KIC Progress Report
November 2014

This report highlights progress during from June 2014 through November 2014:

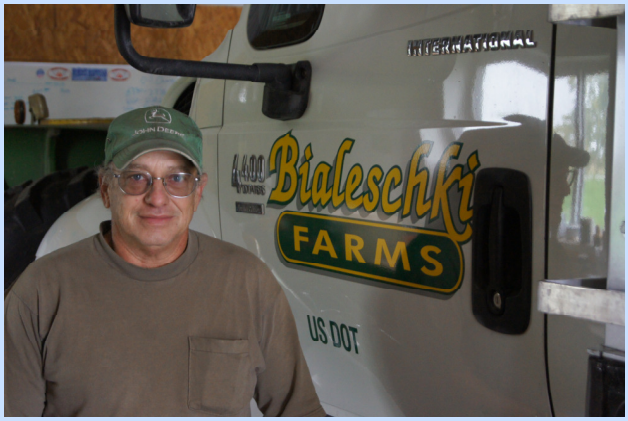
Nutrient Utilization by 2014 Crop Plays Large Role in Protecting Water Quality

The crop yields this year tell a phenomenal story about nutrient utilization. It also paints a dramatic picture of just what nutrient utilization means in our overall goal to Minimize Environmental Impact, Optimize Harvest Yield and Maximize Input Utilization (MOM). In the last two years, we have seen the worst and best examples of nutrient utilization and what it means to farmers in terms of yield and to water quality in terms of nutrient levels. We stay in touch with the water supply officials in the KIC priority watersheds, many of whom share their monthly water reports with us in order to facilitate understanding of nitrate levels in the lakes compared to what we are doing with our KIC fieldwork.

Impressive yields overwhelm a grain elevator in central Illinois (picture courtesy of the IL Grain & Feed Association)

2013: In the spring of 2014, surface water supply managers had to deal with some of the highest, sustained nitrate levels on record due to extremely poor nutrient utilization by the crops in the 2012 growing season. A substantial amount of applied nitrogen remained in the soil after harvest and was lost to the environment when the fall 2012 and early spring 2013 rains finally came.

2014: Mother Nature was kind, providing for timely planting, good crop stands and consistent rainfall throughout most of Illinois during the entire crop season. Nutrient utilization by aggressively growing crops helped reduce the potential for nutrient losses to the environment. Water supply reports showed very low levels of nitrate, and most water supplies enjoyed very low nitrate levels all year. Many farmers and ag retailers embraced the 4Rs, splitting their nitrogen budget and their applications, helping to mitigate any potential for major nitrogen losses following the frequent rain events of 2014. N-WATCH reveals only background nitrogen remaining in the soil after harvest this year, setting the stage for another potentially successful year in 2015 in terms of water quality and nitrogen management. We still have plenty of work to do, but it's important that we reflect upon what we are learning in order to build momentum with ag retailers and their farmers for continued adoption of the 4Rs on many more acres.



A Farmer's 4R Story of Success

In his forty years of farming, Doug Bialeschki from Champaign County, IL has relied on nitrogen to produce optimum yields. Since participating in the "Keep it for the Crop" 4R program, Doug has learned how N-rate trials, N-WATCH soil sampling and embracing a Nitrogen Management System approach can result in positive changes in his production practices and help minimize environmental impact. He's willing to share his story of change to inspire others.

Doug always applied all of nitrogen for corn in the fall—at least 210 pounds of N and he seldom used N-Serve™, a nitrification inhibitor. But after participating in N-WATCH and having two years of N rate trials on his farm, Doug has dropped his fall applied anhydrous ammonia to 120 pounds of N and now uses N-Serve. He said he's found that it's not just about the nitrogen rate, but about all the 4Rs: right source, right rate, right time, right place. In addition to his fall applied N, he uses a pre-plant nitrogen application with his herbicide and post applies urea and 28% liquid nitrogen during the growing season. The end result is that Doug went from using at 1.3 pounds of nitrogen per bushel of corn produced to only 0.9 pounds of N to achieve the same, or better, yields.

