

Fertilizer Laboratory:

Name: _____

What's in a Fertilizer Bag?

Purpose: To acquaint students with plant fertilizer nutrients and concepts.

Procedure: Fertilizer is material applied to growing media (soil) to supply the elements that the plant needs for optimum growth.

Commercial fertilizers have macronutrients that consist of three major nutrients: nitrogen, phosphorus and potassium. These nutrients are represented by the letters N, P and K respectively. Nitrogen keeps the plant dark green during the growth period. Phosphorus encourages flower and root development and increases disease resistance. Potassium ensures starch formation, plant disease resistance and plant hardiness.

The fertilizer analysis is the relationship of each macronutrient: N-P-K, to one another expressed as a percentage. For example, fertilizer analysis of 10-10-10 has 10% nitrogen, 10% phosphorus and 10% potassium.

1. Analyze a fertilizer bag label, Sample 1: _____ Name of Fertilizer: _____

a. List the plant food ingredients: _____

b. List the plant food macronutrients: _____

c. Record the percentage of the plant food macronutrients: _____

d. Describe the physical features of the plant food (what does it look like):

2. Analyze a fertilizer bag label, Sample 2: _____ Name of Fertilizer: _____

a. List the plant food ingredients: _____

b. List the plant food macronutrients: _____

c. Record the percentage of the plant food macronutrients: _____

d. Describe the physical features of the plant food (what does it look like):

3. Determine the pounds of each macronutrient of N-P-K in the following fertilizers:

Example: a 50 lb. bag of 10-10-10 fertilizer (lb. = pounds)

50 lb. x .10 = 5 lb. each of N-P-K (.10 is 10%)

Use this formula to determine the pounds of active ingredient in the fertilizers graphed below.

Pounds of Fertilizer	Fertilizer Analysis	Pounds of Nitrogen	Pounds of Phosphorus	Pounds of Potassium
50 lb.	5-10-5			
20 lb.	23-7-7			
100 lb.	0-30-0			
40 lb.	20-20-20			
75 lb.	30-0-12			
60 lb.	12-6-6			
85 lb.	4-12-6			

4. Name an organic fertilizer:

5. How many pounds of N are in 2 tons of manure (4.8% N)? Show work.