



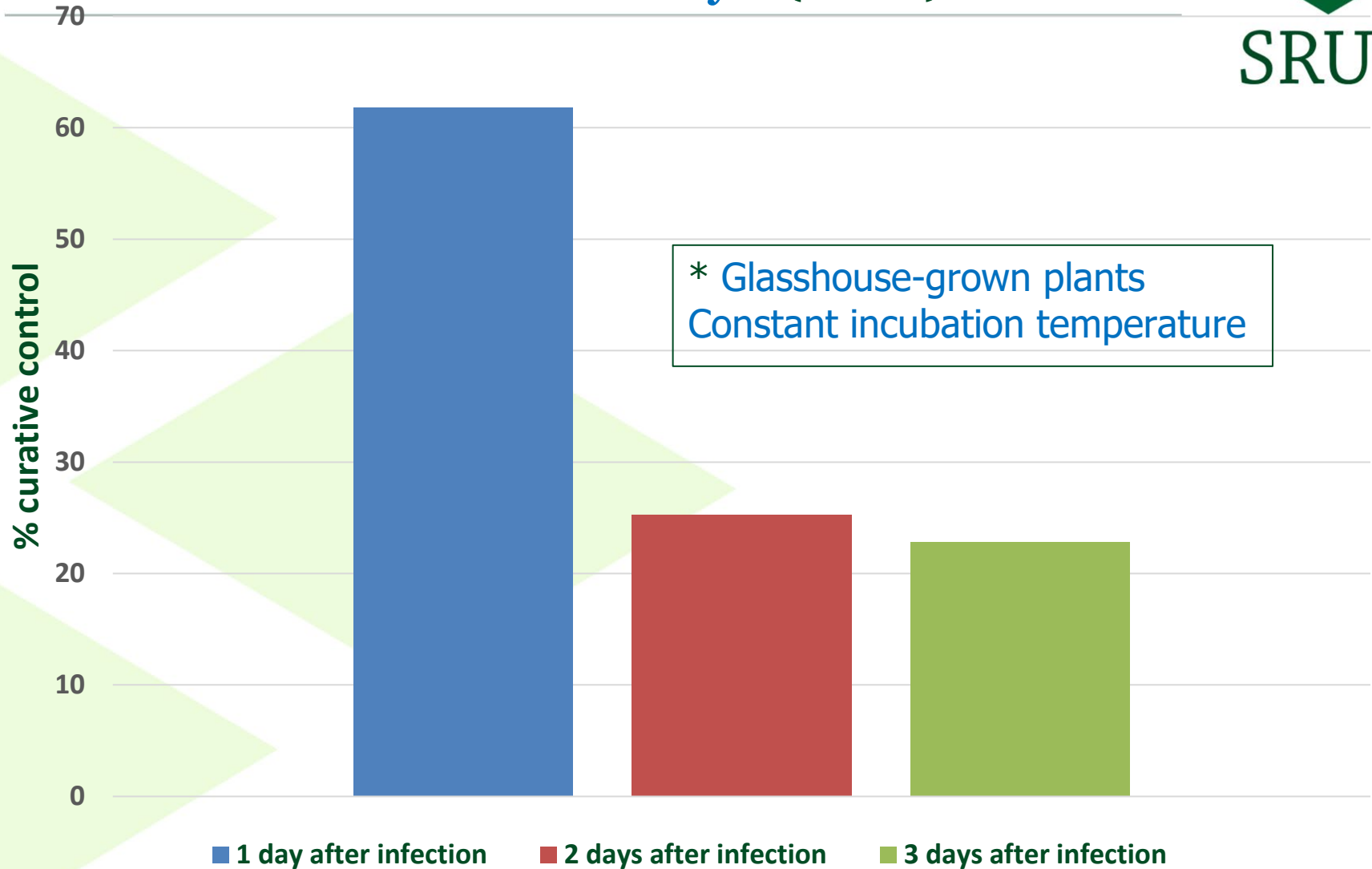
Control of potato late blight: considerable benefits from potassium phosphonates under a severe challenge

