New ways for old terrain
Rules of (youth) engagement
Making connections from farm to school
ON THE COVER: Sauk Centre-area farmer Tyler Carlson (in red shirt) learns about tree selection and management from Extension agroforestry educator Diomy Zamora. As interest in sustainable agriculture grows, Zamora and other Extension educators are teaching Minnesotans about agroforestry and its benefits, including healthier soils, water conservation, and increased crop and forest yields.

Source is published annually and is available online at www.extension.umn.edu/source.

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University of Minnesota Extension mission: Making a difference by connecting community needs and University resources to address critical issues in Minnesota.

FROM THE DEAN

JOIN EXTENSION IN YOUR SOCIAL NETWORKS!

NEW WAYS FOR OLD TERRAIN

RULES OF (YOUTH) ENGAGEMENT

MAKING CONNECTIONS FROM FARM TO SCHOOL

NEWCOMERS MEAN ‘BRAIN GAIN’ FOR RURAL MINNESOTA

LONG-TERM RESEARCH DRIVES PLANTING RECOMMENDATIONS

SEELEY, BRENEMAN TEAM UP ON ‘VOYAGEUR SKIES’

WINTER’S ON ITS WAY: YARD AND GARDEN
The forces of change that impact all of us—demographic shifts, rapid advances in technology, increased competition, limited public and private funding—are here to stay and increase the need to be strategic, adaptive and focused while responding quickly. Extension helps Minnesotans respond by using research and education to improve the future of Minnesota.

The University is also experiencing another exciting change and opportunity: new leadership. Eric Kaler, who was named the University’s 16th president in December, took office this summer following the retirement of President Robert Bruininks.

“The University of Minnesota is our state’s glowing gem,” says President Kaler, a University of Minnesota graduate. “We must fight to preserve its state-wide role, its national rankings and its ability to prepare young Minnesotans to be the best and smartest they can be. We are a collection of people, places and programs with a tradition and a spirit that must flourish, and not be allowed to wither away.”

This issue of Source highlights many ways Extension furthers the tradition and spirit of using research and education to create a better future. Read how Extension educators teach farmers about agroforestry and the benefits of healthier soils, water conservation and increased crop and forest yields. Discover how Extension’s 4-H prepares youth to excel in college, careers and communities by teaching them lifelong skills, including communications, problem-solving, decision-making and coping. And learn how Extension joins forces with other state agencies to move the farm to school agenda forward in Minnesota, making locally grown fruits and vegetables available in school lunchrooms across the state.

During these dynamic times, Extension remains committed to innovating for a brighter future.

Sincerely,

Beverly R. Durgan
Dean, University of Minnesota Extension

This is a time of great change and opportunity for our University community and the communities we work with across Minnesota.

Whether you’re a social media beginner or self-proclaimed addict, you can connect with University of Minnesota Extension in your social networks.

“Social media is another way we provide Minnesotans with the latest, most useful research and information they can trust,” says Extension Dean Bev Durgan. “It’s also a way for us to listen and find out about emerging needs.”

Social networks like Twitter, Facebook and YouTube allow Extension to communicate and share updates about the issues that most affect you—dealing with emerald ash borer, cooking healthy meals on a budget, or getting crops out during a late harvest, for example. And when you “Like” Extension on Facebook or “Follow” us on Twitter, you can track the latest news from our statewide network of educators and researchers, read interesting stories, and join in real-time conversations.

Tell your friends and family: Extension wants to connect with you!

“Follow” us on Twitter
www.twitter.com/UMNExt

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For a listing of Extension programs and their social networking sites, visit www.extension.umn.edu/connect
As interest in sustainable agriculture grows, Extension educators are teaching Minnesotans about agroforestry and its benefits, including healthier soils, water conservation, and increased crop and forest yields. For Tyler Carlson, a recent graduate of the University of Minnesota, the timing for learning about agroforestry couldn’t have been better.

