

Nebraskans doing ‘what extension does best’

University of Nebraska–Lincoln Extension increasingly is going international, with initiatives in Tanzania and Afghanistan that aim to bring some comfort and aid to those parts of the world.

Former North Platte 4-H'er Collin Shepherd recently returned from a stint as the first 4-H Intern in Tanzania through the National 4-H Council. Meantime, extension is collaborating with the Nebraska National Guard to share agricultural expertise with farmers in eastern Afghanistan.

“We’ve been hearing for years about the planet getting smaller, so countries, cultures, societies and people are so much more closely tied together than they used to be,” said Elbert Dickey, extension dean and director. “It’s natural for Nebraska extension to be a part of reaching out across the world.

“It’s about translating research into extension educational programs appropriate for farmers who generally do not have access to technologies commonly used in the Midwest. It is helping them move from a war-torn region back into food production that can lead to more self sufficiency.”

Shepherd said he gained a lifetime worth of memories and stories to tell. As he prepared to leave Tanzania, he posted this on his blog:

“I have barely had enough time to appreciate all that Tanzania has to offer, but I have very much enjoyed getting to work with the 4-H Tanzania organization and getting to know the people who are changing the lives of thousands of youth.”

As Shepherd was returning, extension educator Vaughn Hammond was making final arrangements to head to Afghanistan. There, he will spend two months as a consultant to efforts to help Afghan farmers transition from war to growing crops earlier generations grew before war befell the country.

Hammond, a specialist in growing small fruits and market vegetables, is based at the Kimmel Education and Research Center at Nebraska City. Afghans formerly grew such crops, prior to the more than two decades of war that began with the Soviet Union invasion.

“So many farmers didn’t survive. Their art of taking care of the land and producing food was not passed down to their children. We want to give them some options beyond what they’re doing now,” Hammond said.

To that end, Hammond will be working with the Nebraska National Guard Agribusiness Development Team, which



Courtesy photos

Collin Shepherd, former North Platte 4-H'er, meets new friends while working with a 4-H organization in Tanzania.

previously received training on farming techniques from extension.

“It’s pretty exciting,” Hammond said. “It’s an awesome opportunity to do what extension does best — help the people.”

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Dean's comments

Food, fuel and water are focus areas for Nebraska Innovation Campus (NIC), which will, working with the private sector, build on University faculty expertise to strengthen Nebraska's economic growth.

Food, fuel and water also are focus areas for UNL Extension as we work throughout Nebraska. With our faculty's expertise, extension will play an important role working with entrepreneurs, businesses and communities to put NIC innovations to work creating jobs and economic growth throughout our state.

I think it's wonderful the old State Fair 4-H Building is being renovated as an anchor for NIC, which will be about innovation and scientific discovery.

Innovation is part of extension's heritage, and there's a national 4-H mission to increase youth's interest in science, technology, and engineering to help ensure a successful U.S. future (4-H Science).

Nebraska 4-H is a leader in this effort.

During the fourth 4-H National Science Day in October, hundreds of thousands of youth nationwide will take part in a "Wired for Wind" experiment developed by our extension faculty John Hay and Brad Barker, who works with our robotics program, also furthering 4-H Science. Youth will learn more about wind energy, certainly a fuel in UNL Extension's fuel, food and water focus areas.

Our work in food and water is seen throughout Nebraska, and was highlighted at the international Water for Food Conference in May as extension irrigation and water resource specialist Derrel Martin gave an excellent presentation on how time, labor and need for water influence irrigation, which nourishes crops that feed the world.

Food, fuel and water also are topics in the recent *Power & Promise: Agbioscience in the North Central United States* report by Battelle Technology Partnership Practice and BioDimensions, done for the North Central Regional Association of State Agricultural Experiment Station Directors and the North

Central Cooperative Extension Association. It's available at <http://ncea.org/documents/powerandpromiseweb.pdf>.

Ours is one of 12 land-grant universities that compose the North Central Region. This report highlights the importance of extension and agricultural experiment stations in the region, noting they're "... a foundation on which the \$125 billion, 2.4 million job agri-

culture-driven industry in the region is built," and citing agriculture and agbiosciences as key to meeting such global challenges as food security, human health, economic development and environmental stability.

"... agricultural research and extension education will provide the fundamental architecture for U.S. growth, prosperity and competitiveness in the 21st Century Bioeconomy," the report says. "Realizing this promising future, however, depends on ongoing public and governmental support for the land-grant mission and the provision of required financial resources to enable the continued work of experiment stations and extension services."

