ARIZONA COOPERATIVE EXTENSION

The University of Arizona College of Agriculture and Life Sciences

Extension Education in Cochise County

MAKING A DIFFERENCE 2011

IMPROVING LIVES AND COMMUNITIES

The University of Arizona Cooperative Extension represents a unique three way partnership of the federal, state and county government to provide local citizens access to the Land Grant University System. 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. Here are just a few highlights of Extension's impacts on this county and its people during 2010:

Cooperative Extension, Cochise County

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Rangeland Management

Relevance

Approximately 12% of the range beef cattle in the state occur in Cochise, Graham and Greenlee counties with a value in 2010 of $90,396,000 (2010 Arizona Agricultural Statistics Bulletin). There is a need to balance livestock grazing with natural resources. This is especially important as livestock producers have been managing herds in drought conditions for the last 14 years.

Response

Three educational workshops/trainings were conducted covering rangeland and livestock management topics. The workshop topics and presentations were developed as team efforts. They included: *Rangeland Monitoring with a Tablet PC, a US Forest Service Permittee Meeting*, and a *Range Livestock Nutrition School*. A total of 98 people attended one or more of these workshops. As part of the Rangeland Monitoring & Inventory Program, 59 sites on 20 BLM allotments and 51 sites on 16 USFS allotments were monitored. Ten riparian sites were also monitored. Monitoring reports were prepared for each allotment and given to agencies and ranchers.

Results

All workshop ratings are on a scale of 1 being not valuable to 5 being very valuable. The three workshops averaged a rating of 4.5 (41 evaluations turned in). Seventy-seven percent of participants were able to list two key concepts taught at the workshop. Fifty-three percent of participants listed at least one specific new management practice that they intend to implement in the next two years. Forty-eight percent of ranchers were actively engaged in the monitoring of their allotment.

Noxious Weeds

Relevance

The spread of noxious weeds on public, state trust and private lands in southeastern Arizona poses risks to rangeland animals (wild and domestic), threatens biodiversity and native plant species, damages park land and natural resources, and causes economic hardship for landowners. Estimates indicate that invasive plants are spreading at about 4,600 acres per day on federal lands alone in the Western United States. Weeds have invaded approximately 17 million acres of public rangelands in the West - more than quadrupling their range from 1985-1995 (USDI-BLM, 2009). Southeastern Arizona has relatively small infestations of noxious weeds compared to other areas in the West. This gives us a unique opportunity to be proactive and control weeds before it becomes no longer economically feasible to do so.

Response

One Pesticide Applicator Certification Training, eight noxious weeds workshops, and two special presentations reached 174 people in their local communities focusing on weed identification, biology and appropriate control measures. Field research continued to evaluate several herbicides, rates and timing of application for the control of Russian knapweed. Worked with Cochise County to treat major infestations of Onionweed along county rights-of-ways.

Results

As a result of the Arizona Pesticide Applicator Certification Training, 26 participants took and passed the National Applicator's Core Exam and acquired their Private Applicator's License. An additional nine participants acquired their Commercial Applicator's License by passing both the Core exam and a category exam.

All workshop ratings are on a scale of 1 being not valuable to 5 being very valuable. The eight workshops averaged a rating of 4.6 (41 evaluations turned in). Of those who turned in evaluations, 98% were able to list two key concepts taught at the workshop. Fifty-four percent listed at least one specific new management practice that they intend to implement in the next two years. Fifty participants took noxious weed identification pre- and post-tests. Participants increased their ability to correctly identify six local noxious weeds from an average pre-test score of 28% correct to a post-test score of 67% correct.

In 2010, the Rancho Sacatal 4-H Club pulled 220 lbs. of onionweed at two residences and the US Post Office in Portal prior to the plants going to flower and seed. In 2011, they returned to the same properties and pulled ½ lb. total, a significant difference from the year before.

Livestock Extension Programs in Cochise County

Relevance

Range livestock production is a significant part of the economic base of Southeastern Arizona. The rangelands where these livestock are raised are some of the most productive in the state. They not only support livestock grazing, but a variety of multiple uses. The intermingled ownership of federal, state and private lands creates a need to balance livestock grazing with natural resources.

Response

Livestock extension programs support research, education and extension efforts to improve understanding of animal reproduction, nutrition, genetics and physiology for improved efficiency, performance, health, and well-being of animals and to optimize resource use while delivering environmental benefits. Integrate new science-based knowledge, technologies, decision-support systems and best management practices to optimize efficient, economical and environmentally sustainable production systems appropriate in size and scale.

- Coordinated the University of Arizona Cattlemen's College at the Arizona Cattle Growers Association Annual Meeting.
- Worked as part of team to develop range livestock mineral specifically formulated for Arizona and to field test intake.
- The Range Livestock Nutrition Committee organized "*Being a Range Cow is a Hard Way to Make a Living*" workshop at Payson Arizona. The Cochise County workshop was postponed until February 2012.
- Worked with nine different ranchers in Santa Cruz, Cochise and Pima counties on their operations addressing cattle reproductive issues.

Results

- **Range Livestock Nutrition:** Participants rated the workshop 4.33 on a five point Likert scale (1=not very valuable; 5= very valuable). All respondents indicated that they would use at least one idea in their operations, with most indicating changes in their supplementation and nutrition program. Many of the comments indicated that the workshop was valuable with one person responding that "Great workshop" and another asking us to "do again".
- **Cattlemen's College**: Participants rated the workshop 4.5 on average. 25 of 26 respondents indicated that they would use an idea from the training in their operations.

Field Crops

Relevance

Production of field crops in the Cochise County area is very diverse including but not limited to corn (silage and grain), small grains (wheat and barley), dry beans (pinto and other assorted types), cotton, and grain sorghum. Rising production costs associated with seed, fertilizer, water, and energy are making it difficult for growers to remain profitable at current commodity price levels. Recent technological advances such as transgenics, innovative pest control chemistries, improved varieties and hybrids, and site specific management technologies, to name a few, have the potential to help growers regain competitiveness in a global production marketplace. Implementation of these new technological advances can be daunting for the grower. Our responsibility in Cooperative Extension and Agricultural Experiment Station is to develop sound recommendations through research and demonstration of how best to implement these new advances in an economically and agronomically sustainable fashion.

Response

During the calendar year 2011 several research projects were conducted to continue to refine current recommendations and to evaluate several new technologies and their application to production systems in the Cochise County area. These projects included; corn hybrid evaluations with several hybrids containing novel genetics providing new options for control of corn earworm, evaluation of currently available cotton cultivars with a variety of transgenic traits, and evaluation of site-specific management techniques for control of plant parasitic nematodes in corn and cotton. An additional trial evaluating new and commercially available fungicides used for control of sclerotinia (white mold) in dry beans (pinto) was conducted. Results from 2011 projects along with summaries of previous years' work was presented at several grower field days and meetings during 2011 and early 2012. These meetings included a corn field day (September 2011), winter corn production meeting (November 2011), Summer Cotton Workshop (July 2011), Southeast Arizona Ag Day (February 2011 and 2012) along with numerous individual farm visits to clientele across the southeast region of Arizona.

