

Wheat Profitability: Test before you invest!

Current high fertilizer prices are causing many people to ponder whether or not to fertilize. This is especially true with phosphorus (P) since the potential benefit of P fertilization is not as obvious as nitrogen (N). Rather than making a knee-jerk reaction to high fertilizer prices it is wise to consider the costs and benefits of fertilization. Considering the current commodity prices, most agronomists think it is generally profitable to fertilize crops even at today's high fertilizer costs. However, planning fertilization without soil test data is largely guesswork. Without a soil fertility test one does not know what the nutrient needs are and how much fertilizer is required to reach a certain yield goal. It is possible to under or over apply fertilizer. Because of this, it is always a good practice to test your soil before you invest in fertilization.

Both surface and subsurface soil samples will provide you with the available nitrogen in the soil. Therefore, you can decide how much N to apply at planting. Creating a N-rich strip will help guide you on the amount of top dress N needed, but it will not help with pre-plant N decisions. The strategy of utilizing N-rich strips has been proven to be much more precise than the traditional yield-goal based N recommendation. So, consider the options of putting out an N-rich strip and utilizing Green-Seeker technology in addition to soil testing. For more information on N-rich strips, take a look at OSU Current Report #2225 *Applying Your Nitrogen Rich and RAMP Calibration Strips*.

The phosphorus (P) soil test performed by the OSU soil testing lab estimates the amount of available soil P. The estimated availability is reported as a percent sufficiency in the soil. A soil test with 40% sufficiency means 40 percent of plant P needs will be supplied by the soil. The remainder must be provided by adding fertilizer. If no P is added, the yield would only be 40 percent of the potential yield (assuming all other nutrients are adequate). Much field calibration work has been done to correctly interpret this type of soil test in Oklahoma.

Based on P sufficiency of the soil and the amount of P recommended, one can roughly calculate if applying the recommended amount of P is economical. For example, let's assume a field has a soil test P of 40, which is 90% sufficient for small grains. The soil test recommends 20 pounds of P_2O_5 /acre costing about \$20. However, if no P is applied, you may only harvest 90% of the potential yield, which could be 5 bushels if the yield potential is 50 bu./acre/ Five bushels of wheat would likely return \$35 or more which would provide a \$15 return to the P investment. Now you can see if it's economical to fertilize.

The bottom line is that it has never been more important or more affordable to soil test, especially at current grain and fertilizer prices. Don't forget that it is also important to address soil acidity problems by liming if your soil test indicates a low pH. Nutrient use efficiency is generally low when soil pH is out of range.