Rhaponil SL - an organic spray-additive for improved efficacy of contact fungides against downy mildews

Way forward in organic plant health care strategies

online conference - 17. November 2022

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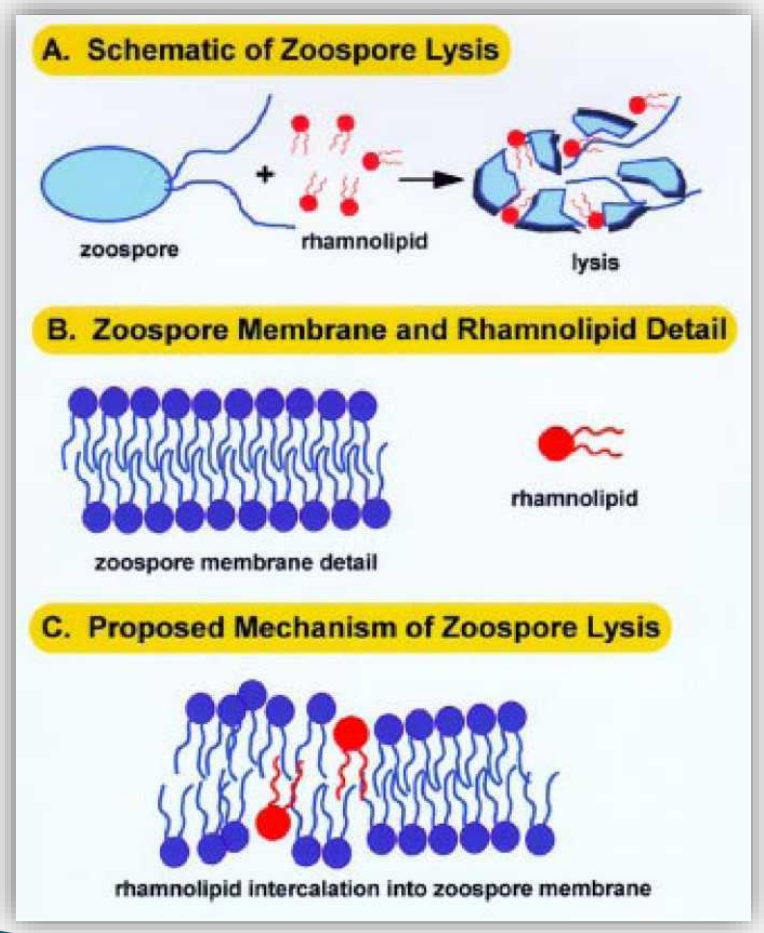
Overview

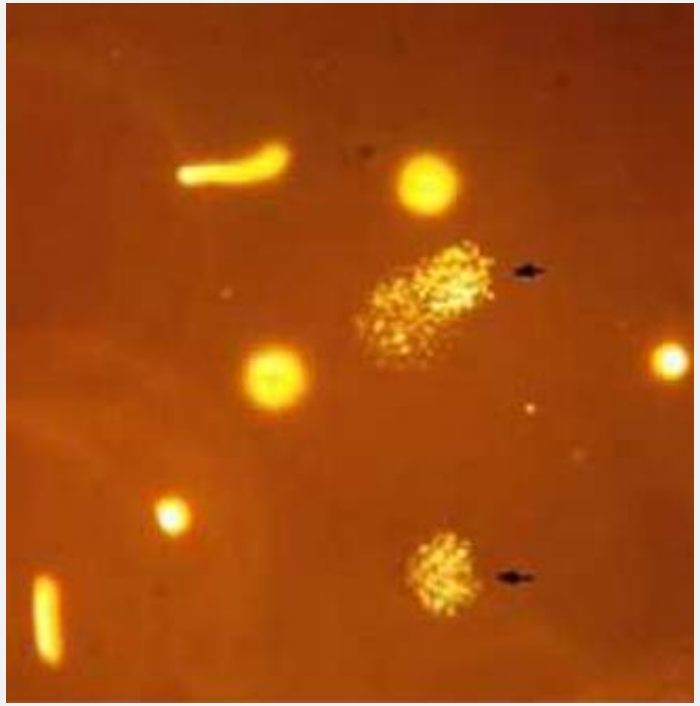
- What is Rhaponil SL?
- Effects of Rhamnolipids on zoospores
- Trial results
    - *Pseudoperonospora cubensis* (PSPECU)
    - *Plasmopara viticola* (PLASVI)
- Summary

