



CMG GardenNotes #233

Calculating Fertilizer Application Rates

Outline: Steps to calculating fertilizer application rate, page 1
Fertilizer application rate table, page 3

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

__ ft. long X __ ft. wide = ____ square feet

Example:

40 feet X **100** feet = **4000** square feet

2. Calculating fertilizer application rate

__ lb. nutrient per ____ sq. ft.

__ % nutrient in fertilizer = __ pounds fertilizer / ____ sq. ft.

Example:

1 lb. nutrient per **1000** sq. ft.

20% nutrient in fertilizer
(.20) = **5** pounds. fertilizer / **1000** 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:

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

Authors: David Whiting (CSU Extension, retired), Adrian Card (CSU Extension) and Carl Wilson (CSU Extension, retired) Reviewed by Eric Hammond (CSU Extension)

- o Colorado Master Gardener *GardenNotes* are available online at www.cmg.colostate.edu.
- o Colorado Master Gardener training is made possible, in part, by a grant from the *Colorado Garden Show, Inc.*
- o Colorado State University, U.S. Department of Agriculture and Colorado counties cooperating.
- o Extension programs are available to all without discrimination.
- o No endorsement of products mentioned is intended nor is criticism implied of products not mentioned.
- o Copyright 2002-2018. Colorado State University Extension. All Rights Reserved. *CMG GardenNotes* may be reproduced, without change or additions, for nonprofit educational use.

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.