // Haulm destruction via chemical destruction or cutting of the shoots; haulm pulling showing less infection.
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Plant Growth *promotion*

Emergence of potato plants* under disease-free conditions



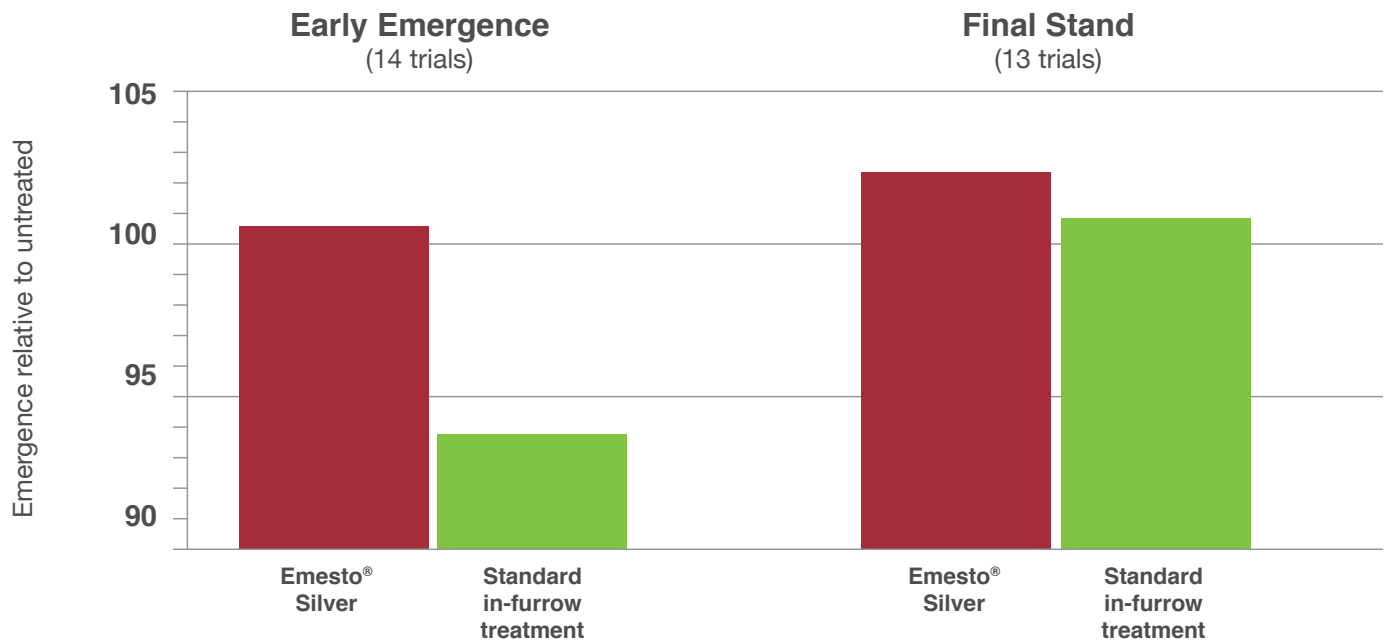
Emergence of potato plants* under disease-free conditions



* Test with microtubers issued from sterile tissue culture

EMESTO® promotes a quick emergence of potato plants minimizing the risk of *Rhizoctonia* attack.