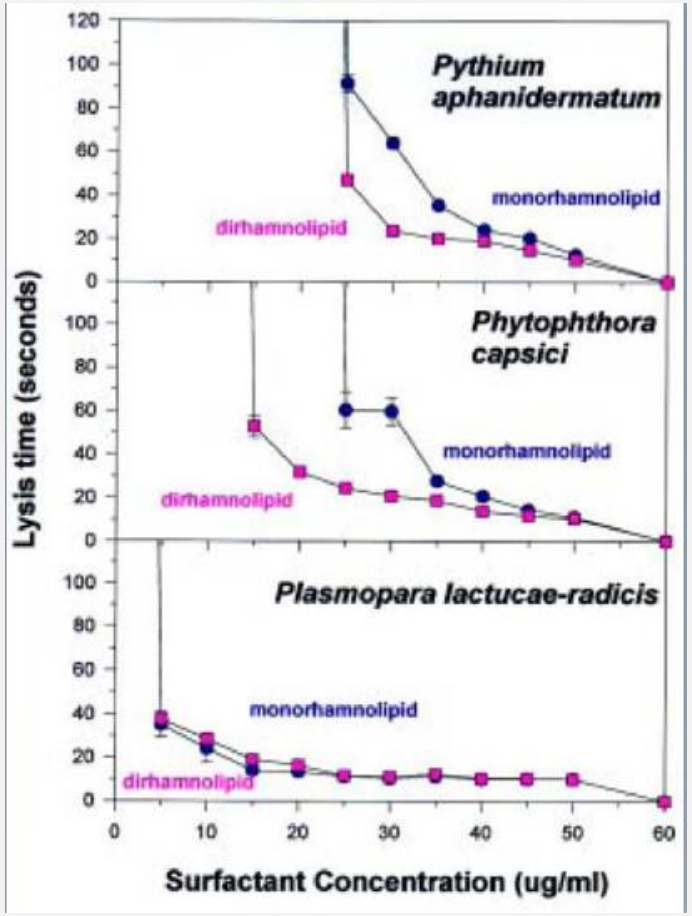
What is Rhaponil SL?

- Natural additive based on **Rhamnolipids**. This class of glycolipids are produced by fermentation of *Pseudomonas aeruginosa*.
- **Rhamnolipids** are characterized by high natural surface and interfacial activity which leads to a high wetting capability.
- These properties make them very potent **biosurfactants** leading to a better coverage with contact fungicides or better penetration of systemic a.i.'s
- **Rhamnolipids** are known to have an effect on fungal zoospores.

