

BoniProtect[®] forte

a new biocontrol agent for use in stone fruit

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Aureobasidium pullulans

Böni Protect®

- postharvest diseases of apple

Blossom Protect™

- fire blight (*Erwinia amylovora*)



Distributors:

Biofa AG;

Bioferm GmbH;

Andermatt Biocontrol AG;

D-72525 Münsingen

A-3430 Tulln

CH-6146 Grossdietwil

BoniProtect®

Pflanzenstärkungsmittel (LS 005320)

- Ingredients**

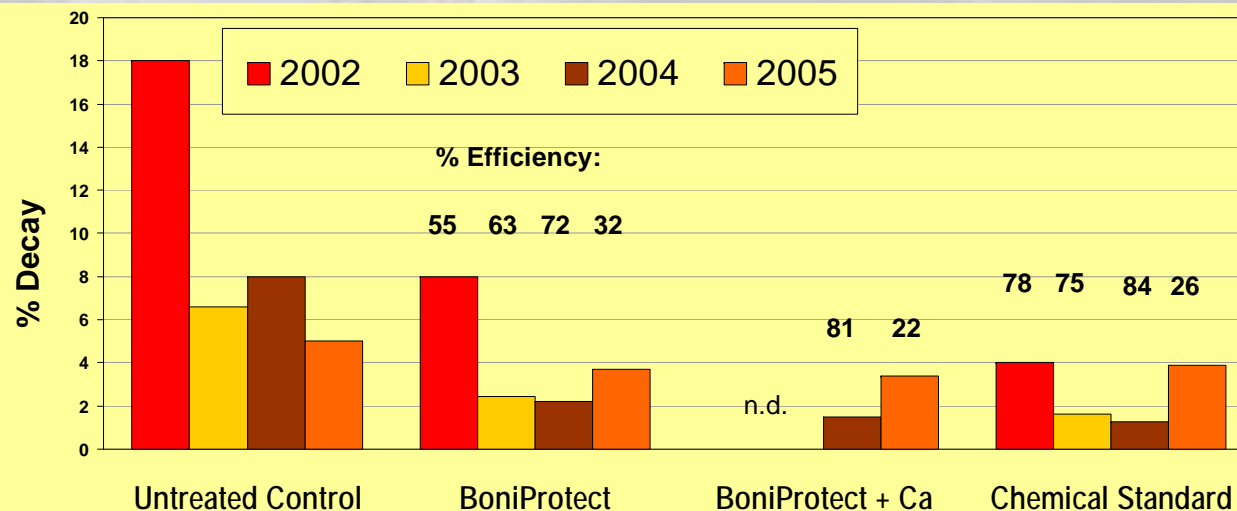
5x 10⁹ cfu/g *Aureobasidium pullulans* on a carrier

- Termination**

From 5 weeks before harvest until harvest (no waiting period!)

- Application rate**

0.5 kg/ha*m crown height (0.1%)



Blossom Protect™

D: Pflanzestärkungsmittel (LS 006158)
A, H, SK: Permission for emergency use in 2007

Ingredients

Component A: buffer substances to maintain a low pH
Component B: 5x 10⁹ cfu/g *Aureobasidium pullulans*

Application rate

6.0 kg/ha*m crown height (1.2%)

Germany 2003-2007: (EPPO guide line PP1/ 166 (3))

	Symptom reduction [%]	
Blossom Protect™	78 % ± 10	(8 field trials)
Antibiotic (Streptomycinsulphate)	82 % ± 5	(8 field trials)
Compared agent (<i>Bacillus subtilis</i>)	50 % ± 10	(8 field trials)



Fried, A. et al. (2004) *Obstbau*.
Fried, A. (2005) *Obstbau*.
Scheer, C., et al.. (2005) *Obstbau*.
Jelkmann, W. (2006) in
Jahresbericht der BBA 2005.
Kunz, S., et al. (2006) *Ökoobstbau*
Fried, A. (2007) *Obstbau*.
Scheer, C., et al. (2007) *Obstbau*.
Künzel, H., et al. (2007) *Ökoobstbau*.

