



University of Nevada
Cooperative Extension

The University at work in your community.

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**2017
Program
Highlights**



FIND OUT THE STORY BEHIND THESE PHOTOS ► **SEE PAGE 1.**



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MESSAGE FROM THE DIRECTOR

University of Nevada Cooperative Extension has many strengths, among them the ability to form productive partnerships. The 2017 Program Highlights features some of the partnerships that bring diverse resources to support local, regional, statewide and national programs – resources that exceed the county, state and federal investments in University of Nevada Cooperative Extension.

Examples include the Living With Fire Program, which Nevada’s firefighters, the BLM, Forest Service and hundreds of others have supported for many years, and the team approach to wine grape research that combines the research and outreach strengths of the Nevada Agricultural Experiment Station and Nevada Extension. Volunteers in our communities contribute to the 4-H Shooting Sports programs, which teach youth leadership, life skills and responsible firearm use, and give them opportunities to participate in county, regional, state and national competitions.

Nevada Extension’s ability to partner for the good of the state’s communities is part of our culture and a critical element of our mission. As Director of Nevada Extension, I have focused on building partnerships to enhance our capacity to meet statewide needs. At the same time, Nevada Extension’s track record of identifying and bringing the right mix of resources to bear on local, regional and statewide challenges and opportunities far outweighs what Nevada Extension’s leadership can provide. As I come to the end of my time as Interim Director of University of Nevada Cooperative Extension, I have confidence that our incoming Director will recognize our strengths and build on the capabilities of our faculty and staff.



Interim Director and Associate Dean for Engagement Mark Walker

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2017 PROGRAM HIGHLIGHTS

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2016 ACCOMPLISHMENTS

15,667,353

hits to the www.unce.unr.edu website

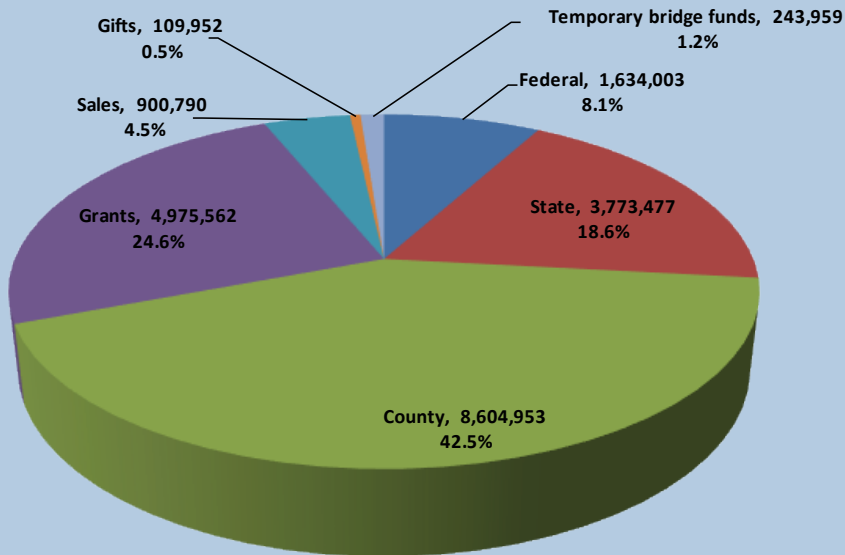
1,351,996

visitors to the www.unce.unr.edu website

33

new educational publications, including two new curricula, published by faculty

University of Nevada Cooperative Extension Funding FY 2016 (7/1/2015 - 6/30/2016)



University of Nevada Cooperative Extension is reaching an international audience:

At least 25%

of the visitors to the www.unce.unr.edu website were from outside the United States

COVER PHOTOS

Top Right: “When I see cows happily grazing in green pastures on a pristine spring day framed with the backdrop of snowcapped mountains and our incredible Nevada skies, it brings me so much joy. So many family ranches have disappeared – replaced with McMansions and shopping centers. It is sad to see the character of the Carson Valley changing, but time marches on. I hope there will always be scenes like these – living paintings and a glimpse of the valley’s history for all of us to enjoy.” ~ Linda Seibert, who took First Place out of 240 entries with this photo in the Rural Character Photo Contest sponsored by University of Nevada Cooperative Extension and GreenACTnv in August 2017. The contest was designed to stimulate thought and dialogue about rural character in Douglas County.

Bottom Left: Photo taken and artistically enhanced by Rahchell, age 16, of her brother Billy, age 15, as part of the Boulder City 4-H Club activities. The photo received a Blue Ribbon in the Clark County Fair in the Portraiture Special Effects category. Rahchell is a member of the 4-H Teen Council and is autistic. She is also the Historian for both the Club and the Teen Council, and competes on the Club Robotics Team.