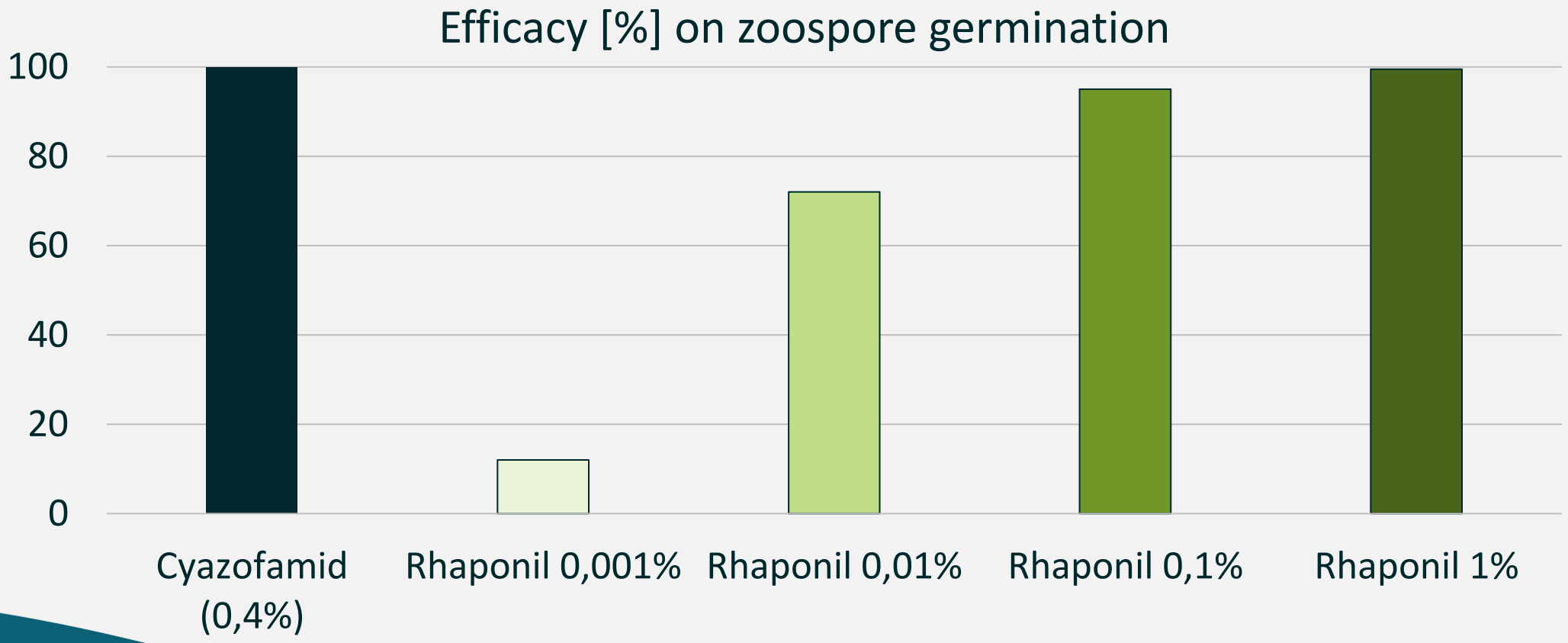
Rhamnolipids damage fungal zoospores







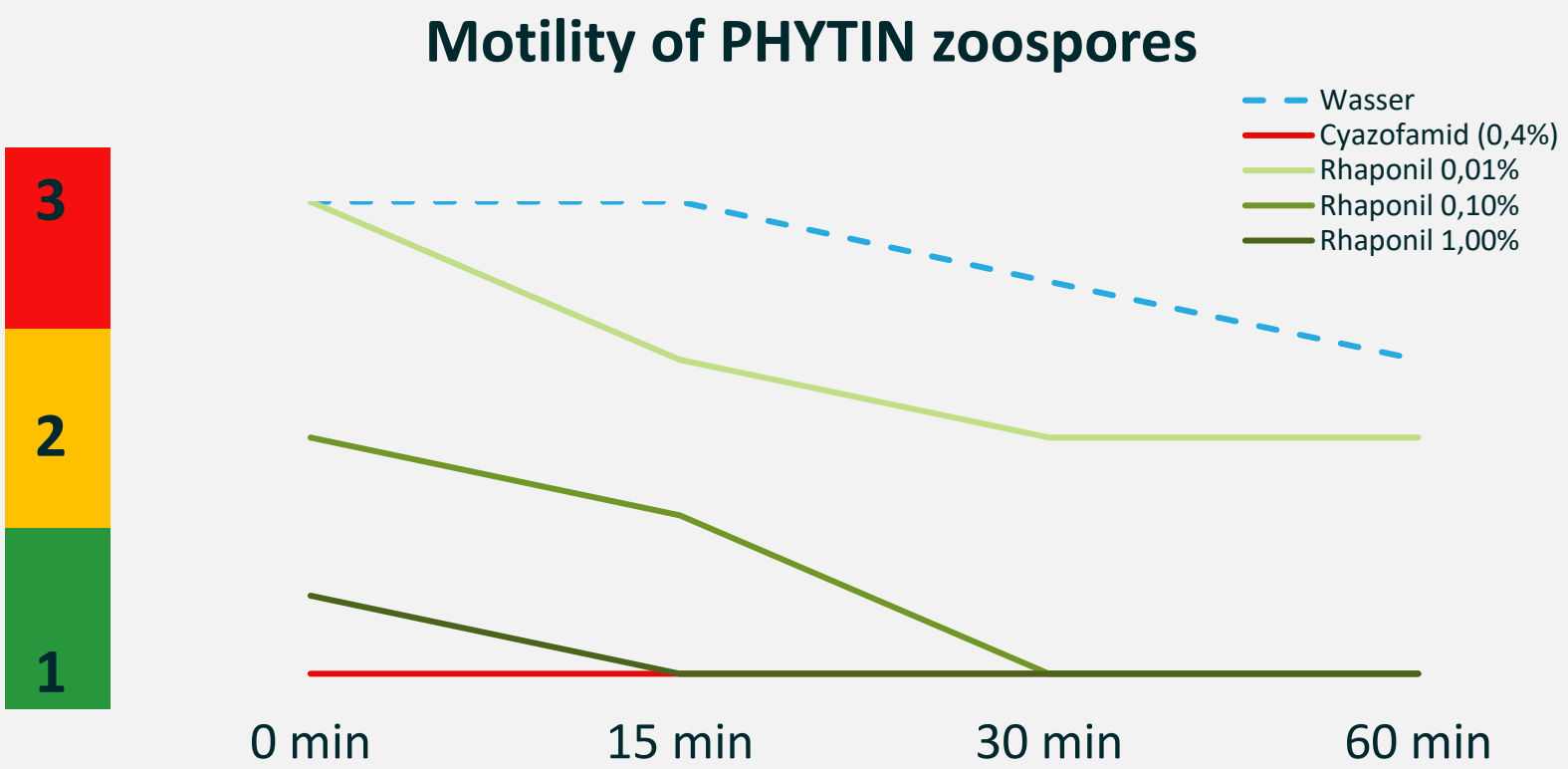
Efficacy of Rhaponil on zoospore germination (PHYTIN) at different concentrations