Brown Rot Blossom Blight of Sour Cherries

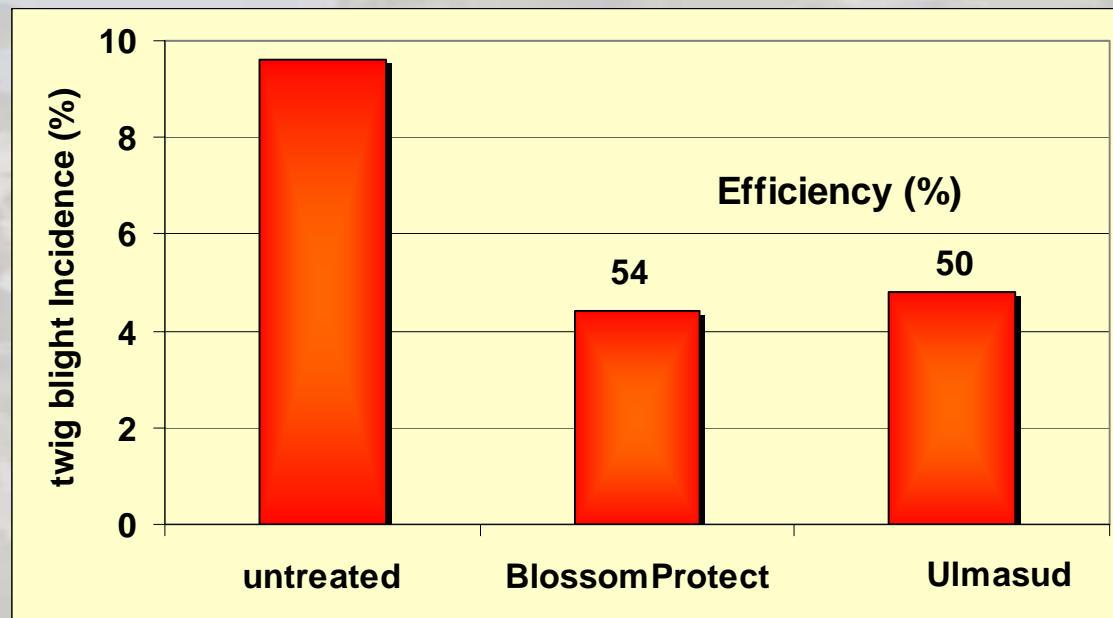
- causal agent: *Monilinia laxa*
- severe losses in organic and integrated production
- infection period:
 - latent or early twig blight (latent or after bud break)
 - flower infection (open flowers)
- control:
 - orchard sanitation, copper, lime-sulfur or stone meals



photo: I. Holb

Commercial orchard, Görlitz, 2004

Treatment		Application time	Application rate
untreated			
BlossomProtect	4x	10, 60, 90, 100% open flowers	6 kg/ha x m ch
Ulmasud	4x	10, 60, 90, 100% open flowers	5 kg/ha x m ch

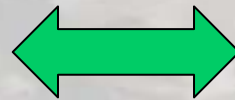


H. Rank,
Ökoobstbau, 1/05, p
28-29.

Research project 2005-2008

„Development of strategies for use of Yeast preparations in organic fruit growing“

Bio-Protect GmbH



KOB Bavendorf

development of new
formulations

field trials

funded by the Federal Ministry of Education and Research

BoniProtect® forte

Pflanzenstärkungsmittel (LS 006322)

- **Ingredients**

1x 10¹⁰ cfu/g *Aureobasidium pullulans*

- **Indication**

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

- **Application rate**

0.25 kg/ha*m crown height (0,05 %)

