



DACOM

Introduction Disease Management

Wiert Wiertsema

Contents



1 Introduction Dacom Disease Management

2 Daily usage

- Spray applications
- Crop observations
- Extreme weather

3 Year advice

4 Tips and tricks





Advice to prevent fungal infections

Input: crop-, field- & weather data

Model: lifecycle fungus &
level of protected foliage

Output: timing and type fungicide

General description of model



Increase of unprotected foliage

Infection risk with fungus

Disease advice



Increase of non-protected foliage



Two important factors:

1. Growth of foliage
2. Wear and tear of applied crop protection chemical

Development of non-protected part of crop



Increase of non-protected foliage



Two important factors:

1. Growth of foliage
2. Wear and tear of applied crop protection chemical

Growth depends on:

- Crop
- Variety
- Weather
- Observations

Wear and tear depends on:

- Type of chemical
- Weather

Development of non-protected part of crop



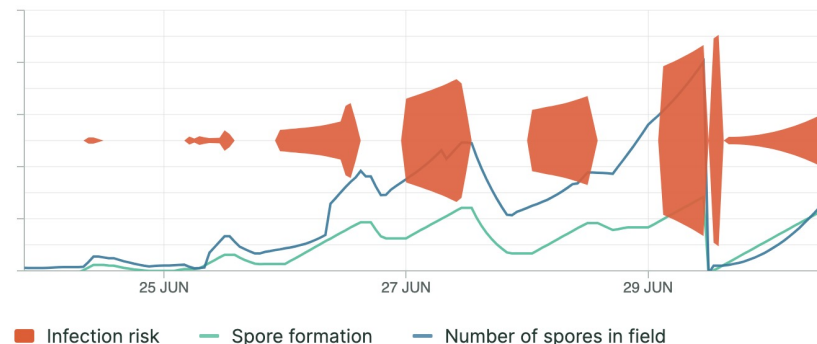
Infection risk with fungus



Infection risk is a combination of:

1. Number of spores in field
2. Spore formation
3. Weather circumstances
 - period of wet leaves
 - relative humidity
 - extreme weather conditions
 - etc.

Development of *Phytophthora infestans* with unprotected crop



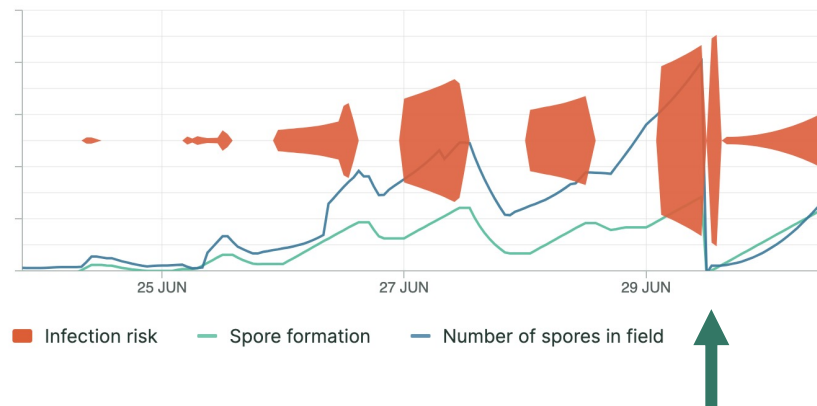
Infection risk with fungus



Infection risk is a combination of:

1. Number of spores in field
2. Spore formation
3. Weather circumstances
 - period of wet leaves
 - relative humidity
 - extreme weather conditions
 - etc.

Development of *Phytophthora infestans* with unprotected crop



Are there many spores according to the model, and is there risk for infection?
→ Infection risk

Example: wet leaves combined with spores
or damaged leaves are extra vulnerable

Spraying

Disease advice

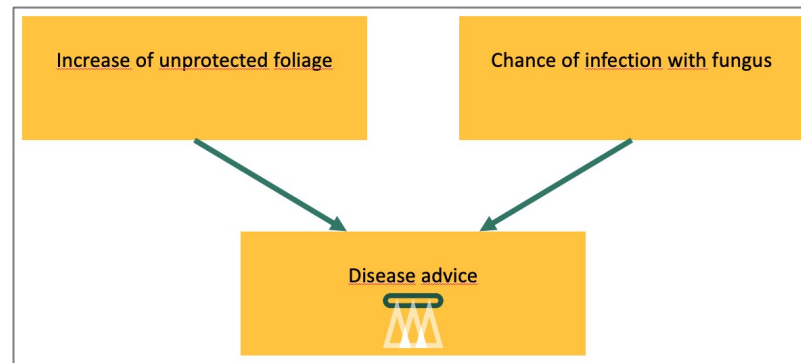


Is there **risk of infection** together with **non-protected leaves**?

→ Advice to spray

3 types of advice

1. Contact (bijv. Shirlan Gold)
2. Translaminair (bijv. Valbon)
3. Systemic (bijv. Inifito)



Disease advice



Is there **risk of infection** together with **non-protected leaves**?

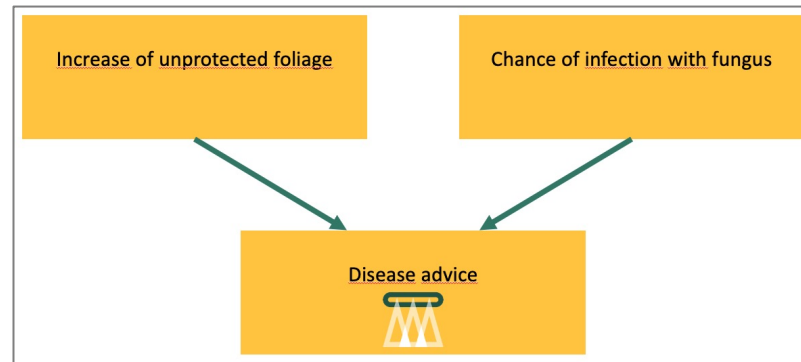
→ Advice to spray

3 types of advice

1. Contact (bijv. Shirlan Gold)
2. Translaminair (bijv. Valbon)
3. Systemic (bijv. Inifito)

Type of advice depends on:

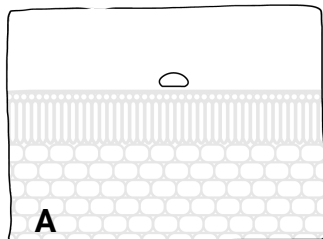
- Moment of infection
- Severity of infection