Efficacy of Rhaponil on zoospore motility (PHYTIN) at different concentrations/times

Zoospore movement assessment scale		
Assessment	Description	Effect/efficacy of the tested product
1	Zoospores are completely dead (do not move anymore)	Good effect
2	Zoospores move more slowly or only some of them can move	Moderate effect
3	Same as control (all the spores can move well)	No effect

Efficacy of Rhaponil on zoospore motility (PHYTIN) at different concentrations/times



	MIC	EC50
0 min	> 1%	0,1%
15 min	0,1-1%	0,1%
30 min	0,01-0,1%	0,01-0,1%
60 min	0,01-0,1%	0,01-0,1%

Pseudoperonospora cubensis (PSPECU)

Cucumber

PSPECU on cucumber

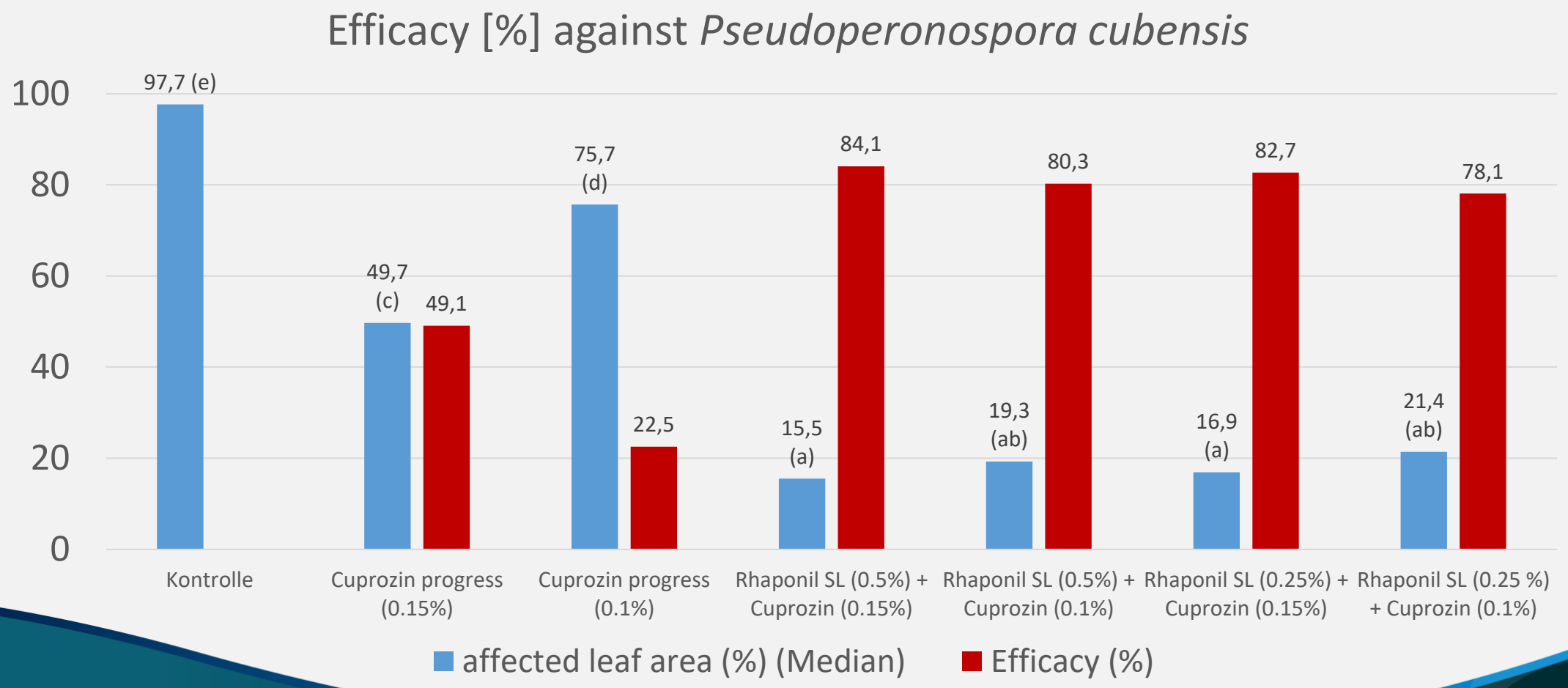
JKI Darmstadt 2018

Preventative application in Climate chamber trials (9 plants per treatment)

	Objectives			
1	Untreated			
2	Cuprozin progress	0,15%		
3	Cuprozin progress	0,1%		
4	Cuprozin progress	0,15%	+ Rhaponil	0,5%
5	Cuprozin progress	0,1%	+ Rhaponil	0,5%
6	Cuprozin progress	0,15%	+ Rhaponil	0,25%
7	Cuprozin progress	0,1%	+ Rhaponil	0,25%

