

Late Blight DSS simulations

Jgh, 3 September 2014

Questions to answer

1. What are the difference in recommended treatment frequency index between the Model A and B in 2014 at three trial locations in Denmark?
2. What is the influence of including leaf wetness for the calculation of humid hours?
3. What is the influence of model calculations if late blight appears early or late in the field (assuming that infections are active all through the season in the early infected field)?

Dose models tested

Model A						Model B					
<input type="radio"/> Interaktiv	Dosis	Fase 1	Fase 2	Fase 3	Fase 4	<input type="radio"/> Interaktiv	Dosis	Fase 1	Fase 2	Fase 3	Fase 4
<input type="radio"/> S1 2012	Infektionstryk > 60	50	75	100	100	<input type="radio"/> S1 2012	Infektionstryk > 60	50	50	75	100
<input checked="" type="radio"/> A2014	Infektionstryk 41 - 60	50	50	100	100	<input type="radio"/> A2014	Infektionstryk 41 - 60	0	50	75	75
<input type="radio"/> p	Infektionstryk 21 - 40	0	50	75	100	<input type="radio"/> p	Infektionstryk 21 - 40	0	50	50	75
<input type="radio"/> B2014	Infektionstryk 1 - 20	0	50	50	75	<input checked="" type="radio"/> B2014	Infektionstryk 1 - 20	0	0	25	50
	Infektionstryk 0	0	50	50	50		Infektionstryk 0	0	0	25	25

Variable factors included in the simulations

Factor	Options
Model version (level of risk taking level)	Model A and B
Correction for survival and including leaf wetness	Original and corrected
Use leaf wetness	Include leaf wetness or exclude leaf wetness in calculations (only for the corrected model)
Late blight in field	Early (25 May) or late (5 September)
Locations	Dronninglund (North Jutland), Ikast (Central Jutland) and Flakkebjerg (South of Zealand)

Model variations simulated and results for TFI (model run from 20 June to 3 September)

Model	Dronninglund	Ikast	Flakkebjerg
Model A - late attack	9.00	9.25	8.25
Model A – early attack	11.25	11.50	10.0
Model A – Corrected for survival and include leaf wetness	9.25	10.00	9.25
Model A – Corrected for survival only	9.25	10.00	9.00
Model A – Corrected SURV and LW and early attack	11.75	12.00	11.25
Model B – late attack	5.50	5.25	4.25
Model B – early attack	7.75	7.75	6.50
Model B – Corrected for survival and include leaf wetness	5.75	6.25	5.50
Model B – Corrected for survival only	5.75	6.25	4.75
Model B – Corrected SURV and LW and early attack	8.25	8.75	8.00

Preliminary conclusions

What are the difference in recommended treatment frequency index between the Model A and B in 2014 at three trial locations in Denmark ?

The overall mean differences between model A and B calculations are from 10.0 treatments to 6.5 treatments (Start spray 20 June until 3 September, weekly intervals). Highest TFI at IKAST if late blight were present all season, Model A – Corrected SURV and LW and early attack. Lowest TFI at Flakkebjerg of 4.25, Model B – late attack.

Overall Model B reduces TFI by 35% in 2014 at those stations

There is no difference in TFI between Dronninglund and Ikast. TFI for Flakkebjerg is 0.5 to 1.0 TFI lower than the other two stations

What is the influence of including leaf wetness for the calculation of humid hours?

The model runs including or excluding the use of Leaf wetness obtained the exact same results at Ikast and Dronninglund. At Flakkebjerg the inclusion of LW in calculation of humid hours increased the TFI with 0.25 to 0.75 TFI in 2014 for Model A and B respectively.

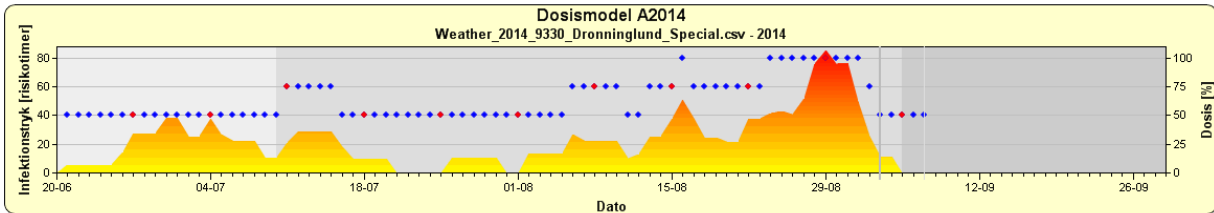
What is the influence of model calculations if late blight appears early or late in the field (assuming that infections are active all through the season in the early infected field)?

