

CONVECT

UW Extension
Educator Jeff Edwards
bluffs Mother Nature
into beginning
growing seasons
earlier and ending
them later.

Building high tunnels in Wyoming, page 4.



UNIVERSITY OF WYOMING
EXTENSION

CELEBRATING OUR PAST, SHAPING OUR FUTURE

The next few years are anniversary celebration years for University of Wyoming Extension.

July 2, 2012, was the 150-year anniversary of the signing of the Morrill Act, which created the land-grant university system. The Morrill Act was named for its creator, Representative Justin Morrill from Vermont, and signed by President Abraham Lincoln in 1862 at the height of the Civil War.

The act revolutionized higher education in America by making a college education accessible to people previously excluded from the nation's prestigious private colleges. Long on land, the Morrill Act endowed each state with 30,000 acres of federal land for each representative and senator in Congress to create a land-grant college "....where the leading object shall be, without excluding other scientific and classical studies...to teach such branches of learning as are related to agriculture and mechanic arts."

UW Established

The University of Wyoming was established in 1886 using the land-grant funds – a full three years before Wyoming achieved statehood.

UW Extension is proud to be a part of the land-grant tradition. I encourage you to view the Wyoming Signatures created to highlight the University of Wyoming's land-grant heritage and mission. See it at http://bit.ly/uwlandgrant.

And, it gets better. Next year is the centennial year for UW Extension. The first county extension agent was hired for Fremont County in May 1913; the second was hired for Sheridan County in July 1913. And, the first 4-H club work was organized in Wyoming by the College of Agriculture in 1913.

On top of that, the Smith-Lever Act was enacted in 1914. The act brought U.S. Department of Agriculture funding to the university and a county funding mix. The legislation added staying power to extension services budding within the land-grant universities.

So you see, we, with UW Extension, and you, our clients, supporters, and partners, have much to celebrate these next couple of years. Looking back to the history and traditions of our university and extension system is fun and provides us grounding, but the future is where our clients', and thus our, fortunes lay.

Seeking Your Input

UW Extension is looking intently toward the next 100 years and is developing its strategic plans for 2014- 2019. We recognize that changing, adjusting, and renewing ourselves and our work is critical to serving the people of Wyoming. We are very interested in knowing your experiences and views on our work and the future directions for UW Extension.

We have met with groups of Wyoming citizens around the state trying to learn of your suggestions and insights as to how we could better serve.

If you have ideas or suggestions and haven't been able to share with us, please send me an email (glen@uwyo.edu) or call (307-766-5124) or you can participate in our online UW Extension program survey at http://bit.ly/UWCANRSurvey.

CONNECT magazine highlights the work of UW Extension this past year. I have enjoyed reading these articles, and I hope you will, too. We are proud of the work of those highlighted here as well as the work of all in extension. I would love to hear from you. If you have questions or suggestions, please give me a call or email.

Sincerely,

Glen Whipple

Associate Dean and Director

University of Wyoming Extension









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Looking back to the history and traditions of our university and extension system is fun and provides us grounding, but the future is where our clients,' and thus our, fortunes lay.

– Glen Whipple

CONNECT

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The University of Wyoming and the United States

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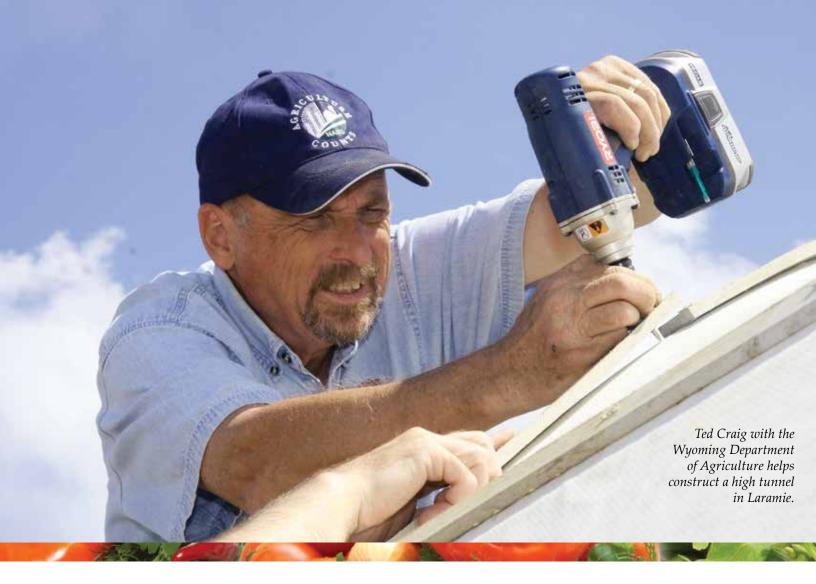


Is a picture worth a thousand words? Then, how about a video?

Videos that accompany selected stories in CONNECT 2013 can be viewed at http://www.uwyo.edu/ces/connect.

The interactive 2013 CONNECT edition, which has videos, slide shows, and audio, will be available at http://bit.ly/2013Connect.

Cover photo: Extension educator Jeff Edwards of Goshen County builds a high tunnel at the ACRES student garden in Laramie.



High tunnels stand between fragile vegetables and Wyoming's wild weather

yoming's fleeting and highly variable growing season challenges even the most steadfast growers.

Spring planting conditions can be difficult with late-season snowfall and freezing temperatures. Croptenderizing hailstorms and high winds are frequent during summer. Killing frosts in late summer and early fall can abruptly end the growing season.

"These conditions lead to frustrated producers and their inability to tap into the production potential of much of Wyoming's own food," says Jeff Edwards, University of Wyoming Extension educator in Goshen County.

Extending the growing season and lessening effects of Wyoming's wild weather has spurred an increase in the use of high tunnels, which typically extend the growing season by 30 days in spring

and 30 days in fall, according to Edwards.

"If you are a gardener or producer frustrated by Wyoming's highly variable growing season and would like to have fresh tomatoes by July – a high tunnel is just for you," says Edwards. "Many producers view high tunnels as essential for their operations to extend their growing season."



HAVE NO FEAR

Edwards and Craig show how to build a 12-foot by 36-foot high tunnel step-by-step in this article at bit.ly/hightunnel. This hoop house was built at the community garden near the Natrona County Fairgrounds.

High Tunnels Built from Commonly Available Materials

High tunnels, also called hoop houses or cold frame greenhouses, are built from commonly available materials (metal, wood, or PVC) with no additional heating systems required; instead, they are covered with a plastic skin that traps solar heat and protects plants from damaging hail, snow, and wind.

Edwards has built or helped build more than 50 high tunnels since 2010 and has conducted nearly 40 educational workshops where at least one high tunnel was built.