Results

Results from the research projects and demonstrations have proven the potential for significant economic benefit for growers adopting recommendations based upon these results. Two years of evaluation data of the new Bt technology for corn earworm control has demonstrated a minimum of 5% yield increase. Results from evaluating site-specific management of nematodes have demonstrated the ability to reduce nematicide use by slightly over 50% (depending on soil texture distribution) by applying only to the areas of the field with damaging thresholds of nematodes. Our evaluation for nematode control in cotton was negatively impacted by an early frost event (10 October) compromising the results. An evaluation in corn provided significant results of 20% yield increase in the most severely affected areas of the field. Results from the 2011 dry bean fungicide evaluation yielded no data on sclerotinia control due to lack of disease pressure. However, control of a new leaf spot disease was observed. These results have led to the submission of a three-year proposal to the Arizona Department of Agriculture, as part of their Specialty Crop Grant Program, to evaluate control of disease and nematodes in Dry Bean. If this proposal is funded a significant research program will begin in 2013.

Commercial Horticulture

http://extension.arizona.edu/impact-stories/protecting-crop-planning-future

Relevance

Cochise & a portion of Graham Counties have a diverse mix of horticultural crops. Acreages grown are: apples- 1,200; wine grapes- 650; pecans- 5,800; pistachios- 2,900; stone fruit- 160; chiles- 3,000; greenhouses- 280; & mixed vegetables- 630 (2009 AZ Agricultural Statistics Bulletin, Sept. 2011). Also, there are over 100 smaller producers (gross < $10,000/year). Many use direct farm marketing techniques to sell their products (2007 USDA Ag. Census). Program content and delivery methods are used to educate producers about best production practices so they can make informed decisions and remain economically viable.

Response

- Three Arizona Pistachio Growers Association Meetings were held with attendance of 67, 78 and 18 respectively, including growers from California, New Mexico & Texas.
- The 32th SE AZ AgDay was held February 2, in Willcox, with a total of 79 growers attending the five hour educational program. An afternoon three hour program on wine grape production was attended by 26 people. The trade-show of 56 exhibitors helped defray the cost of the free barbecue lunch for over 325 people. I developed, organized and moderated both educational programs.
- Two field demonstrations of Bird Gard scare device were installed in two pecan orchards. The first was installed on December 6, in Bowie and the other on December 8, near Dragoon.
- Good Ag. Practices/Good Health Practices (GAP/GHP) Training was conducted in Willcox by Kurt Nolte, Yuma Cooperative Extension, with 18 attendees.

Results

- Pistachio producers learned about the new American Pistachio Growers Association's marketing efforts, current pesticide recommendations, irrigation timing and the USDA Risk Management Agency's pistachio crop insurance program. Growers (n=38) completed a survey evaluation tool at the first meeting and rated the overall workshop value with an average of 4.8. Evaluations showed growers responded in the affirmative to the question, "I will use at least two ideas from the workshop." Eight stated, "I will change my irrigation schedule to improve efficiency." Seven others indicated they would change pesticide usage. On a seven step self assessment scale of knowledge gained a mean increase of 1.7 steps was reported.
- A total of 237 AZ Dept. of Ag. (ADA) CEUs were awarded to 44 Pesticide Applicator License (PAL) holders at SE AZ AgDay. PAL holders have taught how to safely apply pesticides for maximum benefit.
- A total of 16 evaluations were returned from the AgDay Wine Grape Production Workshop. Reponses to the value of information presented in their operations as 4.3 on a Likert scale. All indicated they would use at least one idea presented including: using cover crops and using soil moisture monitoring equipment to time irrigations.

Urban Horticulture

Relevance

The Master Gardener Program emphasizes landscaping with appropriate plants, food production & environmental stewardship. Training of volunteers with a train-the-trainer system. To become a Certified, Master Gardener volunteers must pass an exam and contribute a minimum of 50 hours of service in support of the program. This program goal focuses on food production, landscaping with native plants and environmental stewardship.

Response

- MG Basic Training Course- 14-week course began March 2 at UA, South with 21 students. Seventeen students took the final exam and became MG Associates
- High Desert Gardening Conference (HDGC), February 17-18, attended by 117 people. Participants came from AZ, NM & TX.
- Presented four hands-on pruning demonstrations with a total of 60 individuals.
- MGs staffed the Sierra Vista office for 452 hours answering 679 inquires. MG volunteers staff the "Ask the MG" table at the weekly Sierra Vista Farmers Market one Thursday and Saturday/month, the Bisbee Farmers Market nearly every Saturday during the summer and the St. David Farmers Market twice a month during the summer. MG answered over 400, 200 & 150 inquiries respectively. MGs also gave five community presentations. Certified MGs answered clientele inquires, completed projects and contributed 3,542 volunteer hours.
- The "High on the Desert" Gardening Newsletter" was sent electronically to 1,072 email addresses & a printed version was mailed to 119 households.
- Monthly Cochise County MG meetings averaged 38 attendees. Each meeting consisted of an educational program and then a business meeting. As a result of Cochise County MG business meetings, projects were planned and completed. A donation of $1,000.00 to Cochise County High School Libraries to purchase six appropriate books on high desert gardening were delivered to each of eight high schools.

Results

- The UA, South MG class evaluations results from a 25 question pre/post test averages were 11.9 & 17.8, a knowledge increase of 33.0%. A self-evaluation, using a seven step scale, indicated an average increase of 2.6 levels of knowledge gained in 12 subject matter areas taught in class.
- Written evaluations from the HDGC asked (scale- 1= not useful to 6= highly useful), "Overall was the conference useful" = 5.6 and "Will you attend next year?"= 5.5. Comments- "Lots of info.- too much to absorb, will try and implement on my 20 acres." "I was impressed with knowledge of presenters. Keep doing what you're doing. Great Conference- I'll be back."
- Eight of the 17 MG Associates, from the UA South class, have completed their 50 volunteer hours. Total volunteer service is equivalent to one and a half full-time positions.
- The planning, installation and completion of a landscaping project at Buena High School's east entrance was done with the Class of 2010 students. This on-campus demonstration project has appropriate & named plant materials that require little maintenance.
- Currently 1,321 species are online: http://www.cochisecountyherbarium.org. This collection aids in plant identification to manage gardens, landscapes, natural areas.

Water Wise Community Education

Relevance

Approximately 26 billion gallons of water are used every day in the United States alone. According to the United States Geological Survey (2005), the average American uses between 80 and 100 gallons of water daily. Of the total quantity of potable water supplied to residential homes in Arizona, the vast majority is devoted to outdoor water use such as landscape irrigation. Nationally, residential outdoor water use accounts for approximately 30% of total property use but due to high temperatures and evaporation rates it is estimated that on average, outdoor water use in Arizona accounts for over 50% of a residence's total water consumption. According to a 2011 study in the Journal AWWA, *Residential water use trends in North America*, a water company customer living in an area that experiences average temperatures between 60 -70F uses on average 14,514 more gallons than customers living in temperatures ten degrees cooler because of the higher temperatures.