In general this increased the TFI by 2-2.5 TFI, e.g. at Dronninglund, Model A from 9.0 to 11.25, and at Ikast, Model B from 5.25 to 7.75.

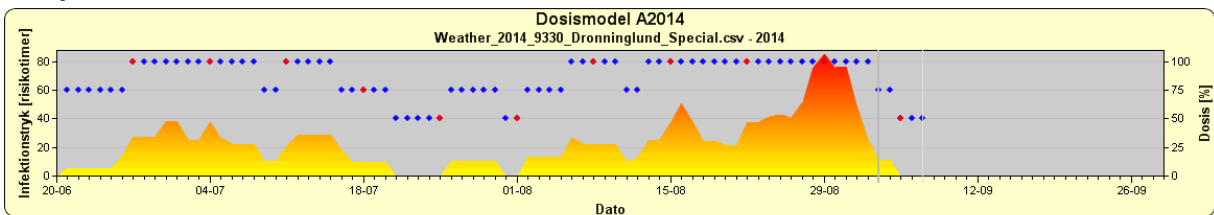
Appendix 1. Screen dumps of model runs

Dronninglund

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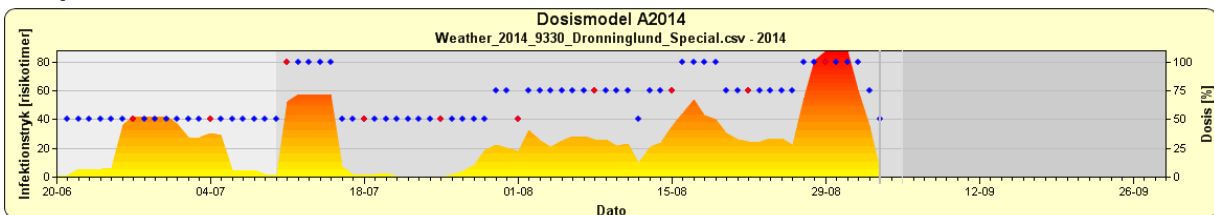


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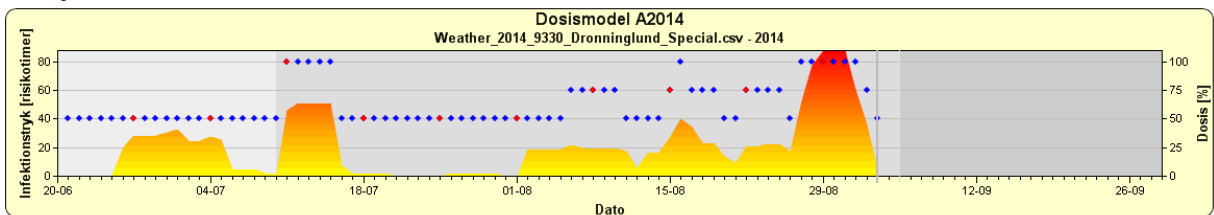


Dosis Model A. Top: phase shift, LB in Denmark: 25 May, LB in the region 10. Julu og LB in the field: 5 September. TFI=9.0. Bottom: phase shift, LB in the field: 25 May. TFI=11.25