"I can't keep up with the demand for workshops," says Edwards. "I see it continuing to remain steady for the near future, but, depending on how commodity prices change and the interest in local food, there may be an increase in the demand for knowledge and workshops."

Edwards says he wants to train and equip at least one extension educator in the state to conduct his or her own high tunnel educational programming to meet demand.

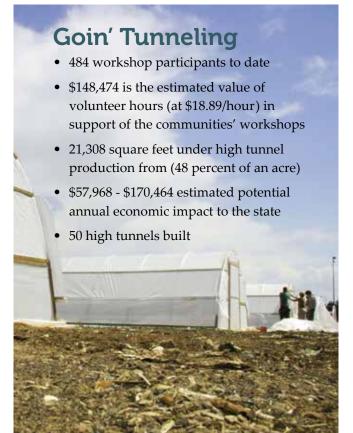
Extension Collaborates with Wyoming Department of Agriculture

Extension also collaborates with the Wyoming Department of Agriculture (WDA) to teach residents the ins and outs of high tunnel construction.



"To date, we will have funded workshops for approximately \$47,000," says Ted Craig, grants manager at the WDA. "The great thing about the workshops is that a non-profit organization ends up with a completed high tunnel while people learn handson how to build them."

Craig also cites dozens of farmers markets that have sprouted in Wyoming in recent years indicating greater interest in locally produced vegetables including asparagus, carrots, cauliflower, cucumbers, eggplant, peppers and tomatoes - vegetables that are often difficult to produce in Wyoming.





See a time-lapse video of volunteers building a high tunnel at bit.ly/ timelapsehightunnel

"There is a growing demand in Wyoming for local production of these vegetables, and we're trying through programs like Jeff's to show people high tunnels can be easy to construct and that you can successfully grow these types of vegetables," he says.

Radiant Energy Extends **Production Season**

Edwards is collaborating with Milt Geiger, extension energy coordinator, on a project at the ACRES student farm in Laramie to demonstrate radiant energy collection methods for high tunnels. The project's goal is to add 120 growing days to high tunnel production in Wyoming – 60 days in the spring and 60 days in the fall – and convey

the results and methods to producers.

"The ACRES project is an innovative use of low-cost energy storage and efficiency improvements," says Geiger. "All are intended to more effectively store solar energy. It is a fine line to incorporate renewable energy systems into a high tunnel without making it cost prohibitive."

The project includes five high tunnels built in May 2012; all are oriented east-west to maximize southern sun exposure. One is a standard, single-skinned high tunnel used as a control; one has a double skin with an air gap; one has a 2-inch layer of R-9-rated insulation buried 2-feet deep around the entire

perimeter; one has 55-gallon drums painted black and filled with water on the interior north side; the last one has all three enhancements to observe potential compound effects.

"It's a very basic demonstration project," says Geiger. "We do want to emphasize it's a low-cost example."

Geiger and Edwards will be manually gathering data monthly throughout the winter; sensors will measure inside and outside ambient air and soil temperature and compare temperature data and yield between treatments to traditional outside production practices. Results will be released in spring 2013.

Build that high tunnel

Jeff Edwards says he strives to remove factors that can intimidate during the high tunnel construction process.

"The greatest roadblocks to implementation are costs and daunting construction," he says.

Edwards encourages using local materials when available to cut costs and utilize simple yet sturdy designs that survive Wyoming's challenging weather.

Materials include plastic PVC pipe, rebar, wood screws, wood strips and studs, polyethylene plastic film, plywood, hinges, latches, and aluminum wiggle wire and channel (a common product used in the greenhouse industry to aid attachment of the poly skin material).

High tunnels cost significantly less to build and maintain than greenhouses at about \$3.50 per farmable square foot vs. greenhouses at about \$200 per square foot just for construction, according to Edwards.

"They can be modified to fit in almost any space, from the "salad model" at 12 feet by 12 feet to "growing for the neighborhood" at 24 feet by 72 feet," says Edwards.

A standard 12- by 32-foot high tunnel can be built in one day – with enough help.



THE GOOD EARTH



Producers learn to better use what Mother Nature struggled to provide during one of the worst summers in Wyoming records

rought hammering forages and pounding producers had some attending workshops like the management-intensive grazing sessions coordinated by extension educators from the Sustainable Management of Rangeland Resources Initiative Team.

Many wanted to know how to make the most of what was in pastures after brutal heat sizzled forage.

"The MiG school provides an excellent opportunity for hands-on education combined with classroom work," notes Dallas Mount, extension educator who helped coordinate the sessions. "We spend every afternoon out in the field working with fencing material, cattle, and estimating carrying capacity. We also get to spend four days with the students getting to know each of them individually and learning together. "

> Thad Stoltz and Randy Davis install an electric fence.

On this day, electric fences created paddocks in a pasture west of Wheatland. Producers were calculating the carrying capacity of each paddock based on the amount of forage available. That would determine how long the livestock could be kept in one paddock then moved to another.

MiG Pioneer

Jim Gerrish of May, Idaho, pioneered MiG and was the instructor. Gerrish is a former researcher and faculty member at the University of Missouri, but probably more importantly, he was a commercial cattle and sheep

Management-intensive grazing: *The grassroots of grass farming* in 2004. He is an independent

Gerrish was why Julia Stafford of Cimarron, New Mexico, attended.

grazing lands consultant.

producer for 20 years.

Gerrish first published

"I had subscribed to the Stockman GrassFarmer magazine and for years read articles by Jim Gerrish on grazing," says Stafford, whose family owns the CS Ranch (http:// cscattle.com/index.html for information about the ranch).

Startling drought conditions seared their pastures for 10 years. The drought extended into 2012.

"The drought is continuing, unfortunately," says Stafford who attended with brothers Randy and Warren, a niece, Leslie, and ranch employee Brendan Blakely. "We are hopefully at the end of the drought cycle. We grew



SESSIONS

EXTENSION

OTHER

UW Extension offers other popular farm and ranch

management workshops. Information about the Master Cattleman program is at bit.ly/ mastercattleman, and the High Plains Ranch Practicum homepage is http:// hpranchpracticum. com.

"The MiG school provides an excellent opportunity for hands-on education combined with classroom work."

> -Dallas Mount **UW Extension** Educator

almost no grass last year, and we destocked considerably. We took cows to Colorado and some to here (near Wheatland), and we were able to keep a few at home."

Warren had attended a ranching for profit school also attended by Mount, which led to them attending the MiG training.

"Everything kind of jived. We had brought some cattle up here - we got droughtedout in New Mexico," Stafford says. "Everything kind of fit, and we said, 'Let's come and learn.' So, here we are."

