

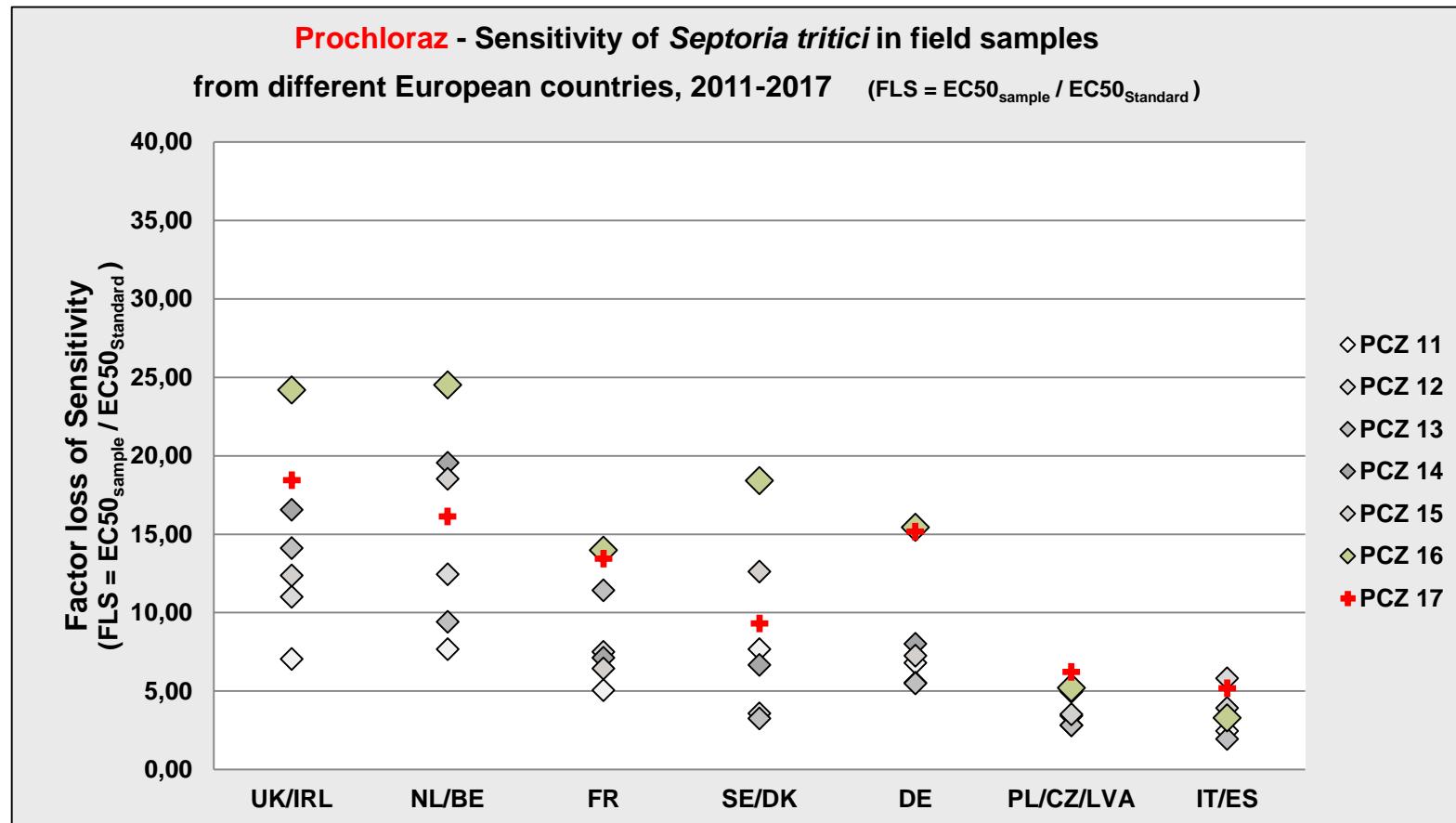
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SEPTTR - DMI monitoring results in Europe in 2017 and resistance management