Carlson, 25, plans to take over management of the Sauk Centre-area farm that has been in his family for nearly four decades. He got to know Extension educator Diomy Zamora during an agroforestry class through the University’s College of Food, Agricultural and Natural Resource Sciences.

But Carlson and Zamora didn’t part ways when the class ended. Zamora’s Extension position keeps him involved with people who want to adopt integrated land-use systems but aren’t sure where to start.

The agroforestry practice Carlson plans to implement is called silvopasture, managing woodlands for livestock grazing and timber. Silvopasture, one of the five integrated agroforestry practices, allows landowners to plant or utilize money-making trees without losing use of the acreage. It also reduces erosion, leads to cleaner stormwater runoff and improves timber value for long-term profit, according to Zamora.

“More than 800,000 acres of Minnesota woodlots are grazed, but the majority is not managed,” Zamora says. “Farmers who turn cattle out into woodland without planting proper forages or strategically rotating the animals eventually downgrade the trees, plants and soil.”

Carlson’s family has never raised livestock, although he’s working on a business plan to market grass-fed meat like sheep and beef cattle.

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Extension agroforestry educator Diomy Zamora (right) advises Sauk Centre-area farmer Tyler Carlson, who decided to manage trees to his advantage rather than cutting them down. Carlson is making plans for a grass-fed beef operation.
Agroforestry is the intensive, intentional combining of trees and/or shrubs with crops and/or livestock to create sustainable land-use systems. There are five integrated practices of agroforestry:

- **ALLEY CROPPING** integrates annual crops with high-value trees and shrubs grown along rows for energy or products.
- **FOREST FARMING** is growing food (nuts, berries, mushrooms), medicinal and decorative products under the protection of a managed forest canopy.
- **RIPARIAN FOREST BUFFERS** are plantings of trees, shrubs or grasses along waterways to stabilize stream and river banks, prevent erosion, filter sediment, nutrients and pesticides, and improve fish habitats.
- **SILVOPASTURE** involves trees, livestock and forages growing together in a managed, interactive system.
- **WINDBREAKS** are plantings of trees and shrubs designed to enhance crop production, protect people and livestock, and benefit wildlife, soil and water resources.

Source: USDA

“The shade offered by the right selection of trees will reduce heat stress on my animals, helping them gain weight,” says Carlson. “And the right perennial forages will require fewer inputs and be more digestible when they are grown in the shade of the trees.”

Carlson will also attend Extension agroforestry workshops to learn about tree selection and management, “like how to thin the timber stand so the trees will let in the right amount of sunlight needed by the growing forages and provide a long-term investment in the timber,” Carlson says.

Extension agroforestry educator Gary Wyatt teaches farmers how to adopt practices that protect Minnesota’s natural resources and fit into their existing operations, too. “Individual landowners can plant crops that offer environmental benefits and are eligible for state and federal incentives,” he says. “But the collective benefits—to water quality, air, soil and wildlife habitat—impact all of us.”

At 200 acres, the Carlson farm may seem small in the middle of dairy country. But Carlson fits the profile that proponents are starting to identify as the modern-day pioneers of agroforestry. “We expect small farms—some of them managed by the new generation—to be some of the earliest adopters,” Zamora says. “Tyler is in a great position right now to assess his farm’s use of land and to make decisions that protect natural resources for generations to come.”

For more Extension agroforestry resources, visit www.extension.umn.edu/agroforestry

**Improving water quality along the riverbank**

Trees growing along rivers, lakes or other waterways can protect water quality by reducing the amount of sediment, nutrients and pesticides that would otherwise end up in surface waters. When those trees are part of an integrated land-management plan, they comprise a riparian forest buffer, one of the five practices of agroforestry.

Extension, the Minnesota DNR and the Vermillion River Watershed Joint Powers Organization collaborated to establish a permanent riparian forest-buffer demonstration site in 2009. The area sits along the Vermillion River, a state-designated trout stream in Dakota County.

