



UNIVERSITY OF MINNESOTA | EXTENSION

MAKING A DIFFERENCE IN MINNESOTA: ENVIRONMENT + FOOD & AGRICULTURE + COMMUNITIES + FAMILIES + YOUTH

SOURCE

WINTER 2013

INSIDE THIS ISSUE:

Reaching farmers through ag professionals

4-H prepares youth to lead and succeed

Widening the circle of leaders in Minnesota



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ON THE COVER: Extension reaches more farmers with the University's research and knowledge by educating the agricultural professionals who work directly with them. Pictured: Paul Groneberg, crop consultant, left, with corn and soybean farmer John Dосdall.

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From the Dean

Creating a stronger Minnesota through education and research

You don't have to be a student at the University of Minnesota to benefit from the vast wealth of University research and education. Every day, across Minnesota, youth, community leaders, business owners, teachers and farmers engage with University of Minnesota Extension.

Through workshops, community meetings, 4-H after-school programs, Master Gardener community projects—and the list goes on—Minnesotans learn new skills, make better decisions and take positive action. The results keep our food safe and affordable, prepare youth to be leaders, strengthen our communities and improve the environment.

University of Minnesota President Eric Kaler recently spoke to Extension faculty and staff about the role of Extension and the University in making Minnesota a better place to live.

President Kaler: *I think it is safe to say that no University college or program touches the lives of Minnesotans the way Extension does. During my first 18 months at the University, I've traveled across this state. Everywhere I go I see Extension's reach—from food and agriculture to youth and families, to community leadership and economic development. The University's impact reaches into every household. A recent economic impact study found that the University of Minnesota generates \$8.6 billion a year in economic activity in the state. That means we return \$13.20 to the state's economy for every dollar of state funding we receive.*

It's true, today's most pressing issues cross state—and world—boundaries. They require strong partnerships, focused investments and diverse perspectives. This issue of *Source* features several of our educational and research programs that make Minnesota a better place for all of us to live, work and grow. Read how Extension *educates agricultural professionals*, thus reaching more farmers with research and crops education. Discover how *Extension 4-H's expertise in youth development* results in youth who are more prepared to learn, lead and positively engage in today's complex world. And learn how Extension's *leadership programs* are creating much-needed local leaders in communities across Minnesota. Keep turning the pages to see more examples of how Extension's statewide network of educators and faculty help people, businesses and communities solve problems, develop skills, and build a better future together.

Sincerely,
Beverly R. Durgan
Dean, University of Minnesota Extension



Extension addresses local challenges with science-based solutions, extending the research and knowledge of the University throughout Minnesota. Pictured: Extension Dean Bev Durgan and University President Eric W. Kaler.

“No University college or program touches the lives of Minnesotans the way Extension does.”

UNIVERSITY OF MINNESOTA
PRESIDENT ERIC W. KALER



Crop farmers learn about the latest University research from ag pros trained by Extension. Pictured: Farmer John Dosedall, right, and Crop Consultant Paul Groneberg.

Reaching more farmers through ag professionals

Extension research and education helps feed a growing population while protecting the environment

Since its inception in 1909, Extension has worked with farmers to find solutions to the biggest challenges. For the past 25 years, Extension has shared the University's research and knowledge with ag professionals, the people who have the most influence on crop farmers today.

John Dosedall says he wouldn't want to farm today without his certified crop consultant, Paul Groneberg. Dosedall grows corn and soybeans near the small town of Hancock in western Minnesota.

"Agriculture has become a highly complex field," says Groneberg, who works for Centrol—a major crop-consulting enterprise in Minnesota. "Farmers need to pull a lot of pieces together to manage the farm, just like with any other business." Ag professionals like Groneberg build the skills they need to help farmers navigate the complexity through regular participation in Extension's Institute for Ag Professionals.

Extension's strategy with ag professionals targets consultants, seed and fertilizer dealers, pesticide applicators, and local Extension educators. The Institute for Ag Professionals reaches its audience through an annual Field School delivered at the University's Research and Outreach Centers, Research Updates offered at locations throughout Minnesota, and a Crop Pest Management course that is part of a trade show each December in

Minneapolis. All of these programs offer certification credits, which are mandated by most crop-consulting organizations.