Ilze Priekule, Product Development NZ
NORBARAG, 8-9 March 2018

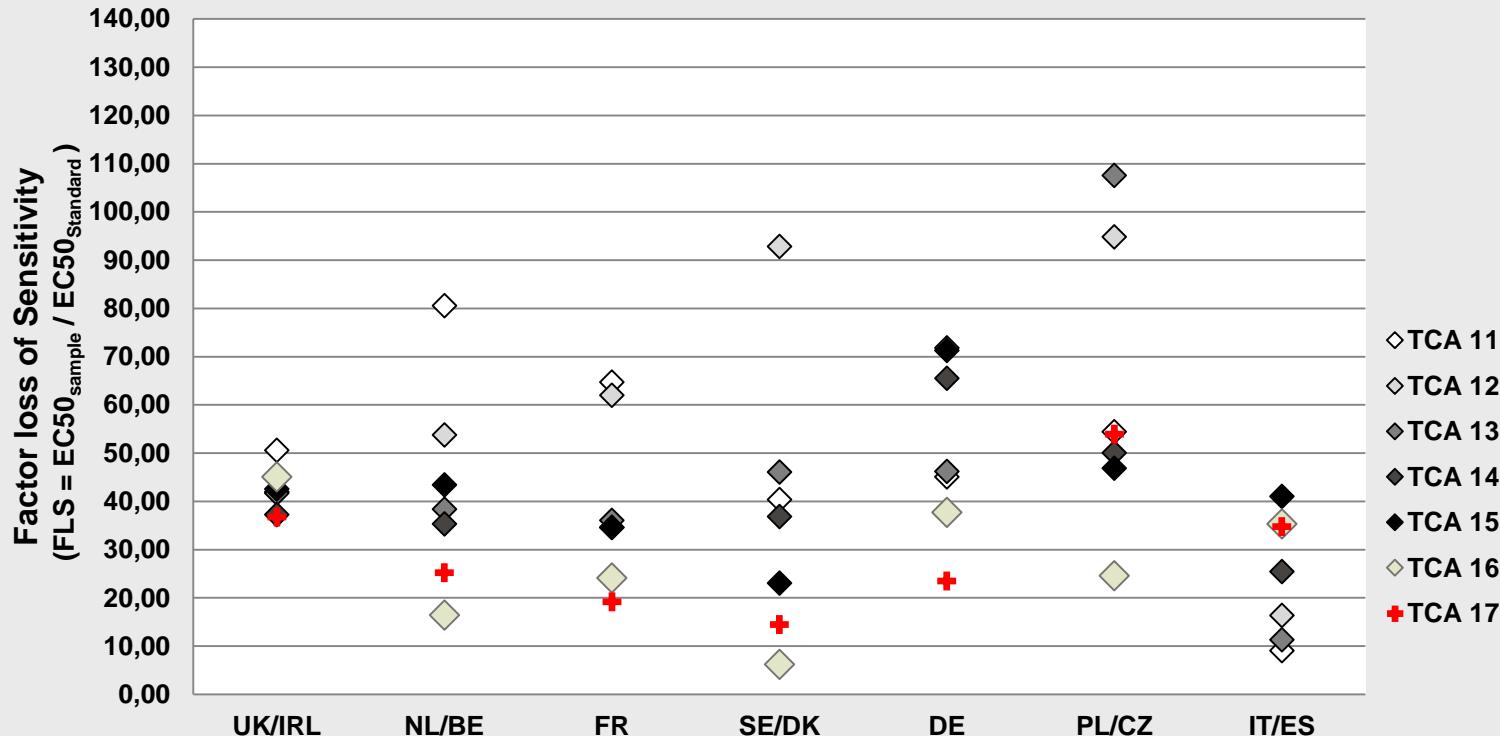
Sensitivity of SEPTTR to Prochloraz



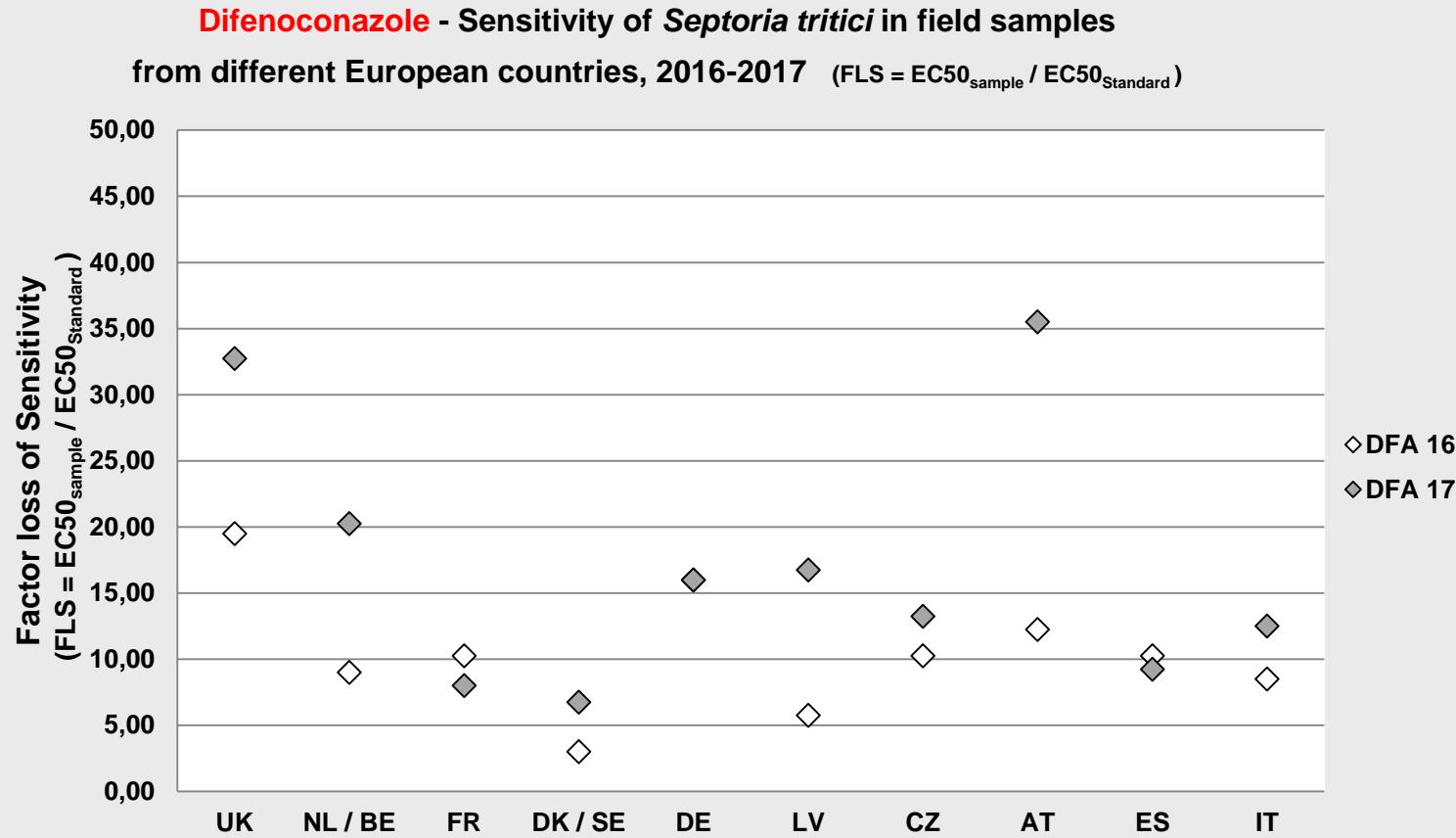
Sensitivity of SEPTTR to Tebuconazole

Tebuconazole - Sensitivity of *Septoria tritici* in field samples

from different European countries, 2011-2017 (FLS = EC50_{sample} / EC50_{Standard})



