

2015 ANNUAL REPORT

State of Possibilities



Colorado State University
EXTENSION

Colorado is our campus: Extension's reach is statewide.

Recalling Extension's past dedication to local and regional partnerships, CSU Extension initiated demand driven organizational changes in 2010. CSU Extension County and Area Agents live in, raise their families in and volunteer in their communities. Today, as was the case a century ago, CSU Extension is the community and regional face of our Land Grant University mission. Six years ago, we rededicated our commitment to co-creating science-informed programs, facilitating community initiated economic development, and serving the future through our 4-H and Youth Development programs. We reorganized our three regions to meet the needs of our West Slope, central mountains and plains and our great Front Range metropolitan corridor. We serve rural and urban Coloradoans alike. Each of these regions have community-relevant programming that reflects local needs and engagement with our County Commissioners. Our 'flipping of Extension' has grown from our new planning and reporting units (PRUs) that incorporate interdisciplinary and interrelated program efforts to bring about statewide engagement resulting from community-identified needs. This organizational enhancement allows us to connect the dots between Extension

agents and campus and field-based subject matter specialists. The PRUs have been organized, by the members, into 10 categories:

- 4-H youth development
- Community development
- Cropping systems
- Energy
- Environmental horticulture
- Family and financial stability
- Food systems
- Livestock and range
- Natural resources
- Nutrition, food safety and health

You'll find a wealth of information on various projects in which our staff have been involved, in this report. Also, read below to learn about the Western Perspective and Agenda. Colorado State University Extension and the Agricultural Experiment Station have been actively involved in the work being done throughout the West. We've learned about our common goals as well as where our programs in Colorado are unique.

Lou Swanson
Vice President for Engagement
and Director of Extension

The Western Perspective

The Western U.S. faces unprecedented challenges maintaining sustainable urban communities and agricultural and natural resource economies. The Western Perspective and Western Agenda serves to inform policy responses and actions and demonstrates how land-grant universities, Agricultural Experiment Stations, and Extension support all Western Region communities sustained by agricultural and natural resources economies.

UNIQUE CHALLENGES AND CHARACTERISTICS

Every state in the western region has densely populated urban areas juxtaposed with large expanses of sparsely populated rural areas. This creates pressure on natural resource and agriculture industries while increasing population brings new demands on local and regional economies – largely dependent on watersheds, ecosystems,

infrastructure, and federal lands. The public owns 47 percent of the land in the west. The majority of western region agriculture depends on public lands for livestock and forestry production and strong partnerships with federal organizations to sustain the health of ecosystems agriculture and communities. Fire, water, climate change, population growth, and invasive pests and diseases are the primary threats to agriculture and communities in the western region.

SYNERGY BETWEEN UNITS

Land-grant universities, Extension, and Agricultural Experiment Stations have a federal and state obligation to conduct research and outreach, and lead educational programs that address the greatest agricultural and natural challenges of their home state and region. The collaborative nature between these entities in the western region ensure the programs, people, and places

are able to sustain and thrive with respect to their individual state needs and united regional challenges. This collaboration is unique and powerful; no other institutions have the scope, resources, or capacity to anticipate and respond to the current and future challenges facing the western region. The interaction between each entity produces timely information and research from experts at each institution. The depth and breadth of these programs reaches everyone, from the most vulnerable to the most prosperous.

AGENDA PRIORITIES

- Sustainable Production Systems: Food Production, Food Safety, Food Security, Forestry, and Horticulture
- Natural Resources: Water, Wildlife, Wildfire, Invasive Species, Ecosystem Services, and Economic Opportunities
- Energy
- Community and Economic Development
- Youth Development: Agriculture, Nutrition, and Natural Resources Science Literacy
- Nutrition and Health: Innovation in Foods for Health

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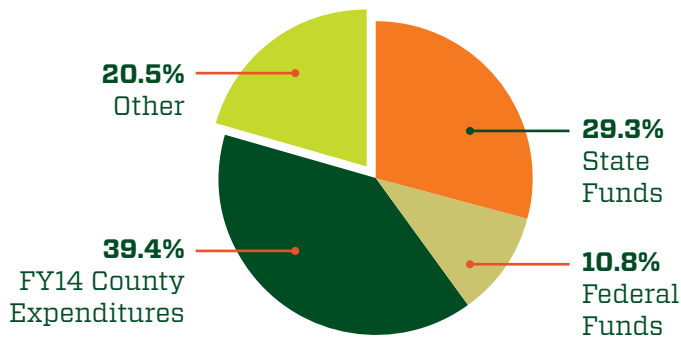
The Report and Summary are now available at www.waaesd.org/the-western-agenda

University of California
Colorado State University
University of Guam
University of Hawaii
University of Idaho

College of Micronesia
Montana State University
University of Nevada, Reno
New Mexico State University
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Oregon State University
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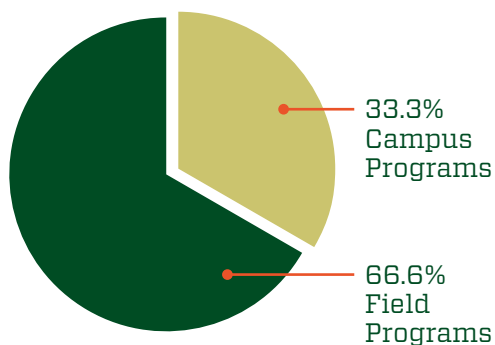
Total Extension Expenditures



FISCAL YEAR 2015

Source	Amount	Percent of Total
State Funds	\$8,404,502	29.3%
Federal Funds	\$3,084,685	10.8%
FY14 County Expenditures	\$11,295,486	39.4%
Other	\$5,863,252	20.5%
Total	\$28,647,925	100.0%

Appropriated Budget



Source	Amount	Percent of Total
Campus Programs	\$2,820,045	33.6%
Field Programs	\$5,584,457	66.4%
Total	\$8,404,502	100.0%

STATEWIDE

New look for a new era

Extension's new look for education and promotion videos match the needs of a new digital audience. Shorter, with a high-action format, the new videos attract and maintain viewers' attention while staying true to Extension's brand. For our Extension staff, it means fewer video development projects and higher engagement.

Current and upcoming projects include:

- "Let's Talk Extension!," which directs viewers to relevant fact sheets and online resources
- "Forest Management for Colorado Ranchers," in partnership with the Colorado State Forest Service
- Niche gardening and harvesting topics, like "Discover Winter Squash"
- Colorado Certified Gardener Program update
- New promotional videos, including "Baseball Science on a Stick" and "Weather and Science Day"

For more information, contact Joanne.Littlefield@colostate.edu. See all the videos at tinyurl.com/CSUExtensionvideos

CSU EXTENSION

For more than 100 years, CSU has been working with Colorado citizens to make better decisions by helping sort through information that can improve profitability and sustainability of their agricultural businesses, enhance healthy choices, and augment community and personal well-being, and add value to community-led initiatives. CSU Extension provides national research-based information on topics of health, food safety and nutrition, agricultural crops and livestock management, weeds, gardens, 4-H youth development, energy, community development and many others. We also facilitate discussions on community development and critical issues identified by our counties. Extension offices serve rural and metropolitan citizens throughout Colorado.

F.A. Anderson Award

Marisa Bunning, associate professor in the Department of Food Science and Human Nutrition and Extension specialist, was given one of Colorado State University Extension's highest awards last week. She received the F.A. Anderson Award, which recognizes outstanding performance by an Extension professional throughout his or her career.

