K-STATE Research and Extension | Meadowlark District

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Evaluating Biologicals

Two weeks ago, the challenge of defining and categorizing biologicals was our focus. This week, we'll look at how to evaluate products courtesy of some tips from University of Illinois Research Assistant Professor, Conner Sible.

Sible's first tip: Ensure the basics are covered! There's no replacement for good agronomy. Poor fertility isn't going to be compensated for by addition of a biological. If they perform as hoped, they *might* help with some nutrient use efficiencies, but biologicals alone aren't likely to overcome poor agronomic practices. Start with a good foundation.

Tip two: Know if your product is alive or dead. That starts with knowing what your product is made up of, whether it's alive or dead, and if alive, the requirements for keeping it there so it can do its job. Product efficacy could be compromised if the rules for keeping them viable aren't followed during the entirety of the process: delivery to application.

Next: Know what biological you are working with. Get specific, asking questions like how it differs from others, even within a similar biological category. For example, beneficial microbes are often considered 'living' organisms, but not all are the same. Some are bacteria Others are microbes or fungi. They don't all work the same and have to be treated accordingly.

Nitrogen is the focus of tip four: Today's N-Fixing inoculants are a third source of N, helping to supplement when the soil or the supplied N falls short. Having another opportunity to supply N to the crop is a good thing, but if too much dependence is placed on the biological and N rates are sacrificed in the process, there's a good chance yield will be hurt.

Phosphorous is the tip five focus: Biologicals that influence P availability need proper placement near the root. When P is released, there's a chance it could be bound back to soil. Putting the biological as close to the root system as possible helps increase the chance of uptake.

What about residue management products? It's the focus of tip six: Biologicals for residue management need time to work into the residues. University of Illinois work found that application of products on a cloudy day, or overnight with dew, gave microbes a better chance to absorb into residue or get into the soil. It's a little thing, but one that understanding could make the difference between a product working – or not.

Finally: Stress mitigating biostimulant applications need to be proactive, not reactive. Like tip one, tip seven also encourages planning ahead. According to Sible, the crop needs time to build defense to be able to tolerate stress when it does arrive, requiring sound agronomic knowledge and decision making to help biologicals work as effectively as possible.

Biologicals aren't likely to be a fix all – but they may be worth a small test to see if they can work for you. These tips can help you maximize the potential for a response to see if they really can be a larger part of your agronomic approach.