

Using Soil Tests to Determine How Much Fertilizer to Apply
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- 1. Have your soil tested and use results to guide fertilizer application.**
- 2. Choose a fertilizer that contains the nutrients you need in a proportion that is similar to what your soil test recommends. Fertilizers are sold in different formulations, but all will have an analysis on the bag – usually three numbers. The first number is the percent nitrogen, the second number is the percent phosphate (a form of phosphorous), and the third number is the percent potash (a form of potassium).**

There are many fertilizers that contain nitrogen, phosphate, and potash. Examples are 10-10-10, 19-19-19, 5-10-15, and 28-3-3.

Some fertilizers contain only one or two of these nutrients. Examples are 46-0-0 (contains only nitrogen), 0-46-0 (contains only phosphate), 18-46-0 (contains both nitrogen and phosphate), 0-0-60 (contains only potash)

Look for a fertilizer that has a ratio of nutrients similar to what you need. Use your best judgment when selecting a fertilizer – if your soil test report says no phosphorous is needed, then look for a fertilizer that has no phosphorous or only a small percentage. Many people have a tendency to over-apply fertilizer, but all you really need is what the soil test calls for.

If you are purchasing bulk fertilizer, the dealer will blend different types to get the appropriate amount of each nutrient and put it in a buggy for you to spread on your fields.

- 3. Determine the size of the area to be fertilized.**

For pastures and cropland, this is measured in acres. For gardens and lawns, this is measured in square feet. You can step off the area to get an approximate size. Or you can use a measuring wheel. There are apps available that can be downloaded to mobile phones – using these, you can walk the field and the app will calculate the area for you.

- 4. Calculate the amount of a specific fertilizer needed.**

Once you have reviewed your soil test results, chosen a fertilizer, and determined the size of the area to be fertilized, the next step is calculating how much fertilizer to apply. Nitrogen should always be the determining nutrient unless you are trying to supply a deficiency of phosphate or potash.

Following are several examples of fertilizer calculations for different situations, all using the same formula to calculate.

EXAMPLE 1:

Let's say you decide to use a 10-10-10 fertilizer on your lawn that measures 5,000 square feet. Soil test recommends applying 2 lbs of nitrogen, 1 to 2 lbs. of phosphate, and 2 lbs. of potash per 1,000 square feet. Use the following formula, and plug in your numbers to calculate.

Recommended Nitrogen (in lbs) x **Area of your lawn or garden (in square feet)** = **TOTAL FERTILIZER**
Nitrogen content of fertilizer **1,000 sq. ft. (because recommendation is** **NEEDED**
(expressed as decimal) **made on square foot basis)**

$$\frac{2 \text{ lbs}}{.10} \quad x \quad \frac{5,000 \text{ square feet}}{1,000 \text{ sq. feet}} \quad = \quad \frac{10,000}{100} \quad = \quad \mathbf{100 \text{ lbs}}$$

of 10-10-10 needed to supply recommended nitrogen for entire lawn.

Because this fertilizer also contains 10% phosphate and 10% potash, it will also supply 2 lbs per 1,000 square feet of both of these nutrients.

EXAMPLE 2:

Let's say you decide to use a 28-3-3 fertilizer on your lawn that measures 5,000 square feet. Soil test recommends applying 2 lbs of N per 1,000 square feet. No phosphate or potash is recommended.

Recommended Nitrogen (in lbs) x **Area of your lawn or garden (in square feet)** = **TOTAL FERTILIZER**
Nitrogen content of fertilizer **1,000 sq. ft. (because recommendation is** **NEEDED**
(expressed as decimal) **made on square foot basis)**

$$\frac{2 \text{ lbs}}{.28} \quad x \quad \frac{5,000 \text{ square feet}}{1,000 \text{ sq. feet}} \quad = \quad \frac{10,000}{280} \quad = \quad \mathbf{36 \text{ lbs}}$$

of 28-3-3 needed to supply recommended nitrogen for entire lawn.

Because this fertilizer also contains 3% phosphate and 3% potash, it will supply only a very small amount of those nutrients.

EXAMPLE 3:

Let's say you have a horse pasture that measures 4 acres. Your soil test recommends using 65 lbs of nitrogen, 60 lbs of phosphate, and 70 lbs of potash per acre. After reviewing soil test recommendations and available fertilizer products, you decide to use 19-19-19 fertilizer.

Recommended Nitrogen (in lbs) x **Area (in acres)** = **TOTAL FERTILIZER**
Nitrogen content of fertilizer **1 acre (because recommendation** **NEEDED**
(expressed as decimal) **is made on a per acre basis)**

$$\frac{65 \text{ lbs}}{.19} \quad x \quad \frac{4 \text{ acres}}{1 \text{ acre}} \quad = \quad \frac{260}{.19} \quad = \quad \mathbf{1,368 \text{ lbs}}$$

of 19-19-19 needed to supply recommended nitrogen for pasture.

Because this fertilizer also contains 19% phosphate and 19% potash, it will also supply adequate amounts of these nutrients to meet soil test recommendations.