20th Annual
Summer Agricultural Institute
June 14 - 18, 2010
The Summer Agricultural Institute is a program of the University of Arizona Cooperative Extension, Maricopa County.

It is funded by the Arizona Foundation for Agricultural Literacy through generous donations from individual members and organizations:

**Sponsors**

A Tumbling T Ranches - Don Rayner  
Arizona Agricultural Aviation Association  
Arizona Farm Bureau Federation  
Arizona Grain Research and Promotion Council  
Arizona Milk Producers  
Booth Machinery - Harold Maxwell  
Buckeye Valley NRCD - Dick Napapolitano  
Coconino County Farm Bureau - Brooks Cameron  
Duncan Family Farms, LLC - Kathleen & Arnott Duncan  
Ecologic Solutions - Linda Dee Diamontides  
Elgin-Sonoita Cowbelles  
Farm Credit Services Southwest  
Gila Bend NRCD - Tyson Stuhr  
Green Valley Pecans - Deborah Ralls  
Helena Chemical - Marvin John  
Lakin Cattle Company - Chuck and Maxine Lakin  
Maricopa County Farm Bureau  
MK Farms - Michael Brooks  
Roy & Kathleen Moore  
Monica and Chris Pastor  
Pinal County Farm Bureau  
Eugene Sander  
George & Barbara Seperich  
R & S Farms - Rick & Sherry Saylor  
Santa Cruz Cowbelles  
Water Conservation Management Program  
Wellton-Mohawk Valley NRCD - David Sharp  
Stephen Williams

**In Kind Sponsors**

Arizona Beef Council  
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Arizona Farm Bureau  
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Arizona Machinery  
Arizona Milk Producers  
Arizona State Cowbelles, Inc.  
Ash Creek Ranch  
Dairy Council of Arizona  
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Farm Family Hosts  
Gila River Indian Community  
Granite Creek Vineyard  
Groseta Ranch  
Hauser & Hauser Farms, Inc.  
Hidden Springs Ranch  
Maricopa County Farm Bureau  
Mingus Union High School  
Mortimer Nursery  
Pinal Feeding  
Rousseau Farming Co.  
Summer Place Pecan Farm  
Triple G Dairy  
U of A Cooperative Extension, Maricopa County  
U of A Maricopa Agriculture Center  
USDA Arid Lands Research Center  
V Bar V Ranch: U of A Agricultural Experiment Station  
Wojcik Family  
Yavapai County Cowbelles
Arizona Grown

An agriculture commodity is something grown on a farm or a ranch. Milk, oranges, beef and cotton are agriculture commodities. This map shows all the major commodities grown in Arizona’s 15 counties. There are 7,500 farms in our state.

Source: 2001 Arizona Agricultural Statistics Bulletin
www.nass.usda.gov/az/
Monday, June 14 (Victor Jimenez and Erin Taylor)

7:00 am
Registration/continental breakfast
Hosted by Dairy Council® of Arizona
UA Cooperative Extension, Maricopa County
4341 E. Broadway, Phoenix, AZ 85040
http://extension.arizona.edu/maricopa

7:30
Welcome / Introductions / Ag Quiz

8:15
Depart

9:00
U of A Maricopa Agriculture Center
37860 Smith-Enke Rd., Maricopa, AZ 85238
www.cals.arizona.edu/aes/mac

Welcome – Victor Jimenez

9:15
Insect Management & Collection – Erin Taylor

10:00
Siphon Tube Experience – Victor Jimenez

10:45
Addressing Misconceptions about Agriculture
Jeannette Fish, Maricopa County Farm Bureau

11:30
Lunch - Hosted by Arizona Foundation for Agricultural Literacy (AFAL)
Gila River Community Project – Sonny Nieto

12:40 pm
Insect Science (Group A) – Al Fournier & Virginia Barkley
Pollination Science (Group B) – Kelly Young & Erin Taylor

1:10
Insect Science (Group B) – Al Fournier & Virginia Barkley
Pollination Science (Group A) – Kelly Young & Erin Taylor

2:00
MAC Ag-Ventures & Ag Jeopardy – Victor Jimenez

2:30
Tour USDA Arid Lands Research Center – Bert Clemmens

3:15
Depart

3:30
Pinal Feeding – cattle feedlot
Norm Heinz
38351 W. Cowtown Rd., Maricopa, AZ 85138
www.pinalfeeding.com

4:30
Depart

5:30
Dinner – Applebee’s

6:30
Depart

8:00
Check into hotel – Best Western Rancho Grande
293 E. Wickenburg Way, Wickenburg, AZ 85390
Monday Map
Tuesday, June 15  (Marge Martin, Peggy Jo Goodfellow, & Karol Brill)

6:00 am  Depart

6:15  A  Breakfast on bus – Hosted by Wojcik Family

8:00  B  Hidden Springs Ranch – Equine training

Brett Hone
18701 Hwy 89, Peeples, AZ
Mailing address: PO Box 68, Yarnell, AZ 85362-0068
www.thehiddensprings.net

9:30  Depart

10:30  C  Mortimer Nursery – Commercial and residential landscaping

Sharla Mortimer
3166 Willow Creek Rd., Prescott, AZ 86305
www.mortimer-nursery.com

10:45  Depart
Sharla Mortimer will join us on the bus to discuss ranching.

11:15  D  Granite Creek Vineyard

Kit Hoult
1145 E. Granite Creek Lane, Chino Valley, AZ 86323
www.granitecreekvineyards.com

12:15  Lunch – Hosted by Yavapai County Cowbelles

1:30  Depart

2:30  E  Ash Creek Ranch – Alfalfa

Gary and Sharla Mortimer
3700 S Old Cherry Rd, Dewey, AZ 86327
www.ashcreekranches.com

3:00  Host Family Pick-up – location will vary based on farm family location

Ash Creek Ranch
Comfort Inn – 340 N. Goswick Way, Camp Verde, AZ 86322
The 2010 Summer Ag Institute would like to thank all the families who hosted teachers and gave them an opportunity to experience a taste of real life in the agricultural community.

Trudy Brikemeyer
Buzz & Patty Fournier
Jon & Marywade Gilbert
Gretchen Groseta
Roberta Halford
John & Veronica Kennedy
Gary & Sharla Mortimer
Mary Helen Ortlieb
Irene Rezzonico
Lu & Dave Statler
Tomas & Lora Teskey
**Wednesday, June 16 (Carrie Robbs and Karol Brill)**

8:30 am  
**Meet at Comfort Inn**  
340 N. Goswick Way, Camp Verde, AZ 86322

9:00  
Depart

9:30  
**Hauser & Hauser Farms, Inc.** – Sweet corn, alfalfa, stack retrievers  
Kevin Hauser  
652 Montezuma Castle Highway, Camp Verde, AZ 86322  
www.hauserandhauserfarms.com (pg 37)

10:30  
Depart

10:45  
**Summer Place Pecan Farm** – Shelled, unshelled, flavored pecans  
Dr. Richard Tinlin  
213 Quarterhorse Lane, Camp Verde, AZ 86322  
www.summerplacepecanfarm.com (pg 44)

11:30  
Lunch – Hosted by **Association for Agricultural Literacy**

12:15  
Depart

12:45 pm  
**V Bar V Ranch** – U of A Agricultural Experiment Station  
Dave Schafer  
Forest 121 Rd, Rimrock, AZ 86335  
www.cals.arizona.edu/aes/vbarv (pg 48)

2:00  
Depart

2:30  
**Mingus Union High School** – School Garden  
FFA Member  
1801 E. Fir Street, Cottonwood, Arizona 86326 (pg 41)

3:45  
Depart

4:00  
**Groseta Ranch** – Cattle ranching  
Andy and Mary Beth Groseta  
25 S. Mingus View Dr., Cottonwood, AZ 86326  
www.wdartranch.com (pg 36)

4:45  
**Activities Development Session** – Monica Pastor

6:00  
Dinner **Hosted by Groseta Ranch**

6:15  
**Future Farmers of America (FFA) Presentation** –  
Past and present AZ-FFA officers

8:00  
Depart

9:45  
**Check into hotel** – La Quinta Inn  
2510 W Greenway Rd, Phoenix, AZ
Wednesday Map
Thursday, June 17 (Jeannette Fish)

7:30 am  

A  Breakfast at hotel

8:30  

Depart

9:00  

B  Rousseau Farming Co. – Specialty crop: melons  (pg 43)

Will Rousseau
Cotton Lane and Indian School, Buckeye
P.O. Box 100, Tolleson, AZ 85353

9:45  

Depart

10:30  

C  Triple G Dairy – Modern dairy production  (pg 45)

Ben and Conrad Gingg
29115 W Broadway Rd, Buckeye, AZ 85326

12:00 pm  

Depart

12:15  

D  Lunch – La Placita

Hosted by Arizona Foundation for Agricultural Literacy

1:30  

Depart

1:45  

E  Arizona Machinery – Farm machinery, GPS demo, drive tractor  (pg 30)

Glay Staheli
225 N. First St., Buckeye 85326
www.arizonamachinery.com

2:45  

Depart

3:15  

F  Return to hotel to prepare for banquet

5:15  

Depart

6:00  

G  Twentieth Annual Summer Agricultural Institute
Sponsor’s Appreciation Banquet  (pg 33)

Ben Avery Activity Center
4044 W Black Canyon Blvd, Phoenix, AZ 85086

8:00  

H  Return to hotel – La Quinta Inn

2510 W Greenway Rd, Phoenix, AZ
Thursday Map
*** NOTES ***

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6:30 am  **Breakfast** at hotel, and checkout

7:30  **Depart**

8:30  **Curriculum Incorporation Session**
*Monica Pastor, U of A AG Literacy Program*
UA Cooperative Extension, Maricopa County
4341 E. Broadway, Phoenix, AZ 85040
www.cals.arizona.edu/agliteracy  (pg 46)

11:30  **Arizona Department of Agriculture** presentation
*Ed Foster, Associate Director*
www.azda.gov  (pg 27)

12:00 pm  **Lunch and Organizational Displays**
*Hosted by Arizona Milk Producers*  (pg 34)

