Decision support systems and resistant cultivars to significantly reduce fungicide use in late blight control

Stany Vandermoere, Ilse Eeckhout & Pieter Vanhaverbeke
Viaverda

Euroblight workshop Ourense
18-21 May 2026

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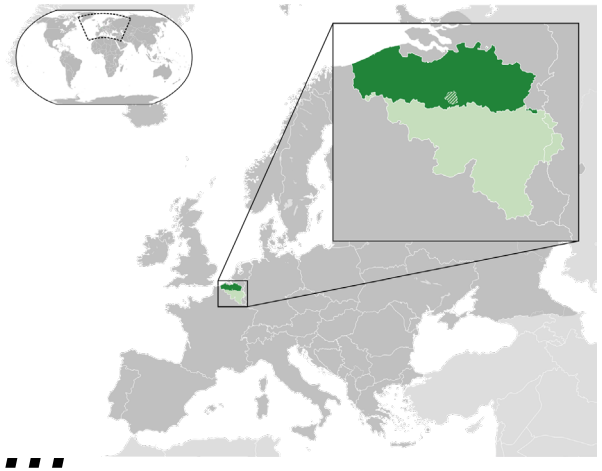
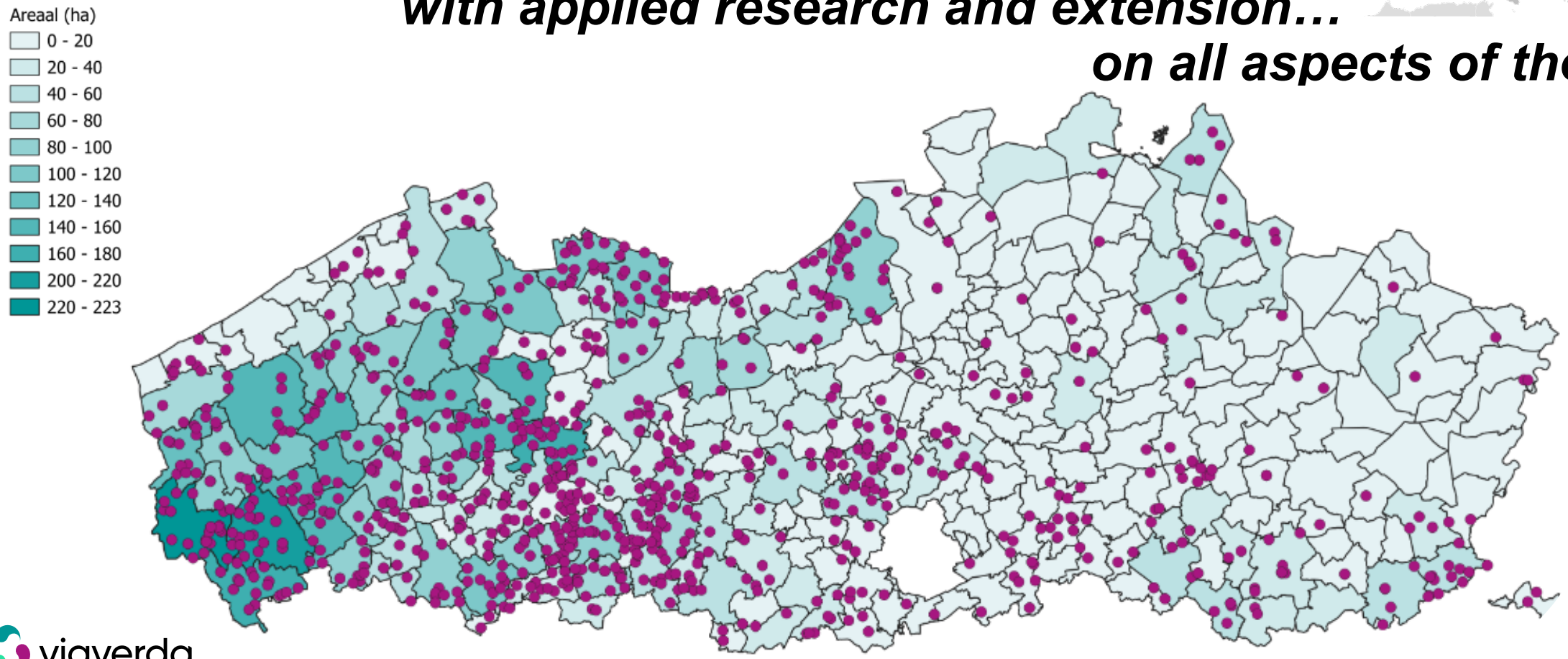


