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Agroscope

Thinning trials in Switzerland in 2016: Brevis & BA

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www.agroscope.ch | good food, healthy environment

Chemical fruit thinning in Switzerland



Influence hormonal balance	naphthalene acetamide (NAD)	✓			
	naphthalene acetic acid (NAA)	✓			
	Ethephon	✓			
	6-benzyladenine (BA)	✓	✓		
Burn flowers	K-Bicarbonat	✓		✓	✓
Reduce photosynthesis	Metamitron	✓	✓		

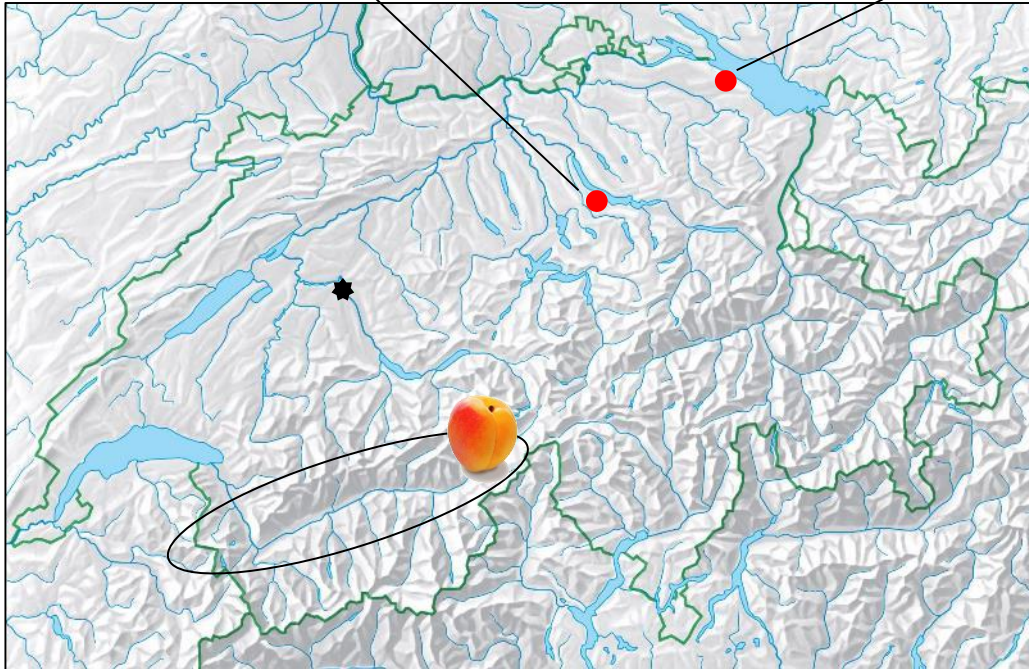
✓: new for 2017



Trial locations of Agroscope

Golden trial (Wädenswil)

Pear trial (Güttingen)





Thinning trials 2016

- Objectifs:
 - contribute to the Brevis model
 - gain experiences with Brevis
 - test Brevis and BA on Conférence
- Trials:
 - Golden
 - 1.1-4.4 kg/ha Brevis
 - 7-17 mm fruit size
 - Conférence and ACW3871
 - Brevis
 - BA





Brevis trial on Golden

Treatment	BBCH	Fruit size (mm)					
	67	7	9	11	13	15	17
untreated control							
hand thinning							
Reference treatment (NAD, BA)	X		X				
1 x 1.1 kg/h Brevis			X				
2 x 1.1 kg/ha Brevis			X		X		
1 x 1.65 kg/h Brevis			X				
2 x 1.65 kg/ha Brevis			X		X		
1 x 1.2.2 kg/h Brevis			X				
2 x 1.2.2 kg/ha Brevis			X		X		