1:30  **Wrap up / Evaluation / Discussion**

2:30  **Adjourn**
<table>
<thead>
<tr>
<th>Organization</th>
<th>Contact Person</th>
<th>Contact Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona Beef Council</td>
<td>Carrie Robbs</td>
<td><a href="http://www.arizonabee.org">www.arizonabee.org</a> 602-273-7163</td>
</tr>
<tr>
<td></td>
<td>Lauren Scheller</td>
<td></td>
</tr>
<tr>
<td>Arizona Farm Bureau Federation</td>
<td>Peggy Jo Goodfellow</td>
<td><a href="http://www.azfb.org">www.azfb.org</a></td>
</tr>
<tr>
<td></td>
<td>Katie Aikins</td>
<td><a href="mailto:peggyjogoodfellow@azfb.org">peggyjogoodfellow@azfb.org</a> 480-635-3609</td>
</tr>
<tr>
<td>Arizona Statewide Gleaning Program</td>
<td>Jami Kakinuma</td>
<td><a href="mailto:jami@azfoodbanks.org">jami@azfoodbanks.org</a> 602-528-0740</td>
</tr>
<tr>
<td>Central Arizona Project</td>
<td>Bob Navigato</td>
<td><a href="mailto:bnavigato@cap-az.com">bnavigato@cap-az.com</a> 623-869-2134</td>
</tr>
<tr>
<td>Dairy Council of Arizona</td>
<td>Colleen Bergum</td>
<td><a href="http://www.dairycouncilofaz.org">www.dairycouncilofaz.org</a> 480-966-7211</td>
</tr>
<tr>
<td></td>
<td>Terri Verason</td>
<td></td>
</tr>
<tr>
<td>Dutchview Dairy</td>
<td>Melissa &amp; Jason VanHofwegen</td>
<td><a href="mailto:dutchviewdairy@gmail.com">dutchviewdairy@gmail.com</a> 602-799-1714</td>
</tr>
<tr>
<td>Everlasting Marks</td>
<td>Jaime Collins</td>
<td><a href="http://www.everlastingmarks.org">www.everlastingmarks.org</a> 480-231-3988</td>
</tr>
<tr>
<td></td>
<td>Linda Dee Diamantes</td>
<td><a href="mailto:collins@everlastingmarks.org">collins@everlastingmarks.org</a></td>
</tr>
<tr>
<td>Maricopa County Farm Bureau</td>
<td>Jeannette Fish</td>
<td><a href="mailto:mcfb@questoffice.net">mcfb@questoffice.net</a> 602-437-1330</td>
</tr>
<tr>
<td></td>
<td>Sherri Jepsen</td>
<td></td>
</tr>
<tr>
<td>The Phoenix Zoo Education Programs</td>
<td>Gabby Herbert</td>
<td><a href="http://www.phoenixzoo.org">www.phoenixzoo.org</a> 602-286-3822</td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="mailto:gherbert@thephxzoo.com">gherbert@thephxzoo.com</a></td>
</tr>
<tr>
<td>Shamrock Farms</td>
<td>Diana Ritlenhouse</td>
<td><a href="mailto:lindsey_delladonna@shamrockfoods.com">lindsey_delladonna@shamrockfoods.com</a> 602-477-2438</td>
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<tr>
<td></td>
<td>Lindsey DellaDonna</td>
<td></td>
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<tr>
<td>Superstition Farm</td>
<td>Melrose</td>
<td><a href="http://www.superstitionfarm.com">www.superstitionfarm.com</a> 480-648-6128</td>
</tr>
<tr>
<td>UA Cooperative Extension Water</td>
<td>Pam Justice</td>
<td><a href="mailto:pjustice@ag.arizona.edu">pjustice@ag.arizona.edu</a></td>
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<tr>
<td>Resources Program</td>
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<tr>
<td>USDA/NASS</td>
<td>Sharon Ricart</td>
<td><a href="mailto:Sharon_ricart@nass.usda.gov">Sharon_ricart@nass.usda.gov</a> 602-280-8850</td>
</tr>
<tr>
<td></td>
<td>Dave DeWalt</td>
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Changes Over Time 2002 - 2007

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<th>2007</th>
<th>2002</th>
<th>% change</th>
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</thead>
<tbody>
<tr>
<td>Number of Farms</td>
<td>15,637</td>
<td>7,295</td>
<td>+ 114%</td>
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<tr>
<td>Land in Farms (acres)</td>
<td>26,117,899</td>
<td>26,586,577</td>
<td>-2%</td>
</tr>
<tr>
<td>Average Size of Farm</td>
<td>1670 acres</td>
<td>3645 acres</td>
<td>-54%</td>
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<tr>
<td>Market Value of Production</td>
<td>$3,234,552,000</td>
<td>$2,395,447,000</td>
<td>+35%</td>
</tr>
<tr>
<td>Crop sales</td>
<td>$1,913,014,000 (59%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Sales</td>
<td>$1,321,538,000 (41%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Per Farm</td>
<td>$206,852</td>
<td>$328,413</td>
<td>-37%</td>
</tr>
</tbody>
</table>

Total Cash Receipts $3,554,537,000
Value of Crop Production $1,935,613,000

Livestock Inventory

- Cattle and Calves – All (Jan 1, 2010) 930,000
- Hogs and Pigs – All (Dec 1, 2009) 167,000
- Sheep (Jan 1, 2010) 160,000

Milk

- Milk Cows (Average head) 177,000
- Milk Production per Cow (lbs) 23,028
- Production (lbs) 4,076,000,000

Value of Livestock Production $1,527,272,000

Total Value of Agricultural Sector Production $4,063,701,000

Vegetable & Melon Harvested Acres 2006-2007

- Watermelon
- Cantaloupe
- Head Lettuce
- Romaine
- Broccoli
- Spinach
- Cabbage
- Onions
- Chile Peppers
- Cauliflower
- Potatoes
- Leaf Lettuce
- Honeydew

Farms by Size

- Pasture
- Other uses

Land in Farms by Type of Land

- Pasture
- Other uses
Arizona Beef Council

Who We Are
Congress created the Beef Promotion and Research Act, the “Beef Checkoff Program,” with passage of the 1985 Farm Bill. Producers approved making the Beef Checkoff Program mandatory in 1988, with 79 percent voting in favor of it.

Producers asked that the checkoff program be built on these tenets:
All producers and importers pay the same $1-per-head.
One-half of the money collected by state beef councils—50 cents of every dollar—is invested through the beef council in each state.
All national checkoff-funded programs are budgeted and evaluated by the Cattlemen’s Beef Board, an independent organization of 104 checkoff-paying volunteers.
Beef Board members are nominated by fellow state producers and appointed by the U.S. Secretary of Agriculture.

The beef checkoff acts as a catalyst for change. The checkoff doesn’t own cattle, packing plants or retail outlets. It can’t control prices or single-handedly turn around a bad market. The Beef Checkoff Program was designed to stimulate consumers to buy more beef. This is accomplished through a combination of initiatives including consumer advertising, research, public relations, education and new product development.

Resources for Teachers
The Arizona Beef Council provides materials for classroom, presentations and ranch tours all for FREE! Visit www.arizonabeef.org for more information.


Other checkoff funded websites that would be helpful are:
www.beefitswhatsfordinner.com - Helpful cooking tips and recipes
www.beeffrompasturetoplate.org - Explains the story, environmental and economics of beef
www.beefnutrition.org - All the nutrition information you need
www.nationalbeefambassador.org - Opportunity for students to become ambassadors for beef
www.zip4tweens.com - Helps kids & their families find a balanced approach to a healthier lifestyle

For more education questions or requests contact Carrie Robbs at 602-273-7163 or crobbs@arizonabeef.org
Arizona Department of Agriculture

The Arizona Department of Agriculture is a cabinet-level statewide agency with 263 employees and an annual budget of more than $22 million. Our goal is to regulate and support Arizona agriculture in a manner that encourages farming, ranching, and agribusiness while protecting consumers and natural resources. The agency consists of three main divisions: Animal Services, Environmental Services, Plant Services

The Department also includes a State Agricultural Laboratory; a Citrus, Fruit and Vegetable Standardization and Fresh Produce Grade Inspection program; and an Agricultural Consultation and Training program.

**Plant Services Division** - Protecting Arizona's native plants.
Ensure the public and the agriculture industry that dangerous plant infestations prevented or readily controlled. (Such pests include: gypsy moth, Mediterranean fruit fly, and imported fire ant, among others.)

**Animal Services Division**
We protect consumers from contagious and infectious disease in livestock, poultry, commercially raised fish, meat, milk, and eggs. We do this by enforcing laws concerning the movement, sale, importation, transport, slaughter, and theft of livestock. In addition, we conducting food quality and safety inspections of milk and meat products produced and processed in Arizona, and of egg and egg products produced in, or imported to, Arizona.

**Environmental Services Division**
Register and licensing feed, fertilizer, seed and pesticide companies or products in accordance with federal and state laws; Sampling for product quality to help protect the consumer; Enforce pesticide use compliance to ensure established buffer zones are adhered to, environmental concerns are met, and people are protected; Train and certify pesticide applicators and advisors. This includes the Worker Safety program, which is responsible for preventing or limiting farm workers exposure to pesticides.

**Citrus, Fruit and Vegetable Standardization**
The Citrus, Fruit, and Vegetable Standardization program monitors and enforces the quality standards for all fresh fruit and vegetables produced and marketed in Arizona. Citrus, Fruit, and Vegetable Standardization continues to support the state-wide gleaning program -- a collection of wholesome food for distribution to the poor and hungry. This program gathered and distributed over 40.3 million pounds of produce in FY 2009.

**Agricultural Consultation and Training**
The Agricultural Consultation and Training (ACT) Program is an innovative compliance assistance program unique to an agricultural regulatory agency. This program embraces the ADA’s goal of encouraging farming, ranching and agribusiness, while protecting consumers and natural resources by utilizing a non-enforcement approach. ACT is not affiliated with any of ADA’s enforcement programs, allowing staff members to provide a formal means by which the regulated agricultural community may request compliance assistance without regulatory intervention. ACT serves Arizona’s diverse agricultural community through the following compliance assistance and education programs: Pesticide Safety, Air Quality, and Agricultural Conservation Education.

ACT also houses the Livestock & Crop Conservation Grant Program, Specialty Crop Block Grant Program, AZ Citrus Research Council, AZ Iceberg Lettuce Research Council, AZ Grain Research and Promotion Council, Agricultural Employment Relations Board, and the AZ Agricultural Protection Commission

**State Agricultural Laboratory**
We provide quality agricultural and environmental laboratory analysis, identification, certification and training services to various regulatory divisions of the Department and others as provided by law. To accomplish this mission, we are divided into Biology and Chemistry.
FFA

The National FFA Organization was organized as the "Future Farmers of America" in 1928 in Kansas City, Missouri. In 1988, the official name of the organization was changed to The National FFA Organization to reflect the broadening field of agriculture, which today encompasses more than 300 careers in everything from agri-science to biotechnology to turf grass management.

FFA operates on local, state and national levels. Student members belong to chapters organized at the local school level. Agricultural education instructors serve as chapter advisors. Chapters are organized under state associations headed by an advisor and executive secretary, often employees of the state department of education. States conduct programs and host annual conventions.

Through active participation in the FFA, members learn by taking part in and conducting meetings, speaking in public, participating in contest based on occupational skills, earning awards and recognition and becoming involved in cooperative efforts and community improvement. The FFA offers opportunities for becoming productive citizens in our democracy.

FFA members believe in leadership, citizenship, and patriotism. They believe in free enterprise—freedom under the law—in making their homes, schools, and communities’ better places in which to live and work.

