

BRIX – “THE BASELINE OF FRUIT QUALITY”

By Kenny Beeton

Brix is one of the most used terms in agriculture since everything about fruit and plant health relates to Brix levels and sugar content. The term Brix dates back to the mid-1800s named after the founder of the Hydrometer, the German scientist Adolf Brix. The discovery by Adolf Brix was to come up with a scientific method to measure soluble solids in an aqueous solution.

The technique using light refraction can give a reading on any dissolved solid within a solution including soluble minerals or Sucrose, an important parameter during fruit production. The Brix reading is taken using a handheld refractometer which can be used in the field as a tool to determine fruit maturity. Brix or Sugar content is presented as a percentage of the acid content giving a Brix/Acid ratio. This ratio identifies the balance of the fruit and is used as a norm to determine if fruit is acceptable for consumption, and particularly export. Digital Brix refractometers are also available and measure accurate Brix readings.

Brix plays a critical role as a higher Brix content will result in extended shelf life of the product while plants with a higher Brix content in their leaf sap will also be more tolerant to diseases and pests.



REFRACTOMETER



DIGITAL REFRACTOMETER

FACTORS AFFECTING BRIX DURING THE FRUIT MATURATION PHASE

Climate plays a critical role in forming Brix as areas experiencing cooler night temperatures are prone to lower Brix than areas with warmer nights. The reason for this is that during periods of cooler temperature, sugars stored in the leaves are translocated at a lower rate than in warmer night temperatures.

A water deficit before harvest can also play a crucial role in elevating the Brix of fruit. Therefore, it is a standard practice to withdraw water for several weeks before harvest in summer rainfall areas through irrigation scheduling, placing the tree under water stress, and increasing Brix. This is however not always an option for Winter rainfall production areas such as the Western Cape.

Plant Nutrition is also a major contributor to the Brix formed in fruit as various Micronutrients play an essential role in the maturation phase.

The inclusion of Seaweed extracts and Biostimulants such as Bioflavonoids in a plant nutrition program plays an important role as they are known to improve the uptake and translocation of nutrients at critical times of fruit production.

The Microelements to take note of when planning the foliar nutrition program are:

- Zink (Zn)
- Iron (Fe)
- Copper (Cu)
- Molybdenum (Mo)
- Boron (B)

While modern-day cultivar and rootstock breeding programs are focused on fruit quality, disease resistance, and overall yield per hectare, cultivars, and rootstock selection for specific production areas are also important considerations. It is essential to ensure that the best-suited Scion Rootstock combination is planted on your soil in your specific climatic area.



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PRODUCT RECOMMENDATIONS



Proprietary ingredients containing Bioflavonoid Extracts 50 g/kg

FlavoMune® is an activator of phytoalexin activity in plants. Phytoalexins activate the plant's natural defence mechanism. FlavoMune® plays a critical role in enhancing colour and flavour development in flowers and fruit.



Zinc (Zn) 140 g/kg, Cobalt (Co) 3 g/kg, Boron (B) 72 g/kg, Molybdenum (Mo) 3.5 g/kg, Phosphorus (P) 36 g/kg, Potassium (K) 65 g/kg, Silicon (Si) 2 g/kg, Sulphur (S) 73 g/kg

Sugra is a full spectrum foliar nutrient complex in a rapidly absorbable, water-soluble powder formulation. Applying SUGRA before and during bloom provides a steady release of nutrients while plants are undergoing a period of rapid cell division, flowering, and fruit growth. Boost fruit quality characteristics such as sugar content with SUGRA.



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