Improve Your Herbs and Vegetables

Healthier plants, higher yields and sweeter flavor!

What is Brix?

Brix is a measure of the percent total soluble solid (TSS) in a given weight of plant juice. It is often expressed as the percentage of sucrose. However, the "sucrose" here is actually the summation of sucrose, fructose, vitamins, amino acids, protein, hormones and other solids. Each degree of Brix is equivalent to 1 gram of sugar and other TSS per 100 grams of juice. The higher the Brix, the higher sugar content it has. The concept of Brix was introduced by a 19th century German chemist, A.F.W. Brix, who invented a device of measurement, a refractometer, to measure the density of plant juices by floating a hydrometer in them. Initially, Brix was mostly used in winery, the winemakers of Europe needed to have a way to predict which, of various, grape juices would make the best wine. It has since gained more implications in other industries since the 20th century, i.e., fruit and vegetable production and food processing. Farmers now use Brix as an index to judge the quality of their crop (higher sugar content normally results in better taste in produce), for instance, to make a tomato paste of 24 Brix will require to evaporate 8 Brix tomato juice 3 times, but 4 times of evaporation for the 6 Brix of tomato juice.

What Factors Determine the Brix of a Produce?

Brix of each produce varies, i.e., field grown tomatoes could have a Brix reading from as low as 3 to as high as 16 degrees of Brix, while it could go from 8 to 25 Brix for ripe grapes. There are charts developed by different people (Nelson and Reams) showing produce of different quality and the corresponding Brix. Brix of each plant is determined not only by its genetic attributes, for example, Brix for grape is generally higher (8-24 Brix) than that of tomatoes (3-12 Brix); it is also influenced by environmental factors and the stage of the growth. When a crop is cultivated under favorable conditions, meaning there is unlimited supply of minerals and other required nutrients, sufficient sunlight and temperature, a higher Brix in the plants can be expected in those produce. Keeping fruit in healthy plants to reach its maturity, also improves its Brix.

Is There a Relationship Between Brix and Quality?

Yes. The higher the Brix, the better its quality is to a produce. We can simply understand this as higher sugar content brings better taste. Produce with higher Brix, also have a longer shelf life, and are more resistant to pest infestation and disease. Insects or bacteria are more likely to attack the weak plants with lower Brix, simply due to its self-defense mechanism. Higher sugar rapidly ferments into higher alcohol which is toxic to those creatures that lack mechanism to detoxify alcohol. Most insects and bacteria develop an indiscriminative feeding ability to survive evolutionary pressures. Produces of higher Brix, also resist frost and chill damage better, therefore, they keep better in refrigeration. A 5 Brix sugar water mixture freezes at 26 F degrees, a 10 Brix mixture won't freeze until 17 F degrees, while the pure water with 0 Brix, freezes at 32 F degrees.

Does Brix Change After it is Detached from the Living Plant?

No. Produce cannot gain minerals (increase in quality) after detachment from the mother plant or soil. You can confirm this by testing the Brix of a chosen fruit on day 1, 5 and 7, each time you wrap the fruit

to prevent dehydration, you see little change in Brix.

Where to Purchase a Brix Refractometer?

The best way is to check on the internet. I found one supplier www.forestry-suppliers.com with a price of $89.95 US. I purchased a nice hand refractometer from ATAGO years ago. There are no electronic parts in this hand held meter. They are easy to maintain and use. Cucumber and pepper growers can also benefit from this hand held meter.

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