



SWEET CHERRIES

(Oregon)

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

Sweet cherry trees less than 10 years old do not normally benefit from applications of nitrogen.

Mature trees - clean cultivated

Leaf analysis guide for N application

% leaf N in August	Apply this amount N lb/tree
Under 1.7 (severe deficiency)	4-5
1.7-2.3 (deficiency)	2-3
2.3-2.6 (optimal)	1-2
Over 2.6 (excess)	None

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

Adjust rates according to results of application in previous years.

N applications should be made between February 1 and petal fall in spring.

POTASSIUM (K)

K deficiency has been observed in very few Oregon sweet cherry orchards. Since K applications tend to reduce magnesium uptake, do not apply K unless leaf analysis indicates a deficient or borderline level.

Leaf analysis guide for K application.

% leaf K in August	Apply this amount K ₂ O lb/tree
Under 1.2 (deficiency)	10-15
1.2-1.5 (borderline)	5-10
Over 1.5	None

The K content of fertilizer is expressed as the oxide (K₂O) on fertilizer labels. Multiply K₂O by 0.83 to convert to K.

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

Preferably drill K 6-8 inches deep in root zone, or place K in concentrated band on soil surface at drip line.

Do not apply muriate of potash (KCl) after February 15 because if subsequent rainfall is insufficient to leach the chlorine, foliage burn may occur.

MAGNESIUM (Mg)

Mg deficiency has been detected in Oregon sweet cherry orchards. Grower experience indicates that a single summer spray of magnesium sulfate (epsom salts) at 5 lb/100 gal will correct the deficiency.

BORON (B)

B deficiency is common in Oregon sweet cherry orchards. It is associated with cherry rosette.

Leaf analysis guide for B application

ppm B in leaves	Apply this amount B lb/tree
Under 30 (deficiency)	0.10-0.20
30-40 (borderline)	0.10
40-80 (optimal)	0.10*
Over 100 (toxic)	None

*Maintenance application every 3 years.

Do not apply B to nonbearing trees. Reduce rates per tree by 1/2 or more for young bearing trees since trees are easily injured by excessive B applications. B should be broadcast when applied to soil.

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

Spray at 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 32% crystals or 8 gal liquid)/A. *Nonbearing 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 non-bearing trees as soon as deficiency is recognized. Foliage should be thoroughly wetted.

A spray of Zn chelate at 2-3 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. Application and incorporation into soil of certain nutrient elements such as K and Mg can be best done prior to planting.

PHOSPHORUS (P)

Deficiencies of P in sweet cherry trees have not been observed in Oregon.

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 (lb/A)
K₂O x 0.83 = K

0 to 75	300-400	250-330
75 to 150	200-300	165-250
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 1.5 T/A of dolomite.

Dolomite acts in a similar manner to limestone in the correction of soil acidity.

The need for applications of Mg is usually greater where K and calcium levels in the soil are high.

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.

If the OSU soil test has a pH of less than 5.2, apply ground limestone at the rate of 2 T/A.

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 conducted by Dr. O. C. Compton, Horticulturist, OSU, Corvallis, Oregon, the late Dr. Carl Shuster, Horticulturist, USDA, Corvallis, Oregon, and other state and federal workers. Leaf analysis results and grower observations also serve as guides.

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