



**Our Mission:** To promote and implement the 4Rs of nutrient stewardship (right source, right place, right time, right rate) to minimize environmental impact, optimize harvest yield and maximize nutrient utilization.

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**Ag Retailer in Action: John Musser, Stephenson Service Company**

John is the Business Technology Manager for Stephenson Service Co. in Stockton, IL. He’s been in the ag retail sector for 36 years and received his CCA designation in 1994—the second year of the CCA program. John recently achieved the 4R Nutrient Management Specialist certification and serves on the IFCA Board of Directors.

John’s been a strong advocate of the N-WATCH™ soil nitrate testing program, and has been doing these soil tests in Northwestern Illinois since the program began in 2013. Everything he’s learned about nitrogen management from N-WATCH and N-Rate Trials becomes part of the conversation he has with his farmer customers. “The farmers definitely have a better understanding of nutrient utilization and loss mechanisms than they had five years ago, and there’s no longer an assumption that “it will be ok” if they don’t take the goals of the nutrient loss reduction strategy to heart in their farming operations.”



John is a proponent of a systematic approach. **“Every aspect of the crop must be managed in order to assure optimum nutrient utilization, it’s more than just fertilizer management. Seed selection, timing of planting, nutrient management and crop protection all play a role”** he says. He sees farmers making the kinds of management decisions it will take to address nutrient losses, but is realistic about the timeline of change. “In a farmer’s life-time, if he starts farming at age 21 and retires in his 60’s, he gets to plant about 40 crops to sustain his business; and in many of those early years the decisions don’t all belong to him or to her, there are multiple decision makers.” So when farmers are barraged with messages urging them to change their practices, i.e. to adjust nitrogen rates, change application timing, plant cover crops etc., these are major decisions because there aren’t many do-over opportunities.” John urges policy makers and the non-farm public to keep this in mind and be patient when it comes to expectations of rapid change. There’s no question that great things are happening with nutrient management, it just takes some time and the changes must sustain the farming operation in order to also sustain the environmental and societal goals.

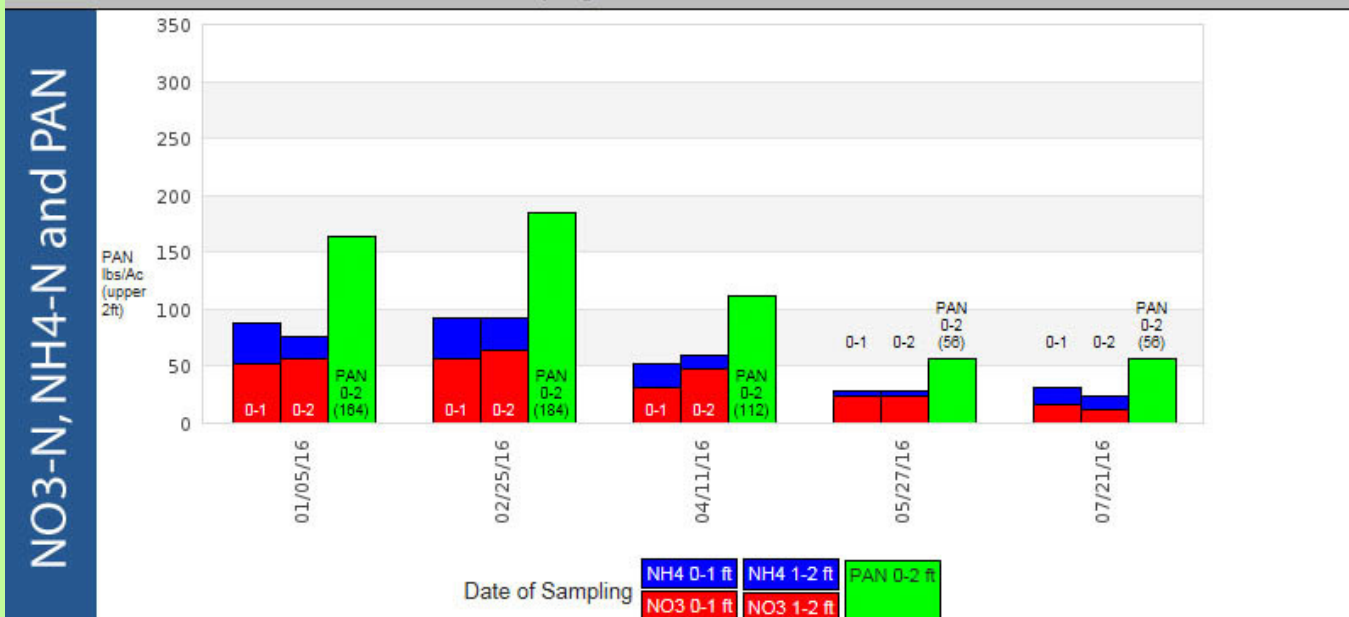
In five years, John believes the industry’s dedication to the 4Rs and to on-farm research will result in agronomists such as himself being able to more confidently make a nitrogen recommendation for each individual field based off yield, soil tests, soil structure, historical knowledge of previous management decisions and outcomes and the data feeding the MRTN. He believes that nitrogen must be applied early and in-season and cautions against too much late-applied N. “If the conditions are not there later in the growing season for the nitrogen to get to the plant roots, then it’s just left to remain in the upper soil profile and possibly be lost.”

