

Influence of leaf moisture duration on a successful infection of potato plants with *Alternaria solani*

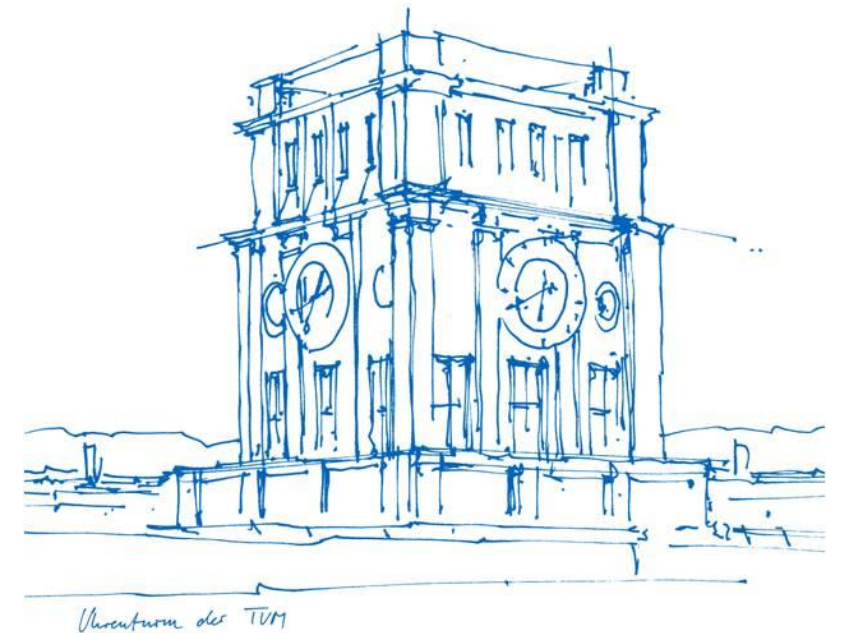
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Chair of Phytopathology

EuroBlight – *Alternaria* subgroup meeting

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Climatic changes

Predicted changes

- Longer periods of drought
- Less rain events

Influence on *A. solani*

=> Will there be enough leaf wetness for successful infection?

Research Questions

1. Which duration of leaf moisture is sufficient for *Alternaria solani* to infect potato plants successfully?
2. How is the development of the disease for different durations of leaf moisture?