Bunning was honored during an awards banquet as part of Forum, an on-campus, weeklong professional development opportunity for all Colorado Extension agents from throughout the state. Forum is an opportunity for Extension agents and on-campus specialists to meet and discuss upcoming issues and develop strategies for tackling them. CSU Extension, part of the Office of Engagement, serves all Colorado counties and provides reliable, research-based information, research capabilities and resources to all Coloradans.

Virtually all of Bunning's research funding – all linked to food safety Extension efforts – has involved multiple departments and colleges at CSU and community shareholders.

COLLABORATIVE APPROACH

Bunning has championed the use of social media, webinars, websites and online content to further develop strong collaborations and an extensive communication network with Extension agents, community partners and their local audiences.



"Dr. Bunning's research and outreach directly impact nutritional decisions and behavior of Colorado's citizens and beyond," said Lou Swanson, director of Extension and vice president of the Office of Engagement. "CSU Extension continues to greatly benefit from her scholarly engagement."

Bunning's commitment to collaboration includes the development of educational materials targeted to produce growers in 2012. This program helped producers understand the fundamentals of developing a farm safety plan, and was an important step in improving on-farm food safety in Colorado, especially following the Listeria outbreak associated with Colorado-grown melons.

Bunning worked closely with other CSU researchers and producers in response to that outbreak, collaborating with College of Agricultural Sciences faculty to develop a Melon Task Force. They implemented a strategic plan to improve all practices related to the production, distribution and consumption of melons. From September to December 2011, Bunning and collaborators secured more than \$37,000 in funding; hosted a seminar with more than 130 participants, including food safety experts from federal and state agencies; and responded to media requests by numerous state and national television, newspaper and radio programs.

'HIGHLY REGARDED'

"Marisa's career as an Extension specialist should be used as a template for how to work and make a difference through collaboration," said Michael Pagliassotti, head of the Department of Food Science and Human Nutrition. "She is highly regarded for her expertise in food safety, her passion for serving the public, her ability to mentor students, and as someone who fosters an inclusive environment."

Bunning is the project director for the CSU Farm-to-Table Food Safety website and co-director of the Colorado Farm-to-Market website. These two complementary websites were developed by CSU Extension with funding from the Colorado Department of Agriculture and contain information on food safety for consumers, producers, small-scale processors, educators and direct marketers. She has also been active in providing educational efforts to support cottage food producers in Colorado.

Most recently, Bunning became a co-director of the CSU Center for Food Safety and the Prevention of Foodborne Disease, a collaboration that includes the Colorado School of Public Health and Colorado Department of Public Health and Environment.

The Department of Food Science and Human Nutrition is in CSU's College of Health and Human Sciences.

Team awards

The Extension Team Award recognizes a team of county, area, regional, state and/or interdisciplinary program employees. There are two groups being recognized for their efforts: the PetAid Disaster Team and the Farm Bill Training group in Agricultural Business Management (ABM).

The PetAidTeam of 13 Extension agents was singled out for collaboration with numerous county partners: county animal response teams, emergency managers, law enforcement, wildlife officers, kennels, animal control, brand inspectors, animal rescue organizations, fairgrounds, animal-related businesses, health departments, veterinarians, fire departments, companion animal associations, and Red Cross chapters.

Team members include:

- Ragan Adams, Veterinary Extension Specialist, Dept. of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences (CVMBS)
- Franklyn Garry, Professor, Veterinary Extension Specialist, Dept. of Clinical Sciences, CVMBS
- Victoria Buchan, Professor, School of Social Work, College of Health and Human Sciences (CHHS)
- Louise Quijano, Associate Professor, School of Social Work, CHHS
- Debrah Schnackenberg, PetAid Colorado, Disaster Services
- Sharon Bokan, Boulder County Extension



- Karen Crumbaker, Larimer County Extension
- Bruce Fickenscher, Southeast Area Extension
- Todd Hagenbuch, Routt County Extension
- Travis Hoesli, Grand County Extension
- Larry Hooker, Weld County Extension

The Farm Bill Training group in Agricultural Business Management at Colorado State University received a 2015 Extension Team Award. The 2014 Farm Bill is the first to utilize online tools to help producers navigate its provisions. Unlike previous farm bills that were a “one-size-fits-all” program, this one required producers to complete seven steps to sign up. The USDA allocated \$6 million to educate producers about the 2014 Farm Bill. Two online decision tools were created.

In Colorado, the ABM team knew that many agricultural producers they served had been using personal computers for years to keep financial records and were very comfortable using the online decision tools, but others had no computer skills at all.

The ABM team sought community partners including Northeastern Junior College, where students received a “train the trainer” in-service. They subsequently applied the information in teaching agriculture producers how to work through the farm bill decision process. Many producers returned for a second workshop or went to NJC and specifically requested that the college student that had assisted them in the workshop be their guide through the rest of the process. This project created results at two levels; it served the immediate need of producers in the farm bill selection process and greatly enhanced the professional development of NJC students.

- Norm Dalsted, Professor and Extension Farm/Ranch Management Economist, Agricultural Business Management, Colorado State University
- Dennis Kaan, Area Director, Agriculture and Business Management, Golden Plains Area Extension
- Jesse Russell
- Jeff Tranel, Peaks and Plains Regional Extension Specialist – Agricultural Business Management Economist
- Brent Young, Golden Plains Area Regional Extension Specialist – Agriculture Business Management



Alton Scofield Award

Two long-time Extension employees were recognized with the Alton Scofield Award.



Wendy Rice, from La Plata County, has worked diligently to extend research-based knowledge to all stakeholders in her county and region, including Native Americans, the working poor and low-income residents, in response to local issues. Wendy brought Cooking Matters to La Plata County and thus greatly extended the reach of Extension resources to diverse clientele. Cooking Matters helps low-income families shop for and cook healthy meals on a budget, Wendy tailored the lessons to show respect for the cultural background of all participants.

In addition, she was instrumental in the formation of the Healthy Living La Plata County Coalition that continues to impact diverse audiences. The radon grant secured by Wendy allowed housing and health improvements for residents of four counties.

Wendy is committed to fostering an environment that respects and values all persons. Her dedication to working with the Native American and Hispanic communities and persons of all socio-economic status has truly benefited her community, county and region.

Anyone who has eaten Olathe sweet corn, snacked on a Palisade peach, or sipped a glass of local wine has benefited from **Bob Hammon's** expertise. He is a staunch supporter of growers and is always working to increase yields, save production costs, and help growers be successful. Bob's work identifying and recommending control advice on agricultural pests has been the most significant and on-going impact for not only the Tri River Area, but also the state of Colorado.

Bob has demonstrated outstanding performance as the Area Entomologist and Agronomist for Colorado State University Extension, Tri River Area. He started his CSU career in 1988, at the Agriculture Experiment Station in Fruita. His career has encompassed not only disseminating research-based information to the public but also conducting research projects that primarily focus on improving agriculture in various aspects, building an extensive collection of regional insects and publishing numerous articles and fact sheets. His down-to-earth character and genuine concern for others has served him well as an Extension agent.

Two of his biggest accomplishments are the grasshopper control programs he organized and his work in the sweet corn industry.

In 2003-2004 a grasshopper infestation caused considerable crop and economic loss for many of the forage growers in the Collbran/Plateau Valley. A resident sought



Bob's advice and together they formed an Advisory Committee that came up with a comprehensive and complicated treatment plan to control the grasshoppers. A successful program was implemented in 2005.

