

The cost benefit ratio of preharvest  
applications of **BóniProtect®**  
in pome fruit



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## *Aureobasidium pullulans*

### **BoniProtect®**

- postharvest diseases of apple



### **Blossom Protect™**

- fire blight



### **BoniProtect® forte**

- brown rot blossom blight  
(*Monilia sp.*) in stone fruit



# Böni Protect®

Pflanzenstärkungsmittel (LS 005320)

## Ingredients

5x 10<sup>9</sup> cfu/g *Aureobasidium pullulans* on a carrier

## Application rate

0.5 kg/ha\*m crown height (0,1%)

## Timing

1. Treatments are recommended 1, 3 and 5 weeks before harvest.  
=> IP: Replacement of the last treatments with chemical fungicides
2. Treatments 1 to 7 days before harvest and between the pickings  
in addition to chemical fungicides

## Distribution:

Bio-ferm GmbH, Tulln, A  
Biofa AG, Münsingen, D



# Apple decay

German apple growers loose 35 to 100 Mio € per year

## Pathogens

- *Botrytis cinerea*
- *Monilia fructigena*
- *Penicillium expansum*
- *Fusarium sp.*
- *Alternaria alternata*
  
- *Pezizula sp. (Gloeosporium)*
- *Nectria galligena*



**BöniProtect®**

## Field trials: organic orchards 2003-2007

KOB (Kompetenzzentrum für Obstbau Bodensee, Bavendorf, D)

M. Trapmann (Bio Fruit Advies, Zoelmond, NL)

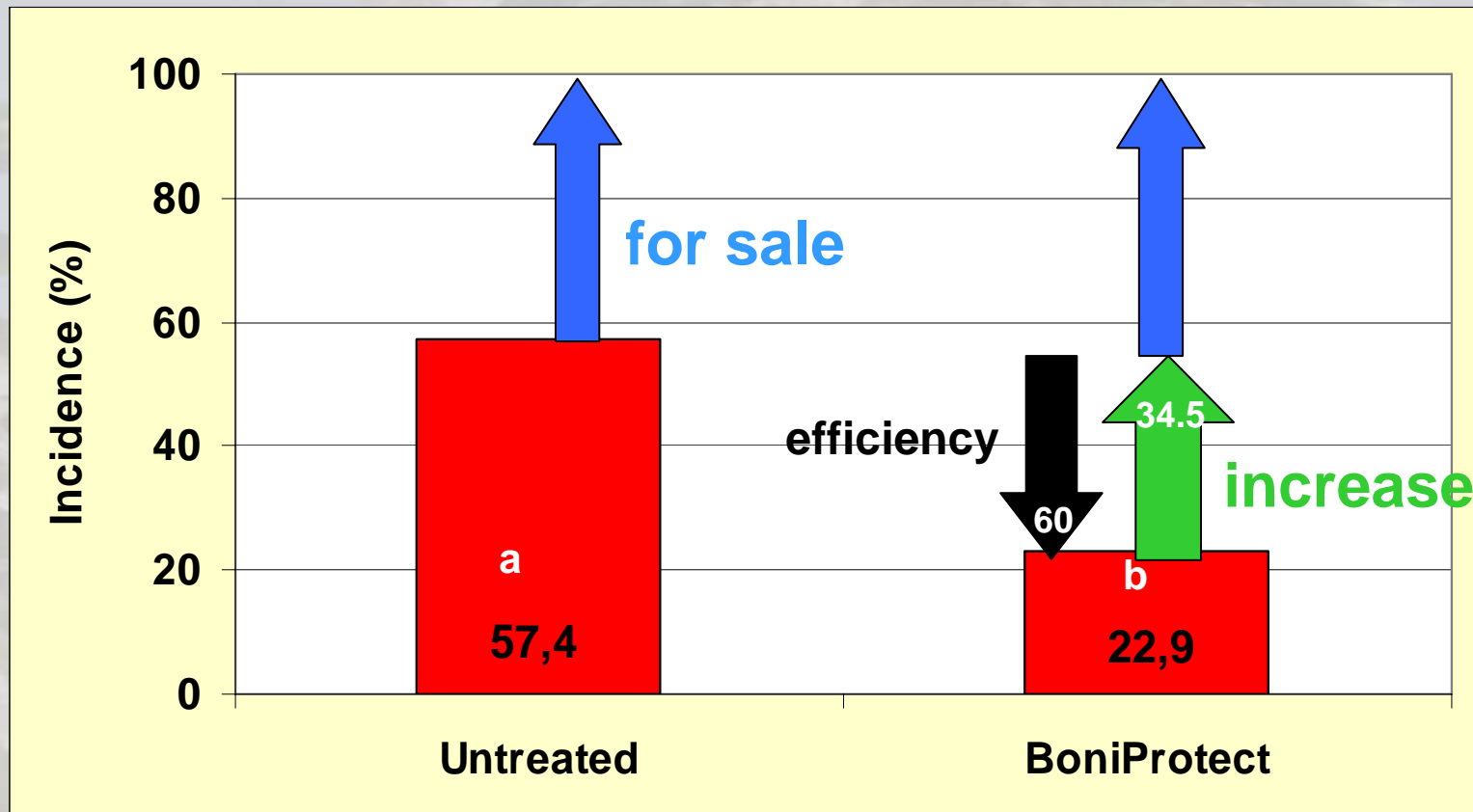
- Three to four applications starting 5-6 weeks before harvest.
- Cold storage for 4-6 month.



