

## Leaf Extract Analysis Interpretation

### General Notes

- To maintain optimal plant growth, quality and yield, plant nutrients must be balanced and abundant.
- As most plants grow, they strive to maintain a balance of nutrients between new and old leaves.
- Generally, a balanced report shows slightly lower levels (5%) of all nutrients in new leaves.
- A wide gradient between upper and lower leaves is a sign of an imbalance.
- Imbalances in leaf extract analysis show excesses or deficiencies of nutrients.
- If mobile nutrients (see below) are not available in sufficient quantities, the plant will use lower leaf nutrients for upper growth and the imbalance will appear as a **lower ppm value in the lower leaves**.
- If immobile nutrients (see below) are not available in sufficient quantities, the plant will grow slower and will not achieve full leaf and fruit size, fruit quality, and will appear as a **lower ppm value on the upper leaves**.

### Leaf Extract Brix

- Leaf Brix is a general indicator of plant health and vigor.
- Higher Brix is usually indicative of crops with desirable qualities (yield, quality, flavor, shelf life, etc.).
- Generally, as Brix increases insect and disease pressure decrease
- Higher Brix is usually indicative of good Calcium uptake.

### Leaf Extract pH

- Lower pH usually means there is less light, microbial activity, low concentration of cations, an excess of anions or more water than the plant needs
- Higher pH usually means excess heat, insufficient water, a low total anions, or an excess of cations.

### Leaf Extract EC

- EC should gradually rise through the crop cycle prior to harvest from low to high.
- Low EC (< 5 mS/cm) is often caused by excess Phosphorous, Sulfur, compacted soils or low soil pH.
- High EC (> 18 mS/cm) is often caused by excess Nitrate, Potassium, loose soils, high soil pH.

**Mobile Nutrients (Phloem)**- Nitrogen, Phosphorus, Potassium, Magnesium, Chloride, Iodide, Sodium, Molybdenum.

- Deficiencies of mobile nutrients are indicated by ***lower ppm readings in the old leaves compared to the new leaves***, due to sluggish transport to new growth.
- A surplus of a mobile nutrients are indicated by ***higher ppm readings in the old leaves compared to the new leaves*** due to lack of complimentary nutrient synergy.
- Deficiencies often caused by low soil ppm, excess of competing nutrients, low microbial soil activity.
- Excess often caused by overfertilization, loose soil, soil type, or plant bioaccumulation.

**Immobile Nutrients (Xylem)** -Calcium, Silicon, Sulfur, Iron, Manganese, Zinc, Boron, and Copper

- Deficiencies of immobile nutrients are indicated by ***lower ppm readings in the new leaves, compared to the old leaves*** as the plant is unable to transport them to the new shoots.
- A surplus of immobile nutrients is indicated by ***higher ppm readings in the new leaves compared to the old leaves*** due to lack of complimentary nutrient synergy.
- Common during periods of rapid growth, low micronutrient soil levels, and low microbial activity
- Deficiency often caused by improper pH, temperature, ORP, compaction or antagonism
- Excess often caused by soil type, low pH