

Leaf nutrient sufficiency standards have changed for blueberry in western Oregon

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Leaf nutrient status, as compared to published sufficiency levels coupled with observations of plant growth are used to develop fertilizer nutrient management programs. The leaf nutrient sufficiency standards published for Oregon (Hart et al., 2006) were estimated ranges from large databases of leaf samples submitted to the Oregon State University Plant Testing lab in the 1980s through 1990s but production systems have changed considerably since then. We conducted several experiments since the nutrient management guide for Western Oregon was published which showed a need for revised standards for some nutrients to better fit current production systems, including organic production.



Revised Leaf Nutrient Sufficiency Standards

- **N** was often lower than current standards in healthy plants with good yield. Young plants may have higher N than current standards. The range of leaf N in the new standard was expanded on both the lower end (for organic production and some young plantings) and the higher end (conventional production).
- **P** is often low in blueberries despite high soil P and fertilization with P (especially in organic systems). The standard was revised downward to better encompass typical leaf levels found in healthy, high producing fields.
- **K** at the upper end of the old sufficiency range was correlated with lower yield. The new standard was revised downward to discourage excessive K fertilization. Leaf K may be higher in new plantings (0.71 to 0.80%).
- **Mg** was lowered to reflect lower levels found in our studies in healthy plants. Leaf Mg may be lower in young plants compared to older plants.
- **Mn** range was narrowed slightly to better reflect typical levels in healthy plantings with soil pH within desired range (high soil pH reduces leaf Mn).
- **Cu**: Old standards were developed when Cu fungicides that increased leaf Cu were more common. New standards were lowered to reflect more typical levels without Cu fungicides used.
- There was little change to the standards for leaf **Ca, S, B, Fe, and Zn**.

Leaf Sampling Recommendations

- Sample in late-July to early-August for all cultivars (regardless of fruiting season)
- Always sample cultivars separately
- Sample most recent fully expanded leaves from below the fruiting zone

Nutrient	New Standards
Nitrogen (%N)	1.40 to 2.20
Phosphorus (%P)	0.08 to 0.20
Potassium (%K)	0.40 to 0.55
Calcium (%Ca)	0.40 to 0.80
Magnesium (%Mg)	0.10 to 0.25
Sulfur (%S)	0.10 to 0.16
Manganese (ppm Mn)	100 to 300
Boron (ppm B)	30 to 80
Iron (ppm Fe)	45 to 300
Zinc (ppm Zn)	8 to 20
Copper (ppm Cu)	3 to 10