Sensitivity of SEPTTR to Difenoconazole



Azole Monitoring Europe 2017

SEPTTR – Summary:

- **Prochloraz:**
no significant change. Tendency of sensitivity increase comparing to previous years in BE/NL, UK and DK/SE
- **Tebuconazole:**
significant sensitivity increase in most of countries. No change in IT / ES
- **Difenoconazole:**
monitoring started in 2016:
in all countries (except FR + ES) tendency of sensitivity decrease in 2017

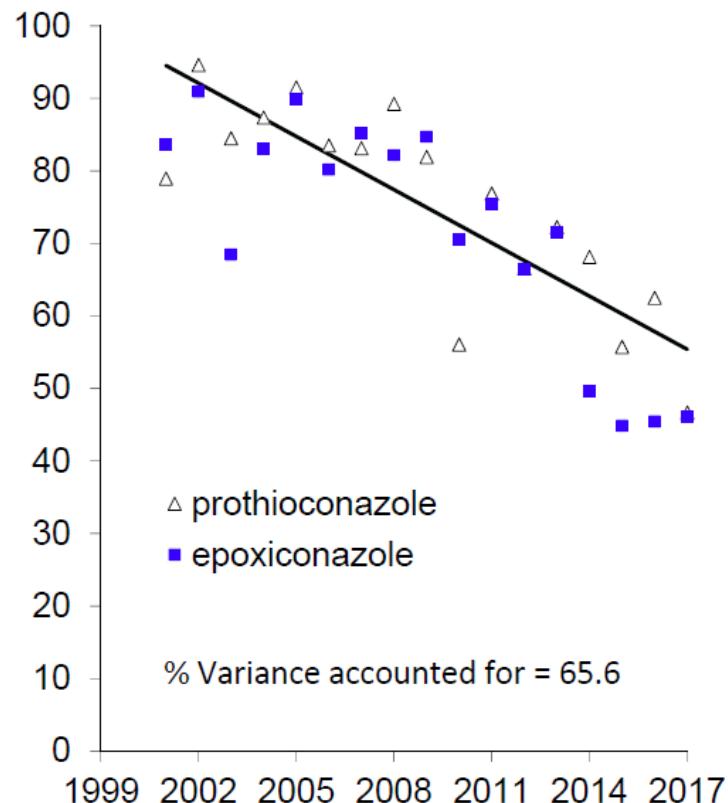


Septoria resistance management in cereals

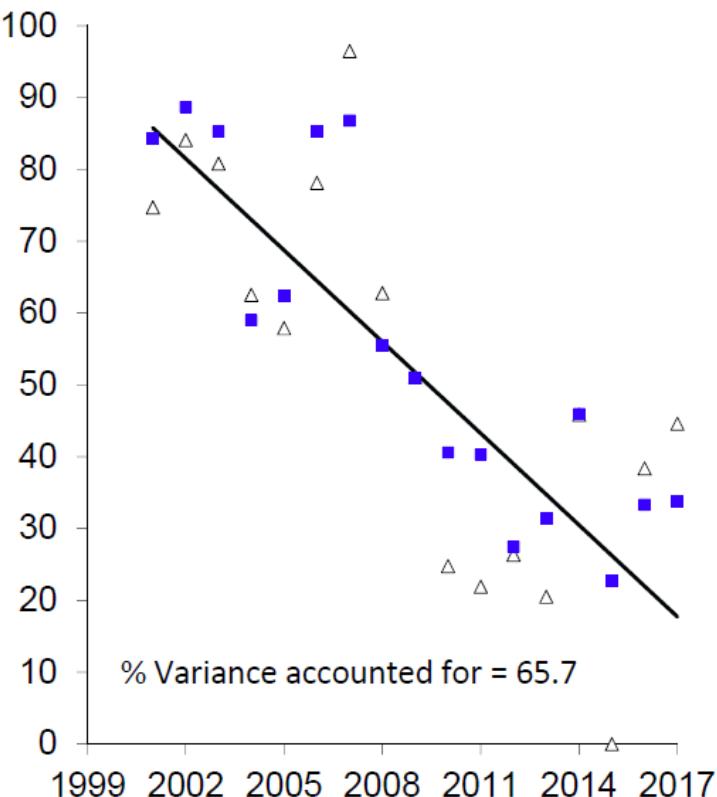


Efficacy triazoles on SEPTTR (1N rate)