Moment of infection

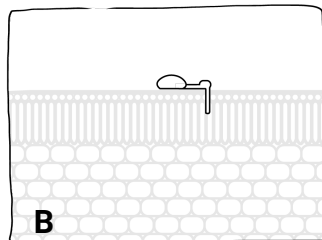


- No penetration in leave tissue
- Spray with contact fungicide



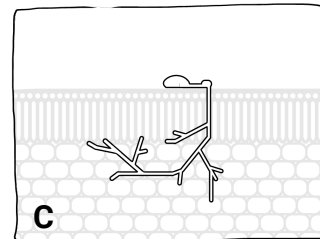
+48 hour to -12 hour

- Superficial penetration in leave tissue
- Spray with transaminair fungicide



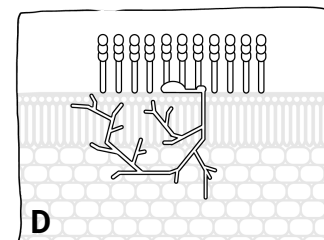
-12 hour to -48 hour

- Considerable penetration in leave tissue
- Intervention possible with systemic fungicides



-48 hour to -72 hour

- Severe penetration in leave tissue
- No treatment possible
- Disease visible on plant

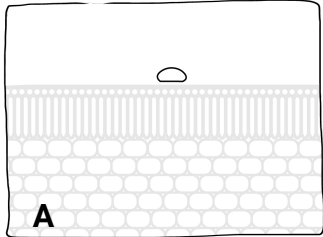


-72 hour to last spraying

Moment of infection

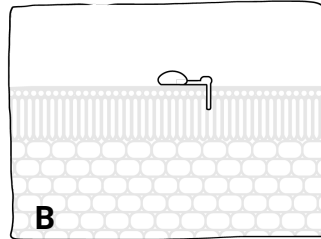


- No penetration in leave tissue
- Spray with contact fungicide



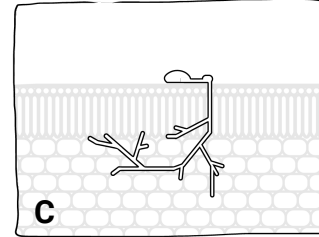
+48 hour to -12 hour

- Superficial penetration in leave tissue
- Spray with transaminair fungicide



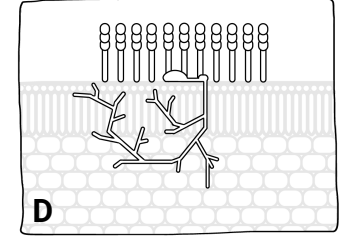
-12 hour to -48 hour

- Considerable penetration in leave tissue
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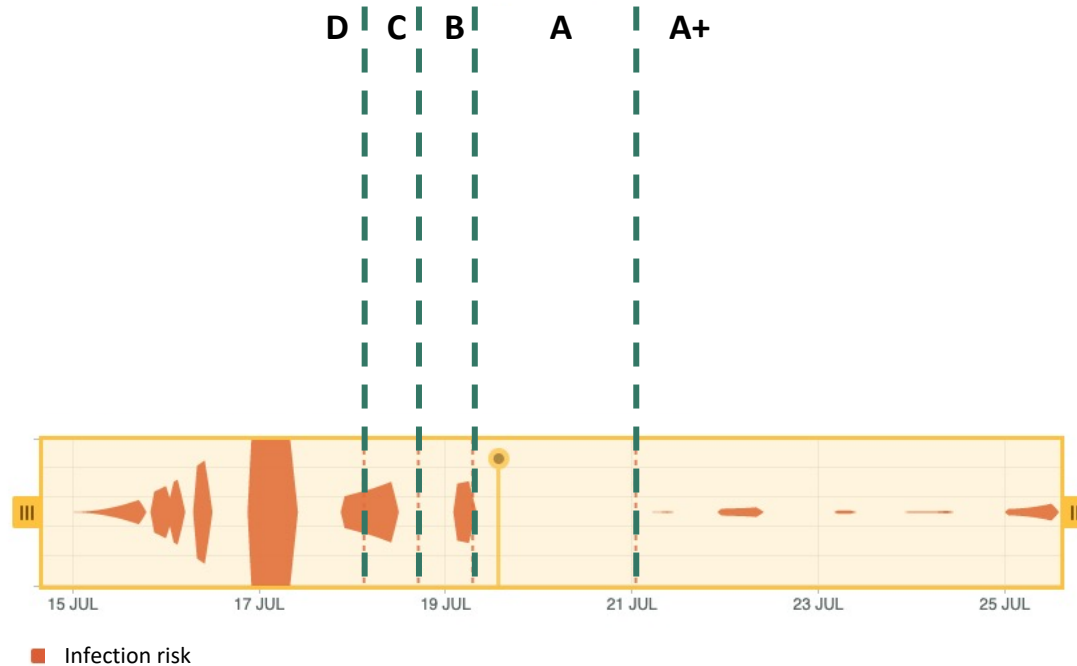
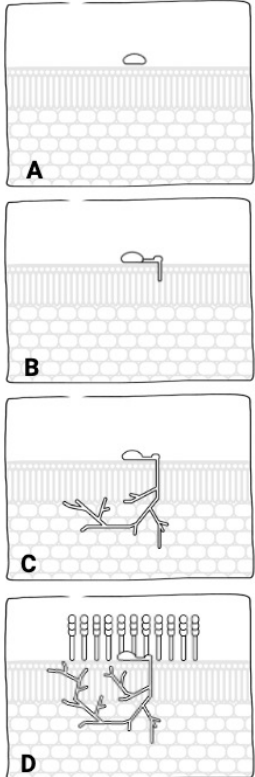
Phase A; B; C; D

When was moment of infection? So what is current developmental stage of fungus?

