



## ***Aligning Your Ag Business: Grower Recommendations using Data Driven Technology***

Challenges are facing the agronomy industry. It is critical to evaluate, rethink and align your business to meet those challenges. Significant business may be lost if appropriate changes are not made.

“How do we structure and position our agronomy business model, sales model and sales positions to align with needs and expectations of growers who are expanding acres, while continuing to maintain strong relationships with our current customers who are primarily, traditional growers?”

Kevin Eye, Senior Ag Consultant at intrAtrain, recently interviewed Mike Vande Logt, our Expert for the “Grower Recommendations” based on “Data-Driven Technology” article.

- Recently retired, Mike was a SVP and COO of Land O’Lakes and led the WinField United crop input division
- He designed several initiatives to help Ag Retailers develop the crop production expertise strategy through data driven insights that they can offer to their growers.
- While at WinField United, Mike had the vision and passion of what Digital Ag Technology can do to help ag retailers help their growers make better decision-making on each of their fields.

There are Five Key Actions that we believe are necessary to minimize erosion of sales and profits and to position your agronomy businesses for growth and profitability in the future. In the previous articles in this series, we explored Action #1, Why it is important to align the agronomy sales function with target grower segments to better serve each segment. Action #2 is knowing what progressive growers want from their agronomy supplier and their needs and expectations of the agronomy & seed sales function. Action #3 - Improving sales alignment by developing an agronomy sales business plan and adapting your sales model, based on a deep understanding of what the grower segments need and want from their agronomist and agronomy supplier.

Action #4, “Grower Recommendations” based on “Data-Driven Technology”, is important to progressive growers. Growers have so much more to deal with these days, from markets to regulations, and having to spend more time figuring out how to make a profit. With that, they need or demand better data-driven digital technology insights to help them make better decisions on each of their fields.

*Ag Technology certainly has come a long way in recent years since grid soil sampling, variable rate crop nutrient application and variable planting population. Today, how is Ag Technology helping growers make better crop input decisions?*

I think currently, crop growth models offer the most potential. The corn model is the furthest along and still being modified and improved. The wheat model shows promise, but the soybean model has shown to be the most difficult to



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get accurate. There are three critical decisions data and models can assist the grower in making: First is hybrid selection; second is about getting your nitrogen program right, and third one is about the use of fungicide. Here is a little more detail about each of these.

Hybrid selection in corn is the most impactful, especially with seed becoming the most expensive input in corn production but requires a good data source to get the characterization data right. Winfield Answer Plots utilizes 150 locations and standardized replicated trials to get the response to soil type, response plant population, response to nitrogen, response to rotation, response to nitrogen management, and response to fungicide right. The response scores are what make WinField unique! Getting the soil type and the previous crop right for the genetics is important because you can't change soil type and you can't change previous crop, your stuck with what you have!

Once you get the right genetics for the soil type and previous crop, you can start to do the adjustments that drive profitability, like making sure plant population is right for that field's soil type and management strategy, and making sure the nitrogen management plan is right for that field's soil type and that hybrid with the rainfall received that year. It starts with the data. Having the nitrogen program correct is more tricky than it sounds. You have-to-have the right nitrogen program for that hybrid in that current year's weather. Does that hybrid require a lot of nitrogen or is it tolerant to low nitrogen?

The second piece is that the nitrogen level in a particular field isn't static; meaning that the weather is going to influence it. If you get heavy rainfall, you risk losing your nitrogen to de-nitrification. So, having a model that can be calibrated to the growing season that you are having, temperature, rainfall, etc. is important to getting the nitrogen program right.

The third piece is about fungicides. Does that hybrid respond to a fungicide? What are the particular diseases that the hybrid is sensitive to; do you have a good disease model telling you what this current growing season is going to mean in terms of which diseases will be the major problems. And finally, given the disease, what is the best fungicide to use. This is the data that only WinField has!

*I have had growers tell me they have some great in-season aerial maps of their fields, but now what? How and why should they use these maps?*

I think you need to have a realistic vision of what an aerial image is going to do for you. And I think it is about identifying the amount of infield variance that you are seeing in that particular field in that particular year. It important to identify the source of variance and where is it coming from. And then decide what your approach to solving the issue is going to be. If you are using the Winfield suite of tools, they can tell you how much variance you are seeing. If the amount of variance is 95% to 105%, you have a uniform field for that year, and it is not worth your time to address it. If you start to see the amount of in-field variance going from 90% to 110%, and you are seeing 20% variance, then you want to start identifying what is the cause. And in most cases, the cause is associated with soil type, and how that soil type is reacting to the amount of rainfall that you are having that year. If it is a dry year, fields in sandier soils start to show the impact of drought. But in the wet years, you start to see the impact of too much water on the heavier soil types and in the lower areas. These could then be target areas to get tiling!



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*Since you have retired, you have told me that you are spending more time managing your own fields using today's Ag Technology Tools. Through a grower's lens, what are some of your biggest learnings and how has that helped your yields?*

I think the first thing you have to do is identify what are the problems in the area where I farm and how do I use technology and information to solve the problems that are indigenous to the my area. My farm is in SE Kansas. We have two issues in SE Kansas: first one is it gets very hot during the growing season; many times the heat is associated with drought; the second issue that we have in Southeast Kansas, is that our Springs tend to be very high in rainfall. We have a lot of potential for denitrification and getting our corn adequate nitrogen for the entire growing season can be a problem.

