

CMG GardenNotes #233

Calculating Fertilizer Application Rates

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Steps to Calculating Fertilizer Application Rate

Example is for a 40-foot by 100-foot lawn area, using a 20-10-0 fertilizer

1. Calculating size of area to be fertilized

$$\text{__ ft. long} \quad \times \quad \text{__ ft. wide} \quad = \quad \text{___ square feet}$$

Example:

$$\mathbf{40} \text{ feet} \quad \times \quad \mathbf{100} \text{ feet} \quad = \quad \mathbf{4000} \text{ square feet}$$

2. Calculating fertilizer application rate

$$\frac{\text{__ lb. nutrient per ___ sq. ft.}}{\text{__ \% nutrient in fertilizer}} \quad = \quad \text{__ pounds fertilizer / ___ sq. ft.}$$

Example:

$$\frac{\mathbf{1} \text{ lb. nutrient per } \mathbf{1000} \text{ sq. ft.}}{\mathbf{20\%} \text{ nutrient in fertilizer } \text{(}.20\text{)}} \quad = \quad \mathbf{5} \text{ pounds. fertilizer / } \mathbf{1000} \text{ sq. ft.}$$

3. Calculating pounds of fertilizer to apply

$$\begin{array}{r}
 \text{lawn or garden} \\
 \text{area}
 \end{array}
 \times
 \begin{array}{r}
 \text{application} \\
 \text{rate}
 \end{array}
 =
 \begin{array}{r}
 \text{pound of fertilizer} \\
 \text{per garden or lawn}
 \end{array}$$

$$\begin{array}{r}
 \text{--- sq. ft.} \\
 \text{-----} \\
 \text{garden or lawn}
 \end{array}
 \times
 \begin{array}{r}
 \text{--- pounds fertilizer} \\
 \text{-----} \\
 \text{--- sq. ft.}
 \end{array}
 =
 \begin{array}{r}
 \text{--- pounds fertilizer} \\
 \text{-----} \\
 \text{garden or lawn}
 \end{array}$$

Example:

$$\begin{array}{r}
 \text{4000 sq. ft.} \\
 \text{-----} \\
 \text{lawn}
 \end{array}
 \times
 \begin{array}{r}
 \text{5 pounds fertilizer} \\
 \text{-----} \\
 \text{1000 sq. ft.}
 \end{array}
 =
 \begin{array}{r}
 \text{20 pounds fertilizer} \\
 \text{-----} \\
 \text{lawn}
 \end{array}$$

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Revised October 2014, Reviewed 2015



Table 1. Fertilizer Application Rate Table

Because soil test recommendations for any given soil do not exactly match a fertilizer, select a fertilizer that gives comparative amounts of nitrogen, phosphorus and potassium as recommended by the soil test. In fertilizer application, it is most important to match the nitrogen requirement and compromise some for the phosphorus and potassium. The amount of fertilizer to apply that will give the recommended amount of nitrogen can be obtained from the following table:

Amount of Fertilizer to Apply Based on Actual Nitrogen Recommendations

Nitrogen Rate:		<u>0.1 pound nitrogen Per 100 square feet</u>	<u>0.2 pound nitrogen. per 100 square feet</u>	<u>1 pound nitrogen per 1,000 square feet</u>
<u>Fertilizer Grade</u>		pounds fertilizer to apply per 100 square feet	pounds fertilizer to apply per 100 square feet	pounds. fertilizer to apply per 1 000 square feet
45-0-0 (urea)		0.2	0.4	2.2
37-3-3		0.3	0.5	2.7
36-6-6		0.3	0.6	2.8
33-0-0		0.3	0.6	3.0
32-4-4	32-3-10	0.3	0.6	3.1
30-4-4	30-0-10	0.3	0.7	3.3
28-3-3	28-4-6	0.4	0.7	3.6
27-7-7	27-3-3	0.4	0.7	3.7
25-5-5	25-3-12	0.4	0.8	4.0
24-8-16	24-0-15	0.4	0.8	4.2
22-4-4	22-6-3	0.5	0.9	4.5
21-0-0	21-3-12	0.5	1.0	4.8
20-20-20	20-4-8	0.5	1.0	5.0
19-19-19	19-11-12	0.5	1.0	5.3
18-6-12	18-3-6	0.6	1.1	5.6
16-8-8	16-4-8	0.6	1.3	6.3
15-15-15	15-5-5	0.7	1.3	6.7
13-3-9	13-25-12	0.8	1.5	7.7
12-12-12	12-4-4	0.8	1.7	8.3
10-10-10	10-20-10	1.0	2.0	10.0
10-5-5	10-10-20	1.0	2.0	10.0
6-12-12	6-2-0	1.7	3.3	16.7
5-10-10	5-10-5	2.0	4.0	20.0

Example: If the N (nitrogen) recommendation is for 0.1 lb. N/100 sq. ft. and the fertilizer grade selected has a ratio of 18-6-12 (column 1), apply 0.6 lb. of this fertilizer per 100 sq. ft.