

The impact of fungicide spray order on foliar blight control

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Bayer CropScience

- Objective
 - To what extent does spray order matter?
 - Blocked or alternating, which is better?

Effect of spray order



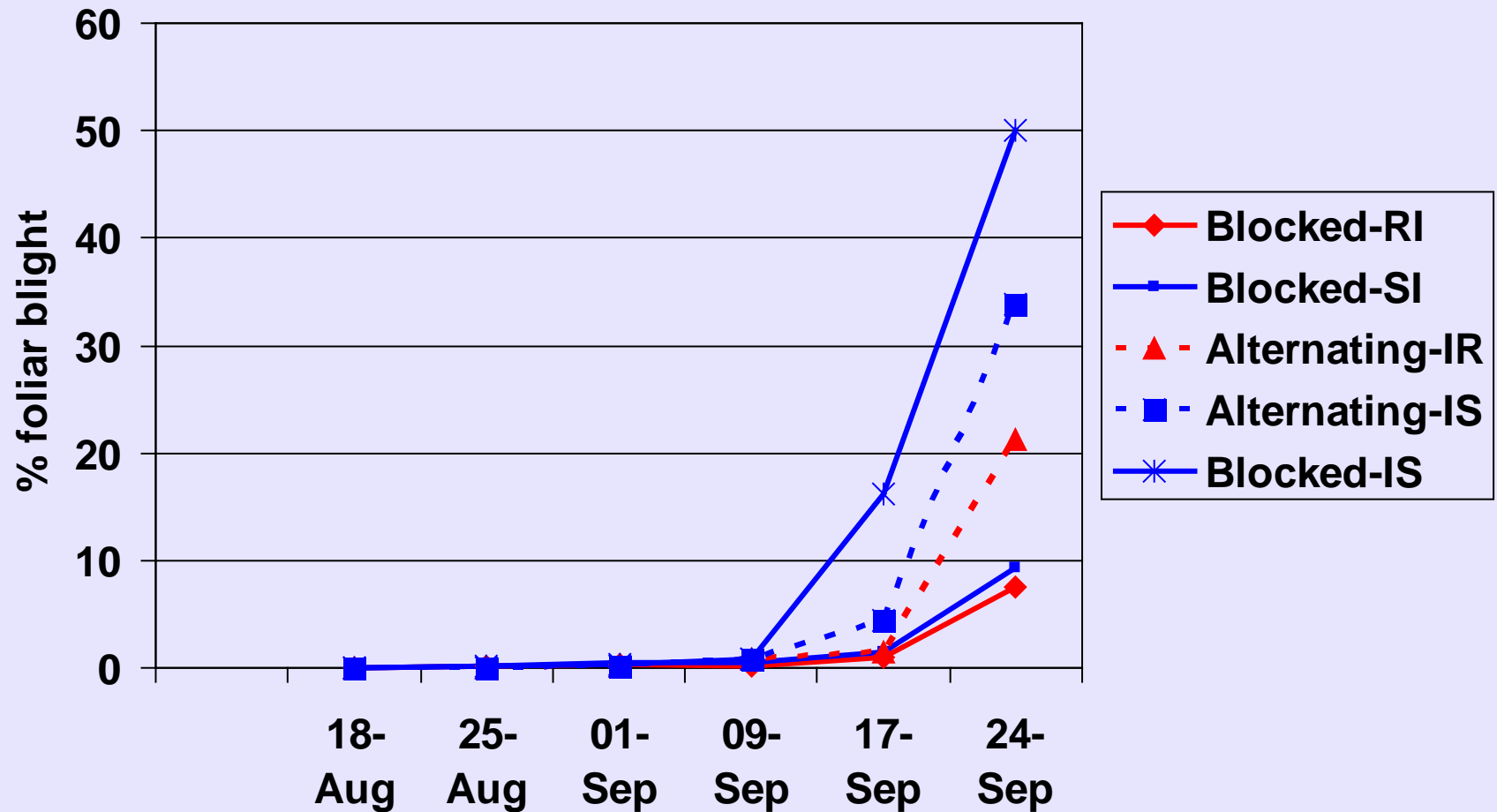
Spray	Blocked	Alternating
1 to 3	Curzate M	Curzate M
4	Infinito	Infinito
5	Infinito	Shirlan
6	Infinito	Infinito
7	Shirlan	Shirlan
8	Shirlan	Infinito
9	Shirlan	Shirlan