Protectant

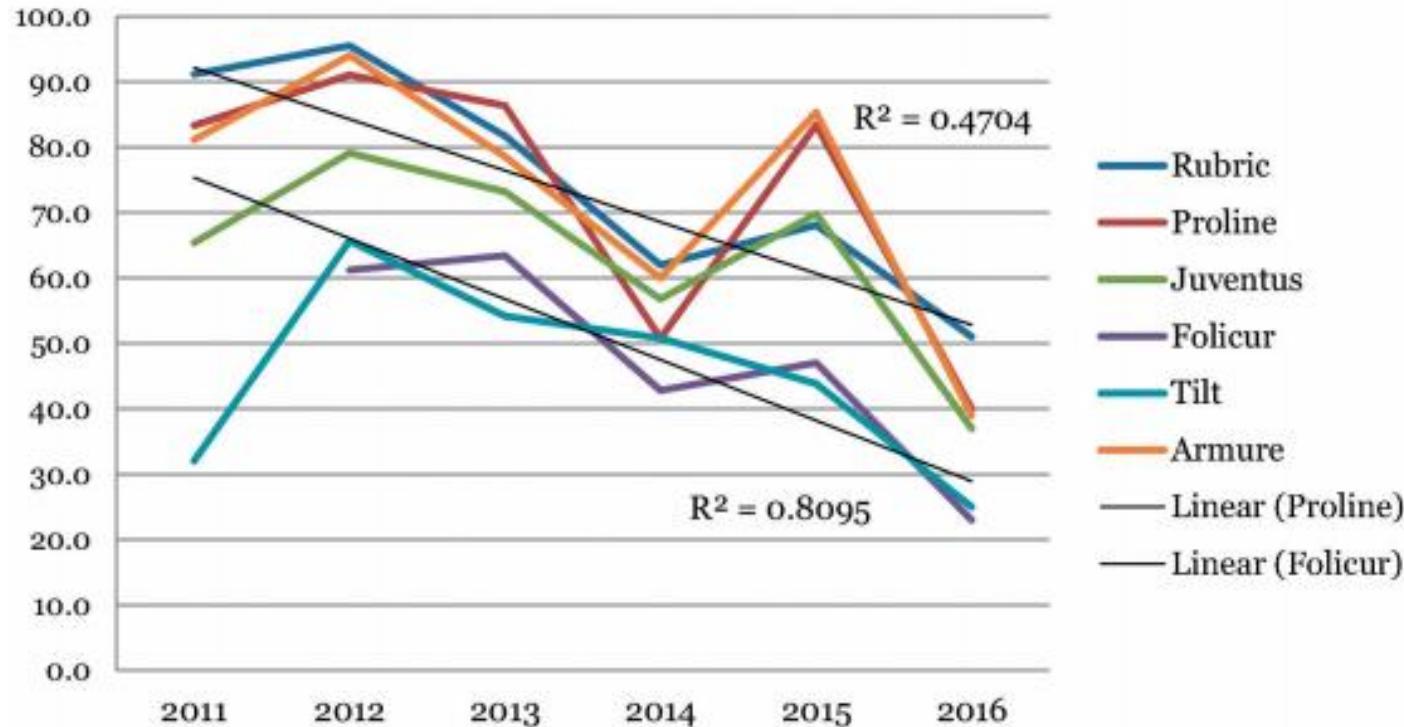


Curative





Efficacy triazoles on Septoria (2011-2016; DK)



2 x 50% dose

Source: Aarhus University, Flakkebjerg

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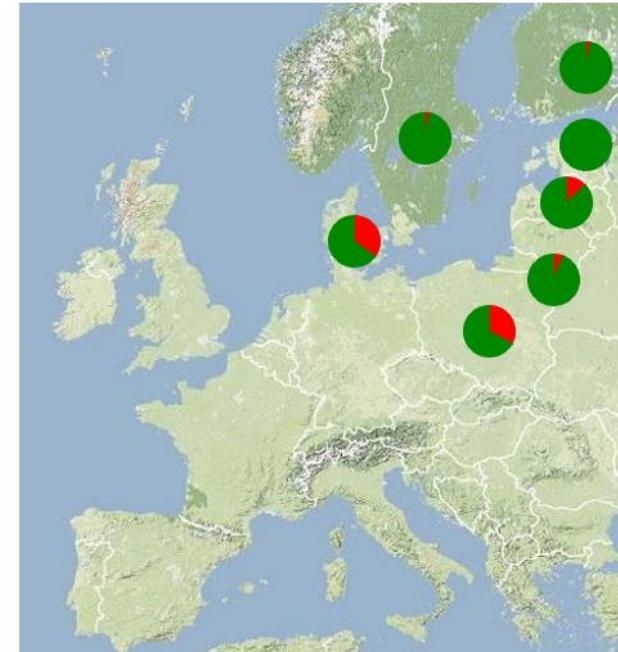


Development CYP51 mutations

'old' mutation A379G

● 2016 ● 2015 ● 2014 ● 2013 ● 2009

● D134G ● V136A ● V136C ● A379G ● I381V ● S524T



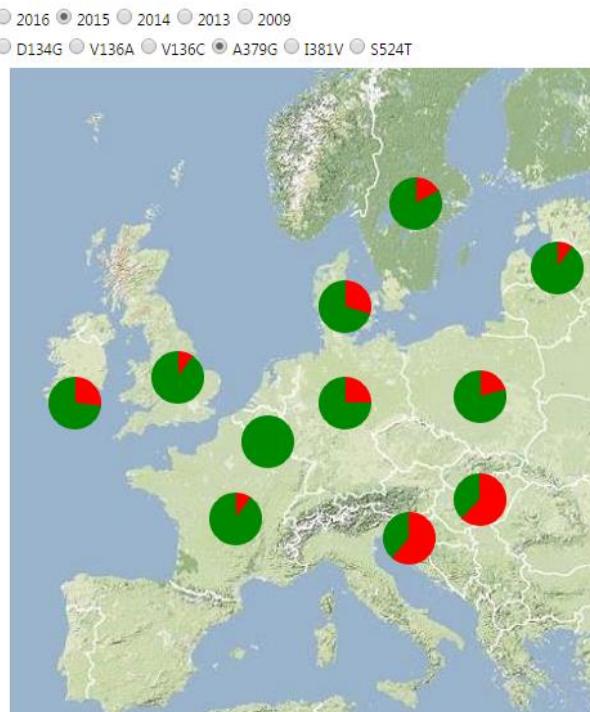
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Source: Eurowheat