Supporting growers and the industry…
with applied research and extension…
on all aspects of the crop



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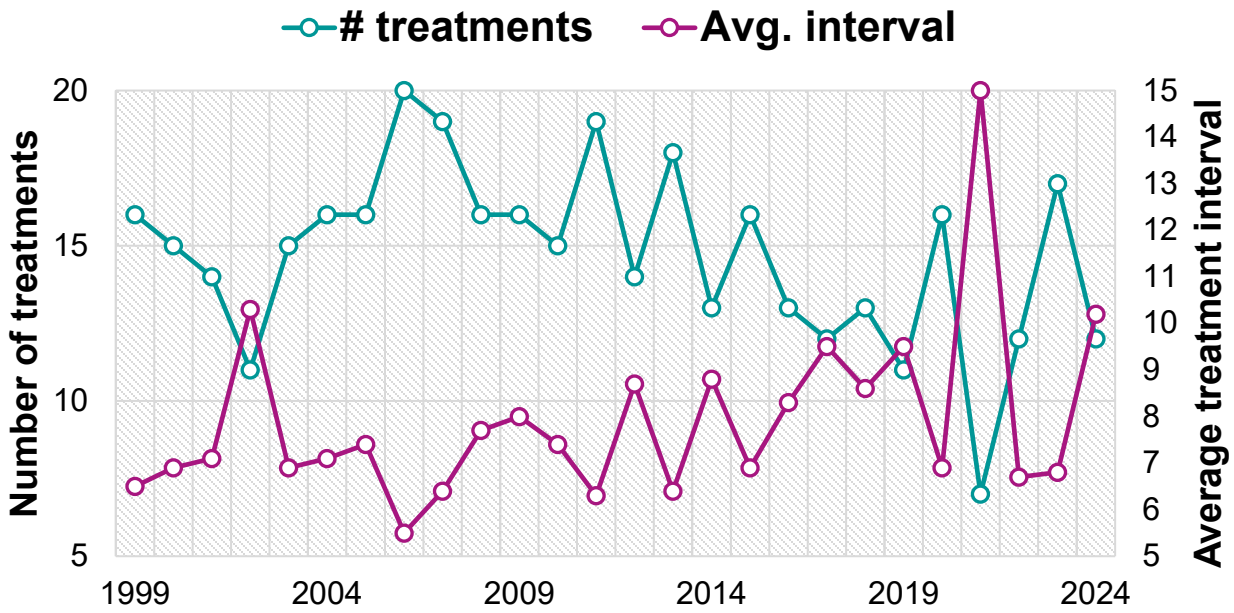
Viaverda - late blight warning service

- Guntz-Divoux based disease model
- Local weather forecast and measurements
- Crop growth parameters
- Uses and properties of fungicides

→ 11,7 % fewer fungicide applications



year-to-year variation

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Viaverda - late blight warning service