PSPECU on cucumber

JKI Darmstadt 2018



PSPECU on cucumber

JKI Darmstadt 2018

untreated

Cuprozin 0.1%

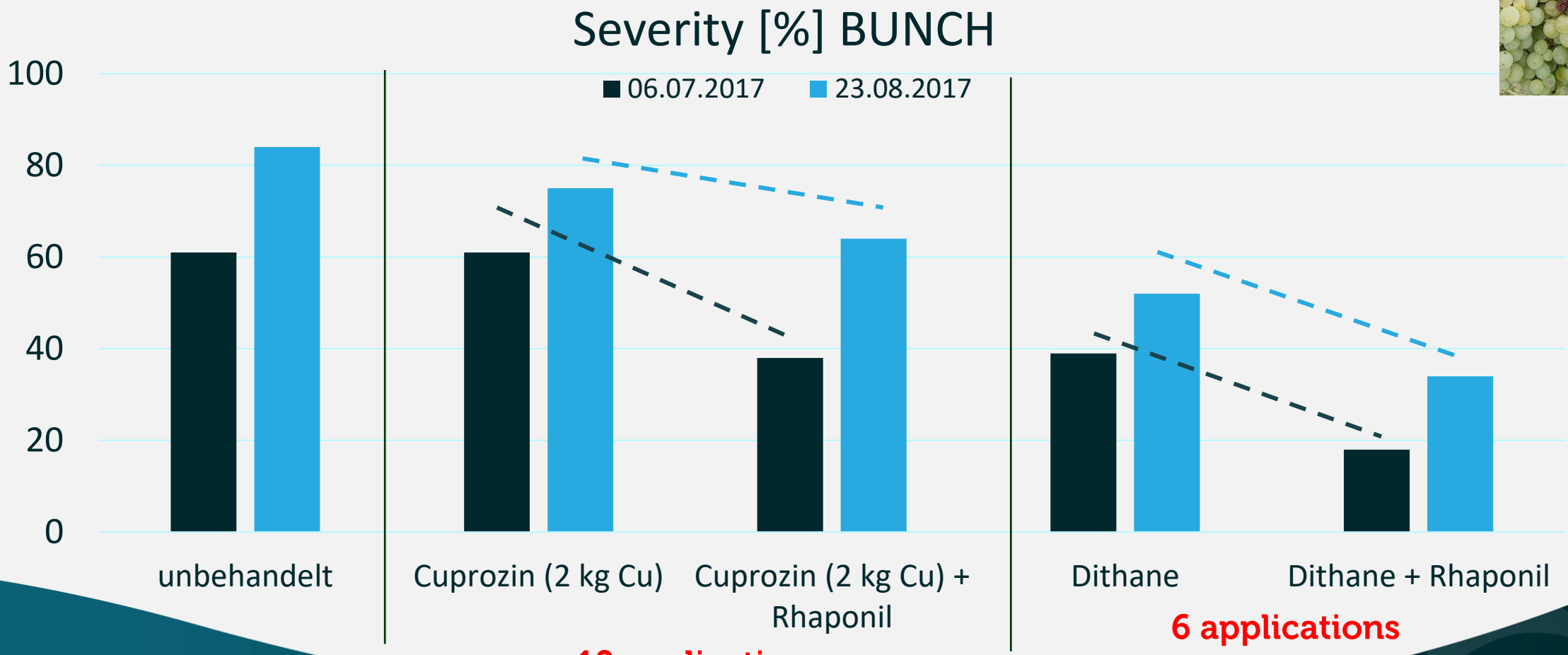
Rhaponil SL 0.5%
+ Cuprozin 0.1%

Plasmopara viticola (PLASVI)

Grapes

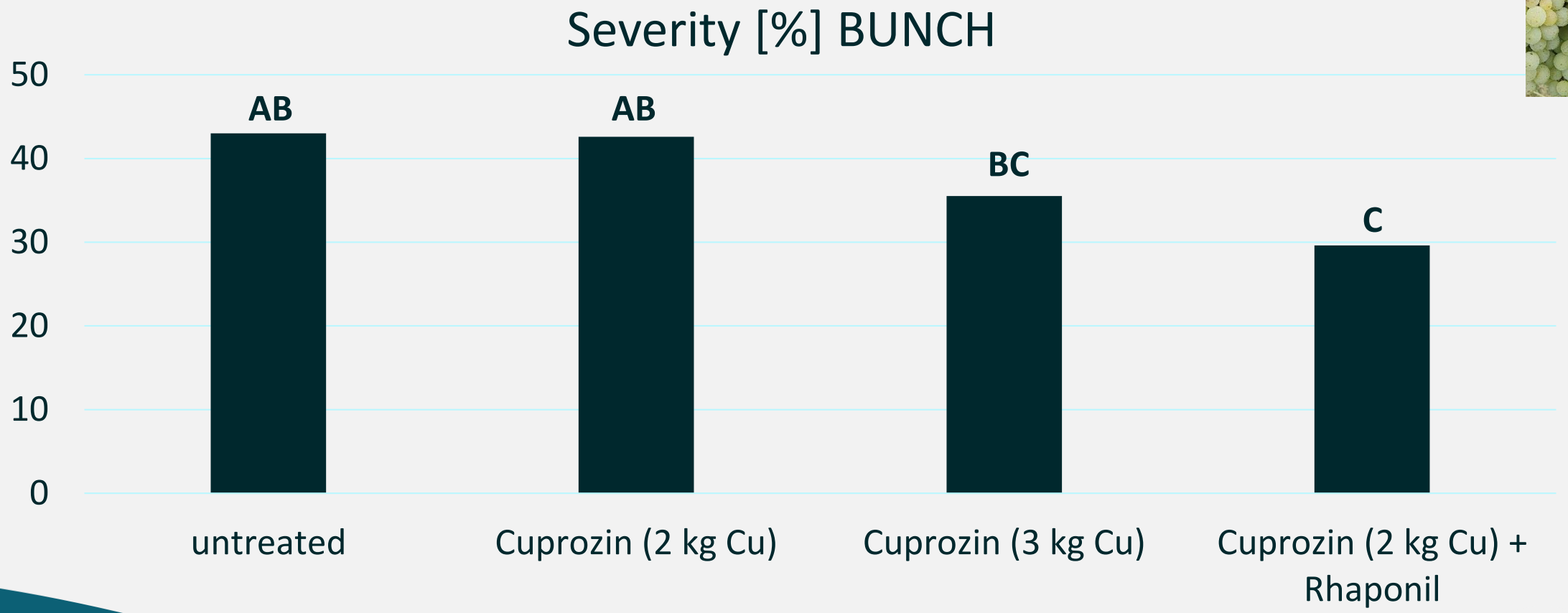
PLASVI trial (2017)

LWG Veitshöchheim



PLASVI trial (2018)