Members participate in regular chapter meetings, present motions, debate issues, and take part in decision making. They work hard, but they also play hard, as recreation is also a part of each year’s program of activities.
Arizona Farm Bureau

Arizona Farm Bureau is a grassroots organization dedicated to preserving and improving the Agriculture industry through member involvement in education, political activities, programs and services. The Arizona Farm Bureau is Arizona’s largest farm and ranch organization with membership that represents production agriculture throughout the state of Arizona.

Farm Bureau’s purpose is to be an, independent, non-governmental grassroots organization that analyzes problems and formulates action to achieve educational improvement, economic opportunity, and social advancement in order to promote the financial and overall well being of agriculture and our members. We are the "Voice of Agriculture in Arizona."

As the agriculture industry faces new challenges in the future, Farm Bureau will be there to assist our members in meeting those challenges. We will be involved in lobbying on county, state and national issues. We will be there to discuss issues of profitability, property rights, labor, water, trade, farm policy, tax issues, environmental issues and much more. We will also continue to offer value to our members by providing products and services to our members.

We reach out to the public in many ways, to teach them that their food, fiber and ornamentals come from farms and ranches, not from the store. Activities to promote agriculture to the public and the schools are also a focal point of the Farm Bureau.

**Ag in the Classroom**
The Arizona Farm Bureau Ag in the Classroom program strives to develop and implement curriculum and programs that are aligned to the state learning standards (AIMS) to help students and teachers be successful, while increasing agricultural awareness in K-6 classrooms and beyond.

**Free Resources for Teachers** - You take the kits or we come to your classroom
- Curriculum Kits
- Farmer/Rancher Pen Pals
- Classroom presentations
- School Field Trips
- Ag Lending Library
- Informational websites

**Online Product Directory**
Arizona Farm Bureau’s Fill Your Plate is an on-line direct market product directory. From apples to zucchini, and everything in between, Arizona’s farmers and ranchers will fill you up with the best knowledge of where your Arizona food comes from. Find locally grown products at www.fillyourplate.org.

Farm Bureau is local, county, state, national, and international in its scope and influence, and is non-partisan, non-sectarian, and non-secret in character. We are supported by dues-paying members, and we offer a myriad of services, discounts and benefits to our members.

Arizona has 13 active county Farm Bureaus covering all 15 counties. These are the basis of our grassroots organization. Each county Farm Bureau is an independent entity governed by local farmer and rancher volunteer leaders. All ideas, solutions, and leadership come from the members of the county Farm Bureau.

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Arizona Farm Bureau, 325 S. Higley, Road, Suite 210, Gilbert, AZ 85296
www.azfb.org
Arizona Machinery Co.

Arizona Machinery Co. is a family-owned business that has been serving customers in Arizona for over 60 years. Our success flows from our dedication to providing the ultimate in service after the sale.

We are proud to carry the following lines of John Deere equipment: agricultural, golf and sports turf, commercial mowing, utility vehicles and residential lawn & garden. In addition, we offer unmatched parts availability plus a staff of factory-trained technicians that are ready to work on virtually any machine you need fixed.

If you own equipment and don’t have the time or expertise to properly maintain it, let us structure a maintenance program to suit your needs. Our field service technician will travel to your location to service your equipment as often, or as sparingly, as you select.

With three locations to serve you in Maricopa County, we encourage you to stop by and see what we have to offer.

We offer a full line of agricultural equipment including:

- **Tractors**
- **Material Handling**
- **Combines**
- **Cutters and Shredders**
- **Cotton Harvesting**
- **Scrapers**
- **Hay and Forage**
- **Gator Utility Vehicles**
- **Sprayers**
- **Engines**
- **Planting and Seeding**
- **Ag Management Solutions**
- **Tillage**
- **Home and Workshop Products**
Arizona State Cowbelles, Inc.

The Arizona State Cowbelles is a unified, professional organization made up of generations of Arizona women playing a vital role in the state’s cattle industry. The organization got its start in 1939 when a group of ranchers’ wives in the Douglas area formed a social club to cement good will and friendship among the wives and mothers of cattlemen in southeast Cochise County. The women named their organization “The Cowbelles.” The club immediately began doing charitable work.

Word of the unique organization spread quickly. The Wyoming State Cowbelles was formed in 1940. Texas women also asked permission to organize their own state Cowbelles. The Arizona State Cowbelles was formally organized in January, 1947, during the annual convention of the American National Cattlemen’s Association in Phoenix. Mattie Cowan, president of the original Cowbelles in Douglas, was elected the first state president. A total of 16 local Cowbelles groups have been organized around the state.

Over the years, the Cowbelles have turned their primary focus to beef promotion and public education about the nutritional value of beef and the lifestyle of ranch families. Arizona Cowbelles work hand in hand with the Arizona Beef Council to bring the message of ranching and the beef industry to their local schools, communities, and businesses.

Find out more about the Cowbelles’ Scholarship Program.

Find out how to contact the Cowbelles’ Officers and Local Presidents.
Ash Creek Ranch

Ash Creek Ranch was homesteaded by two families in 1880. They chose this beautiful land for the fertile farm land, plentiful forage, mild climate, and free-flowing irrigation water from Ash Creek and Mulberry Spring. They maximized the natural resources by building rock homes, rock fences and gravity flow irrigation ditches. Their original production of forage crops, corn, vegetables and cattle supported the families for many years.

Throughout the years other families have followed the example of the original homesteaders by continuing to maximize the use of natural resources and by being excellent stewards of the land. These families continued to raise cattle and farm irrigated grass pastures.

At Ash Creek Ranch we raise Black Angus Cattle. These cattle are selected for their genetics, performance, and beef quality. Our cattle are born and raised on the ranch. They are with the cows for the first six to nine months. At Ash Creek Ranch, all the cattle are fed premium forage and grain without animal by-products or man made food sources.

When the calves are weaned, the milk they were receiving is replaced by additional forage. When the calves weigh between 750-800 pounds they are given a high corn diet. This continues for 120-140 days to finish the cattle to our extremely high standard. The cattle are never given any antibiotic or hormones during this process.

At harvest we process our beef at an Arizona state certified inspection facility. We dry age Ash Creek Beef 14-21 days for maximum flavor. Our beef is then cut, packaged, and frozen - ready for families around Arizona.

At Ash Creek Ranch we are continually improving the genetic traits of our cattle. What does this mean to you? Continued improved quality and younger finishing age means: lean, more flavorful, and tender beef. This also provides us with a healthy herd, ranch raised, homegrown calves, and premium 100% natural beef.

Since 2003 our family has been able to call Ash Creek Ranch home. We love raising our family while being stewards of the land, and exploring these diverse and beautiful lands. We continue the work of the families before: continuing agriculture in Arizona, protecting the land, conserving water, and raising premium quality beef. We believe by caring for our environment we will be able to continue this legacy for many years to come.
Ben Avery Activity Center

Arizona Game and Fish Department is a multi-faceted agency covering a wide range of topics including hunting and fishing, outdoor recreation, wildlife, conservation and educational programming. The Arizona Game and Fish Department’s mission is to conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.

The Department offers a variety of information and educational products to meet your needs. Arizona Wildlife Views television show covers a variety of outdoor topics on local channels throughout the state. The magazine version of Arizona Wildlife Views provides in-depth articles on a bi-monthly basis for outdoor enthusiasts. In addition, numerous books and publications are available to guide and inform you about wildlife and outdoor activities. The Arizona Game and Fish Department sponsors a variety of hands-on, certified department instructor lead courses, including boating, sport fishing, off highway vehicle safety, archery, hunting and shooting educational programs, many of which are available online.

Conservation is also an important function of the Arizona Game and Fish Department. Wildlife and conservation are both integral parts of Arizona's natural heritage. Find the latest information on conservation and management programs, research efforts, and nongame species information on our website. In addition, Arizona's natural heritage program and special permits information is available for your project and research needs.

Ben Avery Shooting Facility is one of the largest public-operated recreational shooting facilities in the country. The facility is a world-class shooting venue, with a 5-star rating from the National Association of Shooting Ranges, and designated as a City of Phoenix Point of Pride. The range is owned by the Arizona Game and Fish Commission and operated by the Department. While shooting facilities provide a safe environment to practice for the upcoming season, they also provide a safe and friendly environment for shooting competitions and events.

**LEARN TO SHOOT: SAFETY, PROGRAMS AND LEAGUES**

Whether you're a beginner or seasoned shooting sports enthusiast, the Ben Avery Shooting Facility has several fun programs available to suit your interest. Examples of programs include:

- Hunter (firearm) education
- Archery education
- Ladies shooting classes: shotgun, handgun and rifle (Desert Roses & Annie Oakley)
- Youth shotgun program (SCTP)
- Shooting leagues: rimfire rifle, archery, shotgun and air gun
- Registered clay target shoots (Trap, skeet and sporting clays)

**ARIZONA GAME AND FISH DEPARTMENT**

Managing today for wildlife tomorrow

www.azgfd.gov

Ben Avery Activity Center. 4044 W. Black Canyon Blvd., Phoenix, Arizona 85086

www.azgfd.gov/outdoor_recreation/ben_avery.shtml
Dairy Council® of Arizona
Arizona Milk Producers

Dairy Council® of Arizona is a nonprofit nutrition education organization supported by Arizona’s milk producers and is an affiliated unit of National Dairy Council®. We strive to provide you with the latest in nutrition research and educational materials to help make your job easier. We offer a wide range of scientifically based education materials for all age groups, from pre-school through adult audiences. As a leader in nutrition education services in Arizona, we provide information on current nutrition issues such as calcium needs, osteoporosis, hypertension, weight management, lactose intolerance, dental health, and general nutrition. All Dairy Council of Arizona nutrition education materials are based on the MyPyramid Food Guidance System. Some of our materials are also available in Spanish.

No school wellness policy can be complete without incorporating nutrition education into the plan. Dairy Council of Arizona provides nutrition curriculum packages for several grade levels, as well as other nutrition education materials you can use to help you implement the best wellness policy you can. Dairy Council of Arizona is proud to provide these award winning, age-specific nutrition education materials throughout the state at no charge.

Arizona Milk Producers is the advertising and promotion arm of the organization, dedicated to promoting the benefits of milk and dairy foods to consumers. One aspect of this promotion is to highlight the importance of agriculture in the state and how dairy farmers care for their land and animals.

Arizona’s dairy farmers are committed to providing you and your family with wholesome milk and dairy products. This commitment starts on the farm with top-notch animal care and extends across the supply chain -- from the milk tanker trucks to the processing plant to the grocery store -- to ensure that the dairy foods you enjoy each day are as wholesome and pure as nature intended.