Effect of spray order



- Bayer CropScience-funded work at SAC in 2006 and 2007
- Cultivar King Edward (foliar resistance 3, tuber resistance 4)
- Spray interval 7.7 days (2006) and 7.8 days (2007)
- Shirlan 0.3 l/ha in 2006 but 0.4 l/ha in 2007

Effect of spray order: foliar blight in 2006

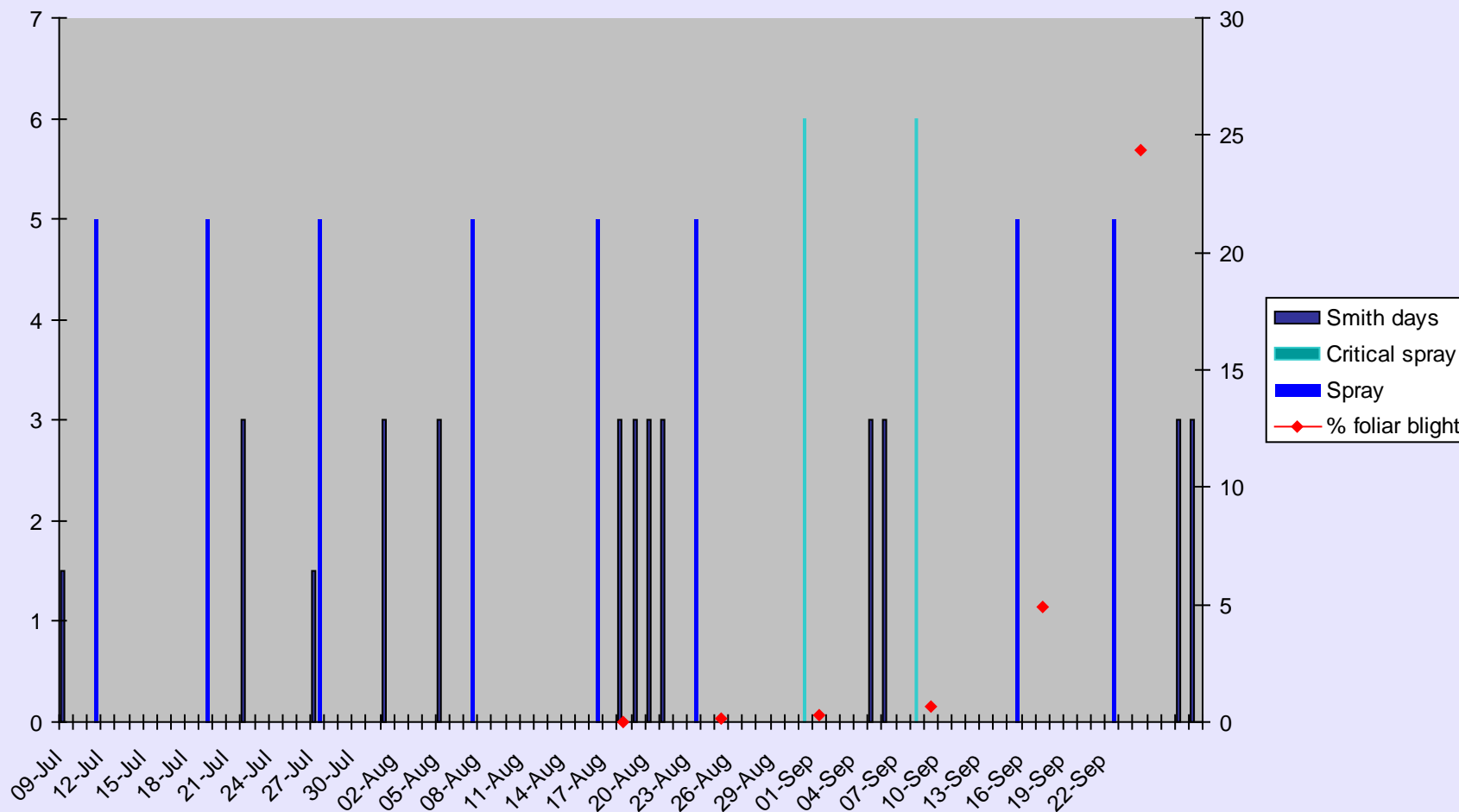


2006: sprays 4 to 10



	Cumulative Rating	% blight 24th Sep.
Blocked-RI	(28.5)	7.5
Blocked-SI	(25.5)	9.4
Altern.-IR	(30.5)	21.2
Altern.-IS	(27.5)	33.8
Blocked-IS	(24.0)	50.0
LSD (P=0.05)		10.3