Much of the best learning



Mike and Rose Curless, left, listen with others to stocking rate information.

happens from the interactions between participants, says Mount.

Sessions Also for Small **Operations**

Mike Curless and his wife, Rose, don't have thousands of acres of pasture – probably fewer than a couple hundred but they wanted to know how to best use the forage they had.

"My wife and I had been thinking about receiving more education about more efficient and more effective grazing principles," says Curless from near Kimball, Nebraska. They also had been reading articles by Gerrish. "This was the first opportunity we had to have active participation with him."

Participants learned about principles during the morning then were asked to practice them in the afternoon.

"I think it's a wonderful

combination," Curless says. "You need both. Some of us learn from books; some from hands-on in the field. All of us need that combination of things. But, it's interesting. We brought the cattle out yesterday and put them in the first pasture. We had the test yesterday and then were learning about it today. You had the test first. An interesting way to look at it."

Stafford, too, complimented the sessions. "It's been a great class," she says. "I appreciate UW doing this."

If not on the uphill side of the drought, producers will have to find ways to get the most out of their forages.

"It's a brutal cycle," says Stafford. "In New Mexico, they joke about it but people keep saying it's not the new normal. I hope you don't experience the same thing."



Those attending the management-intensive grazing sessions put into practice what they learned – in this case, how to calculate stocking rates.





Getting more greens into one's diet commanded the first section of a Goshen County Annie's Project session.

ANNIE'S LIFE

Annie Fleck had days of tears, anger, sorrow, laughter, contentment, and accomplishment. Read about the origins of Annie's Project, which was started by Annie's daughter, Ruth. Visit bit.ly/ annieorigins

Lusk and her nearest friend is a 40-minute drive away – she had to learn.

"I was a bookkeeper so I knew how to keep the books," says Pfister. She knew a lot about what was where. But, some things, like where the livestock water lines are, she had to learn.

She's been active in, and a supporter of, 4-H, as are her friends. She emailed them when she learned about the Annie's Project sessions.

"So many women, I was probably one of those, too, live in the house and on the ranch but don't know what

our husbands do day-to-day," she says. "It's important for a ranch wife to know what the husband is doing. Get in the pickup and go - see where the fences are, the tanks, be informed of what's out there."

Daughter Started Annie's Project

Ruth, daughter of Annie (Kohlhagen) Fleck, started Annie's Project. Her mother grew up in northern Illinois and married a farmer and spent her lifetime learning how to be an informed business partner with her husband. Along the way, she faced

the pressures from a brother and sisters-in-law. She stuck with her decisions, corrected mistakes, and learned from her experiences. She died in 1997.

Annie's Project seeks to help farm and ranch women be better business partners through an understanding of the business of farming and ranching.

Goshen County Meetings

Representatives of the Scottsbluff office of the Farm Credit Services of America provided credit and loan information to participants in the Goshen County Annie's

Annie's Project seeks to help farm and ranch women be better business partners through an understanding of the business of farming and ranching.

Project sessions. On a March evening, participants heard nutrition and food safety educator Diane Saenz suggest ways to incorporate more vegetables into their diets. The Goshen County Homemakers prepared the meal.

Then, Kelly Downer, FCS financial officer, explained financials.

Couples coming into her office are more common now, especially among the younger generation, says Downer, herself a housewife. "The wives are doing the recordkeeping, applying for loans. My grandmother knows nothing about that. My mother a little bit. The younger generation knows they have to be well aware of what is going on. The operations are a lot bigger now."

Off-farm Jobs, Tax Planning

Farm and ranch women formerly cooked and cared for the home.

"As time progressed, wives are seeking off-farm jobs or

FARM WIFE'S PLATE FULL

Deb Raben's husband, Wells, grew up in the Huntley area south of Torrington, where they farm.

She was from Oregon.

"My husband had lived here all his life and knows so many people," says Raben. "Until my kids started school, I was very isolated. I was his own hired man for a long time. I didn't get to meet others like these women until my kids were in school, and you have to be involved. It was a long time until I met these people and made good friends with some. And, 4-H was great for me, not just for my kids."

Jill of All Trades

Through the years, she has taken care of the bookwork, helped in the field, helped with harvest and irrigation, and taken care of the home, the yard, animals, and family.

Even though she is so involved she says there is a need for women to be more knowledgeable about the operations.

"I think there is more of a need for women to really understand how the business works on the farm," she says. "So many times, the husband is gone before she is, and maybe they are still living on the farm. They really need to know where the money is at, the insurance – such important things the generation before us didn't know. Women really need to be partners in this whole operation – or at least have a good idea of where the money is at."

Networking Important

Members of the Farm Credit Services of America office in Scottsbluff attended one of the Annie's Project sessions offering financial information. Another session focused on computers and another was about social networking.

The networking is a theme throughout Annie's Project. "Some of these women are good friends. I know who most of them are," says Raben. "I don't get together with women much because I am so involved with our farm. Spending time with other women who share very similar values and challenges and lives is really self-affirming – you feel good when you are around people you can connect with. I think that is important, the networking."

more financial or tax planning knowledge so they can stay at home with their kids and run the operations as a partnership," says Downer. "That's a huge change."

Vice president Darrin

Clarkson says he's seen wives' involvement vary from being the marketing manager, the financial manager, the entire business manager, except for the production side, to having no desire to be involved.



Goshen County Annie's Project participants discuss benefits of vegetables. Goshen County Homemakers then cooked the evening's meal.

The increasing size of farming and ranching operations has provided some of the impetus. Having another person involved frees up time for one person to spend on another part of the operation.

Fear of Unknown

"Something like Annie's Project is great because I think there is some fear of the unknown with some of the spouses," says Clarkson. "This gets them exposed to some of those things, ask questions, then go home or, with some of the business partners now, ask more questions and get more comfortable with what they are seeing. The commercial piece is huge, to understand the entire scope of the operation and to be on

the same page as a business partnership."

Long-term health care, property and equipment ownership, and how to pass the operation along to the next generation created the most interaction among the older women in the Niobrara group, says Pfister.

Older, Younger Have **Different Interests**

"I think the younger women liked the cost per pound, protein, adding value to your animals. For me, it was long-term health and ownership. It was amazing. Some families have already set up a trust. They are worried about what they've worked for their entire life might be taken away. A lot of the women have done that - those

who haven't were getting things figured out."

Pfister wanted her children to get an education. One is now married and has graduated from law school; her other two are attending the University of Wyoming.

"They come back whenever they can," says Pfister. "The younger two are not sure what they want to go into. They all want to come back to the ranch. I want them to go out and work in a profession for a while. They say, 'Mom, we want to come back.' Right now, I want them to go out and do some other things, work for other people so they can come back and do something they want to do and not what they have to do."