That's a thoughtful caution in these economic times. With agriculture and agbiosciences key to meeting major global challenges, it takes all of us, working together, to build for the future, keeping extension and agricultural experiment stations strong.

Elbert Dickey
Dean and Director
University of Nebraska–Lincoln Extension



Elbert Dickey

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Entrepreneurial know-how boosts businesses, state

Armed with a wheelbarrow and knowledge from University of Nebraska–Lincoln Extension, Anita Gall of Scottsbluff started her own landscaping business.

That was 14 years ago, and, she said, “one job at a time.”

Today Anita’s Greenscaping is extremely busy and challenged by the pace, labor and on-going job of finding and retaining good help.

One thing that helps the small business owner be successful is keeping current on horticultural knowledge through extension education, Gall said.

“Things change. I try to take care of plants and do it correctly,” said Gall, adding, “I’m pretty particular.”

Growing up on a Morrill-area farm, Gall knew field crops. Then 25 years ago she took a job in a parking lot greenhouse. Later she worked in a garden center before embarking on her own.

Along the way she gained research-based knowledge about garden plants and flowers from extension’s Master Gardener program, and tree knowledge from Nebraska Forest Service workshops. Knowing the information comes from the university gives Gall confidence in what she does for her customers, she said.

“It’s surprising how many people don’t know we have this resource,” said Gall, who as a Master Gardener herself gives back time and knowledge to her community.

When she has questions, Gall checks with Jim Schild, an extension educator based in Scottsbluff, who works with others through the university. Schild also coordinates horticulture and turf education, such as the 25th annual High Plains Turf and Landscape



David Ostidiek

Anita Gall, Master Gardener and owner of Anita’s Greenscaping, and UNL Extension educator Jim Schild compare notes about a mountain mahogany shrub at the university’s Panhandle Research and Extension Center at Scottsbluff.

Conference for professional groundskeepers.

Schild also helped three area wineries get their start. It’s all part of extension’s efforts to help people develop as entrepreneurs, and help draw young people to rural Nebraska, and retain them there.

“Our challenge is to keep youth in our communities,” Schild said. “There are opportunities in rural Nebraska. The biggest drawback is people think there are no jobs here.”

People who have started their own businesses “have done pretty well,” he added.

Helping people succeed as entrepreneurs also is the goal of the statewide Entrepreneurship Acceleration System (EAS), in which extension is partnering with others to help strengthen Nebraska small businesses and startup enterprises through mentoring.

Earlier this year EAS began training its

first 27 businesses and academic mentors in methods developed by the Gallup Organization, and matching them with Nebraska business owners to help build their ventures and create jobs.

Extension dean Elbert Dickey said the effort fits the university’s goals of helping the state develop.

“All of us support the bottom line of trying to help businesses succeed and, in the process, create new jobs,” Dickey said.

Besides Gallup and extension, partners in the project are the Nebraska Department of Economic Development and the Greater Omaha Chamber of Commerce. The program has the potential to help 400 businesses statewide in the next two years.

— Cheryl Alberts

Schild can be contacted at (308) 632-1480.

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More crop per drop is water team theme

In a part of Nebraska that typically receives only 16 to 17 inches of precipitation annually, water for crop irrigation is a very big deal.

Getting the most of every drop for crops is the focus of a multidisciplinary team at the University of Nebraska–Lincoln West Central Research and Extension Center. The team is collaborating to more fully understand all aspects of dryland and limited crop irrigation for profitability and maximum yield.

UNL Extension specialists and educators are exploring various water management strategies through work done at the West Central Water Resources Field Laboratory at Brule. Successes are shared with area producers during field days.

“A big focus of what we are trying to relay to producers is understanding this from a systems approach, from the big picture and how management system decisions we make today are going to affect us tomorrow,” said Greg Kruger, extension cropping system specialist based at North Platte.

Team members include Simon van Donk, irrigation/water resources specialist, and Aaron Stalker, beef range systems specialist. They are exploring how removing varying amounts of crop residue affects soil moisture over the years.

“We really try to tie together all aspects of crop production as it relates to irrigation and water management — from residue removal to variable rate irrigation, nutrition management and optimizing irrigation applications for efficient

water use,” Kruger said.

Tim Shaver, team member and nutrient management specialist, is studying variable irrigation rate applications and use of new irrigation sensors. He also works with various hybrids and studies how nutrients affect water use.

The multidisciplinary team approach works well for these many factors — soil type, topography, soil nutrient levels — all in a single field.

