A preparation based on natural hydrolyzed proteins controls plant pathogens on several crops

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Product code: SCNB2

- **Composition**
- **Efficacy**
- **Mode of action**

SCNB2 Composition

Beef extract* : Peptone** 3:5 (W:W)

Dilutions:

(1)	8	g/l
(0.5)	4	g/l
(0.1)	0.8	g/l

*Aqueous infusion of meat used microbiological culture media

** Hydrolyzed proteins (high molecular weight peptides)

Efficacy trial against diseases

Powdery mildews

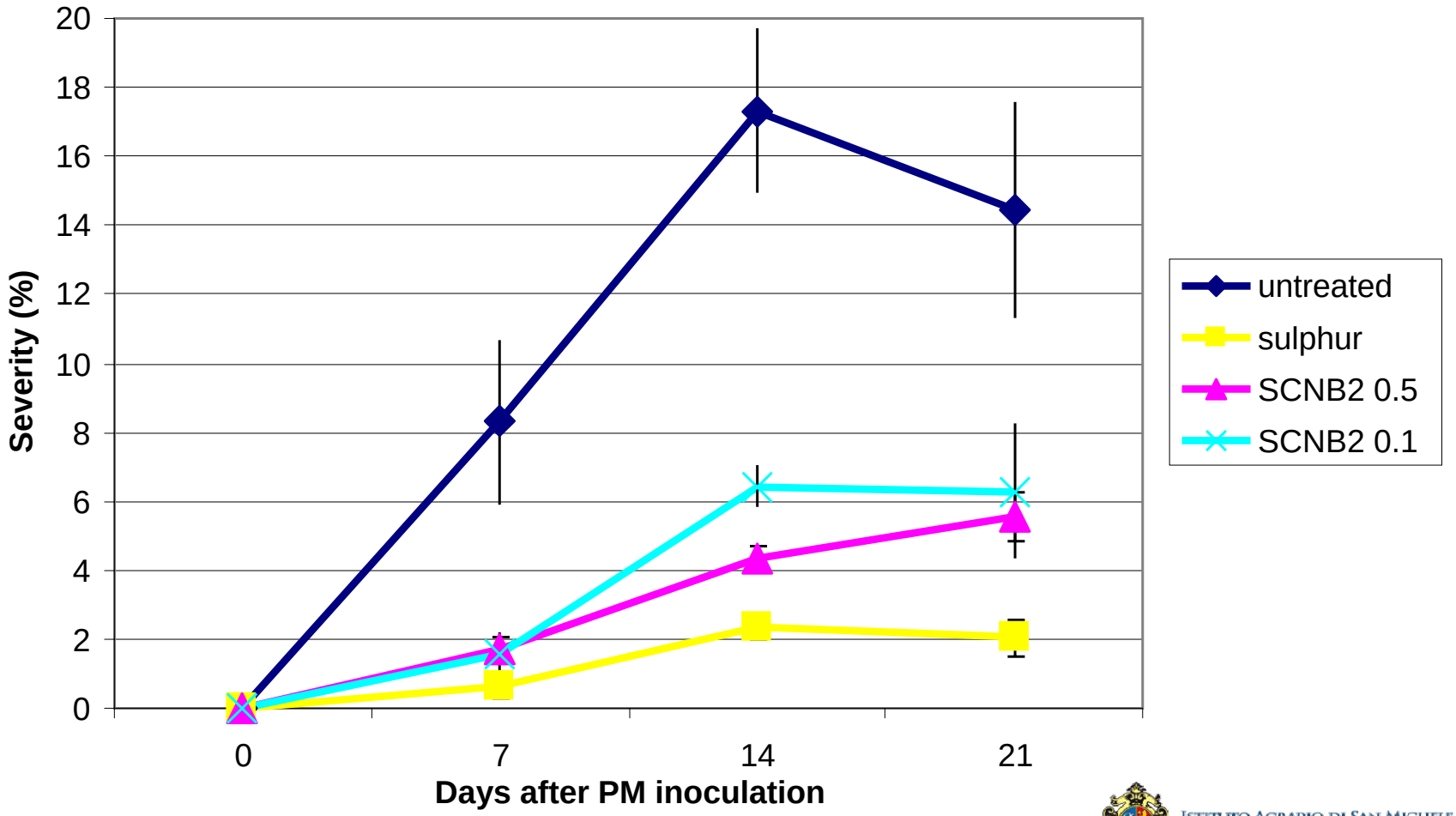
- *Podosphaera xanthii* (cucumber/zucchini)
- *Podosphaera aphanis* (strawberry)
- *Erysiphe necator* (grapevine)

Efficacy trials on cucumber/zucchini

Plants: **cucumber and zucchini** (4 replicates of 5 plants per treatment)
Treatments: water suspensions of **SCNB2** (0.5, 0.1)
Untreated control and standard (Sulphur; Thiovit, Syngenta)
Inoculation: *P. xanthii* (10^5 conidia/ml^2) 3 h after first treatment
2 weeks after treatment, assessment of **severity** (% of symptomatic leaf surface)
Two independent experiments: Kruskal-Wallis's test ($P<0.05$)