Apart from improving water quality, riparian forest buffers can provide shade to cool the water and reduce threats to trout populations. Trout need cold water to survive, but some of Minnesota’s 450 miles of trout streams are experiencing warmer temperatures, including the Vermillion River.

Since the project’s inception, Extension agriculture production/water quality educator Phyllis Bongard has directed the educational components, developing outreach materials and tours to educate landowners.

“Extension has been fantastic in helping the public learn about the buffers,” says Brian Nerbonne, DNR trout habitat specialist. “They also brought the expertise on tree selection and controlling invasive vegetation.”

For more information on riparian forest buffers and the Vermillion River demonstration, visit www.extension.umn.edu/buffers
The 4-H model, based on University research, utilizes methods that sustain long-term learning and behavior change in young people. Using that as its foundation, 4-H helps youth develop key skills they will need to succeed in college, their careers, and communities, such as communications, problem-solving, decision-making and coping. Ongoing research shows the 4-H model is proving quite effective.

According to a national longitudinal study by Tufts University, youth who participate in 4-H have better grades, are more emotionally engaged with school, are more likely to see themselves going to college, and are more than twice as likely to be civically active and make contributions to their communities.

Eich, who first became involved in 4-H as a shy fifth-grader in Anoka County, credits the Extension youth development program for much of the improvement in her interpersonal communications skills. Through 4-H, she made new friends and learned about her favorite subject, horses.
Community service, volunteerism and service-learning are at the core of 4-H programs. At this year’s statewide 4-H youth-leadership conference, some 400 youth in grades 6 through 12 spent a day participating in onsite service-learning projects throughout the Twin Cities.

Youth from all over Minnesota gave of their time at city parks and nonprofit organizations, combining learning experiences with the chance to serve community partners and explore civic responsibility. They made fleece blankets for Women’s Advocates, a shelter for women and children. They planted trees and native plants for Como Woodland Classroom, a 17.5-acre outdoor classroom in St. Paul’s Como Regional Park. They also spent time weeding and watering fruits and vegetables at JD Rivers’ Children’s Garden, a community garden in Minneapolis’ Theodore Wirth Park.

“We teach young people skills that will help strengthen communities throughout Minnesota,” says Dorothy McCargo Freeman, State 4-H program leader. “Through 4-H, kids come together from across the state and learn how to identify needs in their counties. They gain real-life experience by planning service projects and then executing those ideas.”

To learn more about Minnesota 4-H, visit www.extension.umn.edu/youth/mn4-H

“Community service, YOUTH STYLE”

Joseph Toninanto will tell you that 4-H changed his life. Six years ago, his friends talked about how great 4-H was, but he was nervous to join. After taking time to muster up the courage, he attended a youth-leadership conference. He’s gone every year since.

“I learned self-confidence and how to talk to people,” Toninanto, now 18, says of his experiences in 4-H. He said that 4-H gave him an outlet to practice his public-speaking skills and eventually led to him serving on student council in high school.

4-H’s focus on giving back to community also resonated with Toninanto. Today, he mentors and teaches younger kids taekwondo. He earned a black belt in the Korean martial art when he was 15 years old, the youngest person to achieve that level in northern Minnesota.

Now a freshman pre-med student at the University of Minnesota Duluth, majoring in mathematics and biology, Toninanto teaches taekwondo to youth in the Duluth area.

“4-H brought me out of my shell and gave me the tools I needed to achieve my goals in life,” says Toninanto.

To learn more about becoming a Minnesota 4-H member, visit www.extension.umn.edu/go/1073

It takes a lot of confidence to leap successfully through the teen years, confidence that taekwondo black belt Joseph Toninanto credits to his participation in 4-H.

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To learn more about service learning and Minnesota 4-H, visit www.extension.umn.edu/go/1071
Rentz is one of more than 100 food service directors throughout the state to participate in farm to school efforts, working with area farmers like Webb to provide fresh food for the schools. “It’s a nice way to support our local farmers, many of whom have children in the district,” says Rentz.

