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A DISTANT EARLY WARNING LINE FOR POTASSIUM

Those familiar with history may remember the importance of the Distant Early Warning (DEW) Line. This line is an array of radar stations that detect incoming enemy aircraft before they reach the mainland. The purpose of this system is to provide advanced warning, creating a window of opportunity to plan an appropriate response before things get out of hand. It is a concept that applies to more than a nation's defense system. It applies to K management too. How, you may ask? Read on.

Potassium soil tests have a nagging propensity to be variable. Unlike P and pH, K soil tests are highly influenced by moisture conditions during sampling in the field as well as sample preparation in the lab. There are many known causes for this variability, such as soil mineralogy, wetting and drying cycles, and timing of K release from crop residues. The upshot of this variability is that changes in K fertility over time can be hard to discern from the background noise of the test itself. Potassium soil tests are still a good diagnostic tool, but they often require some additional information to be interpreted properly.

So what can be done to augment soil tests? The answer: applying a field-length strip, or "line" of K at a rate that is adequate for crop growth. Not sure what this rate should be? If you don't have a soil test to guide your application rate, consider applying at least 50 to 75 lb K₂O/A, depending on local experience. Make this application before each crop and apply K in the same strip each time. This will create a reference area where K fertility is likely adequate. If you do have a soil test from the strip, follow the recommended guidelines for application rates based on that test. The objective is to create a strip where you are fairly confident that the soil supply of K is adequate for crop growth and development. If you can't put your fingers on K crop removal rates, visit <http://nanc.ipni.net/articles/NANC0005-EN>.

You now have a DEW Line for K. Comparing crop growth and development in this strip to adjacent areas of the field will give you early indications of K malnutrition. If you notice that the crop in the DEW Line develops more rapidly, matures earlier, or has lower disease pressure or just looks healthier, consider such observations to be early warning signals on the radar and begin strategizing. Soil tests, tissue tests, and yields in the strip compared to those outside the strip will help assess the situation. University Extension recommendations provide scientifically founded approaches for rectifying K nutritional problems and getting crop production and health back on track. Use them as initial guidance, making any needed changes with knowledge of local conditions.

The K soil test isn't perfect, but it's still a good diagnostic tool. Adding a DEW Line for K will provide additional information that will help interpret soil test information. It serves as an early warning of K malnutrition, allowing you to plan a solid fertilization strategy before things get out of hand.

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Abbreviations: K = potassium.