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Leading the way in Agriculture and Rural Research, Education and Consulting

Methodology matters

conventional curative assay* (2011)



Field protocol



- Typical temperature and RH profile
- Field crop canopy sprayed
- Rate of leaf growth measured
- Nine identifiable leaf layers assessed

Day 0	Plants in field inoculated
Days 1, 2 (and 3)?	Fungicides applied to some plots
Day n	Number of blight lesions assessed

Details of field trials



	Susceptible cultivars	<i>P. infestans</i> genotype	Dates	Sporangia
2017	K. Edward (3)	EU_13_A2	17 to 19 July	5.2×10^5
2018	K. Edward (3)	EU_13_A2	10 to 12 July	1.3×10^6
2021	Shepody (2)	EU_36_A2	13 to 15 July	1.0×10^5
2022	Shepody (2)	EU_36_A2	2 to 5 August	1.5×10^5

- Considered by some, e.g. Liljeroth *et al.* (2016), an alternative to conventional fungicides
- Classed as inducer of host plant resistance (P07, FRAC list of fungicides)
- Experiments used coded products containing potassium phosphonates

Typical results - fungicide 2 days after inoculation

Leaf lesions per 10 stems (square root)(2018)

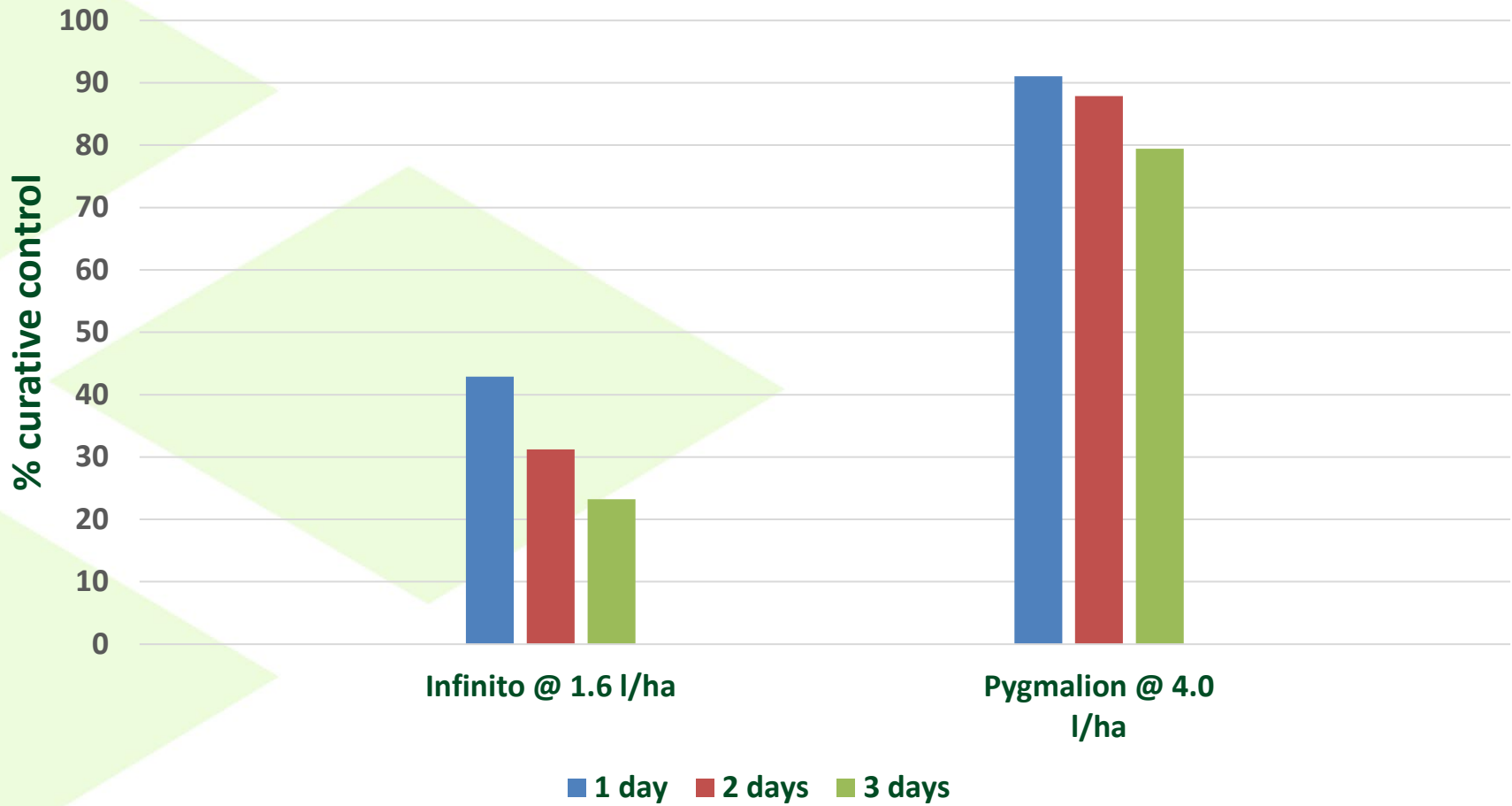


	Untreated	Infinito	Pygmalion (755 g/l)	F pr.
Leaf 2 (higher)	3.01 a	1.18 b	0.00 c	<.001
Leaf 3	4.54 a	3.07 b	0.00 c	<.001
Leaf 4	6.07 a	5.09 a	0.43 b	<.001
Leaf 5	7.65 a	6.78 a	0.81 c	<.001
Leaf 6	8.79 a	8.49 a	2.65 b	<.001
Leaf 7	10.52 a	9.91 a	4.32 b	<.001
Leaf 8	11.24 a	10.56 a	5.37 b	<.001
Leaf 9	11.68 a	9.65 b	6.20 c	<.001
Leaf10 (lower)	10.99 a	8.72 b	4.99 d	<.001
Mean	8.3	7.1	2.8	