● 2016 ● 2015 ● 2014 ● 2013 ● 2009

● D134G ● V136A ● V136C ● A379G ● I381V ● S524T

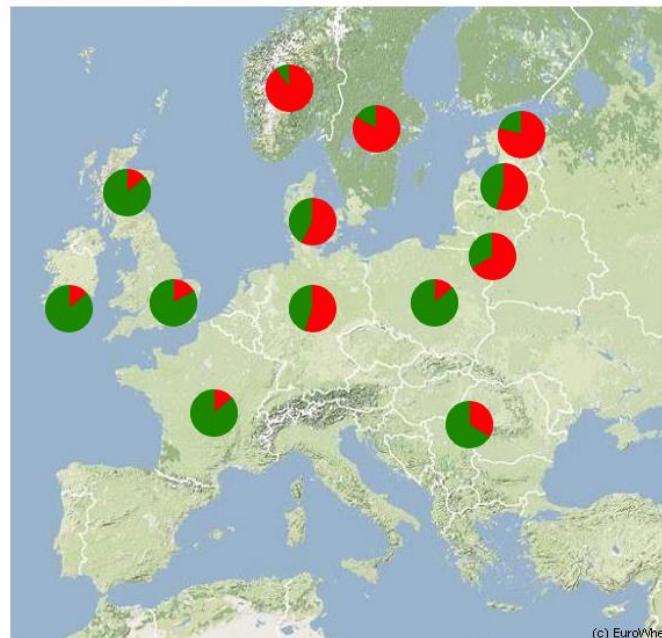


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● 2016 ● 2015 ● 2014 ● 2013 ● 2009

● D134G ● V136A ● V136C ● G379A ● I381V ● S524T



2016



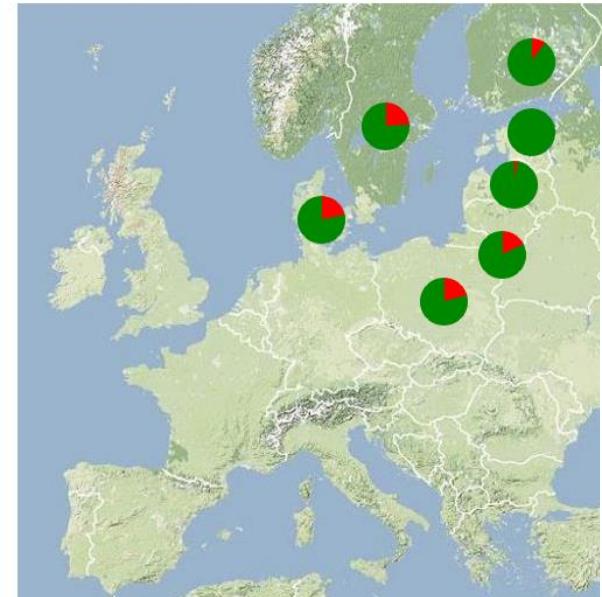


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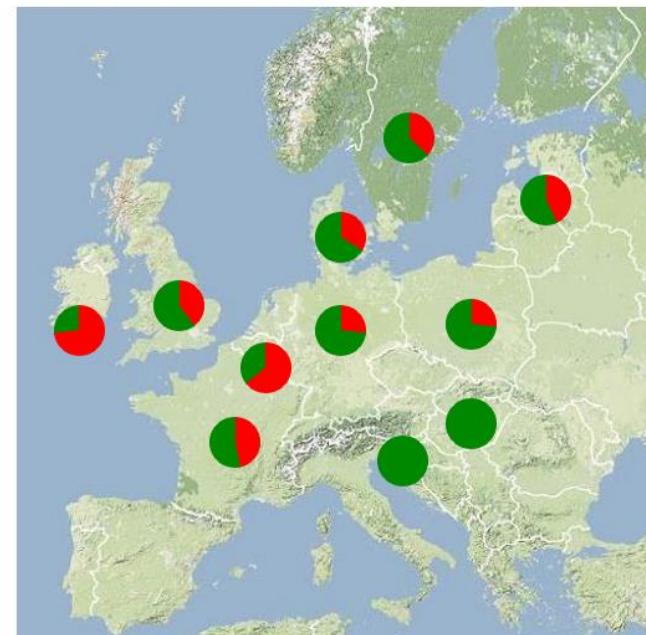
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Source: Eurowheat

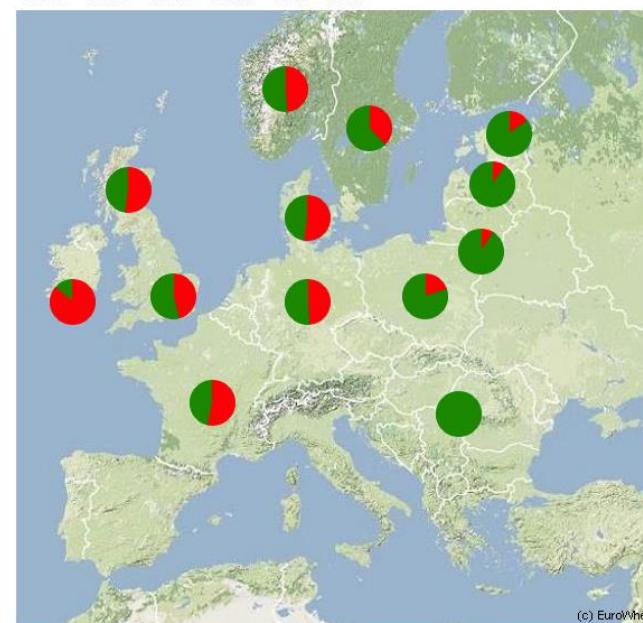
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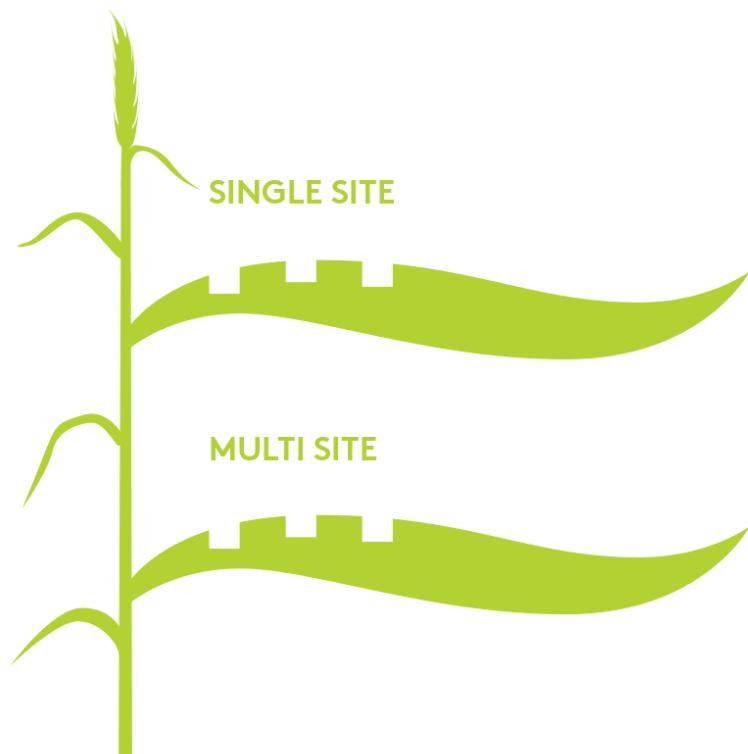
2016





