

Wisconsin Water Quality and Quantity Assessment Highlights-2019



An assessment process was initiated in March 2019 to analyze how best management farming practices related to water quantity and quality were being adopted among Wisconsin Vegetable and Potato Growers Association (WPVGA) members. Over 80 growers participated in an anonymous online assessment and complete datasets were used for evaluation. These results are being used to benchmark current water quantity and quality best management practices among the WPVGA members. Summarized results highlighting adoption progress are shown with key notes on levels for water quantity and quality best management practices.

Irrigation equipment and use:

98% maintain and service their irrigation equipment regularly.

100% monitor delivery supply lines for leaks with
87% looking for leaks at least monthly.

37% use zone or sector sprinkler controls (new options variable rate and for efficient water use), and of those who have tried this approach, over **42%** have that technology on at least half their irrigation systems.

Water efficiency and management:

96% manage for irrigation timing, amount and frequency, while **79%** apply only during low energy demand times, **62%** using remote real-time system monitoring and control, and **40%** using soil moisture probe data.

95% adjust timing and amounts based on crop variety (**90%**), crop growth stage (**90%**) and overall **71%** of participants used 5 out of the 7 approaches assessed, meaning they use multiple tools to adjust for crop water demands.

Variable rate irrigation technology based on soil mapping is used by **30%** of participants.

90% of the participants used in-field measurements to determine crop water needs, while **50%** overall used 6+ sources to determine water needs.

75% track soil moisture levels by individual field and
98% limit water applications to fields water holding capacity.

53% have used new fly-over technologies to monitor field patterns.

In Wisconsin, the water quantity issue was worked on by a participatory working group who came together to develop a grower-driven program focused on water stewardship ultimately called the **Wisconsin Water Stewards Program**.

The WI Water Stewards is an inclusive program for farmers to identify where they are on the spectrum of agricultural water conservation strategies — from those who are just wanting to learn more to those ready to invest in production changes. Water Stewards uses a tiered approach to provide water conservation options for growers to advance sustainability initiatives. The program is now being integrated into the Wisconsin Healthy Grown® Program, and is being expanded to include new quality aspects. The Water Stewards Program has helped develop a process to work toward comprehensive, informed, research-based options for water stewardship.



Conservation data:

86% plant cover crops in fields, **58%** use conservation tillage and **55%** have planting deep rooted crops to limit soil compaction.

80% have used at least one practice to prevent or correct hardpan and/or compaction problems and to improve growth and root development for the cropping season.

50% incorporate habitat protection into their farm. Of those, **64%** have protected wetlands, **28%** have managed or restored prairies, and **31%** have restored sites to prevent erosion. **38%** of respondents who work on habitat have worked with conservation groups to do the management practices.

Nutrient management:

92% have taken soil samples prior to each growing season, while **88%** test pH levels annually.

96% ensure rate, source and timing of nitrogen fits within soil and crop needs, and **67%** only apply after crop emergence and before peak crop demand while **53%** do not apply fall nitrogen at all.

79% monitor crop nitrogen levels via plant tissue samples, with **20%** monitoring weekly and **33%** monitoring at least twice per season.

43% have tried the new, polymer-coated urea products and of those growers are evaluating these products for their nitrogen use efficiency (**36%**), looking to limit environmental nitrogen losses (**40%**) and testing effectiveness within the cropping system (**24%**).

64% are aware of nitrate levels in their wells.

31% have used remote sensing (new technology) to monitor nutrient needs for crops.

Summary and next steps:

Overall, participating growers and Wisconsin Potato and Vegetable Growers Association (WPVGA) members have demonstrated a proactive approach to tackling key agricultural concerns, and these data demonstrate many advances of practices which would involve enhanced water quality and quantity management.

Each year, new approaches are also being utilized. Participants have tried many of these approaches including: the use of new water scheduling tools, enhanced bare soil imagery to determine soil carbon content, real-time weather monitoring for every field, and extensive cover cropping and inter-cropping options.

In the future, the WPVGA will continue to promote these and other innovative new advances to ensure continual advances for water quantity and quality aspects.

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