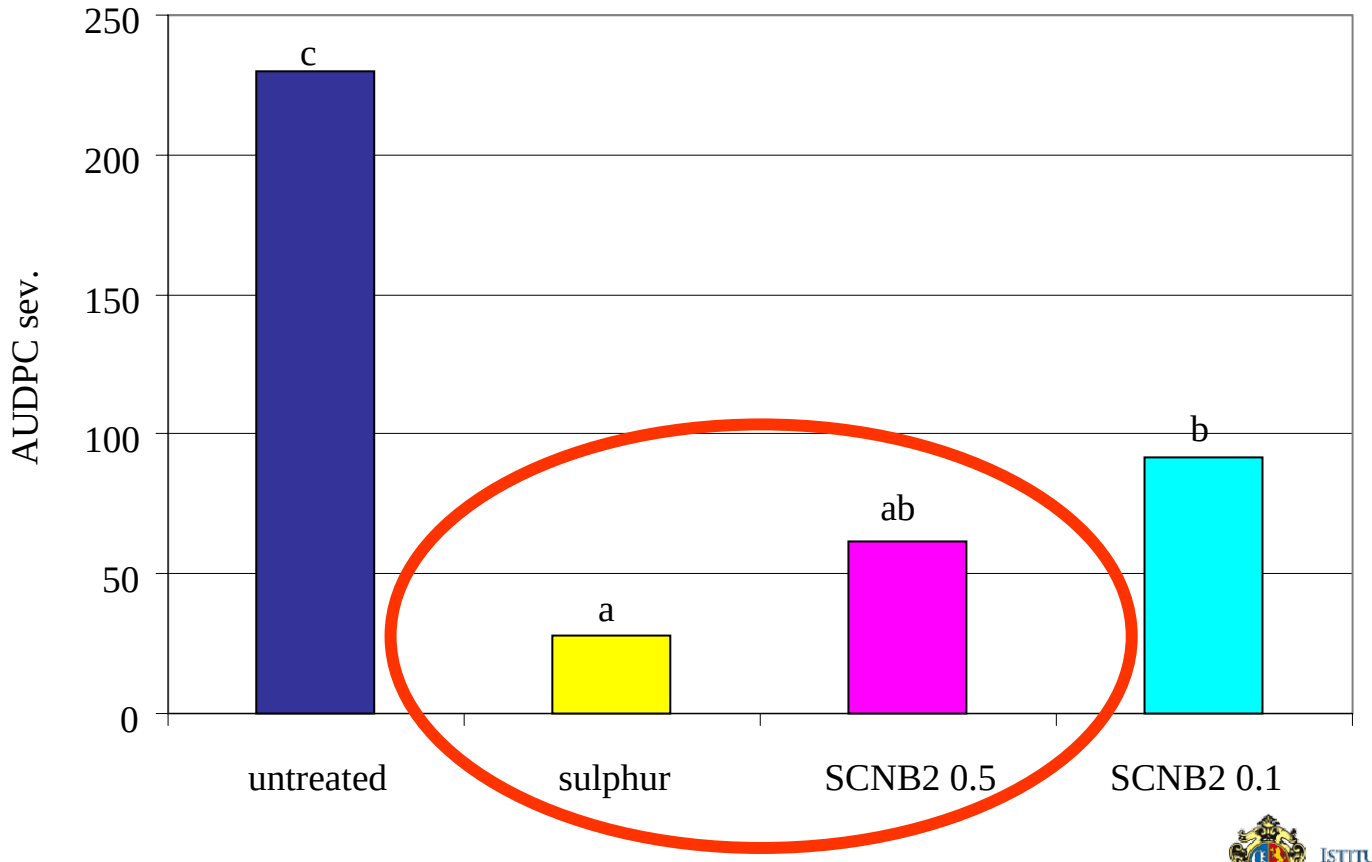
Effect vs. concentration

Cucumber: weekly treatments, greenhouse commercial like conditions

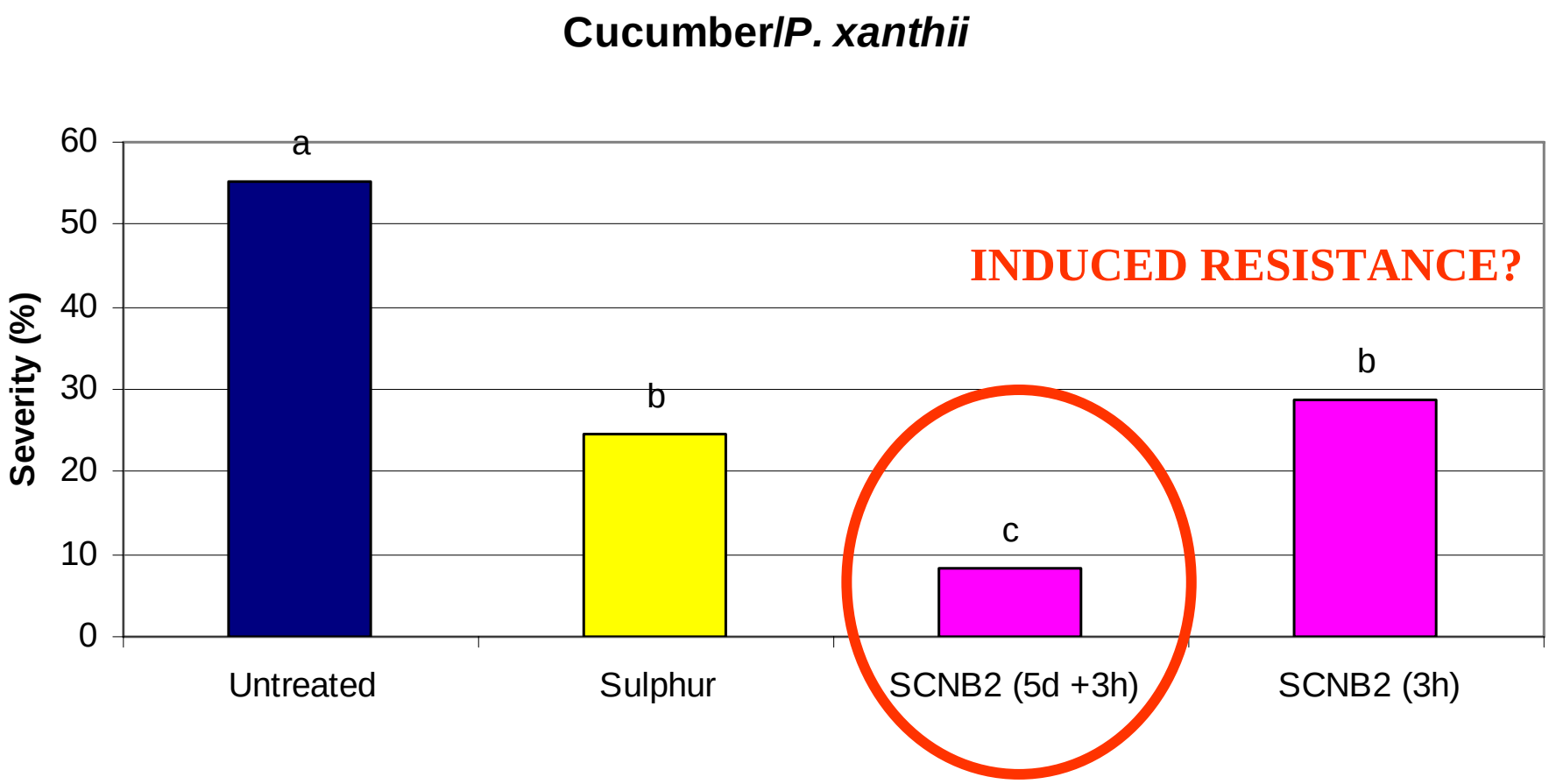


Effect vs. concentration

Cucumber: weekly treatments, greenhouse commercial like conditions (1 month)



Time of application

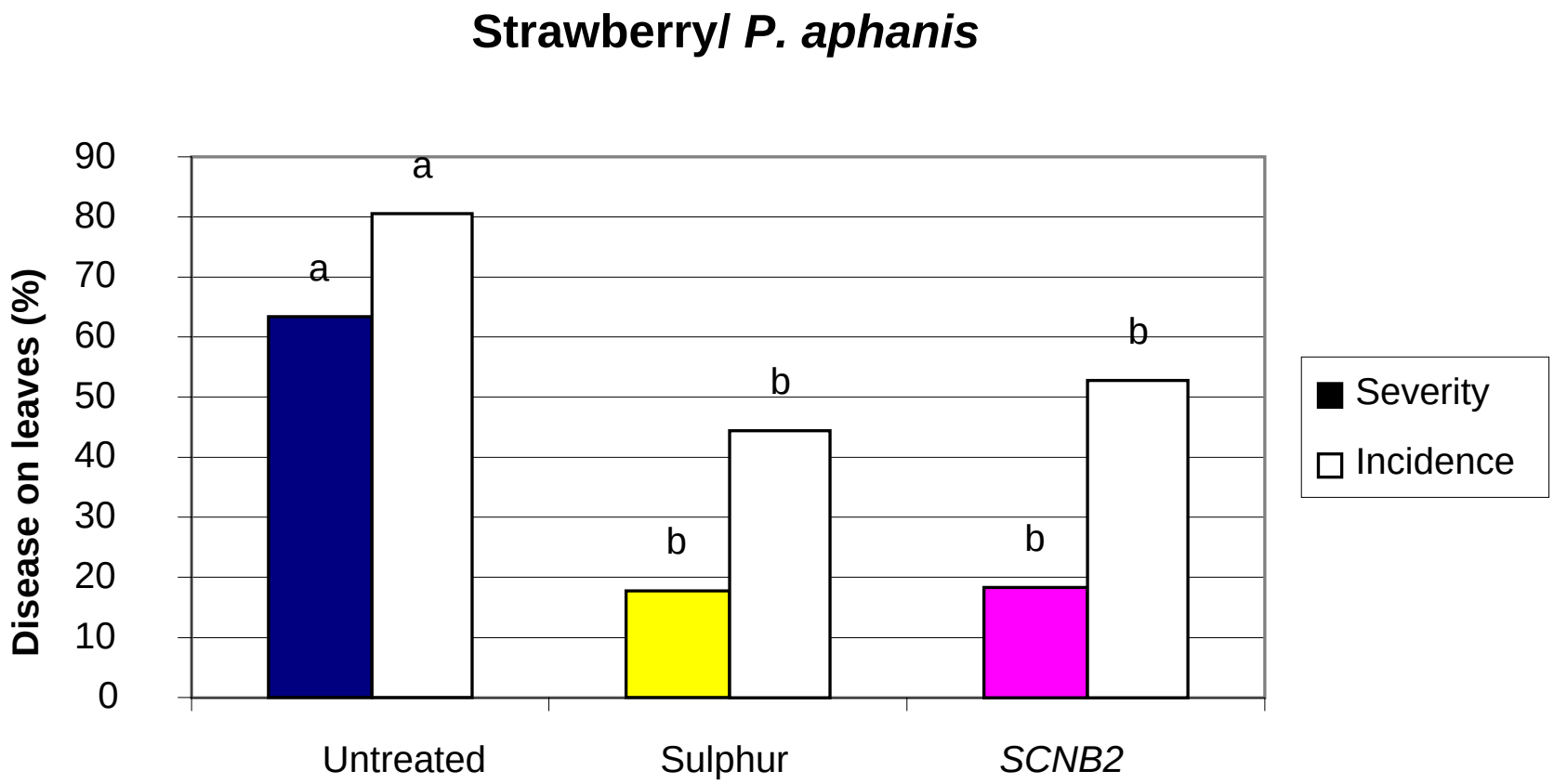


SCNB2 applied 5 day + 3 hours or 3 hours before inoculation
Assessment: 2 weeks after inoculation

Efficacy trials on strawberry

Plants: **strawberry** (4 replicates of 6 plants per treatment)
Treatments: water suspensions of **SCNB2** (0.5)
Untreated control and standard (Sulphur; Thiovit, Syngenta)
Inoculation: *P. aphanis* shaking infected leaves 3 h after
4 weeks after treatment, assessment of **severity** (% of symptomatic leaf surface)
Two independent experiments: Kruskal-Wallis's test ($P<0.05$)

