Widening the focus on water

Water issues require integrated Extension research, education and community engagement

If you throw a stone anywhere in Minnesota, you’re bound to make a splash. We’re surrounded by nearly 12,000 lakes and 70,000 miles of rivers and streams. Minnesota has a total water surface area of around 13 million acres, almost as large an area as all of the state’s corn and soybean acres in any given year. Minnesota has more wetland acres than any state except Alaska.

While all of this water makes for some excellent scenery, our economy depends on it too. From fishing and boating to parks, our water resources support a thriving tourism industry. In 2014, travel and tourism generated $13.6 billion in gross sales for Minnesota. There then is the economic impact of agriculture, which also depends on water.

Managing these resources while meeting our needs presents a host of issues. Fortunately, the University of Minnesota is home to some of the world’s most advanced water research.

“Because of the extraordinary water resources we have in Minnesota, geographically we’re like a living laboratory,” says Jeffrey Peterson, director of the University’s Water Resources Center, a partnership between Extension and the College of Food, Agricultural and Natural Resource Sciences. “We’ve developed the capacity to address a whole range of water-related issues in many different fields of study.”

As the University’s connection to Greater Minnesota, as well as urban and suburban communities, Extension provides ongoing research and education on water resources to partners across the state.

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Extension efforts provide a variety of opportunities to ensure our water remains healthy, safe, clean and abundant.

Starting at home
Water use in home landscapes accounts for nearly one-third of residential water use, totaling nearly 9 billion gallons per day. Lawns are the single largest irrigated area in the U.S. Excessive watering impacts both availability and quality of drinking water. Extension tackles these challenges by conducting research and education on drought-tolerant, low-maintenance grasses. In addition, the Water Wisely educational campaign launched in spring 2016 teaches ways to better care for lawns, gardens and trees. And a recent grant from the Metropolitan Council is funding a new study of lawn irrigation practices and systems. [EPA, 2013]

Making greens greener
Parks and golf course managers can make changes, such as turf selection and timing of treatments, fertilizer and watering, that make golf courses a better ecological fit near bodies of water. Through educational partnerships, such as the Great Lakes School of Turfgrass Science and the Minnesota Golf Course Superintendents Association Environmental Stewardship Program, Extension researchers share the science-based principles needed to effectively manage turf for parks, recreation and sports.

Stopping invaders
Minnesota’s lakes, streams and shorelands are increasingly threatened by aquatic invasive species, endangering ecosystems, communities, fishing and tourism. We have few ways to address these threats, but new research is bringing progress. One strategy resulting from Extension’s partnership with Minnesota Aquatic Invasive Species Research Center (MAISRC) uses “ecological niche modeling” tools to help predict the spread of species. Computer models analyze pathways of spread and where species will survive. Another strategy with Extension and MAISRC is the Aquatic Invasive Species Detector volunteer program, which will begin training volunteers in fall 2016.

Balancing nitrogen use
Nitrogen is the nutrient most often deficient for Minnesota crop production. But applications that exceed crop needs can result in excess nitrogen moving to ground and surface water in the form of nitrates. Through Nitrogen Smart, a new educational program made possible through a joint effort of Extension, the Minnesota Corn Growers Association and the Minnesota Agricultural Water Resources Center, agricultural producers learn to maximize return on their fertilizer investment while minimizing impacts on natural resources.

Informing aquaculture
Regional interest in aquaponics—growing fish and plants in water together for food, and growing algae for livestock feed and fuel—has been on the rise for years. But until recently, fledgling aquaponics businesses did not have a basis for how to ensure the safety of the food they produced. In response, University and Extension faculty and educators developed an aquaponics program. It includes an undergraduate course, research projects, continuing education opportunities and industry partnerships.

Responding to climate challenges
Climate matters to Minnesota. Transportation, agriculture and recreational infrastructures are based on it. Extension helps Minnesotans respond to challenges caused by changing weather patterns, such as flood and drought extremes. Extension’s Regional Sustainable Development Partnerships recently held climate change adaptation conversations in communities across Greater Minnesota, with support from the Steger Foundation and an Environmental and Natural Resource Trust Fund grant. Mark Seeley, Extension climatologist, led conversations about innovations and strategies at the household, farmstead and community level to adapt to a changing environment.

Engaging communities
Water can be controversial, but carefully navigated controversy can lead to resourceful decision making. Extension’s leadership and civic engagement education provides training for state agency staff, watershed managers, and Soil and Water Conservation District leaders to help them ask good questions, clarify issues and identify options before they decide on collective actions. As a result, more voices are heard and better decisions are made when they are informed by diverse community perspectives.

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