Driving Decisions Newsletter

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Find us at Crop Production Show - Saskatoon January 9th – 11th

Hall C – Booth 54-55

Crop Intelligence Summit Review

The 2023 season marked our 10th year of installing soil moisture probes, and next season will be the 8th year of Crop Intelligence. We held the Annual Crop Intelligence Summit in Regina on December 13th and 14th. This year, content focused on action from Crop Intelligence data and featured speakers that are applying the data on the farm, using the technology in research, or are laying the foundation of insights to come. The event also had its first ever banquet with special guests Saskatchewan Minister of Agriculture, David Marit and Regina Mayor, Sandra Masters.

Understanding and Measuring Crop Water Use Efficiency – Phillip Harder Ph.D.

Water use efficiency (WUE), the relationship between crop productivity and water use, is a key metric to describe the impact of environmental conditions on agricultural production on the Canadian prairies. Despite the importance of WUE, especially in water limited situations, there are significant challenges in defining and accurately measuring it. During this session Philip described two different definitions of WUE. The first, Agronomic Water Use Efficiency, is calculated as yield over evapotranspiration. Physiologic water use efficiency was the second definition of WUE and measures carbon assimilation over evapotranspiration. Throughout Philips presentation he helped the audience understand that both these measurements of WUE have their place in agriculture but are ultimately very complex.

Water: Hate It or Love It, You Decide – Mike Ferguson

Mike wears many hats in the agriculture industry – farmer, student, marketing consultant, trial coordinator, and Crop Intelligence customer. Mike shared how he integrates Crop Intelligence with other agronomic platforms and insights to optimize inputs and manage risk around crop rotations, markets, variable rate fertilizer, and even value-added opportunities. His call to action for the crowd was to think about how small and large agronomic decisions made on the farm impact profit margins and how the timeline of the farm or individuals on the farm also influences decisions. More

importantly, he challenged us to become students of our farms and to take the time to observe, discover, and analyze.

Crop Nutrition Impact on Soil Moisture Uptake – Delaine Mandziak

Water drives crop nutrition. Do you ever wonder if your fertilizer applications are having an impact? Over the last 3 growing seasons, Yara has been using Crop Intelligence to measure the positive effects of a complete nutrition package on crop water use. Trial work at the Yara Incubator farm in Langham, SK showed enhanced root development and activity with complete nutrition provided at seed timing as well as foliar fertility. Delaine showcased these results during her presentation at Summit and further proved that no matter what the environmental conditions are, having a superior root structure will improve water use and yield.

Crop Intelligence: Back to Basics – Andrea De Roo

Over 5500 site years of data has built Crop Intelligence into what it is today. It's exciting to see where we are and where we're going, but it's important to understand the foundation that drives the data. In this session, Andrea covered how soil texture and rainfall models Water Driven Yield Potential (WDYP) and how important it is to have the system set right. A probe in a loam soil set to a clay discredits a significant amount of crop available water. The session concluded with a review of interpreting soil moisture graphs, as well as common root signatures, such as, saturation, leaching, and dry topsoil, that may impact decisions.

There is Always Next Year – Opportunities for Capturing Water – Mike Palmier

Crop Intelligence models WDYP based on moisture in the ground and what falls from the sky. But what if moisture isn't the limiting factor to yield? Mike Palmier, owner of Max Ag, dove into the data and showcased how temperature has had a bigger impact on the crop yields in his region the last 3 years. Using the soil moisture data from the probe and environmental data from the station, Mike worked through a case study demonstrating the value of increased stubble height, on increasing crop available water and increasing yield. This increased potential could be valued at $17-$20/ac per inch of increased stubble height in regions experiencing drought conditions (depending on market prices). His recommendation – cut your stubble as high as you can while ensuring you can seed into it!