Efficacy trials on strawberry



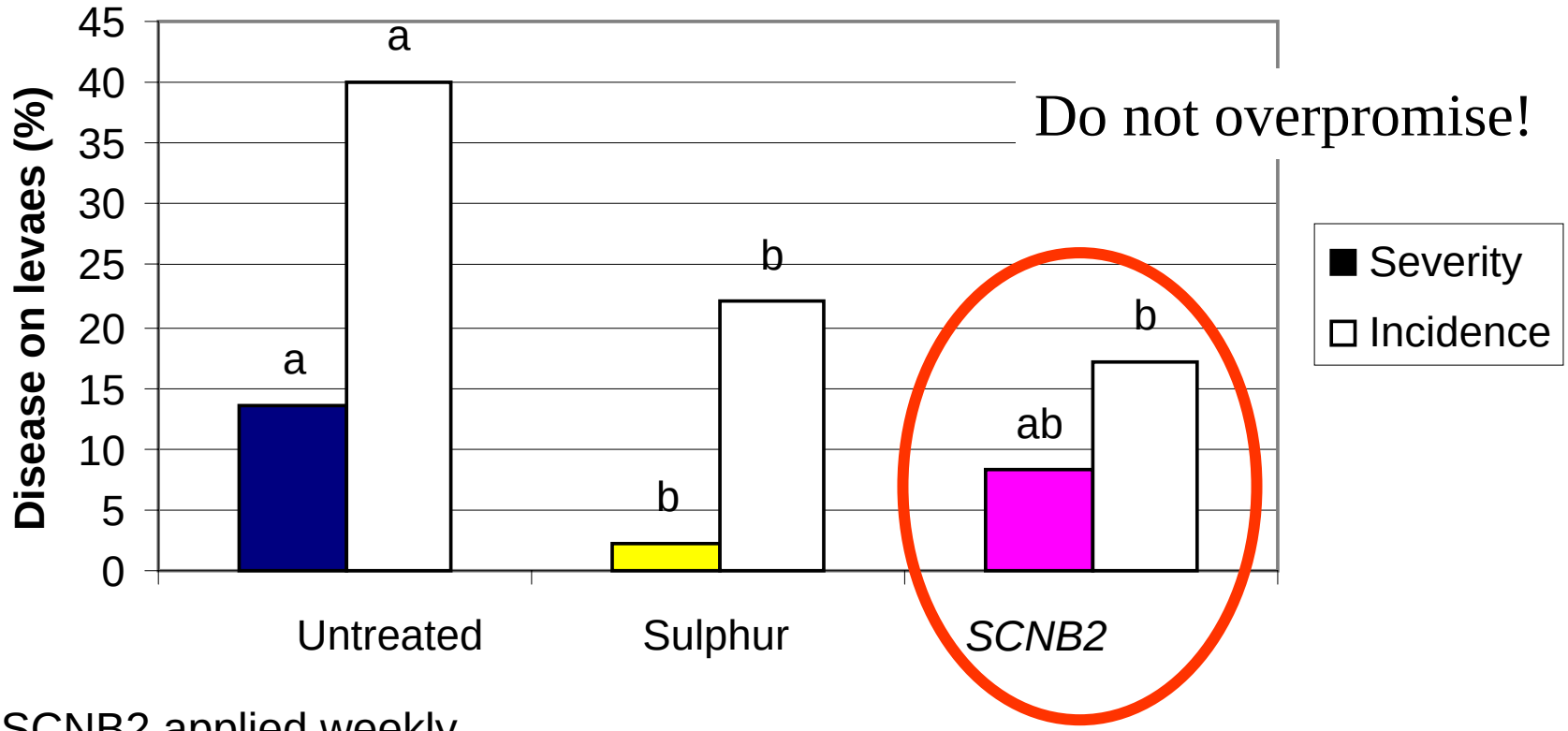
SCNB2 applied 3 hours before inoculation
Assessment: 4 weeks after inoculation

Efficacy trials on grapevine

Plants: **grapevine** (3 replicates of 10 plants per treatment) vineyard 2007, S. Michele all'Adige (Italy)
Weekly treatments: **SCNB2** (1)
Untreated control and standard (Sulphur; Thiovit, Syngenta)
Natural inoculum: *Erysiphe necator*
Harvest, assessment of **severity** (% of symptomatic leaf surface)

Efficacy trials on grapevine

Grapevine /*E. necator*



SCNB2 applied weekly

Assessment: at harvest, Anova, Tukey's test ($P<0.05$)

Efficacy trials on zucchini (field conditions)

Plants: **zucchini** (3 replicates of 10 plants per treatment) cv Xara

2006, Val di Gresta (Italy)