- Guntz-Divoux based disease model
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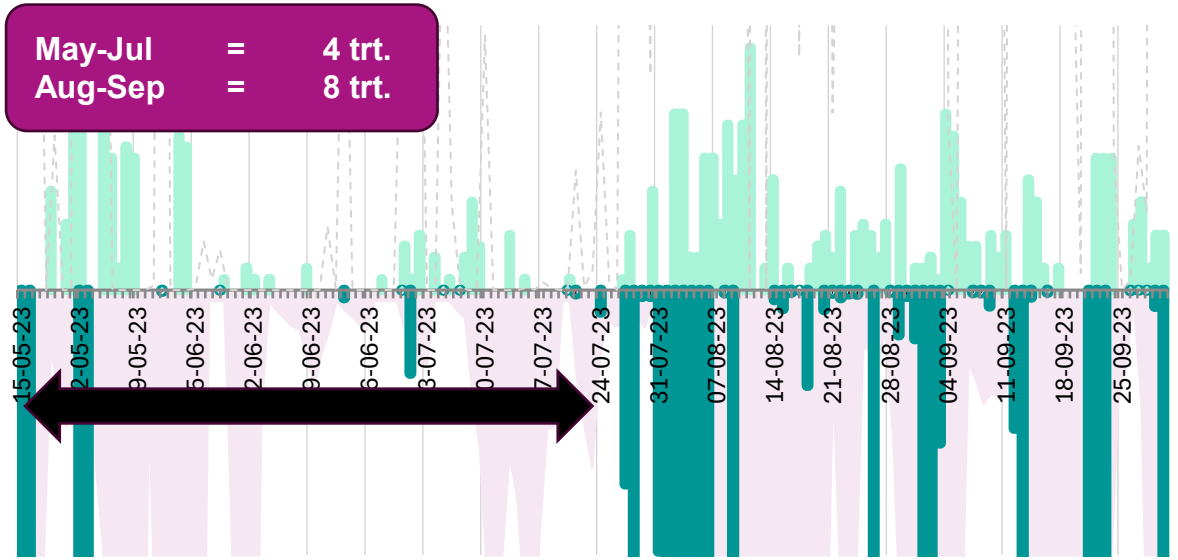
→ 11,7 % fewer fungicide applications

2023 late blight disease model output



in season variation

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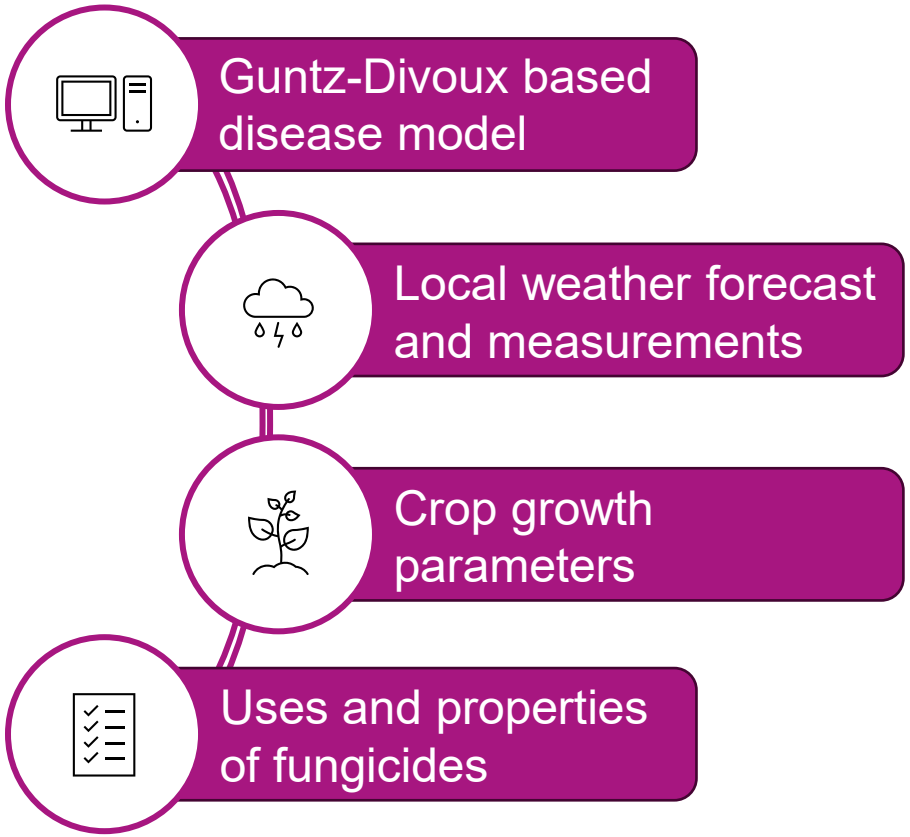
Viaverda - late blight warning service