Role of Improved Irrigation Systems Technology on the Future of Sustainable Irrigation in Saskatchewan – Jillian Brown

Improvements in irrigation systems technology supports sustainable Saskatchewan agriculture. Throughout Jillian's presentation she drew attention to the current industry boom in Saskatchewan. For producers in Saskatchewan looking to capitalize on this recent expansion they are looking at a 24-month process from start to finish. Brown was realistic with producers and highlighted that throughout the process there are numerous government and non-government groups that need to be consulted and that takes time. However, timing aside, the boom is here, and producers should find comfort in knowing sustainability in food production across the prairies will continue to leverage irrigation in areas that are fortunate enough to access it. For anyone interested in more information that can reach out to Jillian Brown. jillian.brown@irrigationsaskatchewan.com

Cereal Cultivar Performance and Management Strategies: A Comprehensive Analysis Using Soil Moisture Data – Justin Ritco and Dustin Klym

Management at Rolo Farms brought probes to the farm in 2019 and after a couple years of experience, they applied the Crop Intelligence platform to their seed business, Condie Seed. Over the past 3 years, Condie Seed has ran small plot variety trials of the crops they sell. In addition to some variety evaluations, they have taken the steps to test management strategies for the varieties they sell. The last three years have been abnormally dry but using the soil moisture and environmental data from Crop Intelligence, Justin Ritco and Dustin Klym have identified which oat, wheat, and durum varieties best respond to top-dressing, fungicide, and PGR applications. These insights have allowed Condie Seed to help customers create tailored management plans for the varieties grown on their farms. If you are interested in more information, reach out to them on their website www.condieseed.ca.

Crop Intel – All In – Jason Holland

Jason gave an energetic presentation (with prizes!) on a farm's experience with Crop Intelligence. From 6 probes in 2019, Kambeitz Farms has expanded the Crop Intelligence system to 18 probes and 25 stations in 2023. Learnings and insights every year are continually helping the farm understand its production potential, how to manage water, and optimize agronomic decisions. More importantly, they are using the data to create site specific and farm zone benchmarks. Jason gave many examples of trials on the farm, but one of the key measurements they use is the yield gap. This acts like a report card of crop production and is reviewed by crop, year, and even field. Jason and the crew are excited to beat their scores in 2024 and collect even more farm specific insights!

Miracle of Incremental Progress – Jake Leguee

Jake delivered a relatable and timely message around the importance of celebrating wins on the farm, no matter how big or small. As a 3rd generation farmer, Jake, his sister Sarah and the rest of the farm management team, collectively have started to prioritize celebrating wins. Jake commented on how it's easy to miss the astonishing changes that can occur as the years go by when you're constantly looking for the next goal or the next project. The incremental progress of combined achievements is more amazing than the individual results. Jake expanded this to agriculture and the world, looking at how far we've come since the horse and plough, and a time when it was rare to live past your 30s or 40s. if we take time to pause and look back at where we started, we will see things are far better than we think!

Data Triggers for Applied Agronomy – Ken Coles M.Sc., PAg, CCA

Ken delivered a packed presentation on innovation, data, and results from trials at Farming Smarter. As a Nuffield Canada Scholar, Ken has travelled the globe in search of flourishing non-profits in agricultural research. Alas, after travelling the globe, he recognized that there were not a lot of programs available and turned his work to creating recommendations for a global system for on-farm innovation. After stressing the importance of the scientific process, Ken shared the 9 steps of analyzing and presenting data: Inspect, Explore, Model, Analyze, Test Assumptions, Interpret, Visualize, Communicate, and New Questions. Luckily for everyone in the room, he presented the results of this process on four trials – night spraying, rescue treatment for hail damage, planters for seeding small grain crops, and deep

banding of nutrients. Outside of trials, the team at Farming Smarter is also evaluating how different technologies help on the farm, in particularly for kochia management and zone delineation using electrical conductivity mapping. Check out the work from Farming Smarter at www.farmingsmarter.ca and reach out to Ken with any questions!

The Solution is the Solution – Steven McQueen CCA-ON, 4RNMS

By knowing that plants can only utilize nutrients and crop protections that are in solution, Steve outlined that solubility based on water availability and uptake is critical. Steve showcased the true Value of Crop Intelligence through his discussion on trial work done in Saskatchewan and how plant physiology differences were uncovered. Steve gave the audience some great reminders about the important role that nutrients play in building root dominance. Of these reminders one of the more profound was that plant roots only touch about 1-3% of the soil and they need to be constantly feed through solution.