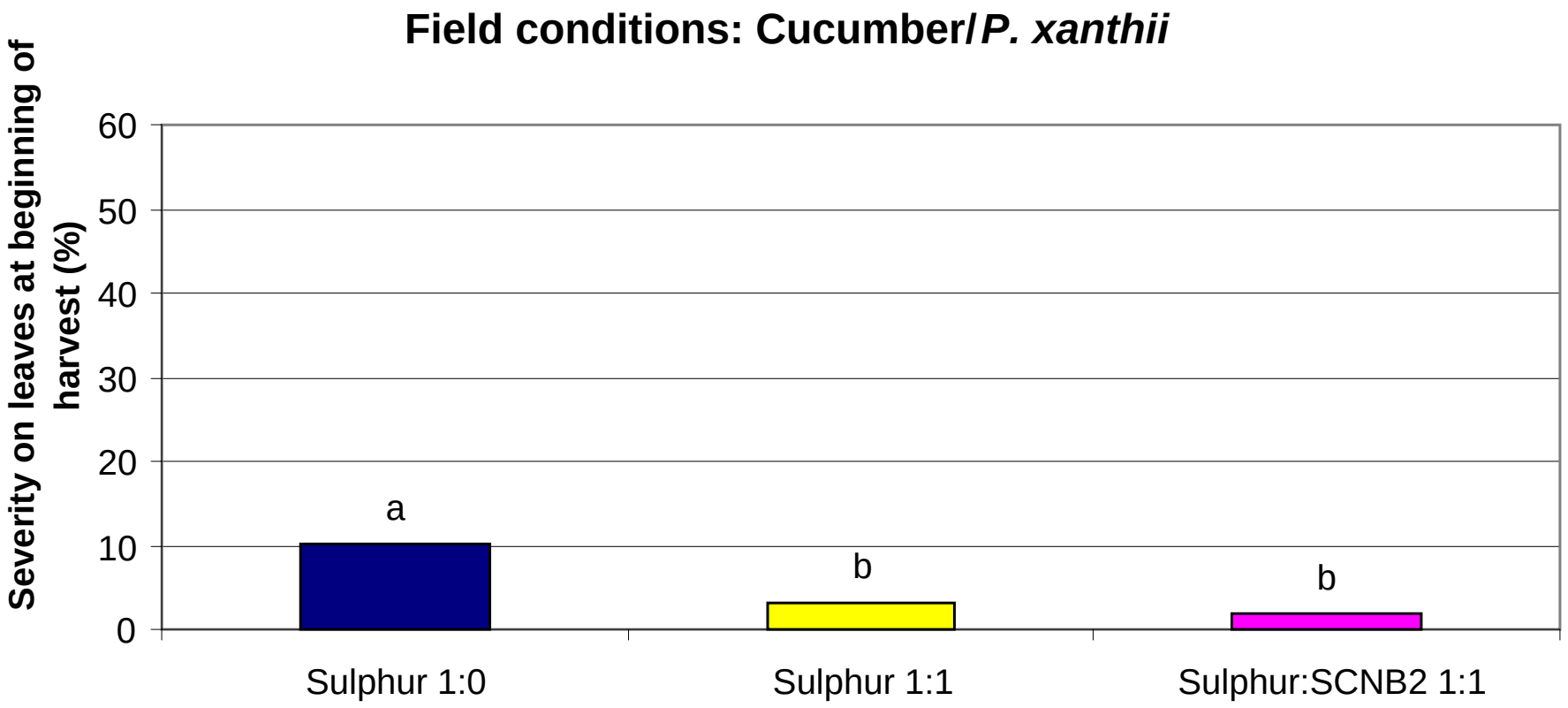
- Weekly treatments: Sulphur
- Every two weeks: Sulphur
- Alternation of sulphur and **SCNB2** (1)

Organic farm, commercial conditions

Natural inoculum: *Erysiphe necator*

Harvest, assessment of **severity**

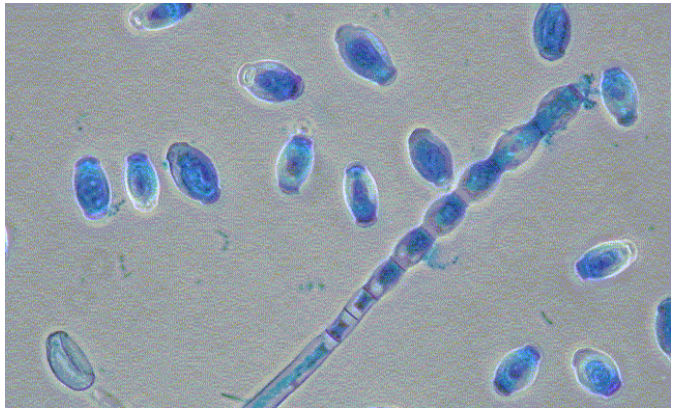
Efficacy trials: commercial field, organic



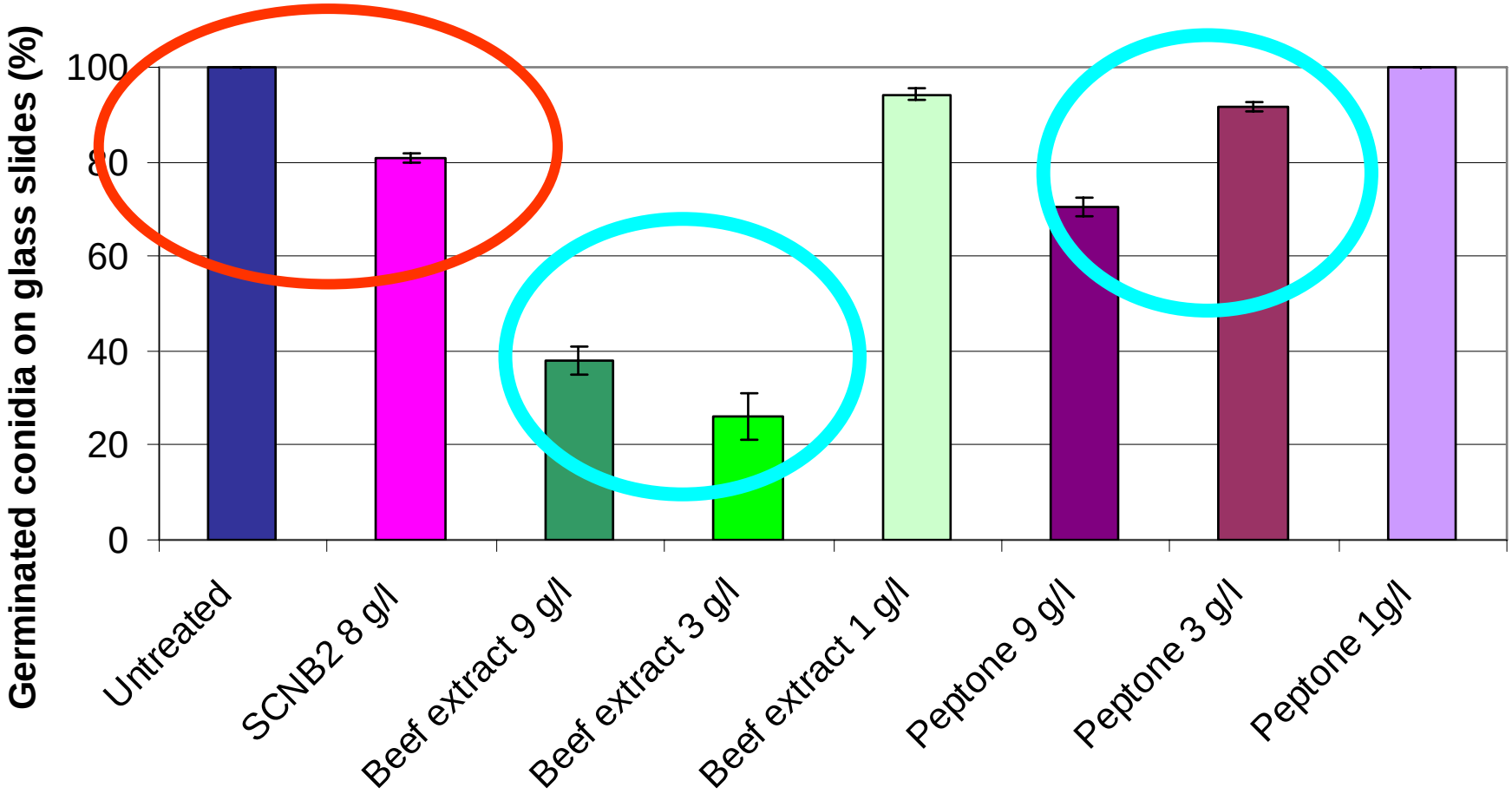
Effect on conidia germination (*P. xantii*)

