



Table beets

Western Oregon—west of Cascades

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Good management practices are essential if optimum fertilizer responses are to be realized. These practices include use of recommended varieties, selection of adapted soils, weed control, disease and insect control, good seedbed preparation, proper seeding methods, and timely harvest.

Because of the influence of soil type, climatic conditions, and other cultural practices, crop response from fertilizer may not always be accurately predicted. Soil test results, field experience, and knowledge of specific crop requirements help determine the nutrients needed and the rate of application.

The fertilizer application for vegetable crops should ensure adequate levels of all nutrients; optimum fertilization is essential for top quality and yields.

Follow recommended soil sampling procedures 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.

Recommendations are based on a 24-inch row spacing.

Nitrogen (N)

Rates of 130 to 170 lb of N/a are recommended. The lower rates of N are used following a good legume crop such as alfalfa or red clover. Highest N rates are suggested following grain or grass seed. Broadcast the N before planting, or apply up to half the N as early-season top dressings.

Phosphorus (P)

P is necessary for vigorous early seedling growth, which may reduce damage from “damping off.” Band 50 to 70 lb phosphate (P_2O_5)/a as super phosphate or treble super phosphate 1 inch directly beneath the seed (see Table 1). Broadcast and work the remainder of the P into the seedbed before seeding.

Severe seedling burn can result if N-P mixtures or fertilizers containing potassium or boron are banded directly beneath the seed.

Table 1.—P fertilization rates for table beets.

If the soil test for P is (ppm)	Apply this amount of phosphate (P_2O_5) (lb/a)
0–25	120–150
25–50	70–120
over 50	50–70

Potassium (K)

Broadcast and work K into the soil before planting (see Table 2).

Table 2.—K fertilization rates for table beets.

If the soil test for K is (ppm)	Apply this amount of potash (K_2O) (lb/a)
0–75	120–150
75–150	80–120
150–225	60–80
over 225	0

Sulfur (S)

Plants absorb S in the form of sulfate. Fertilizer materials supply S in the form of sulfate and elemental S. Elemental S must be converted to sulfate in the soil before the S becomes available to plants. The conversion of elemental S to sulfate usually is rapid for fine-ground (less than 40-mesh) material in warm, moist soil.

The S requirements of table beets can be provided by:

1. Applying 15–20 lb/a of S in the form of sulfate at planting time
2. Applying 30–40 lb/a of S as fine-ground elemental S the preceding year
3. Applying more coarsely ground elemental S at higher rates and less frequently

Some S fertilizer materials such as elemental S and ammonium sulfate have an acidifying effect on soil.

S is contained in several fertilizers used to supply other nutrients.



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Magnesium (Mg)

To date, no yield response from the application of Mg to beets has been observed in western Oregon. Trial applications of 10 to 15 lb of Mg/a are suggested when the soil test value for Mg is below 1.0 meq Mg/100 g soil.

Mg also can be supplied in dolomite, which is a liming material that reduces soil acidity to about the same degree as ground limestone. Mix dolomite into the seedbed several weeks before seeding.

Boron (B)

Boron deficiency (canker) in table beets has been severe in some areas. In these areas, foliar applications of water-soluble B materials are needed in addition to soil application.

The following B fertilizer programs are suggested:

1. **Preplanting treatment:** Apply 3 to 5 lb B/a (broadcast and disked in). This rate has been adequate where canker has not been severe.
2. Use the following combination treatment where canker is severe or where beets are held for late harvest.

Preplanting application: 3 to 5 lb B/a (broadcast and disked in)

Foliar applications: two or three applications of water-soluble B materials. For each foliar application, use 1 lb B/a (in 50 to 100 gal water) at the following times:

- At time of enlargement (bulbing) of beet roots
- When beet roots are 1½ to 2 inches in diameter
- 10–14 days later

Lack of moisture will aggravate B deficiency.

B should not be banded, but should be applied evenly to the field.

Lime

Table beets are less tolerant of soil acidity than bush beans or sweet corn.

Make lime applications if the soil pH is 5.8 or below, or if calcium levels are below 7 meq Ca/100 g soil (see Table 3).

Table 3.—Lime application rates for table beets.

If the SMP buffer test for lime is	Apply this amount of lime (t/a)
under 5.2	4–5
5.2–5.7	3–4
5.7–6.0	2–3
6.0–6.3	1–2
over 6.3	0

The liming rate is based on 100-score lime. Mix lime into the soil at least several weeks before planting and preferably the previous fall. A lime application is effective for several years.

Some soils may have a fairly high SMP buffer value (over 6.2) and a low pH (below 5.3). This condition can be caused by the application of acidifying fertilizer. In this case, the low pH value is temporary, and the pH of the soil will increase as the fertilizer completes its reaction with the soil. This temporary “active” acidity from fertilizer is encountered following recent applications of most nitrogen fertilizer materials.

Acidifying fertilizers also have a long-term acidifying effect on soil that is cumulative and leads to lower SMP buffer readings.

Sandy soils to which fertilizers have not been recently applied sometimes record low pH and high SMP buffer values. In such cases, a light application of lime (1 to 2 t/a) should suffice to neutralize soil acidity.

For acid soils low in Mg (less than 1.0 meq Mg/100 g 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.

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

You can access the above publications, as well as FG 13, *Table Beets: Western Oregon—West of Cascades*, our Publications and Videos catalog, and many other publications via our Web site at eesc.orst.edu

These recommendations are based largely on the results of experiments conducted by H.J. Mack, E. Hugh Gardner, and T.L. Jackson, Oregon State University. Reviewed by a committee of western Oregon county Extension agents.

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