Report of the Governor’s Representative
Steve Diercks, Coloma, WI

As a potato and vegetable grower and the Governor’s Representative on the Wisconsin Groundwater Coordinating Council, I am pleased to report that the Wisconsin Potato & Vegetable Growers Association (WPVGA) continues to collaborate with multiple partners to achieve sustainable groundwater quantity and quality.

As many people now know, Wisconsin’s Central Sands region is one of the most productive irrigated vegetable areas in the United States with top three rankings for potatoes, sweet corn, green beans, peas, carrots and several other specialty vegetable crops. Annual production is valued at over $5.8 billion and the industry generates over 30,000 jobs in the area. At the same time, concerns have been raised over the potential impact of irrigated agriculture, climate, urbanization, and other factors on the groundwater aquifer and surface waters of the Central Sands. In response, the WPVGA formed the Water Task Force to bring together resources and expertise to foster the sustainable use of water resources. It is an example of collaboration involving GCC member agencies and the agriculture industry.

The group’s diverse membership includes: representatives of potato and vegetable farms from all parts of Wisconsin; major potato and vegetable processors (McCain Foods, Del Monte Foods and Seneca Foods); rural communities (Village of Plover); University of Wisconsin Research and Extension Specialists from the Departments of Soil Science, Horticulture, Entomology, Plant Pathology, and Biological Systems Engineering, as well as the Nelson Institute and the Wisconsin Institute for Sustainable Agriculture; and support expertise from WPVGA, Wisconsin Department of Natural Resources, Wisconsin Geological and Natural History Survey, USDA-Natural Resources Conservation Service, the Wisconsin Wetlands Association, the US Fish and Wildlife Service, irrigation businesses and other groups that are called on as needed.

Voluntary conservation practices, groundwater monitoring and applied research are the focal points of the WPVGA Water Task Force. The group continues to engage in activities that consolidate and build on the existing knowledge-base related to the hydrogeology of the Central Sands. Among these activities are the following:

- Collaboration with the Village of Plover, the Wisconsin Wetlands Association, the Wisconsin Wildlife Federation, Wisconsin DNR, UW-Stevens Point, and others on the Little Plover River Watershed Enhancement Project (LPRWEP). This multi-party collaboration will improve the health of the Little Plover River (LRP) and the quality of life of the surrounding community. The WPVGA kick-started the project with a contribution of over $60,000 to achieve the following goals: Increase the flow and improve the aquatic health of the LPR; improve surface and groundwater connections and water retention across the LPR watershed; alleviate storm water-driven flooding; improve and expand fish and wildlife habitat; and increase public recreation opportunities and access. The WPVGA recognizes that restoring the health of the river requires an array of on-the-ground practices and voluntary landowner participation, and is committed to utilizing a combination of protection, restoration and management practices that will ensure the project’s success. Boots on the ground work began last fall in the Little Plover River watershed and has continued this
spring and summer. An official groundbreaking ceremony was held on October 4, 2018 at one of the project’s restoration sites.

- Working with the Wisconsin Institute for Sustainable Agriculture (WISA), collecting and posting data from over 25 monitoring wells to continuously track fluctuations in groundwater at regular intervals across three areas designated as high risk for surface water impacts (Little Plover River/Plover area, Long Lake/Plainfield area, and Pleasant Lake/Coloma area). Groundwater elevations are posted at https://wisa.cals.wisc.edu/ every three weeks. This project has been co-funded by WISA and the WPVGA since 2013.

- Collaboration with the Wisconsin DNR on the data collection and posting from the WISA monitoring wells in the Plainfield and Coloma areas. Beginning in early 2018, the WPVGA agreed to allow the DNR to begin collecting and posting the data from these monitoring wells as part of the lakes study component of 2017 Wisconsin Act 10, related to the potential impacts of groundwater withdrawals in the Central Sands. If the department determines that the potential for significant impacts exists, several steps will be taken including a public hearing, economic impact analysis and providing recommendations to the Legislature for special measures to mitigate those impacts on the Long Lake, Plainfield Lake and Pleasant Lake watersheds.

- Collaboration on a three-year research project with the UW Atmospheric and Oceanic Sciences Department looking at newer, more accurate and advanced methods of measuring evapotranspiration (ET). This project is being led by Dr. Ankur Desai and officially began on July 1, 2018. It involved the purchase of an eddy covariance flux system to measure ET in an irrigated vegetable field as well as using another flux system to measure ET in a nearby forest. Research results are being shared with growers to assist them in their irrigation management and scheduling regimes. Additional funding from the Wisconsin DNR will be used by the Desai lab to accomplish tasks related to the lakes study component of 2017 Wisconsin Act 10.

- Funding a research project led by Dr. Chris Kucharik, UW Professor of Agronomy and Environmental Studies, looking at nitrate and chloride concentration in irrigation water applied as well as total loads during the growing season in the Central Sands. The research results will provide important information for studies investigating nitrogen use efficiency, developing improved nutrient management programs, or those investigating leaching losses to groundwater.

- Funding software maintenance to keep the Wisconsin Irrigation Scheduling Program (WISP) and the Agricultural Weather Data Service operational. Work is being conducted at the direction of John Panuska at the UW Biological Systems Engineering Dept. The existing WISP software tracks a daily soil water balance to assist growers with irrigation water management.

- Collaboration with and funding of UW scientists in the evaluation of drip irrigation, deferred and deficit irrigation methods to conserve water. Deferred and deficit irrigation involve optimization strategies whereby irrigation water is applied during drought-sensitive growth stages of a crop. Among the useful results, drip irrigation demonstrated use of 15% less water with minimal impact on potato yield and quality, while deficit irrigation was effective and had less than a 5% yield impact on corn production.
• Maintaining and monitoring a network of privately-owned irrigation wells in the Central Sands to measure groundwater fluctuations. The network currently consists of over 50 wells across multiple Central Wisconsin counties sampled one to three times/year. The database is maintained by the WPVGA and may be accessed subject to WPVGA guidelines.

• WPVGA is collaborating with the University of Wisconsin and the DNR on a new initiative to recognize and reward irrigation expertise. The Wisconsin Water Stewards Program establishes a baseline of water stewardship practices and assists growers in making continuous improvements in the area of water conservation. Growers have access to a broad range of expertise to help determine the best way to manage and conserve water resources on their individual farms.

All of these WPVGA Water Task Force projects are working toward sustainable groundwater quantity and quality through evaluating and implementing strategies to increase the efficiency of irrigation while maintaining or improving water quality.

In 2019, the WPVGA is also funding applied research in the area of nitrogen use efficiency. Under the leadership of UW Soil Scientist Dr. Matt Ruark and UW Horticulturist Dr. Yi Wang, the WPVGA is cooperating on four on-farm nitrogen use studies to determine the optimum rates and timing of N to use on several different potato varieties. Slow release nitrogen products will also be studied, and groundwater samples will be taken to test for N leaching.

As the Governor’s Representative, I am pleased to report these examples of support for achievement of Wisconsin’s important groundwater management recommendations to the people of Wisconsin and seek broad input from all concerned parties to determine potential solutions to groundwater issues.