Most dairies are family-owned, and as active members of their communities, farm families take pride in maintaining natural resources. That means preserving the land where they live and work, protecting the air and water they share with neighbors, and providing the best care for their cows—the lifeblood of their business.
Granite Creek Vineyard

Multiple Award Winning Granite Creek Vineyards is a family owned and operated vineyard and winery located at 4,600 feet in the town of Chino Valley, Arizona. Nestled in a unique northern Arizona valley, the vineyards are surrounded by rugged granite peaks and high elevation rolling prairie. Vines bask in the intense sunshine this fabulous microclimate provides, with hot days and cool nights lasting late into the fall. These perfect ripening conditions combined with organically farmed granite soil and pure well water develop truly delicious fruit.

The Vineyard was established in 1974 by the Hoult Family on a historic farmstead. The first farm in Arizona to be Certified Organic, Granite Creek Vineyards today is one of only a handful of wineries in the United States that makes 100% Certified Organic Wines without any added sulfites.

Granite Creek Vineyards, Mailing Address: 1145 E Granite Creek Lane, Chino Valley, AZ 86323
Physical Address: 2515 Road 1 East, Chino Valley, AZ 86323
www.granitecreekvineyards.com
Groseta Ranches

Groseta Ranches was started in 1922 by Peter Groseta, Sr. in Middle Verde, Arizona. Over the past 87 years, the original 25-cow ranch has grown into a 400 cow-calf operation that is run by Andy Groseta and his son, Paul. Currently, the third, fourth & fifth generations live at the ranch headquarters, located on the banks of the Verde River in Cottonwood, Arizona. Cottonwood is 20 miles southwest of Sedona and 100 miles north of Phoenix.

Cattle on the ranch are branded with the W Dart brand which was acquired when Pete Groseta, Jr. purchased the W Dart cow outfit from the Fain family in 1948.

The ranch consists of approximately 40 sections of deeded, private leases, state trust and Forest Service lands. A set of commercial crossbred cows consisting primarily of Angus, Hereford and Charolais cows runs on these 40 sections. In addition to these cattle, a small herd of Maine, Chianina, Angus crossbred cows are kept on irrigated pasture at the ranch headquarters and are used to produce a select number of club calves for local 4-H and FFA members.

Land Management Practices

The ranch uses a deferred rotation grazing management system. Cattle are rotated through pastures allowing a minimum of one growing season (12 months) of rest. This practice promotes healthy rangelands for the cattle and wildlife. The ranch has approximately 20 miles of pipeline to provide water to both cattle and wildlife. Water is provided by wells, springs, dirt tanks and the Verde River. At the ranch headquarters we have irrigated permanent pastures where the ranch horses are kept. Irrigation water is provided to the headquarters from the Cottonwood Ditch Association (CDA). The CDA has senior water rights on the Verde River with the first water rights being recorded on December 10, 1877.

Ranch Management Practices

Cows calve in the spring, and are weaned and sold in the fall or held over and sold the following spring; this depends on forage conditions. The top heifers are kept as replacement heifers, bred by natural service and calve as first-calf heifers at the headquarters before being mixed in with the rest of the herd on the ranch. Despite the many challenges facing the cattle industry, Groseta Ranches continually strives to improve the quality of cattle produced, while remaining a good steward of the lands the cattle are produced on. With our large land base, our program revolves around functional, easy going, low maintenance cattle. A keen eye is kept on market demand in order to stay in tune with the trends of today’s consumers. This diligence in selection and continual improvement helps us meet the needs of commercial producing beef for today's consumer.
Hauser and Hauser

The Hauser family has been farming for six generations. Dick and Kevin Hauser farm in the Camp Verde and Paulden areas. Dick's brothers have farmed in Tolleson and St. Johns for 40 years. Their father raised and hauled citrus in North Phoenix from 1948 until retirement. Prior to that, the family farmed in Iowa.

Arizona farms are important. They provide open space, green belts, wildlife habitat, buffer zones and contribute to Arizona’s history and character. Farmland is a tourist attraction that provides economic and educational benefits. People travel for hundreds of miles for fresh sweet corn, other fruits and vegetables, and farm activities. Arizona agriculture provides for quality of life and economy.
Owned and operated by Mary Ellen and Robert McKee since 1999, Hidden Springs Ranch is an equine training facility that provides customers with the best quality personal service. It's located in the high country of Arizona about 4500 feet in elevation and provides a great climate for thoroughbreds of all ages year round. Hidden Springs Ranch includes 5/8 mile training track, equiciser, a swimming facility and a four stall starting gate to meet your needs.
Maricopa County Farm Bureau

Maricopa County Farm Bureau (MCFB) is a grassroots membership organization dedicated to promoting and defending agriculture in a county with 4 million residents. A non-profit organization governed by an elected board of directors who are local agriculture producers, MCFB concentrates its efforts on three areas: representing agriculture in local and county legislative and regulatory actions; education and communication; and member benefits.

MCFB is one of the 13 county Farm Bureaus that make up the Arizona Farm Bureau Federation.

As part of our educational outreach, MCFB helps organize such public events as Arizona Agriculture Day, Farm Animal Appreciation Day and a children’s activity called “Farmer for a Day” at the Maricopa County Fair. Our farmers are also seen on media features that show the real source of food, fiber and ornamental plants.

Our Ag in the Classroom program includes a partnership with the University of Arizona Extension, Maricopa County, to bring presentations to your school to help your students learn about the plants and animals that provide all the food they eat, most of the clothes they wear, the materials to build their homes and the ornamental plants and trees that make their homes and properties beautiful.

MCFB originated the popular “How to Grow a Pizza” traceback exercise that shows how many farms it takes to provide the ingredients for pizza. Schedule “How to Grow a Pizza” presentations for your school by calling MCFB at 602-437-1330 or Erin Taylor at the Extension office, 602-827-8200, ext. 313.

Farm Bureau is an “umbrella” organization that covers all aspects of agriculture – large and small production facilities growing everything from cilantro to horses and shrimp, from dairy cattle to hay and zucchini. That’s why we call ourselves “The Voice of Agriculture.”
Gary Mortimer discovered his love of plants at a young age when he began working in Phoenix nurseries at age 11. His passion for horticulture led him to a M.S. in Horticulture from Arizona State University.

In 1987 Gary relocated to Prescott and started Mortimer Custom Landscape. As a landscape contractor, Gary earned a reputation for honesty and quality work. In 1995 he expanded his business to become a full service nursery and landscape center - Mortimer Nursery & Landscape Center. Gary and his wife, Sharla, continue to be involved in the day to day operation of the nursery and landscape business while also pursuing their agricultural interests with Ash Creek Ranch where they raise Black Angus Cattle and produce 100% Natural Beef.

For expert residential and commercial landscape projects, from design, to installation, and maintenance, Mortimer Nursery can handle your job. When you call Mortimer Nursery & Landscape Company for your commercial landscape project you can be assured you have called the best! For 24 years we have completed hundreds of landscape installations on projects all over Arizona. No project is too big! We will put our experienced crews to work to complete your project on time, within budget, with the best workmanship available.
Mingus Union High School
School Garden

Through the Agri-science program, students develop the technical knowledge and skills associated with agricultural science, production and health, marketing, and sales positions. Ag students get to work with animals, including fish and chickens, that are kept next to the agriculture class facility. They also work in a state-of-the-art greenhouse.

If you would like to get a garden growing in your school there are many grants available to get you started.

National Gardening Association Announces
2009 Healthy Sprouts Awards Program

The National Gardening Association encourages the growth of health-focused youth garden programs through the Healthy Sprouts Awards sponsored by Gardener’s Supply Company. The awards support school and youth garden programs that teach about nutrition and the issue of hunger in the United States. For more information please visit http://assoc.garden.org/grants/.
Pinal Feeding Company

Started in 1959, Pinal Feeding Company is one of the largest cattle feeding operations in the southwest. We have several feeding yards located throughout Pinal County, Arizona with capacity for over 150,000 head of cattle.

Our affiliate companies include Northside Hay Company, Sacate Pellet Mills, and Red River Cattle Company.
Rousseau Farming Co.

The Rousseau family has farmed in Arizona for four generations, dating back to the late 1800’s. Bill Rousseau was primarily involved in the cattle business with a feed lot in West Phoenix that he operated until 1982. His oldest son, Will, after graduating with a Bachelor of Science in Agronomy from the University of Arizona in 1979, worked with Bill for three years while starting his own farming operation. By 1986, Will was farming 1700 acres of row crops before experimenting with 40 acres of carrots. That same year the youngest son, David, another University of Arizona grad (’83) returned after three years with the Farm Credit System to help form the Rousseau Farming Company partnership.

Founded in 1986, Rousseau Farming Company is a privately-held grower/shipper of vegetables and melons. It is one of the Arizona’s fastest growing produce companies. The company, with headquarters and growing fields in Tolleson, AZ, and additional farms in Scottsdale, employs a staff of approximately 500.

Today, the operation consists of over 10,000 acres, of which over 70 percent is vegetable production with the core crops being carrots, broccoli, onions, cantaloupe and watermelons. Rousseau Farming Company grows all these crops on a separate organic farm as well. The operation is vertically integrated with its own harvesting equipment, trucking, cooling, icing, processing and shipping facilities.

Will Rousseau has been active in the Arizona agriculture community and was elected to the Western Growers Board of Directors in 1993 and has served continuously since.
Summer Place Pecan Farm

Camp Verde, Arizona may not have been known for pecans in the past, but if Dr. Richard Tinlin has anything to say about it, his delicious nuts will define Camp Verde as the Pecan Capital of the world! Known as the Johnny Appleseed of Pecans, it was Dr. Tinlin that discovered our little valley had the right growing conditions for Pecans 30 years ago and has babied his orchard to produce our fabulous Pecans.

This little valley produces the perfect combination of Western, Mohawk and Wichita Pecans. They are golden, delicious and fill out the shell with sweet goodness. Herbicide and Pesticide free our Pecans are pure heaven in any manner of cooking or fresh cracked right from the shell.

Taste test our Pecans against any other and you will see why people from one end of our great country to the other have chosen Summer Place Pecan Farm as their cyber-store for hometown goodness!

Our motto: 
We Grow em! Shell em! And Sell em!”

Summer Place Pecan Farm, 213 E. Quarterhorse Lane, Camp Verde, AZ 86322
www.summerplacepecanfarm.com
Dairy cows are treated like queens on Arizona dairy farms and Triple G Dairy is no exception - it’s a high tech cow spa.

Owned and operated by the Gingg family, Triple G embodies four generations of dairy farming. Conrad Gingg grew up in the dairy business on his family’s dairy farm in California. His sons, Ben and K.C., run Triple G along with Ben’s children, Connie and Max who are part of the day to day operation of the dairy.

Cow comfort is an obvious priority at the facility as sophisticated computer controlled fans and misters adjust the atmosphere to keep the cows cool, while side curtains help keep the cool air inside. The milking parlor contains two state of the art milking carousels that each have 48 stalls and the cows even have a shaded walkway to get to the milking parlor. Triple G milks 3700 cows 3 times each day and combined with the young stock, the facility houses about 8000 animals.