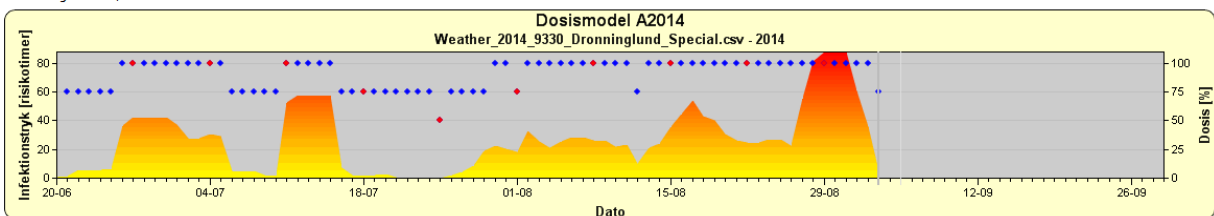
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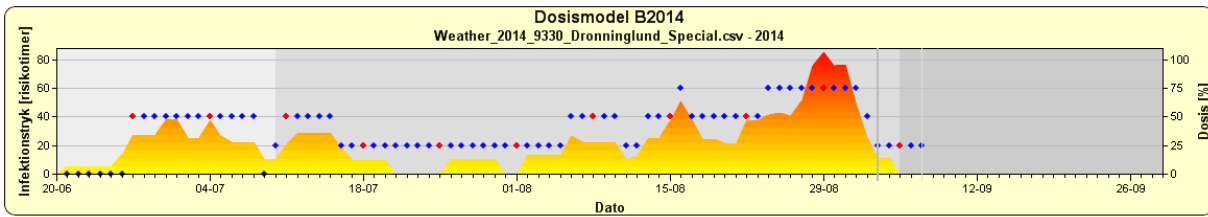


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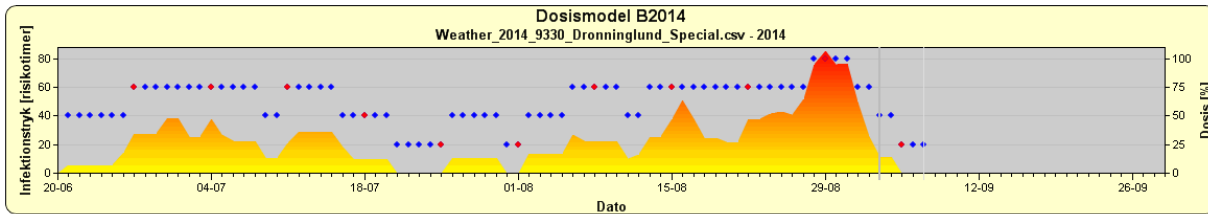


Dosis Model A. Top: Corrected for survival and including use of leafwetness. TFI=9.25. Middle: Corrected for survival and **NOT** including use of leafwetness. TFI=9.25. Bottom: Corrected for survival and including use of leafwetness. LB in the field from 25 May. TFI= 11.75

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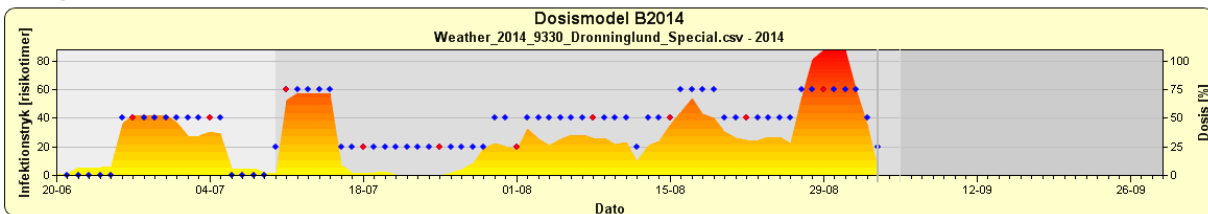


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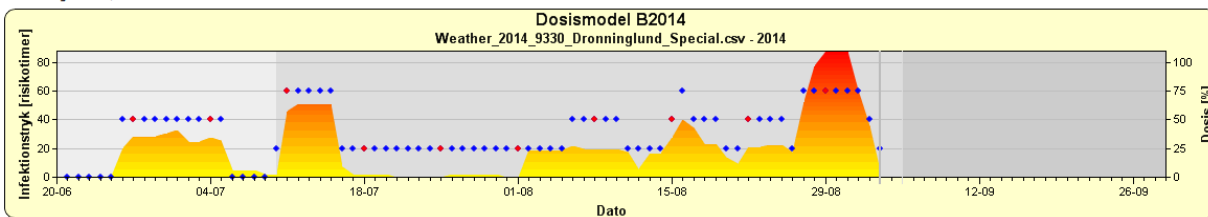


Dosis Model B. Top: phase shift, LB in Denmark: 25 May, LB in the region 10. Julu og LB in the field: 5 September. TFI=5.5. Bottom: phase shift, LB in the field: 25 May. TFI=7.75