It was Bob's dedication to local agriculture that pulled together both growers and residents, who often have strong and differing opinions on crop management, to voluntarily participate in the program. The program included surveying and mapping of affected areas, developing a treatment plan, publicizing the program and coordinating with an aerial spray service to perform the work. A little more than 18,000 acres were treated and thousands of dollars saved.

While he works with onion, wheat, alfalfa, tomato, stone fruit, berry, grape and bean growers, his most notable work is with the sweet corn industry in the Uncompahgre Valley. Approximately 2,650 acres are planted in sweet corn annually, generating a significant economic contribution to the local economy. For the past 15 years, Bob has listened to grower concerns and supported the industry through research, pest monitoring and economic support. This has earned him great respect and admiration from the local farmers and growers, who value his advice.



On an early morning in August, nearly three dozen faculty members and administrators loaded onto a large CSU bus and headed west. Why? To see what the University's impact around Colorado actually looks like.

COMMUNITY AND ECONOMIC DEVELOPMENT

Ram Tour

The Rams in the Rockies Tour is a two-day traveling seminar designed for recently hired and newly tenured faculty, new administrators and new student leaders. Invitations are issued through CSU's Office of the Provost.

Jim Pokrandt, community relations director of the Colorado River District, talked with members of the Rams in the Rockies Tour along the banks of the Colorado River in Glenwood Springs.

"Colorado State's land-grant mission demands that we bring the assets of the University to every corner of our state, and we strive to be a model for the nation in our interactions with stakeholders in virtually every county," said Provost Rick Miranda. "Our Ram Tour is a wonderful opportunity to reach out and learn more about our engagement activities by visiting with partners and colleagues who are working so effectively to represent CSU. This year our new faculty were especially impressed with our university's involvement in water issues that are so fundamental to our environment, economy and food systems. Colorado is our campus – and we couldn't have a more beautiful one!"

THIRD ANNUAL TOUR

Miranda and Vice President for Engagement Lou Swanson led the third annual CSU faculty Ram Tour to Colorado's Western Slope on Aug. 13-14. CSU Extension, Colorado State Forest Service and the Colorado River District were among the hosts and presenters for the

faculty group as they visited Georgetown and Glenwood Springs before reaching Palisade. Along the way, faculty learned about water, forest health and agricultural innovation from community leaders and CSU partners.

"As a new resident of the state, I was happy to confirm firsthand that the rumors are true: Colorado is a beautiful place," said Henry Adams, assistant professor in the Department of Mathematics. "I enjoyed learning about some of the issues and challenges (such as water rights) facing our Colorado communities, and I was impressed to learn how engaged CSU is in helping these communities develop solutions."

Each year, the tour travels through a Colorado region to meet CSU community partners, talk with current CSU students and alumni, and learn from regional leaders. The tour deepens participants' understanding of CSU's existing community partnerships and provides opportunities to network within and across faculty cohorts. The tour is supported by the Vice President for the Office of Engagement and CSU Online.

"I thought that the Ram Tour was valuable in two respects," said Jacob Roberts, professor and chair of the Department of Physics. "First, it was good to meet CSU personnel and affiliates who work away from campus to gain a personal insight into some parts of the broader missions of CSU as a land-grant institution; it caused me to think about particular connections within our department. Secondly, it was an excellent opportunity to meet colleagues

from across the campus and establish both personal and professional connections."

MAKING CONNECTIONS

"My favorite part of the Ram Tour was meeting my fellow passengers on the bus," said Adams. "The Ram Tour is an opportunity to form connections with faculty and administrators from all across CSU – connections which might otherwise take years to develop."

"We are all 'too busy' to go on events like this ... or so we think," said Brad Udall, senior water and climate research scientist for the Colorado Water Institute. "I had a great time, made some invaluable connections, and learned things about CSU I would have never gotten from anywhere else. If you get the opportunity, do this tour!"

STOPS INCLUDED:

- Agriburbia, Golden (agriburbia.com)
- Glenwood Community Center, Glenwood Springs (glenwoodrec.com)
- Two Rivers Park, Glenwood Springs (glenwoodrec.com/Two%20Rivers)
- Colorado River District (coloradoriverdistrict.org)
- Colorado State Forest Service (csfs.colostate.edu)
- Colorado State University Extension (extension.colostate.edu)
- Grande River Vineyards, Palisade (granderivervineyards.com)
- Georgetown Loop Railroad, Georgetown (georgetownlooprr.com)

Widen the Circle Wednesday

Throughout 2015, the Extension Diversity Catalyst Team (DCT) invited all Extension employees statewide to consider the ways that they interact with community members every day. What did they do to reach more participants, advisors, supporters, stakeholders and customers? Extension then shared their ideas, stories, and community dialogue each Wednesday through an email blast called 'Widen the Circle Wednesday.'

Widening the circle takes place every day, and takes its name from the Widen the Circle – Move Beyond Tolerance training video. Staff viewed the video at various venues, so they could begin to share the same language and concepts around inclusion. Widening the circle allows everyone to consider how small things that are done to include others can lead to a bigger impact on the entire community.

Below are just some examples of how Extension field staff were Widening the Circle in 2015.

THROUGHOUT EXTENSION

- When providing food/snacks for Extension meetings/programs try to make sure that there are healthy choices/selections, including gluten free items, veggies, etc., so everyone has a chance to be included in the sharing and engagement that happens around food and drink.
- A leader of the Hmong community serves on a local county Extension Advisory Committee.
- We paired up with another community agency that was able to provide requested services to developmentally challenged participants, so they could attend and engage in our programs.
- The Family Leadership Training Institute facilitation team now includes representatives from various backgrounds: Hispanic, African-American, male, female, and alternative lifestyles.
- Visually impaired listeners statewide have access to a half-hour weekly radio program that provides nutrition/health, human development, and financial information, as well as other programming via Internet/phone/audio connections.

- A committee for community healthy food now represents all community members, including the Ute Mountain community.
- The Youth Foundation hosted a free family resource fair that provided an opportunity for agencies to host activities, arts and crafts and developmental screenings for both English- and Spanish-speaking families. This event reached 49 participants. Not only were we able to reach members of our community, we were also able to network with other agencies.

HORTICULTURE

- A person experiencing homelessness enrolled and participated in the Colorado Master Gardener program thanks to scholarships.
- Each spring and summer, a group of Denver Master Gardeners provide on-site landscape training for a small group of participants in the Jefferson County Recovery Court Program at the Colorado Governor's Residence on Capitol Hill in Denver. Each week, Master Gardeners lead a one-hour hands-on workshop about basic horticulture practices to allow the participants to complete their required community service by performing landscape maintenance services on the grounds of the mansion. The participants in the Recovery Court Program are non-violent offenders who have had issues with substance abuse, and are working toward bettering their lives. Several participants have gone on to pursue landscaping jobs in the community. The Master Gardeners involved with the program have said that it is inspiring to see these young adults persevere to turn their lives around.

FOOD SAFETY & NUTRITION

- We provide cooking, budgeting and nutrition classes in Spanish with and through a partner organization.
- Providing food safety class for restaurant workers with translator and handouts helps many in tourist communities. The food safety, as well as confidence of the workers, is enhanced and the domino effect is that

information is shared with those that did not participate.

