

## Early blight in Germany

(*Alternaria solani* & *Alternaria alternata*)



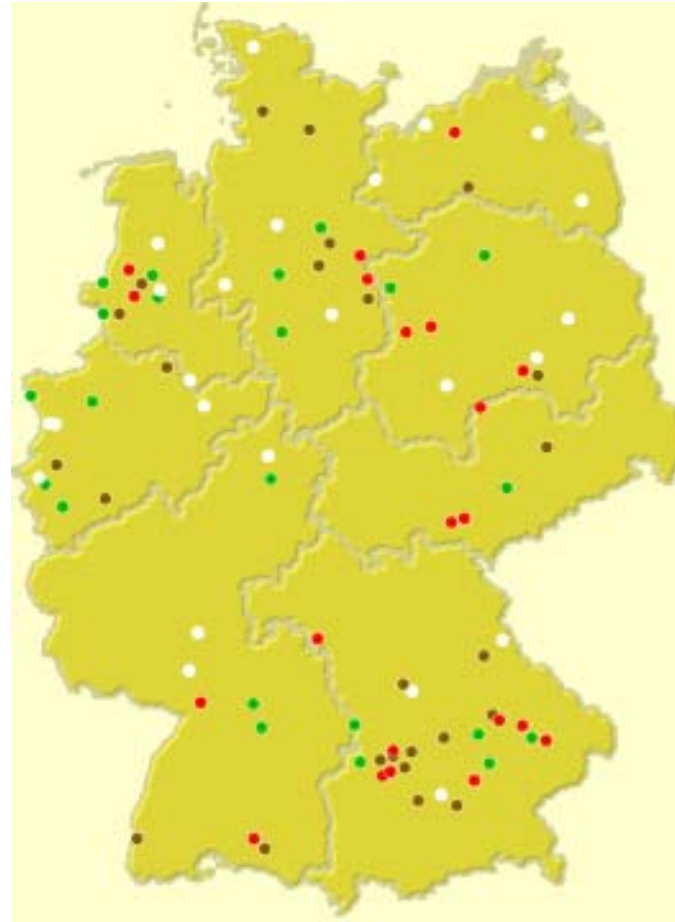
H. Hausladen & J. Leiminger



# Introduction

early blight  
august 2006

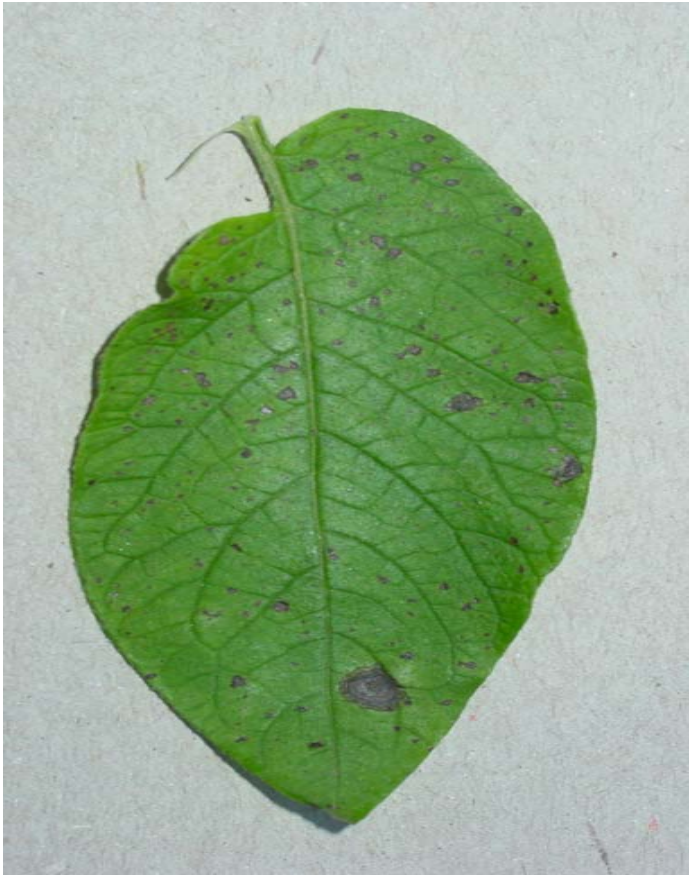
- no disease
- low disease
- moderate disease
- high disease



[www.krautfaeule.de](http://www.krautfaeule.de)



# Introduction





## Alternaria solani

„real pathogen“

-150-300  $\mu\text{m}$

- N-HST (non host specific toxins)  
(e.g. alternaria-acid)

