

COLLEGE OF AGRICULTURE & LIFE SCIENCES

Cooperative Extension



Cochise County Annual Report 2015



THE UNIVERSITY
OF ARIZONA

Cooperative Extension

Cooperative Extension enjoys a rich and proud history in this country. On May 8, 2014, we celebrated the Smith- Lever Act, which established the Agricultural Extension Service, known today as Cooperative Extension. Cooperative Extension is a unique educational partnership between the U.S. Department of Agriculture, the nation’s land grant universities and the county governments that extends research-based knowledge through a state-by-state network of extension educators. Working together, we recognize that we achieve much more than we can alone. While the authors of the enabling legislation for Cooperative Extension could not foresee the future, the mandates implicit within the legislation, is as applicable today as in 1914:

- **Serve Agriculture and the Public** - The Smith-Lever Act gave Extension a very broad clientele base—“the people of the United States”—yet also specified that its programs should be concerned with “agriculture and home economics and subjects relating thereto.”
- **Define Agriculture Broadly** - The term “agriculture” was used in a comprehensive sense in the Smith- Lever Act and subsequent legislation to include producing, processing and marketing farm and forest products, plus those businesses and industries concerned with supplying the resources needed in the production and marketing process.
- **Enhance Human Development** - The underlying mandate is to provide educational programs for individuals and families which will enhance human development and maximize the individual’s contribution to society.
- **Meet Local Problems** - Section 8 of the Smith-Lever Act establishes the need for additional assistance in areas faced with special or unusual hardships, and

acknowledges Extension’s role in working with groups as well as individuals in meeting local problems.

At the heart of Cooperative Extension is the deep rooted belief that engaging people through applied research and education will improve the quality of their lives, communities and the economy. This mission is the driving force behind 100 years of Cooperative Extension in Arizona. Our ability to be relevant in the years to come is based on our ability to listen and respond to our "customers"--the people in our communities. We value our partnerships and believe community voices are critical to success.

Today, Cooperative Extension continues its important role, serving communities and families, supporting agriculture and empowering youth to be leaders. Regardless of the program, Extension expertise meets public needs at the local level through the involvement of volunteers, partners, stakeholders, and advisory committees. Extension would not be what it is today without their dedication and service. We are most grateful for their willingness to be partners in our journey to improve lives, communities and economies.

We look forward to working with you, as together we create the next chapters of our continuing history!



The University of Arizona Cooperative Extension represents a unique three way partnership of the federal, state and county government to provide access to the Land Grant University System to local citizens. Partners include the United States Department of Agriculture, the University of Arizona and Cochise County. Regardless of the program, Extension expertise meets public needs at the local level through the involvement of volunteers, stakeholders and advisory committees. Our roots in communities help us understand local needs and put university expertise and connections where they can make a difference - both in people's lives and in their livelihoods. Increasingly, Extension serves a growing, more diverse constituency with fewer resources, utilizing methods that are timely, relevant and cost-effective. These Extension-driven programs leverage and multiply each dollar of county and state support with additional outside funding. Included in this report are a few highlights of Extension's impact on this county and its people during 2015.

Cooperative Extension, Cochise County

Faculty and Staff (as of 4/1/2016)

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Mark Apel, Community Resource Development Area Agent
Jan Groth, Community Horticulture, Assistant in Extension
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Randy Norton, Agriculture Area Agent
Josh Sherman, Commercial Horticulture Area Agent
Darcy Tessman, 4-H Youth Development Agent
Evelyn Whitmer, Family & Consumer Sciences & Health Programs Area Agent
Ashley Wright, Livestock Area Agent

