

Rotating Extension Column  
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### **Brix Testing Reveals the Taste and Quality of Fruits and Vegetables**

A college professor of mine once attempted a lecture about flavor as it applied to a particular kind of fruit. I noted that he struggled to even describe the term, much less the flavor of the fruit being discussed.

Is there a way to accurately measure and predict the flavor of food, or do palates differ so much that this is an impossibility? Brix testing is becoming an accurate method of measuring the flavor of fruits and vegetables.

Plant sap, or the juice of a fruit or vegetable when brix tested, is measured in the percentage of sucrose that it contains. A refractometer is used for this purpose. This instrument measures the amount of bending of light rays as they pass through a sample of plant sap. As a brix reading increases, so then does the carbohydrate level and sweetness of the fruit or vegetable.

There are two kinds of refractometers – optical and digital. The optical style has been used for generations, but is still fast, accurate and simple to use. To use it, squeeze a drop or two of plant juice onto the prism, close the cover, point at a light source, focus and read the Brix number where the light and dark fields intersect. The optical refractometer costs approximately one hundred dollars. The digital style generally sells for two to three hundred dollars and is also fast and accurate.

Once a plant juice measurement has been taken, it is then evaluated by viewing a “Refractive Index of Crop Juices” – a chart that shows the relative sucrose values within a range of poor to excellent. Watermelon for example, ranges from eight percent for poor quality up to sixteen percent for excellent quality. The range for tomatoes is four to twelve percent.

Poor quality sweet corn has a reading of about six percent, while the best measures twenty four percent. Cucumbers range from four percent for



poor, while the freshest and sweetest have a reading of twelve. A brix measurement can even be applied to hot peppers, with poor being four percent, eight being good and a ten percent reading as excellent.

I made an effort this past summer to brix test the Canary melons that were so popular at local markets. Those that were fully ripe consistently showed a brix reading of fourteen. Though the Canary melon is not present on my refractive index, it is interesting to note that the honeydew melon which is on the chart shows the same number for excellent quality.

The technology for brix testing is not new. Winemakers for generations have been monitoring the progress of ripening grapes and adjusting their plans for harvest accordingly. They know that there is a direct relationship between the amount of sugar present and the ability to make good wine.

Some fruit and vegetable farmers have begun brix testing crops in order to monitor the sucrose level and make adjustments for improvement and consistency. Brix readings can sometimes be increased if necessary, by manipulating irrigation, fertilization and other practices.

So does knowing the brix value of produce have practical value? Considering the fact that our sense of taste can easily detect a difference of one percentage point of sucrose between samples, it is certainly important.