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Fertilizer Tips for Gardeners

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A balance of soil nutrients should be maintained in all soils where vegetables, fruits, flowers, lawns, shrubs and trees are grown.

Most Idaho soils require annual applications of nitrogen (N). Some will require phosphorus (P) and a few areas may need potassium (K), sulfur (S), zinc (Zn) and iron (Fe). A complete analysis of the topsoil at 0 to 10-inch soil depth will provide information about the nutrients your garden soil needs.

Commercial fertilizers — inorganic or organic — may be used to supply these nutrients. Green plants are "complete" biochemical factories and require only raw materials. Plants grown in water to which nutrients salts have been added are identical in appearance, taste and food value to plants grown in the richest soil. Nutrients derived from decaying organic matter are no better or worse than nutrients from other sources.

Many different commercial fertilizers are commonly available. Table 1 lists some of these and shows the amount of each you would need to apply to provide 0.2 pound of N per 100 square feet of garden area.

For gardens, fertilizer can be applied on the surface and mixed into soil or banded 2 inches to one side of the row and 3 inches deep. Apply amounts shown in Table 1.

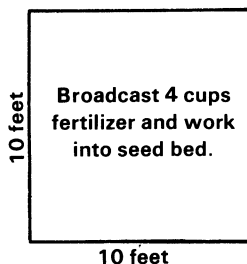
For shrubs and trees, fertilizer should be spread around the plant in an area equal to the perimeter of the top growth. The amount of fertilizer to apply depends on size of plant. For small plants, apply 1 cup and for large trees 4 cups of a 20-0-0 fertilizer or the equivalent as shown in Table 1.

For lawns, one half (1/2) the rates given in Table 1 should be applied for each month of the growing season. The fertilizer should be divided into 2 or three applications. Make the first application in fall, one in early spring and the final in late May or early June. For grass lawns, nitrogen is the principal fertilizer nutrient needed. For mixtures of clover and grass, apply a fertilizer containing both nitrogen and phosphorus. Do not apply fertilizers on lawns when foliage is wet because the grass may be severely burned.

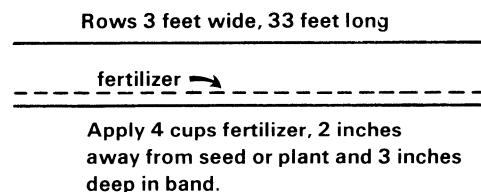
Iron may be needed on shrubs, lawns, fruits and ornamental trees grown on alkaline soils in Southern Idaho. Iron deficiencies — shown by chlorosis or yellowing of new growth — are quite common and can be corrected by either soil or spray applications. For soil applications apply a chelating material at rates shown on label. Poke holes into the soil with a small probe around the base of the plant, put the material into water and fill up the holes for best results. To apply iron as a foliage spray, use a one-half percent solution of ferrous sulfate or a chelate at rates shown on the label.

Two Ways to Apply Fertilizer in Gardens

Broadcast a 10-10-5 fertilizer on a 100 sq. ft. area:



Band a 10-10-5 fertilizer on a 100 sq. ft. area:



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When zinc is needed, applications can be made similar to that shown for iron with the exception of fruit trees. Sprays should be applied during the late dormant season, usually in February or early March. For most plants, soil applications of zinc are suggested. Zinc is available with mixes of nitrogen, phosphorus and potassium fertilizers.

Sulfur is needed on lawns in some areas. If sulfur is not in the fertilizer mix, apply it separately as gypsum or its equivalent at 1 cup per 100 square feet of area.

If you have a fertilizer with an analysis not listed in the table, select the closest analysis and apply this rate. To convert rates to smaller areas, divide square feet of area by 100 square feet and multiply by rate given for 100 square feet.

Examples:

Area, 8' x 10'; fertilizer analysis, 4-10-10
Rate of application, 10 cups per 100 sq. ft.

$$8' \times 10' = 80 \text{ sq. ft.}$$

$$\frac{80}{100} = 0.8$$

$$0.8 \times 10 \text{ cups (rate of application)} = 8 \text{ cups}$$

8 cups of a 4-10-10 fertilizer would be applied to this 8 x 10 ft. area

Rows 2 feet wide and 20 feet long
Fertilizer analysis, 6-10-4

Rate of application, 6 2/3 cups per 100 sq. ft.

$$2' \times 20' = 40 \text{ sq. ft.}$$

$$\frac{40}{100} = 0.4$$

$$0.4 \times 6 \frac{2}{3} \text{ cups (rate of application)} = 2 \frac{2}{3} \text{ cups}$$

2 2/3 cups of a 6-10-4 fertilizer would be applied to this 2 x 20 ft. area.

Table 1. Quantity of common fertilizers needed to provide equivalent amounts of nitrogen (0.2 lb. N/100 sq. ft)

Fertilizer analysis (percent)			Pounds per 100 sq. feet	Cups per 100 sq. feet
N	P ₂ O ₅	K ₂ O		
2	3	2	10.0	20
4	10	4	5.0	10
6	10	4	3.4	6 2/3
8	10	8	2.4	5
10	10	5	2.0	4
12	12	5	1.6	3 1/3
15	10	0	1.2	2 2/3
16	20	0	1.1	2 1/3
20	16	0	1.0	2
20	0	0	1.0	2
33	0	0	0.6	2 1/4
45	0	0	0.4	1

The fertilizer analysis is shown on all containers. The first number gives percent total nitrogen; the second, percent available P₂O₅; the third, percent water-soluble K₂O. A 2-3-2 analysis contains 2 pounds nitrogen, 3 pounds P₂O₅, and 2 pounds K O per 100 pounds of fertilizer. A 16-20-0 analysis contains 16 pounds nitrogen, 20 pounds P₂O₅ and no K₂O per 100 pounds of fertilizer. A 45-0-0 analysis contains 45 pounds of nitrogen and no phosphorus or potassium per 100 pounds of fertilizer. Some of these fertilizers may contain other nutrients. Ammonium sulfate (21-0-0) contains 24 percent sulfur and 16-20-0 contains 15 percent sulfur. Other mixes may contain zinc and other micronutrients. Check the label. All nutrients in the fertilizer will be listed.

Points to Remember

1. Check fertilizer analyses on bag or container for nutrient content.
2. Apply rates shown in table.
3. Work fertilizer well into seed bed.
4. Use straight nitrogen fertilizer on lawns when you desire only grass. Split your applications to give a more uniform growth during the year.
5. Apply fertilizer to lawns only when foliage is dry.
6. Water thoroughly immediately after application.
7. Don't guess on rates; measure or weigh.

Call your County Agricultural Agent for further information.

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