According to a 2011 survey, ag professionals serve approximately 61 clients each, having an impact on some 48,000 acres. That equates to 4.3 million acres across the state and surrounding regions that Extension's research-based education impacts, based on participation in Institute for Ag Professionals Research Updates alone.

It all began in the mid-1980s when Extension and the ag industry collaborated to start the Field School for Ag Professionals. That led to the development of the Institute for Ag Professionals, which has since become a successful model emulated nationwide because it multiplies the impact of research and education.

By showing real examples in the University's research crop fields, specialists like Jeff Gunsolus provide hands-on learning. Gunsolus is an Extension agronomist and weed-science specialist and one of the researchers who teach ag professionals.



TIMELINE

Reaching farmers in times of change

1970s and earlier

Extension reaches farmers one-by-one and through direct outreach workshops, involving farmers in research and helping them keep up with accelerating science and technology.

1980s Farm crisis hits American farms. The ag profession grows, but many ag industry professionals do not have bachelor's degrees.

1986 Extension and industry come together to offer joint programming via the Field School for Ag Professionals, first held at Crookston and leading to the development of Extension's Institute for Ag Professionals.

1990s Extension offers continuing education credits that apply toward the completion of a Certified Crop Adviser program.

2000s Changing environmental landscapes focus research on water quality and other concerns. Extension continues on-farm research to develop solutions in partnership with farmers and the ag industry.

Today Agriculture has become a much more technical, specialized field, with a higher need for business savvy. Eighty-seven percent of participants say they would recommend Extension's offerings for ag professionals.



(Top) Extension specialists take teaching from the classroom into the field. Pictured: Jeff Gunsolus, Extension agronomist, right, with Mike Blaine, Pioneer account manager.

(Left) Sampling and analyzing a soil core ensures farmers target deficiencies with the right nutrients.

"The agricultural landscape has changed, with herbicide issues in the forefront," says Gunsolus. "When their professionals can explain to farmers which is the right herbicide on the right weed at the right time, farmers use fewer chemicals." Farm resources are then used more efficiently, weeds develop less resistance, and environmental impacts are reduced.

"There are sometimes contradictions between research-based recommendations and business recommendations," notes Jochum Wiersma, Extension small grains specialist. "So only by working together can we change behavior over time."

Dosdall agrees that he has made changes in his operation under Groneberg's guidance. "I apply that knowledge to my cropping system," he explains. "I don't put the same application on every part of my field after learning how to determine which nutrients are needed by which areas."

Like many Institute for Ag Professionals participants, Groneberg is certified in his profession. The development of the Certified Crop Adviser program in the mid-1990s

came about as a synthesis of efforts between the University and the ag industry. This formalized certification ensures growers that those advising them are trained on current topics and best practices.

"The certification workshops go hand-in-hand with all of Extension's opportunities for ag professionals," says Mike Blaine, an account manager for Pioneer, and one of the first to get certified by the program. "We can get into the mode of thinking we already know everything, but things are always changing."

Tony Jacobs is another ag professional who has lived the change in modern agriculture. He covers seven counties in South Central Minnesota working for Crystal Valley Cooperative. He says he relies on Extension for current, timely and accurate information he can provide to growers.

"Growers must compete in the world marketplace," says Jacobs. "Staying current on University research helps me help farmers be environmentally responsible in an era when profit margins are made on efficiencies."

4-H PREPARES YOUTH TO LEAD AND SUCCEED



Youth programs can create opportunities for youth to lead and succeed. Research shows positive youth development happens when youth:

- feel physically and emotionally safe
- experience belonging and ownership
- develop self-worth
- discover self
- develop quality relationships with peers and adults
- discuss conflicting values and form their own
- feel the pride and accountability that comes with mastery
- expand capacity to enjoy life and know that success is possible

Adapted from G. Konopka (1973) and K. Pittman (1991).

Not all youth activities and programs result in positive youth development. More than 100 years of experience and research has proven what it takes to develop youth who are more prepared to learn, lead and positively engage in today's complex world.

Extension's youth development creates positively engaged youth through 4-H, Minnesota's largest youth-serving organization, and teaches other youth organizations how to do the same, creating a receptive environment that challenges and supports youth in communities across Minnesota.