Bottom Right: Photo taken by Brooklyn, age 13, as part of the Greater Austin Youth Photography Camp, an Extension program held in Lander County, July 17-20, 2017. The photo shows Stokes Castle, a three-story stone tower in Austin, Nevada, that is listed on the National Register of Historic Places. It was built in 1897 by Anson Phelps Stokes, a mine developer, railroad magnate and banker, but only occupied for a short time.

Cooperative Extension programs address a wide variety of issues, such as:

- ▶ food safety and security
- ▶ obesity and related health conditions
- ▶ lack of physical activity
- ▶ lack of fruit and vegetable availability and consumption
- ▶ unhealthy behaviors and substance abuse

Extension professionals help communities assess their health and nutrition assets and needs, and collaborate with other entities to help mobilize communities to address identified needs. They also develop programs and deliver them in Nevada’s schools, Housing Authority sites, adult rehabilitation facilities, community centers and more, providing classroom instruction, tool kits and hands-on learning in skills such as choosing and cooking healthy foods, growing fruits and vegetables, and engaging in healthy physical activities.

Rethink Your Drink

Partnership encourages children and their parents to make healthy drink choices

Sugary drinks make up nearly half of children’s added sugar intake, increasing the risk of tooth erosion, obesity, diabetes and other health problems. Nutritionist Jamie Benedict in the University’s College of Agriculture, Biotechnology and Natural Resources created Rethink Your Drink in 2012 to encourage families to drink fewer sugary drinks.

Beginning in 2014, Benedict partnered with Extension’s Washoe County 4-H Program Manager Sarah Chvilicek and other Extension faculty to incorporate Rethink Your Drink education into Extension programs that also provide families with nutrition education, including:

- ▶ Small Steps 4 Big Changes, nutrition lessons for children with their parents at Housing Authority sites that incorporate recipe preparation, food sampling and physical activity;
- ▶ Grow Yourself Healthy, nutrition lessons at elementary schools that include fruit and vegetable sampling, hands-on gardening in school gardens, training for teachers, and parent education events; and
- ▶ Veggies for Kids, classroom lessons for K-3 students in rural and underserved communities teaching vegetable gardening and nutrition, a four-day summer institute, and hands-on gardening at school gardens or hoop houses.

Extension also partners with local providers to put on events promoting Rethink Your Drink.

Some components of Rethink Your Drink include:

- ▶ direct mail pieces sent to families with children ages 6-12;
- ▶ billboards, advertising in other media, store displays, and stickers for children; and

100

Rethink Your Drink tool kits were given to medical and dental practices in 2017

“The tools from Rethink Your Drink give us an opportunity to discuss how sugary drinks contribute to cavities and poor health overall, and it allows us to give the patient a brochure for them to refer to later.”

~ Brandi Dupont, chief dental officer for the Community Health Alliance in Reno

- ▶ collaboration with dentists and health care providers, who receive tool kits and distribute information to their patients, and help develop and review Rethink Your Drink materials.

Program Partners: U.S. Department of Agriculture’s Supplemental Nutrition Assistance Program – Education, the Allen Foundation, Nevada Division of Welfare and Supportive Services, Community Health Alliance, Grocery Outlet, select grocery stores in Washoe County, local health care providers and dentists

20,000+
households across 7 northern Nevada counties have received educational materials through the mail since 2012

The Rethink Your Drink tool kit includes a model showing how one 12-ounce soda contains 10 teaspoons of sugar.



Pick a better snack™ (formerly Chefs for Kids)

Program partners with school districts to increase students' preferences for fruits and vegetables

Health behaviors learned as children often persist in adulthood. Since many health issues for adults result from poor diet and exercise, Cooperative Extension in Clark County created Chefs for Kids in 1990 to help elementary school children from families with limited resources learn healthy behaviors at a young age. Washoe County adopted the program in 2007, and in 2016, the program began using the Pick a better snack™ curriculum to help promote fruit and vegetable intake in 13 Clark County and three Washoe County schools.

Led by Extension's Susan Lednicki, the program includes nine monthly in-class lessons during the school year. Lessons teach facts and health benefits of a fruit or vegetable, and include physical activity, incorporating a variety of teaching aids, such as movies and live plants. Lessons culminate with students tasting the fruit or vegetable.

Program staff also work with school wellness coordinators to support school wellness policies,



especially the promotion of nutrition and physical activity. Efforts include smarter lunchroom assessments, providing the basis for recommendations that help schools provide a healthier environment for their students. Pick a better snack™ partners with each school to help with outreach events that include the students' families, helping schools meet their wellness goals for the school year.

Program Partners: Chefs for Kids Foundation, Clark County School District, Washoe County School District, Nevada Department of Agriculture, Fresh Fruit and Vegetable Program, U.S. Department of Agriculture's Supplemental Nutrition Assistance Program – Education, Expanded Food and Nutrition Education Program, Southern Nevada Health District, local businesses and organizations

Children from Booker Elementary School learn about nutrition.

