Fertilizer Guide

FILBERTS
(Oregon)

FG 34
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Observations of annual shoot growth and size and color of leaves and nuts are helpful in determining the fertilizer needs of filbert trees. In addition, *leaf analysis indicates which elements are present in adequate, deficient, or excessive amounts. Soil analysis before planting is useful* in predicting the need for potassium, magnesium, or lime applications.

A nutrient deficiency should be suspected if the cause of poor tree performance is not primarily one or more of the following:

lack of pruning	*soil borne pests*
winter injury	*poor soil drainage*
physical injury	*disease*
poor weather	*insects*
poor pollination	*rodents*
deep cultivation	*shallow soil or limited moisture*

NITROGEN (N)

Young trees

Age	Apply this amount (lb N/tree)
planting-2 yrs*	none
3-5	1/4 - 1/3
6-7	1/3 - 1/2
8-10	1/2 - 3/4

* Apply N only after 2 growing seasons have passed. Young trees should grow 18-30 inches annually.

Mature trees

Leaf analysis guide for N application	
% leaf N in August	Apply this amount N lb/tree
Under 1.8 (severe deficiency)	3-4
1.8-2.2 (deficiency)	2-3
2.2-2.5 (optimal)	1.5-2.0
Over 2.5 (excess)	None

Apply N in a 1-2 foot band under drip line or increase 20-30% for a broadcast application.

Note: Banding, over a period of years, may lead to excessively acid soil in the band.

Adjust rates according to results of application in previous years.

N applications should be made during the period between February 1 to leafing-out in spring.

PHOSPHORUS (P) AND SULFUR (S)

Deficiencies of P and S have not been observed in Oregon filbert orchards.

POTASSIUM (K)

K deficiency is common in Oregon filbert orchards.

Mature trees

Leaf analysis guide for K application	
% leaf K in August	Apply this amount K_2O lb/tree
Under 0.5 (severe deficiency)	8-10
0.5-0.7 (deficiency)	6-8
0.7-0.9 (borderline)	none
Over 1.0 (optimum)	none

Submit soil sample from 0-6 inch depth for lime requirement test and lime to pH 5.6 in band where K is applied.

Place K in a band at the drip line of the tree. This band should have a width of 1 inch for each pound of fertilizer applied.

When muriate of potash (KCl) is used it should be applied in fall or before mid-February *to avoid chloride toxicity.*

Potassium levels in leaves often do not increase until the year following application. A single application is usually effective for 2 or more years.

Repeated band applications on precisely the same soil increases the efficiency of K absorption.

BORON (B)

Boron deficiency is indicated if the level in leaves is below 30 ppm. One application of 8 lb sodium pentaborate/A using 2 lb sodium pentaborate/100 gal of water applied in May has

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increased nut set. Some phytotoxicity has been noted. B levels over 150 ppm in leaves may be toxic.

When leaf B levels exceed 100 ppm, either omit or reduce the B application for one year.

NEW ORCHARDS

Soil sampling and testing of fields to be planted to orchards is recommended. Recommended soil sampling procedures should be followed in order to estimate fertilizer needs.

The Oregon State University Extension Service agent in your county can provide you with soil sampling instructions, soil sample bags, and information sheets. Application and incorporation into the soil of certain nutrient elements such as K, Mg, and lime can be best done prior to planting.

POTASSIUM (K)

K should be broadcast and plowed under during preparation of land for planting.

If OSU soil test for K reads (ppm):	Apply this amount of potash (K_2O) (lbs/A):
0 to 75	300-400
75 to 150	200-300
over 150	None

MAGNESIUM (Mg)

Mg should be broadcast and plowed under during preparation of the land for planting. If the OSU soil test for Mg is less than 0.5 meq/100g of soil, apply dolomite in amount called for to lime to pH 5.6. Dolomite acts in a manner similar to limestone in the correction of soil acidity.

LIME

Lime should be applied when the pH of the soil is below 5.6

If the OSU buffer test for lime reads:	Apply this amount of lime (T/A):
Below 5.2	4 - 5
5.2 - 5.6	3 - 4
5.6 - 5.9	2 - 3
5.9 - 6.2	1 - 2

The liming rate is based on 100-score lime.

Liming of orchard soils is most effective where the lime is mixed into the soil to as great a depth as feasible during the preparation of the land for planting. A lime application is effective over several years. Lime should be mixed into the soil at least several weeks before planting.

Fertilizer Guide #3, "Liming Materials for Oregon," which is available from your local OSU Extension Office, provides additional information on lime.

The suggested K, Mg, and lime applications for new orchards are based on soil test values from the Soil Testing Laboratory, OSU, Corvallis, Oregon.

This guide is based on research conducted by John H. Painter, Horticulturist, USDA (Emeritus); Lloyd C. Baron, OSU Extension Agent (Emeritus); and on grower experience using leaf analysis as a guide.

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