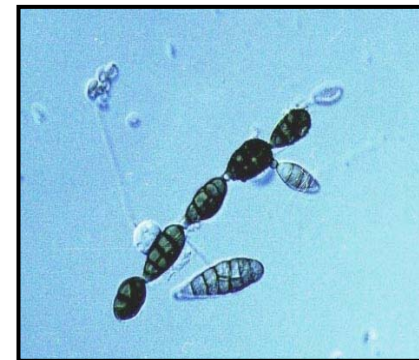


## Alternaria alternata

direct, indirect

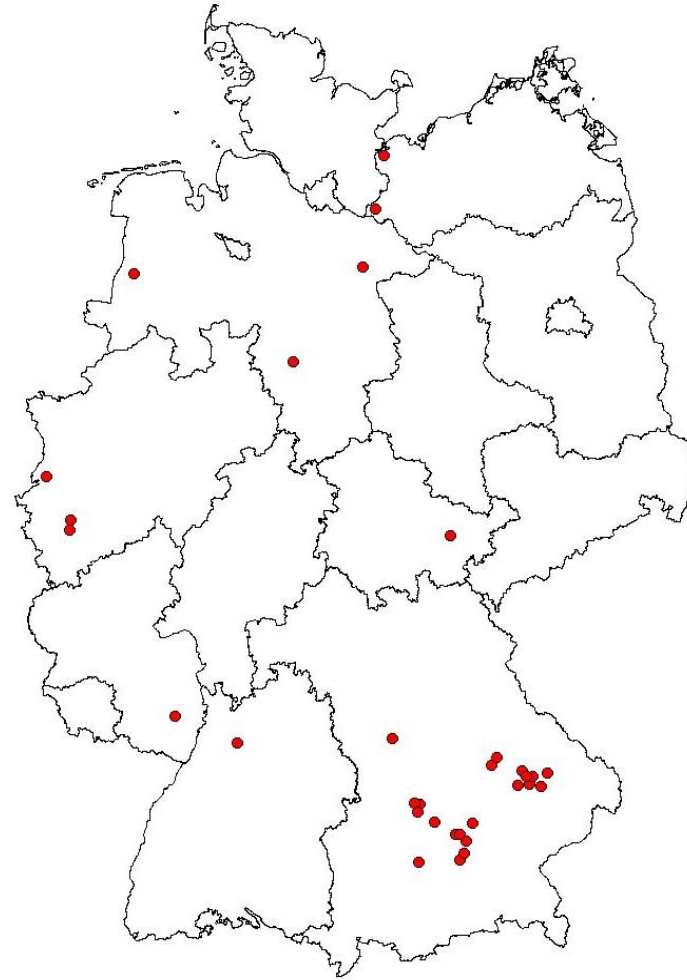
- 20-63  $\mu\text{m}$

- (HST)  
- N-HST  
(e.g. tenuazon-acid)



# Materials and methods

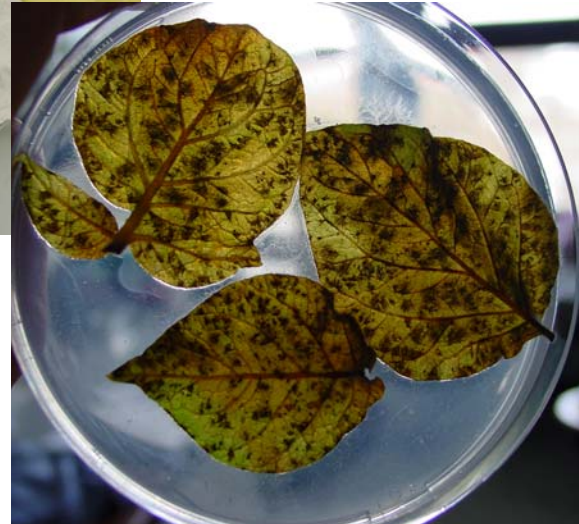
Year 2006:  
samples from  
34 locations