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Donna Blackburn, Office Assistant, on-call
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Cecilia Little, Oral Health, on-call
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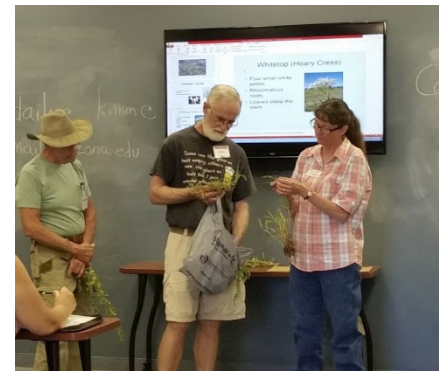
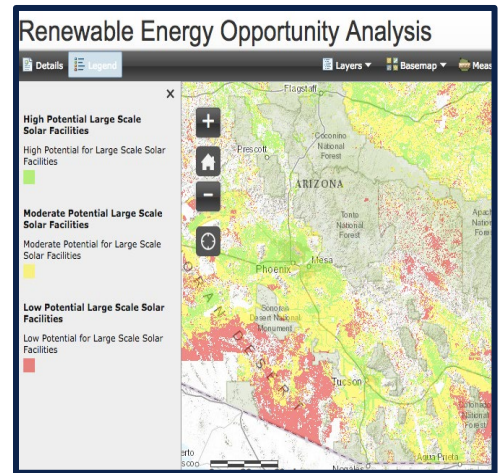
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Land Use Planning and Sustainable Development programs help southeastern Arizona’s decision makers, planning officials, small acreage land owners and community organizations define and contribute to the future of their communities by becoming better informed about the changes to their rural landscapes. This program provides educational opportunities pertaining to exurbanization, renewable energy, land use planning, sustainability and local food systems. In addition, it makes resources around these topics readily available through the internet. Sustainable community and economic development activities are vital to the economic and social futures of rural Arizona, and can help its residents to adapt to a changing environment.

- *Decision makers, planners, towns, county officials, utility companies, and solar developers in Cochise County and throughout the state are able to access an interactive online map that identifies areas of high suitability for utility-scale solar facilities, potentially saving thousands of dollars that might otherwise be spent on costly scoping and suitability studies.*
- *Planning Commissioners throughout the state have an online professional development resource at their disposal via the Arizona Citizen Planner 101 online course, that will have the effect of better decision-making with regard to land use and development proposals, and higher quality economic development. Planning Commissioners in Cochise County were enrolled in this course in 2015.*
- *Small agricultural producers in Cochise County are better educated about hoop houses and direct marketing opportunities.*
- *Small Acreage Land Owners are better equipped to undertake projects through resource inventories and have a better understanding of the natural and legal constraints on their properties including water, soils and plants.*



2015 – BY THE NUMBERS

- ▶ Conducted 5 workshops with 50 different participants in Cochise County around the topics of local food systems planning and small acreage property management.
- ▶ Coordinated Externs in Sustainability program that had 13 student externs from the UA working alongside Extension personnel throughout the state, including 2 externs in Cochise County working in Family and Consumer Health Sciences and Youth Development.

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Water availability is one of the most important natural resource and economic issues in Cochise County. Groundwater overdraft threatens to impact the federally protected San Pedro River National Conservation Riparian Area and the headquarters of U.S. Army Intelligence at Fort Huachuca. As the groundwater table lowers, it can impact the San Pedro River (in 2000, ecotourism contributed \$17 to \$28.3 million to the local community) and reduce missions on Ft. Huachuca which contributes an estimated \$2.4 billion to the County (Maguire Company and ESI Corp, Economic Impact of Arizona’s Principal Military Operations, 2008). The University of Arizona Cochise County Cooperative Extension’s Water Wise Program is a key educational water conservation program in the county by providing solutions that empower citizens to conserve groundwater and helps communities and the economy remain strong.