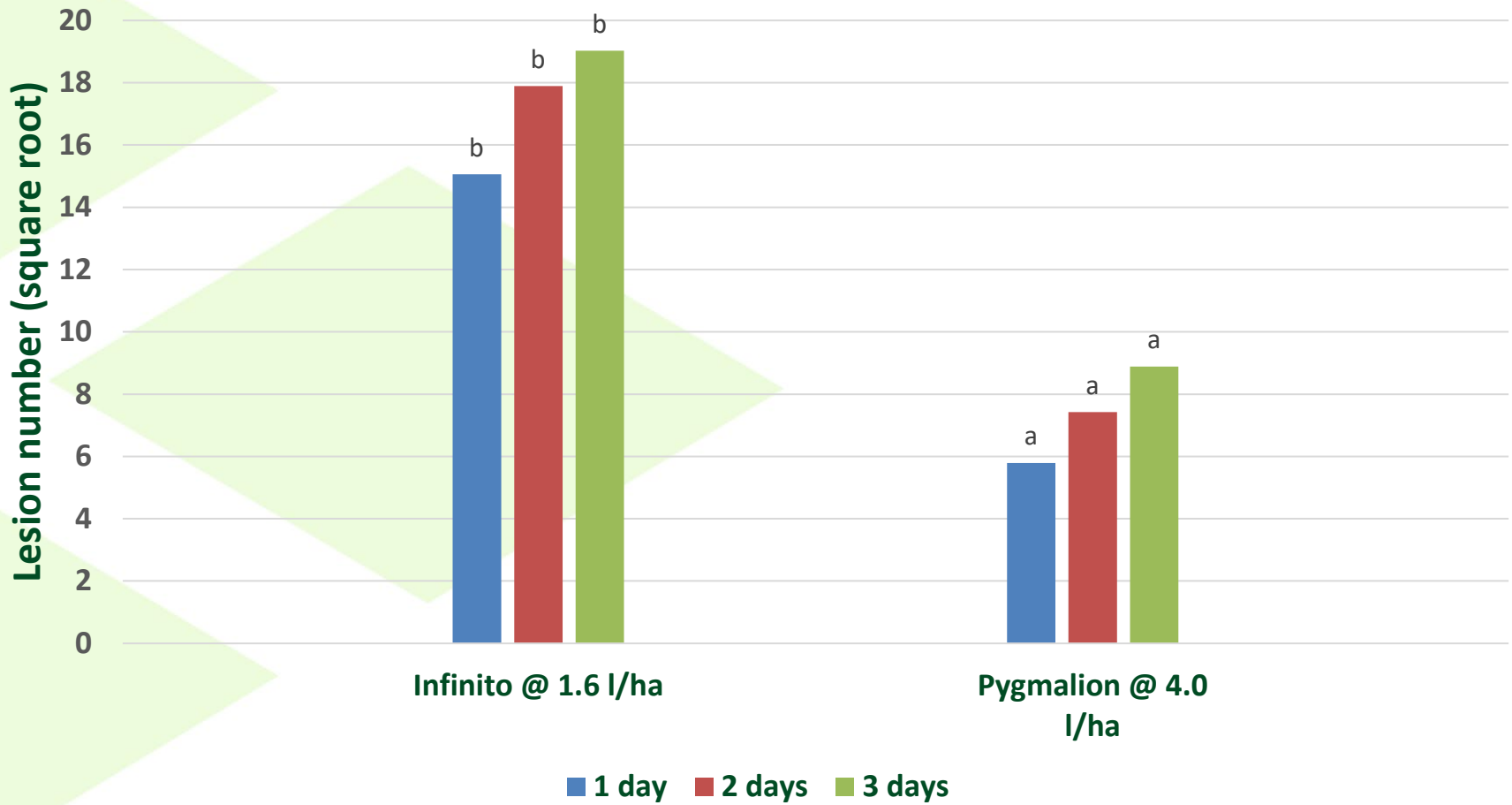
Significantly
lower than
UT

Significantly
lower than
Infinito

2022 Curative control (%) with Pygmalion



2022 Loss of effectiveness over time



2023 Impact of one spray as epidemic starts



30 Jul	H
31	P
1 Aug	P
2	P
3	H
4	
5	P
6	
7	
8	
9	
10	P
11	H

- Natural infection of plots
- Blanket treated with Manzate 75 on 10 and 17 July and Manzate 75 + Option on 24 July
- Test fungicides once only, on 3 August