- *Family Matters* is a monthly CSU Extension newsletter that briefly introduces and discusses healthy eating habits and ways to empower people wanting to improve their body composition, to reduce obesity, ward off disease, and improve self-awareness. *Family Matters* is a peer reviewed, one-page newsletter, written in English and Spanish, with photos that include different types of people and meals. It is intended to engage all types of individuals and families. *Family Matters* is available on the Extension website for all counties to use and distribute, either in hard copy or electronically.
- Through community assessment, and forming partnerships with local agencies that serve refugee/immigrant populations, we're striving to engage community members, parents and students to develop community-based, culturally relevant programs about nutrition and physical activity. Nutrition interns and ENFEP nutrition educators have been working with the Student Council and a third-grade class at Place Bridge Academy, a magnet school for elementary-aged refugee students that serves many English Language Learner students. To gain cultural competencies and better serve the populations represented at Place Bridge, nutrition interns received relevant cultural information, attended events in the community, and visited students' homes with 4-H staff, getting to know family members over a cup of tea or meal.
- Our team of nutrition interns has been working hard to share their skills in culturally-relevant ways with a nonprofit organization, Project Worthmore, that serves people from refugee backgrounds transitioning to life in Denver. One of the projects involves a community distribution of vegetables from Sprout City Farms. Since some of the vegetables are unfamiliar to people from diverse backgrounds, the nutrition interns have devised simple recipe cards and prepared the recipes at weekly demonstrations during the

PRINCIPLES OF COMMUNITY



Colorado State University
EXTENSION

The Principles of Community support the Colorado State University mission and vision of access, research, teaching, service and engagement. A collaborative and vibrant community is a foundation for learning, critical inquiry, and discovery. Therefore, each member of the CSU community has a responsibility to uphold these principles when engaging with one another and acting on behalf of the University.

Inclusion: We create and nurture inclusive environments and welcome, value and affirm all members of our community, including their various identities, skills, ideas, talents and contributions.

Integrity: We are accountable for our actions and will act ethically and honestly in all our interactions.

Respect: We honor the inherent dignity of all people within an environment where we are committed to freedom of expression, critical discourse, and the advancement of knowledge.

Service: We are responsible, individually and collectively, to give of our time, talents, and resources to promote the well-being of each other and the development of our local, regional, and global communities.

Social Justice: We have the right to be treated and the responsibility to treat others with fairness and equity, the duty to challenge prejudice, and to uphold the laws, policies and procedures that promote justice in all respects.

extension.colostate.edu

distribution. Feedback from community members was used to develop recipes based on cultural preferences and the simplicity of the cards allows English Language Learners to easily understand the recipe.

- We are trying to reach more Family Consumer Science and agriculture-focused families, through groups including TANF recipients, business professionals, public service entities, agricultural producers, and more.

4-H YOUTH DEVELOPMENT

- 4-H Sprouts is a blend of 4-H skills and hands-on activities for Head Start students and families that uses family interactions to boost student engagement for up to 30 youth in one county per year.
- We make accommodations for people who have disabilities so they can participate in our programs, such as acquiring an American Sign Language interpreter and a special assistant for participants on the Citizenship Washington Focus trip.
- We expanded our traditional 4-H programming beyond rural communities to include youth on Buckley Air

Force Base in embryology, sewing, woodworking and gardening projects.

- The 4-H program brings home-schooled and in-school families together in the traditional 4-H Club program. This way, both groups can learn from the different family and education perspectives, and the youth can interact with each other in a common social setting.
- The “Our Lands, Your Hands” program serves 1,200 youth from the Longmont area with hands-on, ag-related experiences. One 4-H club based in STEM activities is geared toward the Latino community.
- We developed a volunteer-led animal lease program for urban youth, who otherwise would have no means for learning about or caring for large livestock.
- We are implementing STEM day camps to introduce technology to students who would not otherwise have access.
- 4-H Youth from Denver, Gilpin, Broomfield, and Clear Creek, Larimer and Arapahoe Counties participate in the Mountain 2 Metro Adventure, an enrichment overnight summer camp where youth from different walks of life have the opportunity to learn about one

another, the places they live and the similarities they share.

- The 4-H Youth Development program widened our circle by developing the “4-H Giving Back Garden,” a collaboration with Fort Lewis College - Old Fort Incubator Plot Farm program, Southwest Conservation Corps and the USDA Commodity Food Distribution. The garden had an amazing harvest season. The whole project was entered into the Come Alive Outside Challenge, sponsored by JP Horizons and John Deere, which encourages youth and communities to engage in more activities outside.
- *We enlisted the assistance of an AmeriCorps member to develop a 4-H Science Out-of-School program to reach underserved youth audiences with STEM. So far, we’ve had a robotics class and taught 130 youth about insects over spring break.

BEYOND EXTENSION

The Widen the Circle campaign has elicited sharing from outside of Extension. As part of the CSU Diversity Symposium, Youth Development Agents Ken Grimes and Robert Franklin delivered the Widen the Circle: Moving Beyond Tolerance training to a group comprised of students, administrators, faculty and CSU alumni, and received some amazing feedback:

- While two-thirds of the participants believe all people connected with CSU and the Fort Collins community should participate in the Widen the Circle Campaign, 33 percent felt it more important that CSU students see/connect to the training.
- Eighty-six percent of participants believe that after the training, they will take back to their job/community an understanding of heritage, and work toward valuing the heritage of others.

While we were very pleased to deliver the Widening the Circle training, opportunities for great inclusion still abound. We look forward to continue Widening the Circle in 2016.

Read more at: extension.colostate.edu/staff-resources/diversity-resources/diversity-widen-the-circle.

Arapahoe County office moves to serve

Extension offices throughout Colorado are housed in a variety of settings. Some are tucked into the courthouse complex, some are situated on the fairgrounds, some among larger county departments.

Recently, Extension in Arapahoe County made the move from an old building in the heart of Littleton that had served Extension clientele for more than 40 years, to a modern complex in Centennial. The new office is part of Lima Plaza, where offices such as Arapahoe County Public Works, Open Spaces, Motor Vehicle and AD Works! workforce development offices are located.

The move did not take place without some careful consideration about the needs of current and potential clientele. “We’ve offered to continue to occupy a small footprint over at the Arapahoe Plaza office in Littleton,” says county director Tim Aston. “However our master gardener volunteers have easily transitioned to this new place, they like their new space, and the clients are also coming along for the ride, so we’ll most likely not use the Littleton space after all.”



It was low safety and energy rankings for the former county building, due to leakage from snow and rain, which ultimately led to the move. Front Range regional director JoAnn Powell notes that the move also has created opportunities to reach new clientele. “With expanding after-school programming, we’re able to reach into urban and suburban audiences,” says Powell. “Being in Centennial is helpful, because Centennial and Aurora are pretty close and there is a big current and potential client base in Aurora.”

ALTERNATIVE LOCATIONS

The county manager’s office has been pondering alternate locations for Extension for a few years, including the fairgrounds in Aurora. But it was their attention to the needs of Extension clientele and employees that helped county officials reach the decision to finish out the vacant space at Lima Plaza

The connections with and proximity to Open Spaces is an added bonus. The offices share a common entry, which helps communication and enhances their many collaborative projects. Building community happens in many ways, and the new office is allowing Arapahoe County Extension to engage a wider community. “We had the employees of Open Spaces over for a chili cook-off contest last fall, which helped us to forge new relationships with them,” says Aston. “Especially as we get closer to fair, having those relationships and ease of access to the management team over there is huge.”