# Field trials NL

## Pinova, organic orchard

Surplus [kg/ha] = increase/100 X 20.000 kg/ha



**BóniProtect®** application

<b>Costs per ha</b>	
Costs for BoniProtect (1.0 kg/ha)	35.5 €/ha
Costs for application (1 h/ha )	14.5 €/ha
<b>Costs per application/ha</b>	<b>50 €/ha</b>

**Field trials NL: organic orchards**  
**(M. Trapmann, Bio-fruit advies)**

year	Cultivar	Incidence [%] untreated	Incidence [%] BoniPr.	Efficiency (Abbott) BoniPr. [%]	Increase [%]	Surplus <sup>a</sup> fruits [kg/ha]	Surplus <sup>a</sup> [€/ha]
2007	Elstar	23.4	24.4	0	-1.0	-200	-200
	Elstar	29.0	18.0	38	11	2 200	2 200
	Pinova	57.4	22.9	60	34.5	4 700	4 700
	Pinova hot water	8.4	1.5	82	6.9	1 380	1 380

The surplus was calculated assuming an average of 20 000 kg/ha <sup>\* 1</sup> and a producer price of 1 €/kg <sup>\* 2</sup>  
Costs for four applications of BoniProtect are 200 €/ha

\* 1 Fachschule Obstbau, Stade (2000); \* 2 Ökoobstbau 3/2007, S. 38



## Field trials D: organic orchards

year	Cultivar	Incidence [%] untreated	Incidence [%] BoniProtect	Efficiency (Abbott) BoniPr. [%]	Increase [%]	Surplus <sup>a</sup> fruits [kg/ha]	Surplus <sup>a</sup> [€/ha]
2003	Jonagold	1.1	0.9	15	0.2	40	40
	Gloster	3.5	1.1	68	2.4	480	480
2005	Cox Orange	40.1	28.4	29	11.7	2 340	2 340
	Topaz	17.6	17.7	0	-0.1	-20	-20
	Gloster	3.0	2.3	25	0.7	140	140
2006	Topaz	11.1	10.9	2	0.2	40	40
	Gloster	16.4	13.8	16	2.6	520	520
	Jonagold	39.4	35.3	11	4.1	820	820

The surplus was calculated assuming an average of 20 000 kg/ha <sup>\* 1</sup> and a producer price of 1 €/kg <sup>\* 2</sup>