→ 11,7 % fewer fungicide applications

= insufficient for the green deal objectives

+ potential loss of active ingredients may limit the number of fungicide applications

⇒ further reduction needed

Resistant cultivars

→ **R genes need protection too!!!**

Guntz-Divoux based disease model for resistant cultivars

MOLECULAR PLANT PATHOLOGY (2008) **9**(3), 385–402 DOI: 10.1111/J.1364-3703.2007.00465.X

Review

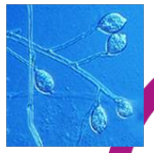
Plant diseases that changed the world

Phytophthora infestans: the plant (and _R_ gene) destroyer

WILLIAM FRY*

Cornell University, Department of Plant Pathology, Ithaca, NY 14853, USA

sporangia:
- formation
- release
- survival



new lesion

size, growth,*
spore density and viability

incubation*

-cultivar dependent

infection

infection efficiency***

spore germination

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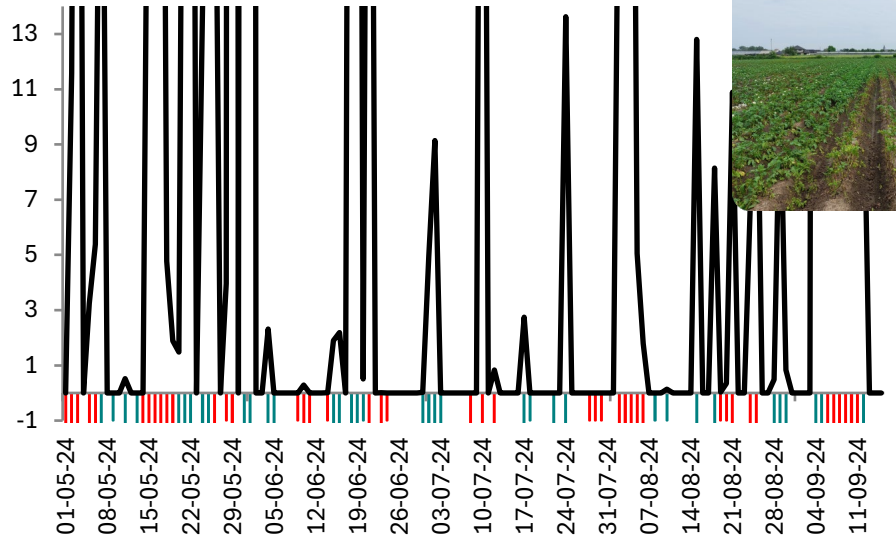
Resistant cultivars

→ R genes need protection too!!!

2024

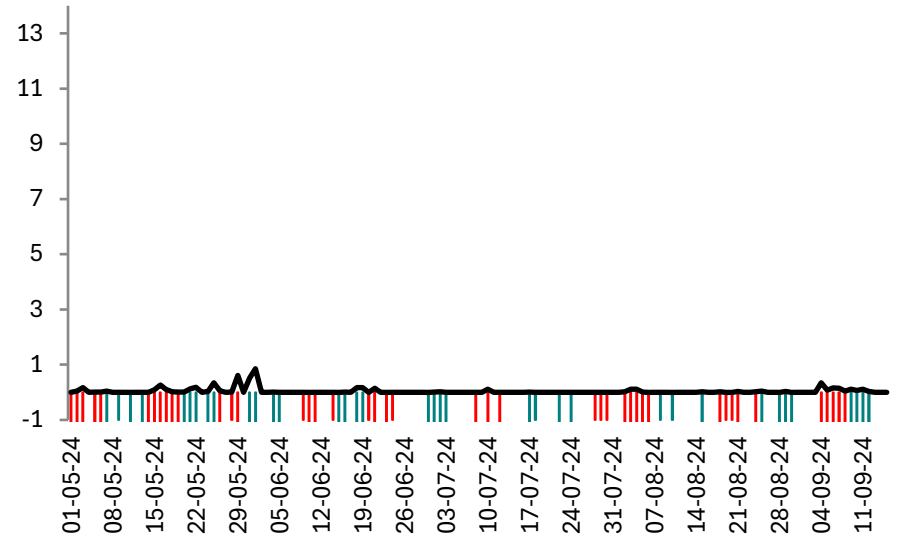
Guntz-Divoux based disease model for sensitive cultivars