In addition to upgraded office space, there is a full demonstration kitchen for nutrition classes, food preservation and canning workshops, and cottage food certification. “4-H dog clubs and some small animal clubs find this space to be easier to access, and it’s also just a nicer facility to hold meetings.”

“We still think that Extension is an unknown to a lot of people in the county,” says Aston. “Our office is launching a ‘Lunch and Learn’ series, where every month we’re going to host other county employees in our multi-purpose space, to learn about what Extension does and also benefit from some of our expertise.” They’ll provide gardening; lawn, tree and shrub care; cooking; and nutrition classes, and develop some 4-H programming to expose parents and people working at Lima Plaza to the educational opportunities available through Extension.

And then the ripple starts, as those employees help spread the word about Extension to their clientele, families and neighbors.



Connecting the energy dots



The mountains and wide open spaces of Colorado present not only spectacular scenery but also some real challenges to communities in and around those spaces in need of access to efficient, 21st-century energy resources.

The Rural Energy Center, part of the Colorado State University Office of Engagement, is here to help, providing energy-related services to individuals, businesses, and communities in all parts of the state. With the expertise of REC, towns can make their own choices that could result in saving money while producing environmental benefits.

REC is headed up by Cary Weiner, CSU Extension energy specialist, and assistant director Mike Kostrzewa, senior research associate in the Department of Mechanical Engineering.

“The Rural Energy Center represents CSU’s capacity to help rural Colorado make informed energy decisions,” said Weiner.

Originally established in 2011 as the Center for Agricultural Energy, REC now offers services in Colorado’s mountain towns and small communities where economies are not necessarily agriculturally based.

One way the REC helps to make informed decisions is by providing community-wide energy assessments.

These can range from suggestions on improving lighting in a grocery store, to a local government deciding if town buildings could be more energy efficient, or helping a local school district add solar collectors to a building.

These assessments help Colorado’s rural communities tap into resources to add new energy programs or fund efficiency or conservation efforts. In essence, REC is trying to connect the dots and bridge the gaps in rural communities where the same resources that the state’s larger cities rely on may not be available.

Weiner starts by examining the various sectors in each community – agriculture, commercial, residential and public – to determine what could be done. Then he makes suggestions for matching-up each community with existing resources and potential funding opportunities. If the community chooses to move forward, REC provides technical assistance.

SOLUTIONS FOR BUENA VISTA

So far, Weiner has worked with four communities, including Buena Vista, to evaluate their energy needs and identify key issues and potential solutions. They identi-

fied several “high priority opportunities” available for the Upper Arkansas Valley town – elevation just under 8,000 feet, population just under 3,000.

“Cary and his group came in and not only proposed ways to improve the lighting efficiency in our six town buildings, but also gave us a road map on which buildings would be the most cost-effective to upgrade,” said Brandy Reitter, town administrator in Buena Vista. “We didn’t know the needs or how to prioritize these upgrades until the audit was done, but now we are implementing a phased-in approach starting with our community center.”

Reitter said that the REC also assisted Buena Vista with a request for proposals to upgrade lighting, providing the town with the documents to go with RFP, and the specifications for the installation. She added that REC worked with their local electric utility – Sangre de Cristo Electric Association – for rebates on the town’s energy bill, and assisted with developing a grant for two electric vehicle charging stations.

“This is so much more than just needing new lights in our town hall,” she said. “Cary and his team are providing the technical assistance and education to implement change.”

The towns of Pagosa Springs and Wellington are also conducting energy assessments, and funding is available for three more communities to participate in 2016. Weiner hopes for additional funding to extend the program to other communities.

Beyond community energy assessments, the Center also provides agriculture producers with irrigation pumping assessments for center pivot irrigators as well as solar and wind assessments for the pivots. The latter program – known as SWAP – just received a \$50,000 grant from the U.S. Department of Agriculture to continue research on renewable energy investment for Colorado producers. The SWAP program, which provides producers with estimated renewable system sizes, costs, and savings, has been so successful that there is now a waiting list.

“We’re living the land-grant mission by making these connections,” Weiner said.



Extension on the front line: Water resources for agriculture following Gold King Mine discharge

In early August 2015, while workers were excavating about the old entrance to the Gold King Mine, pressurized water began leaking above the mine tunnel, spilling about 3 million gallons of water stored behind the collapsed material into Cement Creek, a tributary of the Animas River. It took a number of hours to reach the North Animas River valley, just north of Durango, where a fair amount of agriculture and residential sections are located. As calls began to come in to the Extension office regarding water usage and dispersion, land use, crops planted, number of animals, and ditch access and use, agriculture and natural resources Extension agent Darrin Parmenter was on the front lines, working with concerned growers and residents.

"I have a fair amount of contacts throughout the community and throughout the farming community," Parmenter said. "Initially, the Board of County Commissioners, San Juan Basin Health, and the community at large looked to me for guidance on plant and water-based issues, such as plant uptake, plant tolerance of heavy metals, water and plant testing, animal danger, and irrigation system issues."

Parmenter wrote an FAQ sheet related to water usage in gardening and farming. That request came from San Juan Basin Health, who asked on behalf of the U.S. Environmental Protection Agency (EPA). The EPA also looked to Parmenter for help with facilitation and meeting management. The LaPlata County Extension office soon became the center of activity as EPA staff came into town to assess the damage.

Because irrigated agriculture depends on adequate supplies of usable, quality water, Parmenter also reached out to his colleagues at Colorado State University, from engineering and the Water Institute, for more in-depth answers to the questions he was receiving. CSU Extension specialists Perry Cabot and Troy Bauder prepared information about irrigated agriculture concerns and resources.

There are many components that are expected to be found in a mine drainage, but it was not known whether there were



Darrin Parmenter, LaPlata County Extension Director.



other constituents of concern in the sediments or drainage waters. Caution was recommended until local, state and federal authorities gave the official word that the water was safe for irrigation and livestock watering. Irrigators were advised to evaluate the ongoing reports of water quality release from the EPA. For additional reassurance, it was recommended that diverted water and local sediments be evaluated at an EPA Certified Laboratory. Another resource created to help evaluate drinking, livestock and irrigation water quality test results is available online at <https://erams.com/wqtool/>. The tool was developed by water experts at Colorado State University with input from colleagues at land-grant universities in the western U.S.

Guidelines for evaluating the quality of water for irrigation purposes have been assembled by various national and global water resource authorities, such as the United Nations Food and Agriculture Organization (FAO).

Various local entities addressed questions regarding background levels of Animas River water quality.

Animas River Stakeholders Group (ARSG). The ARSG began in 1994 as an alternative process to determining appropriate water quality standards for the Upper Animas River Basin.

Animas-La Plata Water Conservancy District (ALPWCD). The general purpose of the ALPWCD includes acquisition and appropriation of Animas and La Plata river water for domestic, irrigation, power, manufacturing and other beneficial uses within the District territory.

Animas-La Plata Operations, Maintenance, and Replacement (ALP OM&R) Association. The ALP OM&R was established in 2009 by an intergovernmental agreement by and among the Colorado Water Resources and Power Development Authority, the San Juan Water Commission, the La Plata Water Conservancy District, the Southern Ute Indian Tribe, the Navajo Nation and the Ute Mountain Ute Tribe. Each of the Association members is entitled to receive and use water from the Animas-La Plata Project.