Costs for three applications of BoniProtect are 150 €/ha

\* 1 Fachschule Obstbau, Stade (2000); \* 2 Ökoobstbau 3/2007, S. 38

**BöniProtect®**

### Cost benefit ratio in organic orchards

Surplus: average of 11 trials	1 005 €/ha
Costs: 3 to 4 applications per ha	175 €/ha
<b>Benefit</b>	<b>830 €/ha</b>

## IP-orchards

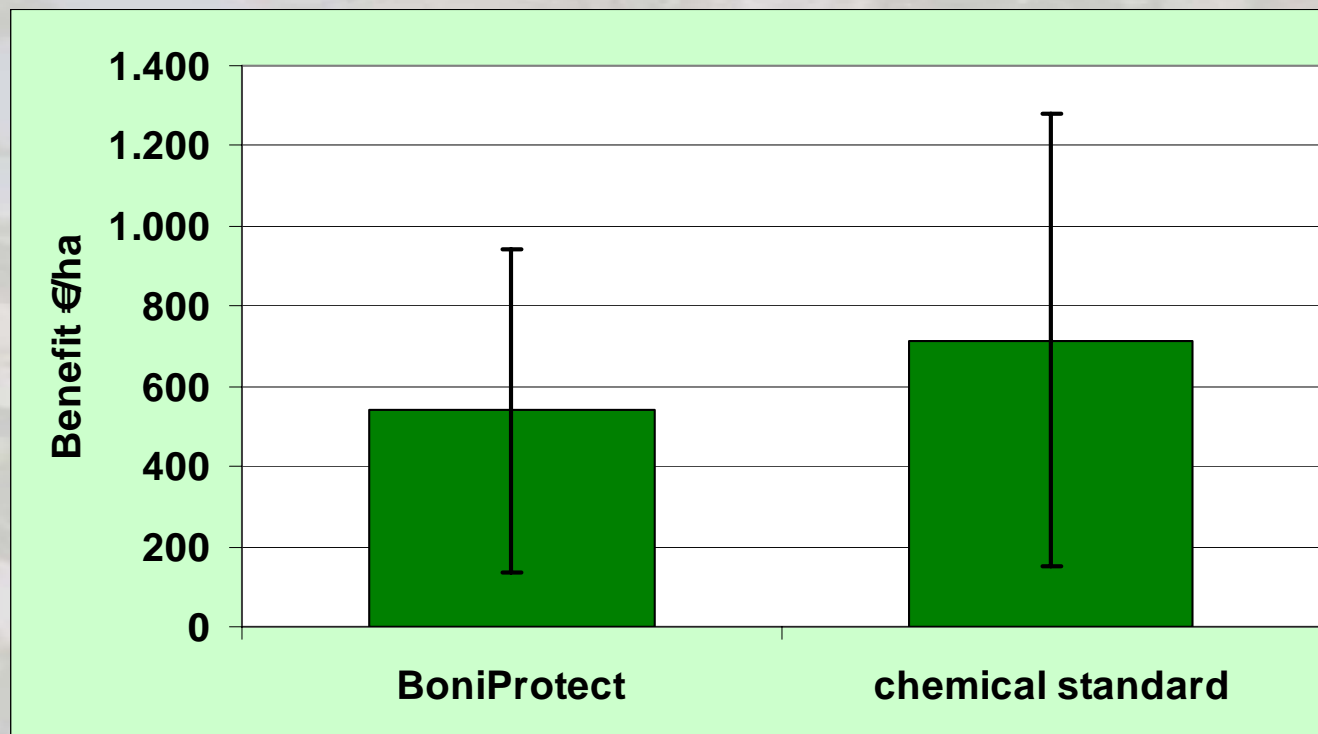
In the IP chemical fungicides are registered for preharvest applications:

but their use is limited by

- preharvest interval
- chemical residues
- market and consumer pressure
- resistance of the pathogens to fungicides