Sustainability is also important for Triple G. Much of the feed is grown on the family’s 4000 acre farming operation and feed storage and mixing takes place right there on the grounds. Environmental issues are a key element as the family works to protect the soil and water to provide a good home for their cows, their families and their communities.

Triple G Dairy
29115 W. Broadway Rd., Buckeye, AZ 85326
U of A Cooperative Extension, Maricopa County

Cooperative Extension plays a unique role in both urban and rural areas of the state. Extension provides practical information and education to help people make their lives better. Outreach efforts translate relevant University of Arizona research into effective practices people can put to immediate use in their homes and businesses.

Programs are conducted by the University of Arizona College of Agriculture and Life Sciences Cooperative Extension faculty in each county office and by campus-based Extension Specialists. Faculty members – Extension Agents – form partnerships with community groups and with trained volunteers to bring the university to the people.

Cooperative Extension programs address key quality of life issues pertaining to Animals; Environment & Natural Resources; Family, Youth & Community; Marketing, Trade & Economics; Nutrition, Food Safety & Health; and Plants.

Creating a Better Environment for Families and Consumers: Healthy people are better able to contribute to a robust economy. Cooperative Extension programs are designed to strengthen families, promote healthy lifestyles and wise financial decisions and develop community leaders. Programs are offered at community centers, churches, and other venues to reach diverse audiences.

4-H Youth Development: Youth ages 5-19 can be involved in more than 100 educational projects that are offered through 4-H. 4-H uses experiential learn-by-doing projects, meetings, community service and a variety of educational experiences to teach life skills while having fun. 4-H is young people and adults growing together to become informed, educated citizens.

Agriculture and Natural Resources: Extension promotes environmental stewardship through Horticulture, Field Crops, Turfgrass and Invasive Species programs. The Water Sustainability programs create quality interactive learning experiences to promote responsible water stewardship, including conservation.

Cooperative Extension has offices across the state, in counties and on Indian Reservations, that can be accessed through the web site cals.arizona.edu/extension. These offices are located in:

Apache (St. Johns)        Pima (Tucson & Sahuarita)
Cochise (Willcox & Sierra Vista) Pinal (Casa Grande)
Coconino (Flagstaff)        Santa Cruz (Nogales)
Gila (Payson & Globe)       Yavapai (Prescott & Cottonwood)
Graham (Solomon)            Yuma (Yuma)
Greenlee (Duncan)           Colorado River Indian Tribes (Parker)
La Paz (Parker)             Hopi Tribe (Keams Canyon)
Maricopa (Phoenix)          Navajo Nation (Window Rock & Shiprock)
Mohave (Kingman)            Hualapai Nation (Peach Springs)
Navajo (Holbrook)           San Carlos Apache (San Carlos)
U of A Maricopa Agriculture Center

As one of the major centers of the Arizona Agricultural Experiment Station, the Maricopa Agricultural Center strives to be at the forefront of disciplinary field investigations, to develop, deliver and service the best appropriate integrated agricultural technologies for all problems faced by Arizona consumers and producers, and to provide assistance to all scientists conducting their research and educational outreach programs. The Center not only provides facilities and support for extension outreach programs, but also provides support and facilities for teaching University classes and Ag-Literacy to all age groups.

The MAC Farm Ag-Ventures educational programming includes a combination of videos, educational presenters, hands on learning experiences and trailer rides around certain parts of the 2100 acre farm for a first hand view of what makes a working plant farm work. Our philosophy is for students to learn and to have a fun time learning about the source of our food and fiber.

Nutrition Ag-Ventures - (September-October, March-May)
In this “food comes from the farm series”, students learn how many farms it takes to make a pizza. As pizza is the most popular item of choice among today’s youth, students learn about how plants grow and all the work it takes to bring healthy, nutritious food to the table. Classroom activities are provided to help further the Ag-Literacy experience.

Amazing Corn Festival - (October, November)
For thousands of years, corn has been a major staple in our diets. We have grown, ground, and gobbled it down! Students participate in a variety of educational activities ranging from harvesting, grinding and tasting corn products to corn art.

Desert Ag-Ventures - (January, February)
During the months of January and February, a special series titled ‘Desert Ag-Ventures’ opens up to let seniors and winter visitors learn about arid land agriculture. Most of the world’s agriculture takes place in arid environments, so this is a great opportunity for adults from around our nation and Canada to learn about and experience Arizona’s agriculture in a fun way.

Water & Science Ag-Ventures - (February)
Junior high school and high students participate in a cooperative effort with U.S. Water Lab research scientists, community supporters and MAC to learn about the science and technologies being applied in agriculture today. In addition to experiencing various rotating workshop presenters, students also get an opportunity to learn about aquaculture in addition to trying their hand as using siphon tubes in the fields.

Garden Ag-Ventures - (March, April, May)
Vegetables are an important part of our diet. Elementary students learn about nutrition, growing techniques, effects of weather, insects, & have the chance to harvest vegetables (depending on harvest conditions.)

For program reservations contact Victor Jimenez at (520) 568-2273 or vjimenez@ag.arizona.edu.
V Bar V Ranch

The land that would eventually become the V Bar V Ranch was homesteaded at the turn of the 20th century. The owners branded their cattle "100," and the ranch was initially known as the "100 Place."

The V Bar V Ranch was formed in 1927, when the 100 Place and a number of smaller holdings, including one owned by the Bradford family, originators of the V Bar V brand, were bought and incorporated into the V Bar V Cattle Co.

The Ranch has passed through a colorful cast of owners since its inception, and is now owned by The University of Arizona College of Agriculture and Life Sciences. It is operated as a unit of the Arizona Agricultural Experiment Station.

In January 1995, The University of Arizona College of Agriculture and Life Sciences acquired the V Bar V Ranch from Ben and Betsy Zink on a gift/purchase basis. The acquisition was made possible through the use of private funds provided by College supporters and the UA Foundation.

Today, the 77,000 acre Agricultural Experiment Station continues as a working cattle ranch and serves as an educational and demonstration facility focusing on environmental, wildlife and domestic livestock issues in Arizona and the Southwest.

The research center addresses environmental, wildlife and domestic livestock issues applicable to Arizona and the Southwest. Vegetation zones, including high desert chaparral, pinyon-juniper, and pine, are typical of those on most of the commercial ranches in central and northern Arizona.

Arizona Agricultural Experiment Station, V Bar V Ranch, 4005 N. Forest Road 618, Rimrock, AZ 86335 www.cals.arizona.edu/aes/vbarv
## SAI Suggested Reading List

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<td>Benny Broccoli &amp; His Buddies</td>
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<td>Biggest Pumpkin Ever, The</td>
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<td>Can A Rooster Drive a Tractor</td>
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Arnott Duncan calls himself a “dirt nerd.” He loves being out in the field; he says it’s his strength. He’s been farming for more than 20 years now, first with his father and brothers (he’s part of the fourth generation of his family to work the land), then on his own. Even after all these years, he still loves every moment he’s out in the field.

His wife Kathleen was a city girl from San Francisco, but she planted firm, healthy roots in the Arizona soil after she met Arnott at the University of Arizona, where they both played volleyball. Their partnership has built a thriving farm and a thriving family.

What do you like best about organic farming?

Sharing a love of farming

The Duncans farm near Phoenix, Arizona. For a time, they ran very successful public programs that helped them share the farm experience with the community in an educational and entertaining way. It seemed like a natural way to combine Arnott’s farming expertise and Kathleen’s degrees in counseling psychology and special education into a family business.

“When we first opened to the public,” Kathleen explains, “the image of farming in Arizona had hit an all-time low. People thought farmers exploited the land pretty shamelessly, just spraying chemicals all over everything with crop dusters.”

Arnott recalls the surprise he’d hear in the voices of local agriculture officials who’d call to arrange inspection visits. Just come out, he’d tell them, you don’t need to have an appointment. “I’m the first one who wants to know if we’re doing something wrong,” he says. “Just tell us and we’ll change it. That’s it.”
One ending, another beginning

Unfortunately, the Duncans had to close their public programs due to security concerns from the nearby Air Force base after 9/11.

The Duncans had already been growing organically on some of their land, and they’d been planning to transition more acreage to organic when they met Todd Kodet, Earthbound Farm’s senior vice president of farming.

“You learn in farming that when one door closes, another opens,” Arnott says. “The opportunity to start growing for Earthbound Farm came along at just the right time.”

“Our public programs were such a huge investment in time and energy that maybe we wouldn’t have been able to do both,” observes Kathleen. “Today we reach many more people with our produce, and we want people to have a wonderful experience eating it.”

The Duncans are currently growing many of the baby lettuces and other varieties of baby greens that go into Earthbound Farm’s organic spring mix, as well as herbs and spinach; past seasons have seen them growing organic red cabbage, romaine, and broccoli as well.

What do you want people to know about organic farmers?

“We want people to know how seriously we take everything we do. Most people don’t really know where their food comes from, other than the grocery store. We’d like to help them understand that there are no better stewards of the land than farmers. We make our living from this earth. If we don’t take care of it, it won’t take care of us.”

—Kathleen
TOWN & COUNTRY
Mary Ellen and Bob McKee blend ranch and city lifestyles

SMALL WONDERS
Children’s Museum of Phoenix, a place for world-class fun

13 FANCY FETES

A wedding toast

to 7 beautiful couples

Tiffany and Ben Quayle
TOWN & COUNTRY

Horse ranch and Biltmore home with Reagan roots fulfill couple’s dreams

TEXT BY SUSAN FELT | PHOTOS BY MICHAEL BAXTER
Mary Ellen McKee is a list maker. It’s how she keeps her pantries filled and her life straight while managing a home in the Biltmore Estates and a 225-acre thoroughbred horse ranch in Peebles Valley near Yarnell.

She and her husband, Bob, find themselves traveling back and forth at least once a week between home and ranch and the lifestyles those places represent.

A list is critical.

In Phoenix, Mary Ellen dons the hat of a board member and fundraiser for countless charities and organizations like the Heard Museum, Barrow Neurological Foundation Women’s Board and the Boys & Girls Clubs of Greater Scottsdale, which named a Fountain Hills branch after the generous couple.

At Hidden Springs Ranch, she wears her black Stetson and saddles up her quarter horse, while her husband — none too comfortable riding a horse — sticks to his restored red ’52 Chevy truck. She helps oversee the thoroughbred training center and its 10-member staff.

As with most things in her life, Mary Ellen has a vision for the spaces she occupies.

VISIONS OF BLUEGRASS

A born and bred Nebraskan, Mary Ellen grew up on a farm with four brothers.

"We had cattle, pigs, chickens and horses," Mary Ellen says.

She keeps those farm roots close as she navigates her way through their life in Phoenix, their ranch enterprise and Torrey Pines Golf Course, which they operate under a 35-year-lease from the city of San Diego.

"Growing up on a farm like that keeps you grounded for the rest of your life," she says.

It's Mary Ellen's Nebraskan roots and her love of horses that found the McKees in the market for horse property in the late '90s.