Resistance management

single-site vs multi-site



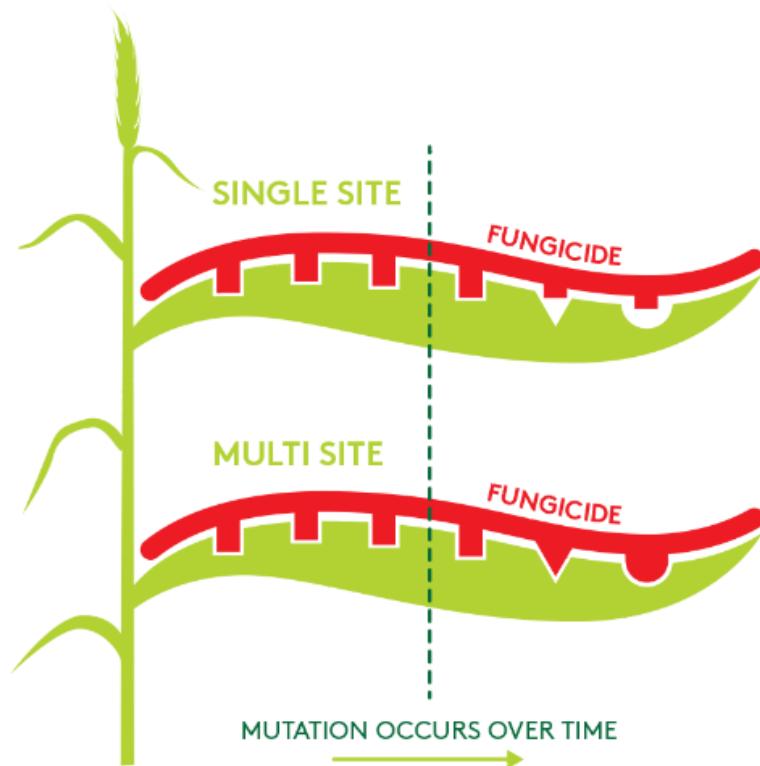
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Resistance management

single-site vs multi-site



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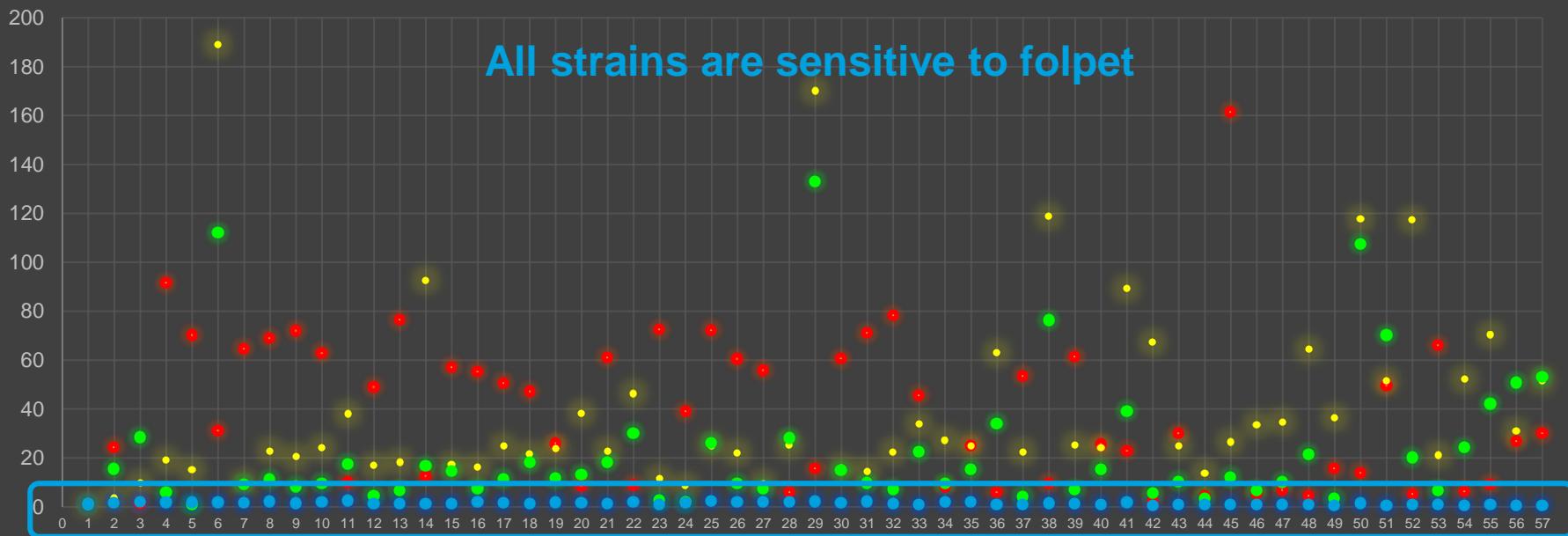