Severity of infection



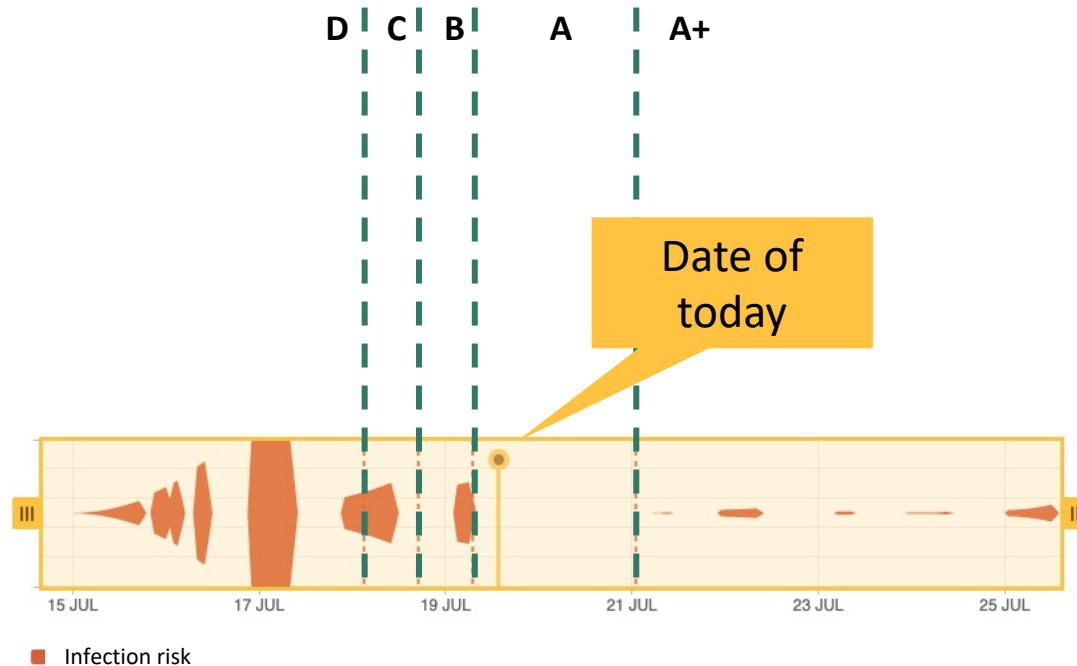
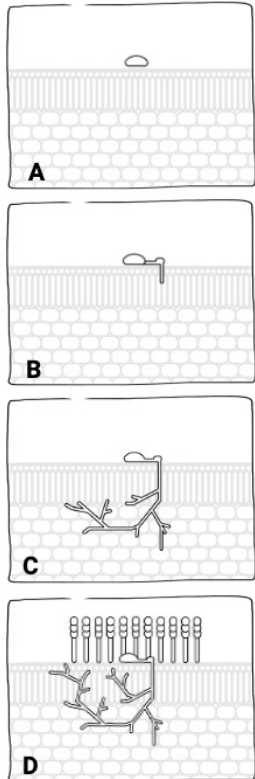
Severity → combination of chance of infection with unprotected foliage



Severity of infection



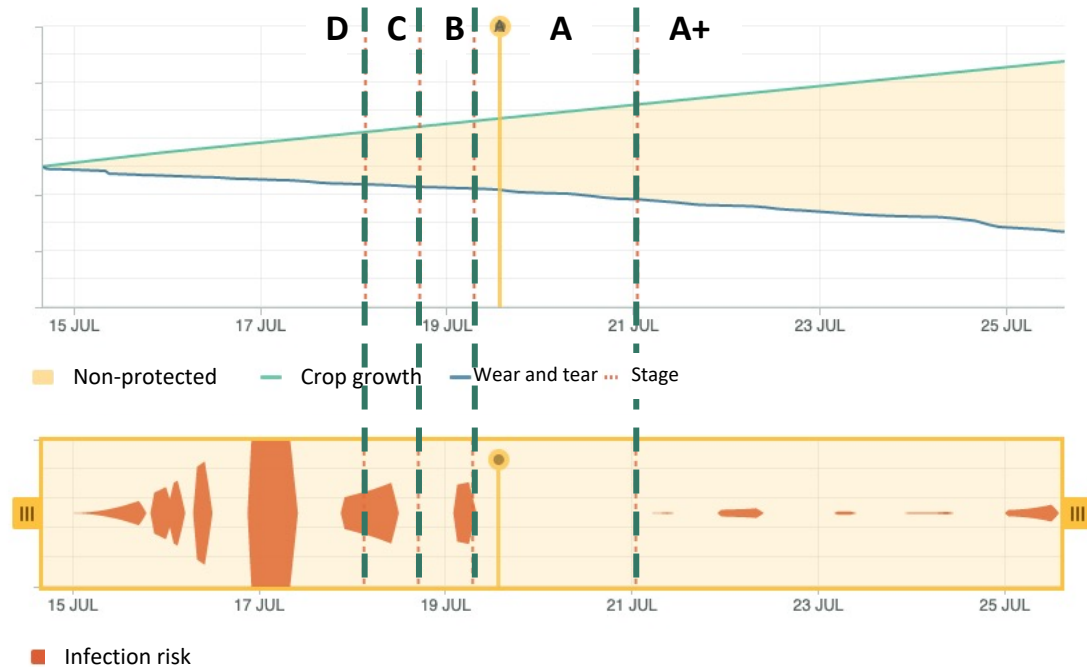
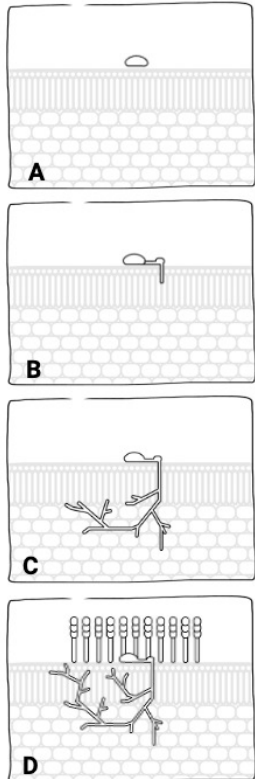
Severity → combination of chance of infection with unprotected foliage



