

Citrus tree nutrition and carbohydrate management in autumn and winter



In citrus new vegetative shoots provide the bearing positions from which flowers develop in spring. These new vegetative shoots are strong sinks for carbohydrate supply from both mature leaves and reserve carbohydrates from the previous season. One could expect that citrus trees should be able to meet all the carbohydrate requirements since it is an evergreen plant that has ample time for photosynthesis, and relatively large starch reserves are usually present in various tree organs. However, it is evident that citrus trees are often "source-limited" and that a lack of availability of photosynthate then restricts vegetative growth, flower development and fruit set.

Fruit is a major carbohydrate sink and can disturb the balance between spring vegetative shoot development, root growth and flower development – all demanding large amounts of photosynthate. The persistence and health of the previous year's foliage in citrus therefore plays a critical role in provision of photosynthate during the emergence of the spring flush, at least prior to full expansion of the new leaves. In this regard, nutrient deficiencies, particularly in autumn, will contribute to a reduction in carbohydrate availability - producers should therefore ensure that their trees' nutrient status should be adequate at the onset of flower induction (April – June). The elements (especially N and K) that is not within the norm during the leaf sampling period (Feb – May) should be brought back to adequate levels through a combination of soil and leaf application. Furthermore, the application of LB Urea (eight weeks prior to budbreak) to ensure a sufficient N-status of the leaves can be used to enhance the leaves' ability to produce sufficient carbohydrates (sucrose) required for budbreak, spring shoot growth and flower development.