A LIFE FOREVER CHANGED

All was well when Ronda Pfister went to bed that night in 1997 with her husband, Jack. They, with their three girls, ages 4, 6, and 10, worked the family ranch about 35 miles north of Lusk.

That night her life changed forever. Her husband died.

"I went to bed that night OK and woke up the next morning with three kids to raise by myself," she recalls. "And, oh yes, I had a ranch to run."

The Colorado farm girl had a job working in town, and Jack had shared a lot about the ranch. "Jack was good about involving me," she says. "Even though I wasn't involved day-to-day, I knew a lot of what was going on. I did the books, so I kind of had an idea."

Even so, "I did a lot of learning," says Pfister, still on the family ranch, but now her oldest has graduated from law school and is married, and the other two are attending the University of Wyoming.

Ranch Life an Isolated One

She persevered on the home place with her nearest friend more than a 40-minute drive away.

The memories bring a catch to her voice. She was alone and isolated.

"It was hard, but my kids at that age were involved in school, and I knew my father-in-law was a wonderful man," she says. "He entrusted me enough he knew if something would ever happen, I would keep the ranch in the family. It is not my family ranch but my husband's. I knew from being around him he wanted the

ranch to go to his grandchildren. I felt very obligated to do that. I knew I needed to carry on for my children. It is not my ranch but their ranch. That was my motivation to continue. Plus, they were going to school. I had that social outlet."

Bringing Women Together

Perhaps more than any other benefit, the Annie's Project sessions in Niobrara and Goshen counties in 2012 brought agricultural women together.

Sessions varied in each county, but some focuses were upon financials, technology – and even exploring personality types.

"It was wonderful," Pfister says. "Networking with those women. Most of them, probably all of them, are ranch women. Not all of them. There were even some younger women there. One young gal was in her 20s. It was wonderful to see those young kids interested in agriculture and having a passion and wanting to learn. They will be so much more knowledgeable





hildren of military parents face challenges other youth in Wyoming may never experience. Their parents or guardians may be deployed overseas for long durations.

Even National Guard parents are gone one weekend a month and two weeks a year, which can be hard on children. This continual flux can impact how military youth adapt and deal with changes later in life.

The change from normal patterns can have lasting impact on how military youth adapt and deal with changes later in life.

Military 4-H camps for kids are helping address these

"Military camps for youth are another great way 4-H can connect with military youth and provide opportunities and experiences that they may otherwise never come across," says Brittany Johnson, 4-H/ military educator in Laramie

Sponsored by Operation: Military Kids (OMK) and the 4-H Military Club Partnership Grant, the camps are just one piece of a commitment to

providing 4-H and positive youth development opportunities for military youth and families year-round.

4-H is Everywhere

Camps provide opportunities for military youth to be introduced to 4-H, the largest youth organization in the United States.

"The great thing about
4-H is that it is everywhere,"
says Johnson. "No matter how
many times a military youth
may have to move because of
their parent's military service,
4-H will be in each community the youth lives in. 4-H
is even overseas at air force,
army, and navy bases across
the world. 4-H is something
familiar and consistent in a life
that can be changed dramatically with very little warning."

4-H Educational Programming Helps Youth be Productive

Wyoming 4-H, managed by the University of Wyoming Extension, provides hands-on, learn-by-doing educational programs to help youth become productive citizens. Military 4-H camps are just one way 4-H educators and volunteers provide educational programs but in a generally more informal environment.

"We try to have a lot of variety in the camps with activities ranging from arts



OMK MAKES A DIFFERENCE

Brittany Johnson relates how a 10-year-old boy has participated in four OMK or 4-H Military Club Partnership grants and has gained great self-confidence. "Before attending the camps, he was extremely introverted and had a difficult time making friends," says Johnson. "Now, he is much more open and willing to try new things.

"During the family day camp in Centennial, his laughter was the one I heard the most and, by the end of the day, he and his parents were sharing contact information with other families to arrange times in which the youth could get together. His parents have shared with me that he is also more confident in school and more willing to volunteer for tasks and to speak in front of a group."

About Operation: Military Kids

OMK is the U.S. Army's collaborative effort to help communities support youth affected by deployments.

OMK programs are delivered by a group of national partners, including 4-H, the American Legion, Boys & Girls Clubs of America, Army Child and Youth Services, the Military Child Education Coalition, and the National Association of Child Care Resources and Referral Agencies.





UPCOMING MILITARY KIDS CAMPS

Through the 4-H Military Club
Partnership grant, several day camps will
be offered in April to celebrate Month of the
Military Child.

For information about camps, including specific dates and locations, go to the Wyoming 4-H For Military Youth Facebook page at http://on.fb.me/TQ8PKc or visit the Operation: Military Kids in Wyoming website at bit.ly/wyomingomk.

and crafts to science to natural resources," says Johnson. "A little bit of everything to give youth an introduction to 4-H and the opportunities 4-H provides. We also focus on team building projects and activities that help promote a sense of belonging to the group. Other activities include building stronger skills in leadership, communication, understanding diversity, and adaptability."

OMK Summer Family Camp

Wyoming's first OMK
Summer Family Camp last June
provided families the opportunity to experience a potentially
once-in-a-lifetime family vacation at Eaton's Ranch, a dude
and cattle ranch in Wolf adjacent to the Big Horn Mountains.
Activities included horseback
riding, hiking, and fishing.

"For a few of the families, the retreat was the first vacation the families had ever had together," says Johnson.

The camp was built around building and strengthening skills in resiliency, coping, social communication, and self-efficacy. While mixing recreation with education, the military families learned how to become stronger and learned more about each other.

In September, OMK sponsored Fall Family Fun Day at Table in the Wilderness in Centennial. Families participated in canoeing, a high-ropes challenge course, a cooking class, and a lesson on identifying character strengths.

"Families from the southeast region of the state participated and spent some quality time together as a family," says Johnson.



"I dropped the pump when setting it up and had to use duct tape and wire to hold it together," says Geiger. "The gentleman commented that he was now sure he wanted one after seeing it could be fixed the same way as everything else on his ranch."

Solar Power Moves into Mainstream

Technologies like solarpowered livestock water systems have moved into

Extension
energy
coordinator Milt
Geiger, using
the renewable
energy
demonstration
trailer, explains
how solar

power can

power livestock

watering pumps



TECHNOLOGY INCLUDED ON THE RENEWABLE ENERGY DEMONSTRATION TRAILER

- Four 170 Sharp Panels
- 400 Watt Southwest Wind turbine
- Eight batteries, specially designed for storing renewable energy
- 5,000 Watt Inverter (changes DC to AC)
- Apricus evacuated tube solar collector hot water heater – demonstration size
- Grundfos helical rotor water pump specially designed for use with wind and solar
- All mounted on a single-axle trailer

the mainstream in Wyoming thanks in part to renewable energy programs managed by Geiger, who has been educating Wyoming citizens about renewable energies since 2009.