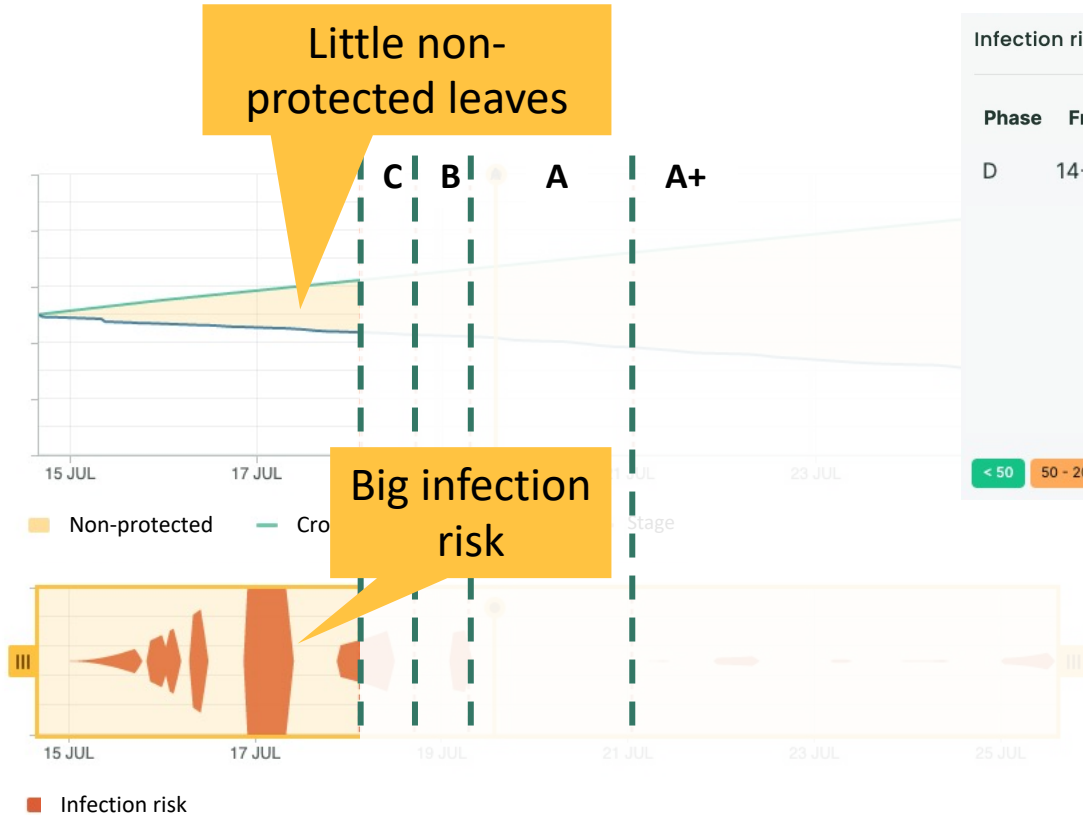
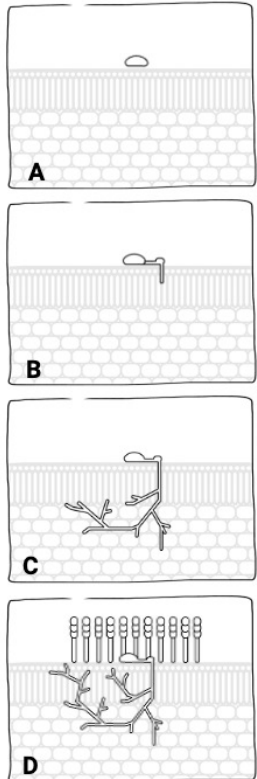
Severity of infection



Severity → combination of chance of infection with unprotected foliage



Severity of infection

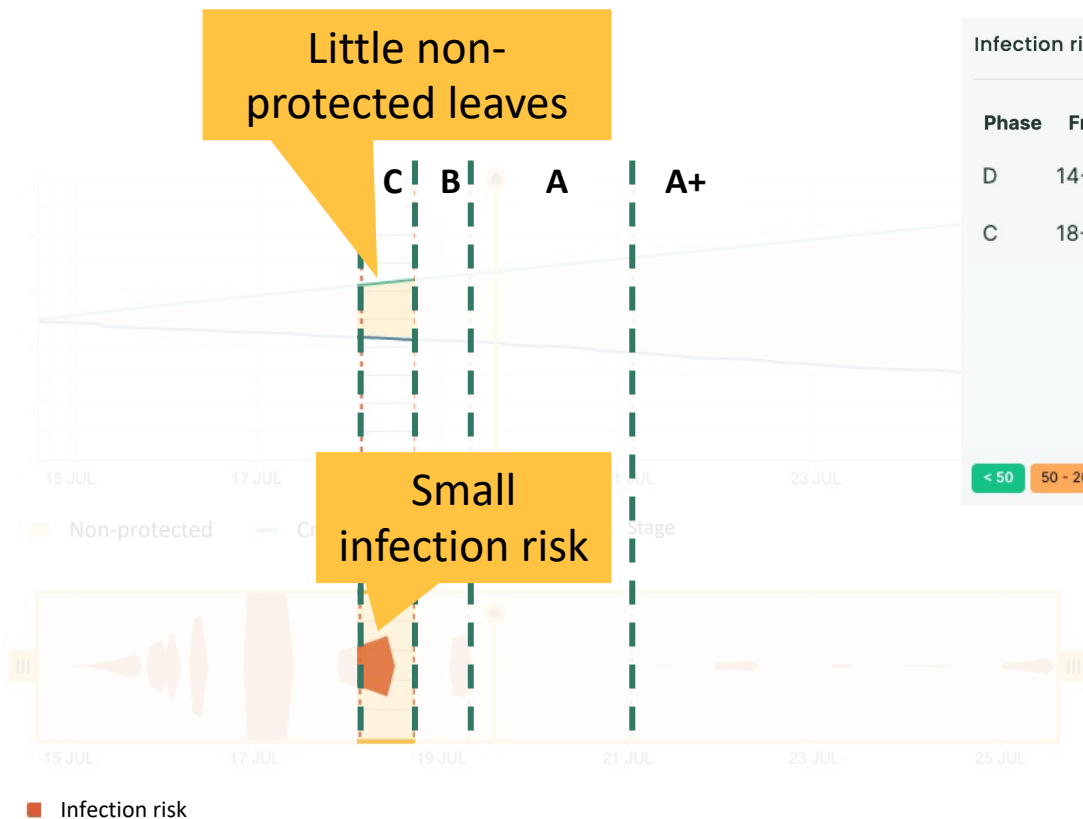
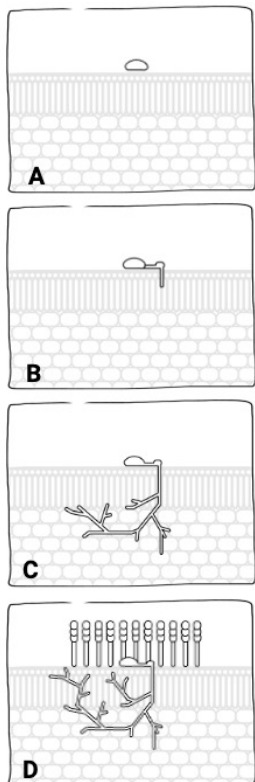