*“My son came home and asked me to buy eggplant! Great program for the kids.”
~ Parent of a Pick a better snack™ participant*

62,390
students have been reached since 1990

3,264
students were reached in 2016

According to a 2016 Pick a better snack™ post-program survey:

- ▶ **39%** of students reported eating more fruit
- ▶ **46%** of students reported eating more vegetables
- ▶ **76%** of parents reported their children were more willing to try new fruits and vegetables

Nevada Radon Education Program

Radon is a naturally occurring, radioactive gas that is colorless, odorless and tasteless. It comes from the ground and can accumulate in homes, raising the risk of lung cancer.

This risk can be reduced by getting a radon test kit, testing your home, and fixing problems if found.

Get your radon test kit at Cooperative Extension and partner offices statewide.

Call 888-RADON10 (888-723-6610) or visit www.RadonNV.com.

- ▶ **26,264** Nevada homes have been tested through June 30, 2017
- ▶ **About 25%** of Nevada homes tested showed elevated radon concentrations

The Nevada Radon Education Program is a program of University of Nevada Cooperative Extension and is funded by the Nevada Division of Public and Behavioral Health.

Cooperative Extension programs address issues such as:

- ▶ literacy; and school-, college- and career-readiness: early literacy, literacy for bilingual families, interest and knowledge in STEM (science, technology, engineering and math)
- ▶ domestic violence: recognizing and reporting child abuse, response training for law enforcement, recovery for victims, and family enrichment and parenting
- ▶ youth crime: preventing entrance into the justice system and reducing recidivism of juvenile offenders
- ▶ health and nutrition: for children, families, seniors and those with limited resources (See Pages 2-3.)
- ▶ youth leadership development, civic engagement and life skills: 4-H Youth Development Programs

In Nevada’s 4-H Youth Development Programs, youth “learn by doing” a variety of activities, such as photography, rocketry and raising animals. Besides traditional 4-H clubs, there are afterschool programs, programs for military youth, summer and science camps, and more. All 4-H programs teach youth leadership, citizenship and life skills; and many incorporate STEM.

Youth for the Quality Care of Animals

Nevada helps develop and adopts national curriculum

In spring 2017, the National Pork Board, livestock industry representatives and Extension specialists from nine states, including Nevada, implemented the Youth for the Quality Care of Animals Program to create a national quality assurance curriculum. The program, offered both online and face-to-face, teaches youth ages 8-21 who raise market animals how to ensure the animals will be wholesome, safe and healthy for consumers. It focuses on animal wellbeing, food safety and life skills. There are lessons for four age groups: junior, intermediate, senior and young adult.

Planning began in 2013 when the National Pork Board discovered some youth held misconceptions about how to raise market animals. And although several states had quality assurance programs, there was a need to also teach youth to think about consumers’ perspectives and to standardize quality assurance programs nationwide. The board

asked Extension specialists from states with approved programs to use their knowledge to help create a national curriculum. Extension Educator Lindsay Chichester, working for University of Nebraska Extension at the time, was one of the board members who worked on the project. “Some of the finest in animal husbandry professions across the country have laid eyes on this. This curriculum provides a consistent message across the country,” she said.

Chichester, now Carson City Extension Educator, has continued her work on the project since joining Nevada Cooperative Extension in January 2016, with 39 Nevada youth being certified so far, and Nevada 4-H contracting to exclusively use the curriculum in all future youth livestock programming.

Program Partners: National Pork Board, other Extension units, National Cattlemen’s Beef Association, stock shows across the nation, youth livestock programs, other livestock and grain commodity groups

4,814
youth across 28 states have been certified through the program



The curriculum teaches youth to raise quality swine, beef and dairy cattle, sheep, goats, dairy goats, rabbits and poultry.

“It’s exciting that multiple livestock organizations, commodity associations and state organizations collaborated to develop one national program for all youth.”
~ Dinah Peebles, National Pork Board certifications program manager

4-H Youth Development Program – Shooting Sports

Program teaches life skills through safe handling and use of archery and firearms

Youth ages 9-19 participating in Nevada's 4-H Shooting Sports Program learn marksmanship, safety and responsible equipment use, as well as planning, teamwork, problem-solving, and other life skills. They can participate in archery, muzzleloading, rifle, pistol, shotgun or hunting, and each one they participate in is called a "project."

The program provides youth hands-on experience in safely handling and competing with firearms under the guidance of volunteer instructors, whom the program trains and certifies. Certification requires completion of 15 hours of risk-management and discipline-specific training. From 2015 to 2017, 70 volunteers were certified in shooting sports in Nevada.

In 2016, Clark County 4-H Shooting Sports Coordinator



Tricia Braxton Perry partnered with the Clark County Shooting Complex and the Clark County School District to introduce archery and trap shooting to Clark County high school students. In May, the 4-H Program invited principals and teachers to participate in a complimentary one-day clinic for archery and trap shooting at the Shooting Complex. Afterward, the attendees were asked if they wanted to bring students to similar clinics.

