



Fertilizer Guide

By Joel Symonds

The following 6 step procedure will guide you through the process of taking your soil report information to calculate the amount of fertilizer you need to apply to your garden or lawn soil.

1. Nutrient ratio

The first step involves looking at your soil test report to identify the requirements of your main nutrients- Nitrogen, Phosphorous, and Potassium (N-P-K).

Example nutrient application rate: N at 0.123 lbs/100ft², P at 0.369 lbs/100ft², & K at 0.246 lbs/100ft².

Before you can select an appropriate fertilizer, you will need to convert these N-P-K requirements into a basic ratio; do this by dividing each number by the lowest occurring value.

**Example: N: $0.123/0.123 = 1.00$, P: $0.369/0.123 = 3.00$, K: $0.246/0.123 = 2.00$
Based on the example soil test results, N-P-K are required in an approximate ratio of 1-3-2.**

2. Matching a fertilizer ratio

In order to fertilize your soil *exactly* as recommended in the report, you must find a supplier that sells single nutrient fertilizers (*i.e.* Urea: 46-0-0, Rock phosphate: 0-5-0, or Potassium sulphate: 0-0-50). Most often however, garden centres sell complete or mixed fertilizers to the public (*i.e.* fertilizer that contains a percentage of all three main nutrients, N-P-K). Finding a mixed fertilizer that perfectly matches your soils needs will rarely occur. In almost all cases you will have to choose from a few mixes, one that best matches your needs. As a result, some compromise may be necessary and you may not be able to apply one or more of the nutrients at the recommended rate. Since nitrogen is usually the most limited nutrient, you should always ensure N is applied at the appropriate rate.

**Example: your local garden centre stocks 20-7-3, 10-0-10, and 10-20-20.
The fertilizer ratio that best matches your required nutrient ratio (1-3-2) is the 10-20-20.**

3. Fertilizer rate

The numbers on the fertilizer bag (10-20-20) indicate that 10% of the bag's weight is nitrogen (N), 20% is phosphorous (P₂O₅), and 20% is potassium/potash (K₂O). To convert the required *nutrient* application rate into the required *fertilizer* application rate, divide the nutrient application rate by the percentage of nutrient in the fertilizer (be sure to use the decimal percent).

Example: $\frac{0.123 \text{ lbs/100ft}^2 \text{ of Nitrogen}}{0.10 \text{ (10\% N in fertilizer)}} = 1.23 \text{ lbs fertilizer/100ft}^2$

4. Area to be fertilized

Next you need to determine the square footage of your garden (in 100ft²).

Do this by measuring the length and width of your garden in feet and follow the formula:

$$\text{length (ft) x width (ft) = ft}^2$$

Example: 20 ft long x 10 ft wide = 200 ft²

5. Fertilizer application (by weight)

Next you will need to combine steps 3 and 4 to determine the total amount of fertilizer needed for your whole garden or lawn area. Do this by completing this equation:

$$\text{lbs fertilizer/100ft}^2 \quad \times \quad 100 \text{ ft}^2 \text{ of garden or lawn} \quad = \quad \text{lbs fertilizer for garden or lawn}$$

Example: $1.23 \text{ lbs fertilizer/100ft}^2 \times 2 \text{ (100) ft}^2 \text{ of garden or lawn} = 2.46 \text{ lbs of 10-20-20 fertilizer}$

6. Fertilizer application (by volume)

Since it is difficult for most home owners to weigh a fertilizer, applying by volume is usually preferred.

Sources state that 2 cups of dry fertilizer weigh approximately 1 lb. (this may vary by fertilizer type).

Convert your application rate to cups by following the formula below:

$$\text{lbs fertilizer for garden or lawn} \quad \times \quad 2 \text{ cups/lb} \quad = \quad \text{cups of fertilizer for garden or lawn}$$

Example: $2.46 \text{ lbs fertilizer} \times 2 \text{ cups/lb} = 4.92 \text{ or } 5 \text{ cups of 10-20-20 fertilizer}$

Final fertilizer value

****Therefore the final calculation has determined that you should apply 5 cups of a 10-20-20 fertilizer to your 200 ft² garden or lawn area.**