When they drove up the tree-shaded lane to Hidden Spring Farms, then called Arizona Highlands, Mary Ellen had another of those visions.

She could see the then-faded barn, a nondescript fourplex, track, spring-fed lake and paddocks transformed into a little piece of Kentucky bluegrass country.

ABOVE LEFT: Bob McKee keeps — and uses — a restored ’52 Chevy truck at the ranch. Mary Ellen's transportation at the ranch is usually a horse.

ABOVE RIGHT: Horses at Hidden Springs Ranch train on a 5/8-mile track, which Bob says is the best in the state.

LEFT: Hidden Springs Ranch is a 225-acre thoroughbred horse-training center that has produced winners in some of the world's most prestigious races.
TOP: The McKees lushly landscaped their Biltmore backyard, which abuts the golf course. The far-right portion of the home (in this photo) was added by the couple.

ABOVE LEFT: Before expanding the home about 10 years ago, the McKees used this room as their bedroom. Today, it is a room where family gathers to play games.

ABOVE RIGHT: Bob and Mary Ellen with Sparkie, the dog.

RIGHT: Mary Ellen’s office is the room Dr. Davis used as his office. The Davises had installed a red-phone line in this room so when the president visited, it would be available. The line is still in place along the west side of the home.
A SENSE OF HISTORY

She'd also had a dream for their Biltmore Estates home when she and her husband first stepped inside its doors.

The McKees had bought the home in the early 1980s having fallen in love with its look and location.

However, the understated home with its views of Biltmore golf-course fairways and Piestewa Peak carried cachet beyond its style and location.

The home was where then President Ronald Reagan and his wife, Nancy, stayed when they came to visit Nancy's mother and stepfather, Edith and Loyal Davis, a retired neurosurgeon.

The McKees discreetly bought the home, built in 1952, sight unseen years before they actually moved into it, allowing Edith Davis to remain in the home.

"President Reagan told us, 'You're gonna love it because it's a happy house.'" Mary Ellen recalls.

When she tackled its remodel, she turned the guest room Reagan used during his visits into a bear-themed room for their grandchildren and kept a poster of Reagan with his jelly beans. The poster has since been moved to the ranch, and elegant toilet has replaced the kid-themed decor.

Her office, once Dr. Davis' office, holds memorabilia and photos of moments like an evening with Reagan and former USSR President Mikhail Gorbachev. ("He toasted me with a glass of champagne," Mary Ellen says.) This is the room where the presidential red-phone line was installed, Mary Ellen says.

On the shelves and walls of this office — a cozy, wood-beamed room — sit photos not only of Republican glitterati but also of the couple's family, friends and eight grandchildren. Here, too, are paintings of cattle and horses, many by noted Western artist Paul Sollosy, and bronze sculptures and paintings by artist Cynthia Rigden.

The McKees have lived in the home for nearly all 28 years of their marriage. But it is still a home that salutes a place where the Reagans once visited and the Davises lived.

"When you think about the history of it, President Reagan was one of the most important people in the world, and to be a part of preserving that is important," Mary Ellen says.

She has kept the bank of closets in the master bedroom, the original pink tile in Edith Davis' bathroom and the burgundy and gray tile in Loyal Davis' bathroom.

Mary Ellen replaced the linoleum, moved walls, added molding, plastered or upholstered walls, replaced sliding glass doors with patio doors and windows, painted, and added marble, custom wood cabinets, wood floors and another master-bedroom wing and family room.

Outside, the McKees added grass, flower beds, a swimming pool and a gazebo.

Mary Ellen cooks her Thanksgiving turkey in the original General Electric oven she had moved from the kitchen to the laundry room.
WINNERS

At Hidden Springs, beside a 27-stall barn they had built to match the white-stone and hunter-green-trimmed main barn, is a perfectly restored gasoline and kerosene truck like the one Bob’s grandfather drove back in Missouri, where he was raised. This gasoline truck started what would become McKee Oil. Bob likes the reminder nearby.

“When you have a ranch, you’d probably better keep your day job, too,” he says.

It took about seven and a half years to groom the ranch into Mary Ellen’s initial vision.

“I wanted it to look like a winner,” she says.

The grounds are as picture perfect as the elegant thoroughbreds that run in the acres of wood-fenced paddocks, train on the perfectly contoured 5/8-mile track and swim in the lake. The McKees had special fence wood shipped from Kentucky, where horse breeders and trainers want a wood fence to break in a crash rather than harm a high-price thoroughbred.

The acres of fencing at Hidden Springs Ranch are painted black in keeping with most of the great horse farms in Kentucky.

But Hidden Springs Ranch is more than a pretty face. It attracts some of thoroughbred horse racing’s elite from such places as Ireland, Canada and California, who want their horses broken, trained and, in some instances, rehatted after an injury or surgery. Currently, the McKees’ stables include seven of legendary trainer Bob Baffert’s horses.

“I am a businesswoman, and I have been all my life,” Mary Ellen says.

The ranch’s latest winner is Kinsale King, a dark bay gelding that trained at Hidden Springs before it won a $2 million purse in March racing in Dubai. The horse is headed to England to race in the Golden Jubilee Stakes at the Royal Ascot in June.

At the end of a day at the ranch, the McKees pour their drink of choice — scotch, Chardonnay or Cabernet — and sit on the patio of No. 1, their personal quarters at the ranch fourplex, to watch the water ripple on the lake.

“It’s my dream,” Mary Ellen said of the ranch. “Bob’s fulfilled a lot of my dreams.”

FAR LEFT: Mary Ellen is “hands-on” at the ranch. Here, she prepares to saddle up and go for a ride.
ABOVE LEFT: At the ranch, the McKees live in No. 1 of the fourplex that was there when they bought the property.
LEFT: As Western art fills the walls of Mary Ellen’s office in their Biltmore home, it also adorns the walls of No. 1, their home away from home.
BELOW: Just what every girl wants for Christmas: two longhorns. She asked for them, and Bob bought them. The lake beyond the longhorns is used to exercise and rehab the thoroughbred horses. Past the lake are some of the wood fences Mary Ellen had shipped from Kentucky. They are painted black as are most of those at great Kentucky horse farms.
UN admits flaw in report on meat and climate change

The UN has admitted a report linking livestock to global warming exaggerated the impact of eating meat on climate change.

By Alastair Jamieson
Published: 7:16AM GMT 24 Mar 2010

A 2006 study, Livestock’s Long Shadow, claimed meat production was responsible for 18 per cent of greenhouse gas emissions – more than transport.

Its conclusions were heralded by campaigners urging consumers to eat less meat to save the planet. Among those calling for a reduction in global meat consumption is Sir Paul McCartney.

However, one of the authors of the report has admitted an American scientist has identified a flaw in its comparison with the impact of transport emissions.

Dr Frank Mitloehner, from the University of California at Davis (UCD), said meat and milk production generates less greenhouse gas than most environmentalists claim and that the emissions figures were calculated differently to the transport figures, resulting in an “apples-and-oranges analogy that truly confused the issue”.

The meat figure had been reached by adding all greenhouse-gas emissions associated with meat production, including fertiliser production, land clearance, methane emissions and vehicle use on farms, whereas the transport figure had only included the burning of fossil fuels.

Pierre Gerber, a policy officer with the UN’s Food and Agriculture Organization, told the BBC he accepted Dr Mitloehner's criticism. "I must say honestly that he has a point – we factored in everything for meat emissions, and we didn't do the same thing with transport," he said.

"But on the rest of the report, I don't think it was really challenged."

He said a more comprehensive analysis of emissions from food production was being produced and should be available by the end of the year.

Dr Mitloehner told a meeting of the American Chemical Society in San Francisco that producing less meat and milk would only result in “more hunger in poor countries” and that efforts should be focused on “smarter farming, not less farming”.

Earlier this year, the UN's Intergovernmental Panel on Climate Change apologised after wrongly claiming the Himalayan glaciers could vanish within 25 years.
Arizona teachers become the students at Summer Agricultural Institute

BY JOYCE LOBECK, SUN STAFF WRITER
July 8, 2007 - 12:02AM

Twenty teachers from around the state recently got a crash course in agriculture in Yuma County. They were participants in this year's Summer Agricultural Institute, held annually to educate the state's educators about the scope and value of agriculture in hopes they will take that awareness back to the classroom, said Monica Pastor, a University of Arizona Cooperative Extension agent in Maricopa County and coordinator for the program.

The goal is expose K-12 teachers to the diversity of agriculture in the state, provide motivation and resources for them to incorporate it into their lesson plans and demonstrate the career possibilities for their students, Pastor said.

"Many start with no background in agriculture," she said. "But we all eat, wear clothes, have a roof over our heads. We need to keep agriculture in this country."

Hundreds of teachers have participated since the program began 17 years ago. In past years, the five-day institute has visited various areas of the state. This year was Yuma County's turn.

"We've been avoiding Yuma because of the heat," Pastor said, "but there is so much agriculture here. It is the top agriculture area for the state."

The trip proved to be eye-opening. "We had never done seed distribution," she said. "We had never seen black-eyed peas, never seen dates processed." Pastor said the group also heard about the need for more students to go into science, whether in farming or agriculture-related careers such as research and technology development.

Among the participants were two teachers from eastern Yuma County. Even they were amazed at the scope of agriculture here, and the experience has them considering the many ways they can use what they learned and the resources they were given in their classrooms.

"Even with my background, I found out new things," said Judy Newman, a longtime Roll-area resident since the eighth grade whose family has been involved in agriculture. She was particularly impressed by "all the new high tech stuff. I'm very aware of laser leveling ... and knew about GPS (Global Positioning System), but I didn't realize how much it is used in farming."

Newman also said she was familiar with produce being grown in the fields, but a tour of the Dole salad processing plant gave her a new awareness and appreciation for Yuma County's fresh vegetable
production. That's definitely an experience she wants to share with her students, many of whose parents labor in the fields, planting and harvesting the crops.

A visit to the new ethanol plant in Pinal County and presentation on the planned plant near Tacna brought the emerging industry home to Newman. "I definitely will bring some of what I learned into my classroom," said Newman, an English teacher at Antelope High School. "We were given a lot of resources. Now I have to figure out how to put them to use. I'm on the lookout for lesson and project ideas."

She's already planning a couple of field trips "to help my students become more aware of agriculture beyond the fields." She also wants to bring in people to talk about high tech in agriculture. "And it doesn't hurt to do some reading," she said. "Maybe it would be topics for research papers."

The trip also gave Newman a chance to catch up on a couple of people she had previously known. One presenter, Marcos Moore, who works for the University of Arizona, was one of her fifth-grade students. "It was nice to see him go on in the farming world," Newman said.

Each teacher spent a night with a host farming family. As it turned out, Newman's host, Mark Spencer, had been in the same 4-H club with her while they grew up in Mohawk Valley. "So we did a lot of reminiscing."