Infection risks

Phase	From	To	Severity
D	14-07-2021 16:00	18-07-2021 03:00	D: 130

< 50 50 - 200 > 200

Severity of infection

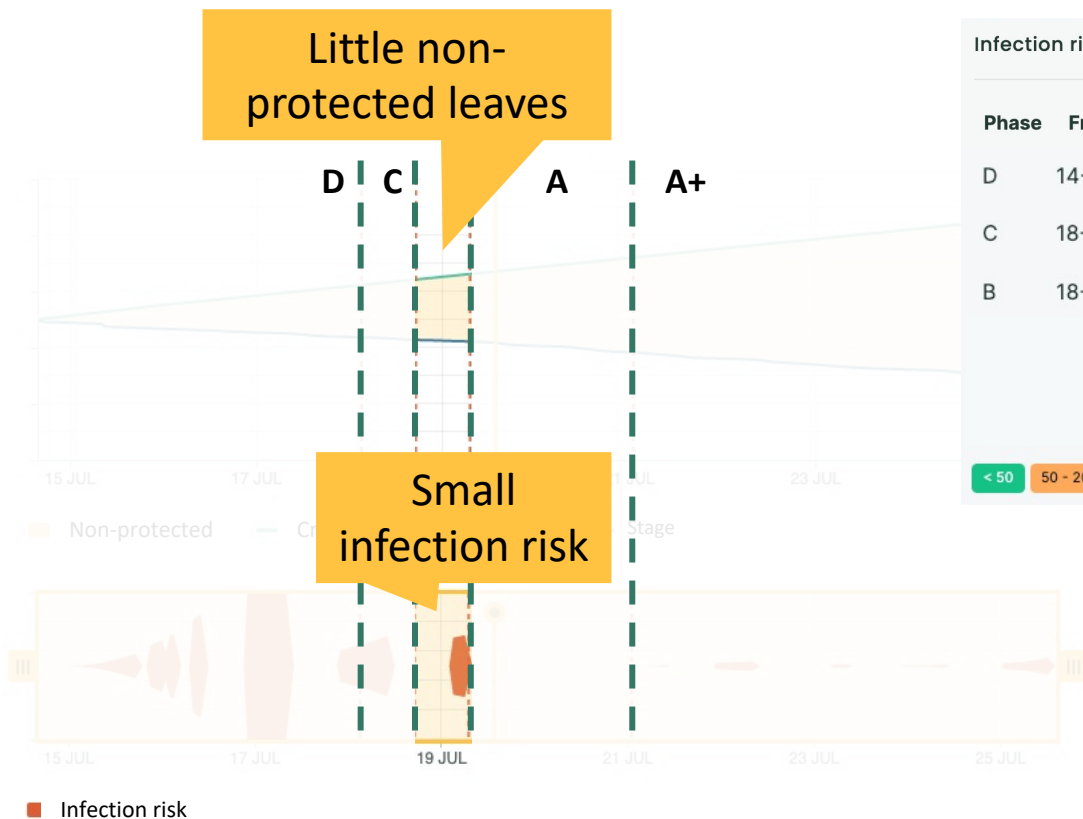
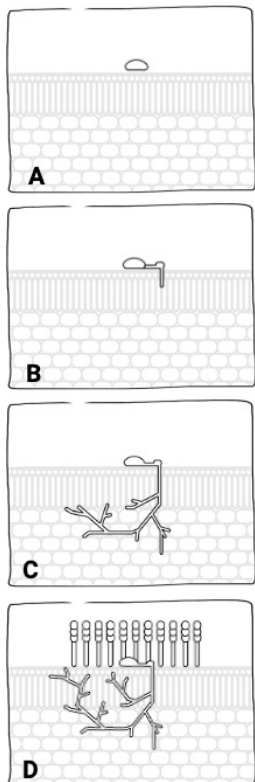


Infection risks

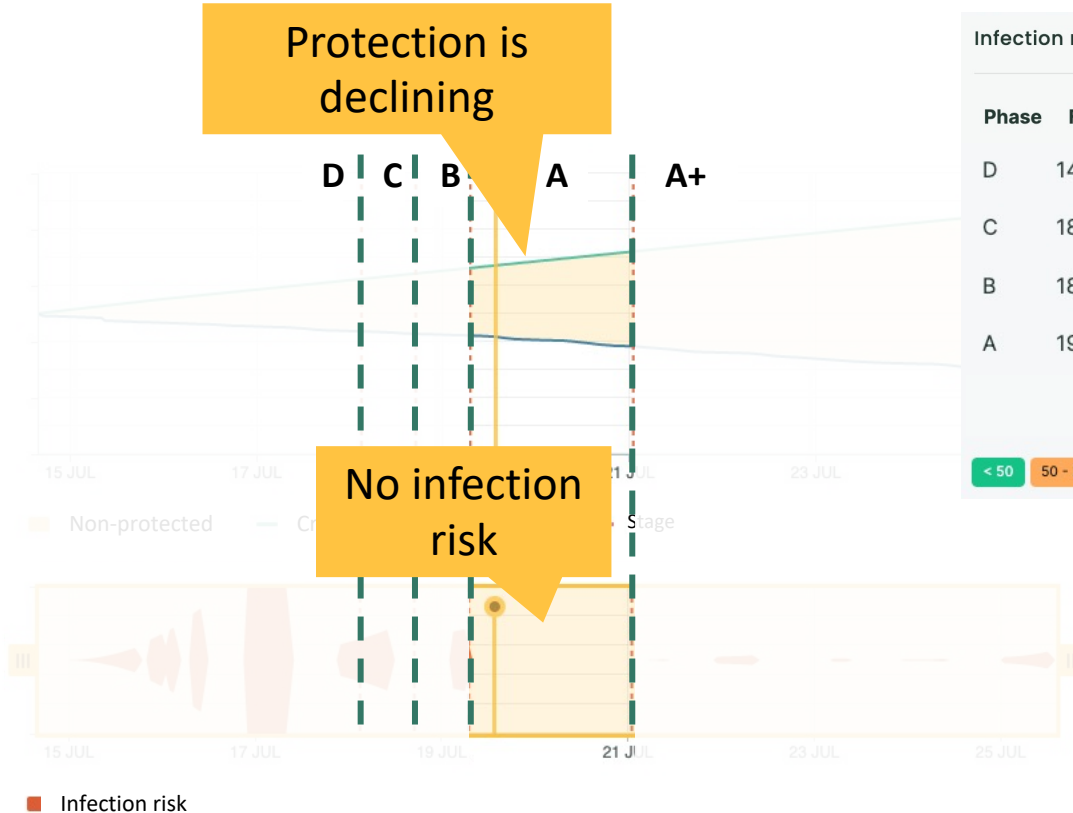
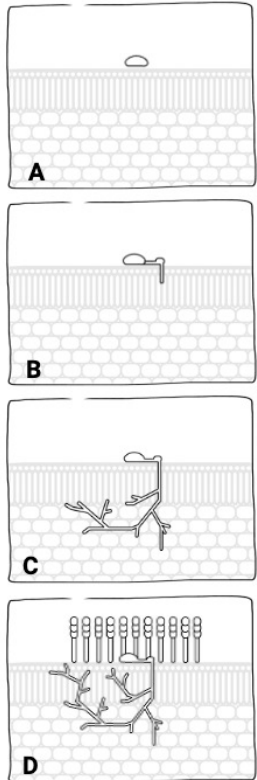
Phase	From	To	Severity
D	14-07-2021 16:00	18-07-2021 03:00	D: 130
C	18-07-2021 03:00	18-07-2021 17:00	C: 38