“There really is a lot of potential from this work that we’ll some day be able to teach producers,” Kruger said.

Another water project with a West Central connection involves center pivot manufacturers. It is sponsored by the Nebraska Department of Natural Resources in partnership with the Nebraska Center Pivot Manufacturer’s Association and extension. The project purpose is to develop and deliver organized water management

education to irrigators and crop consultants.

That education affected 614,000 acres and reduced pumping of 951,000 acre-inches of water, said Chuck Burr, extension educator based in Holdrege. Pumping savings is estimated at more than \$5.36 million.

Other water-saving work from the west-central region includes that of Steve Melvin and Bob Klein.

Melvin, former extension educator based in Curtis who this summer went into the private sector, hosted water-saving webinars and other irrigation education. Klein, western Nebraska crops specialist, also worked with residue management, as well as water-saving skip row planting.

— **Sandi Alswager Karstens**

Kruger can be contacted at (308) 696-6715.



A multidisciplinary west-central Nebraska UNL Extension team is studying all aspects of dryland and limited crop irrigation, then shares results during field days. Here team member Tim Shaver demonstrates how to use a sensor for nitrogen stress.

Greg Kruger

iPad app to speed aphid scouting

When he received his new Apple iPad®, Wayne Ohnesorg immediately took it in hand and into the field.

The technology, and the equipment that makes it possible, is part of a statewide University of Nebraska–Lincoln Extension effort to better use technology to teach, deliver and manage information.

Ohnesorg, an extension educator based in Norfolk, thought an application, or app, just might work to help crop scouts better and more quickly scout for soybean aphids. Taking his idea back to the office, he and extension entomologists Tom Hunt and Bob Wright began working on Excel spreadsheets.

The resulting application, Aphid Speed Scout, is based on spreadsheets to process data input by crop scouts.

The concept really is simple, Ohnesorg said. Scouts go out into a field, select a soybean plant at random and count the number of aphids on the plant. If up to 40 aphids are counted, the scout stops counting

and deems the plant infested. A “1” is entered in the app. If the number is less than 40, a “0” is entered in the app. The scout does this 11 times.

When finished, Aphid Speed Scout tells scouts whether or not to advise producers to treat for soybean aphids, to come back in seven to 10 days for another test or to sample five more plants.

Since the application is based on spreadsheets, people may download it to their smartphones, computers, etc., as well as iPads.

The Aphid Speed Scout app, produced for UNL Extension by EdMedia’s Mark Hendricks and others, is available in the iTunes Store.

Aphid Speed Scout is available as a spreadsheet in a UNL Extension Circular. Plans also are underway to make spreadsheets and applications for first and second generation European Corn Borers and Western Corn Borers.

Crop scouts and others may learn more about the application during regularly



Wayne Ohnesorg

Wayne Ohnesorg, UNL Extension educator based in Norfolk, takes his iPad to the field while looking at soybean aphids.

scheduled extension workshops.

— **Sandi Alswager Karstens**

Ohnesorg can be contacted at (402) 370-4044. Or see <http://www.ianrpubs.unl.edu/sendIt/ec1582.html> and <http://itunes.apple.com/us/app/aphid-speed-scout/id454600279?nt=8>.

Youth science project is blowing in the wind

This project will be a breeze.

Not easy, mind you, but definitely a breeze.

The 2011 National Science Experiment, developed in Nebraska, is Wired for Wind, an



Daniel R. Moser

UNL Extension educator John Hay shows the kit participants will receive for the Wired for Wind event Oct. 5. The kit includes a turbine, multimeter and wiring.

in-depth look at wind power as a renewable energy source. It will be the focus of the tens of thousands of youth who will participate in 4-H National Youth Science Day all over the world Oct. 5.

The project, selected by National 4-H from several proposals that were submitted for this year’s renewable energy theme, is the brainchild of John Hay, a University of Nebraska–Lincoln Extension educator who specializes in energy and biofuels.

Hay knew that renewable energy would fit the program’s criteria of a project that would enable youngsters to become scientists for a day, connecting important lessons in science, engineering and technology to civic engagement. But his first problem to solve was the fact that windmill projects tend to be very material intensive.

He worked with KidWind, a private company, which was able to come up with a scaled-back, affordable kit. “They have been a really good partner,” also helping design the curriculum, Hay said.

On Oct. 5, participating fifth-graders will use the kit to build two types of wind turbines —

horizontal axis and vertical axis. They’ll determine which is the more efficient design. Then they’ll explore the effectiveness of various blade pitches and, finally, determine how and where to site a wind farm in their individual states.