18 applications



Guntz-Divoux based disease model for resistant cultivars

7 applications



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Potential infection event Potential infection event Infecting spores

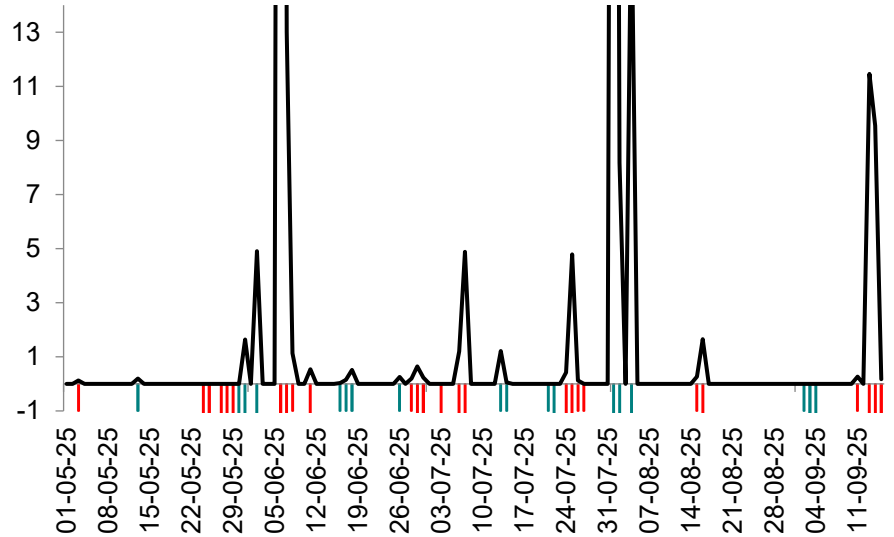
Resistant cultivars

→ R genes need protection too!!!

2025

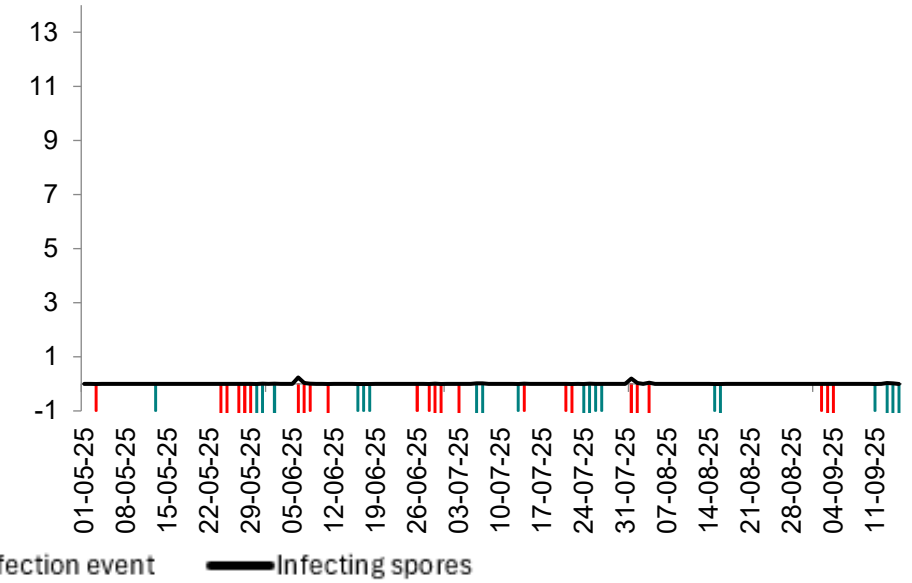
Guntz-Divoux based disease model for sensitive cultivars