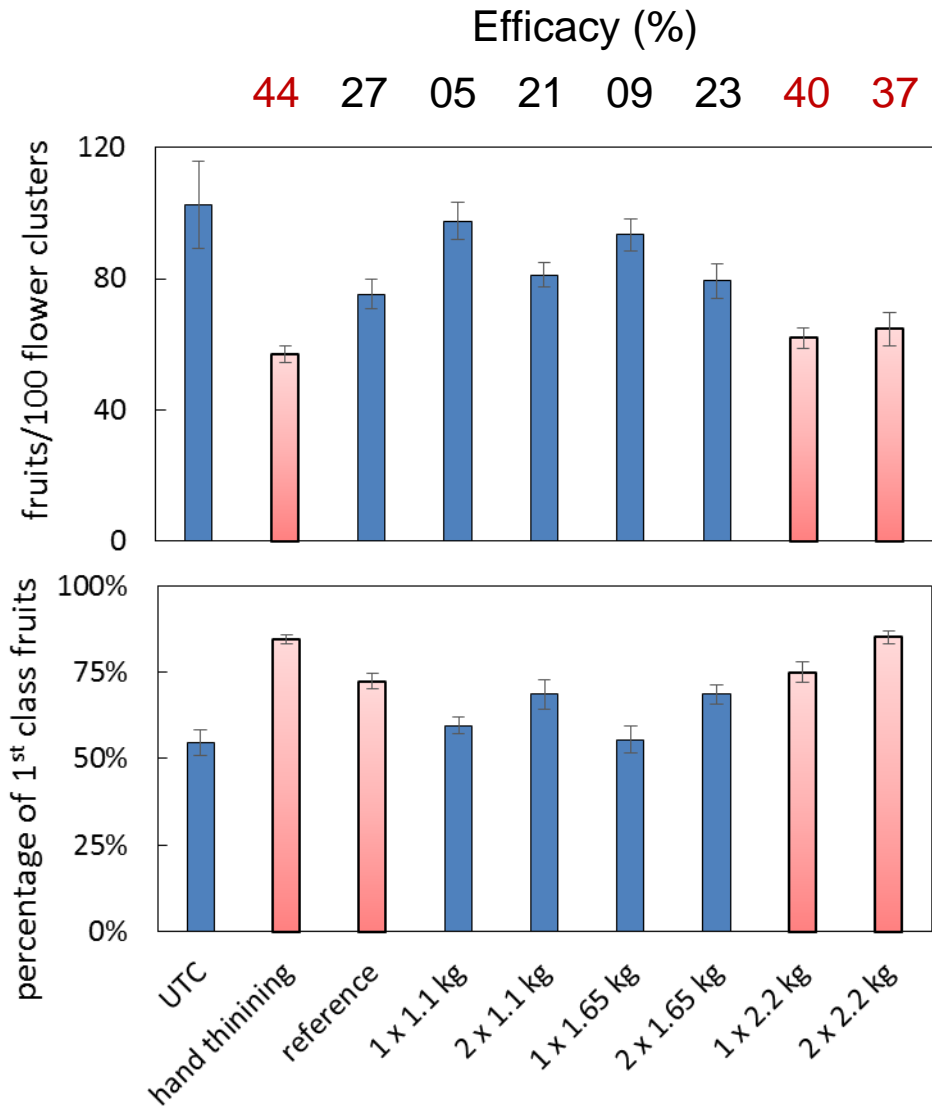


Brevis trial on Golden

Treatment	BBCH 67	Fruit size (mm)					
		7	9	11	13	15	17
untreated control							
hand thinning							
Reference treatment (NAD, BA)	X		X				
1 x 1.1 kg/h Brevis			X				
2 x 1.1 kg/ha Brevis			X		X		
1 x 1.65 kg/h Brevis		X	X	X	X	X	X
2 x 1.65 kg/ha Brevis			X		X		
1 x 1.2.2 kg/h Brevis			X				
2 x 1.2.2 kg/ha Brevis			X		X		



Brevis: Testing different dosages



- red bar: treatment is significant different from UTC
- reference: NAD + BA
- good efficacy of 2.2 kg/ha Brevis, either applied once or twice

Brevis: Results Switzerland 2008-2016

	Golden	Gala	Braeburn	Ladina	Conf.
2008 ¹⁾		high			
2010		not sig.	not sig.		
2011	2x / high		2x		
2012		2x / high	2x		
2013		not sig.			2x
2015 ²⁾	not sig.			2x	
2016	high				not sig.

