

Differentiation of *Alternaria* species and quantification of disease development using quantitative RT-PCR

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question: which species is dominating !?

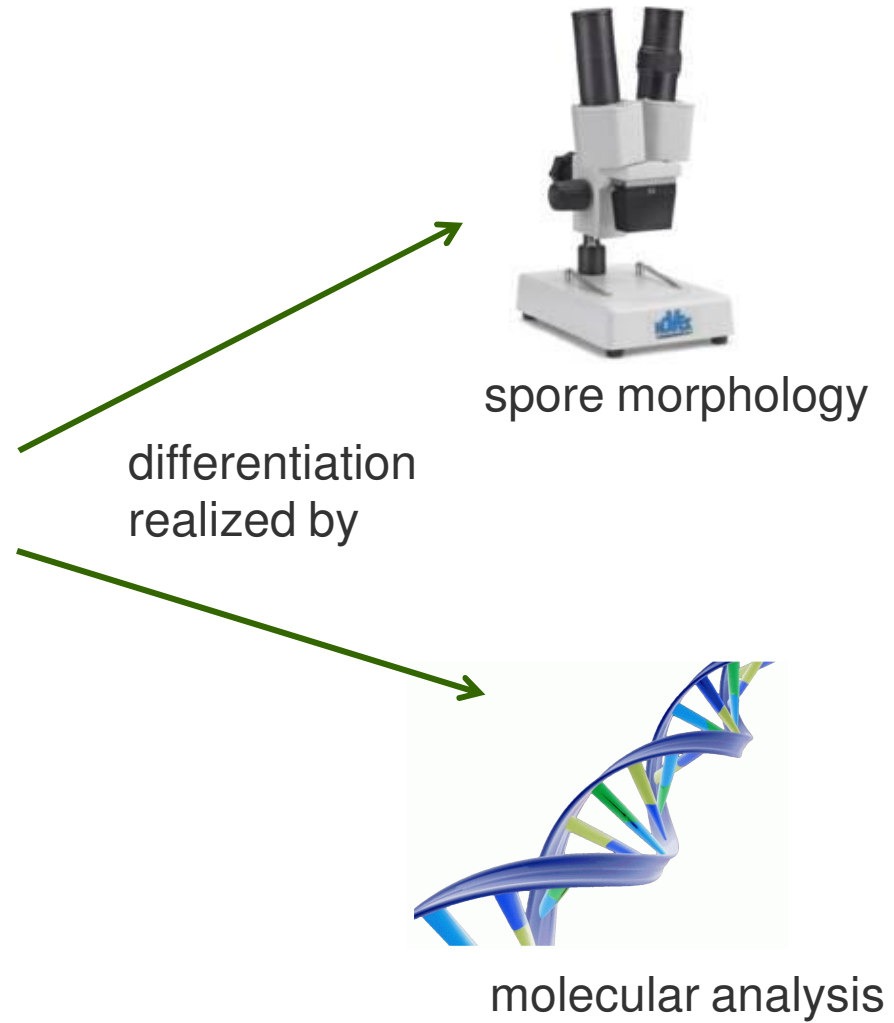
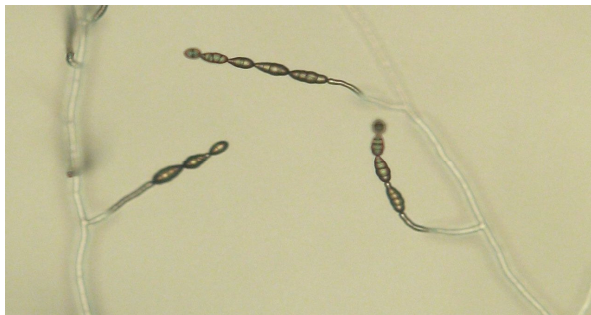
A. solani

