

Mondstuk van die Suid-Afrikaanse aartappelbedryf • Mouthpiece of the South African potato industry

CHIPS

VOL 35 NO 05 • NOVEMBER / DECEMBER 2021

**CERES/KOUE BOKKEVELD-
KULTIVARPROEF ONDER BESPROEING:
DONKERBOS 2020/2021**

**EMPANGENI INFORMATION DAY
A SPUD-TACULAR
LEARNING EXPERIENCE**

**Die GeoFarmer-platform
maak monitering maklik**

**Stuit Alfalfa-mosaïekvirus
in sy spore**

**Potato product exports:
A twelve-month snapshot**

What does research mean to the potato producer (Part 5): Proactive research into *Tuta absoluta* to reduce risk

By Dr Fienie Niederwieser, Potatoes SA

Tuta absoluta (the tomato leafminer) is a devastating pest on tomatoes and can lead to an entire yield loss if not controlled. This insect is also known to develop resistance to reliable insecticides in a relatively short period of time (Table 1).

Perhaps because potatoes and tomatoes are generally not grown in the same area or at the same time, no in-depth research was carried out on the host status of potatoes with regard to Tuta, until

recently. Potato was mentioned as a host for Tuta, but it was not known whether the larvae feed on leaves and stems, as well as tubers.

The migration of *T. absoluta* from Europe and the Middle East to Africa, and then southwards towards South Africa, was therefore cause for concern for the tomato and potato industries.

Research project launched

Studies under local conditions could not start until the insect was present in South Africa. In

the meantime, Potatoes South Africa (PSA) proactively approved funding for a research project, and potato producers were sensitised about the possible risk associated with *T. absoluta*.

In 2016, the presence of Tuta in the northern parts of South Africa was confirmed and PSA's plan was put into action:

- Pheromone traps were distributed to most production regions to determine the spread of the new pest. It was surprising how fast the insect migrated to all potato production regions.
- Information regarding the new pest was circulated to create awareness of the possible risk.
- Dr Diedrich Visser of the Agricultural Research Council started researching the host status of potato for Tuta.
- Prof Hannalene du Plessis of North-West University, conducted a study to determine whether Tuta entered the country with resistance to insecticides and, if so, to which products.

Findings and management

Only five years after *T. absoluta* entered South Africa, research has addressed uncertainties, generated information to manage the new pest, and established expertise in sensitivity testing and management of resistance:

- Tuta larvae do in fact mine in potato leaves and this can lead to damage, especially if the insect's primary host plant, tomato, is not readily available and the infestation pressure is high.

Table 1: Insecticides with IRAC mode of action group for which *Tuta absoluta* has developed resistance, as well as country and date of reported resistance.

Insecticide and IRAC mode of action group	Country where resistance was reported	Year of reporting
Cartap (14)	Brazil	2000
Abamectin (6)	Brazil	2001
Deltamethrin (3A)	Argentina	2005
Bifenthrin (3A)	Brazil	2011
Diflubenzuron (15)	Brazil	2011
* Indoxacarb (22A)	Brazil	2011
Permethrin (3A)	Brazil	2011, 2014
Teflubenzuron (15)	Brazil	2011
Triflumuron (15)	Brazil	2011
Cyfluthrin-beta (3A)	Brazil	2014
Etofenprox (3A)	Brazil	2014
Cypermethrin-alpha (3A)	Brazil	2015
* Spinosad (5)	Brazil	2015, 2016
Metaflumizone (22B)	Brazil	2016
* Spinosad (5)	Chili	2012
* Flubendiamide and * Chlorantraniliprole (28)	Italy and Greece	2014
* Chlorantraniliprole (28)	UK	2019
* Spinosad (5)	UK	2019

* Insecticides in red were tested in the local project carried out at North-West University.



Tuta larvae do in fact mine in potato leaves and this can lead to substantial damage.

- Under normal circumstances, both Tuta and potato tuber moth can occur in a field and mine in leaves, with potato tuber moth occurring in greater numbers.
- Unlike the potato tuber moth, Tuta larvae do not enter tubers through the skin. They reach tubers by entering through sprouts to cause damage. Thus, seed that is prepared for planting can be at risk of infestation and needs to be

protected by application of a registered product.

- *T. absoluta* did not enter the country with resistance to insecticides registered for use on the insect. By applying an internationally recognised testing method, valuable baseline information has been established for testing, should evidence point to the possibility of a loss of sensitivity in the years to come.
- The importance of this insect and how to manage it in order

to avoid or postpone the loss of sensitivity to insecticides, is emphasised through knowledge transfer sessions. Thus, producers and agents are becoming more sensitised and this will contribute to improved management.

- Funding from the potato industry has allowed for the development of scarce skills, expertise and infrastructure at North-West University, where two students obtained post-graduate qualifications based on the research. The expertise and infrastructure that was established can now be applied in a new project to test the potato tuber moth's sensitivity to the most popular insecticides registered for use on this pest. **C**

For more information, contact Dr Fienie Niederwieser at fienie@potatoes.co.za or on 083 634 4848.



Aartappelmot kan 'n nagmerrie wees indien dit nie reg bestuur word nie. 'n Geïntegreerde benadering tot aartappelmotbestuur begin met effektiewe monitering. Moniteringsdata wat reg geïnterpreteer word, help met intydse besluitneming en koste doeltreffende aanwending van die beskikbare gewasbeskermingsprodukte.

InteliGro ondersteun aartappel produsente reeds vir die afgelope 4 jaar met effektiewe moniteringsdata en hierdie data maak 'n verskill

Kontak InteliGro om ook op jou plaas betrokke te raak.

INGELIGTE BESLUITNEMING:

- Regte oplossing
- Regte produkte
- Regte tyd



info@inteligro.co.za | www.inteligro.co.za