Here’s how Water Wise helps:

- *With educational events teaching citizens about drip irrigation, rainwater systems, low water landscape plants and design, good watering practices, septic care; and annual Rainwater and Xeriscape Tours*
- *With specialized on-site home and business visits providing specific conservation actions and follow-up*
- *By partnering with Master Gardeners, municipalities, businesses, non-profits, citizens and schools on conservation projects*



2015 – BY THE NUMBERS

- ▶ 7,313 adults and youth had direct contact with Water Wise educators
- ▶ 92% of on-site visit recipients made some conservation change on their property
- ▶ 320 educational events were conducted by the Water Wise Program
- ▶ Missions on Fort Huachuca – a \$2.4 billion contribution to Cochise County’s economy - are supported by the reduction of groundwater use
- ▶ Fort Huachuca meets its energy auditing annual goals with the potential of saving over \$1 million in annual costs

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“I certainly believe that our students came away from your presentation with a better knowledge about the area they live in and the need to save resources.”

– Teresa Reyna, McNeal Elementary School Superintendent

Cochise County 4-H Youth Development is an experiential learning youth education program for Cloverbuds (children 5-8 years old) and for youth, ages 9-18. Its practical life skills education in science and technology, healthy lifestyles and citizenship can reach any kid ... anywhere ... any time through 4-H clubs, camps, after-school and summer programs, educational events, and community service. We rely heavily on volunteers to reach more youth, lead educational programs, coordinate activities, and manage clubs and groups. Teens are taught how to avoid risky behaviors and make good decisions about their lives and their bodies through our Teens Advocating Sustainable Change (TASC), healthy lifestyle program. Through engaging, hands-on experiences, young people develop specific skills that are important for jobs and careers such as leadership skills, ability to organize and lead meetings, set and achieve goals, financial awareness, and social skills. These skills arguably lead to greater physical and emotional health and educational and occupational success.

Research from the Tufts Longitudinal Study of 4-H Positive Youth Development shows that 4-H participants are:

- Three times more likely to actively contribute to and give back their communities through time or money than other youth.
- Two times more likely to graduate from high school and go to college.
- 2.8 times as likely as other youth to report healthy habits.
- Two times more likely to pursue a career in science.
- 4.9 times as likely to expect to graduate from college as comparison youth.
- 4-H youth are more likely than their non 4-H counterparts, to enter the workforce better prepared to collaborate, think critically, solve problems, and be innovative.



2015 – BY THE NUMBERS

- ▶ Ten 4-H Bike club members participated in a 27 mile event.
- ▶ Ten hours of Healthy Lifestyles education has been provided to over 400 Freshmen.
- ▶ 442 club members, 252 military youth members, 83 day camp participants, 292 special interest, 286 afterschool, and 2,519 school enrichment.
- ▶ 149 live on farms, 1,143 in towns under 10,000 and 2,582 in towns and cities greater than 10,000. Approximately equal number of male and female participants
- ▶ 109 adult and 44 youth volunteers
- ▶ Yearend evaluations of club members show 4-H is influential in developing responsibility, confidence and communication and subject matter skills.

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Rangelands are extremely important to society for the goods and services they produce and for the ecological services they provide. There is a need to balance livestock grazing with natural resources. This is especially important as livestock producers have been reducing and managing herds as a result of drought conditions for the last 18 years. Workshops are held that teach various subjects relating to rangeland management, monitoring, livestock nutrition and other identified needs requested by clientele. Work is done collaboratively at both the local and state levels. In partnership with ranchers, Bureau of Land Management (BLM), US Forest Service (USFS), and Natural Resources Conservation Service, allotments are monitored for long-term soil and vegetation trends.

- *Ranchers and land management agency personnel have a better understanding of rangeland management and monitoring.*
- *Long-term rangeland monitoring data is available for USFS and BLM permittees to use in management decisions, and for federal employees to use in resource analysis.*
- *Healthy rangelands support livestock production, wildlife habitat, and other natural resource benefits for society.*



2015 – BY THE NUMBERS

- ▶ Conducted 7 workshops, field tours, and invited presentations on rangeland related subjects to 301 ranchers, agency personnel, and the general public.
- ▶ 119 sites on 58 BLM allotments and 69 sites on 24 USFS allotments were monitored.
- ▶ Monitoring reports were prepared for each allotment and given to agencies and ranchers.
- ▶ \$146,000 was obtained in grants to support this program.