Economic and environmental potential of high plains cover crops

Sparse or erratic rainfall leaves farmers looking for anything they can do to increase yield while decreasing things that cost money – such as irrigation. High Plains crop producers have a keen interest in both crop rotation and management strategies that influence their economic viability and the future of their agricultural enterprises.

Colorado State University crop and soil scientist Meagan Schipanski is interested in how diversifying crop rotations and using cover crops can maintain yields, keep soils productive, reduce environmental impacts and address retention of both soil carbon and water. She recently secured funding for a collaborative grant for sites in north-eastern Colorado, Kansas and Nebraska. Extension personnel on the Golden Plains will be assisting in local areas by providing a solid producer base for onsite research.

“One of the costs to tillage is we release both carbon and water into the atmosphere and that’s unproductive and part of the greenhouse gas complex,” says Ron Meyer, Extension agronomist in the Golden Plains area of eastern Colorado. His collaboration with Schipanski will guide conversations with cooperators who have an interest in hosting this research on their farms of between 20 and 40 acres. Crop scientists at Colby, Kansas, and several sites in Nebraska are also recruiting volunteer cooperators to expand on-farm testing to sites throughout the region.

“Meagan’s interest in cropping systems, cover crops, no-till

and integrating livestock into this whole system is just a natural fit for High Plains agriculture,” says Meyer, who, for the past five years has conducted research comparing nearly 30 different plant species for cover potential and forage production with various production techniques.

INCLUDING LIVESTOCK IN THE MIX

The new research project will incorporate Meyer’s original cooperators, but including livestock into the mix means more land is needed.

“On-farm research is an essential component of this study,” Schipanski says. “We would like to utilize a wide spectrum of farmers from across the region to help validate our recommendations for new crop rotation practices.”

Beginning in February the team will bring cooperators together with researchers to discuss timeline and strategies.

“Anytime you get 10 or more farms and farmers together, the dynamics change,” Meyer notes. “Some farms may have no livestock, some farms may be heavily livestock-orientated. We have to have a way to coordinate that so the research and the information coming out of this project make sense.”

Where the research protocol identifies a need for livestock on the site at a certain period of time, for example, the cooperators will agree to bring the livestock in for a set number of days and then take them

off. The research team will weigh them in and weigh them out with a focus on a data-rich project.

CROPPING RESEARCH LONG-STANDING

Colorado State University research in the Golden Plains Area cropping systems has been in place since the early 1990s, with projects conducted by CSU soil and crop scientist Gary Peterson. His findings moved the farming community to two dryland crops in three years. Farmers now plant wheat, then into that wheat stubble the next year, they plant a spring-seeded crop such as corn, milo, millet or sunflowers, followed by a fallow season. Reduced tillage strategies were a part of this transformation.

“Dr. Peterson had to get through a couple of years of research and get results before farmers began to take notice,” Meyer notes. “One of the early results was, hey, guess what, dryland corn yields almost 70 bushels an acre some years. Farmers began to ask, ‘Can you make some money with this practice?’ And the answer was, ‘Yes, you can make some money,’” Meyer said. “Employing reduced-till strategies is better for the environment and increases yields, so it was a win-win situation for everybody.”

Meyer says adoption of these new techniques took a while. “It was probably a whole seven or eight or 10 years before producers really started to adopt the conversions and it was the innovators that did those conversions first.”

As neighbors and the community saw the new method working, the whole countryside began to adopt the new practice. “We’ll see what the research results show us with this new project. Maybe there will be another change for production agriculture out here,” Meyer says.



Positive results from Denver soil health awareness campaign

Soil in neighborhoods surrounding the National Western Stock Show complex has been found to be more than sufficient for growing a variety of landscape and garden plants.

The soil test kits were distributed to the community during Earth Day events.

“Data indicated that although there was some minor variability between soil test results, most of the nutrients were found in sufficient concentrations and the soils do not need additional amending,” says Dan Goldhamer, Denver Extension horticulture agent. “The one exception to this was nitrogen, which was expected due to nitrogen’s high mobility in any ecosystem.”

Denver County CSU Extension staff and several partner agencies distributed 153 free soil test kits to homeowners in four neighborhoods throughout Denver prior to and on Earth Day 2015. Forty-six kits were returned and analyzed at no cost by the Soil, Water and Plant Testing Laboratory on the Colorado State University campus.

“These observed high concentrations of nutrients could be due to multiple factors including, but not limited to, over-fertilization (especially with compost and/or manure) and high native concentrations of these elements,” according to project director Eugene Kelly, professor of Soil and



Crop Science at CSU. “Effective soil fertility management is an essential aspect of preserving and improving soil health.”

Education and training was provided during the run of the soil awareness campaign.

Follow-up education and training with written information was provided where necessary. Finally, door-to-door canvassing to pick up the kits, delivering the samples to campus for testing, and final analysis and interpretation of the data took place.

Next spring another soil health awareness campaign will add new neighborhoods throughout metro Denver to the soil test kit distribution plan. Educational programs are planned as part of the campaign.

Partner agencies included The Growhaus, Revision, Groundwork Denver, the National Western Center Citizens Advisory Committee and CSU Extension. The campaign was targeted to the neighborhoods of Globeville/Elyria/Swansea surrounding the National Western Center complex, and Westwood off of Morrison Road in west Denver. The CSU Soil, Water and Plant Testing Laboratory, under the direction of Kelly, provided the soil test kits to the Denver Extension office to distribute for this event.



Colorado fruits and vegetables a \$300 million industry

Members of Extension's Food Systems Planning and Reporting Unit work to inform dynamic initiatives and build capacity in communities. They engage networks and key partners to address emerging food system practices and issues. To accomplish our goals, there are four core areas of work: stewardship; business development; food security, quality, and public health; and investment in community food assets.

Colorado fruit and vegetable production is almost a 300 million dollar industry at the farm gate, with more than 60,000 acres in production. A wide variety of fruits and vegetables are grown under some of the best climatic conditions in the country, including warm days, cool nights, and plentiful high-altitude sunshine. Along with nutritious and flavorful products, the fruit and vegetable industry supplies the citizens of Colorado with many other attributes (such as agritourism opportunities and open spaces) that contribute to the quality of life in the state.



GROWING FRESH AND FLAVORFUL PRODUCE

The complexities of growing fresh and flavorful produce led to a collaborative project and the creation of the Colorado Fruit and Vegetable Growers Association (CFVGA). Growers facing common and sometimes complex issues are able to learn from each other, and their combined forces provide a robust platform for exploring myriad topics, from evolving consumer preferences and food safety concerns to labor and water issues.

SUCCESSFUL CONFERENCES IN DENVER

For the second year, a conference for those interested in these topics was held in Denver, in conjunction with the Governor's Forum on Colorado Agriculture.

"As a local food distributor, I am very excited about the annual CFVGA conference," said board member Aaron W. Perry. "This is a

great opportunity for growers, prospective growers, and a variety of market partners to get together and to strengthen Colorado's fruit and vegetable production and access."

The mission of CFVGA, according to President Robert Sakata of Adams County, "is to help improve the business sustainability and profitability of commercial fruit and vegetable growers in Colorado of all sizes, organic and conventional, direct marketing (farmers market, CSA, produce stand, etc.) and wholesale marketing."

