

2021

Purdue Extension Specialist Quarterly Highlight

April - June (Q2)

Green Infrastructure in the North Central Region: Building an Equitable and Just Strategy and Workforce

Communities are adopting green infrastructure (GI) practices as low-cost ways to update aging stormwater infrastructures. To residents, GI looks like parks, gardens, parking lots, and green roofs, and can provide important community amenities like recreational spaces and pollinator habitat. While communities face similar challenges, practices used to address them vary considerably. This is particularly true for the co-benefits of GI, such as recreation and beautification, where best practices are not well defined. Distribution of GI throughout a community has a major impact on who benefits. When GI is sited in disadvantaged communities, its impact on local property values may lead to displacement of longtime residents. While jobs in the GI industry are expected to grow, communities struggle to provide sustainable careers within GI and build a workforce that more closely matches population demographics.

Kara Salazar, Assistant Program Leader and Extension Specialist for Sustainable Communities, Illinois-Indiana Sea Grant, Extension and other colleagues are leading a project to identify the intersection of social justice, workforce development, and GI programs as growth opportunities in the 12-state North Central Region.

Funded by the North Central Regional Water Network, the team conducted 18 listening sessions in over 30 communities across nine states. The team coordinated a virtual Equitable GI Summit with over 100 participants from Extension, Sea Grant, state and local government agencies, nonprofits, and private businesses to synthesize listening sessions and prioritize barriers and opportunities.

Several GI recommendations were identified. First, **keep projects simple** to lower installation costs and reduce the burden of care over the project lifetime. Second, **emphasize co-benefits**.



Photo: Purdue Rainscaping Education Program

Communities with multiple societal benefits were more successful implementing low-cost GI networks. Third, **design GI careers** rather than jobs, as careers have opportunities for advancement. Fourth, **provide education** at every level for government staff, officials, and city planners to implement GI policies, contractors and crews for performance and maintenance, decision-makers for function and value, and K-12 students as the next generation of sustainers. Finally, **build relationships** and establish partnerships for sharing knowledge and resources and expanding opportunities.

Findings showed societal aspects for designing GI resulted in greater community and internal support, greater ability to secure additional funding through grant programs, and greater integration between GI and other community-benefit programs. Explicitly including co-benefits and economic costs and benefits in the decision-making process helped communities address multiple needs, thus deriving more value from money already committed to stormwater or other capital improvements.

Communities now have a guide for building an equitable and just GI strategy and workforce:

<https://northcentralwater.org/files/2020/09/EquitableGreenInfrastructure-9-24-2020.pdf?x16165>

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Food Safety Training for High School

By hosting focus groups with over 50 science and agriculture high school teachers, **Yaohua Betty Feng, Assistant Professor of Food Science** identified academic needs for food safety education, including lack of curricula aligned with state standards, lack of student interest in food safety, and lack of instruction time and resources.

In response, a comprehensive extension program called **Food Safety in The Classroom** was created. The curriculum provided students with fundamental food safety concepts through experiential learning and incorporated science, technology, engineering, agriculture, and mathematics (STEAM) activities in the context of careers related to agriculture, especially in food science. The new curriculum aligned with Indiana Academic Standards for Agriculture, Advanced Life Science for Foods.

A panel of experts in education evaluated the curriculum through three rounds of surveys containing questions related to six curriculum assessment topics. Experts rated their agreement with statements about the curriculum using 5-point scale and multiple-choice questions. All experts agreed the curriculum addressed academic standards and was engaging for students, and most agreed it was easy for teachers to use. They noted the curriculum successfully incorporated STEAM (100.0%), experiential learning (89.5%), and career-education (78.9%). Over half of the experts identified the only barrier to curriculum incorporation was the cost to purchase materials for cooking labs.

An observational evaluation of the curricula on students' food safety and handling skills included a combination of stationary and wearable (GoPro) cameras to observe food handling practices of high

school students in food thermometer use, hand washing and drying, glove changing, and environmental cleaning. The percentage of students using correct hand washing, hand drying, and glove changing techniques significantly increased in the post-observation cooking session. However, percentages of students with correct hand washing and glove changing events remained below half for changing gloves after gloves became contaminated or torn (47%), hand washing time (38%), hand washing after handling raw produce (36%) and touching skin (20%), and washing hands between glove changes (15%).

This new curriculum increased food safety behaviors which can impact the health and wellbeing of our communities (e.g., homes, fast food, restaurants) while providing STEAM-incorporated educational content into high school classrooms. To increase the impact, **Feng** has been collaborating with **Hui-Hui Wang, Assistant Professor, and Neil Knobloch, Professor, Agricultural Sciences Education and Communication** to promote the food safety learning in high school science classes.

Food Safety in the Classroom

<https://mdc.itap.purdue.edu/item.asp?ItemNumber=FS-31-W>



Photo: Purdue Agricultural Communications