Potential of folpet

Resistance factor of active ingredients in 57 samples
Septoria tritici in France

● Tebuconazole ● Epoxiconazole ● Prochloraz ● Folpet

All strains are sensitive to folpet

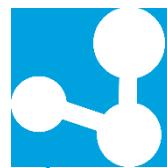


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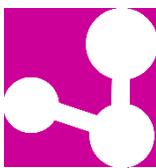




Potential of folpet

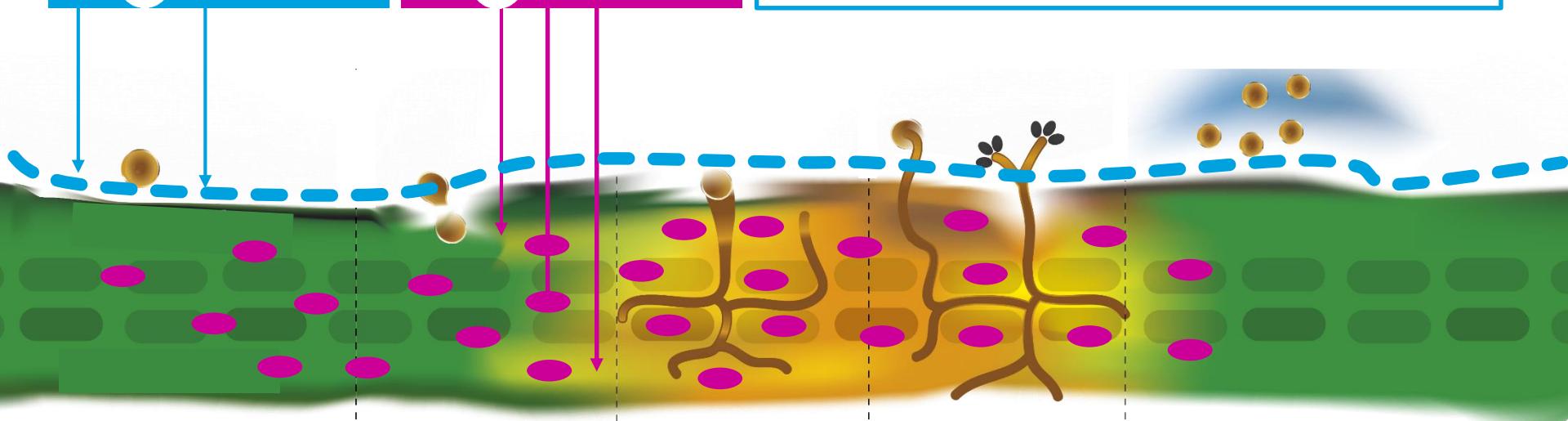


Folpet



Triazole

Folpet improves uptake and in this way enhances curative efficacy of triazoles



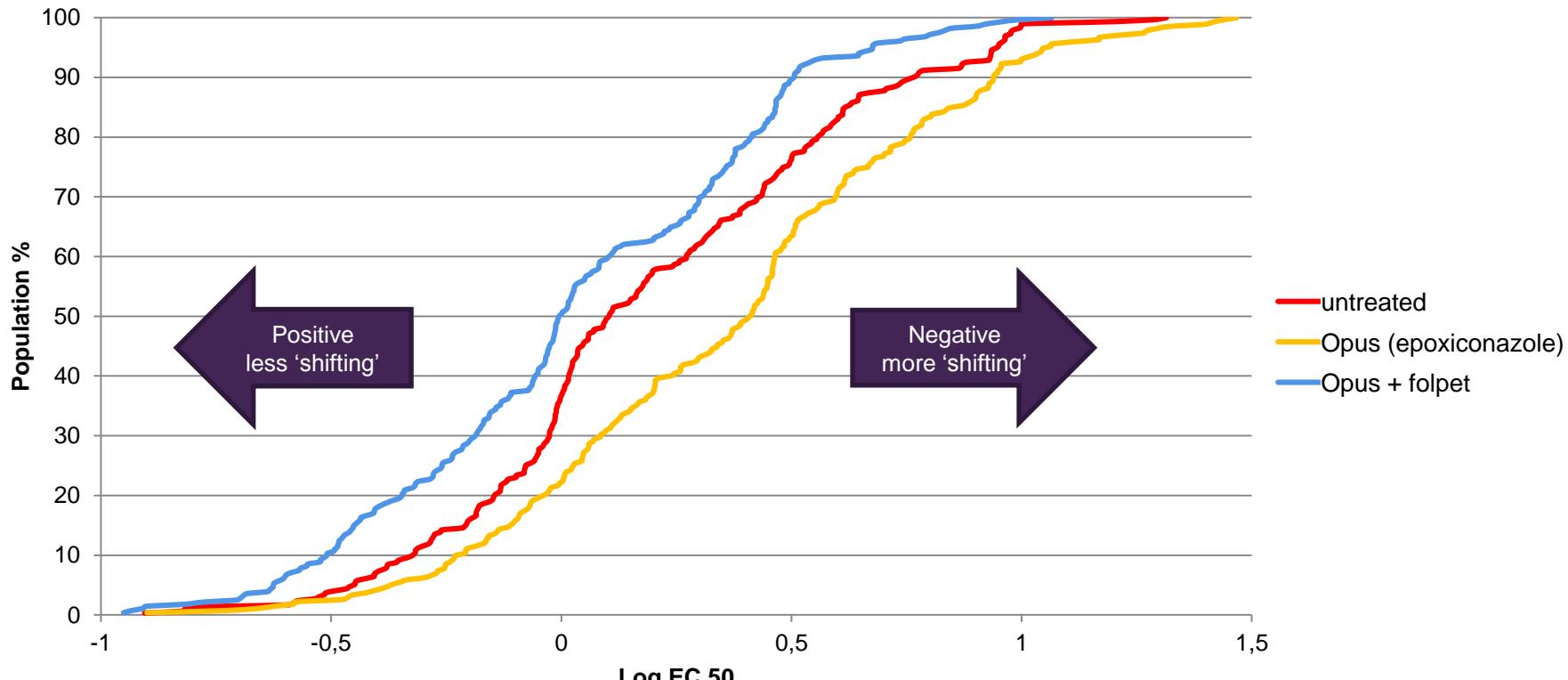
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Mixes epoxiconazole + folpet