One of the most significant perennial desert river reaches in the United States is the San Pedro River which lies within the Sierra Vista Subwatershed. Balancing the needs of the San Pedro River with the water needs of current and future residents is a top priority for the Cochise County Board of Supervisors, City of Sierra Vista officials, Ft. Huachuca and numerous other government entities and residents. Water education is essential to reducing the demand for water and providing a sound basis for water management decisions. "Education programs are by far the most common demand-side water use efficiency measure in the Southwest." (Western Resource Advocates, Smart Water, 2003).

Response

- The residential program finished out the year with fifty-seven on-site visits, thirty-two workshops/events were conducted reaching 920 direct contacts.
- Water Wise's public introduction of the RainScape concept with RainScape sites featured on the Rainwater Tour and the Xeriscape Tour.
- Produced new Rainscapes brochure, a colorful four-fold brochure introduces "the next generation of Xeriscape" called "RainScapes". RainScapes, a term conceived by Water Wise, is a new concept in landscape watering. It educates property owners on the techniques to make established landscapes exclusively reliant on rain and stormwater therefore saving potable water supplies for better uses.
- The first large-scale (1200 gallons) public rainwater harvesting "barn-raising" project was installed on City of Bisbee property, a collaborative effort between Water Wise and the City of Bisbee. The project was funded by a Cochise Community Foundation grant with additional support from the Upper San Pedro Partnership, and the Bisbee Bloomers. Local youth will paint murals on the tanks in April, 2012.
- Collaboration with the local Southeast Arizona Association of Realtors and the Upper San Pedro Partnership developed a "Retrofit on Resale" grant program with USPP funding.
- The Industrial, Commercial and Institutional (ICI) program focuses on the commercial sector and provides conservation incentives through analysis of water use and specific recommendations with quantified water savings. The ICI program conducted 11 building audits. The total estimated annual savings from the USPP grant program for 2011 was 184,383 gallons (0.56 acft).

- Outreach: Water Wise uses a variety of outreach tools. In 2011 two radio interviews were given, monthly articles were written for the Sierra Vista Herald/Bisbee Daily Review and the Southern Arizona Contractors Association newspapers , periodic articles were written and published in the Bisbee Observer, monthly e-reminders were sent to a 600+ member mailing list, a dynamic RainScape web page was created , and the Water Wise website was regularly updated and maintained.

Results

The Water Wise program continues to receive wide support from the public, the press and sponsors. The success of the Water Wise program has led to strong support by the Board of Supervisors and other partners.

- The City of Sierra Vista conservatively estimates that the Water Wise program saves the Sierra Vista Subwatershed 270 acre feet of water a year due to encouraging water conserving practices.
- Estimated annual water savings from ICI audits is 184,383 gallons (0.56 acft).

Water Wise personnel conducted 49 follow up calls at least 6 months after a visit for information on recommendation implementation. On average:

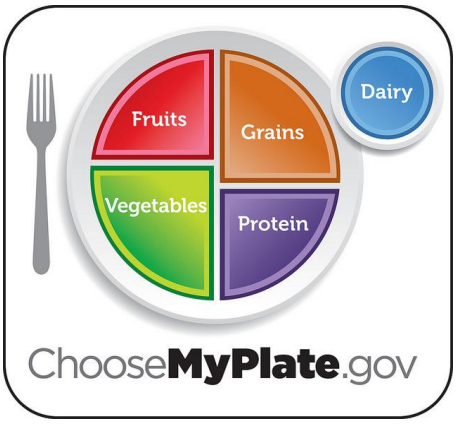
- 28% of contacts implemented some or all recommendations
- 40% of contacts were unreachable
- 4% had not made any changes yet28% of contacts were not able to act on recommendations because of timing issues (seasonal visitors, planting season, other).

http://extension.arizona.edu/impact-stories/ua-cooperative-extension-waterwise-committed-saving-water-arid-environment

Out of the 526 participants that attended a Saturday Water Wise Series Workshop 394 (75%) completed an evaluation card with 89% reporting an increase in knowledge. Four presentations were evaluated with the stepwise knowledge gain: 45% gained one step, 33% gained two steps, 14% gained 3 steps, and 8% gained nothing. Four other presentations were evaluated on overall knowledge gain. Workshop #1 had an 80% gain, #2 was 43%, #3 was 58% and #4 was 79%.

As reported in the Sierra Vista Herald and confirmed with an email, a hesitant non-harvesting Sierra Vista resident was so inspired after attending a Water Wise Rainwater Harvesting Tour that he installed a 4500 gallon rainwater collection system at his home. The water will be used “first and then tap water as needed”. He has also provided a rainwater collection tank for a community garden.

Healthy Lifestyles Programs



Relevance

The Healthy Lifestyles Programs cultivates awareness of major diseases relating to the health and well-being of the community. These conditions can be improved through a healthy diet and regular moderate physical activity. According to the 2010 Centers for Disease Control Behavioral Risk Factor Surveillance System 60% of the residents in Cochise County report that they are obese. Forty-five percent of the population in Cochise County does not exercise the recommended amount of 30 minutes per day for five days a week. Thirty percent of Cochise Counties 0-5 year old population is considered overweight or obese and 5% are considered underweight that is the third highest county in the state (Arizona Department of Health Services 2009).

Response

The **Extension Food and Nutrition Education Program (EFNEP)** is a unique federally funded program designed to reach limited resource audiences. The education is designed to assist those audiences in acquiring the knowledge, skills, attitudes, and changed behavior necessary for nutritionally sound diets and to contribute to their personal development. The Journal of Nutrition Education and Behavior 2009, reports that participants in this project experienced a significant decrease in body mass index compared to a control group. This project demonstrates the potential for the EFNEP program to have a significant impact on family dietary behaviors in populations at risk for obesity.

The **Supplemental Nutrition Assistance Program Nutrition Education (SNAP-Ed)** is a statewide program which links social marketing and community education to change dietary behaviors among participants. The SNAP-Ed program trains school districts to incorporate nutrition education into their curriculum and daily events. It also aids in reaching the community to promote preventive health concerns without duplicating the Extension Food and Nutrition Program. In Cochise County, in September 2011, there were 21,014 households receiving SNAP benefits. That is the equivalent of 84,056 people where it is estimated that only 61% of the food stamp eligible population were served. SNAP participation continues to climb each month. (United States Department of Agriculture Food and Nutrition Service). This program will be expanding to reach older adults and young children in the next year.

The **Health Homes, Healthy Families (HHHF)** program was implemented this year and funded by a First Things First contract. This program is a hands-on education and training program that is delivered directly in homes and child care settings. Educators work intensively with families and childcare providers, in their homes and kitchens, and through experiential learning methods assist in assessing the type and quality of food to promote healthy eating, creating good eating habits, and incorporating physical activity in children 0-5 years of age. This program has an intensive intervention component where a specialist works with eight at risk families to increase healthy lifestyles in their homes. Once a year this program offers a pantry makeover to a winning participant where a professional chef, exercise specialist, and a nutritionist conduct a pantry makeover and educate the winner and their friends.

