

Leaf analysis standards and recommendations for pecan – revised 2012

Nitrogen

Native trees:

- <2.3% Low, double present nitrogen application rate. If the orchard did not receive nitrogen last year apply 150 lbs/acre N.
- 2.3 – 2.5% Normal. Continue present nitrogen application rate.
- 2.5 – 2.7% Normal. Nitrogen application can be reduced without affecting yield or nut quality. Decrease application rate by 20%.
- 2.7 – 3.0% Normal. Nitrogen application can be reduced without affecting yield or nut quality. Decrease application rate by 50%.
- >3.0% Above normal. Normally, nitrogen concentrations of 3% or greater usually are associated with tree drought stress or excessive nitrogen application. Excess nitrogen application can exacerbate drought stress. Withhold all nitrogen for one year.

Variety trees:

- <2.3% Very low, double present nitrogen application rate. If the orchard did not receive nitrogen last year apply 150 lbs/acre N.
- 2.3 – 2.4% Low. Increase the present nitrogen rate by 30%. If the orchard did not receive nitrogen last year, apply 125 lbs/acre N.
- 2.4 – 2.7% Normal. Continue the present nitrogen application rate. If none was applied, then none will be needed.
- 2.7 – 3.0% Normal. Nitrogen application can be reduced without affecting yield or nut quality. Decrease application rate by 30%.
- >3.0% Above normal. Normally, nitrogen concentrations of 3% or greater usually are associated with tree drought stress or excessive N application. Excess nitrogen application can exacerbate drought stress. Decrease application rate by 50%.

Nitrogen can be rapidly lost when soils are flooded or water saturated. Sites that are subject to occasional flooding may benefit from a split nitrogen application with 60% applied before budbreak and 40% applied about mid May. Sites with sandy soil may also benefit from a split nitrogen application. A single application before budbreak is adequate for other sites.

Phosphorus

Native trees:

- <0.12% Low. Apply 100 lbs/acre P₂O₅.
- ≥0.12% Normal. None needed.

Variety trees:

- <0.14% Low. Apply 100 lbs/acre P₂O₅.
- ≥0.14% Normal. None needed.

Applying phosphorus as a banded application rather than a broadcast application has been more effective in increasing phosphorus absorption. Adjust the spreader to deliver the recommended amount of phosphorus per acre. Apply the phosphorus in a band about midway between the trunk and dripline on one side of the tree by leaving the spinners on the spreader off or blocking their spreading the phosphorus, thus applying the phosphorus in a band typically

about 18 to 24 inches wide on one side of the tree. If the trees are small apply the band 6 to 8 feet from the trunk on one side of the tree. Urea should not be applied as a band application because loss of nitrogen by volatilization will be increased. Other forms of nitrogen can be applied as a band with the phosphorus.

Potassium

Native trees:

<0.85% Low. Apply 100 lbs/acre K₂O.

≥0.85% Normal. None needed.

Variety trees:

<1.0% Low. Apply 100 lbs/acre K₂O.

≥1.0% Normal. None needed.

Applying potassium as a banded application rather than a broadcast application has been more effective in increasing potassium absorption. Adjust the spreader to deliver the recommended amount of potassium per acre. Apply the potassium in a band about midway between the trunk and dripline on one side of the tree by leaving the spinners on the spreader off or blocking their spreading the potassium, thus applying the potassium in a band typically about 18 to 24 inches wide on one side of the tree. If the trees are small apply the band 6 to 8 feet from the trunk on one side of the tree. Urea should not be applied as a band application because loss of nitrogen by volatilization will be increased. Other forms of nitrogen can be applied as a band with the potassium.

Calcium

<0.70% Low. Apply lime based on soil test information.

≥0.70% Normal, none needed.

Magnesium

<0.30% Low. Soil test for pH. If low, use dolomitic limestone to adjust soil pH. Otherwise apply MgSO₄ at the manufacturer's recommended rate.

≥0.30% Normal, none needed.

Manganese

<100 ppm Apply three foliar applications of MnSO₄ (32% Mn) at 6 lbs/acre of material beginning as the first leaf unfurls during budbreak, and then with the 1st generation pecan nut casebearer spray (late May to early June), and the 2nd generation pecan nut casebearer spray (late June to early July). Mn can be tank mixed with zinc and most pesticides. Other commercial Mn products may be used following the manufacturer's recommendations.

≥100 ppm Normal, none needed.

Zinc

<60 ppm **Mature trees** – apply 3 foliar applications of ZnSO₄ (36% Zn) at 6 lbs/acre of material beginning as the first leaf unfurls during budbreak, and then with the 1st generation pecan nut casebearer spray (late May to early June), and the 2nd generation pecan nut casebearer spray (late June to early July). Other zinc products may be used following the manufacturer's recommendations. If no zinc has been applied as a foliar application and the leaf zinc concentration is ≥50 ppm, then none will be needed.

Young trees – apply foliar applications of ZnSO₄ (36% Zn) at 2 lbs/100 gallons of material beginning as the first leaf unfurls during budbreak, and then at two week intervals until shoot growth ceases. Other zinc products may be used following the manufacturer’s recommendations.

≥60 ppm

Normal. Follow current zinc program.

Iron

<50 ppm

Iron deficiency can be induced by cool, wet environmental conditions in the spring that inhibit Fe translocation from the roots to the top. Improved environmental conditions will permit translocation and the shortage eliminated. Corrections of iron deficiency will normally not be needed unless the shortage persists for two years or the deficiency is acute. Use commercially available products for foliar application following the manufacturer’s recommendation.

≥50 ppm

Normal.

Copper

<6 ppm

Low. Apply CuSO₄ or chelated copper at the manufacturer’s recommendations.

6 – 20 ppm

Normal, none needed.

>20 ppm

Excess.

Nickel

<2.5 ppm

. Trees with less than 2.5 ppm may benefit from nickel application. Nickel Plus is currently the only product available. Follow the manufacturer’s recommendations.

≥2.5 ppm

Normal, none needed.