"Youth development, the process of growing up and developing one's capabilities, happens no matter what we do," explains Dorothy McCargo Freeman, Extension associate dean for youth development. "But, it's not always positive. We know that it takes intentional interactions and engagement of youth with caring adult mentors to create positive development of youth."

The results are clear. High-quality youth programs that build social and emotional skills lead to positive youth development outcomes like better grades, enhanced leadership skills, improved self-esteem and a better ability to interact with others.

"Through our research and the 4-H youth development program, we know how to build a force of engaged young people who are able to learn and lead in a global society," says Freeman. Extension's statewide 4-H program, with more than 71,000 engaged youth, serves as a laboratory to study and develop the most effective models for positive youth development. Extension shares this

knowledge by training adult youth workers, volunteers and organizations to create and deliver effective youth programs in their communities.

Experiential learning is at the core of Extension's model. It occurs when youth are involved in a project or activity, look back at their experience critically, determine what was useful or important to remember, and then use the information in real-life situations. Adults can get in the way of this process if they haven't learned how to support and guide rather than direct the youth experience.

"We know how to build a force of engaged young people who are able to learn and lead in a global society."

Through training, 4-H volunteers and youth organizations learn how to apply the experiential learning model. This includes setting aside enough time for reflecting on the experience, asking the right questions, planning developmentally appropriate experiences that lead to reflection, listening carefully and supporting each young person's unique learning.

"Youth learn most successfully when they use and connect new knowledge to other life experiences. In this way, knowledge becomes a part of their experience," says Freeman. "A caring adult who mentors effectively is the cornerstone to this process of positive youth development."

YOUTH LEARN BY DOING

Through training, 4-H volunteers and other youth organizations learn how to support each young person's unique learning.



Adapted from D.A. Kolb, 1984.



Widening the Circle of Leaders in Minnesota Communities

Extension education helps communities fill a leadership gap.



Emerging leaders share ideas with Darlene Macklin, executive director of the Worthington Chamber of Commerce (third from right) and Extension leadership educator Toby Spanier. They join the 2,000-plus Extension leadership graduates working to improve Minnesota communities.

Who will lead Minnesota communities in the 21st century? Mayors? City councils? Business leaders? Certainly. Do they have all the answers? Probably not. Can they lead alone? Definitely not.

Communities today grapple with a host of economic and social changes. They must do more with fewer resources. They must deal with conflicts and controversies. They must seize the opportunity technology offers—without sacrificing the personal touch.

Extension Research Fellow Ben Winchester conducted a study in 2010 showing that demand for leaders in the most rural areas of the state is nearly five times greater than in the most urban areas.

Organizations in these rural counties require one in 34 residents to serve in leadership positions, compared with one in every 143 residents in metropolitan areas.

To complicate things, finding people to lead is tougher today than in the past. Because people often live, work, play and go to school in different communities, their loyalties are divided. And their attention is divided, as they get information from a myriad of places besides the local newspaper.

Extension's leadership programs focus on what people need to lead in communities. In leadership lingo, the programs build "human capital" (individual skills and knowledge), as well as "social capital" (relationships and connections).

"Leadership and civic engagement

programs strive to give participants 'the three C's,'" says Mary Ann Hennen, director for Extension Leadership and Civic Engagement programs. "The confidence to step up to challenges, the competence to think and act in ways that pull people together and solve problems, and the connections to bring new resources, ideas, and perspectives to their communities."

Extension leadership programs are grounded in research conducted at the Hubert H. Humphrey School of Public Affairs and other respected institutions. LCE programs are continually updated to reflect the latest theories, as well as what's happening on the ground.

This research—and experience—show

that leadership programs are more successful in groups, or with cohorts, that meet over time. So Extension leadership programs convene cohorts that meet from six months to two years.

“Extension leadership programs give participants the confidence to step up to challenges, the competence to solve problems, and the connections to bring new resources and perspectives to their communities.”

“Small groups and teams help adults learn,” says Denise Trudeau Poskas, Extension leadership specialist. “Peer groups reinforce knowledge, attitude and behaviors, resulting in a better learning experience for participants.”