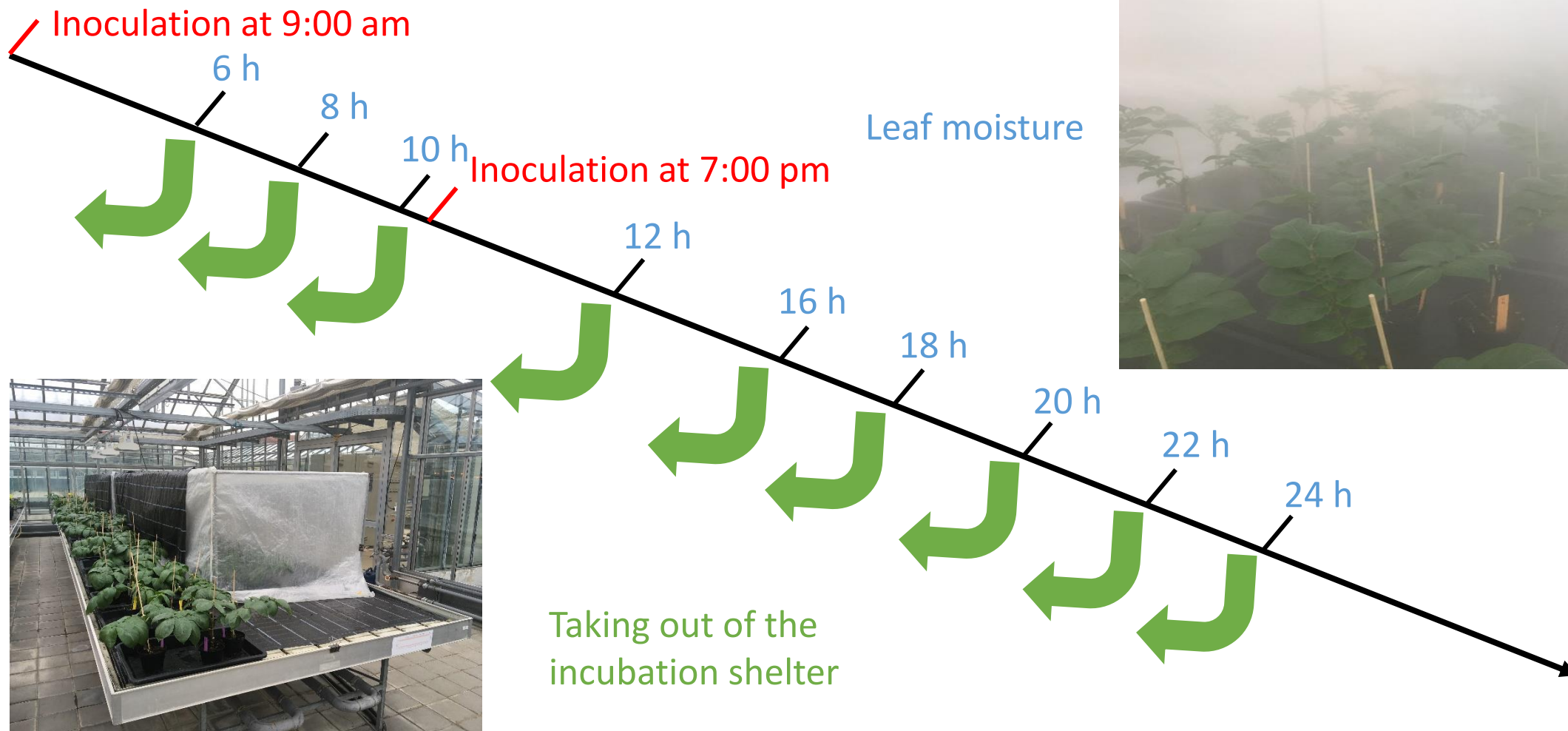
Greenhouse experiment

- Periods of leaf wetness: 6h, 8h, 10, 12, 16, 18, 20, 22 and 24h
- 3 different *A. solani* isolates
- Cultivar Kuras
- 3 independent biological repetitions

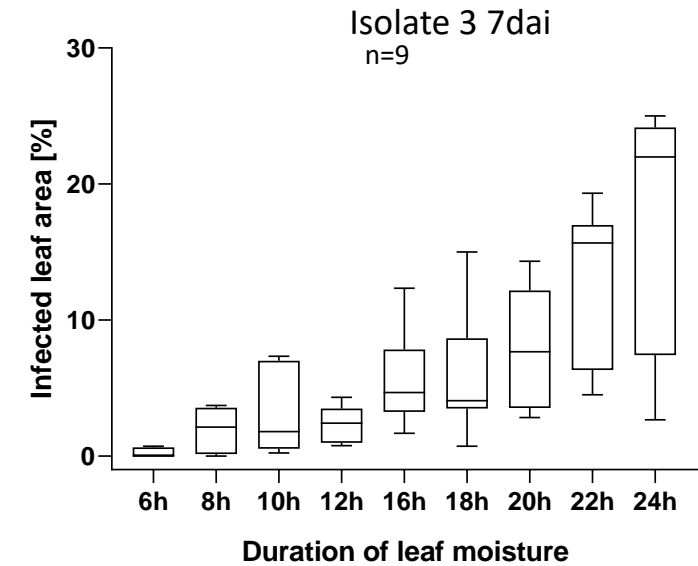
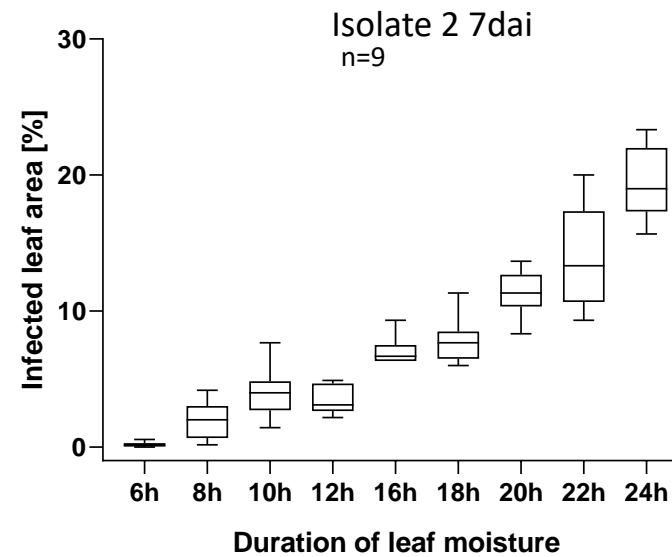
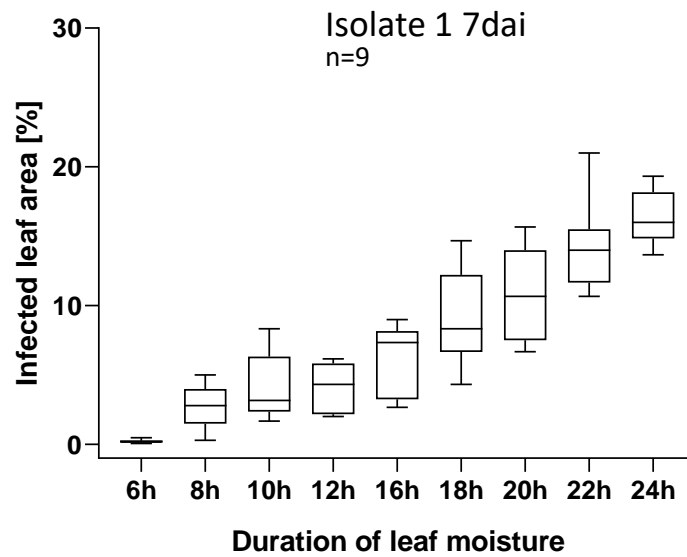


