



rake. Apply up to 1/2 pound of nitrogen per 1,000 square feet for this application. This fertilizer should only contain nitrogen and no or minimal amounts of phosphorus, potassium and other nutrients.

If using ammonium sulfate (~20-0-0), apply two and one-half (2 1/2) pounds of this fertilizer per 1,000 square foot area of garden. If using blood meal (~15-1-1), use three and one-third (3 1/3) pounds of this product per 1,000 square foot area. Water the fertilized area to help move the fertilizer into the soil. Avoid applying dry fertilizer on foliage as burning can occur.

Occasionally during the growing season, i.e. every four to six weeks, apply a nitrogen fertilizer such as ammonium sulfate (20-0-0) or bloodmeal (15-1-1) at the rate of no more than 1/10th pound of nitrogen per 100 linear feet of row.

Calculate the amount of the fertilizer product needed by dividing the pounds of N needed by the percent of N in the product.

For example, if you need one-half pound of nitrogen for a given area and are using bloodmeal (15-1-1), divide .5 (= one-half pound) by .15 (the percent of N in the product). This tells you 3.33 pounds of bloodmeal are needed to apply one-half pound of nitrogen.

Once you have a soil test report on your garden area, use the following charts to determine the amount of nutrient you need to add.

## Soil Test Levels (ppm)

### Recommendations Based on a Soil Test Report

Soil Test Levels (ppm)	Percentage of Organic Matter Present		
	0 - 1 %	1.1 - 2.0 %	> 2.1 %
<b>NO<sub>3</sub>-N (nitrate nitrogen)<sup>1</sup></b>			
1 ppm = 0.08 lb. N/1000 sq. ft.	<b>Lbs. Nitrogen to add per 1000 sq. ft. area</b>		
0 - 9 parts per million (ppm)	5.5	4.4	3.3
10 - 19	4.4	3.3	2.1
20 - 29	3.3	2.1	1
30 - 39	2.1	1	0
40 - 49	1	0	0
>50	0	0	0

<b>P (phosphorus)<sup>2</sup></b> 1 ppm P = 0.1 lb. P <sub>2</sub> O <sub>5</sub> /1000 sq. ft.	Level of sufficiency	Lb. P <sub>2</sub> O <sub>5</sub> /1000 sq. ft.
0 - 3 ppm	very low	5
4 - 7	low	4
8 - 11	medium low	3
12 - 14	moderate	1
Greater than 14	sufficient	0

The phosphorus values are based on AB-DPTA extractable phosphorus – use the table below to determine the level of sufficiency if another extraction method was used.

Level of Sufficiency	AB-DTPA ppm	Bray-1 and Mehlich-II ppm	Mehlich-III ppm	Olsen ppm
Very low	0 - 3	0 - 5		0 - 3
Low	4 - 7	6 - 12	<10	4 - 9
Medium low	8 - 11	13 - 25	11 - 31	10 - 16
Medium	12 - 14	26 - 50	32 - 56	17 - 31
Sufficient	>14	>51	>56	>32

These are general phosphorus ranges for different extractants. The ranges may change according to the laboratory's location and how phosphorus response was calibrated with crop yield.

<b>K (potassium)<sup>3</sup></b> 1 ppm K = 0.06 lb. K <sub>2</sub> O/1000 sq. ft.	<b>Level of sufficiency</b>	<b>Lb. K<sub>2</sub>O/1000 sq. ft.</b>
0 - 60 ppm	very low	3
61 - 120	low	2
121 - 181	medium low	1
Greater than 181	sufficient	0

<b>Fe (iron)<sup>3</sup></b>	<b>Level of sufficiency<sup>4</sup></b>	<b>Lb. Fe chelate/1000 sq. ft.<sup>5</sup></b>
0 - 5.0 ppm	low	0.25 (or 10 lbs/acre)
6.0 - 10.0 <sup>6</sup>	moderate - high	0 for non-Fe sensitive crops 0.13 for Fe sensitive crops (or 5 lbs/acre)
Greater than 10 <sup>7</sup>	sufficient for all crops	0

<b>Zn (zinc)</b> 1 lb. Zn = 2.48 lb. ZnSO <sub>4</sub>	<b>Level of sufficiency<sup>8</sup></b>	<b>Lb. ZnSO<sub>4</sub>/1000 sq. ft. area</b>
0 - 0.9 ppm	low	0.6 pounds ZnSO <sub>4</sub> /1000 sq. ft.
1.0 - 1.5	moderate	0.3 pounds ZnSO <sub>4</sub> /1000 sq. ft.
>1.5	adequate	0

<sup>1</sup>Add nitrogen each year. It can be surface applied and watered in. Base the amount of N to apply on the organic content of the garden soil.

<sup>2</sup>Work phosphorus and potassium into the soil prior to planting.

<sup>3</sup>If liquid is used, apply according to label directions.

<sup>4</sup>Low levels of available iron may indicate over watering, poor soil preparation, excessive phosphorus levels, soil compaction or high pH.

<sup>5</sup>Incorporate iron chelate (Sequestrene 138Fe) into the soil if available.

<sup>6</sup>Fe-sensitive plants need higher levels of Fe in the soil.

<sup>7</sup>An over-application of iron can cause other micronutrient disorders.

<sup>8</sup>Based on *Zinc and Iron Deficiencies* by R.H. Follett and D.G. Westfall, Extension Fact Sheet 0.545

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