Extension leadership programs also focus on real-world application of principles taught in face-to-face and online training sessions. It’s significant, Hennen says, that Extension leadership programs are collaborative efforts—designed and implemented in partnership with community and regional groups that understand local problems, people and possibilities. Groups that sponsor leadership programs are thinking of their community’s future, investing in the kind



Reuben Bode, experienced leader and Minnesota Agriculture and Rural Leadership program alum, shares his experience with community leadership participant, Alie Hermanson.

of leadership they need to thrive.

A community leadership program called McLeod for Tomorrow is one example. “The program continues to be a priority during these challenging times for local governments because of its return on investment,” says Patrick Melvin, administrator in McLeod County. “Alumni of the McLeod for Tomorrow Leadership Program continue to work together even after the training ends.”

Evaluations show Leadership and Civic Engagement cohorts get results. In 2011, 70 percent of graduates increased their level of involvement in at least one community role. Focus groups of graduates yield stories of graduates ready and able to make a difference—whether they are new or experienced leaders.

Graduates of the West Central Leadership Academy (for emerging leaders), for example, report writing grants for their communities, and even running for office.

“This program has been the single, most significant value of my time in many years,”



Extension teaches newcomers in communities how they can contribute to the dialogue on important issues. Pictured: Vanessa Van Dam, emerging leadership participant.

says Monica Rose Anderson, a graduate of a Minnesota Agriculture and Rural Leadership cohort (for experienced leaders). “It will produce years of payback to my community, my state, and my nation.”

FOUR APPROACHES TO EXTENSION LEADERSHIP EDUCATION

EMERGING

Increase confidence and competence for those new to leadership—and encourage people to step up.

EXPERIENCED

Improve skills and expand outlook for elected, appointed and other leaders ready to build on what they know.

STRENGTHENING
Confidence
+
Competence
+
Connections
FOR COMMUNITIES

COMMUNITY

Increase local knowledge, build connections and strengthen skills for residents and leaders from across an area, county or region.

ORGANIZATIONAL

Strengthen leadership on community issues for organizations that work for the public good.

GROWING HEALTHIER FOOD



Extension high tunnel research helps growers increase the quantity and variety of produce so Minnesotans can enjoy more locally grown food.

High tunnels extend Minnesota's growing season

Early Extension research on high tunnels has helped growers learn to build and use them for cold-climate fruit and vegetable production. Now the simple hoop houses also serve as a nursery for Extension horticultural research.

“The consistent weather inside of a high tunnel allows us to trial a larger variety of plants for more months out of the year,” says Extension horticulture educator Terry Nennich, who helped bring high tunnels to Minnesota in 1999.

The University's first research high tunnels were built at the Northwest Research and Outreach Center in Crookston. By 2007, there were approximately 150 high tunnels in Minnesota; the state is now a national leader in this area with more than 800 in use.

While high tunnels are proven problem-solvers, they aren't without their challenges. Now, a three-year grant from the Blandin Foundation will help Nennich and other

Extension researchers answer research questions on topics such as:

- getting beneficial insects like bees in, while keeping pests out
- growing warmer-climate foods, such as baby ginger, which has unique health benefits and appeals to local chefs
- working with tree fruit and other edible crops not normally grown successfully in cold climates
- improving plant metabolism to increase yields
- increasing phytonutrient levels of plants to increase health benefits

“High tunnels have extended the growing season in Minnesota, increasing farm-to-school programs and farmers markets,” says Nennich. “Continuing research will make that food healthier, while boosting production and economic opportunities.”

Increasing health benefits in vegetables

Did you know you can make the produce you grow even healthier, with just a few changes in how you garden?

“Cancer-fighting phytonutrients are part of a plant's own system to fend off disease and insect attack,” says Extension horticulturist Vince Fritz. “The plant produces more of these natural chemicals when it's under stress.”

Adding a little stress is something you can do in your home garden. Fritz is developing tips on how to do that, along with recommendations about vegetable variety. This information has been available to commercial food producers in the past but will reach home gardeners via the Extension website this winter.

Choosing the right varieties is the first step in growing healthier foods. Specific phytonutrients—glucosinolates, for example, have also been shown to reduce cancer risk in animal models and are available in higher concentrations in some varieties.

Fritz has continued to work with other researchers to determine which cruciferous vegetable varieties—such as cabbages and broccoli—have the most potential to defend against cancerous tumors and other disease.