ONE VOICE

Many other groups promote marketing and improved growing practices in the state, but according to CSU Extension agent Adrian Card, "Our niche is providing one voice for all produce growers in Colorado." In addition to his expertise with growers in Boulder County, Card is also a founding team member of the Colorado Building Farmers Program. The board is supported by Colorado State University Extension staff and a grant from the Colorado Department of Agriculture.



Cottage Foods

In 2012, the Colorado Legislature enacted Senate Bill 12-048 allowing individuals to produce, sell and store certain types of “cottage food” products in an unlicensed home kitchen. (A copy of the bill can be found at www.colorado.gov/pacific/sites/default/files/DEHS_CtgFds_Final_unofficial.pdf.)

Cottage food products include such items as spices, teas, dehydrated produce, nuts, seeds, honey, candies, jams, jellies and certain baked goods.

The Colorado Cottage Foods Act required producers to be certified in safe food handling and processing. Colorado State University Extension was one of the designated third-party certifying entities, and for the past two years has been offering safe food handling courses. Topics covered have included safe food sources, personal hygiene, sanitation of equipment, food temperature control, and more.

In 2015, there were 29 trainings held, with a total of 484 participants, ranging from age 10 (accompanied by an adult), up to seniors; those with disabilities (1 blind, 1 mute), and non-English speakers, for which training materials (slides, handouts, test and certificate) have been translated and piloted with 14 Spanish-speaking participants. Participant demographics are evenly split between city and rural locations, and are comprised of consumers, small-scale growers (i.e., community-supported agriculture) bee keepers, farmers’ market managers and vendors, and more, all with varied interest in cottage foods. Additional attendees have included Colorado Dept. of Agriculture, County/State Health Department staff, and an FDA Regional Specialist.

The Cottage Food page on the CSU Extension Farm to Table website (farmtotable.colostate.edu/) received just under 8,000 views in 2014-2015. During that same period, the cottage food product informational sheets were accessed 3,636 times for almost 6,000 minutes of read time.



Don't garden alone

Let PlantTalk Colorado be your guide

Despite the wild swings in weather, spring has arrived to Colorado. The calendar has turned to growing, and the garden center advertisements are not far behind. Whether you've been gardening for years, or are looking to take your first ventures, your first (and often) stop should be the step-by-step guidance offered through PlantTalk Colorado. This online resource (planttalk.org) will give you the confidence to have the "best garden ever."

Tips from the PlantTalk team are constantly being reviewed and updated; new information is added monthly. The experts on the team include horticulturalists from Colorado State University Extension, the Denver Botanic Gardens and GreenCo right at their fingertips. The reliable and timely information (more than 600 topics) includes everything from lawn landscape care to insect and plant disease problems. There is a wide range of articles and YouTube videos available – many available in Spanish. Learn how to grow your own tomatoes, plant, fertilize and prune fruit trees, and care for ornamental plants around your home or business.

ON PINTEREST

With nearly 20 years of experience adapting to the informational channels gardeners use, PlantTalk Colorado has taken outreach a step further by connecting with new and seasoned gardeners through Pinterest.

With 2,500 followers, PlantTalk Colorado pins offer topics for upcoming garden tasks, with inspiring photographs for future projects.

"In the 1990s, information was provided through a telephone answering system," says Jim Klett, CSU Extension horticulturalist. "We moved to the Internet early in the 2000s, and today outreach continues through the website and various social media channels." Klett has been the driving force behind PlantTalk, but it's the collaborative efforts of all the partners that keep the project fresh. Partners include:

DENVER BOTANIC GARDENS

Denver Botanic Gardens strives to entertain and delight while spreading the collective wisdom of the gardens through outreach, collaboration, and education. In addition, their conservation programs play a role in saving species and protecting natural habitats for future generations.

GREEN INDUSTRIES COLORADO

Green industries Colorado is an alliance of seven trade associations representing all facets of the horticulture and landscape industries. GreenCo members are committed to water conservation and industry-wide best management practices as a way of doing business. They provide expert advice on how to select and properly care for plants and landscapes.

ASK AN EXPERT

Don't see the information you're looking for on the PlantTalk Colorado website? The "Ask an Expert" tab allows gardeners to instantly connect with Extension staff and volunteers for timely advice on horticulture topics.



Native Plant Masters

Rounding the corner to a decade of education

Saving water, money and time is what CSU Extension's Native Plant Master Program is all about. The educational and volunteer-driven effort, which began in 1997, has led to the adoption of sustainable landscaping and natural resource conservation practices in a dozen counties across the state.

Impacts are impressive

- \$1,842,437 – statewide economic impact due to reduced landscaping inputs and increased land productivity;
- 1,448,483 acres impacted by sustainable landscaping or alien invasive weed control completed by program participants;
- 98,421 educational contacts made by volunteers;
- 7,136 participants in the program; and
- 2,844 volunteers who contributed 7,793 hours.

The economic impact stems from participants' cost savings from implementing sustainable landscaping practices and invasive weed management on their owned or managed properties. Sustainable landscaping reduces such inputs as water use, pruning, and pest control. Weed control measures improve land productivity including crop output, grazing, land-



scapes, wildlife and tourism. The program has found a cost-effective way to increase the sustainability of Colorado's managed and natural landscapes while reducing invasive weeds.

RAISING AWARENESS

CSU Extension created the Native Plant Master Program to raise awareness about native plants, sustainable landscapes and threats to native ecosystems from invasive weeds. The first training was held in Jefferson County in 1997, and today 12



Extension offices across Colorado offer hands-on educational experiences taught by trained volunteers, CSU faculty and Extension agents. Each training session is divided into three courses: plant identification; ecological relationships between native plants, invasive weeds, wildlife, birds and insects; and landscape and other uses for Colorado native plants.

Courses are taught on trails in local open space parks and on other public lands. Participants who complete any three courses are awarded a Colorado Flora Certificate. To earn certification as a Native Plant Master, volunteers must be accepted through an application process, complete three courses and make 60 contacts using information learned from the program.

PARTICIPANTS LOVE THE CHALLENGE

Here's what they had to say:

"I have used my identification skills to educate my crew mates about what plants to collect for restoration projects, what plants to leave alone, and what plants to remove during invasive plant control efforts."

"It is the best educational experience I have had through my local Extension office. It is outside, hands-on, taught by passionate, intelligent people, and has real world applications."

For more information, visit the Native Plant Master Program website or contact Barbara Fahey at Colorado State University Extension, Jefferson County, bfahey@jeffco.us or (303) 271-6620.



CSU Extension and AmeriCorps extend STEM opportunities

Thanks to a new partnership between AmeriCorps and Colorado State University Extension, youth in communities across Colorado will have the opportunity to do experiments, reflect upon results, and apply what they have learned in 4-H Science, Technology, Engineering and Math (STEM) projects. The new program focuses on out-of-school time education that encourages youth to develop 21st century workforce skills and consider STEM academic and career choices.

4-H STEM AMERICORPS PROGRAM

“Colorado is home to one of the most skilled workforces in the country, yet Coloradans are not filling available STEM positions,” explains JoAnn Powell, project director and CSU Extension Front Range regional director. “We want youth to get excited about and hands-on with STEM.”

The program places 25 AmeriCorps members in 17 locations across Colorado to deliver STEM education and activities in communities with higher percentages of at-risk youth. The AmeriCorps members will work under the guidance of local Extension youth development experts to form community relationships, deliver STEM educational programming, build the capacity of STEM volunteers and engage the community in the effort. Counties, community partners, Serve Colorado and CSU Extension have each pledged resources to the 4-H STEM AmeriCorps program that targets improved educational and behavioral outcomes for economically disadvantaged youth and supports their success in post-secondary educational institutions and career readiness.