Impact of one application as the epidemic starts

Revus + Option



Pygmalion



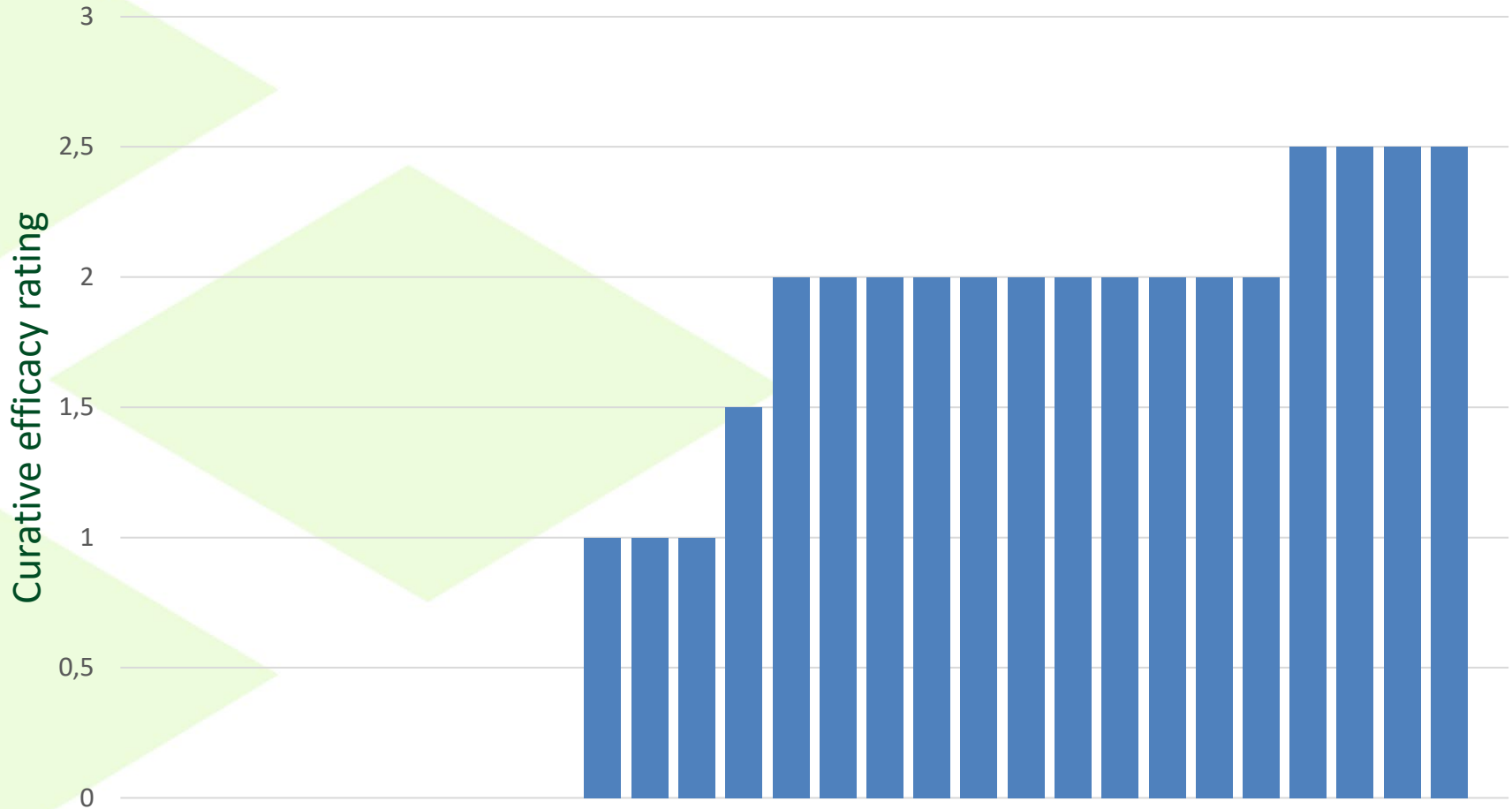
2023 Impact of one spray as epidemic starts



Treatment	Rate (kg or l/ha)	Severity (%) foliar blight on 11 August
1. Revus + Option	0.6 + 0.15	39.2 c
2. Pygmalion	4.0	4.1 a
F pr.		<0.001
LSD ($P=0.05$)		6.51

Potassium phosphonate offers very strong, very consistent curative activity

EuroBlight fungicide table - current ratings for curative efficacy (0, +, ++, +++ scale)