< 50 50 - 200 > 200

Severity of infection



Severity of infection

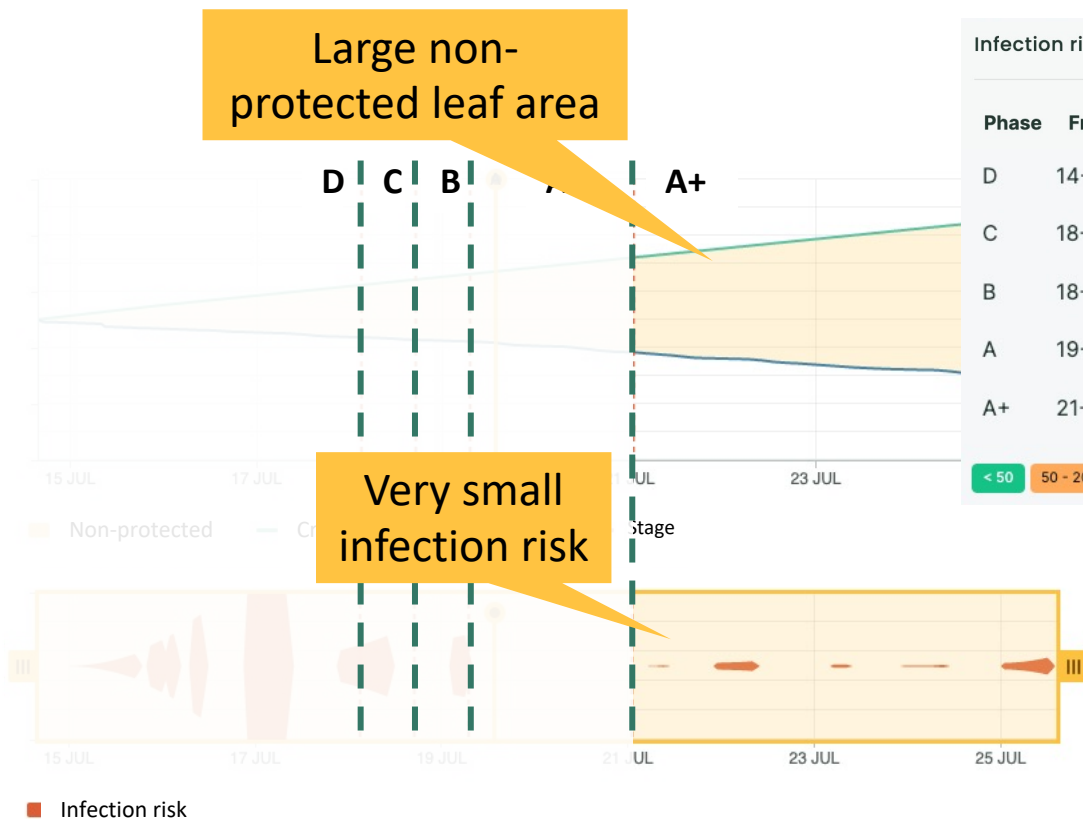
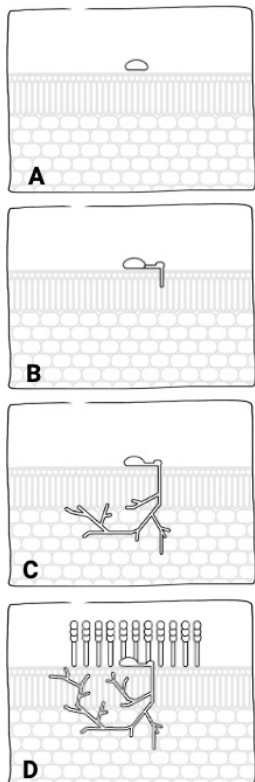


Infection risks

Phase	From	To	Severity
D	14-07-2021 16:00	18-07-2021 03:00	D: 130
C	18-07-2021 03:00	18-07-2021 17:00	C: 38
B	18-07-2021 17:00	19-07-2021 07:00	B: 22
A	19-07-2021 07:00	21-07-2021 01:00	A: 4

< 50
50 - 200
> 200

Severity of infection



Infection risks

Phase	From	To	Severity
D	14-07-2021 16:00	18-07-2021 03:00	D: 130
C	18-07-2021 03:00	18-07-2021 17:00	C: 38
B	18-07-2021 17:00	19-07-2021 07:00	B: 22
A	19-07-2021 07:00	21-07-2021 01:00	A: 4
A+	21-07-2021 01:00	-	A+: 63

< 50
50 - 200
> 200

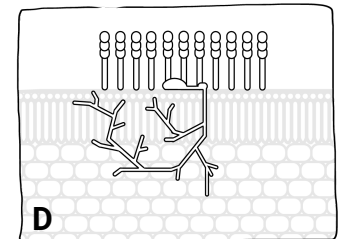
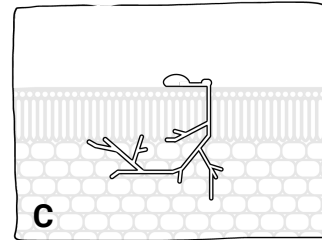
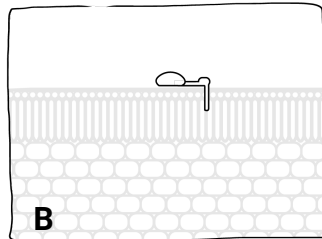
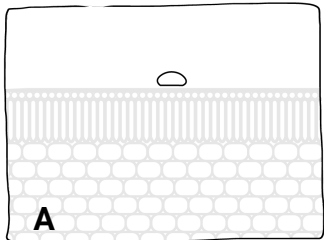
Dacom Disease Management



1. Moment of infection:
When was there infection risk?

Infection risks

Phase	From	To
D	14-07-2021 18:00	17-07-2021 11:00
C	17-07-2021 11:00	18-07-2021 09:00
B	18-07-2021 09:00	18-07-2021 23:00
A	18-07-2021 23:00	20-07-2021 21:00
A+	20-07-2021 21:00	-



