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FERTILIZERguide
FG 7
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Bentgrass seed

Western Oregon—west of Cascades

E.H. Gardner, T.L. Jackson, and H. Youngberg

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.

Follow recommended soil sampling procedures 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.

Nitrogen (N)

Nitrogen is the most important nutrient affecting the yield of bentgrass. Fertilizer trials have shown that the time of nitrogen application is important.

On new seedings, band 20–40 lb N/a 1 to 2 inches below the seed. At least 1 inch of soil should separate the seed and fertilizer. Where N is broadcast, increase the application rate to 30–60 lb/a.

On established stands, a total annual application of 100 to 120 lb N/a is suggested. Apply 20 to 30 lb N/a in the fall. Apply 80 to 100 lb N/a between March 15 and April 15.

Phosphorus (P)

Use a soil test to evaluate the need for P fertilization.

On new seedings, when the soil test for P is below 10 ppm, band 30 lb P_2O_5/a 1 to 2 inches below the seed. At least 1 inch of soil should separate the seed and fertilizer. Increase the application rate by 50 percent if P is broadcast rather than banded.

On established stands, broadcast P in the fall according to Table 1.

Table 1.—P fertilization rates for bentgrass seed production—established stands.

If the soil test for P is (ppm)	Apply this amount of phosphate (P_2O_5) (lb/a)
0–10	40–60
over 10	0

Potassium (K)

Use a soil test to evaluate the need for K fertilization.

On new seedings, when the soil test for K is below 100 ppm, band 25 lb K_2O/a 1 to 2 inches below the seed. At least 1 inch of soil should separate the seed and fertilizer. Increase the K application rate by 50 percent if broadcasting K.

On established stands, broadcast K in the fall according to Table 2.

Table 2.—K fertilization rates for bentgrass seed production—established stands.

If the soil test for K is (ppm)	Apply this amount of potash (K_2O) (lb/a)
0–100	60
over 100	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 convert 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 bentgrass can be provided by:

1. Annually applying 10–15 lb S/a in the form of sulfate or as fine-ground (finer than 40-mesh) elemental S. Elemental S will not be available to plants until the soil warms.
2. Applying 30–40 lb S/a as sulfate or fine-ground elemental S every second year
3. Applying coarser ground elemental S at higher rates and less frequently

Responses to S fertilization may not occur for a period of at least 4 or 5 years on "red hill" soils that have a history of high S fertilization.

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E. Hugh Gardner, professor emeritus of soil science; T.L. Jackson, former Extension soil scientist; and Harold Youngberg, Extension agronomist emeritus, Oregon State University. Reviewed by a committee of western Oregon county Extension agents.

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These soils have a comparatively high ability to adsorb S and frequently have a history of high S fertilization through the use of S-containing fertilizer such as ammonium sulfate.

Other Nutrients

Responses of bentgrass to nutrients other than those discussed in this guide have not been observed in Oregon.

Bentgrass has a high tolerance to soil acidity compared to most other crops grown in Oregon. Liming of bentgrass fields where the soil is strongly acid, however, is suggested, especially on new seedings or when fields are being renovated.

Lime

A lime application is suggested if the soil pH is below 5.0 or the calcium soil test is below 2.0 meq Ca/l00 g of soil. See Table 3.

Table 3.—Lime application rates for bentgrass seed production.

If the SMP buffer test for lime is	Apply this amount of lime (t/a)
under 5.4	2–3
5.4–5.8	1–2
over 5.8	0

The liming rate is based on 100-score lime.

Lime reacts slowly in the soil and should be applied well in advance of seeding and mixed thoroughly with the surface 6 inches of soil. A lime application is effective for several years.

The surface application of lime to established seed fields could increase the soil pH in the surface one-half inch of soil and thereby increase the possibility of N loss from ammonium N and urea due to volatilization. Also, broadcasting lime on established stands of perennial grasses is not as effective as mixing lime with the soil.

The use of N fertilizers for grass seed crops will tend to increase soil acidity (decrease soil pH). This effect should be considered in establishing or renovating perennial grass seed fields.

Evaluate soil acidity when renovating or making new plantings. The lime application should allow for some decrease in soil pH during the life of a perennial stand of grass.

For soils needing lime that are low in Mg (less than 0.5 meq Mg/100 g of soil), 1 ton/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.

To order copies of the above publications, send the complete title and series number, along with a check or money order for the amount listed (payable to Oregon State University), to:

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World Wide Web

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

You can access the above publications, as well as FG 7, *Bentgrass Seed: Western Oregon—West of Cascades*, our Publications and Videos catalog, and many other publications via our Web site at **eesc.orst.edu**

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