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Maintenance

1. Accurate measurement depends on careful calibration. Follow the instructions closely.

Note: Shifts in ambient room temperature of the prism prior to measurement. The prism and sample must be at the same temperature for accurate results.

2. Do not expose the instrument to damp working conditions, and do not immerse the instrument in water. If the instrument becomes foggy, water has entered the body. Call a qualified service technician or contact your dealer.

3. Do not measure abrasive or corrosive chemicals with this instrument. They can damage the prism's coating and void your warranty.

4. Clean the instrument between each measurement using a soft, damp cloth. Failure to clean the prism on a regular basis will lead to inaccurate results and damage to the prism's coating.

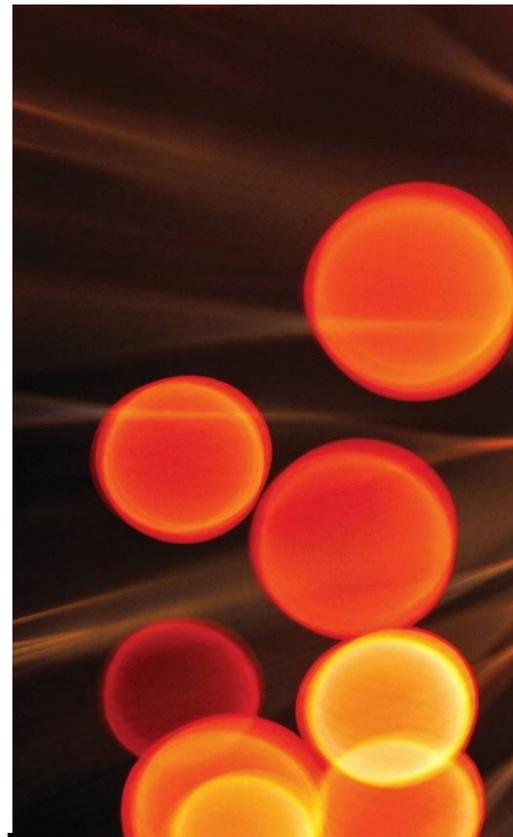
5. Calibrate at least monthly.

6. This is an optical instrument. It requires careful handling and storage. Failure to do so can result in damage to the optical components and its basic structure. This tool should never be dropped. With care, this instrument will provide years of reliable service.

WARRANTY AND REPAIR INFO:

We warranty that this refractometer is free from defects in material and workmanship from one year from the purchase date. If the product is found to be defective by us, we will repair or replace the unit without charge.

This warranty does not include shipping costs, or any instrument that has been damaged through mis-use, neglect, tampering or unauthorized repair. We will advise the customer of the repair cost of any unit not covered by warranty.



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REFRACTOMETER

THE ESSENTIAL TOOL

Farming is all about solar capture; increasing the efficiency of plant photosynthesis provides farmers and growers with a wide range of benefits.

Refractometers are a simple but indispensable tool to gauge photosynthesis, through brix which measures dissolved solids; sugars, vitamins and minerals.

Biological
Education
Specialist



BRIX READINGS

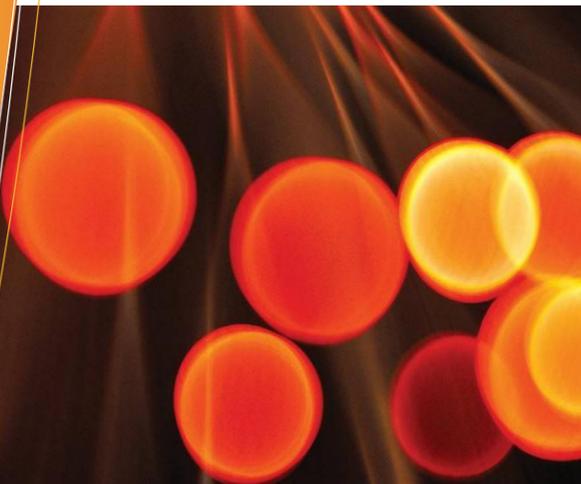
★ Take at the same time of the day (allowing for at least two hours of sunshine in the morning)

★ Take a sample from the same part of the plant (then ensure all subsequent readings follow suit).

★ Brix levels can vary due to stress, this is why it is important to keep good records and monitor changes in brix.

★ Generally, brix readings will drop with low atmospheric pressure (eg. the onset of a storm).

★ Record your findings!



A Simple tool

The refractometer is a tool which can be used to predict quality, pest and disease pressure, stress and frost resistance.