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Commercial Livestock production in Cochise County is primarily composed of cow-calf ranches. There are approximately 300 ranches in the county contributing \$34.5 million in sales to the economy and utilizing a variety of federal, state and private lands. In addition to the economic contribution of the industry to the community, ranching operations are important tools for the management of rangelands and natural resources. Extension programs aim to improve producer knowledge of herd health and management, nutrition, genetics and stock selection, food and product safety, economics of profitability, sustainability, and the well-being of animals and public perception of the beef industry as a whole.

- *Ranchers have a better understanding of herd health and management to prevent disease, improve range conditions, and increase their pounds of calf produced.*
- *Properly managed livestock grazing supports healthy rangelands and wildlife habitat.*
- *Public perceptions of the livestock industry are improved by more ranchers utilizing low-stress animal handling and best practices guidelines from the Beef Quality Assurance program.*



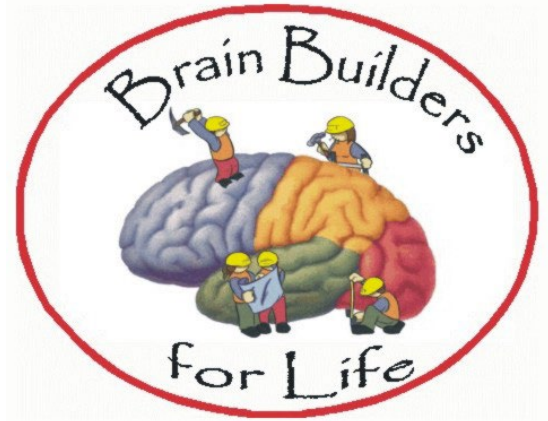
2015 – BY THE NUMBERS

- ▶ Attended 2 county and 2 state-wide rancher meetings as well as 2 local workshops to establish relationships with ranchers and agency personnel as well as begin assessing needs of local producers.
- ▶ Conducted formal needs assessment as well as visited local ranches to gain an understanding of issues affecting livestock operations.
- ▶ A formal needs assessment survey of Cochise county producers indicates that the top five topics that are important to them are: Emergency veterinary skills, preconditioning programs and feed lot immunity for calves, emerging diseases in Arizona, the marketing structure of the beef industry, and marketing options including retained ownership. This is mirrored in the needs individual ranchers expressed where topics of importance also include vaccination protocols, Bovine Viral Diarrhea (BVD) testing, and selecting appropriate cattle for Arizona rangelands.

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The Early Childhood Development programs in Cochise County help parents, childcare provider and those interested in children, understand prenatal care for parents, child health and safety, child development and what it takes to give our children what they need to be healthy and ready to learn. Our programs focus on the 0-5 year old population. These programs help parents and childcare providers learn skills about child development, health and safety, and nutrition with literacy and educational skills that help prepare children for kindergarten. Our innovative experiential learning techniques creates a fun learning environment for our brain building activities to stimulate young minds and help create a more positive social emotional setting for the children in their care. Early childhood programs show that participants have:

- *Shown improvements in educational process and outcomes for the child.*
- *Increased economic self-sufficiency, initially for the parent and later for the child.*
- *Reduced levels of criminal activity.*
- *Improvements in health and safety-related indicators, such as child abuse, maternal reproductive health, reduction in child mortality rates.*



2015 – BY THE NUMBERS

- ▶ 80 program participants were taught the skills to enrich children's lives with direct training classes ranging from 1 hour to 16 hours through our Brain Builders, Child Care Health Consultation, and the Technical Assistance programs.
- ▶ Brain Builders program increased their knowledge by 90% of the subjects taught.
- ▶ \$49,750 was obtained in grants to support these programs.