A. alternata

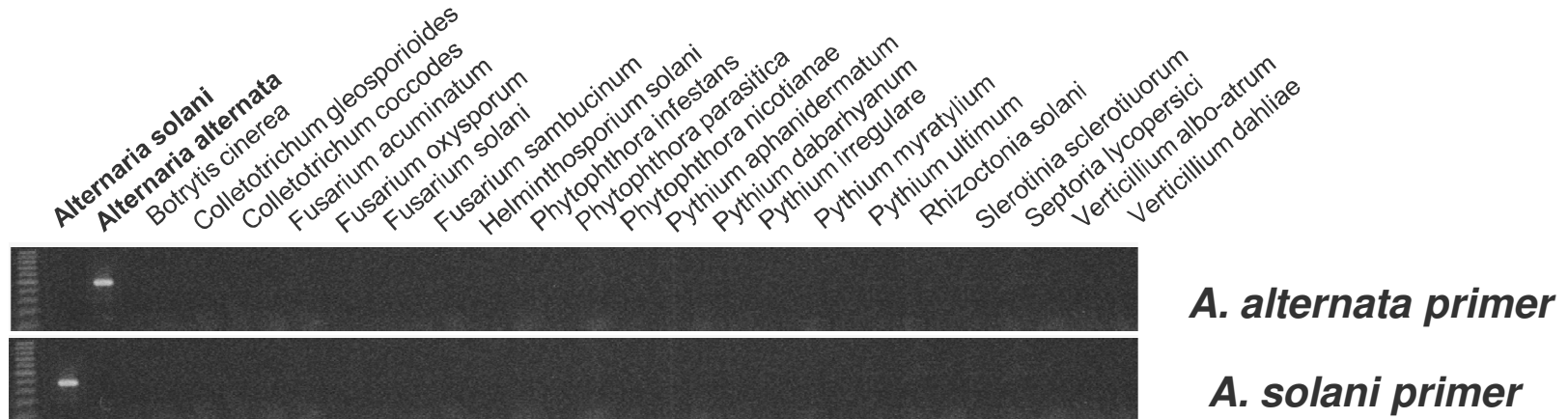
Alternaria solani



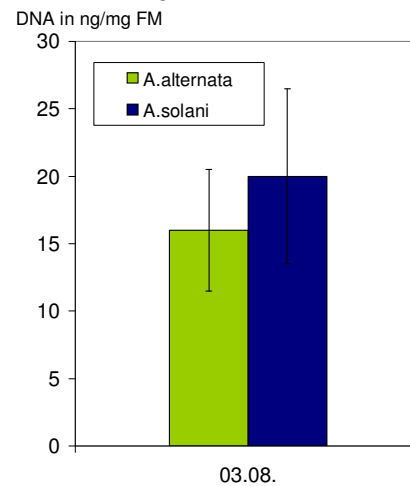
Alternaria alternata