Geiger, who received master's degrees in agricultural and applied economics and environment and natural resources from UW, says renewable energy use in Wyoming is picking up steam, especially in agricultural applications.

"The reliability, predictability, and durability of solar panels provide many opportunities for use in agriculture," he says. "First, if power reliability, independence, price stability, and/or environmental reasons are important to you, solar electric can become a part of the ranch/farm, home, and outbuildings just as it can for other residences and businesses. Solar can be a means of increasing profitability."

Mobile Renewable Energy Demonstration Trailer

One of Geiger's outreach vehicles is literally a vehicle: a truck that tows a single-axle flatbed trailer outfitted with working renewable energy technologies to demonstrate systems that can be installed at remote locations.

"We want people to make informed decisions," says Geiger. "We want them to make good economic decisions, and we want to demonstrate and educate."

Geiger has driven the vehicle to state fairs, expos, and around the state for years to show people how to use renewable energy technologies for their homes and ranches.

"I am fascinated by systems where economy resembles nature; where inputs are not based on depleting a resource stock," says Geiger.

College of Engineering Involved

The UW College of Engineering built the flatbed trailer in 1994 as a mobile, solar-powered livestock watering system; it was upgraded with new technologies and components in 2004, and upgraded again this September with new batteries, power inverter, solar water heater, and a wind and solar water pump.

"It was actually conceived and designed with as many off-the-shelf components as possible to demonstrate to potential users how readily available the technology was and is," says Vic Bershinsky, senior engineer in the College of Engineering and Applied Science.

Bershinsky has been involved with the trailer since its inception.

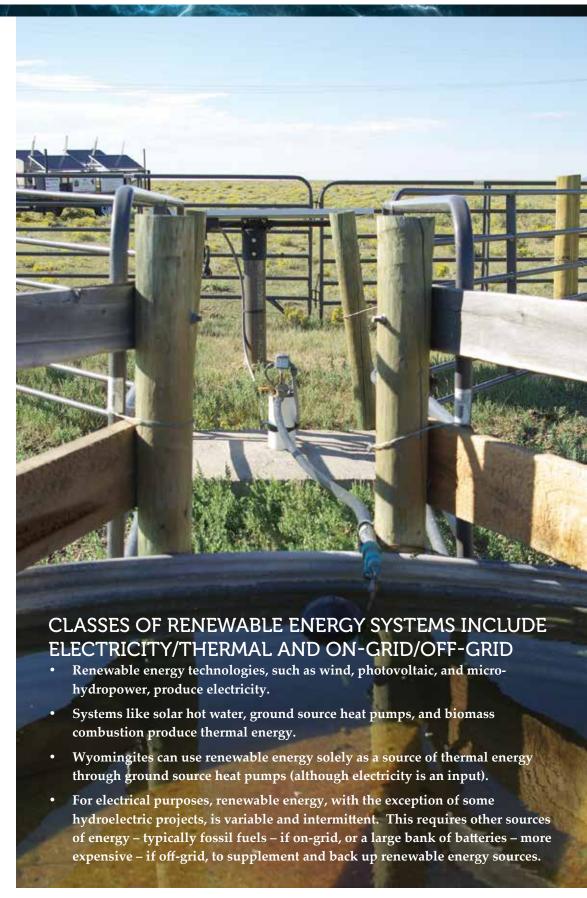
"Solar photovoltaic cells convert sunlight into electricity, which is stored in batteries," says Bershinsky. "The batteries can then be used to power direct current loads, such as DC pumps or lights, or can be converted into alternating current to operate AC loads as found in a typical house. The wind turbine performs the same function as the solar panels, except with wind energy and not solar energy as the primary power source."

The demonstration vehicle has been effective in inspiring people to build renewable energy projects in the state, especially livestock producers.

"One such project took the solar stock water pumping idea from the trailer and installed close to 100 solar-powered livestock water pumps on ranches all across Wyoming," says Bershinsky.

Burning coal and natural gas is still the primary method of generating electric power in Wyoming, but solar and other renewable energy sources are steadily gaining ground.

"There is a growing movement to use sources of thermal energy, such as ground source heat pumps and solar hot water heaters," says Geiger. "As cost has come down, especially for solar electric installations, more people are installing these systems. Solar-powered livestock watering systems will be the default choice for new and replacement installations."





CONNECT, DIRECT, ELEVATE

CDE in extension really means Community Development Education; team members help Wyoming workers and board members network, they coordinate training, and they elevate job and board performances

yoming clerks and treasurers for years were heading to all points of the compass to receive certification training.

Two years of planning by the Wyoming Association of Municipal Clerks and Treasurers (WAMCAT) and the University of Wyoming Extension culminated this year with members receiving training about Wyoming in Wyoming. No more traveling to Montana, Colorado, Utah, or Nebraska for training that had no Wyoming emphasis.

More than 75 WAMCAT members attended training in Casper this September, having worked with extension's Community Development Education Initiative Team members to make in-state certification training a reality.

Julie Daniels, CDE team member from Laramie County, was institute director and oversaw development and implementation of the institute.

The Wyoming Institute ended more than 20 years of work.

"WAMCAT realized our members wanted to obtain education and certification pertinent to the duties of their jobs and made this a priority," says Cate Cundall, WAMCAT president and Guernsey town clerk. "Establishing an in-state institute has been a WAMCAT goal since the 1980s."

Early Efforts

An institute certified by the International Institute of Municipal Clerks (IIMC) requires affiliation with a fouryear university, but early attempts to work with UW were unsuccessful, says Cundall.

Meanwhile, WAMCAT members established the first and only on-line and on-land state institute where clerks could conduct their institute under the guidance of the director of education for IIMC. Twelve clerks completed the training and were eligible for the certified municipal clerk designation.

In January 2010, extension CDE educator Tara Kuipers and 4-H educator Amber Armajo were presenters at the WAMCAT annual conference in Worland.

"A casual conversation with Tara about the WAMCAT organization and the training we offered began the dialogue with University of Wyoming Extension about the possibility of establishing an institute, and the rest is history," says Cundall.

New Challenges

Kuipers, then six months on the job and based in Park County, says she was "blissfully ignorant" about what the CDE team had and had not done.

"I just knew it was worth a try," she says, and recalls seeing the goal as doable – not easy, not without challenges – but doable.

WRESTLE WITH LIMITED RESOURCES, LIMITED TIME

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In-Wyoming training for clerks and treasurers has solved issues they face every day – limited resources and limited time.