Since committing to local foods three years ago, Rentz has relied heavily on University of Minnesota Extension resources, which facilitate farm/school relationships and educate both parties on how to work together successfully.

Last year, Rentz attended a Farm to Cafeteria workshop organized by Extension in partnership with several supporting organizations. The workshop, one of eight in 2010, featured a panel of producers, food service personnel, and educators with direct farm to school experience who discussed getting started, rules and regulations, and how to overcome barriers. Following the panel, participants “speed-networked,” pairing food service directors with farmers like Webb in four-minute periods, resulting in many new contacts.

“It’s been extraordinarily successful,” says Stephanie Heim, Extension farm to school coordinator. “Many farm to school programs are a direct result of farmers and food service providers who connected through those workshops.”

Heim also introduces food service directors to Extension community nutrition educators, many of whom are already active in the schools, teaching children about healthier eating habits. “Kids have to like and consume the food before it can impact their health,” says Donna Anderson, a Wadena County-based Extension community nutrition educator and one of more than 100 such educators statewide.

Throughout the school year, Anderson delivers hands-on nutrition education to encourage kids to eat more fruits and vegetables. By connecting with food service directors like Rentz, Anderson can tie a classroom tasting lesson to a local food also scheduled for the school menu.

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Independent of kids’ taste buds, understanding and patience is required for schools and producers to work together. Both Heim and Terry Nennich, Extension horticulture educator, help them navigate the partnership. Nennich offers training for growers like Webb on how to provide for schools. “Many schools aren’t equipped to process local foods,” Nennich says. “We work with growers to think about products that don’t need a lot of prep—cherry tomatoes, melons, apples, carrots and sweet corn, for example.”

Another issue in Minnesota is that the main growing season occurs outside of the school year. Nennich introduces the concept of high tunnels—solar-heated greenhouses, which can extend the growing season by five to six weeks. He is currently working with Wadena-Deer Creek High School to construct high tunnels on the school grounds.

In her own high tunnels, Webb has planted hundreds of cherry tomatoes in preparation for the 2011–12 school year. “The school said it would take as many tomatoes as we could produce for summer school and into the fall,” she says. “It’s wonderful to know I’m providing those kids with fresh fruits and vegetables.”

For more information on Extension farm to school resources for farmers, schools, parents and teachers, visit www.extension.umn.edu/farm-to-school

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**Food service workers learn fresh approach**

How do you slice and dice mountains of fresh produce, bearing in mind food safety regulations, a tight schedule, and more than a few picky eaters? These are the challenges facing food service personnel who accommodate thousands of hungry students every day. As part of the state’s Great Trays Partnership (funded by the U.S. Centers for Disease Control and Prevention), Extension and the Minnesota School Nutrition Association provide schools with training to help process fresh, local foods.

Two seminars were held last February and June, which introduced participants to industrial food processors and wedgers that efficiently peel, chop, or slice whole fruits and vegetables. Schools that attended the training sessions, led by the Minnesota Department of Health, also learned how to properly use a chef knife—a skill not well-utilized with traditional cafeteria food that often comes canned or pre-cut.

Training materials and resources, including Extension’s Farm to School Toolkit, offered kid-tested recipes and techniques like roasting or steaming. The sessions featured a review of the safety regulations for receiving, handling and storing fresh foods in mass quantities.

To access Extension’s online Farm to School Toolkit, visit www.extension.umn/farm-to-school/toolkit

For more information on the state’s Great Trays Partnership, visit www.extension.umn.edu/health/great-trays

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**STRENGTH IN NUMBERS**

To move the farm to school agenda forward in Minnesota, Stephanie Heim, Extension farm to school coordinator, and Lisa Gemlo, Minnesota Department of Health farm to school planner, recently co-convened a statewide leadership team. Eleven member organizations have joined the group that strives to maximize the resources, ideas and impact of the state’s many farm to school efforts:

- Blue Cross and Blue Shield of Minnesota
- Institute for Agriculture and Trade Policy
- Minnesota Department of Agriculture
- Minnesota Department of Education
- Minnesota Department of Health
- Minnesota Department of Human Services
- Minnesota Institute for Sustainable Agriculture
- Minnesota School Nutrition Association
- University of Minnesota Extension
- University of Minnesota Regional Sustainable Development Partnerships
- USDA Rural Development
The perception of rural America is often one of stagnation and decline. High school graduates flee their small towns for college or to jump-start exciting careers, never to return.