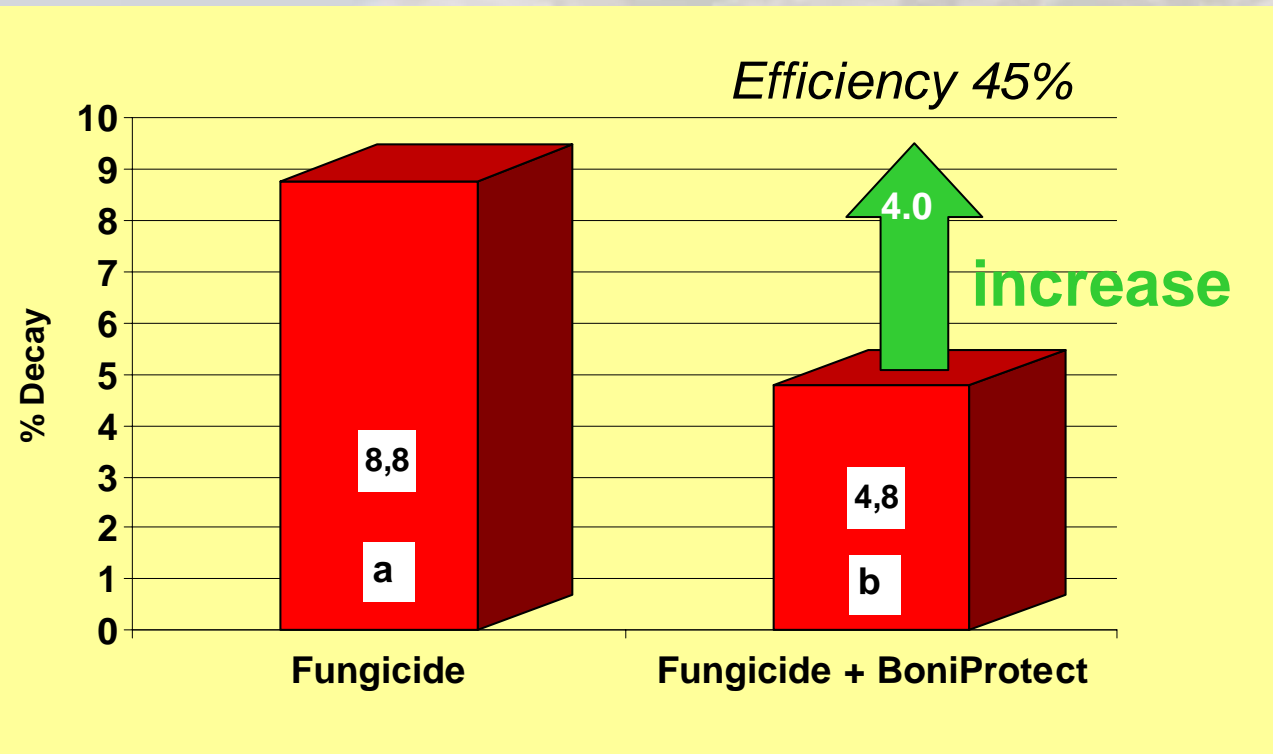
## 7 field trials: IP-orchards 2002-2007 Replacement of chemical fungicides

The surplus was calculated assuming an average of 30 000 kg/ha  
and a producer price of 0.4 €/kg



## Field trial: IP-orchard 2006

**BóniProtect®** during the preharvest interval of chemical fungicides



**Benefit:**  
**+ 620 €/ha**

## reduces post harvest diseases of pome fruit

### 1. Reduction of storage rots in organic orchards

=> Benefit of Ø 830 €/ha

### 2. Replacement of chemical fungicides in IP-orchards

=> reduction of chemical residues and resistance management

### 3. Additional use during preharvest interval of chemicals in IP

=> additive effects with an **economical benefit**



## Thank you

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- M. Trapmann, Bio Fruit Advies, Zoelmont, NL
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