

Calcium Management on Fruits & Vegetables

Spring fruits and vegetables are just now starting to produce flowers and setting fruit. This is a critical time for calcium as it plays a key role in producing high quality fruit. Calcium dramatically effects cell division, cell elongation, and strengthening of cell wall membranes. Not only the foundation of quality vegetable production, calcium deficiency in the fruit causes a disorder called Blossom End Rot (BER). BER can occur on tomato, pepper, squash, eggplant, and watermelon. Symptoms of BER present as a dark-colored spot near the blossom end of the fruit, then it becomes brown, leathery and sunken. It then grows and can occupy 1/3 to 1/2 of the fruit surface. Fruits and vegetables with BER are generally considered “unmarketable”.

Calcium relies on transpiration or water moving from the soil into the plant roots and out the stomata. The roots absorb calcium well because of the high amount of the growth hormone auxin found within the root system. Auxin plays a critical role in many plant processes such as nutrient utilization and in facilitating the movement of calcium up to leaves and reproductive sites (this process is called polar auxin transport). Calcium following this pathway lands in the highest transpiration parts of the plant or the leaf tissue. Due to low plant mobility, the calcium inside leaves cannot be transported to the fruit so, the fruit relies on photosynthesis and transpiration to get calcium into its tissue. Calcium movement to the fruit is dramatically reduced in times of water stress. This means that despite BER being a calcium deficiency, it is usually tied to water stress and not lack of calcium in the soil. BER can, also manifest as a by-product of excessive amounts of other nutrients such as nitrogen, potassium or magnesium that drive down the available calcium.

Some common strategies to manage BER are timely watering, calcium granular fertilizer in the bed pre-plant and liquid calcium applied through fertigation. Yet growers are still prone to showing symptoms of BER during certain times in the growing season. Calcium's that contain nitrogen may not be the best choice if the plants are already in a luxury feeding scenario. The advice of qualified agronomists, timing of application, efficiency and quality of products applied, are all important items to consider in managing calcium and other nutrients in season.



10.7% Ca

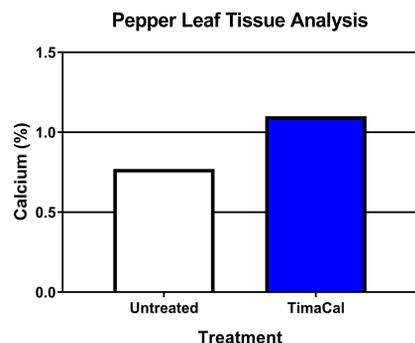


9-0-6, 8.5% Ca, 0.1%B



Example : Blossom End Rot presenting on early set Bell Pepper

Timac Agro USA's technologies favor plant nutrient mobility and efficiency. In relation to directly addressing the issues that cause BER, we use our liquid formula's that have water-soluble plant-available forms of calcium combined with our technology working with the crop's natural physiology to directly address the disorder. Grower's owe it to their plants to use good liquid fertility products, that contain the right sources of calcium, with the ability to increase nutrient use efficiency of their existing calcium program.



Leaf calcium 14 days after TimaCal treatment showing improved uptake

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