KANSAS STATE UNIVERSITY | Extension
Meadowlark District

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**In-Field Evaluations**

Harvest: that awesome time of year when we get to evaluate all our 'inputs' to produce a crop by seeing the outcome in hard numbers (yield). If you tried a new product or practice this season, it's an opportunity to see in field performance. As you evaluate, do so with some critical thinking about why you may – or may not - be seeing a response. Often, that means understanding variability and the role it plays in the results.

Variability often comes in one of two categories: random field variability and between-treatment variability. Field variability we're familiar with. Soil types, previous use, etc… all combine to make a farm that *seems* uniform exhibit greater variability than we might think.

Between-treatment variability is what we're evaluating: is there a difference in yield between the product or practice applied. Together, they contribute to potential yield 'differences' and are what we have to 'sort through' to see if the difference is significant or not.

To sort through the in-field variability, look at layout. Did it cross previous management zones or soil types? Does strip one exhibit the same level of variability of strip two? Looking at previous yield history is a great first place to start looking for those variable areas. Keep in mind: the best results will come from replicated plots. Single strip layouts are more difficult to get significant results from and unless the farm is very consistent, comparing one side of the farm to the other can be difficult at best.

Look next at within the experiment results variability. If you see a big bump in one strip, but not others or differences in one part of the field but not the majority of the farm, is it consistent enough to consider the differences significant? Consider variability in non-treatment areas as well. The greater the variability across that strip often means greater yield bumps are needed from the treatment strips before they would be considered (statistically) significant.

Finally, try it again. Particularly in cases where a farm was split or the comparison was a single side by side comparison, it's good to look at multiple years or multiple farms. A 2023 summary of trials with an input product showed the same result 96 percent of the time. That's likely enough to help guide most decisions, but it doesn't hurt to try it again. There might be specific farms or soil types where a response *is* seen or reasons the product *didn't* work that need to be further evaluated. Giving a product a second try is seldom a bad idea.