- selective PCR for pathogen differentiation

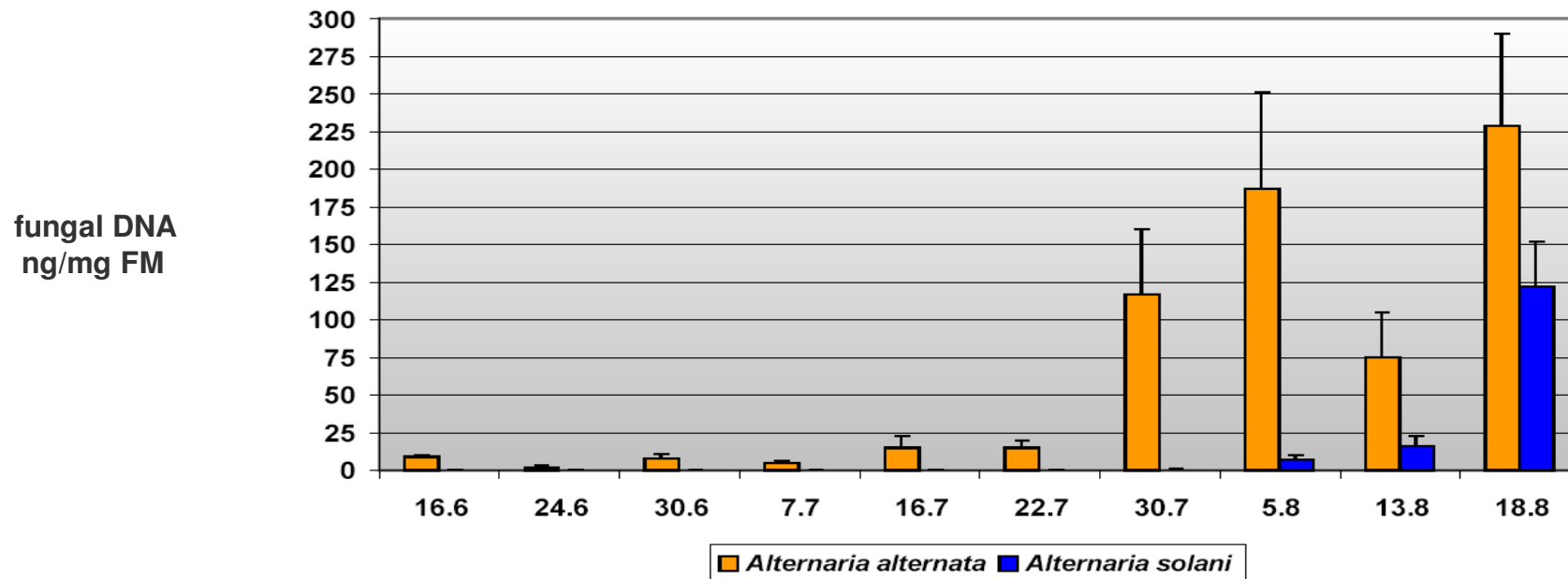
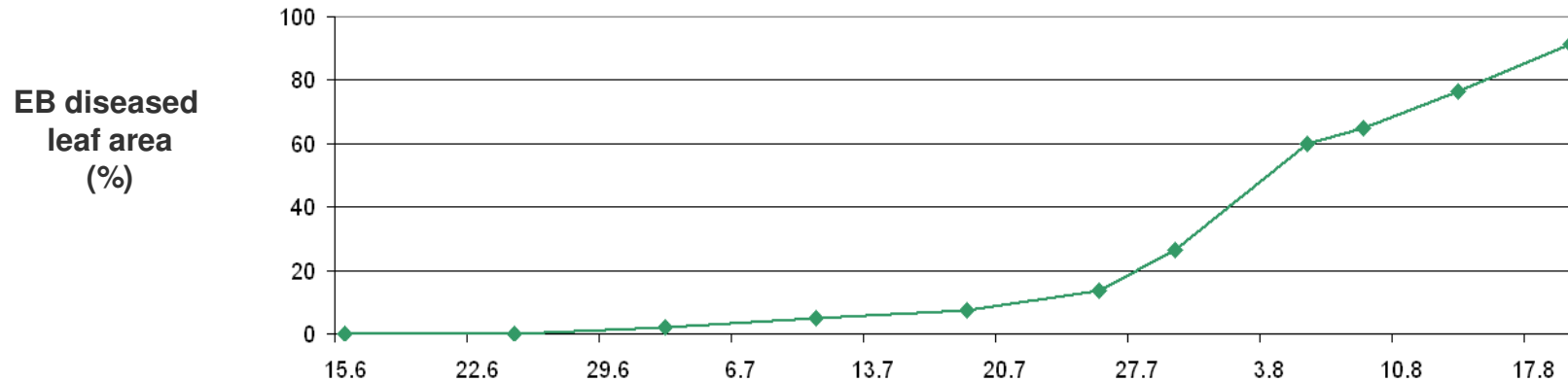


