

SUMMARY OF FIELD TRIAL WITH SILICON ON APPLE, CAF 2019

Silacon treatment results in a 10x higher silicon content of the fruits!

In fruit production, firmness and shelf life are important quality parameters. Therefore, producers are always interested in products or strategies that can improve those parameters. Because it has been proven that silicon can increase the firmness and shelf life of tomato (Costan et al., 2019), it was tested if the results can be expanded to apple to.

TRIAL

Because of the demand for products increasing firmness and shelf life of apple, Silacon was tested and compared with another silicon product, Silizium. Silacon contains a high concentration of plant available silicon, known for its positive effects on plant resistance against biotic and abiotic stress. Silicon is deposited just below the cuticula of the leaf forming a physical barrier which could also improve the firmness and shelf life. Silicon also improves plant resistance biochemically by inducing the systemic resistance of the plant (SAR). Silacon was applied 4 times as a foliar treatment using 1L/ha and was compared with the same dosis of Silizium and an untreated control object. The efficiency was evaluated by scoring 90 fruits (Elstar) per object at 3 time points: at harvest, beginning of novembre and beginning of January.

RESULTS

Treatment with Silacon resulted in a higher dry weight percentage of the fruit compared with the control object and the other silicon fertilizer. However, this year no effect on the firmness and storability of the fruits could be measured (Figure 1). The extremely hot and dry summer had a big impact on shelf life of all fruits. Possible more effects can be measured under normal conditions.

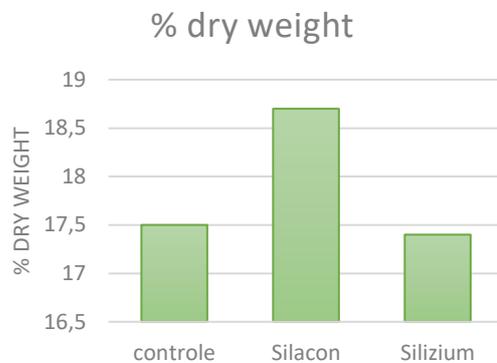


Figure 1: The dry weight increases more than 6% by using Silacon.

However, it was demonstrated that the silicon from Silacon is very well absorbed by the plant. In the object treated with Silacon, 80.1 mg/kg silicon was measured in the fruits compared to 8.4 and 9.6 mg/kg for the control and other silicon object respectively (Figure 2).

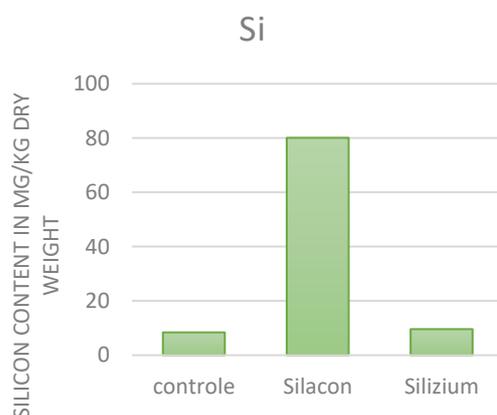


Figure 2: The silicon content in fruits is 10x higher when using Silacon.

CONCLUSIONS

We can conclude that the silicon in Silacon is very well absorbed and incorporated by the plant and positively affects the dry weight percentage of fruits. Because of the extreme weather conditions this year no effect could

be measured on the firmness and shelf life of apples. Probably more effect will be measured under normal conditions. In a trial by Fertico in Poland (2019) a significant reduction of apple scab (*Venturia inaequalis*) was noted by treatment with Silacon,

probably because of the higher silicon content in the plants. This relationship between silicon content and resistance will be further examined in future experiments.