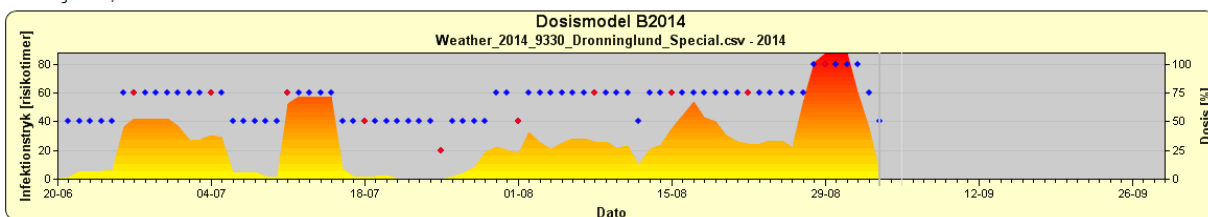
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Behandlingsindex 5,75



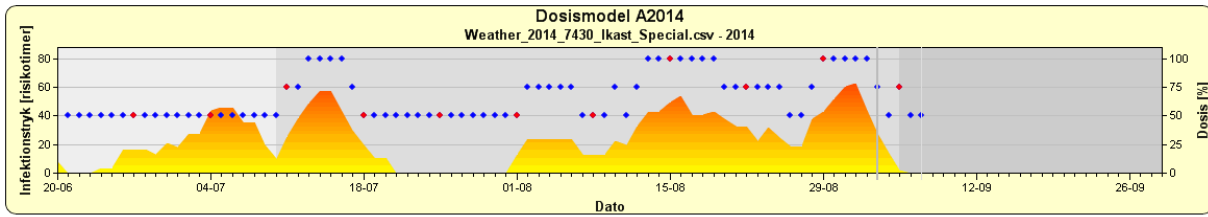
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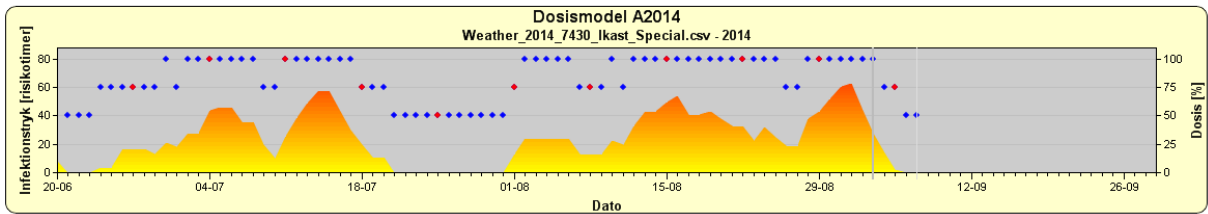
Dosis Model B. Top: Corrected for survival and including use of leafwetness. TFI=5.75. Middle: Corrected for survival and **NOT** including use of leafwetness. TFI=5.75. Bottom: Corrected for survival and including use of leafwetness. LB in the field from 25 May. TFI= 8.25