2006 Spray dates in relation to Smith Periods



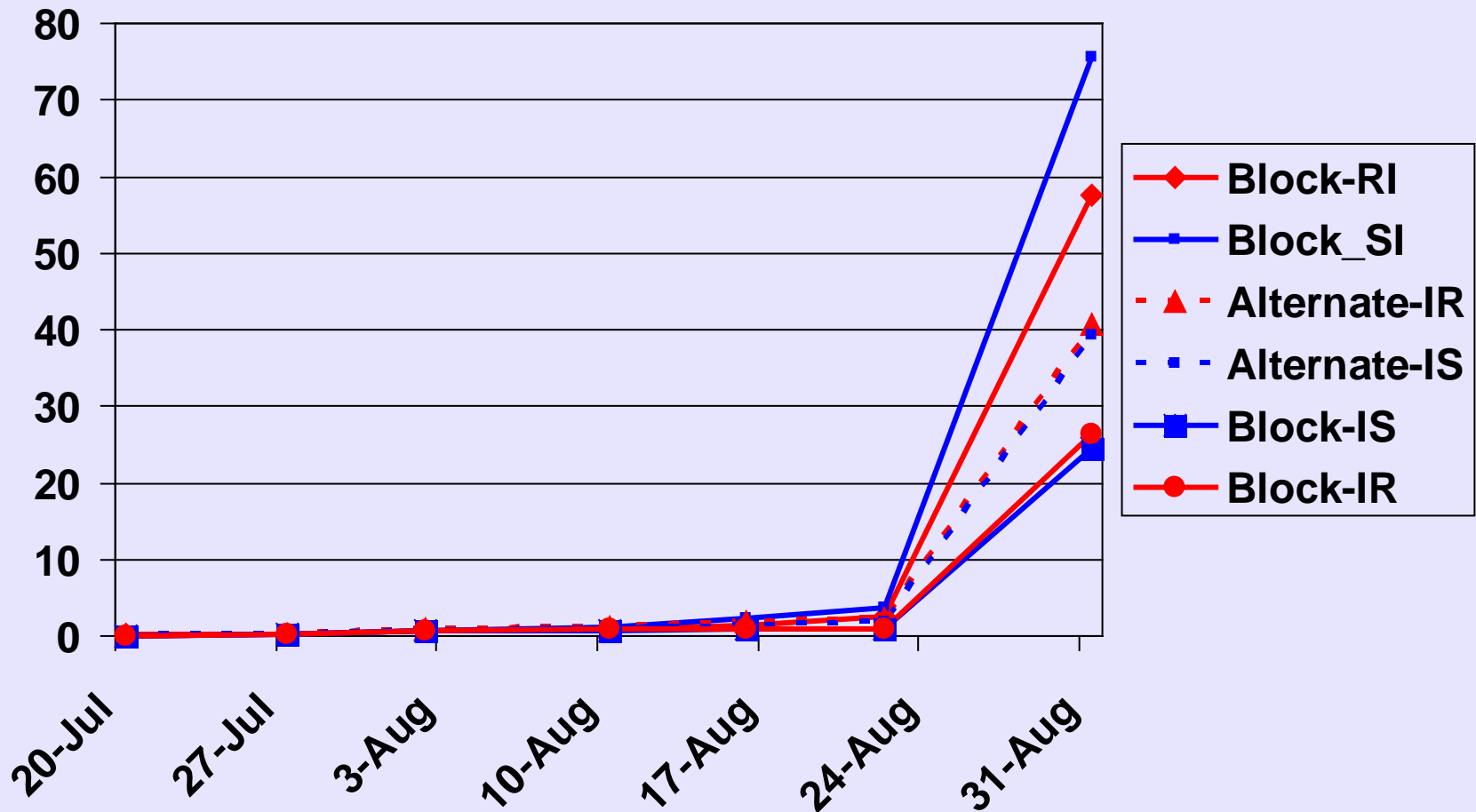
- Key properties of critical sprays
 - spray 7: persistence of protection (Smith Period 5 & 6 days later)
 - spray 8 : curative activity (Smith Period 2 days before)