- **On glass slides *(direct effect)***
- **On cucumber leaves *(interaction with leaf)***

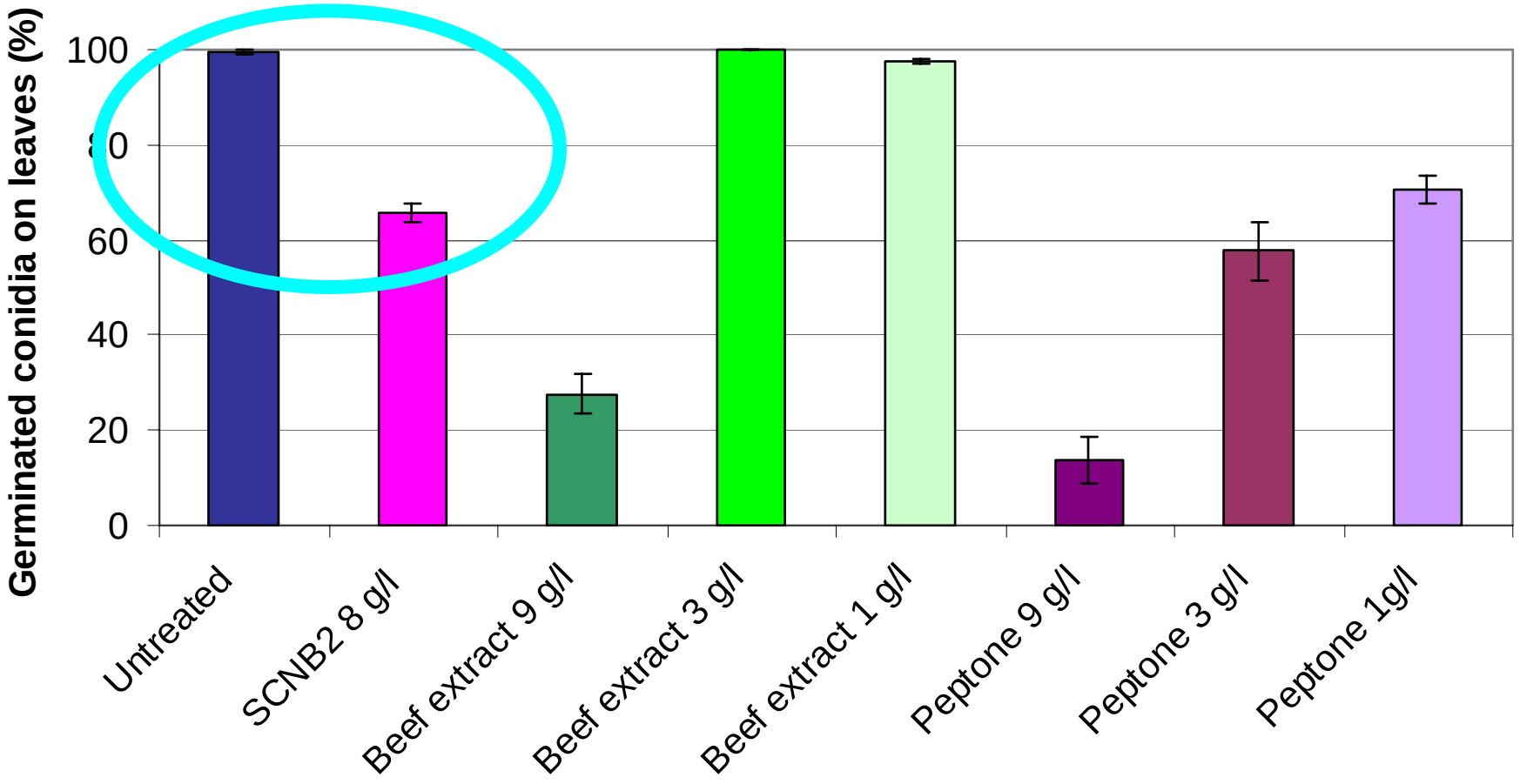
SCNB2, Beef extract, Peptone sprayed on glass slides or leaves
Sporulating leaves shaken over slides/leaves
24-48 hours at high relative humidity (99%) and 20±2°C
Cotton blue and counting of germinated conidia (microscope)