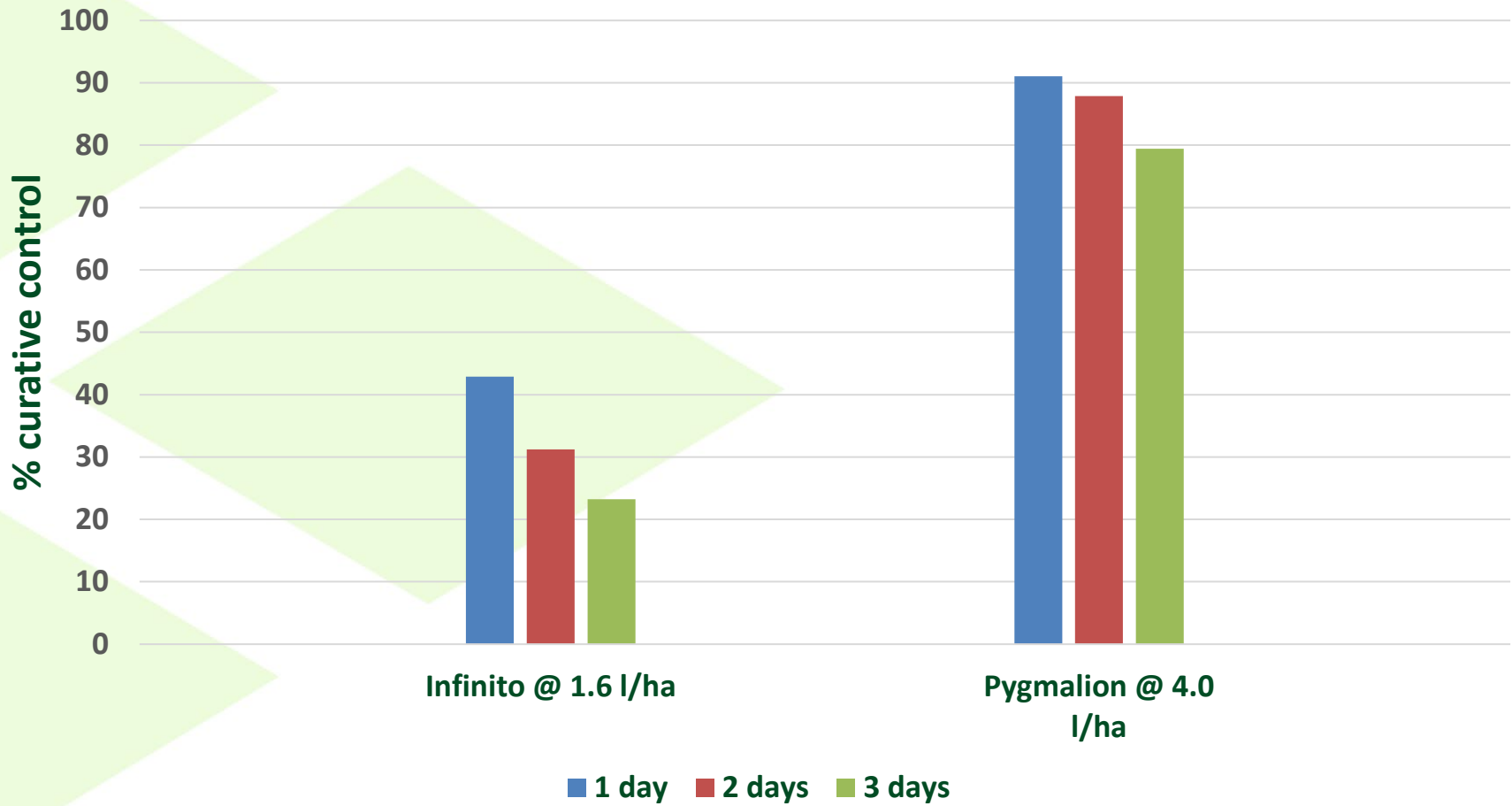


Isn't it time to update the EuroBlight table?



- Curative fungicide ratings need to be accurate. They can be utilised effectively within any DSS.
- Current ratings
 - Are subjective, no standardised protocol
 - They have not been updated for many years
 - Products included are clumped
 - The most effective a.i. is not included
 - Several non-approved products are still listed

Any curative rating should include % control and rate of decrease in control



Acknowledgements



- Scottish Government
- DeSangosse
- SRUC staff:



Adam Wallace, Billy Harrison, Claire Kennedy, Donald Kiltie