HS Geisenheim University



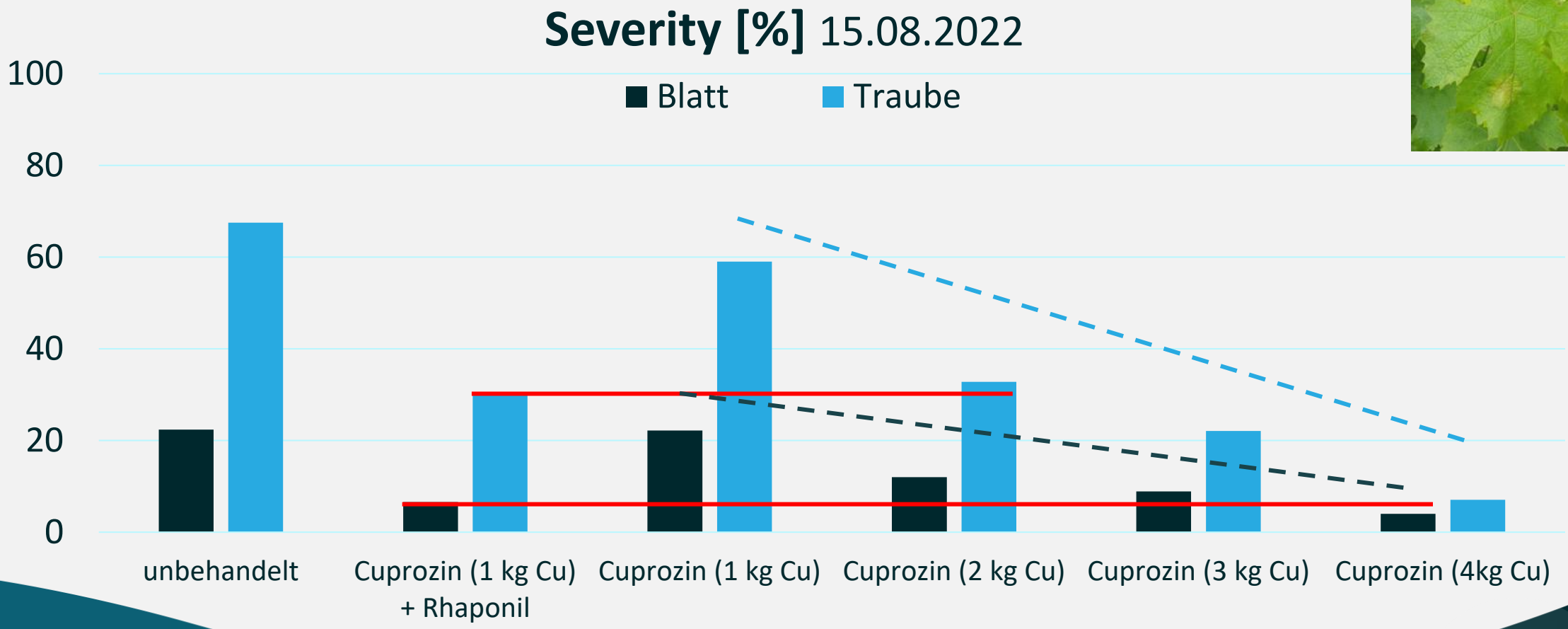
PLASVI trial (2022)

Certis Belchim field day (Spiesheim)

	Varianten	Reinkupfermenge / ha
1	Untreated control	
2	Cu (1 kg Cu) + **Rhaponil SL**	1,08 kg
3	Cu (1 kg Cu)	1,08 kg
4	Cu (2 kg Cu)	2,08 kg
5	Cu (3 kg Cu)	2,95 kg
6	Cu (4 kg Cu)	3,93 kg

PLASVI trial (2022)

Eurofins (Spiesheim)



PLASVI trial (2022)

Eurofins (Spiesheim)

untreated

1 kg Cu + Rhaponil

1 kg Cu

2 kg Cu

Summary on Rhaponil SL

- Rhaponil SL has excellent wetting capabilities and is listed as an adjuvant.
- Listed in FiBL Betriebsmittelliste and can flexibly used in organic production.
- Improves the efficacy of contact fungicides against downy mildews in different crops.
- Can help to increase the efficacy of treatments in organic production and reduce the amount of copper used to an absolute minimum.
- Effect on zoospores of different downy mildews has been scientifically proven and has been confirmed for PHYTIN
- Nevertheless solo treatments do not lead to an efficacy that might allow a registration as plant protection product.

Certis Belchim
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Thank you for your attention!