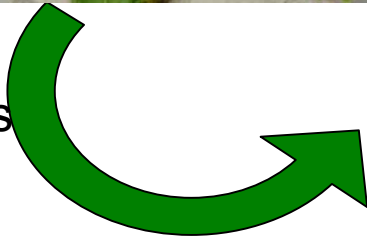
# Materials and methods



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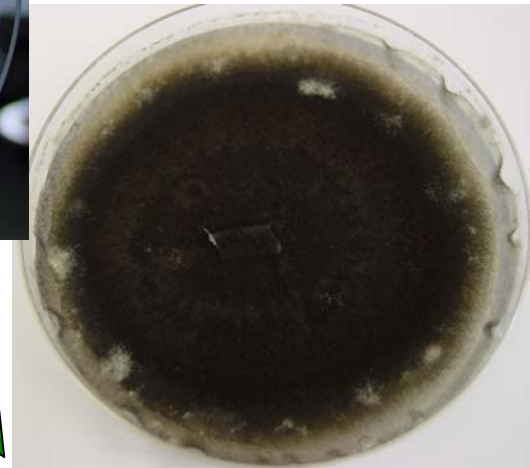
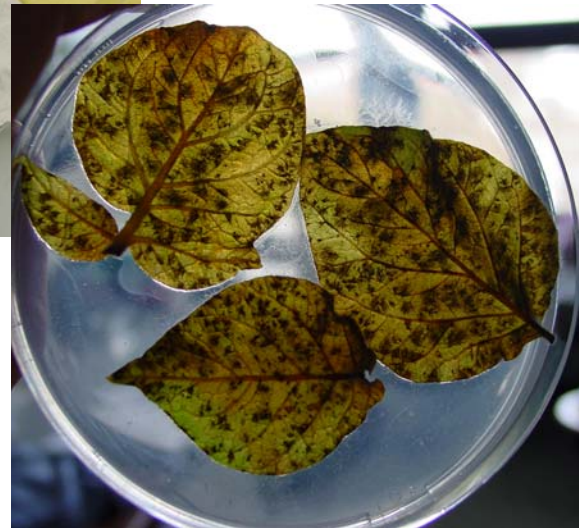


Infected leaves  
→ Petri dishes





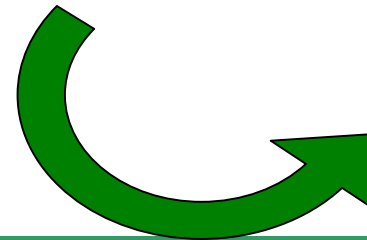
# Materials and methods



Infected leaves  
→ Petri dishes



Isolation  
single spore isolates





# Results 2006

location	date	variety
Buir	07. Aug	Gourmandin
Növenich	07. Aug	
Uelzen	07. Aug	Kuras, Lolita, Solara
Puch	17. Aug	
Waldniel	23. Aug	Bintje
Buir	23. Aug	Bintje, Festina
Harem- Peermoor	24. Aug	Festin, Roberry
Rupenest	24. Aug	
Neu Gülzow	29. Aug	Granola
Weihenstephan		Solara, Kuras



# Results 2006



Buir - T1		X
Növenich	X	X
Uelzen	X	X
Puch	X	X
Waldniel	X	X
Buir - T2	X	X
Harem- Peermoor	X	X
Rupenest	X	X
Neu Gülzow	X	X
Weihenstephan	X	X



# Discussion

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Control of early blight  
- fungicide rating & field trials -





# Harmonized protocol for fungicide test against early blight

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- Susceptible variety ( medium to late maturity group)
- 4 replications
- independent coverspray against late blight with Cyazofamid or Mandipropamid ( 5 to 7 day spray intervall)
- 4 treatments with the testing fungicides against early blight, 10 day spray intervall
- first application against early blight in dependence of first early blight appearance, however latest 6 weeks after crop emergence.
- fungicide application rate; highest in Europe admitted dose rate



# Efficacy in the field

	2004			2005		
	AUDPC <sup>1</sup>	SD <sup>2</sup>	Tukey-B <sup>3</sup>	AUDPC <sup>1</sup>	SD <sup>2</sup>	Tukey-B <sup>3</sup>
Kontrolle	2795,0	199,2	a	1876,7	69,5	a
MZ-500	2460,2	153,2	a,b	1754,2	65,2	a
MZ-750	2081,8	280,7	b,c	1722,2	55,9	a,b
MZ-1000	1818,7	195,3	c,d	1531,2	119,2	b,c
MZ-1500	1488,7	218,4	d,e	1421,8	35,9	c,d
MZ-2000	1473,7	189,5	d,e	1248,0	141,9	d
MZ-4000	1240,33	205,5	e	949,3	84,1	e



# Summary & outlook

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- *A. solani* and *A. alternata* are present in the field
- Isolat studies (*A. solani* – *A. alternata*)
- artificial inoculation for specific rating





Thank you for your attention



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