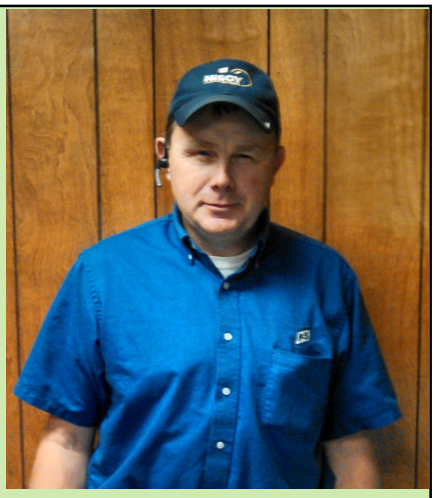
Doug says he's learned a lot by participating in the KIC program. With N-WATCH, he now knows how long the nitrogen he applies stays in the non-leachable ammonium form and how much plant available nitrogen he currently has in the soil at any given time. He also noted that signs of stress, such as yellow corn, may not be related to low nitrogen levels as he may have previously assumed. Better understanding of whether plant stress is due to low N or something else can help eliminate unnecessary additional nitrogen applications and alert farmers to other possible causes of plant stress such as root damage. N-WATCH has also shown Doug the benefits of using a nitrification inhibitor with his fall applied anhydrous ammonia. Farming can be complicated by many variables beyond the control of the farmer. But Doug has demonstrated, through his involvement in the KIC program, that he can take the guess work out of the process and not only optimize his yield, but minimize environmental impact and maximize nutrient utilization.

A Crop Adviser Shares How the 4Rs Help His Customers

Kevin Guinan from Brandt Consolidated, helping with a KIC fall N rate trial.

Kevin Guinan, Agronomy Salesman with Brandt Consolidated in Williamsville, IL is a big believer in the 4Rs and has seen the benefits first-hand. Having worked in ag retail since 1984, he's seen major changes in how his customers manage their nutrients. He's a big proponent of variable rate application with fall applied nitrogen and N-Serve and he relies upon the results of the Brandt Research Plots to guide his recommendations. He advises his customers to reduce their fall N rates, and make up the rest of their N rate budget with a planting time application of nitrogen. One no-till grower in particular had struggled with early corn stands and development. By adding spring nitrogen as a starter with his planter, he has now experienced very good stand and early development as well as increased yields, and it has all the local farmers taking notice. Kevin believes placing the nitrogen right into the seed strip has helped tremendously (the "right place" 4R). He also encourages soil testing every 2.5 acres for P and K and prepares a nutrient management recommendation that is customized to the soil type and the farmer's individual operation—no more "blanket" approach to nutrient application, Kevin says. Kevin has turned many of his customers on to the 4Rs, and believes that there will be substantial adoption and progress made in nutrient management: the key is working individually with the farmer and choosing a 4R system that works best for his operation.

Nitrogen Management Systems: A Retail Advocate



Todd Wibben, Crop Specialist at Evergreen FS in Maroa, IL spent this past year working with farmers in the Lake Decatur watershed on managing their nitrogen as a system of split applications. This year has yielded exciting results, with one of his customers bragging about the yields he enjoyed after joining Todd's 4R nitrogen management program. Todd is aggressive when it comes to encouraging his customers to use the MRTN (maximum return to N) calculator. With record yields this year and next year's corn prices hovering around $3 per bushel, Todd explains to farmers the importance of getting as much value as possible out of the nitrogen applied. He found the N rate trials very useful because they reveal that the optimum N rate can be completely different from one field to the next. N-WATCH also helps tell a story of how nitrogen moves through the soil, and can show the farmer how different rates applied relate to N availability to the crop throughout the season.

Implementing the 4Rs are a process of discovery: Todd said he and his customers discovered that N was not a limiting factor in the loss of yield this past year. In one field, a farmer lowered his fall N rate and found that there was very little yield loss compared to a similar field that received the higher rate of fall applied nitrogen. In this case, the farmer concluded that it made more economic and environmental sense to lower his nitrogen rates. Todd said it can be difficult at times to convince some farmers to join the 4R nitrogen management approach, especially given it often involves lowering N rates and using nitrification inhibitors. However, after getting a few takers to the idea, Todd ultimately feels that the harvest results show the true value of the nitrogen management system and ensures that the farmer is getting the absolute most out of the nitrogen products he is using.

Like many retailers and crop advisers, it is Todd's ability to gain the farmers' trust to try something new that is key. One of Todd's customers reduced his total N rate from nearly 270 lbs to 180 lbs, going to multiple nitrogen applications, and was extremely nervous about this drastic reduction in rate. But at harvest, his yield was either the same or only nominally less than the fields that received the higher rates. The farmer was astounded. The participation of these farmers in trying something so different, and seeing the promising results, has the potential to encourage more farmers to participate in the 4R program and re-evaluate their nitrogen management practices.

Dr. Cameron Pittelkow Joins University of Illinois as Assistant Professor of Agronomy

CBMP welcomes Dr. Cameron Pittelkow to the University of Illinois, where his role will include teaching, research and extension responsibilities related to nutrient management practices, efficient crop production and helping farmers strike a balance between productive, profitable agriculture and reducing environmental impacts. He was most recently at the University of California-Davis where he completed his PhD in Agronomy.