Ikast

Behandlingsindex 9,25

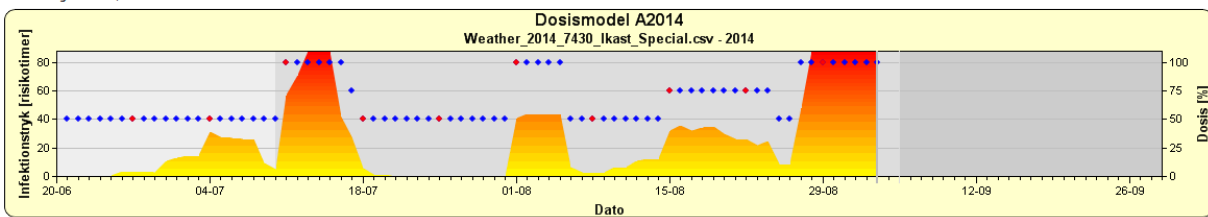


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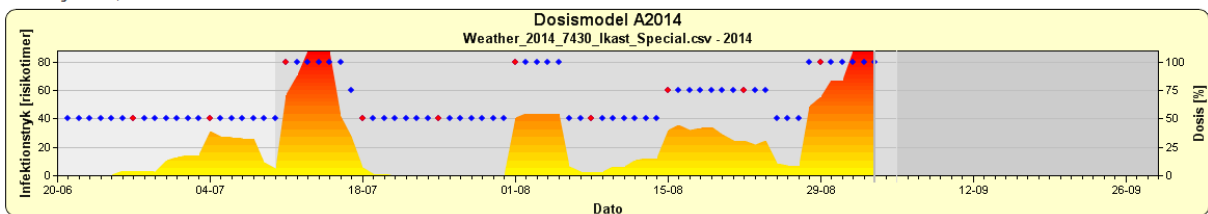


Dosis Model A. Top: phase shift, LB in Denmark: 25 May, LB in the region 10. Julu og LB in the field: 5 September. TFI=9.25. Bottom: phase shift, LB in the field: 25 May. TFI=11.50

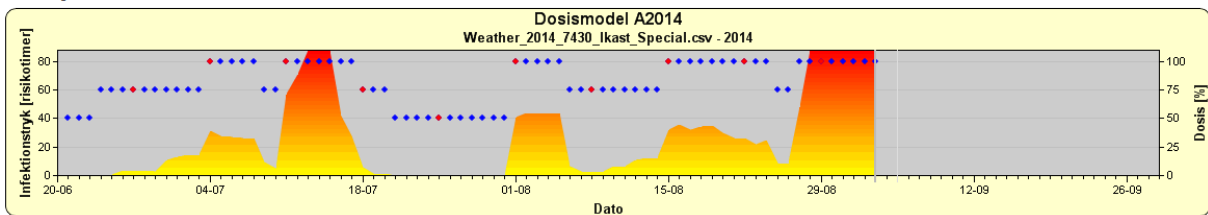
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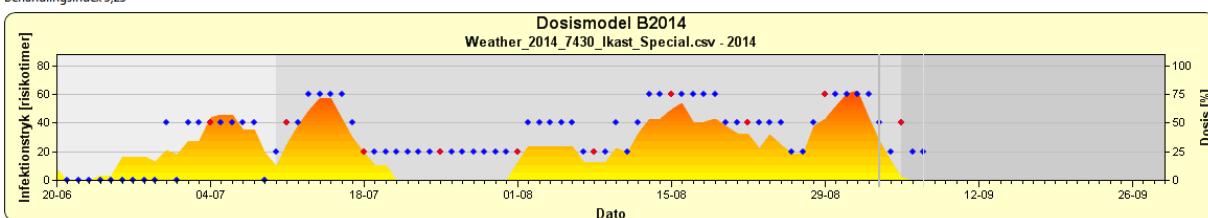


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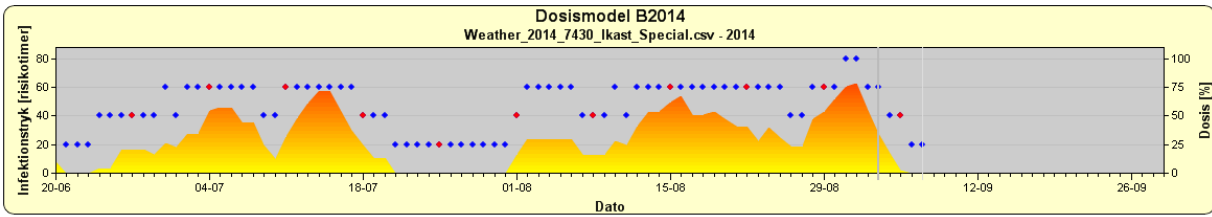


Dosis Model A. Top: Corrected for survival and including use of leafwetness. TFI=10.0. Middle: Corrected for survival and **NOT** including use of leafwetness. TFI=10.0. Bottom: Corrected for survival and including use of leafwetness. LB in the field from 25 May. TFI= 12.0