The 4-H Program held the first student-teacher clinic in October, with 52 students and 30 adults from three schools attending. Another 25 students from a fourth school attended a second clinic in May 2017. Clark County's 4-H Shooting Sports Program grew 71 percent during the 2016-2017 program year.

Program Partners: Clark County Shooting Complex, Clark County School District, Nevada Department of Wildlife

Youth involved in 4-H programs are:

- 5 × more likely to graduate from college
- 4 × more likely to contribute to their communities
- 3 × more likely to be physically active
- 2 × more likely to make healthier choices
- 2 × more likely to participate in science activities outside of school

From a 10-year study involving youth from 42 states conducted by Tufts University. For more information: <http://4-h.org/about/research/>.

"The students who participated in the 4-H archery and trap shooting clinic talked about their experiences with one another on the bus ride home. Those that participated in archery were excited to try it out in physical education class, and most participated in the intramural program held after school. Overall, it was a great experience for all of them."

~ Heather Mcenaney, Legacy High School physical education department coordinator and archery intramural instructor

Bryar, age 11 at the time, practices archery at the 4-H Summer Camp at Lake Tahoe. Now 14, Bryar served as a teen counselor at the 2017 Summer Camp.

1,641 Nevada youth

participated in 4-H Shooting Sports projects in the 2015-16 4-H Program Year



Cooperative Extension offers extensive horticulture programming, providing instruction on topics such as:

- ▶ vegetable gardening for homeowners, apartment dwellers, children and others
- ▶ integrated pest management for safe weed and insect pest control
- ▶ efficient irrigation and low-water-use plants and landscape techniques
- ▶ fruit and ornamental tree selection and care
- ▶ attracting pollinators and other beneficial insects
- ▶ composting, mulch and soil maintenance

Many of these efforts are focused on urban horticulture, as there is a great need in Las Vegas, Reno and other cities, where residents struggle to maintain lawns and landscapes, and grow plants, trees and home gardens in Nevada’s challenging climatic and soil conditions. Extension also provides education for Nevada’s landscapers, who help maintain not only residents’ yards, but also our parks, golf courses and other recreational areas. Finally, Extension professionals and Master Gardener volunteers also conduct research, such as developing and testing bioplastic plant pots, and testing milkweed varieties to help increase Monarch butterfly populations.

Botanical Gardens

Extension professionals and Master Gardener volunteers demonstrate native and appropriate plants for southern Nevada’s desert and urban environments

The past year has been an exciting one for Extension’s horticulture and Master Gardener programs in southern Nevada.

In August 2016, Extension was awarded a Green Award from the Las Vegas Business Press, awards given to local businesses for their efforts in achieving eco-friendly sustainability. Specifically, Extension received the Innovation of the Year Award for its Botanical Gardens, located at 8050 Paradise Road in Las Vegas behind Extension’s Clark County Lifelong Learning Center.

The Gardens are home to over 1,200 species of desert-appropriate

plants, labeled with botanical and common names for those who browse the Gardens independently. In addition, multiple classes or tours are presented in the Gardens each month. Planting and maintenance are performed by Master Gardener volunteers, coordinated by Extension’s Ann Edmunds. Faculty members Angela O’Callaghan and M.L. Robinson provide direction and oversight. Specific demonstration areas include herbs, cacti, roses, fruit trees, composting, mulch use and plants for areas with natural washes running through them. There is also an educational children’s garden, with vegetables and flowers.

Finally, 26 species of milkweed have been planted throughout the Gardens by Master Gardener Anne Marie Lardeau, who undertook the research project a few years ago to attract and support Monarch butterfly populations. For her work, in July 2017, she took home



O’Callaghan peeks over plants in Extension’s award-winning Botanical Gardens.

a Search for Excellence Award from the International Master Gardener Conference, being awarded Second Place in the Research category. In addition to growing and testing varieties in the Gardens, Lardeau collected seeds from the plants and invited local residents to participate in the research project, providing them with seed packets, instructions for planting and care, and surveys to track plant success.

Program Partners: Mountain States Wholesale Nursery, Proven Winners Wholesale Nursery, Vira Grow, Century Root Barriers, KW Palms & Cycads, China Ranch Date Farm

*“Although our Master Gardeners are required to volunteer 50 hours each year, the average number is 125 hours a year. People are wildly committed here.”
~ Angela O’Callaghan,
Cooperative Extension social horticulture specialist*

Master Gardeners

Trained Master Gardener volunteers are a key component of Extension's urban horticulture education

Master Gardener volunteers are a critical component of horticulture programs in every land-grant university. Those seeking to become Master Gardener volunteers complete an intensive basic horticulture training including 50 to 80 hours of coursework and hands-on training. They then volunteer at least 50 hours to become a certified Master Gardener volunteer, and must volunteer at least 50 hours each year to retain their certification.