OPPORTUNITIES FUELED BY STEM EXPOSURE

The \$210,338 AmeriCorps grant, administered through Serve Colorado/the Governor’s Commission on Community Service, will provide people the power to bring these programs to after-school and summer programs, day camps, overnight camps and community partner events in Arapahoe, Boulder, Broomfield, Denver, Garfield, Jefferson, Larimer, Logan, Mesa, Montrose, Morgan, Otero, Prowers, San Miguel, and Weld counties, at Shriever Air Force Base in El Paso County and in the San Luis Valley Area.

“The community partners and program delivery sites were all selected based on their interest in the project and individual community needs,” says Powell. “We expect that program participation will result in increased high school completion as well as youth seeking additional education and potential workforce opportunities

fueled by this exposure to STEM. Colorado is projected to have above-national demand for STEM jobs; improving STEM education is crucial to filling these workforce demands.”

NATIONAL CENTER FOR DROPOUT PREVENTION

This program will focus on several strategies identified by the National Center for Dropout Prevention to reduce the dropout rate, including active learning, afterschool learning, safe learning environments and school-community collaboration and, at some sites, family engagement, career and technology education, educational technology and service learning. The content will also focus on contextual and cultural relevance – demonstrating relevance to the youths’ everyday lives.

According to Barbara Johnson, principal for the SOAR Academy in Sheridan School District 2 in Englewood, the 4-H STEM initiative is a good fit for her district because local students are often challenged by significant risk factors, including poverty and homelessness.

HIGHLY ENGAGING, HANDS-ON EXPERIENCE

“High mobility and low attendance rates lead to students struggling with academic achievement,” Johnson says. “This program will provide students with a highly engaging, hands-on experience with science and math.”

She notes this is a great addition to the Extended Day program that currently provides students academic supports to make up missing work due to absenteeism and to keep up in classes where their skill levels are low.

“In order to keep the upward mobility of our graduation rate and support STEM education, we need to work as a community to reach all students,” says Teri LeFebvre, K-12 Science Specialist with the Mesa County Valley School District 51 in Grand Junction. “This new program will allow for direct delivery of STEM education to youth enrolled in our out-of-school program and will positively impact high school graduation rates.”



AmeriCorps is a national service program that engages Americans of all ages in service to their community. CSU Extension serves all 64 Colorado counties, providing information, education and engagement in regard to local, state and national issues affecting individuals, youth, families, agricultural enterprises and communities of Colorado.

For information on CSU Extension’s AmeriCorps member opportunities, visit www.4hstemk12.colostate.edu/ameriCorps



"We are already seeing positive results for both youth and the AmeriCorps members in the counties where members are serving," says AmeriCorps Program Manager Melinda Macpherson.

One volunteer with our program says, "The most awesome thing that happened today was that girls took a leadership role in the class." And Jacob, a youth participant in Otero County, reports "I learned a lot of stuff ... my favorite is tornadoes. I learned how to make one and where to take shelter in case of one."

AmeriCorps members are also gaining valuable experience that will serve them in their careers and lives after service. Ellie, an AmeriCorps member who is currently serving in Jefferson County, thinks "AmeriCorps is an opportunity and a reason to push yourself and do something totally different – there isn't a job like this out there." As the program develops, it will continue to provide opportunities for youth across Colorado and to increase the professional skills of the AmeriCorps members who serve with the program.



STEM kits

THE POWER OF SCIENCE: KITS DEVELOPED BY COLORADO 4-H

That extra nudge to integrate science into educational guidelines, elementary classrooms or after-school projects has been created. Colorado State University Extension STEM specialist Barbara Shaw created fun and interactive lesson plans called, "ST[EM]Power Kits" to help educate students and provide them with fun hands-on learning experiences.

ST[EM]Power kits can be used at an elementary school level (from kindergarten to second grade) or in different educational programs such as 4-H. Each kit includes materials and lesson plans for students and teachers to use to help facilitate learning. By providing materials it allows students to follow along with the teacher as he or she goes through the lesson plans, giving them the opportunity to do their own science experiments.

Navajo Nation elementary teacher Karyn Shipman was an early tester and adopter of the kits. She has been using and loves using them in her classroom at Mesa Elementary.

"What I love about it is how it integrates everything," Shipman notes. "There's reading in there, there's math in there ... with these I can teach my science class and I'm still teaching math."

There are a variety of specific lessons developed to help educators present fun and engaging science activities and experiments to their students. Use the online order form for more details such as what kits are available and their prices.

Growing true leaders

The Colorado State University Board of Governors is regularly updated on various aspects of the University, but rarely does it have the chance to hear firsthand from participants in CSU's premier youth-development program, 4-H. So it was a great opportunity in May when the Board met with the state's 4-H student leader.

Colorado State 4-H President Nicholas Ortner, a graduating senior from Holyoke High School in northeastern Colorado, provided a glimpse into 4-H, the state's largest out-of-school educational program for boys and girls. 4-H is more than 100 years old in Colorado and has always been a part of CSU Extension, which is a division of the Office of Engagement.

Ortner said that in 2013-14, Colorado 4-H reached about 20 percent of 8- to 18-year-olds – or more than 101,000 young people – through club or after-school activities. Those youth who participate in 4-H work on developing life skills such as communication, decision-making, leadership, interpersonal relationships, citizenship and community and global awareness.

Nicholas Ortner was deeply influenced by his cousin, Steven, who grew up nearby and was heavily involved in 4-H. Steven Ortner, who is 10 years old-

er than Nicholas, instilled the values and morals that helped shape his younger cousin's life.

"We were in the same 4-H club, and these were the traits that I looked up to in him and wanted to imitate," Nicholas Ortner said. "I always wanted to be involved in all the activities Steven was involved in."

Steven Ortner is now serving his country as a sergeant in the U.S. Air Force stationed in Alaska.

MAKING THE BEST BETTER

Nicholas Ortner, meanwhile, wears the 4-H emblem with pride.

"This is a youth organization that is the best it can be by helping its members develop leadership skills," he said. "I try to follow the 4-H motto – to make the best better – every day."

During his decade in 4-H, Ortner learned the tools to be an effective public speaker, and he developed another interest during his early 4-H days – a knack for livestock judging. He used the public speaking skills he learned to defend his judge decisions and explain why he scored one animal higher than another.

"Now it is a life skill that I can't live without," he said.



4-H HALL OF FAMERS

Ortner used that skill as he made his presentation to the CSU Board of Governors. Several members of the Board of Governors are former 4-H'ers themselves, including Past Board Chair Dorothy Horrell, who also is a member of the Colorado 4-H Hall of Fame.

Another 4-H Hall of Fame member is CSU President and Chancellor Tony Frank, who said the impact of the program is profound – for students and society.

"4-H was a fabric of my life growing up on a farm in Illinois," said Frank. "4-H adds to a community, and 4-H'ers are shown to have increased academic performance, enter the STEM disciplines at a higher rate than other students, and demonstrate improved leadership skills."

NEXT FOR ORTNER

Nicholas Ortner's next steps include enrolling at Northeastern Junior College in Sterling and becoming a member of the school's Livestock Judging Team. He intends to transfer to a four-year institution afterward, then return to the family farm outside of Holyoke, and continue his work with 4-H.

Cousin Steven would be proud.





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