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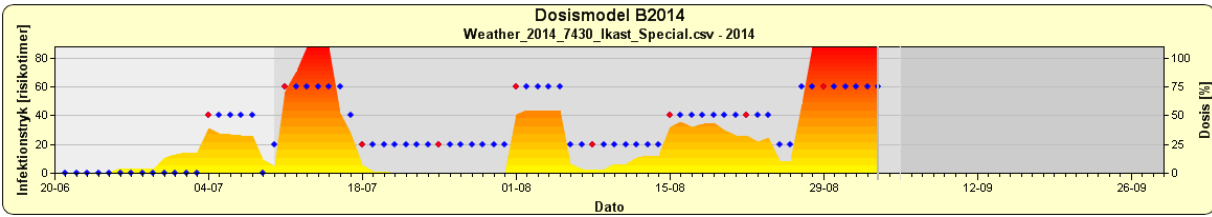


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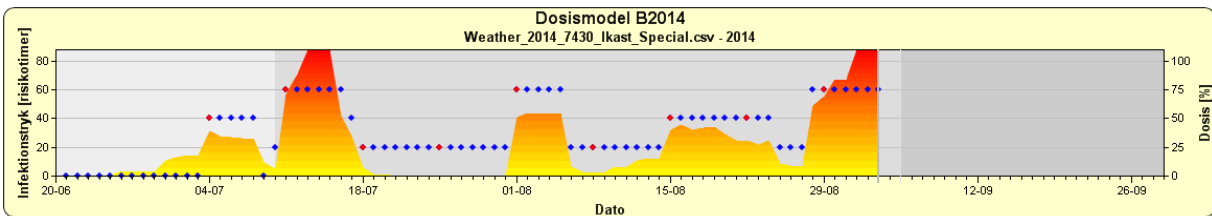


Dosis Model B. Top: phase shift, LB in Denmark: 25 May, LB in the region 10. Julu og LB in the field: 5 September. TFI=5.25. Bottom: phase shift, LB in the field: 25 May. TFI=7.75

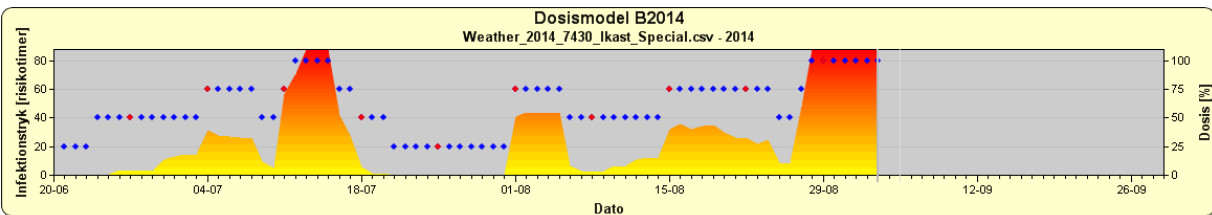
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Behandlingsindex 6,25



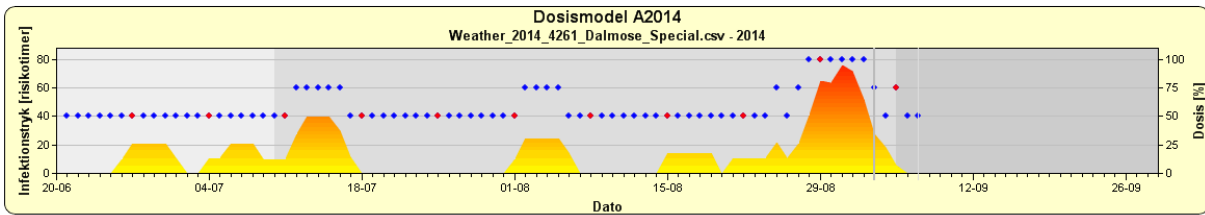
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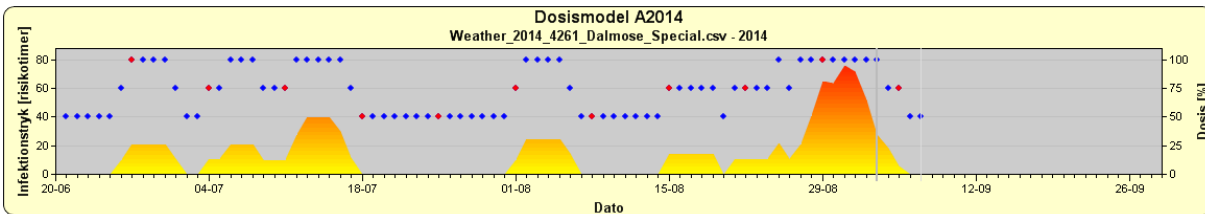
Dosis Model B. Top: Corrected for survival and including use of leafwetness. TFI=6.25. Middle: Corrected for survival and **NOT** including use of leafwetness. TFI=6.25. Bottom: Corrected for survival and including use of leafwetness. LB in the field from 25 May. TFI= 8.75

