

Fertilizer Calculation Worksheet Background

The fertilizer elements are present in various compounds (e.g., urea, ammonium nitrate, phosphoric acid, calcium phosphate, potassium chloride). The composition by percentage of each of the 'big 3' elements present in the fertilizer must be stated on the bag and is referred to as the fertilizer guarantee, which expresses each of elemental N, phosphate, and potash as a percentage of the contents. For example, suppose your fertilizer has the numbers **10-5-8** (an unconventional fertilizer but useful as an example). This fertilizer contains **10%** (1st number) elemental nitrogen, **5%** (2nd number) available phosphate (P_2O_5) and **8%** (3rd number) water soluble potash (K_2O). The remainder of the material is comprised of the other elements in the compounds and filler. The filler may be ground limestone to offset the acid potential of the fertilizer, along with some inert material. The filler facilitates spreading of small amounts of nutrients over a large area.

In order to make sure that those values are understood, we will calculate the amount of elemental N, P and K in a bag of fertilizer.

Calculate the weight of the three elements (N, P, K) contained in a 100 pound bag of 10-5-8 fertilizer.

We begin with N, the easier calculation.

The 100 lb of fertilizer is 10% N.

1. Convert 10% to a decimal: $10 \div 100 = .1$
2. Compute the weight of N in the 100 lb bag of 10-5-8: $100 \times .1 = 10$ lbs.

This part of the worksheet should be completed and then turned. Please show your work and circle your answer.

1. A fertilizer has the analysis of 12-12-12. How many pounds of N, P, and K are there in the 3000 lbs. of fertilizer? How to show your work:

2. A fertilizer has the analysis of 10-25-30. How many pounds of N, P, and K are there in the 2000 lbs. of fertilizer?

3. A 1000 pounds of 18-48-0 contains how many pounds of N, P, and K?

4. There are five, 50 pound bags of fertilizer with the analysis 13-0-44. How many pounds of N, P, and K are in this fertilizer?

5. 3000 lbs. of fertilizer contains 750 lbs. of N, 240 lbs. of P, and 300 lbs. of K. What is the analysis of this fertilizer (in other words what is the N P K)?

6. If you need 20 lbs./acre of P, how many pounds of 16-16-16 will be needed to get 20 lbs/acre?

7. A 6 acre field is scheduled to have alfalfa planted. The PCA (Pest Control Advisor) says that we need to fertilize it at the time of planting at the rate of 200 pounds per acre. Ammonia nitrate will be used, how much of it will we need to apply per acre? How much for the 6 acres?

