INFO BOX:
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Drop by Drop
App helps producers, water users track quantities they use

Story and photos by Erin Mathews
[BELLEVILLE] In Kansas, every drop of water is precious, so every drop is tracked. A system created by a Belleville company makes that job much easier for its customers.

At the end of February, producers throughout the area were at their irrigation wells taking final readings from their certified water meters. They were preparing to submit their annual required water usage report to the State of Kansas.

Through an app on their smartphones, named VandWater, users had all the information they needed for the state report. More importantly, they have the information they need to make decisions that lead to improved water management and water conservation throughout the growing season.

While VandWater is useful for all types of water consumption; farming, feed yards, dairies, industries, and municipalities, it is the irrigators that can use this software to the greatest extent and benefit. On average, irrigation accounts for 85% of the consumption of water in Kansas, according to the Kansas Department of Agriculture's website.

"We value simplicity, efficiency, and ease—that's exactly what the software provides," said Chase Larson, CEO of Bestifor, parent company of VandWater. "It eliminates the time spent trying to manage, process, and document - delivering instant information to best help manage your water allocations."

Pumping less water means cutting costs, which is a goal for all producers, he said. Conservation and better water utilization starts with having accurate usage information upon which to base decisions.

"Producers are arguably the best stewards of their land," said Ashton Redd, Manager of Field Support and Technical Services for VandWater. "They want to take care of it because someone before them took care of it, and they want to leave it to their own kids. They want longevity in these operations and in their family legacies."

As frequently as desired during irrigation season, farm workers enter water meter readings into the phone app. A small, durable, weather-proof token placed on the well establishes its location via GPS, so there is no mistaking which meter is being read. As soon as there is an internet connection, the app immediately syncs and shows what percentage of the annual water allotment has been used and how many days of irrigation are left before pumping must stop, along with a trove of other information and data.

App helps with water use decisions

This year, Lynn Goossen, who farms in Thomas County, knew he would have less water to use for the crops he grew. His VandWater app told him that.

"It is so automated, and it is made to update the second you enter a meter reading. It shows immediately on your computer, exactly how much water you've got left," Goossen said. "It can tell you how many days you've got left to stay within your limits."

In the past, Goossen said he headed out to his wells to write down meter readings in a notebook and then returned home to do the figuring himself. He said VandWater employees put in a lot of work to get his system set up, loading each of his water rights to make sure the calculations it provides are accurate.

Goossen said last year was so dry he needed to use extra water to keep his corn alive, so this year he will have to cut back. He still plans to plant corn, but he's using less seed, so there will be fewer plants to water and fertilize.

Goossen's farm is in Groundwater Management District No. 4. This is the eighth year for the district's Local Enhanced Management Area (LEMA). In the LEMA, water usage limitations are enforced in areas where the Ogallala Aquifer has been in decline.

The LEMA system was devised by producers in the Sheridan County area and was first enforced in 2012. After successfully extending the life of the aquifer there, LEMAs have been implemented by groundwater management districts in several parts of the state.

No need to be "techy"

Ron Schilling, a producer who raises corn, milo, and hay in Thomas and Sherman counties, said he's "not very techy" but he has used VandWater's app for two years now and finds it extremely helpful.

“It came in handy this year. I had a gear head go out, and I didn’t catch that my water meter wasn’t working,” he said. “The staff at VandWater helped me figure out what my water usage was.”

Schilling and his wife, Marsha, started farming in the 80s. He stated that over the decades they’ve made great strides in water conservation.

“We’re using half the water and raising twice the crop as when we first started farming,” he said. “That might be a bit of an exaggeration, but with the farming practices and improved equipment, it’s amazing what we can do.”

Colter Stoll, field scientist for GMD No. 4, said the district will cover 50% of the cost of a VandWater system for area farmers who want to implement it.

“It's a tool that I believe helps a lot of the producers that I talk to,” Stoll said. “They really like it.”

VandWater — just the latest company

Larson, who is the sixth generation of his family on the farm, graduated in agribusiness from Kansas State University. VandWater is just the latest in the string of ag-related businesses his family has launched.

His father, Thayne Larson, had planted all the farms tillable acres to alfalfa in the late 80s and developed Bestifor Hay Company into a national brand, shipping to feedlots and dairies across the country. They created their own welding and fabrication shop, Best West Fabrication, and their own trucking company, Larsons’ of Kansas. Chase Larson brokered trucks throughout high school and college. He and his late wife, Celine, started a pet food brand called Grandpa’s Best, to provide premium quality hay for small herbivore pets. Today, the Bestifor companies employ over 40 people and Bestifor Farms has grown to 18,000 acres.