Benefits

There is 3.5 full time staff for these programs. Teachers throughout Cochise County volunteer their time to deliver nutrition messages throughout the school day to their students for the SNAP-Ed program. Eight school districts, 11 schools, 90 teacher and 5820 students are active in our SNAP-Ed program. Six one-hour EFNEP classes were given throughout the year to low income participants. Agent developed various presentations to coincide and continue the education received in the programs. Agencies, community gardens, and grocers donate food and space for the

programs. Various curricula including nutrition, financial and life planning are utilized to best serve the audience. This agent has volunteers who distribute information to the community. The programs are federally, and state, grant funded. SNAP-Ed/EFNEP outreach classes were presented for various groups teaching 43,706 community members. Attended a total of 11 community fairs and various meetings estimated reach of over 7,000 community members, 9,000 handouts distributed. Extensive recruitment for the programs within schools, community meetings, health fairs and other community outlets to enroll 124 adult participants and 202 youth participants in the six hour EFNEP classes. Part time educator was encouraged to enroll 75 participants. HHHF conducted training in 12 daycare centers, 31 providers and 248 children as well as other professionals and agency professional trainings for a total of 711 total participants.

Results

Twenty-four hour diet recall conducted, pre and post surveys conducted to determine behavior change. SNAP-Ed teacher volunteers recorded changes in behavior, skills and knowledge from their students through the Program Teacher Survey with 25 responding. Post training surveys conducted with HHHF family participants.

Pre-post test showed (EFNEP)

- 60% participants improve in one or more food resources management practices (compares prices, does not run out of food or uses grocery lists),
- 100% improved their nutrition practices (meal plans, healthy food choices, low salt, reading labels, breakfast),
- 21% showed an increase on their food safety practices (thawing and storing food properly).

SNAP-Ed teacher survey results:

- 25 out of 25 teachers spend more time on nutrition related topics because of this program.
- Before this program teachers incorporated nutrition into school activities on average 1.7 times a week. They now incorporate nutrition into school activities on average 46.5 times a week.
- Reported improvements in physical activity examples: Teachers are getting involved in exercise groups on campus, students are choosing to do more active things on their down time, my students are very excited when we started to practice for the mile run, students that normally don't run were running without complaining and enjoyed it. Students have increased their consumption of fruits and vegetables after our program by an average of 30%.
- Teachers report that children behave better with more physical activity and nutrition.

HHHF parent surveys stated: Better meal planning at home, not rewarding with food, and not forcing children to eat, drinking less sports drinks daily, learned proper serving sizes for children, not putting cereal in baby bottles.

HHHF childcare surveys stated: Because of this program-we have gone from very little time on nutrition activities to incorporating nutrition activities throughout the curriculum day, our children are now getting 30-60 minutes of daily indoor physical activity that they would not otherwise be able to get.

3 month impact surveys showed: Parents are planning meals ahead of time, parents are eating with children, families are buying more fresh fruits and vegetables, reading labels and comparing foods, children's eating habits have gotten better.

Family and Community Connection Programs

Relevance

In Cochise County there were 66.1 childhood deaths per 100,000 residents of which 33% were preventable (Arizona Department of Health Services). There were 219 arrests in 2010 in Cochise County related to offenses against children. In 2010, the Cochise County First Things First Needs and Assets report states that the majority of staff members working in the childcare profession lack professional qualifications. The first few years of life are critical developmental periods and abuse or neglect during this time severely impacts normal development (National Research Council 2005). Understanding the stages of ages, parenting skills, basic life skills, and brain development are crucial to reducing this type of abuse. From birth to age five, the brain is being "wired" into patterns for emotional, social and cognitive development which lays the wiring for the rest of their lives. According to the 2003 Arizona School dental survey, “Every Tooth Counts,” 6-8 year olds in Cochise County communities have as high as 64% untreated tooth decay and as high as 16% urgent treatment needed for dental problems. Tooth decay (cavities) is the most common chronic disease of childhood. Oral health conditions can impact general health and well-being where there is a relationship between periodontal disease and cardiovascular disease, adverse pregnancy outcomes, as well as respiratory disease. Extensions needs assessment data shows that 100% of the toddlers had at least one tooth with loss of at least ½ mm of tooth structure, 99% of treated toddlers had fillings, crowns or other restorations due to decay or missing teeth due to decay. Cochise County First Things First Council needs assessment identified specific issues in Cochise County relating to the birth to five populations. The State and Regional First Things First approached the FCS agent to develop programs to meet the specific needs in this region.

Response

The **Child Care Nurse Consultant (CCHC**) is a program conducted by a specially trained health professional who offers consultation, training, and technical assistance to early care and education providers in recognizing and promoting the health and safety of children, families, and early care and education staff funded by First Things First. This position is staffed by a Registered Nurse. The Child Care Health Consultant provides expert guidance and technical assistance on health and safety best practices and requirements.

The **First Smiles Oral Health Program** provides preventative dental health education and fluoride varnishing to children birth to age five. This program provides education and prevention services to childcare providers/educators on the importance of preventative oral health. This program conducts outreach to dentists and other health professionals . This program has been expanded to Yuma County, Graham County, Greenlee County and soon Pima County through an agreement with the Pima County Health Department. Funded by First Things First.

Brain Builders Training- Prenatal to Age Three (Department of Economic Security funding) teaches about early brain development and child development to child care providers. This agent with two other agents has conducted a train the trainer course to conduct this program state wide. Brain Builders is 16-18 hour training and is formatted into six units. This agent along with another agent (Dixon) covers Graham, Greenlee, Cochise, Pima, Yuma and Santa Cruz Counties. Although budget cuts have limited state funding, this program has obtained the Department of Health and Human Services Grant to administer this vital information statewide for a fourth year.

Brain Waves which are shorter versions of Brain Builders has been conducted this past year with First Things First funding obtained by this agent through a collaboration of various social agencies in Cochise County. This program offers basic facts and research in early childhood brain development to raise awareness of the significant impact care givers have on the developing child.

Benefits

There is one Registered Nurse, one Dental Hygienist/MPH, and three trained personnel for these positions and one administrative assistant (5FTE).
CCHC-Provided 136 trainings on health and safety, child development and nutrition. Provided instruction, technical assistance, and literature distribution for 28 centers, 218 providers/staff, 817 children and their families. Sends out monthly e-newsletter to all providers promoting health and safety. Provides bi-lingual resource manual that is updated in collaboration with Santa Cruz County to distribute to all child care providers in the program.

First Smiles-Provided 68 childcare providers and program participants (including 8 centers) 1,426 children, with toothbrushes, toothpaste, instruction and preventing dental cavities. Oral screenings and fluoride varnish applied to 184 children. Professional training conducted to 118 dentist and health professionals. Reached 3,732 other participants in fairs, meetings, etc.

Brain Builders-Provided 5, sixteen hour institutes to 62 childcare providers from Graham, Greenlee, Cochise, Santa Cruz and Pima counties and 1 institute with 19 providers in Yuma. Extensive recruitment for the program to childcare providers by mailing each registered childcare provider information about the institute.

Brain Waves conducts live interviews on the radio in Sierra Vista. Conducts training to professionals (6 hours) and parents (1-5) hours), shelters & community (1-5hours) to 329 participants in 8 communities with 1-4 lessons per participant. One-on-one instruction at various events (teen maze, parent conferences) reaching 255 additional individuals.

