



InCa treatments to improve firmness of blueberries

Gondy Heijerman
g.heijerman@delphy.nl



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Product

Name	Analysis	Details
InCa®	Nitrogen (N)	4.5%
	Nitric Nitrogen	4.5%
	Calcium Oxide (CaO)	7.0%
	Calcium (Ca)	5.0%
	Zinc (Zn)	0.8%
		<ul style="list-style-type: none"> • Increases marketable yield • Improves plant health and overall quality • Extends post-harvest shelf life • Reduces the impact of stress • Can be used on a wide range of crops.

✦ This is not a significant amount of nutrients to alter the nutritional scheme of the crop. The product is a Calcium mobility and distribution technology and not a Calcium foliar product.



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Set up trial 2019

- ✦ Practical location
- ✦ Liberty (planted 2006)
- ✦ 20 plants in 3 replications



Four foliar treatments and a control object:

1. Control: normal practical maintenance only, no foliar InCa treatment
2. 6l/ha InCa at flowering: May 18th, 2019
3. 6l/ha InCa at green fruit stage: June 22nd, 2019
4. 6l/ha InCa at pink fruit stage, July 13th, 2019
5. 6l/ha InCa three days before harvest, July 20th, 2019

✦ Dose in 600l/ha water



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Reaction of the plants

Foliar InCa treatment:

- ✦ safe for the plants
- ✦ not any type of phytotoxic reaction
- ✦ also no difference in vitality or amount of growing between the treatments



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Harvest

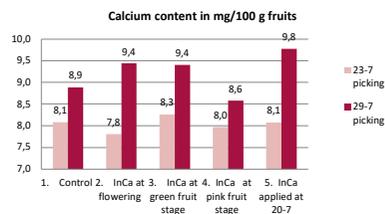


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Calcium content

Applying Inca at 20th of July) had significantly the highest Calcium content when the fruits were picked nine days after the treatment compared to the application of InCa during pink fruit stage.

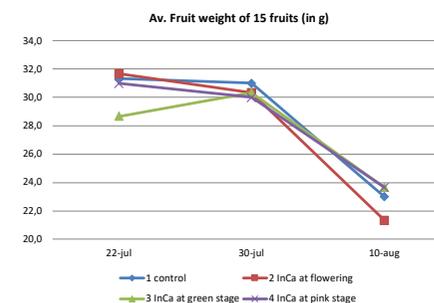
The calcium content applied at flowering and at green fruit stage were comparable to the control object at the berries picked at July 29th.



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Fruit weight

For all objects the fruit weight reduced during shelf life. The applications of InCa did not influence the average fruit weight significantly.

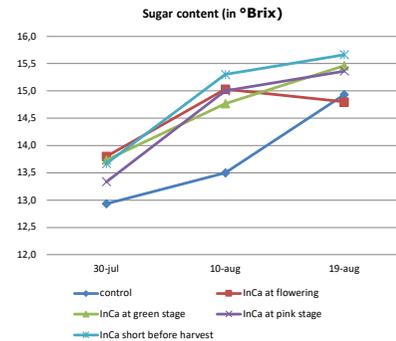


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Sugar content

During the third picking moment the sugar content was significantly higher when InCa was applied during flowering time compared to the control, measured one day after the harvest.

The sugar content of all InCa applications was significant higher compared to the control object after 12 days shelf life.



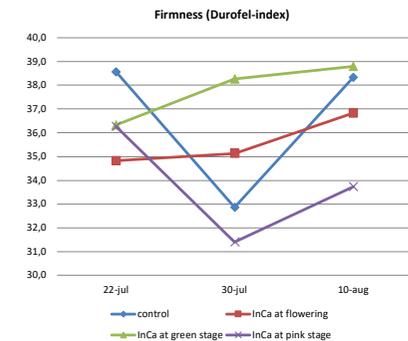
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Firmness

A higher number of the Durofel index means that the berries are softer.

Applying InCa during the pink stage has resulted in firmer berries during the first picking moment.

After shelf life the fruits kept also firmer.



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At August 10th, 12 days after picking

Control: normal practical maintenance only, no foliar InCa treatment



6l/ha InCa applied during flowering: May 18th, 2019



6l/ha InCa applied at green fruit stage: June 22nd, 2019



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At August 10th, 12 days after picking

6l/ha InCa applied at pink fruit stage, July 13th, 2019



6l/ha InCa applied three days before harvest, July 20th, 2019



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Conclusions

		Control	InCa at flowering	InCa at green fruit stage	InCa at pink fruit stage	InCa applied during harvest (at 20/7)
Observation		1	2	3	4	5
Calcium content	Picking 1	*	*	*	*	*
	Picking 3	+/-	+/-	+/-	-	+
Fruit weight	Picking 1	*	*	*	*	*
	Picking 3	*	*	-	*	-
Sugar content	Picking 1	*	*	*	*	*
	Picking 3	*	+	+	+	+
Firmness	Picking 1	*	*	*	+	*
	Picking 3	*	*	+	*	*

*= no difference or comparable; + = positive result; - = negative result



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Conclusions I

- ✦ Applying Inca during harvest time, the significant highest calcium content occurred when the fruits were picked nine days after that treatment compared to all other treatments.
- ✦ Treatments with InCa did not influence the fruit weight positive or negative.
- ✦ Treatments with InCa did not influence the sugar content positive or negative at the first picking, but during the third picking moment the sugar content was significantly higher after 12 days shelf life.
- ✦ The berries from the control object became earlier soft compared to all treated objects after 20 days shelf life.



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Conclusions II

- ✦ Blueberry plants use the foliar treatment of InCa.
- ✦ What will be the best moment or moments for applying the InCa treatment?
 - Probably it is better to combine the treatments and apply it several times. Influence of growing circumstances like weather conditions (temperature and radiation) and quality of the plants, could have influenced the effects.
- ✦ The results of this trial with variety Liberty cannot be translated to other varieties.



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Conclusions III

- ✦ The best effect on fruit firmness has been observed when InCa was applied at pink fruit stage.
 - This particular application timing did not give the highest fruit calcium levels nor the highest Brix.
 - The best outcome from this late foliar application will be the extended shelf-life of the blueberries.



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Thank you for your attention!



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