The company name “Bestifor” is derived from the Danish word for grandfather. Thayne and his brother, Kent, wanted to recognize their Danish grandfather, who once owned the original farm which sits along the Republican River, the last sand-bottom river flowing in the state. The river has been the subject of court fights between Colorado, Nebraska, and Kansas, and it provides water for Lawrence, Topeka and Kansas City. Irrigation use along the river is highly regulated.

“There’s not a single person who wants to see this river go dry, so there’s a team figuring it out,” Larson said. “Farmers, municipalities, the state – I feel like there’s a good connection between all of us trying to make it work.”

The river is “a huge economic driver from here to Clay Center. It’s tens of millions of dollars that are lost if you can’t irrigate,” Larson said.

Through the encouragement from the State of Kansas to make the software commercially available to all water users, VandWater was born. The new company quickly formed a team led by Larson, combining developers, coder writers, and water experts. Leveraging their hands-on experience, they enhanced the original software to create an improved version.

The VandWater team brought the new water management app to market in record time. This latest version is built on a very robust and highly expandable platform to accommodate the ever-changing world of water rules and regulations. It is also very adaptable, allowing for future enhancements as the agriculture industry needs evolve.

“By the time we finished, we had enough people signed up for the VandWater app and we knew we were on the right path of commercializing and licensing the software for public use. The interest has been exceptional.” Larson said. “We designed the entire program to be scalable for any individual or company, regardless of size, location, or type of use. The first commercial customers signed up for their one-year agreement in March of 2023 – at the end of the year, all users had renewed. We feel this is a strong testament to the usefulness and value of the product.”

No confusion

Larson knew it would be important for the system to be simple to operate, low cost, not require a lot of equipment, update instantaneously with internet connection, and withstand any weather conditions.

The app also had to bridge the gap between how state officials identify a well (by permit number) and how a producer refers to it (something like, “North meter on McDonald’s farm.”).

Also critically important was that it prevents confusion caused by meters measuring water usage in different metrics – usage may be measured in acre feet on one meter and gallons on the next. Meters that use gallons can require multiplication of the reported number by 100, 1,000 or even 10,000 to get the actual use amount. The

variations lead to errors, and when Larson sets up a new client, he usually discovers 20% to 50% errors in their previous methods for water tracking.

“I’ve only had one customer that I could not prove errors in their system,” Larson said. “They are our largest customer.”

But that large customer still benefits by saving time and gaining efficient results in water management. Historical data remains accessible in the app, so producers can evaluate changes in water usage over different growing seasons.

A large feedlot client found the app got them through a transition crisis. The employee who had monitored water usage for 51 years was retiring, and no one had been found to replace him. As soon as VandWater loaded the wells on a cell phone, any of the employees could track water data.

“I built this so when I hired an employee, I could just hand them a phone and say, ‘Go read a meter,’ without me telling them one thing,” Larson said. “Running our system gives you better information. You save water. You save energy. And you save time.”

VandWater users simply scan the token, take a photo of the actual digits on the water meter for verification, and type the digits off the meter into the app. The annual license subscription to the software is $100 per meter.

“Our biggest customers have hundreds of meters, and the smallest has just one,” he said. “But they all benefit from using the VandWater software.”

In the current version, the person reading the meter is still required to go to the well to take the reading. By August, Larson will have developed a fully automated version that utilizes satellite technology to read the meter. He said several new features are under development, including the ability to auto-calibrate pivots.

“I like the current version, but we have a ton of people that just want satellite,” Larson said. “I see the value in it. There are a couple fields that are hard to get to that I will probably use it on.”

A global vision

In Kansas, landowners own the water under their ground, but the state has the ability to regulate or restrict usage.

“It’s a private-public relationship that is very unique,” Larson said.

Penalties for over-pumping become very costly. In addition, a producer who over-pumps loses double the amount of water over-pumped in the following year's allotment.

Since VandWater was first launched in western Kansas, word about the product has spread, and customers are signing up from across the state, as well as Nebraska, Texas, Oklahoma, California, and Mississippi.

Larson said he envisions VandWater becoming an important and trusted tool for water monitoring internationally. Agriculture is by far the largest user of fresh water worldwide, and challenges with quality and quantity are everywhere.

"This is not a Kansas project or a United States project," Larson said. "This is a global project to conserve water. That's the goal."