This Agent has been asked by the First Things First state board to develop a warm line for childcare providers with questions related to childcare settings in the next year. This Agent serves as an advisory to agencies on parenting skills and brain development.

Results

CCHC-Provider Surveys show the following increase in knowledge:

Subject	Overall % Increase from Pre to Post Test in Correct Answers by Participants
Seizures (3 questions)	75%
Skin Cancer (3 questions)	76%
Average Increase	75%

Two centers participating in family dinning programs modified the program to not spread infection diseases. Twenty eight centers, adopted major health and safety policies in centers, changed in and out door playground safety.

First Smiles Parent surveys show the following increase in knowledge:

Subject	Overall % Increase from Pre to Post Test in Correct Answers by Participants
When to have a dental exam (2 questions)	73%
How bacteria is transmitted (4 questions)	42%
What contributes to dental decay? (4 questions)	71%
Average Increase	45%

First Smiles-8 childcare centers have implemented daily tooth brushing protocol with instructions for parents to continue this habit at home.

Brain Builders Participant Pre and Post testing show the following increase in knowledge:

Subject	Overall % Increase from Pre to Post Test in Correct Answers by Participants
Brain Development (10 questions)	75%
Prenatal Development (10 questions)	152%
Physical Development (10 questions)	50%
Emotional-Social Development (10 questions)	91%
Cognitive Development (10 questions)	44%
Average Increase	82%

Brain Builders- Participants recorded techniques learned and how they used them with the children. Impacts-selections of participants (childcare providers) journals: "...I have changed how I work with the children... I would have rushed and done the project myself to save me the trouble and time. However, the seminar I attended taught me how important it is not to limit children. I wanted to tell one child to stop making a mess....I just asked her why she was doing it "that" way and she answered logically...which shows how much they learn and grow from the littlest things." "Thanks to your training, I know I have been wrong in the way I was teaching, I am a better teacher now." "Our center will incorporate more experiments, messy play and more freedom to explore."

Brain Waves –Pre and Post testing show the following increase in knowledge:

Subject	Overall % Increase from Pre to Post Test in Correct Answers by Participants
Parents	132%
Professionals	50%
Childcare Facilities	49%
Quality First Facilities	37%
Average Increase	67%

Brain Waves-(director) subsequent classes with parents report that they have changed their behavior around their child (play with child, talk to child, read to child, patience) Professional reports that she is utilizing information with her children and the families she is working with.

Youth Development through 4-H Animal Science Projects

Relevance

The definition of "youth development" is broad, and can mean different things to different people. Often the definition includes the general idea of an intentional process that helps young people meet key developmental needs. The development of subject matter and life skills through experiential learning is the foundation of 4-H programming. The general approach to 4-H Youth Development today looks at the educational content in relationship to the youth development context that focuses on the essential elements (belonging, mastery, independence, generosity) identified by the National 4H Program as necessary for youth to succeed.

Arizona's livestock industry provides a significant impact (1.4 billion per year, *2010 Arizona Agricultural Statistics Bulletin*). Youth need to have the skills, knowledge and interest to work in agriculture, make sound policies and continue this important state industry. Skills learned in working with their projects and through the judging teams can be used in life as decision making and reasoning tools. When youth learn the process of evaluation through livestock judging, these same skills can be integrated into other real life situations. According to Boyd, Herring & Briers (1992) livestock judging has been associated with developing a variety of employer-preferred life skills such as communication, problem solving, and decision making.

Response

Livestock shows provide a unique educational experience for youth development. Caring for an animal requires responsibility and determination. Many youth begin learning positive life skills, including responsibility, at an early age. The annual county fair is an opportunity to highlight the many youth accomplishments and showcase the knowledge and skills youth have gained. Youth are provided integrated, experiential learning opportunities through their participation in project and club meetings, judging events, activity days, shows, and quality assurance and project area workshops.

Results

A **year end evaluation** was completed by county fair participants. Below is the percentage of 136 animal science respondents that responded "increased some" to "increased a lot" (scale of none, a little, some, a lot) when asked the question "**How much, if any, has your experience as a 4-H member helped to increase each of the following life skills?**"

% Responding "some" to "a lot"	
86.0%	Cooperating with others
84.6%	Working well with others
77.2%	Helping a group be successful
75.0%	Being helpful in small groups of kids my age
72.1%	Helping others succeed
70.6%	Appreciating opinions that are different from my own
66.9%	Supporting a group when they have selected an activity that I don't want to do
65.4%	Placing group goals above the things I want

Below is the percentage of respondents that responded "quite a bit" to "a lot!" (scale of none, minimal, some, quite a bit, a lot!)when asked the question "**How much has participation as a 4-H member helped you to do each of the following items?**"

% Responding "quite a bit" to "a lot"	
70.6%	Gain new skills
64.0%	Accept responsibility for doing a job
61.0%	Develop sportsmanship
66.2%	Develop confidence
58.1%	Set goals and work to achieve them
55.9%	Work as a team with other members
62.5%	Keep good records
66.2%	Share your knowledge and skills with others
55.9%	Demonstrate skills learned in 4-H to the public

Members were asked to list the two most important things they learned this past year. Out of the 243 items listed about 30% were life skill related such as: being responsible, leadership in my club, persistence, how all these things I have learn in 4-H can be applied to real life, helping others, sportsmanship, how to be a good officer, how to keep records, be on time to every meeting, not everything is about winning, and sportsmanship. Most of the other 70% of responses were subject matter/skill related such as: Make sure my animals are always fed and watered, learned how to show my rabbit properly, learned not to give my pig steroids, how to correct horses leads, the importance of good shelter, how to manage the weight of my swine, how to castrate a goat and general care of animals.

Water Wise Youth Conservation Education

Relevance

Youth have an important role in water conservation. Individually, as members of a family and community, and as future citizens, the youth of today have the power to act as catalysts to initiate change and guide development of future activities to ensure the availability of water resources. Balancing the needs of the San Pedro River with the water needs of current and future residents is a top priority for the Cochise County Board of Supervisors, City of Sierra Vista officials, Ft. Huachuca, and numerous other government entities and residents. Water education is essential to reducing the demand for water and providing a sound basis for water management decisions. “Education programs are by far the most common demand-side water use efficiency measure in the Southwest”. (Western Resource Advocates, Smart Water, 2003).

Response

There are many ways to emphasize the culture of water conservation. This has been accomplished in Sierra Vista, Ft. Huachuca and areas throughout the county through teacher training, classroom presentations, family science nights, after school programs and educational water festivals. Educational models such as the Groundwater Flow Aquifer, Rolling River, Water History Trunk, the EnviroScape and appearances by Wettie the Waterdrop as well as hands-on activities directly aligned to the Arizona standards are the backbone of an evolving curriculum to teach children important concepts in water education.

- Water Wise Youth Educators were requested to give presentations that reached 1,743 students during the year. Many classes have a series of four water lessons during the week that build on each other.
- An additional 760 youth were reached in after school and water science events.

