

Fertilizer Guide

PEACHES (Oregon)

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Observations of annual shoot growth and size and color of leaves and fruit are helpful to an orchardist in determining the fertilizer needs of his 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:

<i>lack of pruning</i>	<i>poor pollination</i>	<i>disease</i>
<i>winter injury</i>	<i>deep cultivation</i>	<i>insects</i>
<i>physical injury</i>	<i>soil borne pests</i>	<i>rodents</i>
<i>poor weather</i>	<i>poor soil drainage</i>	
<i>shallow soil</i>	<i>limited moisture</i>	

NITROGEN (N)

Young Trees

Age	Apply this amount N (lb/tree)
1 yr	0 - 1/2
2	1/2
3 - 5	1/2 - 3/4
6 - 7	3/4 - 1
8 - 10	1 1/2 - 2

Apply N according to terminal growth. Young trees should grow 24 - 36 inches annually. 1 and 2 year old trees can be injured if N is applied in a narrow band around the tree. Scatter N away from trunks after newly planted tree is well-settled by irrigation or rain.

Mature Trees

All varieties - clean cultivated. (Increase rates 25 percent for trees in grass sod.)

Leaf analysis guide for N application

% leaf N in August	Apply this amount N (lb/tree)
Under 2.0 - shortage	4
2.0 - 3.2 - below normal	3
3.2 - 3.8 - normal	2
3.8 - 4.5 - above normal	1
Above 4.5 - excess	0

Adjust rates according to results of applications in previous years. N application rate may be reduced as severity of pruning is increased.

N applications should be made during the period from January 1 to petal fall in spring. Fall

application can increase danger of winter freeze damage in areas in which subzero temperatures may occur. Fruit maturity is delayed as N level is increased above normal range.

PHOSPHORUS (P) AND SULFUR (S)

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

POTASSIUM (K)

Leaf analysis guide for K application

% leaf K in August	Apply this amount K ₂ O lb/tree
Under 1.0 - shortage	10 - 15
1.0 - 1.5 - below normal	6 - 10
Above 1.5 - normal	none

Apply K₂SO₄ anytime from harvest to bloom. Apply KCl before February 15.

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

BORON (B)

B deficiency is common in Oregon peach orchards.

Leaf analysis guide for B application

ppm B in leaves	Apply this amount B (lb/tree)
under 20 - shortage	0.10 - 0.20
20 - 35 - below normal	0.10
35 - 100 - normal	none
over 100 - excess	none

Do not apply B to non-bearing trees. Reduce rates per tree by one-half or more for young bearing trees since *trees are easily injured by excessive B applications*.

Soil applications of B should not be banded. B should be applied evenly to soil surface.

If B deficiency has occurred, a spray application may give more rapid recovery than soil application. One preventive spray per year has been as effective as periodic soil applications.



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Spray at a rate of 8 lb sodium pentaborate/A using 2 lb sodium pentaborate/100 gal of water. Spray twice if deficiency has occurred; fall application (before leaves drop) plus prebloom application (3-4 days before blossoms open) or prebloom application plus first cover spray.

ZINC (Zn)

Deficiency symptoms are the most reliable indication of need for Zn. If several elements are deficient, symptoms may not be clearly recognized. Symptoms occur early in tops of trees primarily. Shoots have a tuft or rosette of comparatively larger leaves at the tip with smaller, narrow, sometimes chlorotic leaves below.

If leaf Zn levels in August are below 17 ppm, a deficiency is suspected. *Soil applications will not correct Zn deficiency.*

Application of Zn

Dormant sprays: Apply Zn sulfate at rate of 15 lb Zn (45 lb of 32% Zn sulfate crystals or 13 gal liquid Zn sulfate)/A. The dormant application should be made as late as possible in dormant season before any visible green appears. (Caution: Be sure all crystals of Zn have dissolved before spraying.)

After harvest sprays: Apply after harvest when leaves are still green and active. Apply 10 lb Zn (30 lb. of 32% crystals or 8 gal liquid)/A.

Non-bearing trees: Apply Zn sulfate spray, using approximately 1/2 lb Zn (1 1/2 lb. 32% crystals or 1/2 gal liquid)/100 gal of spray to nonbearing trees as soon as deficiency is recognized. Foliage should be thoroughly wetted.

A spray of Zn chelate at 23 lb/100 gal 10-14 days following petal fall may be substituted for dormant Zn sulfate spray. In severe cases, a second spray may be required.

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 Agent in your county can provide you with soil sampling instructions, soil sample bags and information sheets. Application and incorporation into soil of certain nutrient elements such as K and Mg can best be done prior to planting.

POTASSIUM (K)

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

If the OSU soil test for K reads (ppm):	Apply this amount of potash (K ₂ O) lbs/A
0 to 150	300-400
150 to 300	200-300
over 300	none

MAGNESIUM (Mg)

Although Mg deficiency has not been observed in Oregon peach orchards, the use of dolomite lime to correct soil acidity and supply Mg is suggested where the soil test value for Mg is less than 0.5 meq/100g soil.

Dolomite should be mixed into the soil at the rate of 1 T/A during preparation of land for planting.

Dolomite acts in a manner similar to limestone in the correction of soil acidity. Where dolomite is applied, the lime requirements can be reduced by 1 ton/acre.

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. The application of lime is not suggested if the soil pH is 5.6 or higher.

If the OSU SMP Buffer test for lime reads:	Apply this amount of lime (T/A):
Below 5.2	4 - 5
5.2 - 5.5	3 - 4
5.5 - 5.8	2 - 3
5.8 - 6.2	1 - 2
Over 6.2	0

The liming rate is based on 100-score lime. *A lime application is effective over several years.*

For acid soils low in Mg (less than 0.5 meq Mg/100g of soil) one ton/A of dolomite lime can be used as a Mg source. Dolomite and ground limestone have about the same ability to neutralize soil acidity.

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.

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

These recommendations are based on research findings in many states and observations of responses in commercial orchards in Oregon, including leaf analysis.

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