*“There are definitely consequences for what we do, or what we don’t do. And just because your farm can’t be seen from the road doesn’t mean that what happens on that farm doesn’t matter. The more we all understand that responsible practices need to happen on every acre, the greater our chances of success in terms of improving productivity and reducing nutrient losses” - John Musser*

## N-WATCH Provides a Window into Applied Nitrogen and Soil Supplied Nitrogen

2016 is the fourth year of the N-WATCH program and there are 100 on-farm sites being monitored in the IFCA Keep it 4R Crop Program with funding from NREC. This year has revealed that in addition to the applied nitrogen, the soil has supplied mineralized nitrogen from organic matter to supplement the crop. Dr. Emerson Nafziger noted this is a May 2016 University of Illinois bulletin [http://www.ifca.com/ifca\\_nwatch\\_may/](http://www.ifca.com/ifca_nwatch_may/) which is featured on the IFCA website ([www.ifca.com](http://www.ifca.com)) under “Keep it 4R Crop Tools.” The N-WATCH report below shows this clearly. In mid-spring, testing revealed soil nitrogen levels in the soil at levels higher than what was applied in the form of fertilizer. This field in Livingston County received a 120 pound per acre rate of anhydrous ammonia in the fall of 2015. As of January 2016 there was 154 lbs of available nitrogen and in February, there was 184 lbs. No additional N was applied in the spring, but the soil supplied 30-60 lbs of nitrogen. Tests later in the season show the crop uptake of both the applied and mineralized nitrogen. In late July, 56 lbs of N still remained available to the crop. This is vital information to share with the farmers. The warm, wet conditions in the winter, spring and summer enabled mineralization and in many cases, additional N was not needed, nor was late applied N. Harvest data will tell us more as we continue to incorporate what we learn each year from N-WATCH into our nitrogen education efforts with retailers and farmers. **Check out the full August N-WATCH update at [www.ifca.com](http://www.ifca.com) then click on “Keep it 4R Crop Tools.”**

Estimated NO<sub>3</sub>-N, NH<sub>4</sub>-N and PAN at Different Sampling Dates



## The Next Generation is Learning to “Keep it 4R Crop”

Dan Schaefer of IFCA teaches a nutrient management class at Parkland Community College and in his role assisting several NREC projects, he brings students from several junior colleges and four year universities out to the field to assist the researchers with soil sampling, tissue testing and the day to day work that is required to produce the information necessary for these NREC projects to succeed. (And it’s nice to have the youthful exuberance on hot July and August days.)

“The students ask a lot of questions and are genuine in their interest and desire to improve the science that will support good decisions in crop production and nutrient management” says Dan. “Not only does it help them in their studies, it ensures a long-term dedication to nutrient stewardship as these students take their experiences back to the farm or into their careers in the ag sector” he added.



## Surface Water Supplies: An Update on Nitrate Levels This Summer

One of the most rewarding pieces of the IFCA Keep it 4R Crop Program is the communication that we have with the managers of the drinking water supplies that provide water to central Illinois businesses and citizens: in particular Lakes Decatur, Springfield, Vermilion and Bloomington/Evergreen. These water supplies provide not only clean and affordable drinking water but are also recreational and add tremendous aesthetic value to central Illinois. They are a vital part of our communities and our State, just as agriculture is also a valued industry and economic contributor.

This year was an “atypical” year in many ways with nitrate levels. In the Spring 4R Bulletin, we reported that these lakes experienced high levels of nitrate in January, February and early March. A warm fall and winter, with heavy rain in late December attributed to these lakes experiencing some of the highest N levels they had seen in this time period and they were worried about losing their “buffer” for nitrates that historically do appear in May and June. So were we.

To support these watersheds, IFCA launched a special spring nitrogen management program for ag retailers in these areas, asking them to work with farmers and resist the urge to “replace” the nitrogen that some models said was lost. The N-WATCH reports in February showed us that the ammonium and nitrogen from fall applied ammonia was still in place in the soil and additional N was not needed. N levels in the lakes began to drop in early spring and while they ticked up again in Lake Vermilion and Decatur around Memorial Day, this was short-lived as crop uptake kicked in. See the graphs below that IFCA updates using the reports from the water supply managers. We share these reports with the ag retailers in these watersheds who continue to value these updates and use them to reinforce the importance of N-WATCH and how it can help support responsible nitrogen management programs with their farmer customers.

Lakes Decatur and Vermilion have nitrate removal systems; Springfield does not, and Bloomington blends water from Lake Evergreen to stay below 10 ppm nitrate. The IFCA 4R Program is focused on communication and partnerships with water supplies, ag retailers and their farmer customers to adapt and improve nitrogen management.