Strategies for increasing phytonutrients in your produce may include different planting dates, soil fertility, plant spacing, light quality and water. Watch for more information to come on the Extension website before the next growing season begins.



Extension identifies which vegetable varieties have the highest potential for benefitting human health, and helps growers learn natural methods to increase that potential.

13 MOONS

Natural resources education inspires culture and community

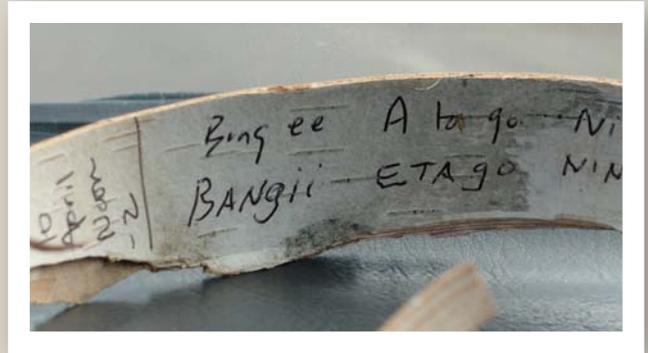
In 2007, tribal leaders for the Fond du Lac Band of Lake Superior Chippewa invited Extension to help create a public outreach program that focused on natural resources for the community. One outcome of that collaboration was 13 Moons, a program named after the moons that make up a lunar year.

Thirteen Moons began as a partnership between Extension and the Fond du Lac Tribal and Community College. “We realized by working together we could accomplish more,” says Extension American Indian and Tribal Partnerships liaison Dawn Newman. Newman worked with the Fond du Lac Resource Management Division to develop a grant that eventually led to the hire of David Wilsey, an Extension natural resources educator.

“Tribal members shared that they felt disconnected from cultural knowledge and natural resources,”

says Wilsey, who had conducted a highly participatory needs assessment with members of the University and Fond du Lac community. The group adopted the Ojibwe term “nimbizindawaanaanig” for the assessment, meaning “We listen to them.”

Wilsey found the community had a strong interest in better managing the non-timber resources from the forests, such as black ash strips for basketry, maple syrup, and products—like porcupine quills and animal skins—from the woodland wildlife. These natural resources are woven into the community’s identity, traditions, and cultural economy. Thirteen Moons features tribal expertise through workshops on these topics, as well



Minnesota’s Fond du Lac Band of Lake Superior Chippewa are improving their management of traditional natural forest resources, as one result of their partnership with Extension and Fond du Lac Tribal Community College.

as hunting, wild edible greens, traditional fishing and snaring, and Ojibwe cultural arts.

In 2011, 13 Moons leadership transitioned to the community college, and the program continues to benefit from the University partnership. Now, for example, some Fond du Lac community members are becoming trained Extension Master Gardener volunteers and have developed the Ojibwe Garden program, which promotes traditional Ojibwe cropping systems and strategies for growing organic food and medicinal plants.

Helping families adjust to changing economic conditions

“In today’s economic climate, the people in need of financial education—and their needs—are ever-changing,” says Mary Jo Katras, Extension family resource management educator. “Many are newly unemployed and adjusting to lower incomes for the first time in their lives.”

Dollar Works 2 is Extension’s financial management curriculum used by organizations nationwide because it meets the needs of families facing the challenges of living on fewer resources, job layoffs or family transitions.

The curriculum adapts to address the unique challenges of participants, such as rural families. “People who live in rural areas have unique challenges, such as availability of childcare and transportation,”

says Trish Olson, Extension family resource management specialist. “Dollar Works 2 encourages families to develop spending plans that meet their unique needs.”

A groundbreaking, multi-state research project, “Rural Families Speak,” brought the needs of rural families into focus. Jean Bauer, an Extension family resource management specialist who passed away in July, led the study, which culminated in the book “Rural Families and Work: Context and Problems.” The book provides a solid foundation for understanding rural employment problems and issues, and informed the development of Dollar Works 2.

“It’s a reciprocal relationship. We listen to



the needs of our communities and, with our participants, create strategies to support those needs,” says Katras, reflecting Extension’s commitment to providing education rather than prescriptions.

“As Jean Bauer would say, we don’t presume to tell people how to spend their money,” Olson adds. “We provide them with the knowledge and tools to make their own best choices.”



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