"Many of our members work in a one-person office making it difficult to be gone for any length of time, and they also have limited budgets for training," says Cate Cundall, president of the Wyoming Association for Municipal Clerks and Treasurers and Town of Guernsey clerk.

The training is critical to their job and also gives recognition that performing their jobs efficiently and professionally is a priority, she says.

"In municipalities, certification is required of the operators for the water, wastewater, and landfill systems, and WAMCAT believes certification of clerks and treasurers should be given the same priority as these other professions," notes Cundall.

Kimberly Chapman, community development educator with the University of Wyoming Extension and based in

Uinta County, notes success can be measured by impact.

"More than 70 clerks and treasurers from across the state received valuable training that they can take back to their municipalities and apply in their everyday work environment," says Chapman, based in Uinta County. "By investing in their own professional development, these men and women have strengthened their communities."

She derives satisfaction from helping people help their communities.

"I think that's why each of us on the Community Development Initiative Team does what we do," she says. "We're proud of our communities, and we want them to thrive. I get a sense of accomplishment from knowing that, because of a training I provided, people have new tools and skills to use to improve their professional, public, and personal lives."



SLOW, FAST, FAR

Nurturing the Wyoming Institute to fruition took about two years and emphasized the "go slow to go fast to go far" philosophy, says Tara Kuipers, CDE team member.

There were many meetings, inquiries, brainstorming sessions, proposals, revision, conversations, and thinking," she says.

"That felt like a really slow start. But, that all turned into relationship building, great ideas, trial-and-error learning that helped us move quickly once the wheels started turning and we really gained traction," Kuipers notes.

The slow and steady beginning has provided a solid foundation.

"Starting slow, although frustrating at the time when all we wanted to do was dive in and get to work, helped us to find a great result at the end," she says.



"I saw a group of municipal clerks and treasurers who were truly some of the most professional, dedicated, and integrity-driven individuals I'd ever worked with," she says.

Extension had the resources.

"And, more than anything, I knew that community development is all about strengthening communities – and stronger municipal professionals in Wyoming is going to certainly equate to stronger communities," says Kuipers. "There was no doubt in my mind the link was strong between the municipal institute and the CDE team."

Kimberly Chapman, CDE educator based in Uinta County, says the passion and drive of WAMCAT members led to the success.

"I was not involved in the early talks, but I think there

was a core group of people who were dedicated to the idea of an institute in the state of Wyoming, and they worked until they made it happen," she says. "Luckily for us, WAMCAT is a wonderful organization to partner with so the challenges have been minimal."

The project's scope of two large organizations working in tandem was broad for the six-member CDE team.

"It challenged us to think about our team differently," says Kuipers. "We are small and somewhat new in the overall extension landscape, but pulling off a large, complex, multi-day, internationally approved certification institute is a big accomplishment."

Requirements Met

Two training programs were developed under the auspices of the IIMC, says Daniels. Clerks needed 120 hours to qualify for certification, and another 120 hours were required to receive the master municipal clerk certification.

Meanwhile, the Association for Public Treasurers of the United States and Canada wished to add classes to ensure its certification requirements were met (See page 24)



From left, community development educators Julie Daniels, Wyoming Institute director, of Laramie County, Tara Kuipers of Park County, and Kimberly Chapman of Uinta County.

Community development educators assist Attorney General licensing board training

UW Extension educators are transforming bored training to board training for volunteers conducting public business in Wyoming.

Community development educators aim to help volunteer board members more efficiently conduct the public's business.

Educators partnered with the Office of the Attorney General in August to provide training to licensing boards. The intent was to introduce new board members to their responsibilities and make new members and existing board members more aware of the laws that govern them and provide tools to be more effective, says Julie Daniels, UW Extension educator.

Ryan Schelhaas, senior assistant attorney general, apparently liked the results of the Cheyenne training.

"The board members enjoyed the training and continually commented that they appreciated the new interactive format and use of real-life scenarios as it facilitated the sharing of ideas, opinions, thoughts, and questions," Schelhaas notes. "The training allowed for many great discussions amongst attendees and presenters, which required everyone to really

think about the information being presented and apply it to real-life scenarios."

Daniels says community development educators work with county-appointed boards, nonprofits, and associations such as the Wyoming Association of Municipalities, Wyoming County Commissioners Association, and Wyoming Association of Municipal Clerks and Treasurers.

"Many boards struggle with how to run meetings effectively," says Daniels. "It is often difficult to balance the needs and ideas of all the board members and have constructive discussion and then move into the decision-making mode. This is a common struggle for all types of boards, including government and nonprofits."

Daniels co-taught ethics and designed methods to make the training more interactive. Educator Tara Kuipers, based in Park County, taught how to be a more effective board member. Lawyers in the Attorney General's office provided sessions on public meetings, public records and rulemaking, and the anatomy of an investigation.

Schelhaas had approached UW Extension to

take advantage of expertise in providing interactive education and Daniels' experience in helping boards.

"It's hard to work in groups," she says. "Anytime you put people together, they tend to avoid conflict, and it becomes more difficult to make decisions."

Kari Gray, Governor Matt Mead's chief of staff, thanked those attending on behalf of the governor for their service to the state. The Wyoming governor's office said such training is important.

"The men and women serving on boards and commissions commit a tremendous amount of time and responsibility for the benefit of others," said Mead. "Board training helps people do the very best job possible and helps them get the most out of their time."

Schelhaas says one person attending the training in Cheyenne said they had planned to come and go during the training but ended up staying the entire day.

"Julie and Tara helped us turn somewhat dry topics into an effective and refreshing training that board members wanted to be part of and stay until the end," he says. "Board training
helps people do
the very best
job possible and
helps them get
the most out of
their time."

– Wyoming Governor Matt Mead "Stronger municipal professionals in Wyoming is going to certainly equate to stronger communities."

Tara Kuipers UW Extension Educator – 100 hours and very specific requirements for their educational categories, says Daniels.

"So now," recalls Kuipers of the planning, "we have two large state organizations plus international organizations all of which need to be kept informed and involved. It was complex. Everyone had their own organization's interests and resources they needed to keep at the forefront, but we were all working toward the same goal. It took time and relationship building, lots of communication, and lots of delegation, but it all worked out in the end."

The clerks and treasurers handled the logistics of having the training in Wyoming, and UW Extension was responsible for the educational content. Both worked to identify, contact, and obtain pertinent speakers.

Training, Networking

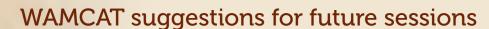
The Wyoming Institute satisfied those pursuing certification and those who just wanted an opportunity to participate in professional development and network with peers, notes Daniels.