- q RT-PCR for species quantification

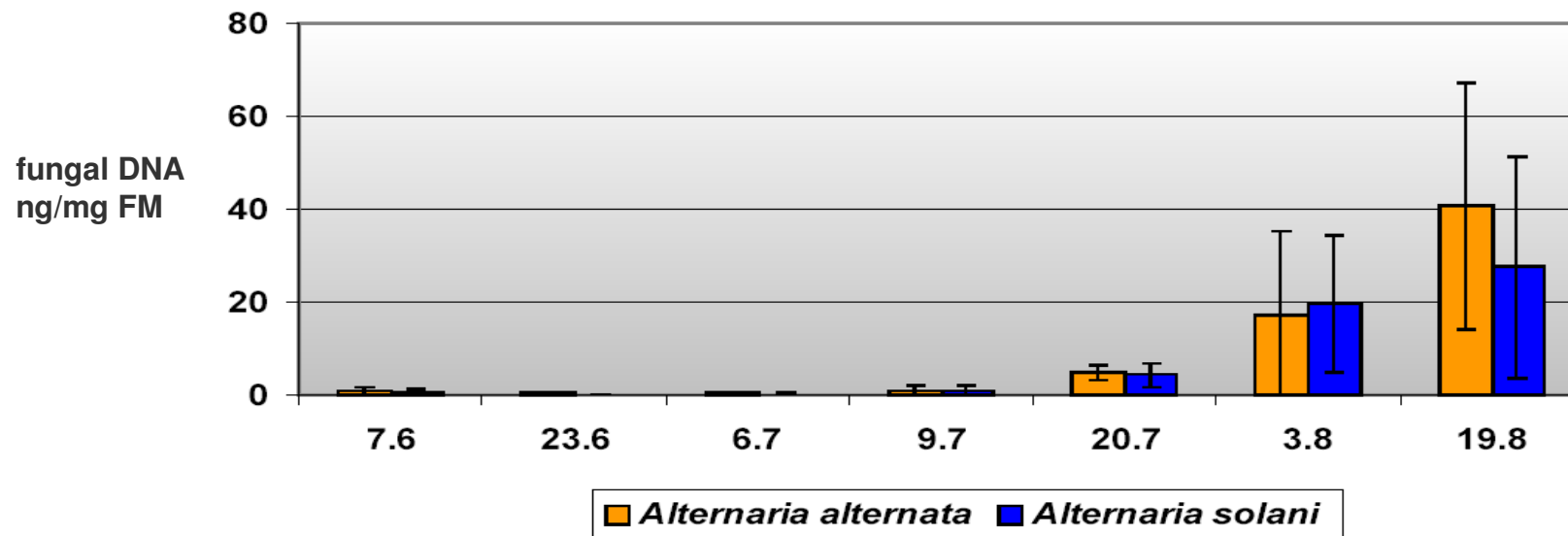
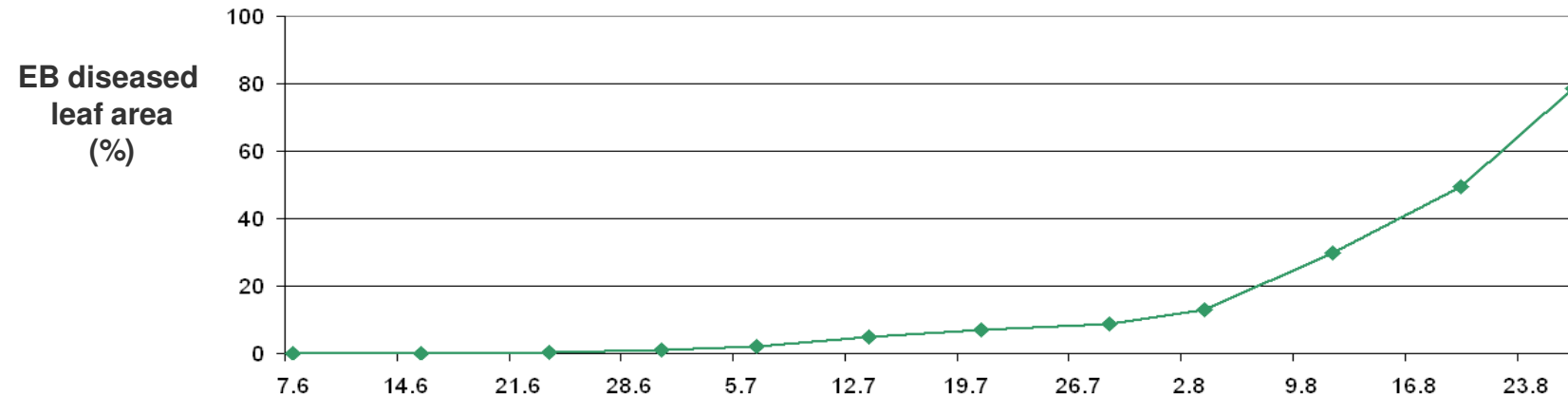