Master Gardeners provide research-based horticulture information to Nevadans by answering phone calls and emails, sending out informational materials, conducting workshops, developing community and school gardens, providing information at farmers markets and other community events, and much more.

Melanie Daniel moved to

Washoe County in 1991 from Tennessee, which she described as a "whole other world" compared to Nevada's dry, and sometimes cold, climate. She relied on the Master Gardeners to help her learn exactly what can grow here. In 2015, she took the Master Gardener training course, and in 2016, she fulfilled her volunteering requirements, becoming a certified Master Gardener herself.

Master Gardener Coordinator Wendy Hanson Mazet reports that Daniel is constantly volunteering in the Washoe County Master Gardener office, answering local residents' horticulture questions.

"When I interviewed her and accepted her into the training program, I just knew she was going to be a great volunteer," she said.

Program Partners: Nevada's Master Gardener Program has hundreds of partners, including schools, nurseries, nonprofit organizations, faith groups, governmental agencies, green industry businesses and professionals, other local businesses and community groups

In 2016:

58,261 hours of service valued at

\$1.4 million* were provided by

414 certified Nevada Master Gardener volunteers

*Based on \$24.14/hour Independent Sector value of volunteer time in the U.S.
http://www.independentsector.org/volunteer_time



In 2016, Washoe County Master Gardeners grew and sold 1,125 strawberry plants through online sales.

Some 2016 Master Gardener highlights:

650

participants were taught by Washoe County Master Gardeners at the Gardening in Nevada: The Bartley Ranch Series, offered in partnership with Washoe County Regional Parks and Open Space

800 +

people visited Extension's Research Center and Demonstration Orchard, a partnership with University of Nevada, Las Vegas, and the city of North Las Vegas, where hops, grapes, fruit trees and more are grown

60

baskets of flowers were planted by Douglas County Master Gardeners and hung on Gardnerville's streets, as part of the town's Community Beautification Project

"I learned how to plant, what I should use, not use, and how to be a weed warrior. I liked the instructors. They're so friendly, knowledgeable and informative, and it's easy to ask them questions."

- Melanie Daniel, commenting on participating in the Master Gardener training program

Cooperative Extension programs help producers and ranchers create and maintain sustainable agricultural operations by:

- ▶ providing education and mentoring to help producers increase profitability and sustainability, as well as optimize their land use
- ▶ providing education and updates that help producers mitigate their business risks
- ▶ providing education and training on integrated pest management for control of weeds and insect pests
- ▶ conducting research, education and assistance for growing alternative water-efficient crops
- ▶ conducting research and education to improve irrigation efficiency
- ▶ conducting trials to identify specific crop varieties to maximize production and profits
- ▶ conducting research and obtaining necessary approvals to provide new products to manage pests
- ▶ conducting programs to promote agritourism and appreciation for agriculture
- ▶ engaging with stakeholders to enhance the climate resiliency of agricultural water resources on Reservation lands and other agricultural lands

Extension professionals collaborate with University colleagues, researchers from other universities, federal and state agencies, and private industry, as well as Nevada’s producers themselves, to identify the research and educational programs most needed to promote and sustain Nevada agriculture.

Grape-growing in Salty Soil and Semi-arid Climates

Researchers from Nevada and California team up to find hybrid rootstock for producers

In Nevada, California and other Southwestern states, rising temperatures are increasing drought stress in commercial grape crops. In addition, about half of the water used for irrigation is salty, and grapes are sensitive to the chloride in salt, which can prevent the plants from producing fruit. In response, University of California, Davis’ Andy Walker, a viticulture specialist, has partnered with researchers at the University of Nevada, Reno.

Grant Cramer, with the College of Agriculture, Biotechnology and Natural Resources, and Extension’s M.L. Robinson have teamed up to test hybrids that Walker has created. In June 2016, they planted 100 vines at Extension’s Research Center and Demonstration Orchard in Clark County, which is ideal for the research due to Clark County’s hot, dry climate and

salty soil, to identify what makes different grape varieties more water efficient, salt resistant and fruitful for commercial growers.

Walker is creating hybrids of grape rootstock to grow well in dry, salty soil. These vines don’t produce good quality fruit, so they are used as rootstock for more desirable vines. Over the next few years, Cramer, Robinson and their colleagues will report their observations to Walker, who will use the information to improve the grape rootstock he is breeding.

“Our goal is to improve the rootstock to better grow the grapes consumers want in the environments producers want, ideally more resistant to environmental problems, such as disease, pests and environmental stresses such as drought and salt.”

~ Viticulture Specialist Grant Cramer, with the University’s College of Agriculture, Biotechnology and Natural Resources



These grapes are part of the research being conducted on grape hybrids planted in Extension’s Research Center and Demonstration Orchard in Clark County.

