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We have reached the time of year when the harvest is finally complete and we reap its rewards. This is also the time of year when many growers make input decisions to take advantage of prepay discounts typically offered at this time. These discounts may include crop protection, seed, and overall plant fertility.

We also usually start to see many new product introductions for the next growing season. I want growers to begin thinking about how products performed this year and whether they are useful for their operations, or if further evaluation is needed. For this month's newsletter, I will focus on how growers can make the best decisions for their operations.

This is the time when growers are bombarded with advertisements for new products for the next growing season. The obvious advertising campaign will feature a yield gain of X bushels per acre. However, this is a bit of a loaded statement that needs to be broken down to understand further if implementing this new product into your operation, and whether you can expect similar results next harvest. Below are the KEY questions that all growers should ask before committing to a new product in their operation.

1. Where were the product evaluations conducted?
If the product evaluations were conducted across several states, growing environments may not be comparable to local environments. Or were the evaluations conducted at the national level and then compiled?
2. If evaluations were conducted nationally, ask what data is generated locally to gain deeper insights into local performance.
3. Were the product evaluations conducted to similar practices currently being utilized? This might include the following.
 - a. Row Spacing
 - b. Planting Date
 - c. Soil Fertility Levels
4. Who conducted the evaluations?
 - a. Basic manufacture of products, such as seed companies.

Agronomist Notebook

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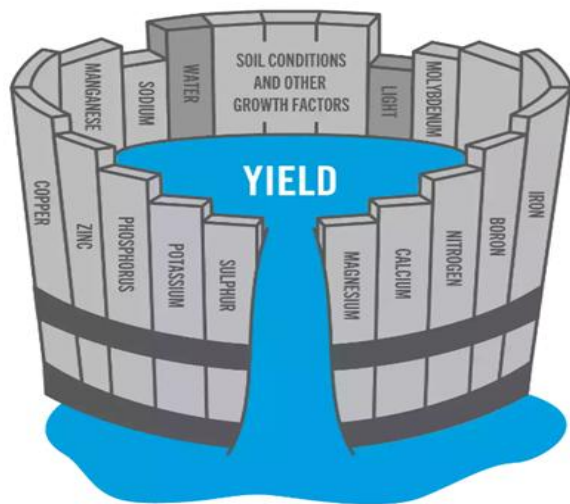


- b. Third party, an independent research group.
 - c. Universities, Land-Grant Universities.
5. How were comparisons generated?
 - a. Replicated small plots.
 - b. Field scale testing.
 - i. Replicated Test Strips
 - ii. Treated vs. Untreated Blocks
6. Product performance statistics will indicate the likelihood of repeatability of product performance. An example is a high CV value, which indicates low confidence in the repeatability of product performance. Another good indication of product performance will be a basic piano graph. Piano graphs will show all the wins and losses of a particular product.
7. Efficacy charts are another great resource to consider, especially if considering crop protection products that will control a particular pest. Land-Grant Universities usually generate these. The Crop Protection Network generates one set of efficacy charts I often use to select fungicide active ingredients effective for individual plant pathogen control.

An example of how one might put these questions to work is when considering a new biological that claims fungicidal properties. This concept is relatively new, as biologics are not typically thought of as having anti-pathology type plant benefits. Starting with the questions above.

 1. If product evaluations were not conducted locally, it isn't easy to assume similar results could be expected simply because the ultimate trump card of weather may not be like local growing environments in terms of rainfall and temperature.
 2. Typically, when national data is represented, this is a broad stroke and may not represent local environments or indicate high confidence in product performance.

3. For this product, known plant disease information and testing of this product will be crucial for determining if there will be an advantage to utilizing a biological fungicide. For example, if other limiting crop factors are not addressed first — such as crop fertility issues — addressing them before using a biological fungicide will be crucial. Please don't forget Liebig's Law of the



LIEBIG'S BARREL HELPS US TO UNDERSTAND:

- Identifying the limiting factors of your soil is an essential step in improving yield potential.
- Increasing the amount of plentiful nutrients will not increase potential plant growth.
- Increasing the amount of the most limited nutrient can you improve the potential plant growth.
- Protect the plentiful nutrients so they don't become limiting factors.

Minimum.

https://kochagronomicservices.com/knowledge-center/Liebig%E2%80%99s-Barrel-and-Limiting-Factors-of-Nutrients_2598.aspx

4. Who generated the data? It is essential to know if multiple research organizations have conducted similar product research. This indicates that the data is biased if only the basic manufacturer has undertaken the research. However, the data will likely be valid if third parties or universities have conducted similar research. Peer-reviewed research often provides the best data, so most human medical research is Peer-reviewed.
5. Understanding how the data was generated will often give greater confidence in a product.

Small, replicated plots are great for screening a product's performance across geographies. However, small plots don't always capture field variability. Field-scale testing is needed to understand if it will be repeatable at the farm level, but it is limited to understanding microenvironments. Field testing that includes replicated plots and whole-field testing may provide the best insights, rather than relying on a single testing method.

6. A good representation of statistical analysis will demonstrate confidence in product performance. That includes multiple years of testing and locations, often providing the best statistics for repeatability. If a product entered the marketplace with only 1 year's worth of data from a single location, I would not personally recommend it.

In conclusion, understanding how data is generated will provide insights into how well a product might perform. It is also known as metadata or "data about the data."

At Sunrise FS, we compile a book containing all comparisons and evaluations of the products we test locally. However, with limited resources and often only a limited number of product tests, we cannot provide statistics; we can only say whether a product performed and whether it provided a positive return on investment at current grain marketing prices. I view Sunrise FS's On-Farm Trial book of yield trial results as the last validation of whether Sunrise FS should represent a product. If readers of this newsletter have any questions or comments about the topics discussed, don't hesitate to contact me.

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