Dr. Catherine O'Reilly (ISU) and Dr. Cameron Pittelkow (UI) visit during a NREC site tour.

Regarding his decision to move to Illinois, Dr. Pittelkow said "*There's already a great deal of momentum in Illinois focused on nutrient management issues, particularly nitrogen fertilizer use, to identify new management practices and technologies. I've very happy to be joining that process, working with the many partnerships and programs that are tackling these big issues facing agriculture.*"

Dr. Pittelkow will develop an applied research program grounded in on-farm trials and will work with growers to ensure the results will be useful to them, as well as to policy makers. Please help us welcome Dr. Pittelkow to Illinois!

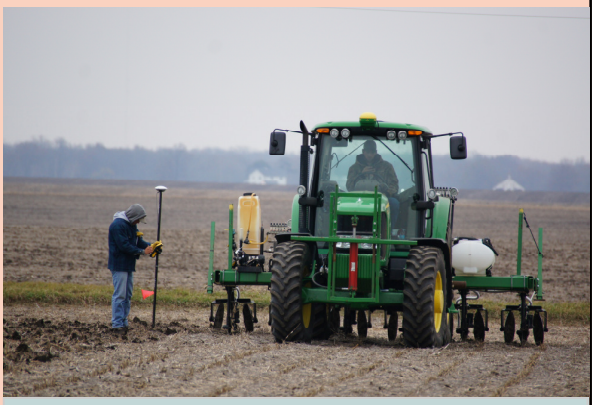
KIC: 3 Years Later and Evolving

By Dan Schaefer, CBMP Director of Nutrient Stewardship

When I joined the Keep it for the Crop program in January 2012, it was like any other new job, you aren't really sure what's in store. And this being a brand new program, it was especially interesting given that we were starting from scratch, with investors such as the Nutrient Research and Education Council counting upon us to be successful with the hard-earned dollars of the farmers who support NREC.

In the three years I have been working with the KIC program, the level of acceptance and interaction with farmers and ag retailers has far exceeded my expectations and it shows in the numbers. **In 2012, we had 6 nitrogen rate trials with participating farmers; in 2013 we grew to 27, this year we have 33 and we have 40 lined up for the 2015 crop.** The great thing about these numbers is that the farmers who have participated want to stay engaged, and repeat the trials on their farmers to solidify their trust in what the studies are showing them about the optimum nitrogen rate in their particular fields.

The same is true with N-WATCH; we went from a fledgling program after the drought of 2012 to over 300 sample sites this year, tracking nitrogen presence and movement in the soil after harvest and throughout the next growing season. In my daily interactions with ag retailers, I witness first-hand the support that retailers have for a nitrogen management systems approach and how they are working one-on-one with their farmer customers on customized approaches to feed the crop and improve nutrient utilization, thus enhancing yield, protecting water quality and improving profitability for the farmer.



Jason Solberg (left) and Kyle Case (in KIC Tractor) set the GIS coordinates for a fall N rate trial on participating farmers field in Macon County, IL.

I've been assisted by two young men who help with the daily work throughout the priority watersheds, Jason Solberg and Kyle Case. And none of this would be possible without our partnership with Dr. Emerson Nafziger and Dennis Bowman at the University of Illinois-Extension, who provide the protocols and evaluation of the N rate trials and assist me in troubleshooting field results to ensure we are accountable to the farmers and to NREC with regard to the quality of our work. With the Illinois Nutrient Loss Reduction Strategy out soon, ensuring farmer engagement, consistent protocols and professional evaluation of our findings will be essential to demonstrate our nutrient loss reduction efforts.

In 2015, I will be managing the Illinois Fertilizer & Chemical Association's "**Keep it 4R Crop"** program, which will continue to engage ag retailers and Certified Crop Advisers around the state on 4R programs and the IFCA's new 4R Code of Practice. Working alongside CBMP and assisting NREC researchers, we will continue to move the needle on reducing nutrient losses with scientifically sound practices that benefit agriculture and our fellow citizens.

Jennifer Tirey Joins CBMP as Executive Director

In October, Jennifer Tirey joined CBMP as its first executive director. "Ms. Tirey's experience in communications and marketing will serve the organization well as CBMP's role becomes larger in promoting sound agronomic practices within the agricultural sector and helping Illinois agriculture reach its full potential while protecting the environment," says Jeff Jarboe, CBMP President.

I am thrilled to be joining CBMP as its executive director," says Tirey. "This is an exciting time to be a part of the Council as we all prepare for the release of the Nutrient Loss Reduction Strategy. I am ready for the challenge of proactively engaging the agricultural community and collaborating with new and existing partners." You can reach Jennifer at jtirey@illinoiscbmp.org or at (217) 971-3842.