august 03th, Weihenstephan

Weihenstephan 2003

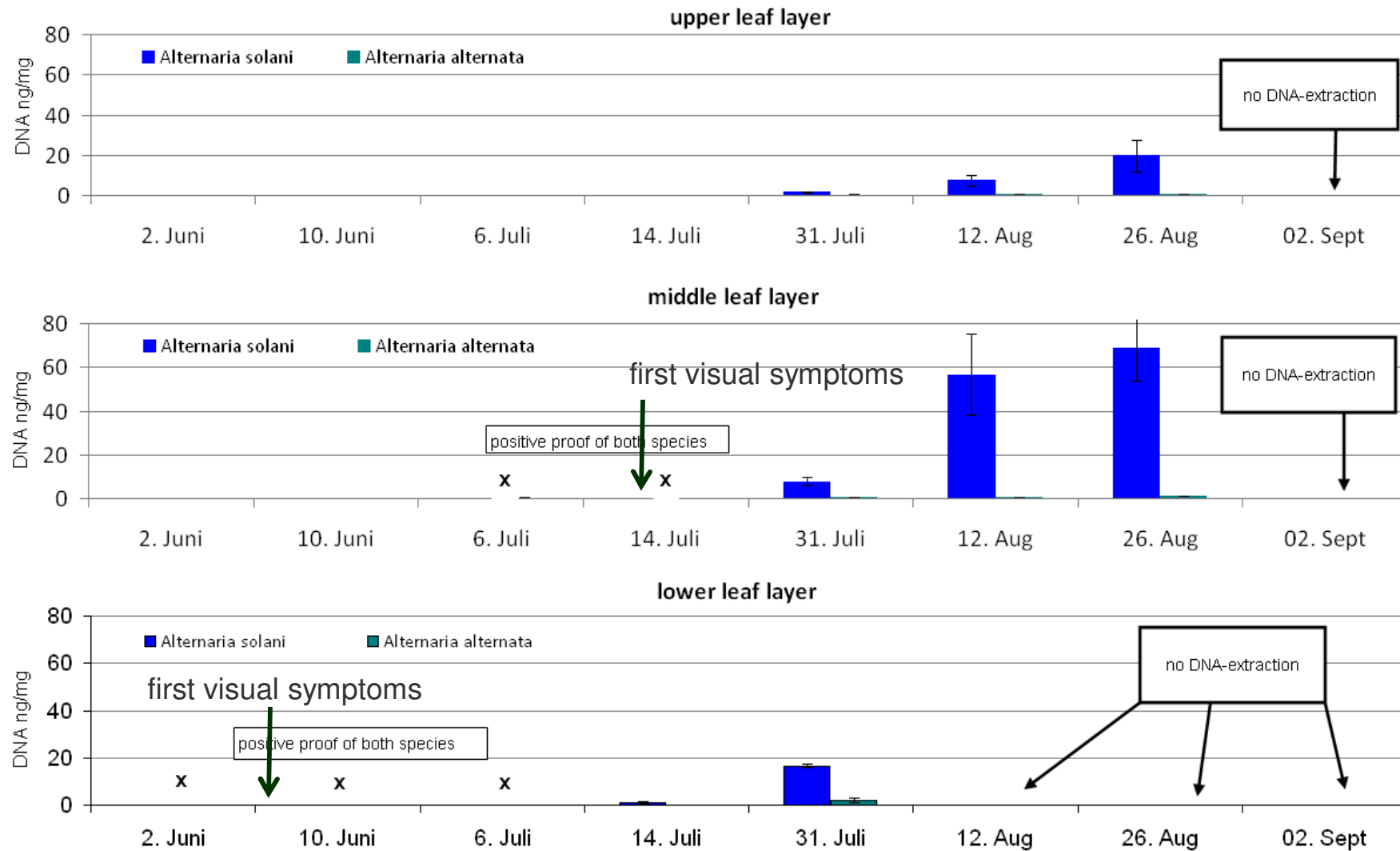


Weihenstephan 2004



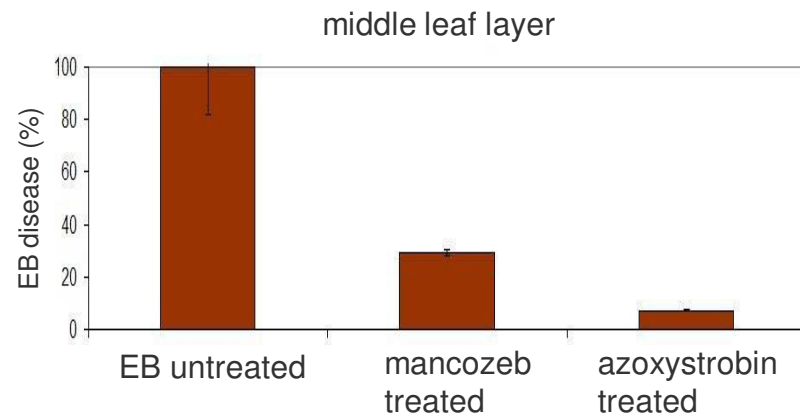
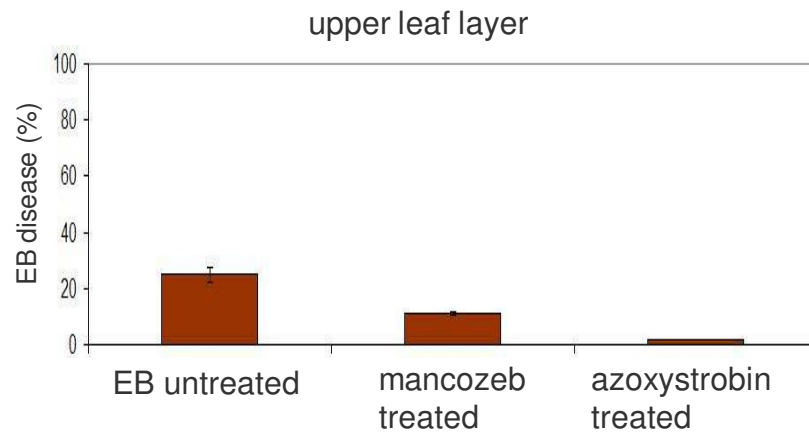