A highlight of the trip for Newman was listening to her fellow participants talk about how much the experience had changed their perception of agriculture and the people who labor to provide this nation's food. "One said she had never met so many intelligent people," Newman said. "They gained an awareness of what agriculture is about. It's not just the guy in overalls."

Sarah Rodriguez, who teaches seventh- and eighth-grade science at Wellton Elementary School, said the trip "re-energized me" and will be a big help in teaching science. "It was an eye-opening experience in how we can use our surrounding area in our teaching," she said. "Everything we observed was tied in with our curriculum and (teaching) standards. There are a lot of good ideas out there, but it's not always clear how we can tie it in. They gave us a lot of resources and even lesson plans."

She also appreciates gaining a network with other teachers to share ideas.

Even though she was born and raised in Wellton, Rodriguez said she "learned so much about agriculture" and the importance of farming there to the region and nation. As a result, she not only will be able to share with her students the many opportunities in the industry, but also to help them gain "new pride in what their fathers do. Without them, we wouldn't have what we have today."

Both teachers would recommend the trip to others. "It was an inspiring week and educational," Newman said. Rodriguez expressed appreciation to her administrator for recommending her for the trip and to Wellton-Mohawk Irrigation and Drainage District for sponsoring her.

For more information, contact Monica Pastor, coordinator, at 1-602-470-8086 or mpastor@ag.arizona.edu.

Joyce Lobeck can be reached at jlobeck@yumasun.com or 539-6853.

More than 20 schoolteachers and administrators from throughout Arizona recently visited Maricopa to expand their knowledge of agriculture. All were participants in the annual Summer Ag Institute, a program presented by the University of Arizona Cooperative Extension.

Monica Pastor, associate agent for the extension in Maricopa County, said the program arose 17 years ago from a desire to bring the subject of agriculture into the classroom and to be able to do so without time restrictions and staff limitations. "I may have gotten into a classroom one time in a school year for maybe half an hour," Pastor said. "We decided if we could train the teachers that we could have them in the classroom 180 days a year, all day long, if they wanted to incorporate agriculture into their lessons."

This year's five-day institute was held June 18-22, and encompassed hands-on activities and classes not only in Maricopa, but also in Phoenix, Yuma, Wellton and Stanfield.

On Thursday, June 21, the group visited the Maricopa Agricultural Center (MAC), a 2,100-acre educational research facility on Smith-Enke Road.

Outdoor activities included using a net to "sweep" an alfalfa field for insects, placing the insects in bags and then freezing them. Later, the group identified what kind of insects they had gathered and cataloged them as either "good" or "bad" bugs. "(Sweeping) gives them an appreciation for how many insects they found because they go out in the field and ... they don't really see much. For every insect they see, there are probably 500 to 1,000 more they don't see," said Ed Minch, task leader and an Arizona Department of Agriculture retiree.
Participants also learned how to operate irrigation siphoning tubes and listened to presentations about cotton, plant science, the Gila River Community Project and Project WET (Water Education for Teachers).

The week's curriculum had a positive impact on the teachers. "The broad spectrum of farming and agriculture has really opened my eyes to a lot of things," said Lee Scott, a seventh- and eighth-grade teacher at Gilbert Junior High School. "We stayed with a farm family a couple of nights ago, and that was really neat because I would never have the time to just chat and get to know them. I was surprised at how much they are like me. It's been a really fun experience."

Anne Howe teaches fourth grade at Sacaton Elementary School in the Gila River Indian Community, which is home to the 16,000-acre Gila River Farms. It produces cotton, alfalfa and various food crops. "We've been asked by the tribe to work with the elementary school to get the students more interested in agriculture," she said. "I'm hoping to plant gardens and to do some kind of in-classroom agricultural activities, so that when the students get to middle school, where they have more agricultural options, they will participate in it."

Pam Petterborg, a seventh- and eighth-grade teacher at Gilbert Junior High School, said, "I'm all about food in the classroom, so I like to enhance the perspective of how food goes from the seed to the plate and all that's involved in the agricultural industry to produce it.

Mike Cox, principal of Alpine Elementary School, said he looks forward to sharing what he's learned with his staff. "It's going to help, especially with the AIMS science test coming up," he said.

Darryn Elliott, a second-grade teacher at Buckeye Elementary School, said the institute was "very beneficial."

Admission to the program is by application. The process requires a detailed account of the reasons for applying and an explanation as to what the applicant plans to do with what is learned. "We want to make sure we get good-quality teachers," Pastor said. "We accepted 22 teachers this year, and we have funding for up to 30. They pay an $85 registration fee, but it actually costs us $450 per person to present this program."

Funding is provided by the Arizona Foundation for Agricultural Literacy. Victor Jimenez, project leader for the Ag-Literacy program at MAC, said the Summer Ag Institute is one of several programs available.

"We reach all ages," he said, "from elementary school to high school through to the winter visitors and senior citizens who come from around the country."

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History of the Arizona Cattle Industry

The cattle industry has been a vital part of Arizona for over 300 years. In the mid-1700s Father Kino introduced cattle into our state. For almost a century cattle flourished in the arid climate, providing early American immigrants, Indians and Spaniards with beef. The marauding Apache Indians were pacified with gifts and rations. However, after the commencement of hostilities between the U.S. and Mexico in 1846, Spanish support ceased and the ensuing Indian uprising drove miners and ranchers southward, away from Apache land.

As haciendas were abandoned, great numbers of beef animals spread throughout the hills and canyons to roam in a truly wild state. Military brigades that passed through the area commented on the huge herds of cattle and horses that grazed the Arizona ranges. They were surprised that although the gramma grass on the hills was straw colored and dead looking, the thousands of wild cattle and horses were fat.

The discovery of gold in California in 1849 created a great beef market. Still, the local industry did not revive until miners came to reopen old Spanish workings and prospect new fields. The first actual rancher is said to be William S. Oury. He began with 100 Illinois heifers and four bulls in 1858.

After the Civil War there was a tremendous stimulus to the livestock business. Unattended herds in Texas had increased while the range had declined, creating a desperate rush to relieve the overburdened grazing lands. Hundreds of discharged Texas veterans poured into Arizona. They entered Arizona four different ways: the San Pedro River, Ft. Bowie, the San Francisco River and Beale’s Road (Highway 66 and the Santa Fe Railroad route.)

As the number of cattle in Arizona grew, so did competition. The ranching industry adopted more business like methods including better blood in the herds and planned use of forage. Colonel H.C. Hooker is credited with bringing a large number of Hereford cattle to Arizona in 1884. However, Colin Cameron, established near Patagonia, ran a small group of the English breed in 1883. That winter Arizona experienced severe weather hardships, but the cattle not only survived, they were in good condition in the spring. Unrivaled rustling ability, early maturing qualities and prolific reproduction soon placed the Hereford breed in a favored position on the Arizona range.

The last years of the decade ending in 1890 were truly the heyday of Arizona’s range cattle industry. Many an indolent man with money to invest must have been attracted by the imagery that claimed: “Here the climate is almost perpetual spring and even in the driest season the feed never fails and the owner can sit under the shade of his comfortable hacienda and see his herds thrive and increase in winter and summer.”

In 1890 practically every acre of range was being occupied. Unofficial estimates by experienced ranchers showed 1,500,000 cattle located on the Arizona range. However, overstocked lands and three years of drought beginning in 1891 produced catastrophic conditions for the cattle industry.

These difficulties, harsh as they were, conferred certain benefits upon Arizona ranchers. First, the realization was brought home with emphasis that stock raising had become an involved procedure an adventure had become a business. Second, planned use of range and water was necessary. Having learned these lessons, the industry turned to more scientific husbandry and subsequently recouped its losses.

Today, Arizona ranchers continue to practice sound range ecology practices. Through improvements to the land such as adding watering sites and rotating pastures, the Western rangelands are in the best condition they’ve been in for more than a century. Almost three hundred and fifty years after their introduction into our state, cattle is Arizona’s highest valued cash commodity crop.
Arizona’s inventory of cattle and calves on January 1, 2008 was estimated at 970,000 head, up 30,000 from the previous year. The 2007 calf crop of 275,000 down 5,000 head from 2006. The value of cattle and calves on January 1 was $1,086 million, up 14 percent.

Monthly all beef cattle prices varied by $11.10 per hundredweight during 2007, from a low of $75.30 in November to a high of $84.60 in May. The marketing year average price for beef cattle decreased $8.40 per hundredweight from a year ago to $79.90. The annual average steer and heifer price decreased $7.90 to $96.10 per hundredweight and the annual average calf price decreased $9.00 to $116.00 per hundredweight. The annual average price for cows increased $3.10 per hundredweight to $48.50.

Cattle and calf marketings were up 1 percent to 823 million pounds but the gross income from these marketings decreased 8 percent to $680 million.

Arizona’s feedlot operators marketed 353,000 head during 2007. Feedlot inventories ranged from 329,000 head on January 1 to 367,000 on March 1 and April 1.

Arizona’s 13 livestock harvesting facilities produced 406 million pounds of red meat during 2007, up 5 percent from the 2006 harvest.

As of 2007, approximately 48 percent of Arizona’s total area of 72,725,000 acres is Federal and State public trust land administered by the United States Department of Interior (USDI) Bureau of Land Management, the United States Department of Agriculture (USDA) Forest Service, and the Arizona State Land Department. A majority of these public lands are leased for livestock grazing.

The average number of milk cows maintained by Arizona’s dairy operations in 2007 increased 8,000 head from a year ago to 181,000. Milk production per cow during 2007 was 23,260 pounds, up 2 percent from last year.

Milk production totaled 4.21 billion pounds in 2007, an increase of 6 percent from 2006. Value of milk produced, at $804 million dollars, was 59 percent higher than the 2006 value. The average return per 100 pounds of milk in 2007 was $19.10, up $6.30 from 2006.
Animal Agriculture and Responsible Antibiotic Use

By Alun M. McClure, DVM with Herd Health Management, LP

Last month, CBS News producers created a special report on the use of antibiotics in livestock production. The piece, reported by Evening News anchor Katie Couric, is not a factual representation of the scientific, safe and careful use of antibiotics in animal agriculture. My lifetime of experience in animal agriculture makes their report seem to be biased and misleading. My parents who migrated from family farms in Oregon raised us in a small Southern California community with chickens and rabbits for meat and eggs. I worked my way through high school and college on farms and fruit orchards, a 12,000 head beef feedlot, and a university-owned dairy and milk processing plant. Professionally I have worked for 36 years with dairies, feedlots, cattle and sheep ranchers in 12 states in the U.S. and in Mexico.

Without exception I have found these owners and managers to be very concerned about the ethical treatment and welfare of their animals, including the responsible use of antibiotics. They have been interested in scientific and applied research, and have worked diligently to improve every aspect of herd health and implement management programs to prevent disease and minimize the need for the use of antibiotics.