"The out-of-state courses had focused on Montana, Nebraska, or Colorado and laws for those states," says Daniels. "The clerks and treasurers had to come back to Wyoming and find out what the laws are here. They then had to make a lot of

adjustments. At the Wyoming Institute, they are trained on the specifics of laws they have to abide by and have more of an opportunity to network with other clerks and treasurers and nurture those relationships."

The early results appear positive, says Daniels (see story below).

"The evaluations are very positive and appear people received a lot of benefits," she notes. "WAMCAT is so committed to educational opportunities for its membership, they have foregone their annual conference and have replaced that with this institute."



WAMCAT members have made suggestions for the next training, says Cate Cundall, association president.

"Suggestions we've heard include making this a week-long session instead of breaking it into two parts, changing the week the training is offered, breaking out into groups based on size of the attendees municipality, and ensuring there are more electrical outlets for computers since we have gone green and handouts are posted on-line," she says. "Keeping up with changes in statutes and practices is a challenge, and WAMCAT, working with UW, will continue to meet the members' educational needs to handle these changes."

She says the UW Extension team – comprised of associate director Duane Williams, and CDE team members Julie Daniels, Tara Kuipers, Kimberly Chapman, Mary Martin, Hannah Swanborn, and Bill Taylor – did an outstanding job and that WAMCAT looks forward to many more successful institutes.

"WAMCAT wants to thank UW Extension who helped us realize our dream of an in-state institute and helped make this first institute the success that it was."



fifth H could be added to the 4-H cloverleaf in Johnson County. 'H'ire.

> Add that to your Head, Heart, Hands, and Health.

Organizers of a program that paid stipends to high school 4-H'ers to work in Johnson County businesses placed two 4-H'ers in 2011 and three this year.

They want to expand the program in 2013.

"We are marching onward," says Jeremiah Vardiman of Buffalo who, with Johnson County 4-H Council members, began planning three years ago. "It's been a long process of where to get funding and the best way to set the program up."

Program Expands in 2012

The council raised enough money to pay the stipends for two Buffalo High School students to work at two Buffalo businesses in 2011 – one at the Sports Lure and the other at Western Reride, both on South Main Street.

This year, three 4-H'ers were working at Grouse Mountain Environmental Consulting, Big Horn Mountain Radio Network, and JLM Engineering.

Council members are seeking ways to raise more money and expand the program for more 4-H'ers.

The program concept began after a conversation with his wife, Rachel, who is the extension 4-H educator in the county.

"About three years ago, Rachel told me the state 4-H program had money available through the Daniel's Fund for workforce preparation," he says. "A little later, I thought, 'Shoot, if I was in charge of those funds, I'd try to fund an internship program.""

Real-world Implications

He had his reasons.

"Everybody is talking

nowadays that the next generation of kids are not prepared for the real world," he says. "On top of it, some say they don't want to work, are lazy, and just not ready for real life."

The program was logical for him.

"In my opinion, the only way to get ready is to get them in real-life experiences,"



Jeremy Vardiman gleans feedback from participants in the 2011 program.

says Vardiman. "That's what we are trying to do with this internship. On top of it, I think it helps the kids out by having them start thinking about their futures and deciding if they want to go to college or a trade school instead of getting two years into college and deciding that's not what they want to do."

While in high school, Vardiman's parents always asked what he wanted to do with his life. "I didn't know," he says. "Even in college, I chose vet sciences to begin with. Within a year, I figured out that wasn't me. I switched, but it pushed me to another year in college."

High school students might gain a better idea of career choices if able to work in a business longer, he thought.

4-H Council Involvement

"I took it to the Johnson County 4-H Council to see if they were interested," he says. "They thought it was a great idea but needed someone to put it together. They asked me if I would. It all fell together in a good manner."

Participants must be enrolled in 4-H for insurance purposes but aren't required to participate in traditional 4-H programs.

2012 Participants

4-H'ers and business participating in 2012 were:

 Colter Sellers and Casey Sellers, Colt Simmons

Businesses participating were:

- Grouse Mountain Environmental Consultants
- Big Horn Mountain Radio Network
- JLM Engineering

"In my opinion, the only way to get ready for real life is to get them in real-life experiences."

- Jeremiah Vardiman

They are responsible for contacting businesses and going through the interview process. If the match is right and, after completing the program, the student is paid the stipend – \$1,200 – for his or her efforts.

Students earn the stipend but also gain valuable skills. Employers are asked to expose workers to as many facets of a business as possible.

Funding a Focus

The council has received donations from businesses and through grants and fund-raisers for 2012, says Vardiman.

"We want to keep growing the program and hopefully have more students apply and have enough funding to pay for all of it."

The council also wants to get information out to employers, students, and parents.

"We are doing well so far," Vardiman says. "We are getting the second year under our belts, and the response we have received back has been phenomenal. The interns, businesses, and parents have all been very positive."

Great Feedback

The workers take pre- and post-employment surveys. One question ranks their experience and knowledge before and after the internships.

"Every intern has seen huge improvements in that area of the survey," says Vardiman. "They rank 1 to 5, with 5 being the highest. Most come in at 2 or 1 and are hitting 4 and 5 at the end of it. We are getting that same response from employers. We even had one employer approach us and ask that, if we cannot fund all the applicants, he would like to see the list. He was interested in hiring kids to work - not as internships but as employees in the company."

Vardiman said the council is seeking a three-tiered approach to raise money for next year, and his dream is for the program to expand across the state.

"We are looking at grants, looking at fund-raising within the county, and looking for endowment money from whoever will donate to our cause," he says. "Through the three-tiered system, we are hoping to raise enough money to get what we need."



Business owners pleased with internship experiences

Those businesses that participated in the internship program in 2011 gained from having an extra employee – paid through the program – and also saw growth in the 4-H'ers.

Sandy Todd, who owns the Sports Lure with her husband, Dave, had not heard of the program when Alicia Downare, a sophomore, entered the store and inquired about employment in 2011.

"The girl presented herself so well; she did a great job," says Todd, who was a 4-H'er in Montana, as was Dave. "We gained a wonderful employee who worked very hard for us, and it didn't cost us any money. We kept pinching ourselves because of that. We'll think of a way to contribute back to it."

Courtney Dyess worked for Western Reride, owned by Jake and Kami Kennedy, who is an English and business teacher at the high school. She had known Dyess from classes.

"I knew her dedication and that she was a good student," notes Kennedy. "I

could see she was what we are looking for."

Kennedy saw Dyess gain confidence as the summer of 2011 progressed.

"Sometimes there are difficult customers, and she became more adept at working with them," says Kennedy. "She always showed initiative, and she was an independent worker. We saw ownership in what she did."