An Irrigators Experiences with Crop Intelligence – Art Ward

By utilizing current local weather data and soil moisture data, Art Ward has leveraged Crop Intelligence Irrigation to make sound water decisions on the farm. Art's producer approach uncovered how they leverage Crop Intelligence Irrigation daily to understand days to critical moisture. Beyond that they also track how to keep up to the crops current irrigation demand, which is termed 'irrigation deficient' in the Crop Intelligence system. If you would like to learn more about Art's experience with Crop Intelligence Irrigation, please feel free to reach out to him: Email: arthur@prairiemoonacres.com

Farmgate Workshop – Brandon Tooke and Alana Serhan

This session provided attendees with an outlook on the vast capabilities of Crop Intelligence Farmgate to utilize environmental data.

- 24-hour rain is a rolling 24 hours.
- Environmental data updates every 15 minutes and can be share with other Crop Intel accounts.
- Alerts are fully customizable and user specific.
- Accumulated rain in the environmental tab starts from the Farmgate 'start date'.
- Spray Condition use your stations local data and provide you a stoplight system for warning you about conditions.
- Add or remove rainfall data if there was a station issue, and it was not recorded correctly.
- Wind gust readings are only available on some stations depending on the internal hardware circuit board.
- Forecasting within the app is through a company called Metoblue and provides users with a hyperlocal forecast based on the GPS location of their stations.

Crop Intelligence Workshop – Tammy Oliver and Andrea De Roo

This session walked attendees through Crop Intelligence features and tools to support Water Driven Yield Potential in the 5 Production Steps.

- Planning: Year-End Reports are a great place to review summaries of the season's data and get a picture of Next Year's Potential. Then go into the Next Year's Potential tools to run different scenarios based on assumptions for fields around the Crop Intel field, zones within a field, or different crop rotations.
- Seeding: Crop Intelligence acts like a report card for your fields. Is starting moisture and WDYP higher or lower than expected during planning? Do plans need to be adjusted? Or maybe one part of the farm is different than the other? Review the soil moisture and yield potential graphs to help navigate the plans for the season.
- Application: Many tools are available in-season to help manage risk. Check in on plant health in the soil moisture and yield potential graphs, review the automated In-Season Reports and consider making your own Agronomy Report, look at WDYP under different rainfall scenarios or make your own Adjusted WDYP if something other than water is limiting your fields.
- Harvest: To make the most Crop Intelligence and optimize settings for your fields. Enter your harvest data at the end of the year.
- Preparation: As you plan for harvest, or field work after harvest, check out the soil moisture graph and think about what actions could be taken to capture more winter precipitation or in some cases, reduce the amount of snow capture. Soil Capacity Rating by Depth in the Next Year's Potential tool provides a more detailed picture of soil moisture conditions of the last probe data.

Advanced Agronomy Workshop – Elston Solberg and Ryan Hutchison

This session covered the combined agronomic insights within Crop Intelligence with reports and other analytical tests.

- Use WDYP to understand true production potential and work to identify what's causing the yield gap.
- The combined use of Crop Intelligence tools like Alerts, Auto Generated Reports, Next Year Potentials, and Adjusted WDYP can help take the farm to the next level.
- The best time to start soil testing was last year, the next best time is now, same with tissue sampling. Take old and new tissue to track nutrients in season and review root activity to understand if deficiencies are due to environment or inputs.
- Crop Intelligence is getting into their own research with a new Crop Intelligence Farm that will focus on what the data means and what actions can be taken as well as a Deep Nutrient trial.

Thank you to all our customers, vendors, and partners that joined us in Regina. We are looking forward to the upcoming season and seeing you at the next Crop Intelligence Summit! Happy Holidays!

Have questions? Reach out to your Crop Intelligence partner for more information or email us at info@cropintel.ca.