Thinning efficacy:

0-19 %: none of the tested treatments was significant

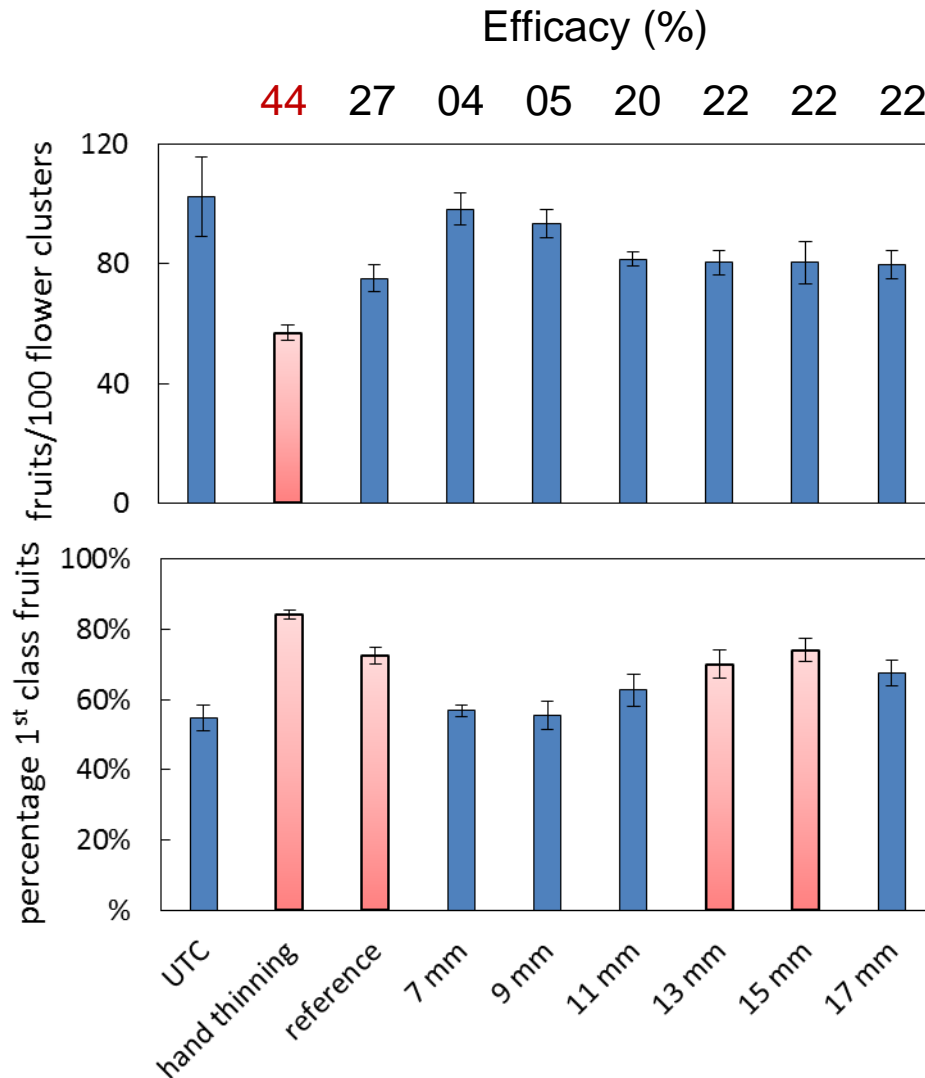
> 20 %: significant thinning when Brevis was applied twice (**2x**)
or with a high concentration of 2.2 kg/ha (**high**)