UK, 2013





Impact of fungicide programme on Septoria-selection

Source: Eurowheat / Aarhus University

Average of 2 trials
in wheat 2015

	GS 31-32	Dose	GS 33-37	Dose	GS 55	Dose	Newer mutations!			Old mutations		
							S524T	D134G	V136A	v136C	A379G	I381V
1	Untreated	-	-	-	-	-	2 c	6 e	23 def	6 abc	43 bc	93 bcd
A	2 Proline	0,4	Proline	0,4	Proline	0,4	13 a	55 a	66 a	4 bc	18 e	89d
B	3 Proline	0,4	Bell	0,5	Proline	0,4	10 a	35 b	48 b	5 abc	24 e	91cd
	4 Proline	0,4	Bell	0,5	Prosaro	0,5	8 b	26 bc	37 c	8 ab	32 d	96 ab
C	5 Proline	0,4	Bell	0,5	Armure	0,4	2 c	6 e	29 cde	3 c	54 a	90 d
	6 Folpan	0,4 + 1,0	Bell + Folpan	0,4 + 1,0	Prosaro	0,5	6 b	25 bc	31 cd	4 bc	36 cd	97 a
	7 Folpan	1,5	Bell	0,5	Prosaro	0,5	5 bc	0 c	16 f	5 abc	47 ab	94 bc
	8	-	Bell	0,5	Prosaro	0,5	2 c	16 cd	22 ef	9 a	41 bcd	98 abc
	9	-	Bell	1,0	-	-	2 c	15 d	26 de	7 abc	44 bc	91 cd
	10	-	Bell	1,0	-	-	2 c	15 d	26 de	7 abc	44 bc	91 cd

A = treatments, which increase resistance most – marked with red

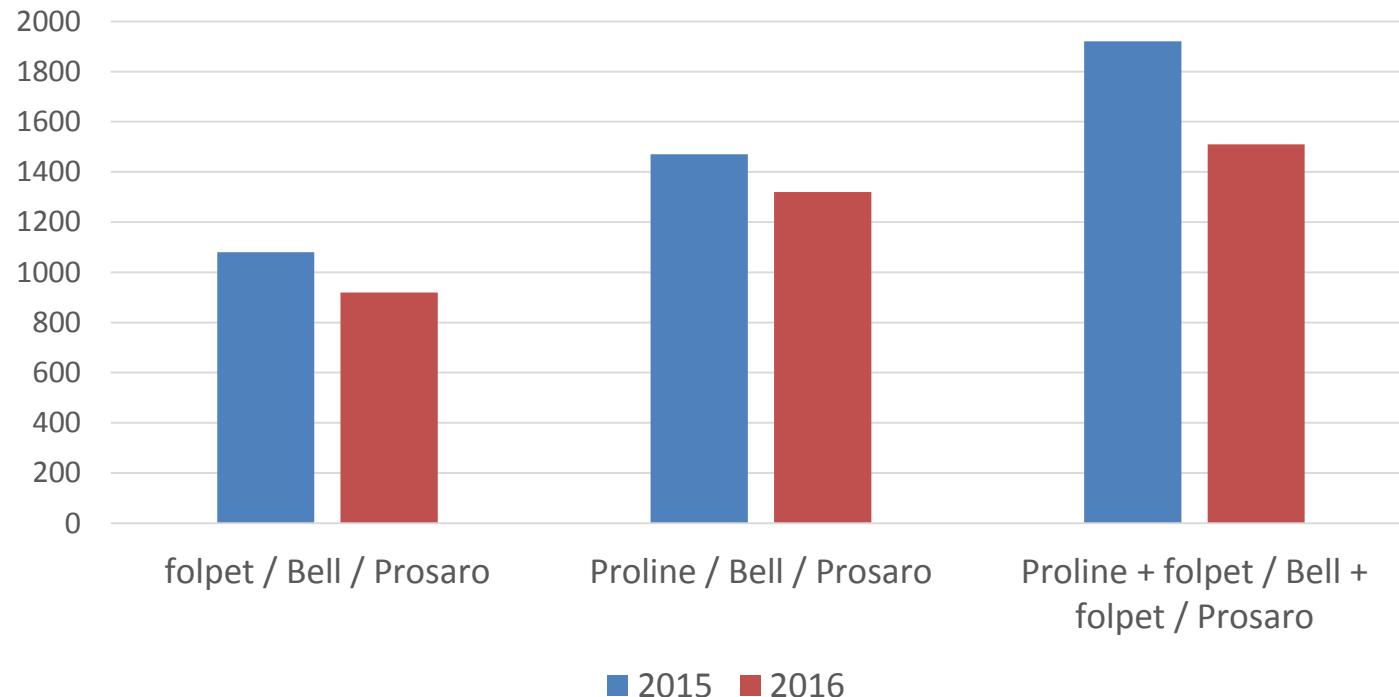
B = treatments, which select to some extend for resistance – marked with pink

C = treatments, which gives least or no selection for resistance – marked with yellow and green



Yield increase (kg/ha) in Septoria-selection trials 2015 - 2016

Source: Eurowheat / Aarhus University



Extra yield compared to untreated in kg / ha

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Conclusions

Grower can influence Septoria resistance selection pressure in his own field:

- Start on time (apply protectant)
- Alternate (groups of) products
- Add multi-site
- Folpet increases life-expectancy of triazoles and SDHI's



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Thank you!