Cramer has been conducting research on grapes for more than 20 years, and Robinson has been a horticulture specialist with Extension for more than 20 years, conducting a variety of outreach and research projects. The vines they planted for this project will take a few years to produce fruit, but so far the plants are “growing well and happy in southern Nevada,” according to Robinson.

Program Partners: U.S. Department of Agriculture, Western Integrated Pest Management Center Project; University of California, Davis

Profitable, Water-Efficient Crops for Nevada

Extension and Ag researchers collaborate to test traditional and alternative crops for water efficiency and economic returns

Nevada farmers identified a need for commercial crops that use less water and are as profitable as traditional crops. They also need research on managing weeds and insects. Extension’s Jay Davison and Juan Solomon, with the College of Agriculture, Biotechnology and Natural Resources, are researching and evaluating conventional crops, such as alfalfa, and alternative crops, including teff, camelina, sorghum, Sudan grass and tall fescue, for water efficiency and economic returns.

Davison and Solomon are testing 19 alfalfa varieties, including seven varieties genetically modified to resist the Roundup herbicide so farmers can use it without damaging crops. Crops are evaluated for yearly yields, quality differences as livestock feed, longevity, and nutrient drain on the soil.

Alternative crop testing begins with a few years of small-area trials. Solomon and Davison, along with other College and Extension faculty, are testing varieties, irrigation regimes, fertilizer applications and planting dates for camelina, sorghum, Sudan grass and tall fescue.

Varieties appearing to use less water and provide sufficient economic returns are then given to partnering farmers for commercial use. Davison, Solomon and others help producers grow the new crops, providing recommendations on equipment and other ways to fine-tune crops. Beginning in 2009, teff varieties found to be high-yielding and drought-resistant during small-area trials



Seeds for the alternative crop camelina were planted at the University’s Nevada Agricultural Experiment Station Main Station Field Lab for small-scale testing before being considered for commercial use.

*“All of our research stems from needs identified by Nevada farmers.”
~ Jay Davison, Cooperative Extension
alternative crops and forage specialist*

were presented to partners to begin growing. In 2016, producers planted over 2,000 acres.

In addition, in 2016, Davison applied for and received an exception from the Environmental Protection Agency for Nevada farmers to treat 750 acres of teff with Prevathon, a new insecticide to control army cutworms that can

decimate teff fields. The Prevathon preserved about one million pounds of teff. In 2017, the EPA approved Prevathon for national use on teff.

Program Partners: U.S. Department of Agriculture’s National Institute of Food and Agriculture, Nevada Department of Agriculture, private pesticide and herbicide companies, Nevada counties, local farmers and ranchers

In 2016:
2.6 million pounds of teff, valued at approximately **\$1.2 million** were produced by Nevada farmers

Teff uses:
1/3 less water than traditional crops

Cooperative Extension programs address a wide variety of issues, such as:

- ▶ protection of watersheds and riparian environments, floodplain management, flood awareness, and flash flood preparation and safety
- ▶ reduction of the threat of wildfire
- ▶ preservation and sustainability of natural resources, wildlife habitat and wildlife
- ▶ rangeland management
- ▶ drought and climate resiliency, and water resource management

Extension professionals work with University colleagues, community groups and local governments, state and federal agencies, and other regional and national experts to address these issues, providing research and educational programs. Many of their efforts reach across state, and even national lines, to help find answers and solutions, and to share them across the globe. Programs train youth and adults in environmental stewardship and natural resource management, collaboratively seek ways to manage limited water supplies and prepare for changes in climate, and educate families and communities on how to protect their homes and neighborhoods from wildfires and floods.

Livestock Grazing for Fire Fuels Management

Extension and University Ag researchers team up to reduce wildfire fuels on rangeland

Cheatgrass and medusahead are extremely flammable invasive annual grasses which, when left unchecked, multiply from year to year and increase the risk of wildfire. Cooperative Extension’s Brad Schultz and Barry Perryman, with the College of Agriculture, Biotechnology and Natural Resources, have been researching how fall and winter cattle grazing can reduce annual grass fuels in subsequent years.



By having cattle graze cheatgrass and medusahead in the fall and winter, researchers hope to reduce the risk of wildfire in future years.

Perryman, Schultz and others began their research and demonstration projects in 2006. They noticed that as the cattle continued to graze the invasive grasses for three to four years, the invasive grasses were being replaced by native perennial grasses, which are more difficult to ignite, making it more difficult for fires to spread.

In 2012, they partnered with Oregon Bureau of Land

“The Buzzard Complex fire in 2014, which started in multiple locations, burned 400,000 acres. One of the places where it started, it burned into one of the Livestock Grazing for Fire Fuels Management Demonstration areas, and then went out, which was a good sign.” – Bill Dragt, supervisory natural resource specialist with the Burns District of Oregon Bureau of Land Management, where the University of Nevada, Reno and BLM are researching how fall grazing can reduce the risk of wildfires.