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Nutrition and physical activity education programs offered through the Cochise County Cooperative Extension promote healthy nutrition and physically active lifestyles that lead to healthier individuals and families in our communities. Our SNAP-Ed (Supplemental Nutrition Assistance Program –Education) program works in concert with the Arizona Nutrition Network (AzNN), a public and private partnership led by the Arizona Department of Health Services, Bureau of Nutrition and Physical Activity which partners with the University of Arizona Cooperative Extension. This program serves families and individuals that meet SNAP eligibility. The U.S. Department of Agriculture, National Institute of Food and Agriculture, Expanded Food and Nutrition Education Program (EFNEP) is designed to assist limited-resource audiences to acquire knowledge, skills, attitudes, and to change behaviors necessary for nutritionally sound diets, and to contribute to participant’s development and the improvement of the total family diet and nutritional well-being.

People involved in SNAP-Ed and EFNEP Programs:

- *Establish lifelong healthy behavior patterns.*
- *Are at lower risk for obesity, reducing health care costs.*
- *Have increased moderate physical activity each day.*
- *For each \$1.00 spent on the adult EFNEP program it produced a benefit equivalent to \$10.96.*
- *Not running out of food at the end of the month.*



2015 – BY THE NUMBERS

- ▶ There were 7,151 participants in SNAP-Ed and EFNEP programs who received nutrition related messages.
- ▶ 99 volunteers provided 2,039 hours of their time with values at an estimated \$47,040.
- ▶ \$265,166 in grants was obtained for SNAP-Ed and EFNEP programs for Cochise County.
- ▶ 83% of the teachers surveyed report that their students eat more fruits and vegetables.

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First Smiles Oral Health Program provides preventive dental health education, tooth brushing programs, oral health screenings and fluoride varnish application to children birth to age five. Tooth decay can be prevented by early intervention, dental visits, tooth **brushing**, flossing, healthy diets and oral health education. This program provides education and prevention services to childcare providers/educators on the importance of preventive oral health care and how to recognize and understand oral diseases and conditions. We facilitate child care providers to lay the foundation for a lifetime of good oral health with the implementation of classroom-based tooth brushing and providing oral health education and resources to the children. Additionally First Smiles conducts outreach to dentists and other health professionals to encourage them to address the oral health needs of children birth through age five.

- *Children ages 0-5 in Cochise County now receive early intervention to slow the progression of tooth decay and even prevent it. First Smiles provides early intervention and collaborates with health professionals across the county. Intervention programs, early childhood education and child care programs have proven to be an effective method for connecting children to oral healthcare in a timely manner¹.*
- *Schools and centers receive oral health screenings and fluoride varnish applications for participating children. Fluoride varnish can reduce tooth decay by 37% to 63%².*
- *Children who attend participating child care centers brush their teeth on a daily basis with fluoride toothpaste at school. Fluoride toothpaste reduces tooth decay among children by 15% - 30%².*



2015 – BY THE NUMBERS

- ▶ Educated 2,030 children ages 3-5 on the importance of healthy oral habits.
- ▶ Educated 1,804 adults on healthy oral habits for themselves and their families.
- ▶ Educated 508 professionals in Cochise County on providing early oral health intervention.
- ▶ Provided 1,184 oral health screenings and administered 1,064 fluoride varnish applications.

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¹ The Association of State and Territorial Dental Directors (2011)

² Centers for Disease Control



Master Gardeners, volunteers trained by Cooperative Extension, are an important part of consumer horticulture programming. Master Gardeners are trained volunteers who provide educational information to Cooperative Extension clientele. Cochise County Master Gardener Volunteers support the University of Arizona Cooperative Extension by providing researched-based information on environmentally responsible gardening and landscaping to the public. They teach good gardening practices through hands-on demonstrations, educational display gardens, an annual conference, and one-on-one consultations. Many Master Gardeners work right in the Extension office answering gardening questions on the phone and assisting walk-in clients. Along with their gardening knowledge, they contribute valuable skills like photography, writing, editing, event planning, teaching and leadership. To become a Master Gardener they complete the 14 week training course requirements and complete 50 hours of volunteer service. To maintain their certification, they must contribute 25 hours of volunteer service and 12 hours of continuing education each year after becoming certified. Today the need for these volunteers is greater than with increasing interest and demand for gardening-related advice.