- Coordinated and conducted in partnership with the Bisbee schools and the City of Bisbee, a Bisbee Rain Tank Mural Poster Contest. Local judges selected 5 of 40 posters submitted from Lowell Jr. High and the Boys and Girls Club. Winners were recognized in December.
- Conducted training for 18 pre-service teachers. Water-based lessons taught observation skills, and gathering and interpretation of data. The pre-service teachers then took one lesson and taught it in the classroom and evaluated the lesson taught.
- A Water Wise Youth page was included in the Water Awareness Month newspaper insert - in all county papers for one issue during April.
- Two Water Wise and Energy Smart classroom lessons were aligned to the state standards.
- The 14th annual water conservation poster contest was held with 550 entries. Winning posters were displayed in Sierra Vista's Aquatic Center.
- A Village Meadows 4th grade Water Festival was held in the fall. The students participated in three educational activities at the Festival.

Results

Eighty percent of the pre-service teachers said the training and lessons accomplished the necessary learning objectives and actively engaged students. Twenty percent said they did for the most part. Ninety percent said that they had positive student responses to the lesson and it inspired follow-up questions or discussion.

Following the Village Meadows Water Festival, 94% of students could list at least six places that water can go through the water cycle and 67% knew what an aquifer is. Teachers agreed that their students increased their knowledge level about water science and conservation.

Students from Elfrida Elementary School wrote: “Now I know 1% of the water on earth is drinking water, I will be preserving my water instead of wasting it.”, “This morning I was taking a shower and I remembered to be fast and not waste water.”, “I learned a lot about the hydrologic cycle.”, and “I am taking smaller showers.”

Water Wise programs in schools changes water use behavior

WATER WISE YOUTH

2011 POSTER CONTEST

4-H Science, Engineering and Technology Education (SET)

Relevance

In 2009, Arizona ranked 45th in science education and 34th of 39 ranked in fourth grade science scale scores, (http://www.statemaster.com/). However, the 2009 Arizona Workforce Informer identifies Professional, Scientific, and Technical Services as the largest employment area in Cochise County and the second largest growth area for future employment.

4-H SET
Science • Engineering • Technology

The 4-H Science Engineering and Technology Program forms part of the long-term solution for improving science literacy and aptitude of America's youth. 4-H has a national movement to address this critical challenge by preparing 1 million new young people to excel in science, engineering, and technology by 2013. The local focus collaborates with schools that have science, technology, engineering and math objectives and enhance educational opportunities for youth via 4-H curriculum and materials.

Response

Center for Academic Success (CAS) Charter School Summer and Afterschool Program served diverse youth (4% Asian Pacific, 26% African American, 22% Hispanic, 2% Native American, 47% Caucausian. Nearly a third of the population is from military families.)

- 20 hours of Photography Instruction to 30 youth grades 4-10
- 10 hours of Videography instruction to 27 youth grades 4-10
- 30 hours of Computer Technology instruction to 30 youth grades 4-10
- 38 hours of Food Science and Nutrition instruction to 44 youth grades 5-8
- 26 hours of Gardening instruction to 36 youth grades 5-8
- 64 hours of Cloverbud instruction (mostly gardening) to 139 youth grades K-3

Bisbee's Greenway Elementary School utilized the Integrated Youth Gardening Curriculum with 65 new youth in grades 3-5.

Embryology: Fertile eggs were hatched and embryology studied by youth at Buena High School (154), CAS Charter School (47), and Fort Huachuca School Age Services (15).

Math and Science Exploratorium at Cochise College for 152 youth from Cochise County schools.



Results

CAS Technology Club youth participated in the Arizona Life Skills Assessment, which is a Likert Scale instrument where 1=low, 4=high on a retrospective survey. Students reported they increased 111% from pre to post on their ability to create a podcast. They increased 105% on their familiarity with video planning activities (Target Map, Webbing, Storyboards, Scriptwriting). Their ability to use PhotoShop increased 91%. They increased 63% in their ability to teach the things they learned in the club.

Bisbee's Greenway Elementary, 65 participants. On an IRB approved, Likert Scale instrument with 1=low and 4=high on the pre-post questions, students reported a 42% increase overall as shown in the chart below. 100% of participants reported gains from pre to post program.

Indicator	Pre score	Post score
Decision Making	2.37	2.53
Wise use of Resources	2.43	2.54
Healthy Lifestyle Choices	2.41	2.57
Self-Responsibility	2.38	2.55
I know how clouds are formed (condensation).	2.37	2.68
All Indicators	2.4	3.4 (+42%)

Embryology: Teachers integrated embryology into science curriculum to increase learning in how a fertilized egg goes from one cell, divides into a blastula and then watches the fetal development until it is a mature chick. CAS student comment, "I can't believe they can go from one cell to a fully functioning vertebrate in just 21 days." All teachers said they would teach embryology again next year.

Math and Science Exploratorium participants identified themselves from seven county schools, and rated their Diaper Mystery activity. Of the 152 youth, 91% agreed that they learned something new from the diaper experiment, 75% agreed that they didn't realize that diapers had science in them, 88% agreed that they liked science, 73% agreed that they were good at science, and 84% agreed that science is useful in solving everyday problems. One student commented that the most interesting thing learned while doing the diaper experiment was the "way the polymer puffed up so much to the point where it was almost a solid".

Connecting Youth with Science, Technology and the Outdoors

Relevance

Nationwide only 18% of high school seniors are considered proficient in science (National Assessments of Educational Progress, 2005). Only 32% of current U.S. college graduates are earning bachelor degrees in Science & Engineering fields, compared to 63% in Japan and 53% in China (Science and Engineering Indicators: 2010, published by the National Science Board). At the same time there is an urgent need to re-connect young people with the outdoors and with the immediate environment. As Richard Louv (author of Last Child in the Woods) stated: we must "save our children from nature-deficit disorder." Youth understanding of and appreciation for science, engineering, and technology, as well as a connection to the outdoors, and their capacity to utilize related knowledge, skills, and abilities in their lives presents a critical opportunity for Extension.

Response

Twenty-one students from across the state attended the Natural Resource Conservation Workshop for Arizona Youth. The workshop theme was watersheds. Teams of students incorporated what they learned during the week as they collected and analyzed data from their group projects.

Eleven youth participated in a week long Media Camp exploring digital photography in an outdoor, natural setting.

Results

NRCWAY - Students demonstrated their ability to acquire, process and interpret data through completion and presentation of watch on wetlands group projects. Sixty-six percent of participants plan to make at least one change or take action such as: conserve water, use less resources, monitor their wetlands, etc.