Management and other organizations to establish much larger demonstration areas to see the impact of grazing over several thousand acres. Trials have been successful, with one demonstration area even stopping part of a fire in 2014. In addition, cattle have remained at the same weight or gained weight, showing that fall- and winter-season cheatgrass and medusahead still provide necessary nutrients.

Schultz and Perryman have published papers on their results and are working with Nevada BLM to establish demonstration areas in Nevada. They will also expand efforts into Utah in fall 2017.

Program Partners: Oregon BLM, Utah BLM, Nevada BLM, Oregon State University, Natural Resources Conservation Service, U.S. Forest Service, Ensign Ranches, Agricultural Resource Services

In 2016:

the Drewsey Field Ranch in Burns, Oregon, received the Sage-Grouse Habitat Stewardship-Permittee Award for their efforts in grazing management, which they had implemented as a direct result of this research project

Living With Fire

Nevada program now called upon internationally to teach how to live more safely in high-wildfire-hazard environments

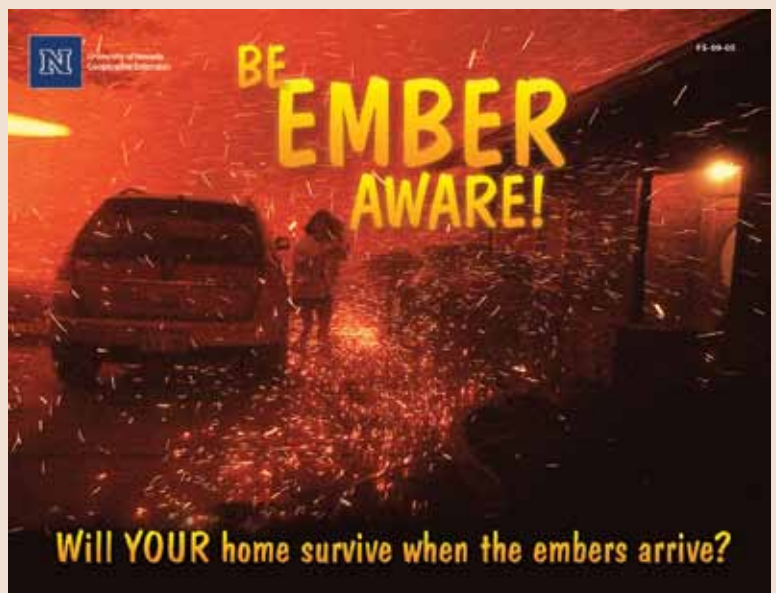
Living With Fire is a comprehensive, multi-agency program that began in 1997 and is led by University of Nevada Cooperative Extension. It teaches Nevadans how to live more safely in high-wildfire-hazard environments. The program has been called upon to assist nationally and internationally, and has received multiple regional and national awards. In 2016, the program received the Great Basin Fire Mitigation, Education and Prevention Award from the Great Basin Fire Mitigation, Education and Prevention Committee, the highest Great Basin honor one can receive for outstanding work and significant program impact in the area of fire mitigation, fire education and fire prevention.

Also in 2016, there were 19,653 online visits to view 20 different Living With Fire publications and educational tools. Some other program accomplishments in 2016 included:

- ▶ distributing 23,093 copies of 17 different Living With Fire publications;
- ▶ creating customized materials for eight requests from five states: Arizona, Hawaii, Oregon, South Carolina and Utah;
- ▶ providing requested general informational materials to Arizona, California, Colorado, Hawaii, Idaho, North Carolina, Oregon, South Carolina, Tennessee, Utah, Washington State and Australia;
- ▶ collaborating with 173 entities;

- ▶ conducting community workshops and promoting wildfire threat reduction techniques at numerous community events; and
- ▶ supporting the Nevada Network of Fire Adapted Communities Conference, attended by 105 agency, governmental and community representatives from 10 Nevada counties. Thanks to grant funding from program partners, the Living With Fire Program established the Network in 2014 to encourage residents to work together to reduce the wildfire threat to whole communities.

Program Partners: Bureau of Land Management; Nevada Division of Forestry; U.S. Forest Service; Nevada State Fire Marshal Division; local, state and federal firefighting agencies; public safety agencies; community organizations; local businesses



“Be Ember Aware!” is Living With Fire’s most popular publication.

25 states and
25 foreign countries

have used Living With Fire materials since 1997

“You should have seen all of the calls I was getting from the incident management teams wanting Living With Fire’s ‘Be Ember Aware!’ handouts. Definitely the most popular handout up here.”
~ Jordan Koppen, with the Montana Department of Natural Resources & Conservation, who was assisting incident teams and communities threatened by wildfires throughout the state in summer 2017. Nevada helped by rushing 7,900 copies of the publication to Montana. Since 2009, 87,864 copies have been distributed, including 52,511 in Nevada and 35,353 in other states.