Despite the loss of the twentysomethings, Extension research fellow Ben Winchester doesn’t see doom and gloom for rural America, and he has the numbers to prove it.

Through careful analysis of 2000 and 2010 U.S. Census data, Winchester has uncovered another rural migration trend: growth among 30- to 44-year-olds. He calls this addition of middle-agers, who bring with them educational achievements and established earning power, the “brain gain” of the newcomers.

“Rural communities appear to be exchanging high school graduates for residents with bachelor’s degrees, careers, professional networks and children,” says Winchester, who has published studies about the trend and led research to learn more about these new residents.

In Minnesota, 94 percent of rural counties experienced growth in the 35- to 44-year-old age group between 1990 and 2000. That trend continued through 2010 at a rate slightly below that of the 2000 Census, according to Winchester.

“People are making lifestyle, quality-of-life decisions,” he notes. “The top three reasons they give for making the move are a slower pace of life, the low cost of housing, and safety and security.”

Winchester hopes his research helps community leaders reach out to newcomers who are part of this demographic.

“It’s the rule that young people leave, not the exception,” Winchester says. “What rural communities can do is focus on becoming a place to move to once those young people have gained their education and expertise.”

To learn more about Winchester’s rural brain-gain research, visit www.extension.umn.edu/community/brain-gain

Local leaders are using information from University research on newcomers to inform marketing efforts and economic development plans. A study led by Extension research fellow Ben Winchester is helping them recruit a particular group: 30- to 44-year-olds who comprise a higher skill, entrepreneurial demographic.

In 2010, Winchester directed focus groups and conducted surveys with new residents of seven west-central Minnesota communities located in Big Stone, Chippewa, Lac qui Parle, Swift or Yellow Medicine counties.

One of the most surprising insights, according to Dawn Hegland, executive director of the Upper Minnesota Valley Regional Development Commission, challenged the assumption that adults moving into the area had grown up there.

“More than half of those who chose to move here had no connection with the region before,” says Hegland, who works with units of local government to help the five-county region thrive. “Yet no one’s been out there actively recruiting for new residents.”

The research, funded by the Economic Development Administration Center at the University of Minnesota, Crookston, also revealed the newcomers to be very skilled and educated. Some 68 percent received bachelor’s degrees or higher, and 23 percent own or operate farms or other businesses.

“It shows there is hope for rural communities,” Hegland says.

To learn more about the rural brain gain and access resources for communities, visit www.extension.umn.edu/community/brain-gain
Breneman, Seeley team up on ‘Voyageur Skies’

New book chronicles the seasons in Minnesota’s only national park

For decades, retired Extension photographer Don Breneman has used his camera lens to capture the spectacular beauty of Voyageurs National Park, located just 30 miles from where he grew up in Littlefork, Minn. Now, the rest of the world can have a peek, too.

Breneman teamed up with Extension climatologist Mark Seeley on a new book, “Voyageur Skies: Weather and the Wilderness in Minnesota’s National Park,” released in June. The book chronicles the seasons in Voyageurs National Park through more than 80 of Breneman’s stunning photographs and Seeley’s account of how weather and climate have shaped the park’s pristine landscape.

“Don has a life’s worth of photos, memories and appreciation for Voyageurs that needed to find a story,” says Seeley, who has studied Minnesota’s climate for 34 years. “Voyageur Skies’ is educational in that it describes the climate of this unique place, its ecosystem, wildlife and waters, as well as how all of that is being affected by climate change.”

