Orchard Brix Protocol

SYSTEM BRIX

Brix taken on a weekly basis on a sunny day by growers in a given region allows tracking of "health metabolism" over the course of a season with respect to system variables. Potential inferences will be drawn from management influences … which means all possible factors are in play.

1. **Day of Week** – Every Monday beginning when growth begins … but it must be sunny!
2. **Time of Day** – between Noon and 2 PM
3. **Plant Part/ Part Position/Age** –
    a. Up thru Bloom (1/2" green thru petal fall)– midsize spur leaves
    b. Beyond Fruit Set –4th or 5th leaf back from terminal on this year's growth
    c. Beyond Terminal Budset – excessive squeezing may introduce crushed cell contents and thus skew results skyward. Sap readings must come from light green growth … otherwise it's now time to start testing the fruit itself.
4. **Variety** – Undefined, up to cooperating growers seeking a regional comparison.
5. **General Sprays** – Indicate on records when testing took place within 72 hours of any treatment.
6. **Temperature** – If using an automated temperature compensated refractometer, test at a field temp between 10° and 30° Celsius (50° to 86°F). If not, both sample and instrument must be at the specific temperature recommended by the manufacturer, typically 20°C (68°F).
7. **Wash/Treatment** – Wash leaves gently in distilled water. Do not scrub, just remove surface dirt and spray residue. Pat dry with a clean paper towel before squeezing sap. Be sure to properly clean refractometer plates between each and every reading.
8. **Light** – Leaves should be fully exposed, on exterior of tree and receive full sunlight throughout the morning hours.
9. **Extraction Method** – Modified vice grips, garlic press, small hydraulic press…up to individual grower but should be same method each time. Maceration with a mortar and pestle is problematic as mineral solids skew results.
10. **Sampling** – Up to individual grower, but should sample approximately 4-6 plant part/leaves from each variety under observation, taken from several locations on tree.

ACTION BRIX

Brix taken on a sequential basis following a specific nutrient spray allows tracking "health metabolism" in direct response to materials being applied. Potential inferences will tie to a single variable … admittedly in widely varying ecosystems.

1. **Day of Week** – Timing tied to date of nutrient spray application.
2. **Time of Day** – between Noon and 2 PM
3. **Plant Part/ Part Position/Age** –
    a. Up thru Bloom (1/2" green thru petal fall)– midsize spur leaves
    b. Beyond Fruit Set –4th or 5th leaf back from terminal on this year's growth
    c. Beyond Terminal Budset – excessive squeezing may introduce crushed cell contents and thus skew results skyward. Sap readings must come from light green growth … otherwise it's now time to start testing the fruit itself.
4. **Variety** – Undefined, up to the individual grower, but to be recorded.
5. **Control Tree** – Testing of another tree of the very same variety, not treated with nutrient application, at the very same times, will prove all the more helpful.
6. **Sequential Basis** – Test after 24 hours following application and then again after 72 hours. Optional testing at 144 hours would provide a view of effectiveness a full week out. Sunshine is paramount in obtaining correlated results (thus don't be rigid about time frames.)
7. **Temperature** – If using an automated temperature compensated refractometer, test at a field temp between 10° and 30° Celsius (50° to 86°F). If not, both sample and instrument must be at the specific temperature recommended by the manufacturer, typically 20°C (68°F).
8. **Wash/Treatment** – Wash leaves gently in distilled water. Do not scrub, just remove surface dirt and spray residue. Pat dry with a clean paper towel before squeezing sap. Be sure to properly clean refractometer plates between each and every reading.
9. **Light** – Leaves should be fully exposed, on exterior of tree and receive full sunlight throughout the morning hours.
10. **Extraction Method** – Modified vice grips, garlic press, small hydraulic press…up to individual grower but should be same method each time. Maceration with a mortar and pestle is problematic as mineral solids skew results
11. **Sampling** – Up to individual grower, but should sample approximately 4-6 plant part/leaves from each tree of a varietal pair, taken from several locations on tree.