NRCWAY - change in participants understanding/level of knowledge on a five point scale with 5 = Excellent and 1 = Poor. (18 respondents)

	Before	After	% Increase
Understanding what a watershed is	2.94	4.05	52.8
Understanding the importance of water	4.06	4.78	17.8
Feeling connected to the natural environment	4.17	4.78	14.7
Interest in pursuing a career in natural resources	3.56	4.00	12.5
Liking nature	4.44	4.78	7.5
Enjoying the freedom of being outside	4.56	4.78	4.9
My desire to spend time outdoors	4.61	4.78	3.6
Comfort in the outdoors	4.72	4.83	2.4

Media Camp - When participants were asked "What is the most significant thing you learned?" the majority responded that they learned to take better photos. Other responses included: learned about all the settings on my camera, rule of thirds, F-stops and shutter speeds. Sixty-three percent of participants plan to make at least one change or take action such as: use settings to change my lighting and shutter speed, follow the rule of thirds, and recommend this camp to others with an interest in photography. Media Camp - change in participants understanding/level of knowledge on a five point scale with 5 = Excellent and 1 = Poor. (11 respondents)

	Before	After	% Increase
Golden triangle	1.50	4.09	173
Use of tripod	1.81	4.81	166
Macros	1.90	4.72	148
ISO, shutter speeds, aperture	1.63	4.00	145
Use of Photoshop	1.81	4.63	141
Rule of thirds	1.81	4.09	126
Rules of composition	1.81	4.00	121
Depth of field	1.90	4.00	111
Lighting	1.90	4.00	111

Leadership and Citizenship through LEAP Camp

Relevance

Across the United States, 4-H residential camping programs differ. However, outcomes of these programs show life skill development in areas such as: (1) making new friends, (2) cooperation, (3) accepting differences, (4) responsibility, and (5) teamwork (Garst & Bruce, 2003; Arnold, Bourdeau & Nagele, 2005; Garton, Miltenberger, and Pruett, 2007; Thurber, et. al., 2007). Specifically, research has shown that youth who serve as camp counselors gain skills such as leadership, responsibility, teamwork, decision making, social and group facilitation skills (Brandt & Arnold, 2006; Duncan, 2000; Garton, Miltenberger, & Pruett, 2007; Forsythe, Matysik, & Nelson, 2004; Garst & Johnson, 2005; McNeely, 2004; Duda, 2009). Leadership, Education and Adventure for Pre-Teen (LEAP) Camp invites Cochise, Santa Cruz, Graham, and Greenlee counties to two intensive counselor trainings (one in January, one in November) that take place prior to camp. Camp counselors plan, organize, and instruct the sessions at camp.

Response

- January LEAP Camp Counselor Training for 12 diverse youth from multiple counties. 20 hours.
- February LEAP Camp for 62 diverse participants from multiple counties. 48 hours.
- Creation of a Web Quest site for Leap Camp Counselor assignments: http://www.zunal.com/webquest.php?w=119533

Results

LEAP Camp Counselor Training Life Skills Assessments showed 100% of participants made gains from pre to post program. Life skills (on a four point scale, 1=low, 4=high) reported increases in leadership from 2.7 to 3.4, wise use of resources from 3 to 3.6, communication from 2.9 to 3.4, useful/marketable skills from 3 to 3.8, self-responsibility from 3.1 to 3.5, and an overall increase from 2.9 to 3.6 (24%). Life Skills Assessment results from LEAP camp revealed 88% of participants made gains from pre to post program. The four point Likert scale found that communication skills rose from 2.9 - 3.4, decision making 2.8 - 3.2, self-responsibility 3.2 - 3.7, accepting differences 3.4 - 3.7, and leadership 2.8 - 3.5. Average overall gain from 3 to 3.5 or 17%.

Through a partnership with the Cochise County Workforce Development Program, 20 youth from Benson, St. David, and Palominas were provided Covey's 7 Habits training. At the close of that workshop, youth took the Arizona Life Skills Assessment Tool. Youth reported a pre-post increase of wise use of resources from 2.6-3.4, communication from 2.5 to 3.4, leadership from 2.8 to 3.2, and self-responsibility from 3 to 3.5. Total increase from pre to post was 2.8 to 3.5 or 25%. Qualitative comments included the most important things gained were; taking responsibility for my actions, I need to make proactive decisions, and planning.

Volunteer Development

Relevance

Volunteers are the life blood of the 4-H program. It is their service that makes or breaks the 4-H experience for the youth in a club. In 2009, Arizona 4-H transitioned to "Leading Fun & Effective Meetings" training paired with the Western Region's e-learning modules to bring new leaders into county programs. At Leading Fun & Effective 4-H Meetings, a formal needs assessment or club "checkup" was used to measure the status of how clubs were implementing the four essential elements of 4-H (Mastery, Belonging, Independence, and Generosity) that are one of the six program priority areas for 4-H.

Response

- Six Leader Certification Trainings. Three hours.
- 36 Leaders Trained

Results

At the close of training, all volunteers were asked to complete a Likert scale survey. Volunteers responded and the following were measured from pre to post.

- I understand the importance of balancing business, knowledge, and fun at 4-H meetings -- 30%increase
- I understand what the four essential elements of 4-H are -- 54% increase
- I understand how to build the four essential elements of 4-H within a club program -- 62% increase
- I know how to plan a 4-H year (for club or project) -- 64% increase
- What positive effect will this training will have on your 4-H club -- 100% reported a lot or huge.

Workforce Development and Financial Literacy

Relevance

Many families are facing catastrophic financial conditions in America. Yet each year, young American's spend roughly $150 billion, even though they do not have a strong understanding of basic financial concepts, such as, savings, investments, annual percentage rates, inflation and interest (State Farm, 2007). In fact, 66% of high school seniors failed the 2004 survey on personal finance (AZ School Standards, 2005). According to Kids Count! Arizona (2006) and The Population Reference Bureau (2003), of the 1.4 million children living in Arizona, the key indicators for child well-being reports that 20% of children under the age of 18 live in high poverty situations, 34% in single parent households, 11% of teens do not attend school and do not work and 35% of Arizona children are living with parents/adults who do not have full-time employment.

Response

- Launch Into Life curriculum was submitted for peer review in February.
- Pilot test of curriculum in March, at Benson High School with 71 Freshmen. Six hours instruction
- Pilot test of curriculum in April, with Buena High School (Sierra Vista) with 23 diverse 10th-12 graders. Six hours instruction
- Pilot test of curriculum in October, with Buena High School with 37 diverse 10th-12th graders. Six hours instruction

Results

Students (131) were administered the retrospective assessment at the end of their experience. This Likert Scale survey ranks 1 as low, 4 as high. Their reponses were as follows:

Indicator	Pre-score	Post-score	% gain
Plan how to use my financial resources	2.2	3.5	57.7
Calculate state, federal and FICA taxes	1.8	3.2	77.7
Create a personal resume	1.9	3.3	75.3
Plan a budget of monthly expenses	2.0	3.1	53.0
Identify appropriate clothing for various job interviews	2.1	3.3	53.7
Identify my personality traits	2.7	3.4	53.7

Percent of participants who made gains from pre-post program were 93%.

THE POSITIVE DEVELOPMENT OF YOUTH

Report Of The Findings from the First Seven Years of the 4-H Study of Positive Youth Development

JOIN | THE REVOLUTION OF RESPONSIBILITY

Richard M. Lerner, Jacqueline V. Lerner, and Colleagues
Institute for Applied Research in Youth Development
Tufts University

SUMMARY OF KEY FINDINGS

The structured learning, encouragement and adult mentoring that young people receive through their participation in 4-H plays a vital role in helping them achieve future life successes. For nearly a decade, preeminent youth development scholar, Dr. Richard Lerner, and the team at the Institute for Applied Research in Youth Development at Tufts University have been working with faculty at land-grant universities to conduct The 4-H Study of Positive Youth Development. The 4-H Study of Positive Youth Development is a longitudinal study that began in 2002, and continues today, surveying more than 7,000 adolescents from diverse backgrounds across 44 U.S. states. The study is made possible by the contributions of our nation's land-grant universities and National 4-H Council.