1) Brevis was only applied once

2) 2.2 kg/ha was not tested in 2015



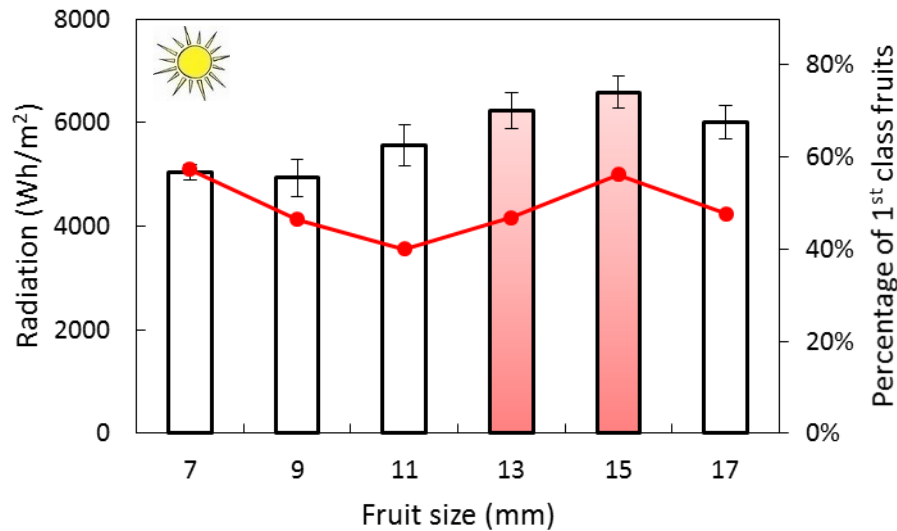
Brevis: Time sequence trial



- 1.65 kg/ha Brevis applied every 2 mm (3-4 days)
- no significant efficacy of Brevis, but tendency towards best thinning at 11 to 17 mm
- significant increase in fruit quality when Brevis was applied either at 13 mm or 15 mm



Brevis: Testing different application dates

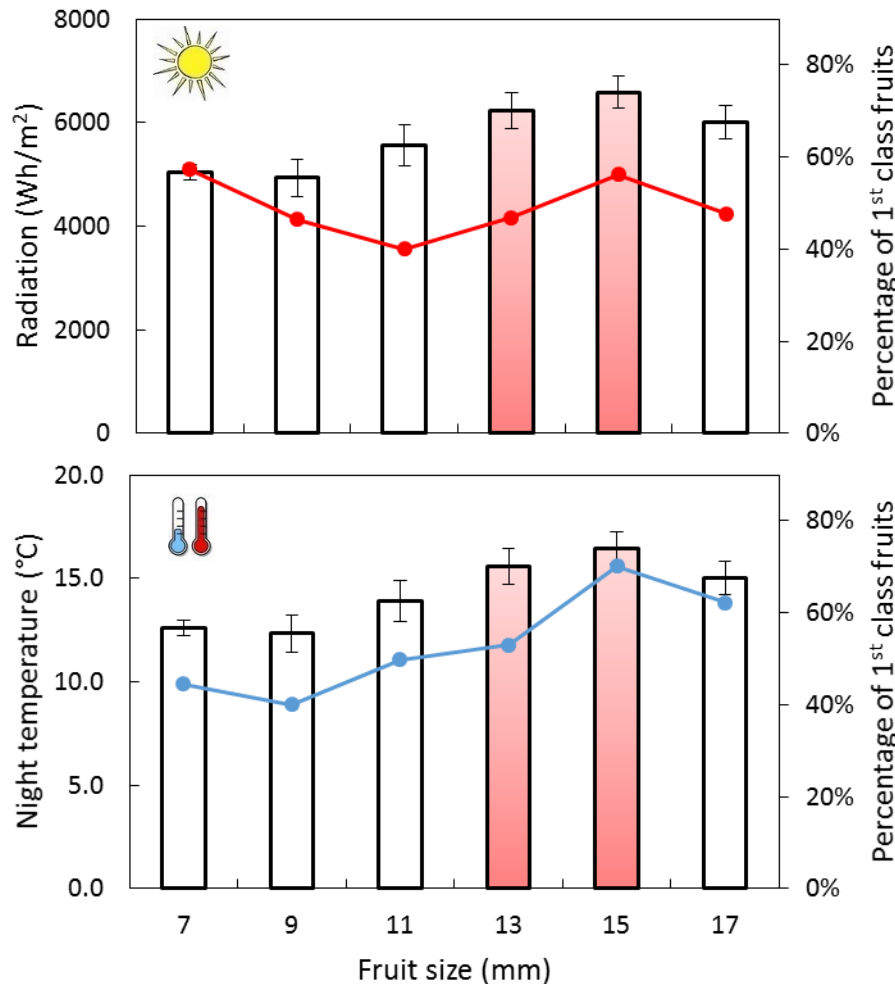


- Highest efficacy of Brevis:
 - cloudy weather (9-5 days *before* the application*)
- results 2016:
 - no correlation with radiation

*model assumptions 2015



Brevis: Testing different application dates



- Highest efficacy of Brevis:
 - high night temperatures (2-6 days *after* the application*)
 - fruit size 13-14 mm*
- results 2016:
 - good correlation of fruit quality with night temperature