Good Brix levels (generally over 12) ensure better taste, shelf life and yield. This refractometer measures 0-32° brix and has an automatic temperature compensation feature (ATC).

When just a few drops of sap or juice are placed on the prism and held up to the light, the light passing through the sap is refracted (bent) according to the composition of that sap.

The brix measurement can be read off the scale, showing levels of sugar, minerals, proteins and vitamins in the plant's juices, commonly referred to as dissolved solids.

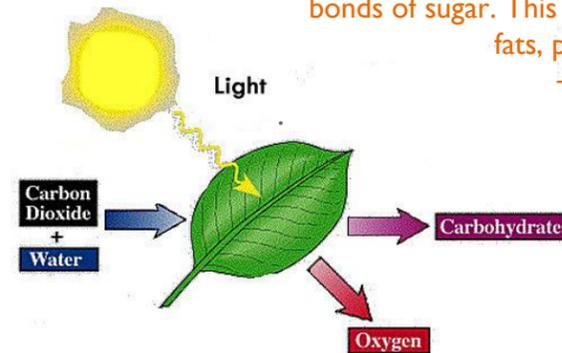
CALIBRATION STEPS:

Step 1: Open daylight plate, and place 2-3 drops of **distilled water** on the main prism. Close the daylight plate so the water spreads across the entire surface of the prism without air bubbles or dry spots.

Step 2: Look through the eyepiece aiming the refractometer towards a light source. You will see a circular field with graduations down the center (you may have to focus the eyepiece to clearly see the graduations). The upper portion of the field should be blue, while the lower portion should be white.

Step 3: Look into the eyepiece and turn the calibration screw until the boundary between the upper blue field and the lower white field meet exactly on the standard scale.

Photosynthesis is the process of converting light energy to chemical energy and storing it in the bonds of sugar. This sugar is then converted into fats, proteins, starch, cellulose etc – what leaves the farm gate!



OPERATING INSTRUCTIONS:

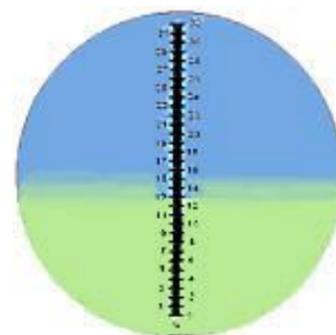
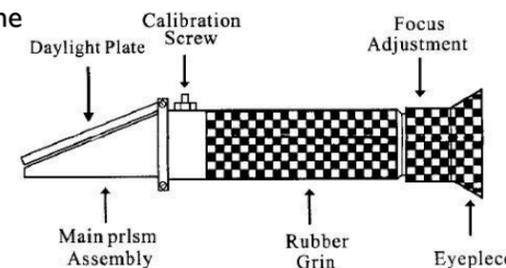
Step 1: Open the daylight plate (1), Clean the refraction prism (2) carefully with soft flannelette, Be careful not to scrape the prism surface.

Step 2: Put some 2-3 drops of sap on the prism surface and then cover the daylight plate slowly to let the solution slowly cover the prism surface reducing any air bubbles.

Step 3: Turn the refractometer towards a light source or bright place. Turn the focus adjustment (7) until the graduated lines can be seen clearly. The readings of the demarcation line between brightness and darkness indicate the dissolved solids.



Start testing the brix of all your food, including milk. Try comparing purchased fruit and vegetables to the food in your garden. Studies show mineral values in food have fallen by **30-60%** since 1940 -This just may be the best tool to get your home garden pumping!



- The view through the eyepiece. A brix of 12 is the goal for most (but not all) plant sap; refer to brix charts for more specific details. A blurry line can indicate higher nutrient densities. A sharp line can indicate stress or lower nutrient density.

MORE ON BRIX

★ Relying on published brix readings as guidelines can be problematic as often it is not stated whether the readings are derived from the plant sap or fruit juice.

★ The method of extracting sap can have a large influence on the reading. -This is why it is important you always use the same method.

PRACTICAL USES

★ Measuring the brix of a fruit or vegetable's juice can indicate the taste and potential shelf life of the produce after harvest.

★ Measuring the brix of a plant's sap gives an immediate overview of the general health of a crop at any stage of production.

★ Brix can indicate taste and shelf-life potential of produce.

★ Brix readings can help determine the suitability of a fertiliser mix. Measure brix on the crop and a control before application, then re-test 1-24 hours after input. Brix needs to lift by at least 1 point above the control. If it remains the same or drops, then this input can be considered not suitable at this time.