Soil Test and Fertilizer Application Worksheet Key

To determine how much fertilizer to use, start with the recommended rate of Nitrogen (N), in lbs. per acre, divided by percent N in fertilizer selected will give you the amount of fertilizer to apply to provide the recommended amount. The same calculation is used for Phosphorus and Potassium. Calculate the amount of fertilizer needed to achieve a recommended rate of a necessary element using the following formulas:

$$Recommended\ rate\ of\ N\frac{lbs}{ac} \div N\%\ in\ fertilizer = Amount\ of\ Fertilizer\ to\ apply\ \frac{lbs}{ac}$$

$$Recommended\ rate\ of\ P\frac{lbs}{ac} \div P\%\ in\ fertilizer = Amount\ of\ Fertilizer\ to\ apply\ \frac{lbs}{ac}$$

$$Recommended\ rate\ of\ K\frac{lbs}{ac} \div K\%\ in\ fertilizer = Amount\ of\ Fertilizer\ to\ apply\ \frac{lbs}{ac}$$

Example

Look at the Soil Test Report for *Gittin' There Farms*.

Nitrogen

Based on the soil test for Gittin' There Farms the recommended amount of Nitrogen for Kale is 175-225 lbs. /ac, or average of 200 lbs/ac N. If the Nitrogen fertilizer to be applied is ammonium nitrate (34-0-0), which is 34% Nitrogen, then to provide 200 lbs/ac N:

$$\text{Use the equation: } 200\ \frac{lbs}{ac}\ N \div 0.34 = \textbf{588}\ \frac{\textbf{lbs}}{\textbf{ac}}\ \textbf{\textit{Ammonium nitrate}}$$

Phosphorous

The recommended amount of Phosphorus (P_2O_5) for Gittin' There Farms is 20 lbs/ac. If the Phosphorus fertilizer material to be applied is Bone Meal (0-11-0), then to provide 20 lbs/ac P_2O_5:

$$20\ \frac{lbs}{ac}\ P_2O_5 \div 0.11 = \textbf{182}\ \frac{\textbf{lbs}}{\textbf{ac}}\ \textbf{\textit{Bone Meal}}$$

Potassium

The recommended amount of potassium (K_2O) for Gittin' There Farms is 150 lbs /ac. If the Potassium fertilizer material to be applied is Potassium Sulfate (0-0-51), then to provide 150 lbs /ac K_2O:

$$150\ \frac{lbs}{ac}\ K_2O \div 0.51 = \textbf{294}\ \frac{\textbf{lbs}}{\textbf{ac}}\ \textbf{\textit{Potash}}$$

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Questions

1) Use the Gittin' There Farms soil test to answer the following questions. If 200 lbs/ac of (10-10-10) is applied to achieve the required P_2O_5, how much N and K_2O will also be applied? How much more N and K_2O will be necessary to meet the recommendations (use the 175 lbs N/ac for nitrogen and 150 lbs K_2O for potassium)?

   a. To calculate how much N will be applied, multiply the amount of fertilizer by the N% of the fertilizer.

   200 lbs/ac Fertilizer x 0.10 = 20 lbs/ac N will be applied

   b. To calculate how much K_2O will be applied, multiply the amount of fertilizer by the K% of the fertilizer

   200 lbs/ac Fertilizer x 0.10 = 20 lbs/ac K_2O will be applied

   c. To calculate how much more N will be needed, take the recommended N rate of 175 lbs N/ac and subtract the amount of N that will be applied, which you just calculated in part a.

   200 lb/ac N -20 lbs/ac N = 180 lbs/ac N is still needed

   d. To calculate how much more K_2O will be needed, take the recommended K_2O (150 lbs K_2O/ac) and subtract the amount of K_2O that will be applied, which you just calculated in part b.

   150 lb/ac N – 20 lbs/ac N = 130 lbs/ac K_2O is still needed