Crop establishment after in-furrow application *Europe*



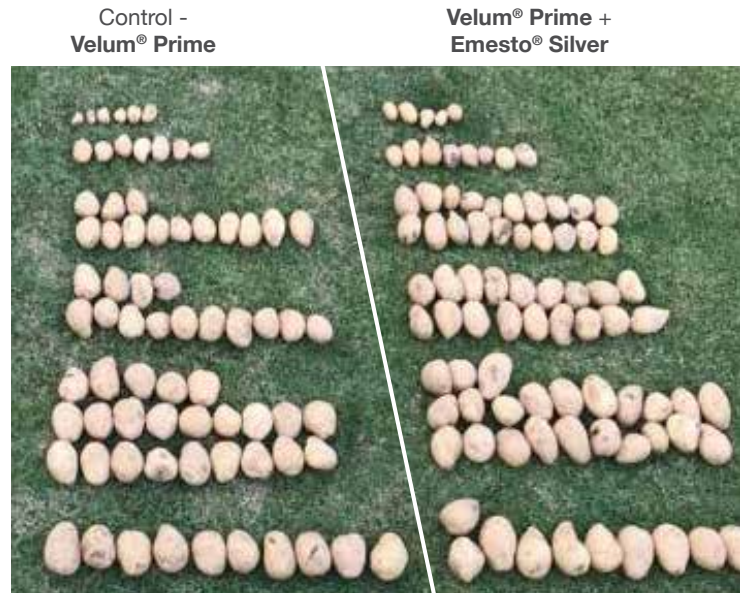
Plant Growth *promotion*

8 January 2020



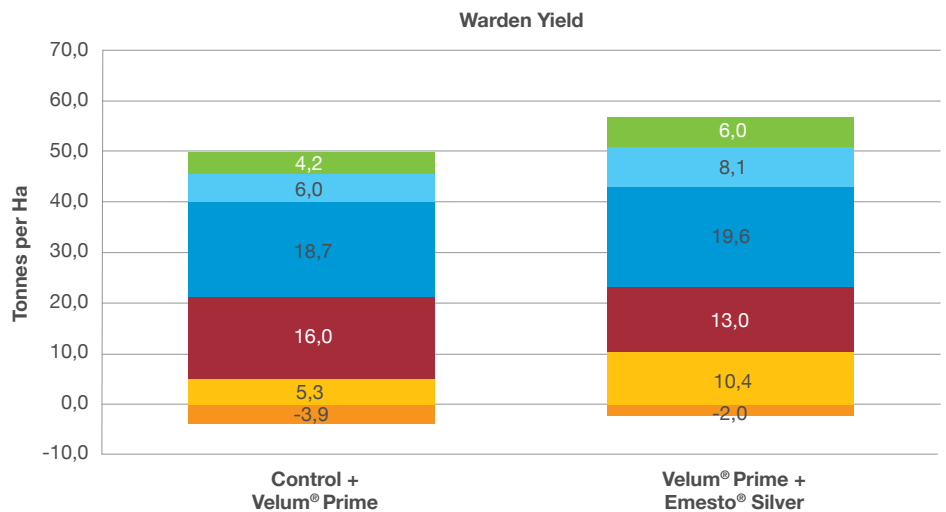
Better Yield

Results Warden



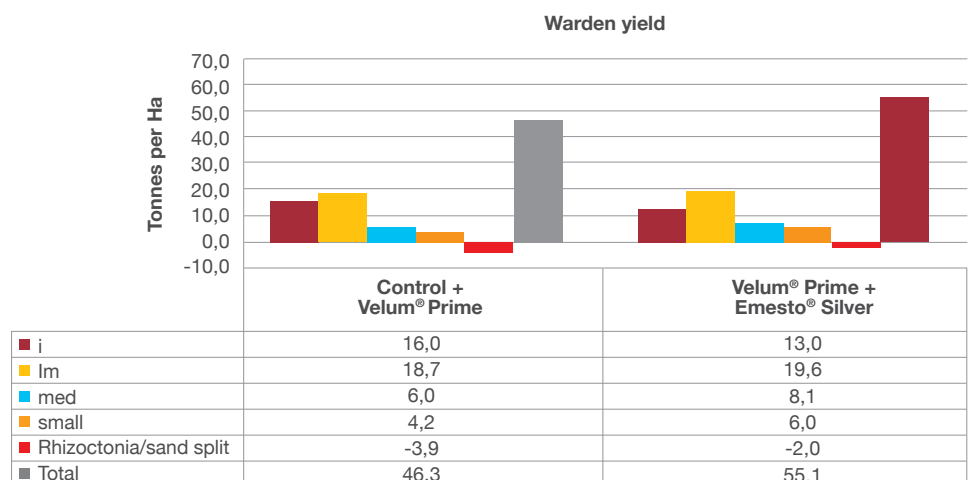
Results Warden

Yield per size grading in ton per ha



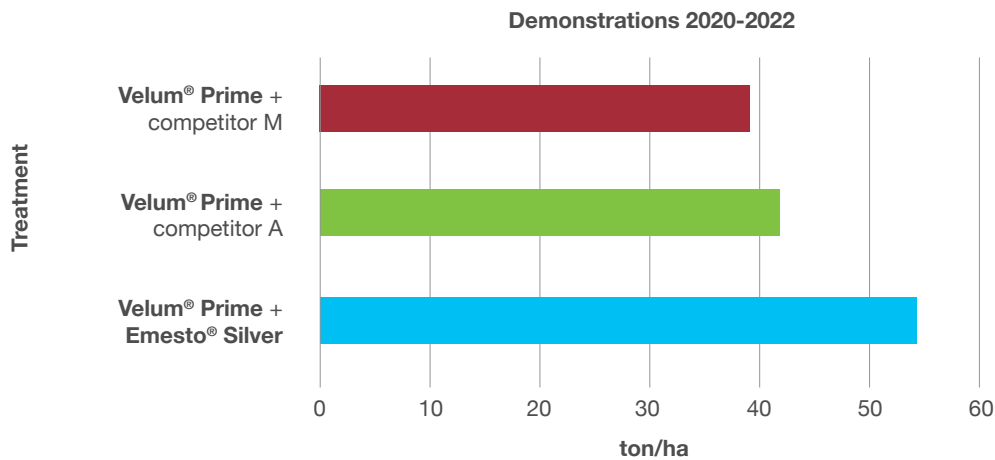
Yield without sand splits (Rhizoctonia) ton/ha Warden

The application of **Velum Prime** with **Emesto Silver** increased the production of marketable tubers by 8.8 ton per ha compared to the **Velum Prime** control. This is a 19% increase in yield.



Better yield and quality across national demonstrations

More marketable potatoes



EMESTO® SILVER

Give your potatoes a head-start!

Better growth:

- A better root system was observed with the **Velum® Prime** and **Emesto® Silver** combination.

Better quality:

- Throughout the demonstration trial programme, we have consistently observed a positive effect on yield and quality.
- An increase in tuber size in the XL and L classes were observed.

Rhizoctonia solani/sand splits:

- Control 8.42% sand splits compared to the 1.35% of the **Velum® Prime** and **Emesto® Silver** combination.

Better yield:

- Average yield increase of 5% was observed in 14 demonstrations.

Resistance management:

- The actives Penflufen and Prothioconazole support resistance management.
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Give your potatoes **a head-start!**

Enhance tuber protection for:

Better **Growth**
Better **Quality**
Better **Yield**

Emesto® Silver Reg. No. L11148 Act No. 36 of 1947.
Contains Penflufen and Prothioconazole (Caution).

Velum® Prime Reg. No. L9965 Act No. 36 of 1947.
Contains Fluopiram (Pyridinylethylbenzamide) (Caution).

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