2006 sprays 7 and 8



	31st Aug.	8th Sep.	Cumulative Rating	% blight 24th Sep.
Blocked-RI	Infinito	Infinito	10.0	7.5
Blocked-SI	Infinito	Infinito	10.0	9.4
Altern.-IR	Ranman	Infinito	9.5	21.2
Altern.-IS	Shirlan	Infinito	8.5	33.8
Blocked-IS	Shirlan	Shirlan	5.0	50.0
LSD (P=0.05)				10.3

Effect of spray order: foliar blight in 2007

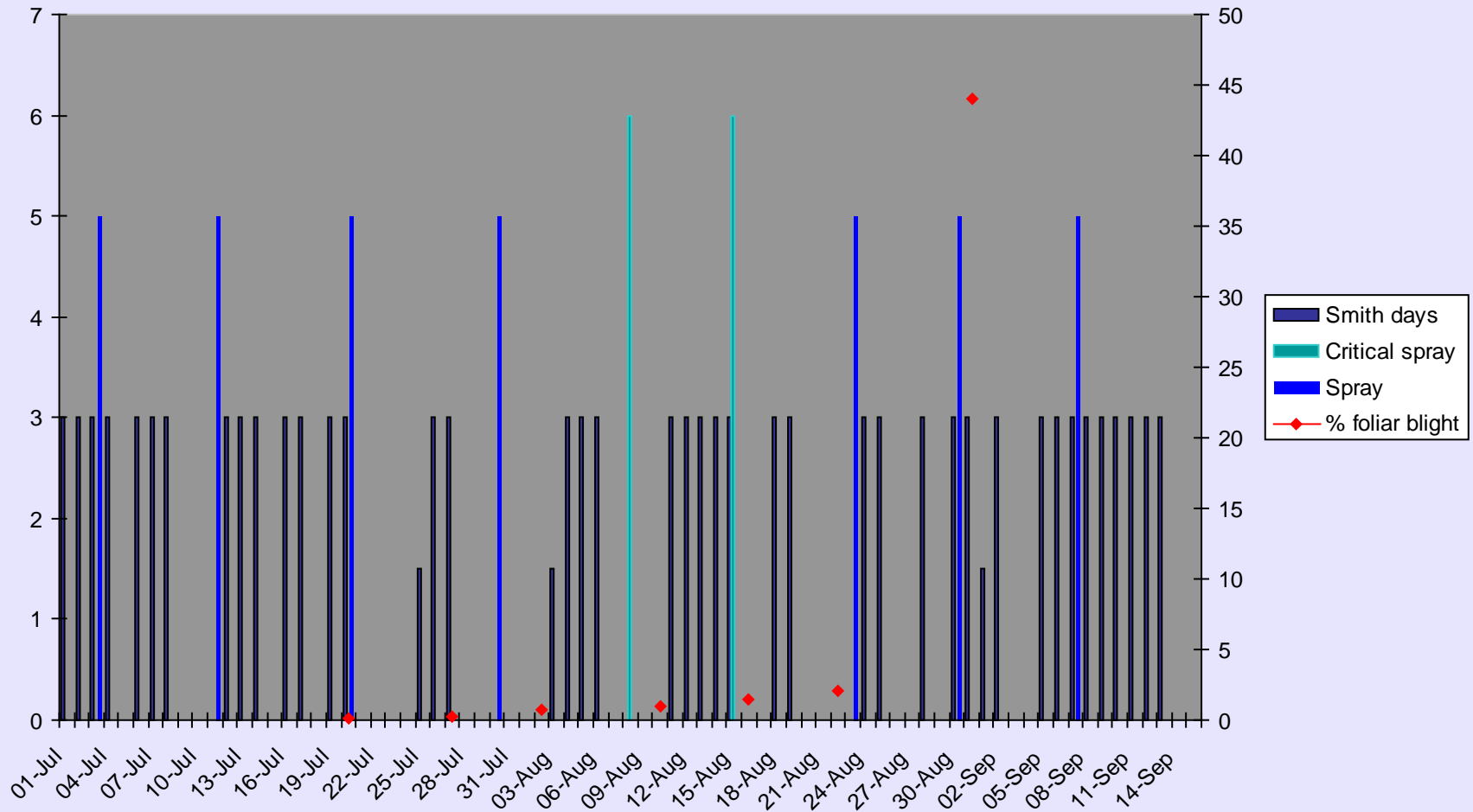


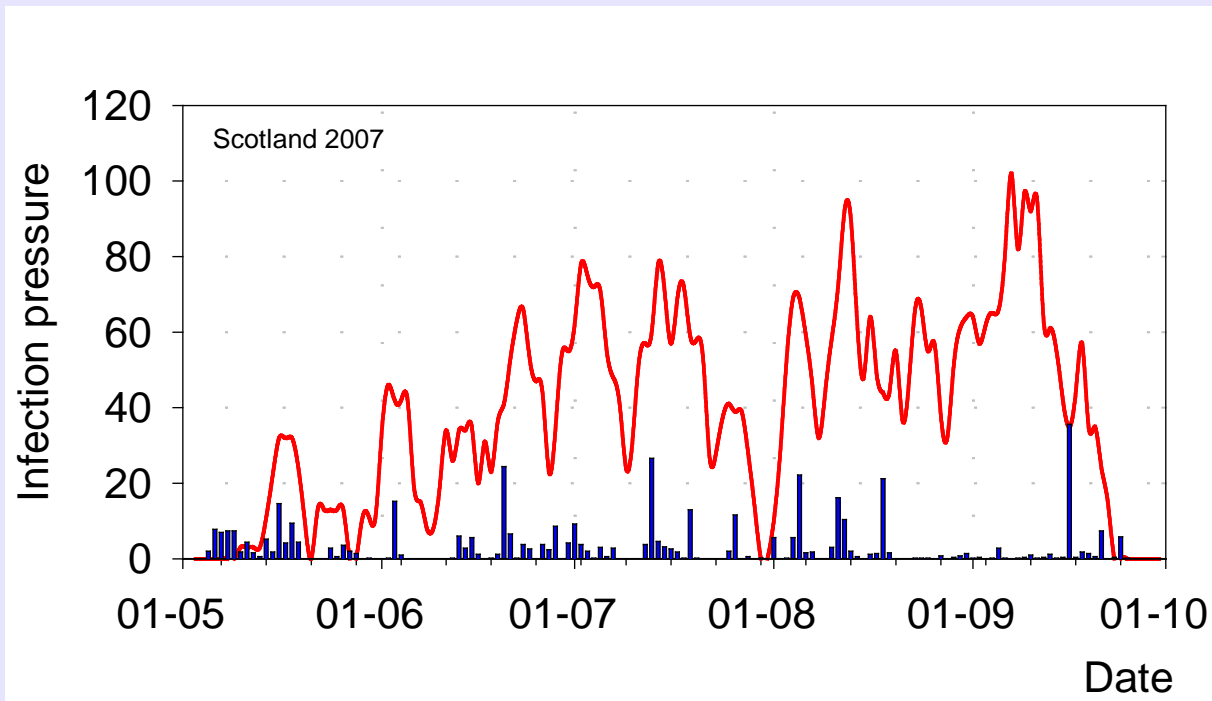
2007 sprays 4 to 9



	Cumulative Rating	% blight 31st Aug.
Block-IS	(23.5)	24.4
Block-IR	(26.5)	26.3
Altern.-IS	(21.5)	39.4
Altern.-IR	(24.5)	40.6
Block-RI	(24.5)	57.5
Block-SI	(21.5)	75.6
LSD (P=0.05)		7.6