Cochise County Master Gardeners:

- *Improve the natural environment through public education that leads to wise use of natural resources.*
- *Increase residents' access to University of Arizona Extension through their broad and continuous public presence and referrals and access to research based information.*
- *Helps educate Cochise County residents with the latest horticultural information from the University of Arizona.*
- *Practice and educate about environmentally friendly landscapes which leads to reduced pesticide and water used on the landscapes.*



2015 – BY THE NUMBERS

- ▶ Thirty six Master Gardener volunteers reported 1,475 volunteer hours and 326 continuing education hours for 2015. Seventeen students completed the MG Basic Training course.
- ▶ High Desert Gardening & Landscaping Conference attended by 101 people. Forty-four survey responses: 68% said they were able to update their skills; 80% said they acquired news and/or advanced skills; and 91% said they increased their knowledge upon which to base their decisions/actions in related areas.
- ▶ \$31,900 grant from the UA Green Fund and \$40,100 from Cochise Water project to help transform the former plant science center)and nearby areas into a series of interpretive high desert gardens showcasing sustainable principles and an outdoor classroom. Renamed to the Discovery Gardens at UA Sierra Vista.

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Nut/fruit trees and vines contribute over \$150 million to Arizona’s economy annually and the production of such crops is expected to increase with approximately 28,000 acres currently planted. Over half of this total production is primarily grown in Cochise County. Southeast Arizona’s climate and soils offer the environment that is conducive to growing such crops but also presents some challenges that are unique to this region. In pistachio nut production particularly a fungal pathogen known as *Phoma fungicola* is specific to Arizona pistachios because of the timing of monsoon rains and harvesting. It can cause significant yield losses at harvest time as it causes the harvested nuts to be turned away from the processing plants. In 2015 a “new” bacterial pathogen, *Xylella fastidiosa*, was positively confirmed in pecan trees (Pecan Bacterial Leaf Scorch). A statewide bulletin and survey was disseminated to examine the distribution of the pathogen in the state where pecans are grown. With the warming trend noticed in late winter months, weather extremes also present risk for commercial crops in Southeast Arizona. It is necessary that growers be informed ahead of time when an extreme weather event may pose risk for a loss of yield because of the timing with the development stages of some of these economically viable crops.



- Plan, implement, and evaluate effective outcome-based programs to support identified issues in horticulture crops.
- Integrate new science-based knowledge, technologies, decision-support systems, and best management practices for growers and stakeholders.
- Optimize efficient, economical, and sustainable production of horticultural crops.
- Strengthen local and regional food supplies.



2015 – BY THE NUMBERS

- ▶ Two pistachio orchards (1 in Cochise, 1 in Graham) performed fungicide trials on 16 acres per site, 4 acres per treatment. The most effective treatment showed 1% of fruit infected with *Phoma fungicola*; The next in effectiveness had 4% infected fruit. In the unsprayed control there was a 93% infection observed
- ▶ 130 pecan samples analyzed for *Xylella fastidiosa* in total of 7 counties, 18 locations, and 14 cultivars. 93 (71%) of these were positive for *X.fastidiosa*. 17 other plant species tested for *X.fastidiosa* (e.g. pistachio, sycamore, ash, hackberry, mulberry, pomegranate, rosemary, okra, walnut, myrtle, elm) - 10 (59%) were positive.
- ▶ 116 stakeholder and growers receive updates for Southeast Arizona weather extremes, more than 500 community members contacted via Facebook.
- ▶ \$33,902 obtained in grants in 2015 for program support.

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