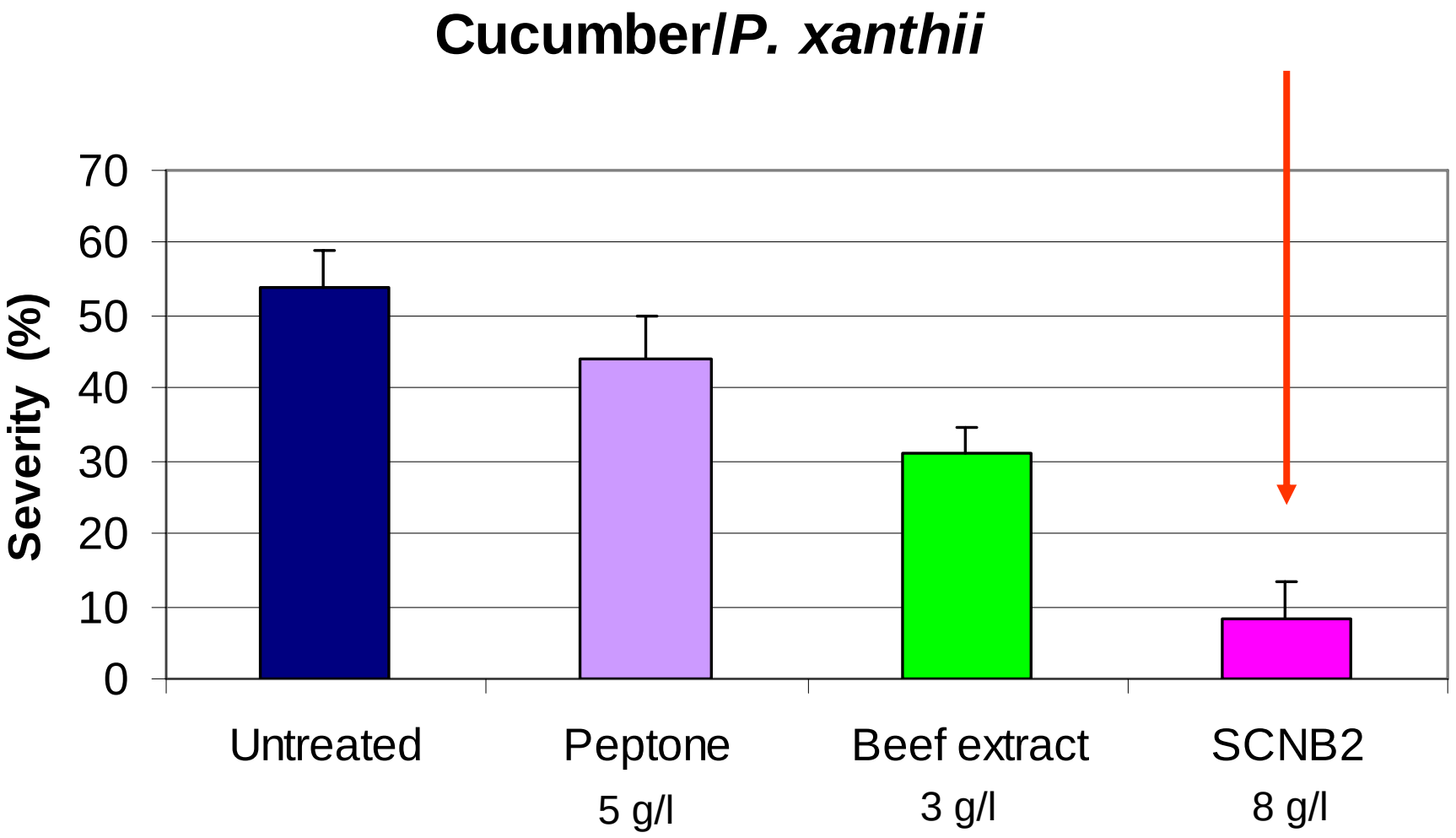
Effect on conidia germination on slides



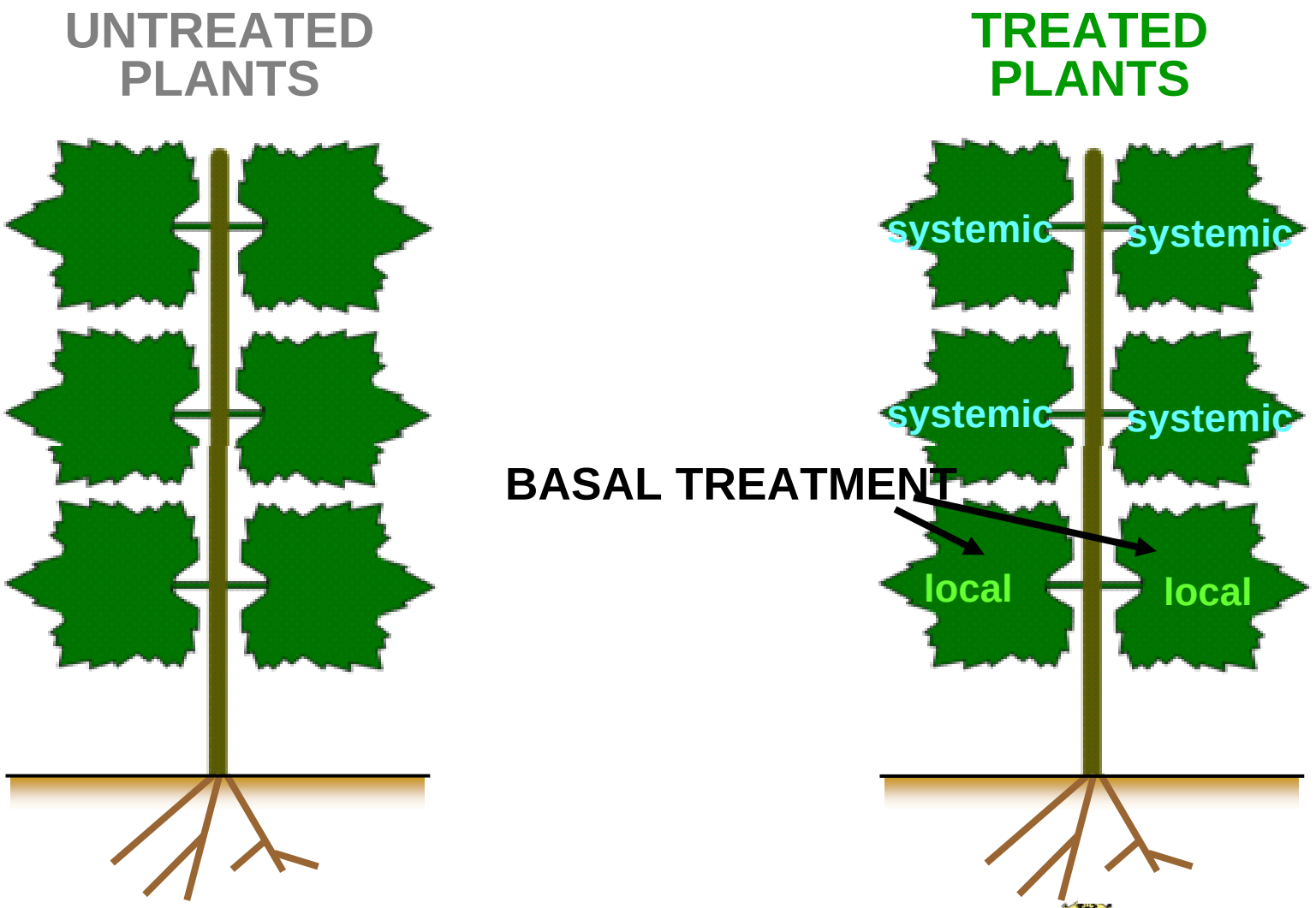
Effect on conidia germination on leaves



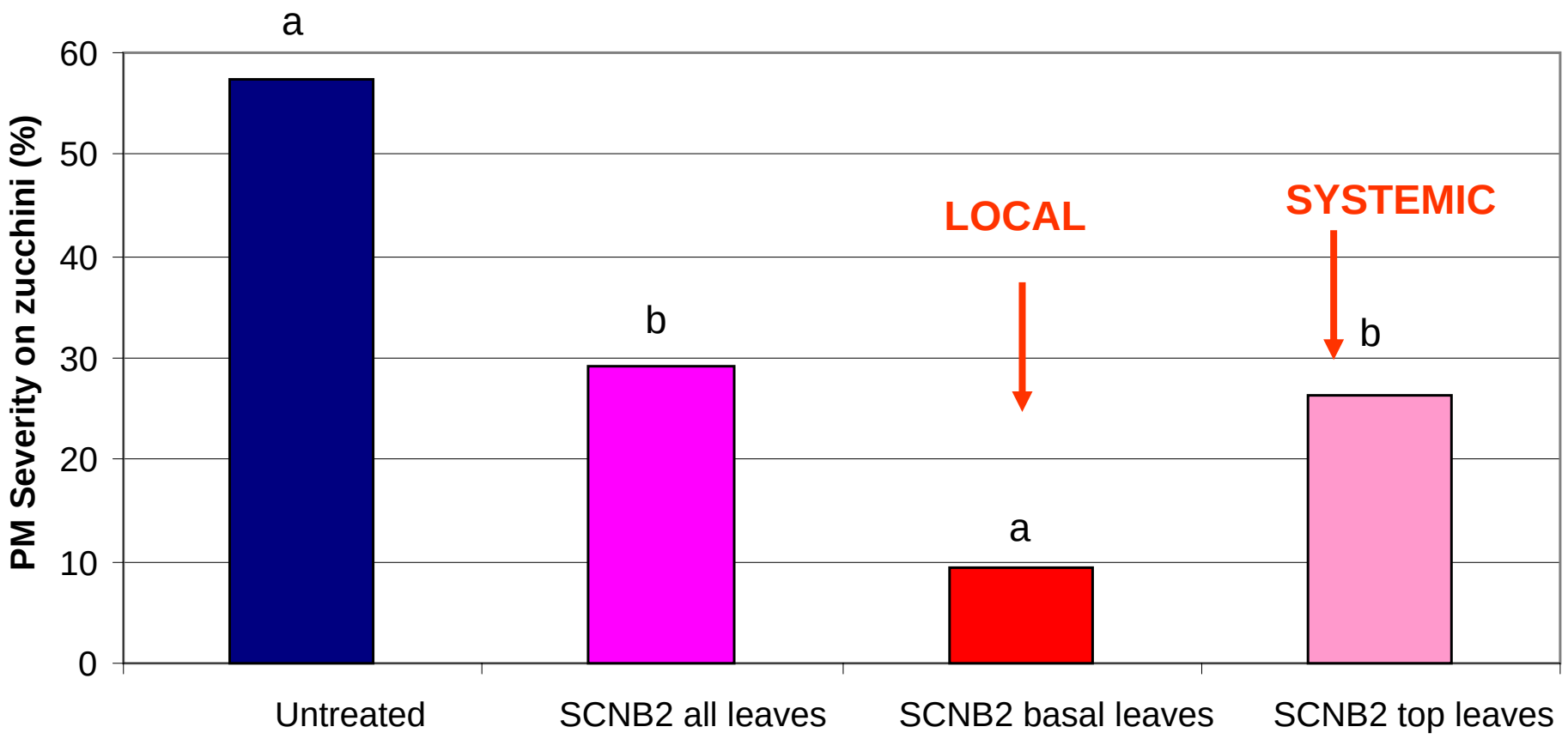
Effect of single components vs. mixture



Induced resistance: effect on untreated leaves



Induced resistance: effect on untreated leaves



Basal leaves treated with SCNB (0.5) 3 h before inoculation with *P. xanthii* of the entire plant

Conclusions:

- SCNB2 is effective in reducing Powdery Mildew on several crops (provisional patent IT VR2009A000123)
- Natural product (proteins/peptides)
- Possibly easier registration with the new regulation
- Slight reduction of conidia germination + induced resistance
- Suggested use: integration with other measures to reduce quantities of sulphur

Thank you for your attention!

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