“Every single state has some potential for wind power, although in some states it’s not very much and it may be offshore,” Hay said.

Youth will be provided wind-speed maps and population maps to make these determinations.

Bradley Barker, Nebraska 4-H science and technology specialist who assisted Hay with the design of the activities, said this last element of the project is key. Wind power has great potential, but it’s not appropriate everywhere, and it’s important for youth to understand that.

The whole experience, Hay said, is “a little bit about wind turbines, a little bit about physics and a little bit about the socio-economic impacts of where we locate turbines,” Hay said.

Barker is pleased Nebraska 4-H is leading this year’s project. “To be selected to lead the experiment is a great honor.”

— **Daniel R. Moser**

Hay can be contacted at (402) 472-0408.

4-H teaches importance of animal responsibilities

Teaching youth about animal care and responsibility is one of the many educational components of University of Nebraska–Lincoln Extension 4-H.

Take, for example, extension's youth quality assurance program, which teaches children age 9 and older the importance of responsibly raising livestock for food or food products.

"We're educating youth to be responsible for food, not only on their own tables, but on other consumer's tables," said Lindsay Chichester, extension educator based in Falls City, who heads Nebraska's youth quality assurance program.

"It's essential to be a good livestock producer," Chichester added.

Quality assurance teaches that proper animal care is one part of the food chain to produce safe, high-quality meat, poultry and dairy products. This is true for people raising just one or two animals as well as those who raise hundreds, Chichester said.

All states now have 4-H quality assurance programs, she said. In 2010 more than 10,000 Nebraska youth learned about good food animal practices, such as properly providing needed medical injections subcutaneously or intramuscularly.

For practice, Chichester said youth inject green dye into bananas to get the feel of how to vaccinate animals.

Quality assurance also teaches youth how to read medicine labels and the proper withdrawal dates for pharmaceuticals. Youth have two options annually: either attend face-to-face training or they must pass a

"With quality assurance you know how much vaccine to give and where to give it so there's no scar tissue," Jade said, adding scar tissue can negatively affect meat quality and taste.



Kate Vonderschmidt

Lindsay Chichester

UNL Extension 4-H quality assurance teaches youth such as Jade Hill (inset) of Falls City how to safely and properly vaccinate livestock. Youth also learn how to balance livestock rations using household snacks. From left are Bryan Murphy of Tecumseh, Delayne Schuster of Elk Creek, and Erika Eckhardt and Brian Heusman, both of Sterling.

25-question quality assurance test before showing a food animal.

Seventh-grader Jade Hill of Falls City has been involved with 4-H for five years. She is quite familiar with quality assurance, having shown cattle at the Nebraska Junior Beef Expo at Norfolk and the American Royal in Kansas City. Her mother, Dr. Beth Herring-Hill, is a 4-H leader as well as a veterinarian.

Quality assurance, Jade said, has taught her to keep good records and "know better how to give an animal what it needs to help it.

Just as quality assurance is based on science and facts, so is a book being written for middle school students about animal care and responsibility.

Author Dr. David R. Smith, extension dairy/beef veterinarian of Lincoln, said the book focuses on the care of pets, but also discusses how the same issues apply to livestock and wildlife, including human-animal relationships.

"We want children to understand how animals fit into our lives," Smith said.

Don't let the bedbugs bite

The book this fall is being pilot tested by 4-H clubs and in Nebraska classrooms. Its concepts show that correct nutrition and care result in healthy and contented animals, wherever they live.

Smith said his book also describes how animals and responsible animal ownership fit into society, and how to select and care for a pet. Project leaders will help youth learn to think objectively about animal issues — whether adopting a dog from a shelter or managing deer populations — and draw their own conclusions, Smith added.

The book could be used to supplement science or social studies, Smith said, and could be a springboard for youth to think about animal-related careers.

— Cheryl Alberts

Chichester can be contacted at (402) 245-4324.

Worldwide (continued from page 1)

Hammond and the Guard team will be working in Paktia and Paktika in eastern Afghanistan.

Hammond's mission is being funded by the Department of Defense's agriculture development program in Iraq and Afghanistan, which is led by Howard W. Buffett, grandson of Warren Buffett.

Dickey said all Nebraskans should be proud of this initiative.

"This is one more step in helping the world meet food and fiber needs of the future. The dream is that Afghanistan will redevelop its agriculture, eventually returning to a food-exporting country," Dickey said.