Flakkebjerg (Dalmose)

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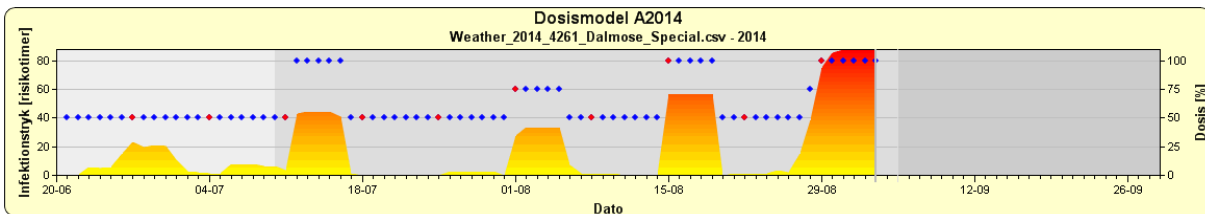


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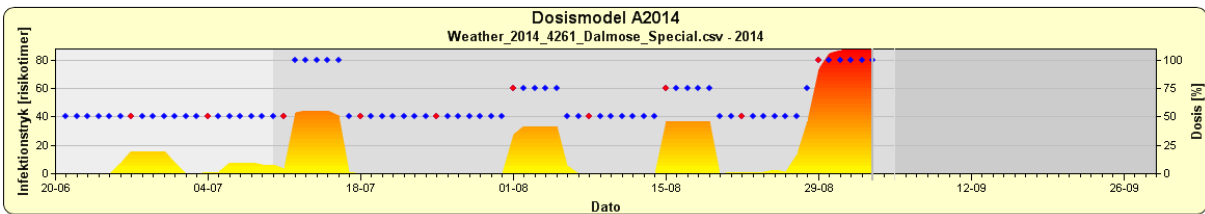


Dosis Model A. Top: phase shift, LB in Denmark: 25 May, LB in the region 10. Julu og LB in the field: 5 September. TFI=8.25. Bottom: phase shift, LB in the field: 25 May. TFI=10.0

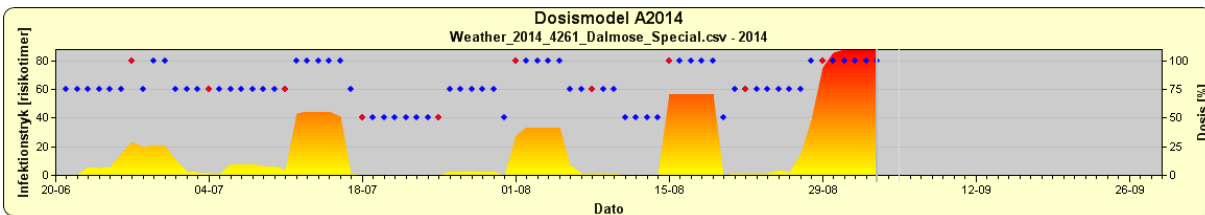
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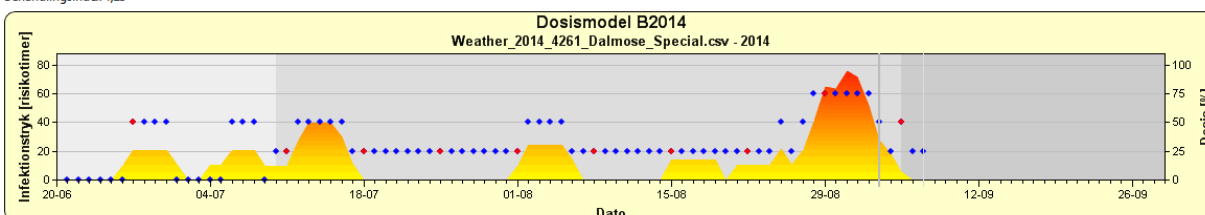