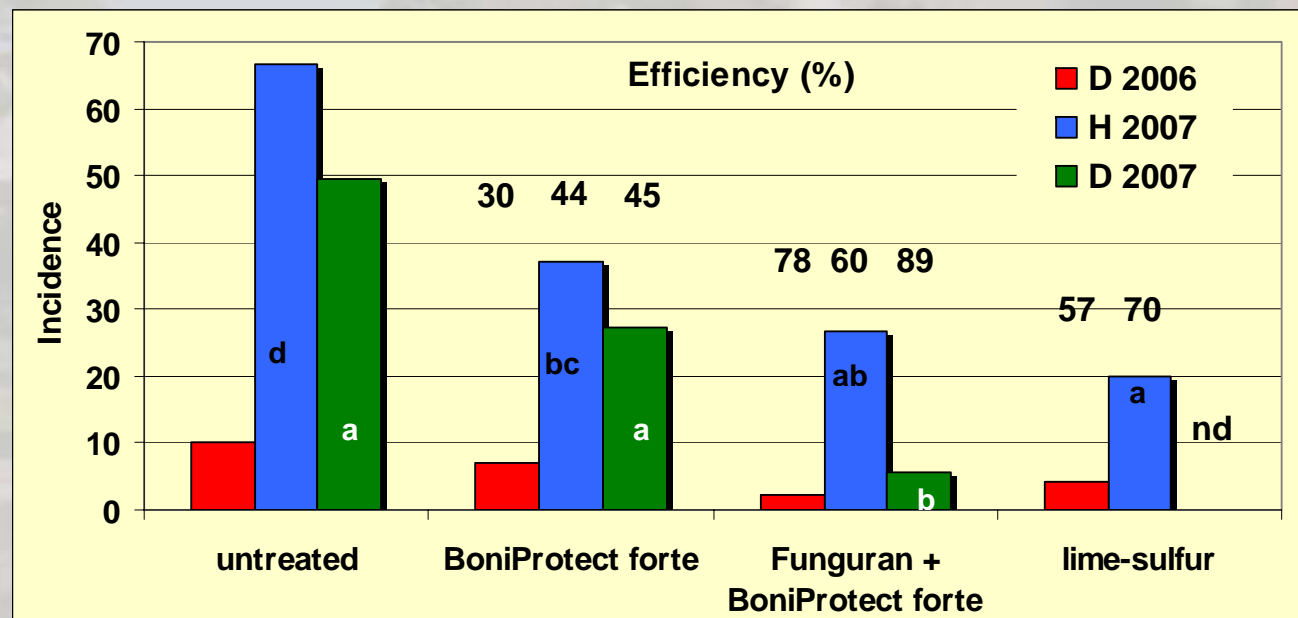
- **Timing**

3 to 4 treatments are recommended into the open flowers



Field trials 2006 and 2007

Treatment		Application time	Application rate
untreated			
BoniProtect forte	5x	bud break until petal fall	0,5 kg/ha x m crown height
Funguran	2-3x	pre bloom	0,5-0,75 kg/ha x mKH
BoniProtect forte	2-3x	open flowers	0,5 kg/ha x mKh
lime sulfur	5x	bud break until petal fall	5-7,5 l/ha x m crown height



D: Dr. U. Mayr,
KOB, Bavendorf

H: Prof. I. Holb,
Uni-Debrecen

Aureobasidium pullulans

B^oni Protect[®]

- postharvest diseases of apple



Bl^ossom Protect[™]

- fire blight



Boni Protect[®] forte

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



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Further research

- **BoniProtect® forte** against *Monilia* blossom blight and fruit infections in plum, sweet cherry and apricot
- Integration of **BoniProtect® forte** in spray schedules of integrated production of stone fruits and strawberries
 - reduce chemical residues
 - anti resistance strategy
- Testing fungal populations for fungicide resistance
 - apple scab (*Venturia inaequalis*)
 - *Botrytis cinerea*
 - *Monilia* sp.

Thank you

- G. Mögel, M. Hinze, A. Weiß
- U. Mayr, S. Späth, KOB Bavendorf
- I. Holb, Uni-Debrecen
- H. Rank, Sächsische Landesanstalt für Landwirtschaft