Todd also saw a change in Downare. "She was real quiet at first, but she

became a lot more outgoing," says Todd.
"As the summer went on, customers loved her – she was outgoing and friendly, helpful, and was always very courteous."

Downare had visited the sporting goods store several times with her father.

"I go hunting a lot, and my dad always comes here and shows me all the different guns," she says. "That was one reason I chose to do it here. The job helped me a lot with people skills. I can talk to people more than I would before. It's helped with that a lot."



Educators dispense cultural barriers by delivering nutrition courses in Spanish reen-clad Irish figures based in Rock Springs and a translating. Nielson, in turn, on the front wall Mexico native, was helping asked Ibarra if she would be poster peering at Cent\$ible Nutrition Program willing to present the class those seated at tables educator Wendy Nielson in Spanish and forego any below were remindprovide menu planning and problems - longer classes, ers St. Patrick's Day was healthy eating information misinterpretations – that can

nearing.

A Caucasian woman with a white milk mustache flourished across her upper lip in a poster on another wall silently asked those laboring at the tables at Overland Elementary School in Rock Springs if they had milk.

"Grow More," the paper woman admonished.

Meanwhile, animated Spanish bubbled from those at the tables, subsided, and rose again several times.

Then, Jossy Ibarra's singular voice began her menu planning and healthy eating lesson, her Spanish leaping American and Hispanic cultural barriers.

Deliver Lessons in Spanish

Her presentation had the undivided attention of the 20-plus participants, most of whom could understand English. Ibarra, a University of Wyoming Extension educator

to a group that would most likely never access English language resources.

"The fact the class is being presented in Spanish, that's a big deal," says Nielson, who attended the session. "It's not every day you see a UW class presented in Spanish to an underserved population. I like it. I think it's a great opportunity."

A Costa Rican native with a very European name Monica Anderson – moved between tables, her head dipping down now and then to respond to individual queries. The Title III parent liaison with Sweetwater County School District One connected UW Extension with Hispanic parents.

Program Origins

The district's food service supervisor had asked Neilson if she would like to teach CNP lessons with Anderson

arise during translations.

That was in 2011, when more than 50 would attend sessions. This year, attendance at the weekly sessions, moving from elementary school to elementary school in the county, was less. Neilson guessed the timing of the classes contributed - the prior week's session had been held on Ash Wednesday.

"We had great success," says Nielson. "Hopefully, we will be able to continue working together this way. We are serving that underserved audience, getting out there and providing them nutritional education where they might not feel comfortable coming to an English class where they are not going to understand at all."

Mix Existing Lessons with Other Resources

Ibarra drew from CNP and MyPlate resources already



From left, Elena Lozoya, Monica Anderson, Maria Cisneros examine label ingredients.

in Spanish and tweaked them with information she gleaned from other sources where needed.

Her Hispanic background helps.

"When I'm teaching, I know how things are done in Mexico," she says. "It's OK in Mexico to leave food on the counter for days. It's not OK if following food safety guidelines. I know what they are thinking: 'Why are we throwing away all this food?' I just tell them this is how we are doing this and forget about what you were doing back home."

Providing lessons in Spanish allows full delivery of the CNP program.

"They do understand English, but they prefer their first language," says Ibarra. "I know having lessons given in Spanish would be better for me if I were them learning basic English."

Lost in Language

Spanish delivery of the lessons is not lost on Anderson, who struggled with English upon arriving in America.

"Even when I bring someone in to meetings, the school district works hard and does a good job translating for meetings," says Anderson, who came to America with her husband 18 years ago.
"But when you translate, you miss information. Sometimes meetings take longer, you summarize, and then you miss information. With the Anglos there, Latinos want to ask questions, but they don't feel comfortable. When in Spanish, they are all interacting. I'm so grateful we are able to do it that way."

Says Anderson, "I can see the attitude difference. They don't feel intimidated."

She knows.

Draws Upon Experience

Some English had been mandatory for college students in Costa Rica, but most was reading in English.

"It was more like textbook grammar," she recalls. "When I moved to Utah with my husband, I heard people say 'wouldya.' Wouldya? What is



that? And my husband told me. I said "Well, that's different! In books, it would be would you."

Not understanding pummeled her confidence, and she says she felt lost in American culture. Lack of understanding lowered her self-esteem, she says and relates the path her self-worth took.

"I'm a very independent person. I have my job and career then I come to a country where I can't understand what a person is saying. I would ask if they could write it down. I lost self-esteem."

To get that back, she decided to not attend Spanishonly church sessions and Spanish-only communities.

"It was hard for me not to go to a Latino community," she says. "It took me maybe five years, and one day it kind of clicked. I thought, oh my gosh, I could understand almost 100 percent of what people were saying."

She added not forgetting who she is or her home country is very important.

"There is a population here that says nothing should be done in Spanish," she notes. "'They need to learn English' they say. I understand that. But English takes awhile to learn. Many of these people work and don't have time to go to school. For many in this population, the level of education is pretty low. To learn a second language is difficult."

Cent\$ible Nutrition Program courses emphasize meal planning and portion sizes

The goal is to eat healthier and spend less on food.

"We have been talking about having a whole series of CNP classes in Spanish for the Spanish community," says Wendy Nielson, CNP educator in Sweetwater County. "There is a great need, a great need. They have so many questions about the nutrition information it's hard to actually get through a lesson. They just want to know everything."

Menu Mysteries

Nutrition and food safety educator Jossy Ibarra teaches basic nutrition first to learn how to plan a menu.

"I always share personal experience with them," says Ibarra. "I tell them what works best for me at home. I give ideas how they can start working on their menu planning."

She also teaches classes for English-speaking audiences and notices subtle differences between the two.

"The Hispanics usually come as a family," she notes. "That's one thing you don't usually see with other audiences. I've noticed they are craving for resources for information. They are very attentive. That's something that makes me feel really good. I can answer their questions and help them."

Spanish audiences also tend to eat out less than their American counterparts, who don't seem to make cooking a priority, she notes.

Make It Healthier

"Cooking is part of the Hispanics' life already. It's like a step ahead for me. I can shape what they are already doing. I tell them we will work on whatever they are cooking and make it healthier."

The Spanish diet is high in starches – tortillas, for example.

"Half of our plates should have fruits and vegetables," says Ibarra. "It's hard for them to put all the food groups on their plates. I know they need lots of education in that aspect."

Monica Anderson, Title III parent liaison with Sweetwater County School District One, has enabled UW Extension to reach at least some of the families. Traditional print mass communication doesn't work.

An article about the course had been in the local paper.

Hispanic residents said, "We don't buy the paper," relates Ibarra, "which make sense since it is written in English."





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