When he realized that most of his photos depicted the park’s weather conditions, Breneman approached longtime friend and colleague Seeley about collaborating on the project. In addition to detailing the seasons, Seeley describes four major trends in climate for Minnesota and the park over the last three decades: warmer winters; higher daily minimum temperatures; increased summer humidity; and greater variation in the annual rainfall from thunderstorms.

The book also facilitates wider discussion and understanding of implications for the future if Minnesota’s natural resources are to be preserved. Voyageurs is Minnesota’s only national park and America’s lone water-based national park, featuring 134,265 acres of forested land and 83,789 acres of water.

Written for general readers and also for classroom use, the book will be the centerpiece for educational programs to be offered jointly by Extension and the University of Minnesota Water Resources Center.

To order autographed copies of “Voyageur Skies” (at $29.99 each), call 1-800-876-8636 or visit www.extension.umn.edu/go/1068

For more information on Extension climate and weather education resources, visit www.extension.umn.edu/climate

WET SPRING: Long-term research drives planting recommendations

To say the 2011 planting season got off to a slow start is an understatement. Cold, wet weather kept farmers out of the field during Minnesota’s prime corn-planting window: the last week of April and first week in May.

Roughly one-fifth of the state’s 8 million acres of corn remained unplanted as of May 22, according to the USDA. Farmers worried about the effect on yield, and many considered switching to soybeans, which require a shorter growing season.

Still, the wet spring wasn’t a Minnesota first and Extension agronomist Jeff Coulter was confident he could provide farmers with information that would help maximize their earnings. Coulter examined 23 years of research that showed impacts of planting dates and weather conditions on corn yield. “We could put numbers to the risk from year-to-year variability in rainfall, temperature and pest pressure,” Coulter says. “Our research could predict with precision on which date farmers should consider a switch to soybeans.”

Extension experts statewide joined Coulter in interpreting this long-term data, which included teaching producers about earlier maturity hybrids, optimum planting dates and strategies for getting the most out of a late-planted crop. Extension agricultural business management experts also developed a tool that helps farmers determine on a case-by-case basis whether they should change their cropping plan.

“Everything is based on ROI [return on investment], and we’re committed to helping growers make the right decisions in challenging times,” says Coulter.

For more Extension crops resources, visit www.extension.umn.edu/crops
Get your yard and garden ready before frigid temps arrive

Feeling overwhelmed by all there is to do before the snow flies? Searching for an excuse to enjoy the last few days outside without a parka?

“With our shorter growing season, we Minnesotans need to take advantage of every nice day in our gardens and home landscapes,” says Julie Weisenhorn, state director of the Extension Master Gardener program.

Extension’s website is chock-full of gardening resources to help you prepare for Old Man Winter. To get you started, here are some tips from the experts:

LAWN CARE Instead of scalping your lawn in the fall (a stressful condition for turfgrass), gradually reduce and maintain about a 2-inch height over the last few mowings. Extension turfgrass educator Bob Mugaas recommends applying nitrogen fertilizers through mid-September, when absorption levels are most efficient.

FLOWERS Division is a useful technique to help keep your perennial border healthy and neat. Cut or pull apart the root clumps, leaving two or three new shoots per segment. Plant the new divisions at the same depth as the old plant, water thoroughly, and keep the soil moist for several weeks. Good fall candidates include Asiatic lily, bearded iris, daylily, Jacob’s ladder, peony, tall phlox and Siberian iris.

VEGETABLES Many cold-tolerant vegetables actually taste better when grown in cool weather, when the frost “sweetens” them. Beets, brussels sprouts, cabbage, collard greens, green onion, kale and peas can survive down to at least the high 20s. After harvesting, clean up plant debris and plant “green manure” (legumes, grasses and broadleaf plants) to keep away weeds, prevent soil erosion and add organic matter to the soil.

“Fall is a great time to cut back and clean up dead plant debris, which can harbor harmful insects and diseases,” Weisenhorn says.

For more Extension gardening resources, visit www.extension.umn.edu/garden
For more Extension lawn-care resources, visit www.extension.umn.edu/turfgrass