**Brian Maddy, County Extension Agent**

**Those Pesky Numbers**

**A lot of folks get frustrated when they go to the local lawn and garden center to buy fertilizer and are confronted with those pesky numbers, 10-10-10 or 15-0-15 or 34-0-0. You may even have a University of Georgia soil test report in your hands that says you need to apply 20 pounds of 15-0-15.**

**Now, what does all this mean? In a nutshell, those three numbers stand for the three most important nutrients that a plant may need: Nitrogen, Phosphorus, and Potassium. N-P-K is the most common way of referencing those three numbers in that order. They are called macronutrients because they are needed in greater quantities than other nutrients which are called micronutrients. Micronutrients are just that, nutrients that are required in minute amounts such as iron, Fe, boron, B or Mn, manganese and others.**

**The actual number stands for the percentage of that nutrient in the bag. For instance, the number 10 stands for 10% nitrogen in the first number of 10-10-10 and likewise, 10% phosphorus and 10% potassium. If you add all three numbers together you would get 30% total. So, 30% of that bag of fertilizer is actually fertilizer. The rest is what they call inert material, clay carrier or other substance that the fertilizer may be attached to.**

**In a 50 pound bag of 10-10-10 there would be 15 actual pounds of fertilizer (50 x .30 = 15). The larger the number the less bags of fertilizer would be needed. For example, if your test report required that you apply 100 pounds of nitrogen per acre and you used a fertilizer containing 10% nitrogen it would take 1000 pounds of the 10% N fertilizer per acre. If you used a fertilizer containing 34% nitrogen, it would take 294 pounds of 34% nitrogen per acre, over 2/3’s less fertilizer. This is computed by dividing the percentage fertilizer into the amount needed. In our example the computations would look like this: 100 lbs. /.10 = 1000 lbs.; 100lbs./.34 = 294 lbs. You convert the fertilizer numbers to percentages, .10 for 10 and .34 for 34. This is the reason why we study math in school.**

**Before you go to the lawn and garden store, measure how many square feet are in your garden. Measure length times width. Most home recommendations are given in per 1000 square feet. For example if your garden is 6000 square feet and the UGA recommendation is to apply 20 lbs. of fertilizer per 1000 square feet, how many bags of fertilizer do you need to buy? First, divide 6000 by 1000 which gives you 6 (6000/1000 = 6). Then multiply 6 times 20 which is 120 (6 x 20 = 120). If the fertilizer is sold in 40 lbs. bags, divide 120 by 40 (120/40 = 3). So you now need to purchase (3) forty pound bags of fertilizer.**

**What usually happens when we go to the lawn and garden center to pick up our fertilizer is that the fertilizer number that the UGA soil test is recommends is not there and there are different numbers instead. For instance the soil test report says you need 6 pounds per 1000 square feet of 16-4-8 but the bags for sale are 8-8-8, 27-3-3 and 12-4-8. Which one do you pick? Do not flip a coin. You try to pick one that the numbers match up fairly close. In this instance the 12-4-8. How do determine how much of this 12-4-8 to put on? In the original recommendation it said to apply 6 pounds of 16-4-8. The most important number to work with is the first one, nitrogen. Take out your phone calculator multiply 6 by .16 (6 x .16 = .96 lbs.) This gives you the actual nitrogen needed, about 1 lb. Next divide 1 lb. by the new number 12 ( 1/.12 = 8.3 lbs.). You now need to apply approximately 8 lbs. of 12-4-8 per 1000 square feet.**

**In a homeowner situation, a good rule of thumb in applying nitrogen is to never apply more than 1 pound of nitrogen per 1000 square feet at any one application. Nitrogen is the most important nutrient and the easiest to misapply. Excess nitrogen will cause over-growth, increased water demand and plant susceptibility to insects and diseases. How can you calculate the maximum rate of nitrogen to apply? All you have to do is divide 100 by the first number on the fertilizer bag, nitrogen. For example, if the UGA soil test results say that you need to apply 10 lbs. of 10 - 0 – 15 per 1000 square feet, divide 100/10=10. If you multiply 10 by .10 (the percentage of nitrogen) the result is 1 lb. of nitrogen per 1000 square feet. If more nitrogen is necessary, split applications are usually recommended.**

**We did a lot of calculations but with the price of fertilizer climbing and the cost of misapplying fertilizer it’s wiser to do it right the first time. My father always said, that if a job is worth doing, it’s worth doing right.**

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