

## DETERMINING HOW MUCH FERTILIZER TO APPLY

### 1. *How do I know what nutrients my soil needs?*

Take a soil sample and submit for testing – See publication **AGR-16 ‘Taking Soil Test Samples’** – find out how to take a representative soil sample and get the most accurate fertilizer recommendations.

### 2. *What nutrients and how much of each are needed?*

Follow Soil Test Recommendations!

### 3. *What is the analysis of the fertilizer you plan to use? (Ratio of N-P-K – always printed on the bag in this order)*

Examples of Complete Fertilizers (fertilizers that contain nitrogen, phosphate and potash)

10-10-10	19-19-19
5-10-15	28-3-3

Examples of Incomplete Fertilizers (fertilizers that do NOT contain all three nutrients)

34-0-0 is the most common example. It contains N (NITROGEN) only.  
0-46-0 contains P (PHOSPHATE) only  
0-0-60 contains K (POTASH) only

### 4. *What is the size of the area you want to fertilize?*

For pastures and crop land, this is measured in acres.

For gardens and lawns, this is measured in square feet.

## ***IMPORTANT CONSIDERATIONS!!***

Fertilizers are available in many different formulations—look for one that has a ratio of nutrients similar to what you need. Sometimes there is not a fertilizer analysis that will match your specific fertility needs. Do the best you can in matching a fertilizer to your specific needs.

Use good judgment when selecting a fertilizer. If your soil tested in the ‘HIGH to VERY HIGH’ range for a particular nutrient—then you probably don’t need any of that nutrient. Look for a fertilizer that

either has none or a very low percentage (less than 10%) of that nutrient. Many people have a tendency to over-apply fertilizer, but really all you need is what the soil test calls for.

**EXAMPLE 1:**

Let's say you have a horse pasture that measures 5 acres. Your soil test recommends using **100 lbs of actual N (NITROGEN); 110 lbs of P<sub>2</sub>O<sub>5</sub> (PHOSPHATE); and 75 lbs of K<sub>2</sub>O (POTASH).** After reviewing details of your soil test and the fertilizer products that are available, let's say you decide to use 19-19-19 fertilizer. Since you chose to use 19-19-19 fertilizer (a 1:1:1 ratio), you will actually be applying a little more K<sub>2</sub>O than your soil test calls for. This will not damage your pasture, but beware of over-applying any nutrient year after year!

***SO HOW MUCH OF THIS FERTILIZER DO I NEED?***

Once you know your soil test results and you have determined which fertilizer you will use, use the formula below to determine the amount to apply. Nitrogen should always be the determining nutrient unless you are trying to supply a deficiency of P<sub>2</sub>O<sub>5</sub> (phosphate) or K<sub>2</sub>O (potash).

$$\frac{\text{Recommended N (in lbs)}}{\text{N content of fertilizer (expressed as decimal)}} \times \text{Area (in acres)} = \frac{\text{Area (in acres)}}{1 \text{ acre (because recommendation was made on per acre basis!)}}$$

$$\frac{100 \text{ lbs}}{.19} \times \frac{5 \text{ acres}}{1 \text{ acre}} = \frac{500}{.19} = \mathbf{2,631 \text{ lbs}}$$

of 19-19-19 should be applied to cover entire 5 acres to get needed Nitrogen

**EXAMPLE 2:**

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 N per 1,000 square feet.

$$\frac{\text{Recommended N (in lbs)}}{\text{N content of fertilizer (expressed as decimal)}} \times \text{Area (in square feet)} = \frac{\text{Area (in square feet)}}{1,000 \text{ sq. ft. (because recommendation is made on square feet basis!)}}$$

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

of 10-10-10 should be applied to cover entire 5,000 square feet to get needed N.