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Almond Leaf Sampling

Sampling Notes

Almond production in California relies heavily on fertigation and many growers also use foliar applications at least once a year. Tissue analyses ensure that fertilizer application is timed correctly, a top concern for almond growers. Almond trees begin taking up nutrients from the soil after full leaf expansion in the spring. Nutrient uptake increases during the period of rapid fruit development in late spring and summer, until it reaches maximum uptake during nut fill. Once the fruit reaches maturity, nutrient uptake returns to a lower rate.

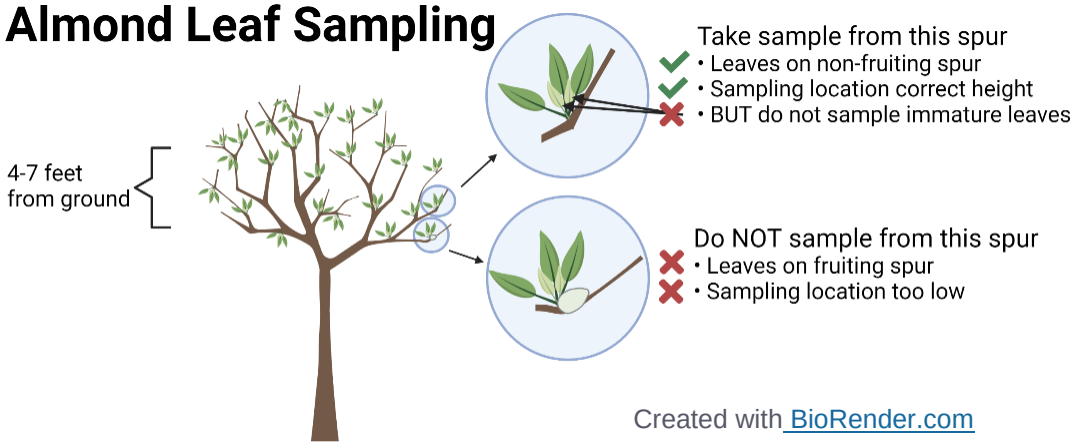
Varieties with higher yields will have greater nutrient demand than lower yielding varieties. Therefore, in multiple variety blocks, you may want to consider sampling from the variety with the higher estimated yield to ensure it isn't under fertilized. This sampling method has been validated for the Nonpareil variety in a fully mature orchard (>8 years) and applies to any mature cultivar.

General Sampling Instructions

Sampling Time: Leaf samples can be collected anytime between full leaf out and post-harvest. Below are some common times leaf samples are collected.

- *Spring Sampling*: Take leaf samples typically in mid-April or approximately 45 days after full bloom, when the majority of leaves on non-fruiting spurs have reached full size. Spring leaf analysis can be used to adjust fertilization rates for the remainder of the year.
- *Late Spring/Early Summer Sampling*: Take leaf samples in late April to early May, during the rapid fruit development stage. This will help to determine May – June nitrogen applications.
- *Summer Sampling*: Take leaf samples typically in July, or approximately 135 days after full bloom, during nut fill.
- *Pre-Harvest Sampling:* Take leaf samples approximately 2 weeks prior to harvest. This sampling can be done in place of the July sampling event. Pre-harvest leaf analysis will guide post-harvest fertilizer applications.

Plant Part: Collect all mature, fully formed leaves from 5-8 well exposed, non-fruiting spurs between 4-7 feet above the ground per tree (20-30 trees per sample). Avoid immature leaves that are smaller and lighter green. Sample from trees that are representative of the average size tree in the block.



Quantity per Sample: A minimum of 100 leaves should be collected per sample.

Sampling Frequency: Samples should be collected 2-4 times throughout the season. Analyzing multiple samples per season is recommended to increase the chance of detecting nutrient deficiencies and to evaluate the fertility program more accurately.

Sampling Area: Samples should be collected on a 40-acre basis. Take a different sample for every orchard or block that differs in tree age, productivity or soil type. Avoid poor trees/areas if they are not representative, or sample them separately. If you sample poor trees/areas separately, be sure to sample unaffected trees/area of the same age and rootstock separately, to compare the results.

Overview of Sample Collection:

Traditional composite: Walk diagonally across your orchard or desired sampling block, collecting leaves and combining in a paper bag. You will need to combine collected leaves from 20-30 trees that are at least 30 yds apart from each other.

Designated sampling area: Select approximately 50 trees in an area where the trees represent a majority of the block. Record either the GPS location or the row and tree count from a specific block corner to the center of the 50-tree area (7 rows x 7 trees). This allows samples to be collected from the same trees for multiple sampling events. Combine collected leaves in a paper bag.

Recommended Tests:

- All Sampling: L2- Full nutrient analysis. Or L3- if chloride is a concern.

Preparing Sample for Lab*:* Take any notes about the sampling block. Once collected, try to keep the samples cool and ship or deliver to the laboratory as soon as possible with a **work order form**.

References

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