*model assumptions 2015

Brevis and BA applied on Conférence

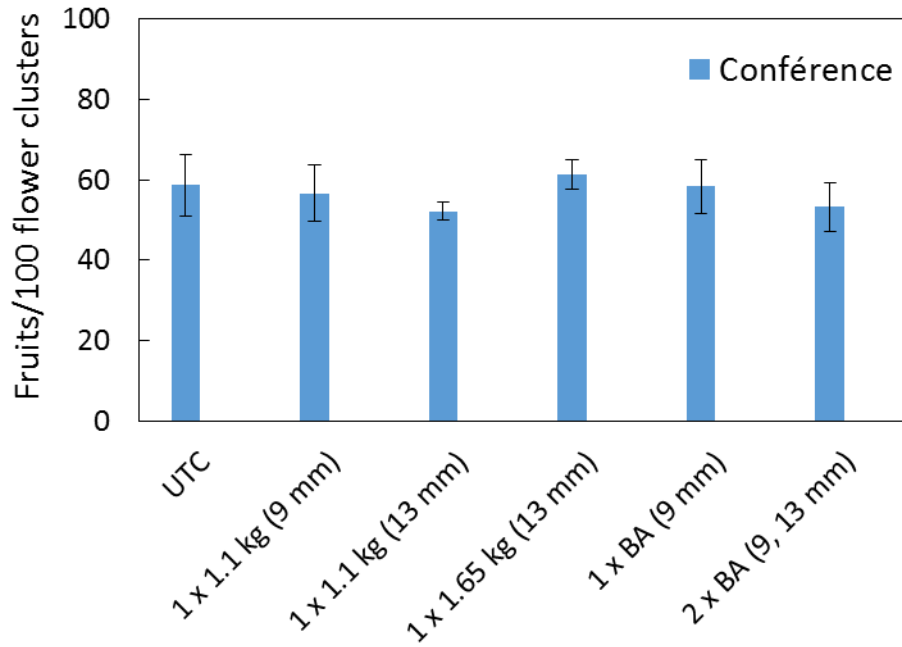
Treatment	BBCH	Fruit size (mm)					
	67	7	9	11	13	15	17
untreated control							
1 x 1.1 kg/h Brevis			X/X				
1 x 1.1 kg/ha Brevis					X		
1 x 1.65 kg/h Brevis					X		
1 x 7.5 l/ha Maxcel (BA)			X/X				
2 x 7.5 l/ha Maxcel (BA)			X/X		X		

- 5th (ACW 3851) / 8th year of cultivation (Conférence)
- frost during flowering
- light rain after application at 9 mm
- applications at 9 mm were also tested on ACW3851 (reistent to fireblight)





Results pear trial

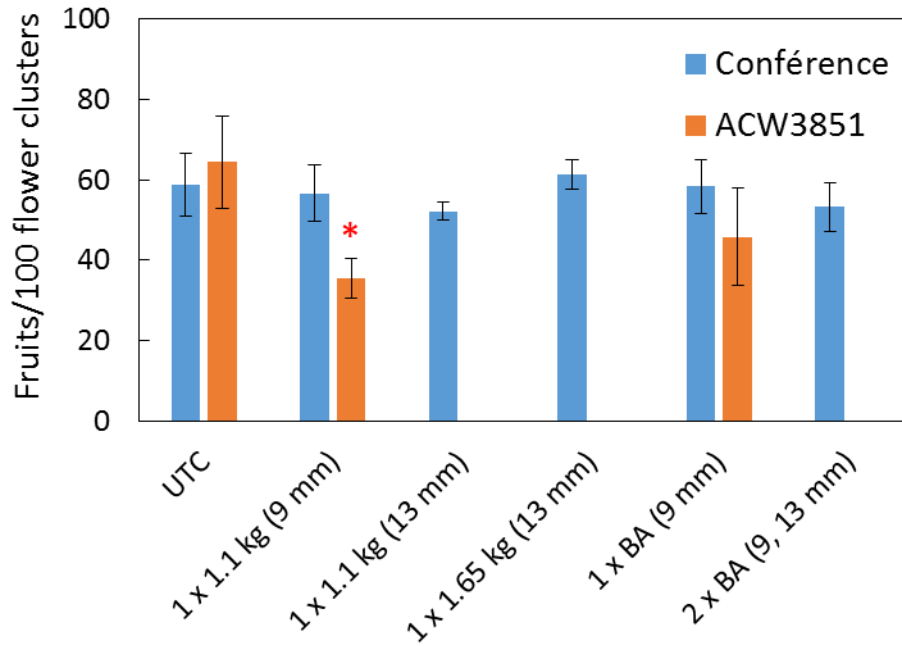


Results:

- BA, Brevis: no thinning efficacy on Conférence



Results pear trial

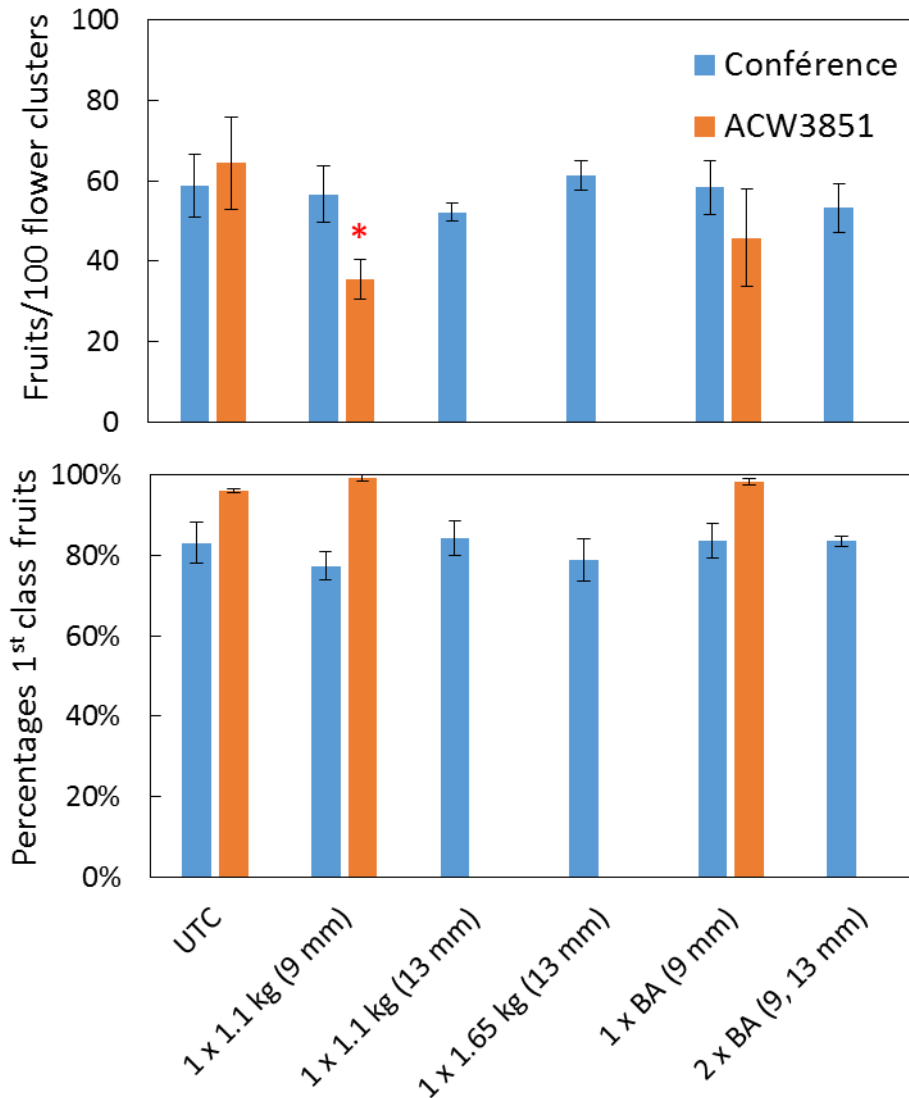


Results:

- BA, Brevis: no thinning efficacy on Conférence
- good efficacy of Brevis on ACW3851



Results pear trial



Results:

- BA, Brevis: no thinning efficacy on Conférence
- good efficacy of Brevis on ACW3851
- high percentage of 1st class fruits

Possible explanations:

- frost during flowering already reduced number of fruits
- age/size of the trees
- light rain after first application
- **Low temperatures** after applications
 - Brevis: cool night temperatures after application (8.3°C, 10.4°C)
 - BA: max. temperatures within 3 days after application 15.4°C, 18.4°C



Conclusions & Outlook

Trials 2016:

- Golden:
 - high efficacy when Brevis was used with a high dosage
 - Correlation of night temperature (and fruit size) on fruit quality
- Conférence:
 - no thinning efficacy of Brevis and BA, likely due to low temperatures



Trials 2017

- Conférence trial with Brevis and BA
- Brevis trials on Golden?



Thank you for your attention

