FERTILIZERguide
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Sweet cherries

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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 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 application.

The Oregon State University Extension Service agent in your county can provide you with soil sampling instructions, soil sample bags, and information sheets.

If abnormal symptoms appear on certain trees scattered among and adjacent to healthy trees, the problem probably is not nutritional. Nutritional problems tend to occur in certain areas in orchards.

Nitrogen (N)

Young trees

Usually, two N applications of about ¼ lb/tree in February and early June are suggested for irrigated orchards in the mid-Columbia region (Table 1). Elsewhere, fertilize only if more growth is desired.

Mature trees—clean cultivated

Apply N in a 2- to 3-foot band under the drip line or increase by 20 to 30 percent for a broadcast application.

Adjust rates according to results of application in previous years.

Apply N between February 1 and March 15 in nonirrigated orchards. N may be applied until petal fall in irrigated orchards.

Table 1.—Leaf analysis guide for N application for sweet cherries.

If leaf N in August is (%)	Possible interpretation	Apply this amount of 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	0

Phosphorus (P)

Responses to P fertilization have not been observed in Oregon sweet cherry orchards.

Potassium (K)

K deficiency has been observed in very few Oregon sweet cherry orchards. Since K application tends to reduce magnesium uptake, do not apply K unless leaf analysis indicates a deficient or borderline level of K (Table 2).

Table 2.—Leaf analysis guide for K application for sweet cherries.

If leaf K in August is (%)	Possible interpretation	Apply this amount of potash (K_2O) (lb/tree)
under 1.2	deficiency	10–15
1.2–1.5	borderline	5–10
over 1.5		0

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

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

Preferably drill K 3–5 inches deep in the root zone or place K in a concentrated band about 4–6 inches wide on the soil surface at the drip line.

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

Mushroom manure applied 3–4 inches deep under the branches has been a more effective source of K than chemical fertilizer. A mulch that conserves moisture in the surface soil increases K uptake. Mulch plus fertilizer may be an effective treatment.

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.

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Boron (B)

B deficiency is common in Oregon sweet cherry orchards (Table 3). It is associated with cherry rosette.

Table 3.—Leaf analysis guide for B application for sweet cherries.

If leaf B is (ppm)	Possible interpretation	Apply this amount of B (lb/tree)
under 25	deficiency	0.10–0.20
25–35	borderline	0.10
35–80	optimal	0.10*
over 100	toxic	0

*Maintenance application every 3 years.

Do not apply B to nonbearing trees. Reduce rates per tree by half 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, a 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 a rate of 5–8 lb sodium pentaborate/a. Spray twice if deficiency has occurred: a fall application (before leaves drop) plus a prebloom application (3–4 days before blossoms open), or a prebloom application plus a first cover spray.

Fall application may increase fruit set the following spring.

Zinc (Zn)

Deficiency symptoms are the most reliable indication of need for Zn. If several elements are deficient, symptoms may not be recognized clearly. Symptoms occur early, primarily in the tops of trees. 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 14 ppm, suspect a deficiency. Soil applications will not correct Zn deficiency.

Zn deficiency may result from poor drainage or overirrigation.

Application of Zn

Dormant sprays: Apply Zn sulfate at a rate of 15 lb Zn (45 lb of 32% Zn sulfate crystals or 13 gal liquid Zn sulfate)/a. Make the application as late as possible in the dormant season before any visible green appears.

Caution: Be sure all crystals have dissolved before spraying.

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

Nonbearing trees: Apply Zn sulfate spray, using approximately ½ lb Zn (1½ lb 32% crystals or ½ gal liquid)/100 gal spray to nonbearing trees as soon as deficiency is recognized. Thoroughly wet foliage.

A spray of Zn chelate at 2–3 lb/100 gal 10 to 14 days following petal fall may be substituted for dormant Zn sulfate spray. In severe cases, a second spray may be required.

Caution: Applications made within 7 days before or after an application of oil can cause injury. Longer intervals between zinc and oil applications may be required during cool weather.

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 (Table 4).

Table 4.—K fertilization rates for sweet cherries.

If the soil test for K is (ppm)	Apply this amount of potash (K_2O) (lb/a)
0–75	300–400
75–150	200–300
over 150	0

Magnesium (Mg)

Mg should be broadcast and disked in during preparation of the land for planting if the soil test for Mg is less than 0.5 meq/100 g of soil or the ratio of meq Mg to meq K is less than 2. Dolomite lime can be used to supply Mg as indicated in the section on lime. The need for applications of Mg usually is greater where K and calcium levels in the soil are high.

Liming of orchard soils is most effective if the lime is mixed into the soil to as great a depth as feasible during preparation of the land for planting (Table 5). The application of lime is not suggested if the soil pH is 5.6 or higher.

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Table 5.—Lime application rates for sweet cherries.

If the SMP buffer test for lime is	Apply this amount of lime (t/a)
under 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. Mix lime into the soil at least several weeks before planting. A lime application is effective for several years.

With established orchards, lime should be surface applied and where feasible mixed with the soil. Take care not to damage roots. Where lime is not mixed with the soil, surface applications probably should not exceed 2 t/a of lime. Applications of N fertilizer following surface liming can result in serious losses of N. Where fertilizer is banded, the soil in the bands can become quite acid, and liming of these areas is suggested.

For acid soils low in Mg (less than 0.5 meq Mg/100 g of soil), 1 t/a of dolomite lime can be used as an Mg source. Dolomite and ground limestone have about the same ability to neutralize soil acidity.

For More Information

How to Take a Soil Sample ... and Why, EC 628, by E.H. Gardner (revised 1997). No charge.

A List of Analytical Laboratories Serving Oregon, EM 8677, by J. Hart (revised 1997). No charge.

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Fertilizer and Lime Materials, FG 52, by J. Hart (reprinted 1997). No charge.

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