Dacom Disease Management



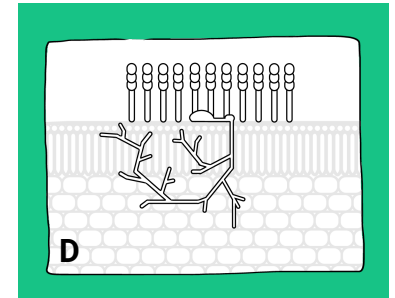
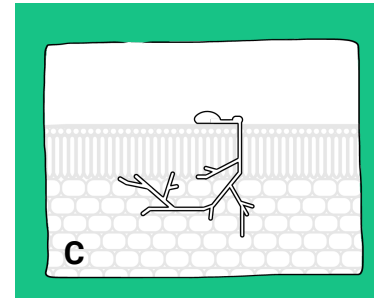
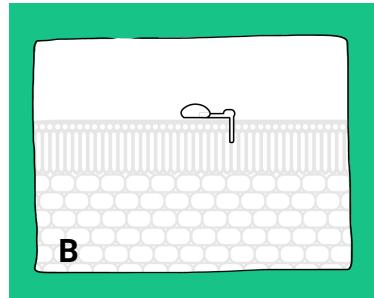
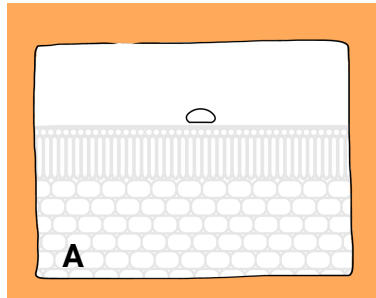
1. Moment of infection:
When was there infection risk?

2. Severity:
How big was the risk?

Infection risks

Phase	From	To	Severity
D	14-07-2021 18:00	17-07-2021 11:00	D: 3
C	17-07-2021 11:00	18-07-2021 09:00	C: 32
B	18-07-2021 09:00	18-07-2021 23:00	B: 13
A	18-07-2021 23:00	20-07-2021 21:00	A: 83
A+	20-07-2021 21:00	-	A+: 19

< 50 50 - 200 > 200



Dacom Disease Management



1. Moment of infection:
When was there infection risk?

2. Severity:
How big was the risk?

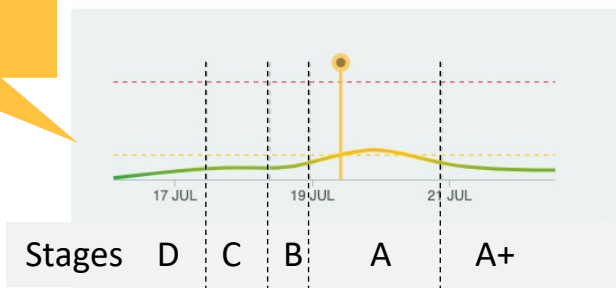
Infection risks

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A+	20-07-2021 21:00	-	A+: 19

< 50 50 - 200 > 200

Summary of
table

~ Phytophthora infestans ⓘ Consider application of contact fungicide

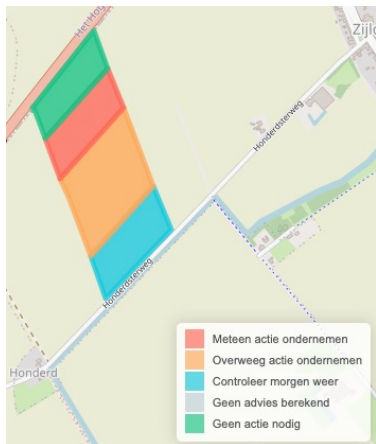


Dacom Disease Management



1. Moment of infection:
When was there infection risk?

2. Severity:
How big was the risk?



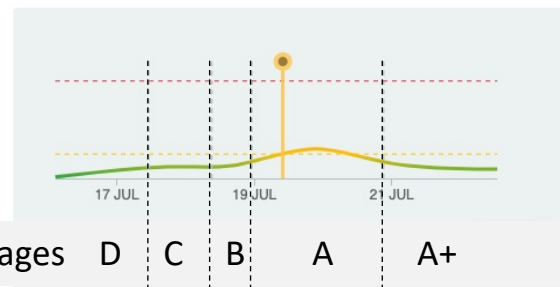
Orange field
corresponds with table

Infection risks

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< 50 50 - 200 > 200

~ *Phytophthora infestans* ○ Consider application of contact fungicide



Daily use



We have seen the outline of the model under the hood,

now we explain how to work with the engine for daily use



Daily use



1. Crop observations

<https://www.dacom.nl/wp-content/uploads/2018/04/OBSERVATION-TABLES-DISEASE-MANAGEMENT.pdf>

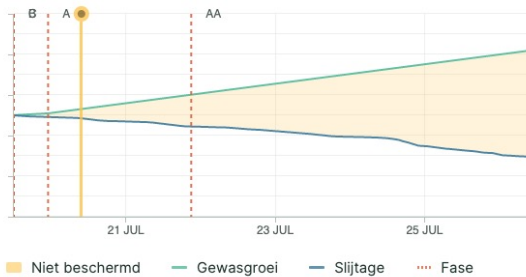
Crop observations



Growth: 10

20 cm growth

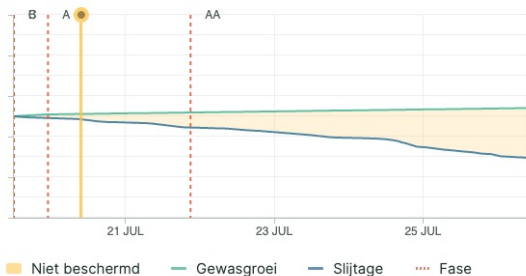
Toename van het niet beschermde deel van het gewas



Growth: 1

2 cm growth

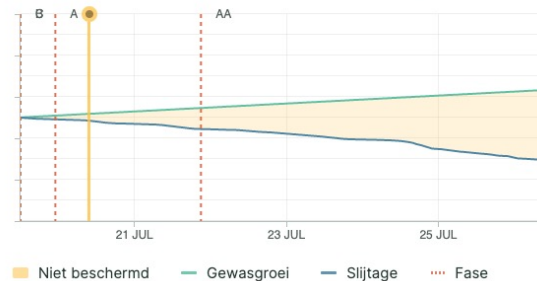
Toename van het niet beschermde deel van het gewas



No observation:

Assumption of growth of 8 cm/week

Toename van het niet beschermde deel van het gewas



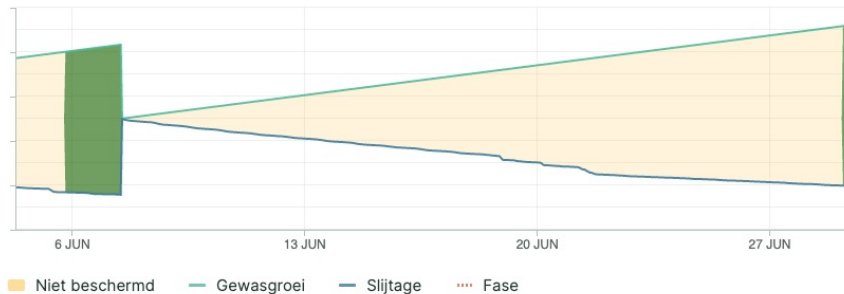
Crop observations



Extreme weather

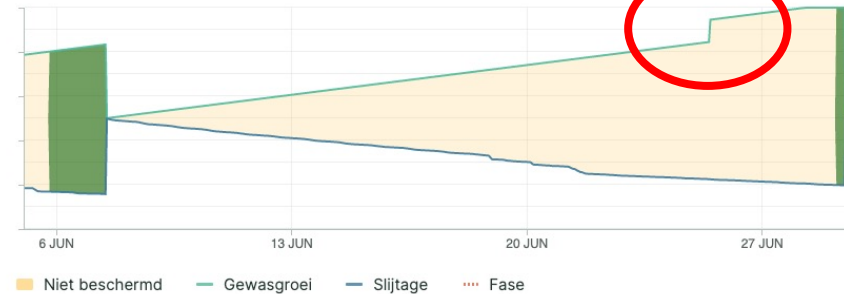
Without hail

Toename van het niet beschermde deel van het gewas



With hail at June 25th
(30%)

Toename van het niet beschermde deel van het gewas



Daily use



1. Crop observations
<https://www.dacom.nl/wp-content/uploads/2018/04/OBSERVATION-TABLES-DISEASE-MANAGEMENT.pdf>
2. Recording of Crop Protection
→ Demo
3. Consulting the Disease Management
→ Demo

Year advice



The year advice is a tool for evaluation of applied management

Questions to be answered with the Year advice are

Did I miss moments with high infection risk?

Did I spray at unnecessary moments?

→ Demo

Tips and tricks



- Make only use of crop names and variety names that are included in the system

Crop

Ware potatoes ▼

Variety

Fontane ▼

Crop

Delicious potatoes (new/custom) ▼

Variety

Fontane ▼

At field properties (**new/custom**) is included after the crop/variety name if you created your own.
In this situation, the Disease Management won't work

Tips and tricks



- Make only use of crop names and variety names that are included in the system

Crop

Ware potatoes ▼

Variety

Fontane ▼



Crop

Delicious potatoes (new/custom) ▼

Variety

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Tips and tricks



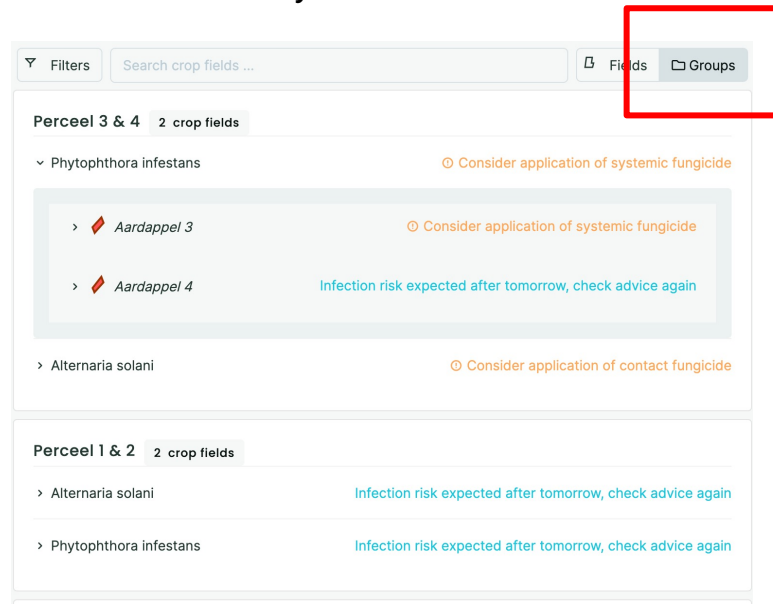
- Make only use of crop names and variety names that are included in the system
- Create groups

Convenient if you work with many fields

The 'worst' advice within the group is shown

Groups are also of use for recording operations for multiple fields at once

Creating groups can be done at the recording page



Tips and tricks



- Make only use of crop names and variety names that are included in the system
- Create groups
- Recording: select the right date and time

This might be obvious

However, the advice only works with right recording of operations.

An observation or spray application with wrong date can cause 'strange' advices

Tips and tricks

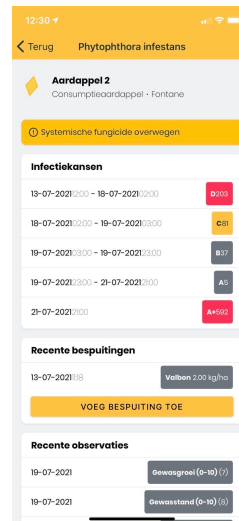
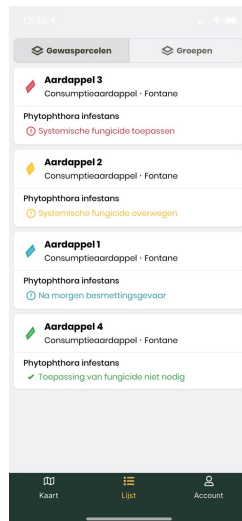


- Make only use of crop names and variety names that are included in the system
- Create groups
- Recording: select the right date and time
- Make use of mobile apps!



Dacom Disease Management
Productiviteit

OPEN



Tips and tricks



- Make only use of crop names and variety names that are included in the system
- Create groups
- Recording: select the right date and time
- Make use of mobile apps!
- Advice for multiple diseases available

1. Click in menu on



2. Right upper corner



3. Configure the advice you want for each crop type.

Available disease models



- Apple scab



- Septoria



- Botrytis



- Asian soybean rust
- White mold



- Leaf spot



- White mold



- White rot



- Downy mildew



- Blue grey/mold
- White mold



- Brown rot
- Melanose
- Black rot
- Guignardia



- Downy Mildew
- Botrytis
- Neckrot
- Purple Blotch
- White tip
- Leaf spot



- White mold



- Ramularia leafspot
- Beet leaf spot



- Common rot
- Grey leaf spot
- Northern leaf blight



- Septoria



- Blue/grey mold
- Powdery mildew



- Ringspot
- Alternaria
- White rust/blister
- Powdery mildew



- Grey mold
- Powdery mildew
- Downy mildew



- Grey mold



- Late blight
- Blue/grey mold
- Alternaria



- Headrot
- Downy mildew
- Whiterust



- White Tip
- Alternaria
- Rust



- Alternaria
- Leveillula
- Grey mold



- Botrytis



- Alternaria
- Cercospora
- Sclerotinia
- Powdery mildew



- Downy mildew
- White mold



- Late blight
- Early blight
- White mold
- Grey mold



- Septoria tritici blotch

Questions?