disease quantification out of different leaf sections

location Straubing, 2005



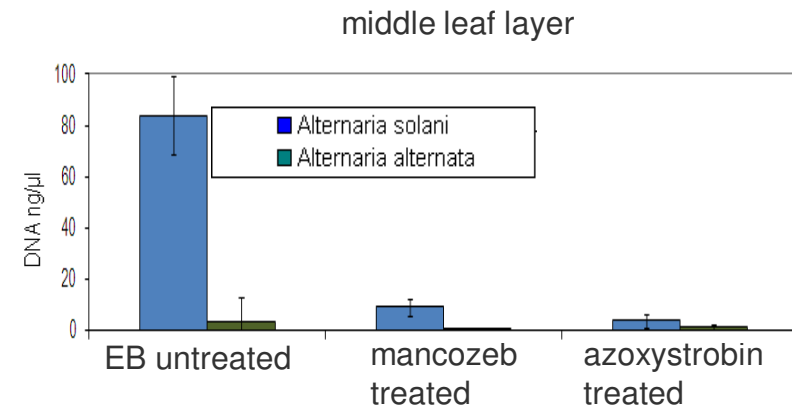
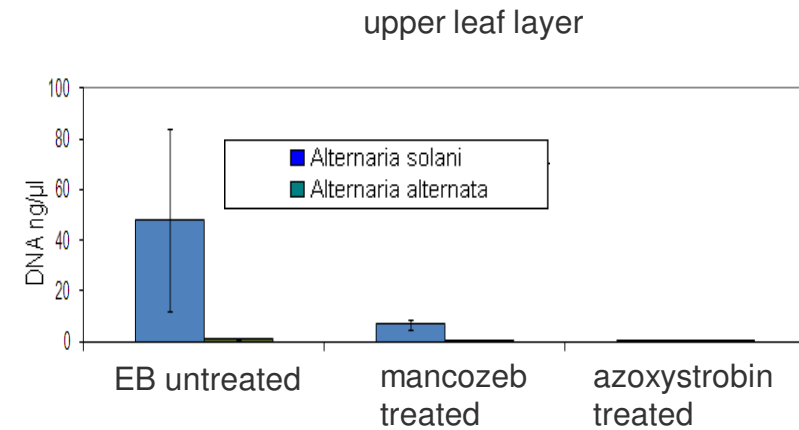
Straubing, sept 1st, 2006