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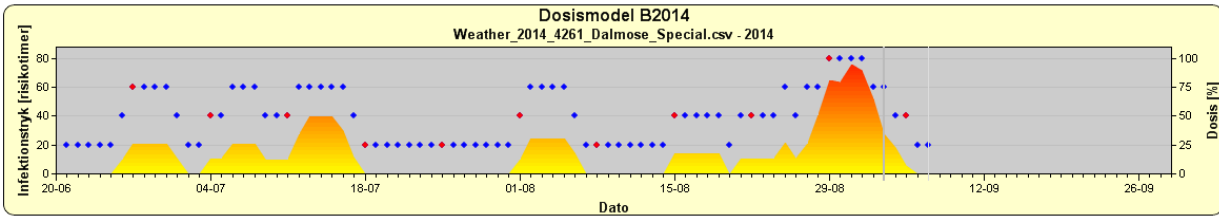


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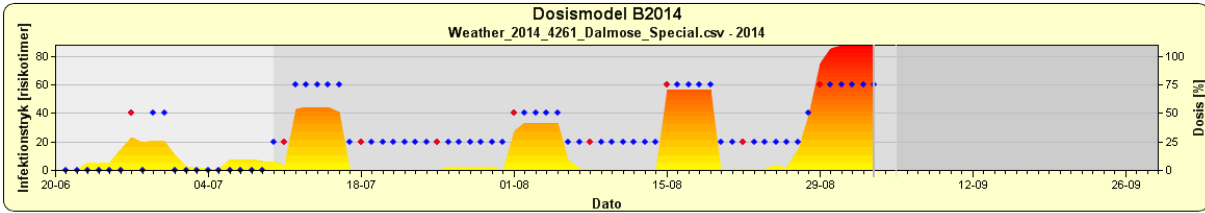


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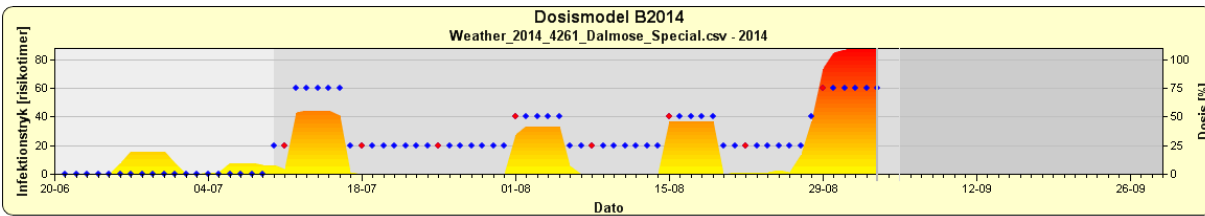


Dosis Model B. Top: phase shift, LB in Denmark: 25 May, LB in the region 10. Julu og LB in the field: 5 September. TFI=4.25. Bottom: phase shift, LB in the field: 25 May. TFI=6.5

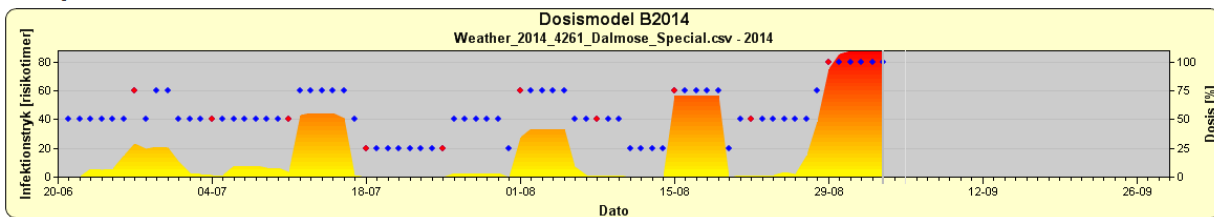
Behandlingsindex 5,50



Behandlingsindex 4,75



Behandlingsindex 8,00



Dosis Model B. Top: Corrected for survival and including use of leafwetness. TFI=5.5. Middle: Corrected for survival and **NOT** including use of leafwetness. TFI=4.75. Bottom: Corrected for survival and including use of leafwetness. LB in the field from 25 May. TFI= 8.0