

Folanx® Ca29 – Calcium Fertilizer for Fruit Growing

Current situation August 2011

After poor fruit set in 2010, apple blossom was in part above-average this year in all areas under cultivation. This resulted in corresponding fruit set, which gave rise to hopes of an above-average harvest. However, the current situation in fruit growing varies greatly in the individual growing regions. While some regions saw severe drought in spring, others experienced massive damage to fruit due to late frosts, or even total failure of the harvest in 2011. In addition, hail storms in northern Germany again resulted in a reduction in harvests this year. In general, however, a good apple harvest is expected for the year 2011.

Quality-assured calcium foliar fertilization with Folanx® Ca29 ...

In fruit growing, the fact that the quality of apples is strongly affected by their calcium supply has already been known for a long time. Calcium plays a crucial role in important metabolic processes in the plant cells:

- **Ca²⁺ ions crosslink the phosphate and carboxylate groups of proteins and phospholipids and so stabilize the cell membranes.**
- **Ca²⁺ in the cell wall bonds to the pectin of the middle lamella and in this way forms stable crosslinks.**
- **The enzyme polygalacturonase, which breaks down pectins and thus destabilizes the cell walls, is inhibited by Ca²⁺.**

Known quality reductions associated with calcium deficiency are, for example, bitter pit, water core, and skin and flesh browning of the apple. The susceptibility to fungal infestation also increases if the calcium concentration is too low, especially in the fruit skin. Apples with a relatively high calcium concentration are rather more capable of **preventing pathogens** (e.g. *Gloeosporium* fruit rot) **from entering the fruit and keeping the harmful effect at a lower level** after they have entered the fruit.

Based on the **bitter rot infestation of stored apples** in a 2008/2009 trial in Meckenheim, it was found that foliar fertilization with formulated calcium formate in **Folanx® Ca29** (content of calcium formate in the product at least 70 %) enables equally **positive results** to be achieved as with fungicides - with the positive side effect that **no waiting time** needs to be observed after calcium foliar fertilization. **Treatment of fruit trees with Folanx® Ca29 is still possible right up to harvesting.**

... proven in practice

After application of **Folanx® Ca29**, higher calcium concentrations were noted in the apple and typical Ca deficiency symptoms, such as bitter pit, skin browning and lenticel blotch, occurred less often. In order **effectively to increase the calcium content of the fruit** by foliar fertilization, 1,450 g of Ca/ha are necessary per application. With the compounds calcium chloride and calcium nitrate used to date for Ca foliar fertilization, this recommendation is virtually impossible to meet for phytotoxic reasons. Further disadvantages of pure **calcium chloride** are the **poor miscibility** with crop protection agents and currently the assumption that calcium chloride is suspected of **damaging hail netting**. Especially in hot and dry weather, **Folanx® Ca29** is the ideal alternative to calcium chloride and, as a nitrogen-free calcium fertilizer, also offers an **alternative to calcium nitrate** for reducing ripening problems, for example fatty skin.

The **best application period** for **Folanx® Ca29** begins in **July and ends before harvesting**. In any case, at least **four applications** should take place in this time. The application rate of **Folanx® Ca29** should not exceed 2.5 g/ha per meter canopy height in order to achieve the **greatest possible effects**.



in combination with storage spraying until harvesting



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