disease severity



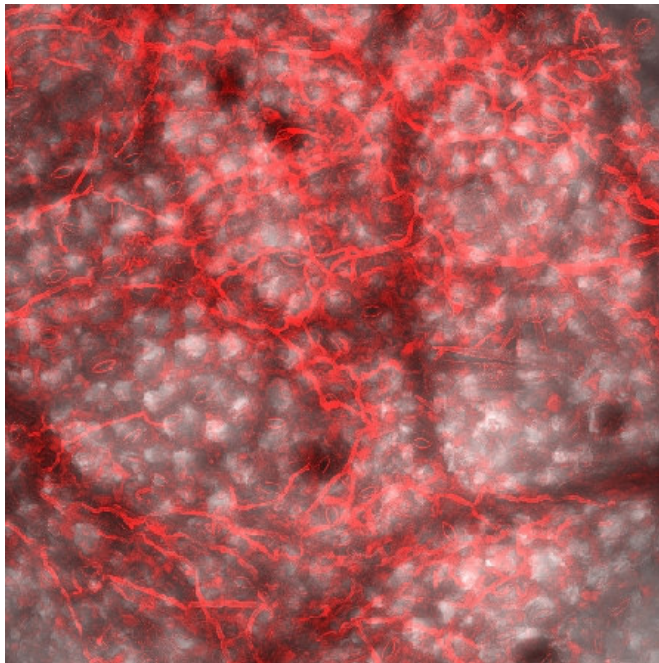
3 early blight specific treatments

quantitative PCR



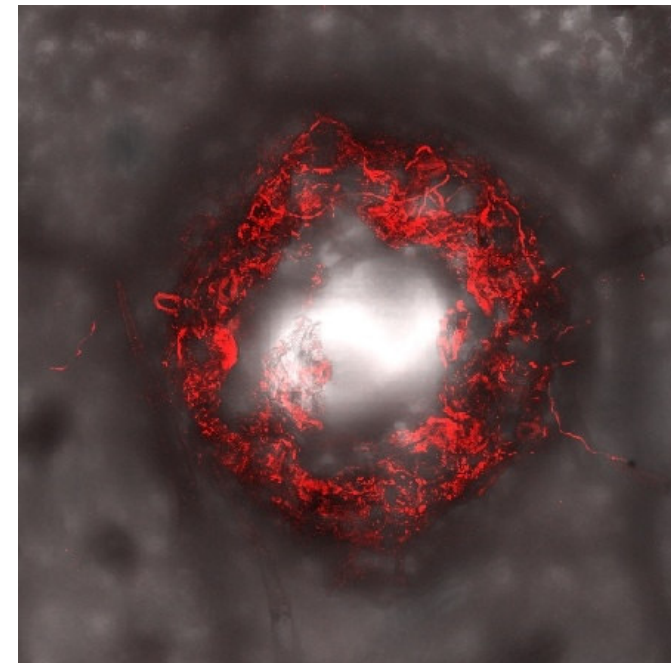
confocal laser scanning microscope

Alternaria solani (7 dai.)



- *flat extension*

Alternaria alternata (7 dai.)



- *limited to local cell boundaries*

- Heavy early blight infections and epidemics throughout the past years
- *A. solani* and *A. alternata* were found in all years and different locations
- *A. solani* being the predominant species (except 2003)
- selective PCR as reliable tool for species differentiation
- quantitative RT-PCR for species or disease quantification
- PCR diagnostics allow to detect infections before the appearance of visual disease symptoms
- species specific differences in leaf colonization

Thank you for your attention!

