Understanding Fertilizer Numbers: N-P-K

Trying to determine what fertilizer to use can be an overwhelming task. Which formulation do you need for your particular situation? Should you get the bag of 18-9-9 or the bag of 5-10-5?

And what the heck do those numbers mean anyway?

It may seem intimidating, but you can figure it out, according to Bruce Schmidt NDSU Ext Agent Burleigh County. When selecting a fertilizer – whether it’s for annuals, vegetable gardens, trees and shrubs, perennials or lawns – the first question to answer is, “What analysis do I need?” The analysis is actually the three large numbers you see on every fertilizer label – put there by law – such as 10-20-10 or 10-10-10 or 18-46-0.

These numbers represent the percentage (by weight) of the three major nutrients required for healthy plant growth, always in the same order: nitrogen-phosphorus-potassium (N-P-K). Each of these nutrients affects plant growth differently, and the formulation you select should depend on your specific gardening needs.

The first number is the percentage of nitrogen in the bag. So a bag of 24-8-4 has 24 percent total nitrogen. Nitrogen provides plants with the ability to produce more chlorophyll, which in turn allows plants to grow quickly. With each additional nitrogen application, plants will grow taller and develop a darker green color. So if you want a dark green lawn, use a lawn fertilizer that’s high in nitrogen – but then expect to mow more often.

The second number in the analysis is the percentage of phosphorus in the mix. For example, a bag of 24-8-4 would contain 8 percent phosphorus. Phosphorous aids in root development and increases flowering ability and Bloom size. High-phosphorous fertilizer should be used when plants are being established in your garden – when sowing a new lawn or planting a new tree, for instance.

The third number represents the percentage of potassium found in the product. A bag of 24-8-4 has 4 percent potassium in the mix. Potassium has many functions: It guards the plant against diseases and aids in drought protection and cold tolerance. It also serves a role in improving root development and helps in the process of photosynthesis. You might consider using a high-potassium fertilizer at the start of winter and summer to protect crops from temperature extremes or when insects and disease have caused damage to your plants.

Now, if you’re a left-brainer, you’ve probably noticed that the sum of the percentages doesn’t equal 100 percent. That’s because there are other nutrients and filler product in fertilizer mixtures. This filler helps to apply the nutrients evenly over an area. So no need to double-check the math.

For more information, contact Bruce Schmidt, Ag & Natural Resources, 701-221-6865.
https://www.ag.ndsu.edu/burleighcountyextension/