12 applications



Guntz-Divoux based disease model for resistant cultivars

0 applications



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Evaluation of DSS and resistant cultivars

→ **Field scale evaluation of DSS**
for sensitive and resistant cultivars fit for the processing industry

Sensitive	Resistant		
Fontane	Alanis	Beyonce	Invictus

- DSS-s
- DSS-r
- Weekly
- UTC (2025)

- DSS-r
- UTC (2025)

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Evaluation of DSS and resistant cultivars

→ **Field scale evaluation of DSS**
for sensitive and resistant cultivars fit for the processing industry

		2024	
Cultivar	**Regime**	**TFI**	**FDR (%)**
Sensitive	DSS-s	25	7
	Weekly	23	16
	DSS-r	13	85
Resistant	DSS-r	13	0

→ **More applications needed**
→ **Resistant cultivars = 0 infestation**

Evaluation of DSS and resistant cultivars

→ **Field scale evaluation of DSS**
for sensitive and resistant cultivars fit for the processing industry

		2025	
Cultivar	**Regime**	**TFI**	**FDR (%)**
Sensitive	UTC	0	2
	DSS-s	17	0
	Weekly	24	0
Resistant	UTC	0	0
	DSS-r	0	0

→ **Hardly any infestation**
→ **Further TFI reduction possible?**

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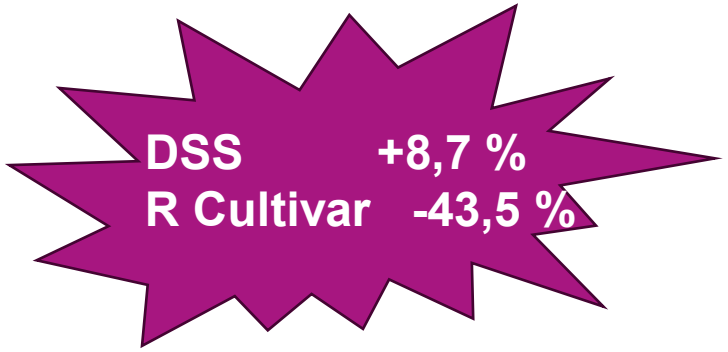
Conclusions on DSS and resistant cultivars

→ Decision support systems

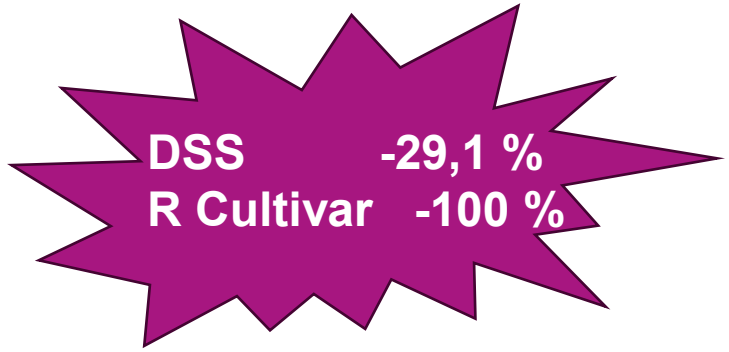
- ❑ Are essential to deal with year-to-year, seasonal and regional variation
- ❑ Allow to reduce the TFI and protect the R genes
- ❑ May be further improved

→ Resistant cultivars

- ❑ Allow to significantly reduce fungicide dependency
- ❑ Implementation takes time



2024



2025

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Thank you

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Vlaanderen verbeelding werkt

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provincie Oost-Vlaanderen

BOEREN BOND

avbs SIERTEELT EN GROEN FEDERATIE