Material and Methods

Procedure Greenhouse (3x repetition):

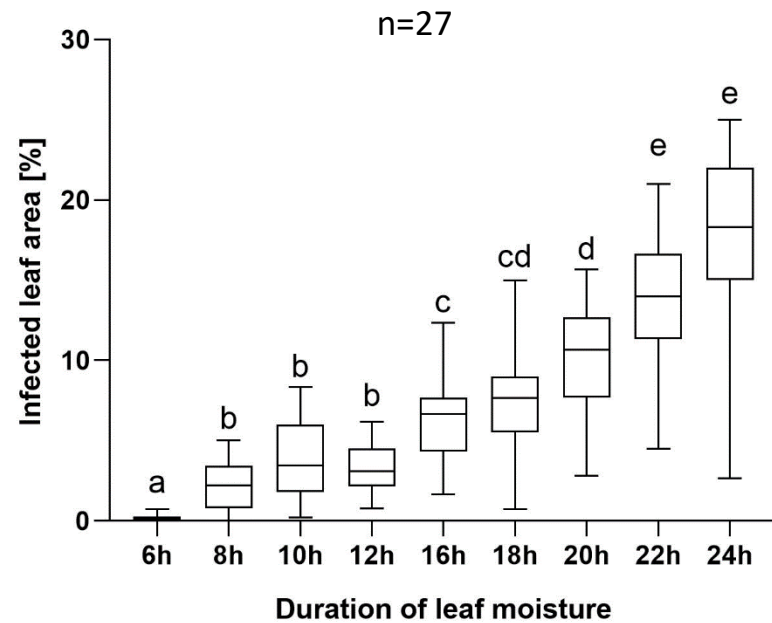


Results – single isolates (3 repetitions)



➤ All 3 tested isolates behave similar

Results – summary (3 isolates, 3 repetitions)



Tamhane's T2 test; $\alpha=0.05$

- 8h are sufficient
- Longer periods increase disease severity

Leaf wetness in the field

Do we still have periods with 8h of leaf wetness?

Less rain events during summer = less leaf wetness ?

➔ Dew + Irrigation



Summary

- Nearly the same levels of infestation between the 3 different *Alternaria solani* isolates
- Significantly different levels of *Alternaria solani* infestation between the leaf moisture variants
- Leaf moisture duration of 8 hours is sufficient for successful infection
 - ➡ Few hours with dew during night can be enough
 - ➡ Impact of increasing irrigation in potato cultivation

Will there be enough leaf wetness for successful infection?

-> Yes



- Special thanks to:
- Alexander Reinl
- Hans Hausladen
- Ralph Hückelhoven