Let's talk about how we use the data. When it gets hot, having a lower plant population is an advantage. We only plant at 26,000 plants per acre in case we get that hot dry year. It is important that when we are selecting the hybrid, we look at the characterization data, that we select for a hybrid that has very large Ear-Flex, because we keep our densities down.

The second thing we look for in our hybrid characteristics is just in case we get a perfect growing season; we look for hybrids that have a high response to nitrogen. If we get fortunate enough to have good looking corn just prior to the "bolt", that short period of rapid stalk elongation, then we can go back and get some of the yield that we have lost having a lower density, by driving ear size with a healthy in-season nitrogen application. We only do that if we have the right growing season and the right hybrid that can respond to incremental nitrogen by driving ear size.

The second problem is we have the heavy spring rains and frequently lose nitrogen from denitrification, sometimes leeching. Field forecasting tools are a real important part of how we manage our cornfields. It looks at the soil type and the amount of rainfall on a pixel by pixel basis across that field. If we receive a lot of rainfall, and especially in the spots of the field where the soil type get heavy, and it looks like we are going to have denitrification, the field forecasting tool responds by making a higher recommendation for what we do in-season.

Field Forecasting Tool also, and even more importantly than telling us how many pounds to put on, tells us **when** to apply the nitrogen. That has been the big learning for us, is this getting the growth stage right for the pounds you are applying, and getting timing right so you are getting the most efficient use of the nitrogen you are applying. And, the big deal to us and why the timing is so important, is the bushels you get by getting timing right, are absolutely free! The extra bushels from getting timing right have no incremental expense. Those free bushels pay for the equipment that it takes to apply the nitrogen at the right time.

And then the last piece, is something that we are learning about corn everywhere it is grown. Generally, the best hybrids on our farm are those without a lot of disease tolerance genes. The fungicide trials at Winfield have been really telling us that for years now! In the years when we are getting high yields with no disease pressure, generally having fewer disease tolerant genes makes for higher yielding corn. It is the same thing we are seeing in soybeans with phytophthora root-rot and cyst resistant genes. You load it up with a lot of disease resistance genes, and then in the high yield year, those genetics lose out on the high end. What we are seeing in corn, is when we strip the disease tolerant genes out,



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and you don't get disease, you get the highest yields. But then when you get the disease years, you **must** come in and use fungicide.

It is not just as simple as putting on the fungicide. We are learning that the different fungicides work better on different diseases. For example: in our area, Southern Rust is the biggest disease problem that you have. If you have model that is predicting a Southern Rust year, we have learned from the Answer Plot trial data that Trivapro® is the best fungicide for Southern Rust. But if you don't have Southern Rust, but have Gray Leaf Spot (GLS), then any of the Strobilurin fungicides will do. You have to have a model that not only predicts that you are doing to have disease, but us able to predict what particular disease you will have given the planting date and weather conditions for that year. Then, you have to have the right answer from the plot data set on the hybrid that I have planted in our field: is it sensitive to that disease, what fungicide works best on that disease. So, it is a complex issue requiring a complex set of data.

If you hybrid, nitrogen management and fungicide right, those bushels are the difference driving field by field profitability, and your ability to compete in the area where you farm!

*Based on your many years of experience in Ag and your knowledge of the Ag Technology Tools we have today, what is your advice to CEO's and Managers of Ag retail businesses, on how they should be meeting the needs of their growers?*

As I mentioned, it is all about return on investment right now. Especially at the low price of corn. And the farmers that make the right return on investment decisions, and get the extra bushels, when they are available, but don't waste their money when they are not.

To be able to do that, you have to be making the right investments.

- The first one is, you have to invest in the right technologies, the crop growth models, the hybrid recommendation information, the plant disease models, the satellite technology.
- And then at the retailer, you have to invest in technology that assists in execution. The right application equipment. The right satellite imagery variable rate technology.
- The second thing is you have to have trained employees that can execute. You have to be willing to invest in people that are smart enough and train them. You can't have smart people, and then not train them because you do not capitalize on the investment you made in your employees.
- And, if you don't have the employees, you cannot get a return on the investments that you made in the technologies.
- People, training, technologies is kind of the triangle that really make that work.

*As we look to the future in Ag Technology, where do you see it going in the next 3-5 years?*

- The corn model has really come alive. Getting the genetics right, getting the nitrogen right, getting the fungicide right. Those seem to be the critical decisions in making the corn model work. On corn, it is really about execution. The model data is showing that we are hitting about 85 to 90 percent accuracy. And given that when you make the decision you can't predict what the weather will be after you made the decision, 85% is as good as you are going to get.



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- The wheat model, what we have learned so far, it is more of a nitrogen and disease thing. Execution is where the retailers need to emphasize their efforts.
- In soybeans, we just have not figured it out yet. There are still more pieces of the puzzle we have to know, to get the model to work. That particular piece is materializing right in front of us, right now.

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