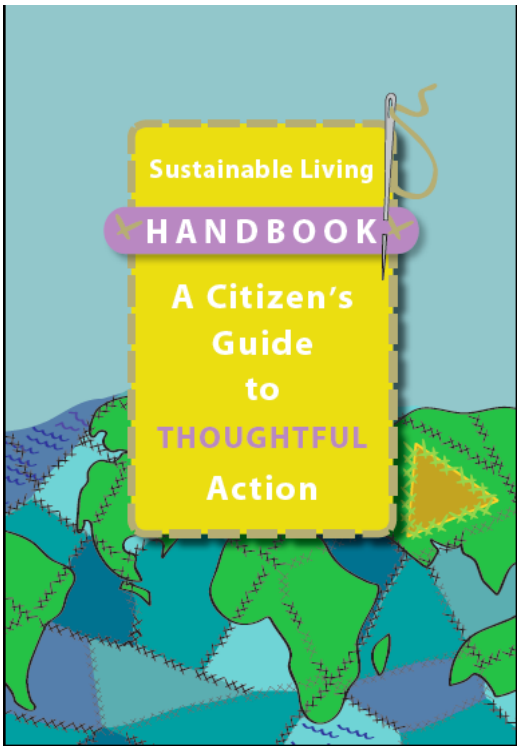
This in-depth study has discovered that, when compared to other youth, young people involved in 4-H:

- Developmental Assets: In general, 4-H youth appear to have higher levels of the developmental assets that the 4-H Study has found most important in promoting PYD: relationship with others, and in particular, caring, competent, and committed adults, such as parents, teachers, and mentors. In Grade 11, 4-H youth reported that they had more mentors than did comparison youth.
- Contribution and Active/Engaged Citizenship: In the point-in-time sample, 4-H youth are 3 times as likely as youth in other OST programs to have higher scores for Contribution, and 1.6 times as likely to have higher scores for PYD. Consistent with the results from Grades 5 to 10, we find that, through Grade 11, 4-H youth in the longitudinal sample are 2.1 times more likely than other youth to make contributions to their communities. These same youth are also 1.8 times more likely to have higher scores on measures of active and engaged citizenship.
- Education: For educational measures assessed in the point-in-time sample, 4-H participants are 1.5 times as likely as youth in other OST programs to report high academic competence and 1.7 times as likely as youth in other OST programs to report high engagement in school.
- Healthy Living: On health measures in the longitudinal analyses, 4-H participants are 1.6 times as likely as other youth to report healthy habits and 2.4 times as likely to delay sexual intercourse. They are less likely than youth in other OST programs to engage in delinquent behaviors by Grade 11.
- Science: In the longitudinal sample, 4-H participants are 1.6 times as likely as youth in other OST programs to participate in science, engineering, or computer technology programs in Grade 11. In the point-in-time sample, 4-H participants are 1.4 times as likely as youth in other OST programs to plan to pursue a career in science. Similarly, 4-H girls are 1.4 times as likely as girls in other OST programs to plan to pursue a career in science.

http://ase.tufts.edu/iaryd/documents/4HPYDStudyWave7.pdf

Land Use, Sustainable Development and Economic Development

Relevance



The Community Resource Development position was created in 2007 to help address the broader issues of rural development and impacts. The Morrison Institute for Public Policy at Arizona State University projects Arizona's population to reach over 8 million people by the year 2030. Where and how these new residents will be accommodated becomes an important issue for planners and decision makers everywhere in the Interior West. Census 2010 data shows that Arizona has grown by nearly 25% in the last decade – the second fastest growing state in the nation behind Nevada in spite of high mortgage foreclosure rates and an economic downturn, with a population of nearly 6.4 billion people. Cochise County has grown to more than 131,346 people according to the census – an 11% increase from the year 2000. Despite the increase in residents, the County still falls below the state's average median income level with a median income of just under $44,000 ($48, 711 for the state). Moreover, according to the 2010 Arizona Agricultural Statistics Bulletin, between 2007 and 2010, while the amount of land in farms has held steady, the number of farms in Arizona dropped by 100, indicating a trend of fewer farmers.

With Arizona's increasing population and loss of farmers, "business as usual" will not be sustainable in terms of land use, energy, and food production. This program incorporates education and outreach activities around the issue of sustainable development, defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs," especially as it relates to land use practices, zoning, local food systems, and renewable energy options.

Overall, the primary purpose of this program is to bring high quality information regarding land use planning, zoning, regulatory frameworks, land conservation options, economic development, sustainable design and sustainable development concepts to rural decision makers, small acreage land owners, developers, ranchers, concerned citizens, economic development interests, and school districts.

Response

The following are activities in this program that occurred in Cochise County during calendar year 2011.

- ✓ Conducted Living on the Land workshop for small acreage land owners in Willcox.
- ✓ Conducted training for Cochise County Planning Commissioners on reviewing master development plans.
- ✓ Presented local planning Internet resources to local realtors in Sunsites.
- ✓ Conducted Placemaking workshop with Benson City Council and Planning Commissioners.
- ✓ Collaborated with UA School of Planning and Landscape Architecture to develop a GIS-based land use suitability analysis tool for the installation of utility-scaled solar facilities. An analysis was conducted for 2500 acre industrial-zoned portion of Whetstone Ranch near Benson to determine the best sites for solar facilities on the property.

- ✓ Working with the National Network of Sustainable Living Educators (NNSLE), Cochise County Extension co-authored the *Sustainable Living Handbook – A Citizen's Guide to Thoughtful Action.* This book goes in tandem with an online course also developed in 2011 around this topic for anyone interested learning about the fundamentals of sustainability. Both the book and online course are available for free to the public and decision-makers in Cochise County via the internet.
- ✓ Cochise County Extension was recruited by the Arizona Commerce Authority to join a committee to review 75 Rural Development Grant proposals. $2 million in grants were awarded to approximately 23 applicants, two of which were located in Cochise County.
- ✓ Cochise County Extension took the lead with the Arizona Planning Association in 2011 to adapt an online professional development course for planning commissioners, in the absence of any state support for planning jurisdictions. The course will be launched in 2012 for planning commissioners across the state.

Results

Approximately 40 people participated in this agent's Extension-initiated workshops in Cochise County in 2011. Overall evaluations show 100% of respondents intend to use/pursue at least one idea they learned from their workshop indicating an intention to change behavior. In addition, evaluations results indicate a positive response to the workshops while demonstrating a tangible increase in knowledge as a result of attending. For example, City of Benson planning officials are using principles from the Placemaking workshop in their public forums pertaining to updating their General Plan, while Cochise County Planning Commissioners are better informed and trained to handle complex master development plan proposals. Small acreage land owners that participated in the workshop indicate an intent to develop better goals for their properties and inventory their assets. More importantly, others indicated an intent to check with county planning officials before developing their property.

The solar analysis conducted on Whetstone Ranch provided the developer and the city a more focused approach to siting solar facilities. The city council recently approved the developer's request for a conditional use permit to develop a solar farm on this property.