

Step-by-Step Fertilizer Guide for Home Grounds and Gardening

So, you've received your soil test results. Now what? Here's a brief guide to converting your recommendations into an appropriate fertilizer application.

Step 1: First, an understanding of the label on a fertilizer bag is needed. On most fertilizer bags, there are three numbers listed on the package in the format X-X-X. These are percentages of nitrogen (N), phosphorus (as P₂O₅), and potassium (as K₂O) within the bag. That means a bag of 10-10-10 contains 10% N, 10% P₂O₅ and 10% K₂O (or a ratio of 1:1:1). A fertilizer rated 30-0-4 has 30% N, 0% P₂O₅ and 4% K₂O.

Step 2: Next, select a fertilizer that contains the *approximate* ratio of N-P-K as is listed in your recommendations on the second and subsequent pages of your test results. These recommendations represent nutrients needed for one growing season. Here's an example:

Recommendations for Established Lawn

Limestone (Target pH of 6.5)	Nitrogen, N	Phosphorus, P ₂ O ₅	Potassium, K ₂ O
----- lbs / 1000 sq ft -----			
0	2-4	3	1

Notes: Nitrogen recommendations are given as a range (for example, 2-4 lbs. / 1000 sq. ft.). The amount of nitrogen you apply depends on the nature of your soil. If you have sandy soil, apply the higher amount. If your soil is loamy or contains a high percentage of organic matter, apply the lower amount. For the purpose of this exercise, we'll use 3 pounds N per 1,000 square feet. The fertilizer used should have an *approximate* ratio of 3:3:1. *It is not necessary to match your recommendations exactly.*

Step 3: Once you have selected your fertilizer blend, calculate how much fertilizer is needed using the following calculation:

$$\text{Lbs. N recommended} / \%N \text{ in the fertilizer blend} \times 100 = \text{lbs. fertilizer needed per unit area.}$$

Example: For a fertilizer blend of 24-25-4, you would need **12.5 pounds of fertilizer per 1,000 square feet** for an established lawn:

$$3 \text{ lbs. N} / 24 \times 100 = 12.5 \text{ lbs. per 1,000 square feet}$$

However, you would not be meeting your potassium needs with this fertilizer. Supply an additional 0.5 lbs. per 1,000 square feet could be by using a product called Potash (0-0-60). You would need 0.8 lbs. Potash per 1,000 square feet:

$$0.5 \text{ K}_2\text{O} / 60 \times 100 = 0.833 \text{ lbs. per 1,000 square feet}$$

Things to Remember:

- First, the recommendations from the UMass Soil and Plant Nutrient Testing Lab are given per 100 square feet or 1,000 square feet, depending on the crop code listed on your order form. This information is listed in the center of each recommendation.
- Second, you do not need to match the recommendations exactly. If you find a fertilizer blend that is close to the ratios recommended, it will be fine. If you cannot find a match at all, you can combine materials to meet your needs. Use the same calculation to figure out how much of each material to apply. (See page 2 for some common amendments, their ratings and some example calculations.)
- If you have questions, you may contact the lab at soiltest@umass.edu. We will be happy to assist you.

Ratings for Common Soil Amendments

<u>Nitrogen:</u>	<u>N-P-K</u>
Dried Blood or Blood Meal	12-0-0
Urea	45-0-0
<u>Phosphorus:</u>	
Bone Meal	4-12-0
Rock Phosphate	0-3-0
Triple Super Phosphate	0-45-0
<u>Potassium:</u>	
Potash	0-0-60
Greensand	0-0-0.1

Some example calculations:

Recommendations for Flowers, Roses, & Herbs

Limestone (Target pH of 6.5)	Nitrogen, N	Phosphorus, P2O5	Potassium, K2O
----- lbs / 100 sq ft -----			
0	.1-.2	0.25	0.25

- To supply Nitrogen, use 1 ²/₃ lbs. Dried Blood (12-0-0) per 100 square feet.

0.2 divided by 12, times 100 = 1.667

- To supply Phosphorus, use 2.1 lbs. Bone Meal (4-12-0) per 100 square feet.

0.25 divided by 12, times 100 = 2.08

- To supply Potassium, use 0.4 lbs. Potash (0-0-60) per 100 square feet.

0.25 divided by 60, times 100 = 0.42

Recommendations for Home Vegetable (mixed)

Limestone (Target pH of 6.5)	Nitrogen, N	Phosphorus, P2O5	Potassium, K2O
----- lbs / 100 sq ft -----			
0	.25-.3	0.25	0.5

- To supply Nitrogen, use 2 ¹/₂ lbs. Dried Blood (12-0-0) per 100 square feet.

0.3 divided by 12, times 100 = 2.5

- To supply Phosphorus, use 2.1 lbs. Bone Meal (4-12-0) per 100 square feet.

0.25 divided by 12, times 100 = 2.08

- To supply Potassium, use 0.8 lbs. Potash (0-0-60) per 100 square feet.

0.5 divided by 60, times 100 = 0.83