Cooperative Extension programs help communities address issues affecting their quality of life and community sustainability, including:

- ▶ economic development
- ▶ business sustainability and profitability
- ▶ training and employment
- ▶ leadership and volunteer development
- ▶ housing

Some programs provide education to support agricultural producers and ranchers to increase their profitability and sustainability. Other programs help develop more informed, knowledgeable and involved leaders, and strengthen volunteer and engagement efforts. Still other programs assist Nevada’s Reservations, helping to identify housing needs or develop strategic or resource management plans. And while some programs help citizens overcome barriers to obtaining education, training and employment, others work with communities to foster and plan economic development, and to calculate potential economic impact of policies or actions.

Lincoln County Workforce Development

Extension partners with local businesses and others to provide career paths and create jobs

In a 2016 Lincoln County survey, residents identified creating more employment as the top priority. Lincoln County also reported the state’s lowest average weekly wage, \$706. Barriers to employment include lack of knowledge in areas such as how to fill out an application, find a career fit for particular interests and skills, and create a career plan. In addition, a lack of confidence and lack of job opportunities pose challenges. Many young adults in the county, ages 17-24, are not progressing academically, further inhibiting

their employment efforts.

In response, Lincoln County Extension Educator Holly Gatzke has worked with local businesses and entities to create the Lincoln County Workforce Development Program. In 2016, the program assisted 53 young adults and 31 adults, working with each participant one-on-one to help them develop a strategy for developing a sustainable career.

They analyzed barriers, interests and needs to help them develop a career path. Then, the participants were given assistance they needed to help them down the path, including tutoring, instruction in filling out applications, counseling and education to booster confidence and decision-making skills, and vocational training.

Gatzke also served on the Lincoln County Regional Development Authority Board of Directors, collaborating with others to create economic development opportunities, acquire funding and build business in the county. She was also the Vice President for the Lincoln County Authority on Tourism, educating and collaborating with volunteers on how to build local business and

sustainability, and how to promote tourism.

By the end of the program, participants reported improvement in their knowledge and attitudes regarding several necessary employment attributes/skills, such as decision-making, confidence, filling out applications and planning. Many were employed or had received work experience.

Program Partners: Workforce Connections; Lincoln County School District; Lincoln County Regional Development Authority; Lincoln County Government; Lincoln County Authority on Tourism; City of Caliente; Nevada Department of Employment, Training and Rehabilitation; U.S. Department of Labor



STEM (Science, Technology, Engineering and Math) and workforce training is part of the Lincoln County Workforce Development Program for young adults.

Of the 2016 participants:

64 people were career coached

35 youth received work experience

29 people were employed

23 were tutored

18 people were trained

7 earned their high school diploma or equivalent



Ely, Nevada, is one of 16 communities researchers have worked with to try to strengthen its economy.

Area Sector Analysis Process (ASAP)

Project helps rural communities strengthen their economies

University of Nevada, Reno; Utah State University; and University of Idaho researchers are helping rural communities across Idaho, Minnesota, New Mexico, Nevada and Utah strengthen their economies through a project called Area Sector Analysis Process (ASAP). Led by Nevada Extension's Community Development Specialist Tom Harris, who is also director of Nevada's Center for Economic Development in the College of Business, the project helps businesses and communities work toward common goals. The process takes about six months and begins with Extension educa-

tors meeting with communities to help identify their current assets and what types of industries they would want to attract to their community. Educators help the communities assess economic, environmental and social factors and apply that information to their economic development planning.

The project began in 2014 with a grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture under its Agriculture and Food Research Initiative. In Nevada, Harris and Nevada team members Malieka Landis, research manager at the Center, and Extension Economic Development Specialist Buddy Borden have worked with communities in White Pine and Lander Counties so far.

"From my experience delivering the ASAP Program, I found it to be a very effective research and outreach program that enables communities to better understand the many factors that influence community and economic development," Borden said. "More importantly, it provides communities with local data,

16
rural Western communities
have been assisted by the
ASAP Program

expertise and resources that are necessary when developing and implementing strategic economic development plans."

The \$500,000 grant was renewed this year. The team plans to expand the project across Western states, and continue to improve the model and analyze data collected to improve the process of creating sustainable rural development.

"We're trying to help communities with declining populations and services strengthen, rather than struggle, over time," Landis said. "With this grant renewal we will look at not just community assets, but also the labor skills and education required to meet industry needs."

Program Partners: University Center for Economic Development, Utah State University, University of Idaho, U.S. Department of Agriculture's National Institute of Food and Agriculture

"It's very much like a dating service. We pair what communities want along with information about their asset inventory. Then we interview businesses and discover who has similar goals and priorities to that of rural communities. At the end of the day, we come up with industries that are desirable to the community and vice versa."
~ Tom Harris, program lead



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A partnership of Nevada counties; University of Nevada, Reno; and U.S. Department of Agriculture