— Daniel R. Moser

Dickey can be contacted at (402) 472-2966.

They've been found in movie theaters and courtrooms, in schools and hospital waiting rooms, as well as the furniture that gives them their names. Still, bedbugs are no reason to stay home to try to avoid them.

"People can't be so paranoid of bedbugs that they don't go out to dinner," said Barb Ogg, University of Nebraska–Lincoln Extension educator who in the last couple of years has taken bedbug calls almost daily.

Bedbugs feed on human blood. Ogg said they aren't known to transmit disease, but their bites can cause redness, itching or allergic reactions. About 20 percent of people have no reaction at all.

The appleseed-sized insect crawls across hallways, up stairways, underneath furniture, and into cracks and crevices. Multiple family housing units, apartments, dorms, retirement homes, hotels and other places where more people come and go, are more likely to have them, Ogg said.

Increased world travel, changes in insecticide use and resistant bedbugs have contributed to the recent outbreak, which began around 2000 in Australia, Europe and U.S. East Coast hotels, she said.

To detect bedbugs while traveling and avoid bringing them home, Ogg recommends checking under mattresses for telltale reddish-brownish stains, and behind the bed headboard. Keep luggage, purses, toiletries and personal items off the floor and bed. At home, unpack luggage outside, put all clothing into garbage bags, then empty the bags directly into the washing machine. The bugs die from washing, washing and drying, or just drying on a medium-hot setting.

"Bedbugs die at 120 degrees," Ogg said, noting that placing mattresses and box springs in special encasements can make bedbugs easier to see and vacuum.

Finding the pests can be like looking for a needle in a haystack, but one detection tool in and around Lincoln is Spots, a specially trained bedbug-detecting dog. Spots has detected bedbugs inside two sealed containers, Ogg noted.

Bedbug control is difficult, time-consuming and expensive, Ogg said, with the best measure of control through pest control companies that have access to newer products.

— Cheryl Alberts

Ogg can be contacted at (402) 441-7180.



The bedbug has a flattened body (left) until after feeding, when it becomes bright red and engorged (right). Both photos are enlarged, with the one on the right showing a pinhead.

Vicki Jedlicka

Scan the code on the right with your

smartphone and go to:

<http://extension.unl.edu>



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Extension is committed to helping Nebraskans know how — and know **now**.

Mascot, Web deliver food safety info

Food safety education can be time-saving as well as entertaining, as exemplified by University of Nebraska–Lincoln Extension’s



Carol Larvick

UNL Extension food safety specialist Julie Albrecht (left), and graduate student Adeline Lum share a light moment with the “4 Day Throw Away” mascot during a visit to a Council Bluffs, Iowa, grocery store.

“4 Day Throw Away” and “Keeping Kids Safe” educational programs.

“The 4-day guideline is a great standard to follow if you’re unsure whether a leftover food item is OK to eat or not,” said Julie Albrecht, extension food safety specialist based in Lincoln.

The food safety message features a red-colored 4 mascot that has appeared in grocery stores at Kearney, Council Bluffs, Omaha and Iowa City. Video clip skits on YouTube <http://www.4daythrowaway.org/> and Apple® iPhone®, iPod touch® and iPad® applications humorously show the silent mascot throwing out ribs, chili, pizza and other foods left in the refrigerator four days.

“The big, red 4 gets the message across that older leftovers may be unsafe to eat,” said Albrecht, who along with Iowa State University received a USDA grant to fund the program.

“Many of today’s consumers don’t realize how quickly food leftovers can become unsafe or spoil,” she said. Fast-multiplying bacteria such as *E. coli* causes food poisoning that can lead to kidney damage or even death, especially in children, she said. Others, such as *salmonella*, *campylobacteria* and *shigella*, cause vomiting and diarrhea.

“Keeping Food Safe” is another extension food safety education program using technology to target child care providers, who requested the program be available online.

About 200 people were registered to log on to the first session — so many that the system shut down, said Cami Wells, extension educator based in Grand Island. Adjustments were made and by the third session more than 300 people from 117 Nebraska communities and 57 counties were participating.

Topics covered food allergies and intolerances, safe handling of breast milk and formula, and commercially and home-prepared baby food. Proper hand-washing and ways to prevent cross-contamination also were covered.

“A lot of people commented on increasing hand-washing,” which is extremely important when working with young children, Wells added.

Another series of “Keeping Food Safe” is planned for this fall.

— Cheryl Alberts

Albrecht can be contacted at (402) 472-8884.