2007 Spray dates in relation to Smith Periods





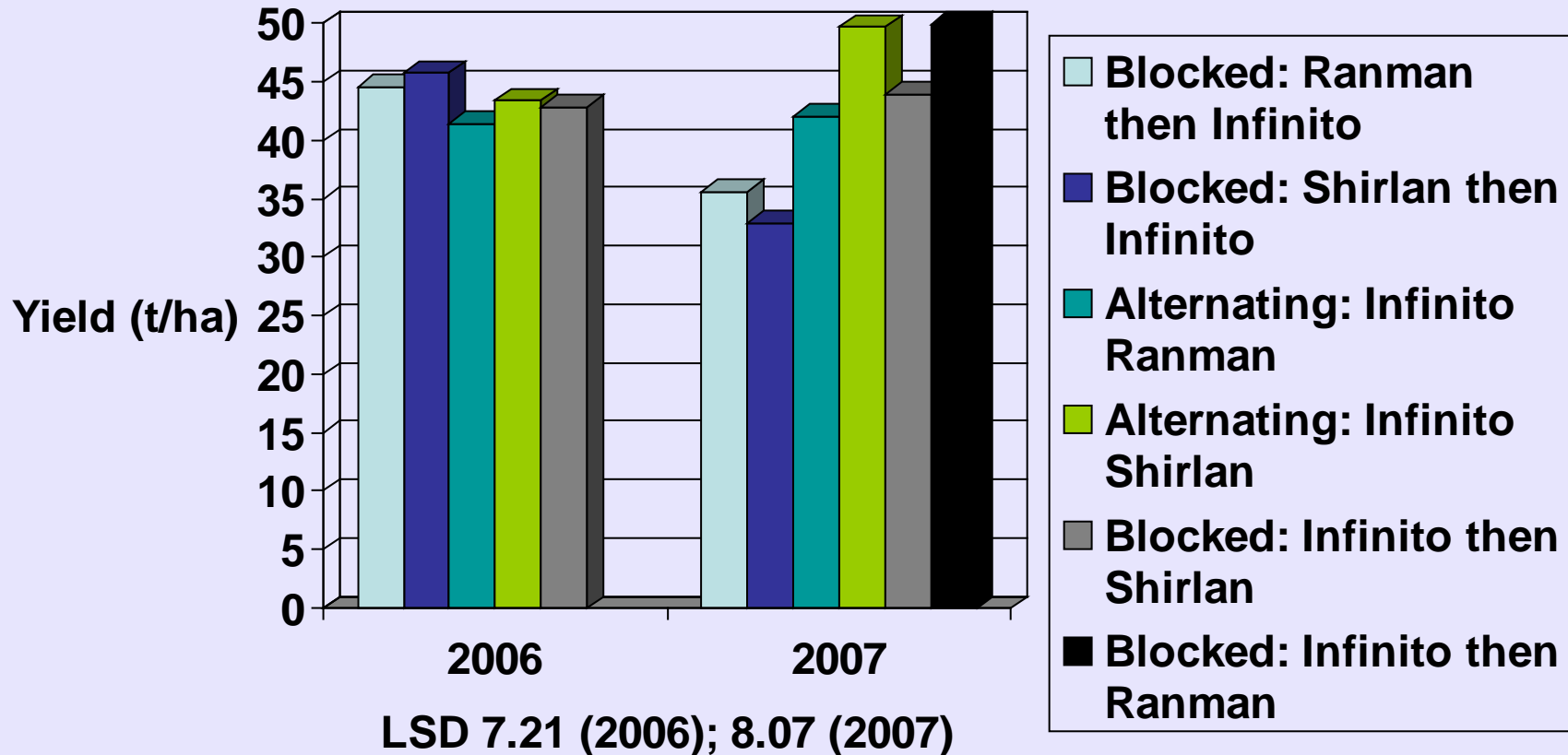
- Key properties of critical sprays
 - spray 5: curative activity and persistence of protection
 - spray 6 : curative activity and persistence of protection

2007 sprays 5 and 6



	8th Aug.	15th Aug.	Cumulative Rating	% blight 31st Aug.
Block-IS	Infinito	Infinito	12.0	24.4
Block-IR	Infinito	Infinito	12.0	26.3
Altern.-IS	Shirlan	Infinito	8.5	39.4
Altern.-IR	Ranman	Infinito	9.5	40.6
Block-RI	Ranman	Ranman	7.0	57.5
Block-SI	Shirlan	Shirlan	5.0	75.6
LSD (P=0.05)				7.6

Blight-free yield in relation to treatment



Effect of spray order: conclusions



- Spray order has a very large influence on the control of foliar blight
- Blocked fungicides can be either better or worse than alternating, i.e. alternation gave intermediate control
- The key point is to accurately match fungicide efficacies and properties to risk
 - persistence of protection, curative activity, rainfastness, tuber protection

Effect of spray order: conclusions



- In order to relate the efficacy of a fungicide programme to the ratings of the fungicides used it is necessary to identify the critical spray timings in relation to foliar epidemic development.

Acknowledgements



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Incidence (%) tuber blight in relation to treatment