Last week I was leaning against a fence post on a third generation family dairy farm in Arizona pondering how I might respond to the CBS report since I’d gotten word they’d be airing a story on the subject. While I was reflecting, I was watching cows returning from the milking parlor playfully loping back to their pen and rapidly placing their heads side by side through the self-locking stanchions to eat. They were voraciously consuming a well-balanced total mixed ration of locally grown forages, processed grains and agricultural by-products. They had just been calmly milked by caring professional milkers using state-of-the-art milking equipment. These cows walk to and from their pen twice a day on dry, padded concrete walkways to be milked. They are bedded on clean, dry and comfortable bedding in open dry lots and under shades that protect them from the elements in the winter and cool them with water spray and fans in the summer. This family has implemented many technologies to now efficiently and humanely manage thousands of milk cows better than when they started with 40 cows years ago. These cows have never been fed antibiotics, and are only treated with antibiotics when needed to cure or prevent a bacterial infection to prevent pain, suffering and death, to enable these cows to achieve their potential to feed us and a starving world with safe, wholesome, and affordable food. That is how less than 1% of the U.S. population is involved in agriculture and can provide for the other 99% and have surplus to export to developing nations.
How are antibiotics used in animal agriculture? Besides treatment of an individual sick animal, after every possible effort has been made to successfully manage genetics, housing, environment, nutrition, feeding, vaccination and other herd or flock health practices, antibiotics may be used in feed or water to treat, control or prevent disease and to promote growth and feed efficiency. This use has been proven to improve animal health and welfare (less disease and mortality), improve growth and feed conversion (reduces bad bacteria; promotes good bacteria), and improve food safety.

I welcome open dialogue and evaluation of our agricultural production practices. It can only make us better. I do ask the evaluation to be scientific and objective, and the reporting to avoid sensationalism, hyperbole, and misleading statements aimed at inflaming opinion. The CBS News report is extremely critical of the use of antibiotics in agriculture, repeating the oft-stated but unsupported assertion that there is an alarming rise in the incidence of antibiotic resistant bacteria among farm animals. I have not recognized this as a problem in 36 years of dairy practice. Surveillance data regarding bacterial isolates from cattle by the National Antimicrobial Resistance Monitoring System does not support their claim either.

Opponents of antibiotic use in food animals claim that we don’t need antibacterials to produce meat and eggs, that their use has lead to a significant increase in antibiotic resistant bacterial infections in humans, and that their use reduces the effectiveness of human medicines. In 1999, the Heidelberg Appeal Nederland Foundation, renowned for its unbiased scientific research, conducted a study on the effect of antibiotics used for growth promotion in food animals, and concluded that there was no conclusive evidence that their use contributed to human disease or compromised the efficacy of related antibiotics in human medicine.

After growth-promoting antibiotics were legislatively banned in food animals in Denmark in 1999 in an attempt to protect public health from antibiotic resistance, there has been no reduction in the incidence of antibiotic-resistant hospital isolates in humans. In some cases resistance has increased and the incidence of some types of infections in humans has also increased. Unfortunately, disease and mortality have increased among animals, producing adverse animal welfare conditions. As a result, to treat the higher incidence of disease in animals in Denmark, it has been necessary to increase the use of antibiotics for therapeutic treatment in animals. The use of antibiotics in humans has also increased. The increased health costs and labor and the reduction in growth and feed conversion in pigs have resulted in increased production costs of $5.29 per pig.

Some purport that antibacterial-free farming makes food safer. The truth is that antibiotic use in food animals makes them healthier which makes our food safer. Chickens raised without antibiotics are three times more likely to carry bacteria that can make people sick. When the EU phased out certain antibiotic uses there was no discernable improvement in food safety. Food handling and preparation has a much greater impact on food safety. In the U.S., food-borne pathogens decreased by 15 to 49% from 1996 to 2001 following the implementation of the new FSIS/HACCP (Food Safety Inspection Service/Hazard Analysis Critical Control Points) regulations. Proper food handling and cooking prevents human infection by food-borne pathogens.

Some bacteria are naturally resistant to certain antibiotics; others acquire resistance by genetic mutation over time; and some acquire resistance after exposure to an antibiotic used in human medicine or animal production. For a person to have an antibiotic treatment failure due to acquiring a foodborne bacterial disease from eating, for example, pork, the following things would have to happen:

• The antibiotic would be used in the animal;
• The animal would have to develop a resistant bacterial strain;
• The resistant strain would have to survive through food processing/handling;
• The resistant strain would have to survive through food preparation;
• The resistant strain would have to transfer to the human;
• The resistant strain would have to colonize;
• The resistant strain would have to cause a disease; and
• The antibiotic treatment would have to fail.

What is the probability of a person experiencing a treatment failure due to antibiotic use in swine? Here are some risk comparisons:

<table>
<thead>
<tr>
<th>Risk Comparison</th>
<th>Annual Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being struck by lightning</td>
<td>1 in 550,000</td>
</tr>
<tr>
<td>Dying from a bee sting</td>
<td>1 in 6 Million</td>
</tr>
<tr>
<td>Dying from a dog bite</td>
<td>1 in 18 million</td>
</tr>
<tr>
<td>Acquiring resistant campylobacter from macrolide-treated swine resulting in treatment failure</td>
<td>&lt; 1 in 53 million</td>
</tr>
<tr>
<td>Acquiring resistant <em>E. faecium</em> from macrolide-treated swine resulting in treatment failure</td>
<td>&lt; 1 in 21 million</td>
</tr>
</tbody>
</table>

It’s easy for me to say that antibiotic resistant bacteria are not a problem when I haven’t personally experienced such an infection, but that’s meaningless to a person who has. It’s like trying to console a person who has been unable to find work for six months by informing them that the national unemployment rate is only 10%. In fact, while competing in high school athletics my daughter got a nasty skin infection on her leg caused by antibiotic resistant staphylococcal bacteria (MRSA). A few months later my wife got a lip infection caused by the same type of bacteria. These infections did not come from animal agriculture nor did the antibiotic resistance. The resistance is real but many scientists believe the primary cause is misuse (over prescribing) of antibiotics in human medicine and/or failure of patients to complete the prescribed regimen.

Antibiotic use in animal agriculture is by or on the order of a licensed veterinarian using antibiotics approved by the FDA, having passed its stringent testing requirements for efficacy and safety (for animals, our food and the environment). All major industry associations have established prudent drug usage guidelines: the American Veterinary Medical Association, American Association of Bovine Practitioners, American Association of Swine Veterinarians, American Association of Avian Pathologists, National Chicken Council, National Pork Board, National Cattlemen’s Beef Association, and others. These guidelines and FDA oversight insure that antibiotic use in food animals will protect animal health and welfare leading to production of safe, affordable and abundant food, critical to our U.S. food security.

Maintaining the health of U.S. herds and flocks requires agriculture producers and their veterinarians to have all approved safe and effective technologies, including animal health products, available to us. It would be a tragedy for misconceptions, misrepresentations or non-science based political agendas to deprive us of any valuable tools for preventing animal disease without substantial evidence of a benefit to human health.

*Editor’s Note:* Many of Dr. McClure’s clients are members of the United Dairymen of Arizona and the Arizona Farm Bureau.
Corporate Environmentalism is Generating Big Green

Want to Know How Charitable Donations Really Work?

By Stefanie Smallhouse
Arizona Farm Bureau Second Vice President

Having recently concluded that time of year when the dining room table was buried in paper, we pored over receipts, notes scribbled on the checkbook, cancelled checks, deposit records, and of course our charitable donations. According to Giving USA, Americans contributed a total of $307.7 billion to charity in 2008. For those donations going to environmental organizations to save anything and everything, have you ever wondered what you get for your donated dollar?

I suggest the last time you hung up your shower towel at the Holiday Inn instead of dropping it on the floor (this is code for don’t waste precious water on providing me with another fresh towel since theoretically I was clean when I dried off anyway) resulted in a more genuine investment for the environment than the check you wrote to Big Green.

Your donation to one of the big corporate environmental groups — Sierra Club, The Nature Conservancy, or Natural Resource Defense Council to name a few — most likely went to pay for litigation or buying land, but what was the on-the-ground result for conserving anything? How did the cactus ferruginous pygmy owl benefit from your generous donation? How was your dollar used to stop erosion along Arizona’s river ways, or improve water quality along the Colorado River?

In 2008, $758 million was donated to The Nature Conservancy, $43 million to the Sierra Club, and $108 million to the Natural Resources Defense Council (NRDC). The NRDC prides itself on “defeating, blocking, and freezing” through litigation any action that it deems harmful to the earth. But I was unable to find any on-the-ground work that they are doing to actively conserve natural resources. Apparently this organization is the self-appointed legal representation for Mother Nature and that’s it.

The self-appointed realtor happens to be The Nature Conservancy (TNC). Unfortunately, Mother Nature is hard to pin down, so not only does the sales commission go to TNC, but so does all the profit. For example TNC currently has land for sale along the San Pedro River in southeast Arizona acquired as 2,156 acres of contiguous farm land and now subdivided by TNC into 5 parcels with the option of splitting further into 10. This land could have remained unfragmented and seeded with native grasses, but instead has been left to a hostile takeover by invasive woody plants that use significantly more water than farm land.

Other large expanses of land have either been donated to the organization to take advantage of tax
credits or sold to TNC for less than appraised value and then in turn flipped to the federal government for more than appraised value. This organization is in the business of nationalizing private land for a profit, while shrinking the tax base for our schools and community infrastructures.

Purchasing agricultural land, beautiful landscapes, and waterways facing no eminent threat of destruction should not exactly qualify for saving anything. To other environmental groups this is considered to be focusing on “sub-national targets.” These targets generate revenue directly for the non-profit and would be very valuable on a carbon offset market. This is the same carbon market that would be created following passage of a cap and trade taxation system fiercely lobbied for by these same groups.

This type of focus results in what is called “leakage” in environmental language. A specific action stopped in one area only shifts or leaks the same action into other areas, but is in no way diminished. It does not result in any on the ground conservation work. I know of a few old mine reclamation sites that could sure use some of Nature Conservancy’s $758 million annual revenue for reseeding and erosion control. Of course those pieces of land are neither profitable for flipping nor for carbon credits.

It’s no wonder that the spectrum of environmental groups ranging from land baron organizations like TNC to small potato radical organizations like the Center for Biological Diversity (CBD) are eating their own. CBD is trying to change policy on a national level to send us back to the 17th century, while TNC is subdividing farm land, and the Sierra Club in return for corporate cash is providing its stamp of approval on cleaning products sold as “green” chemicals to flush down your toilet. Where are your conservation dollars in all of this? Despite their differences, all of them are successfully using your donations for systematically dismantling roads, dams, logging, mining, ranching, farming, fishing, and manufacturing throughout the United States — forcing industry to move across international boundaries and oceans unregulated; All the while increasing the costs of agriculture production by those few left in this country.

Remember that shrinking tax base I mentioned before? Maybe your donation would be better spent going toward your local education tax credit to make up for the loss in property tax base to the school.

**Editor’s Note:** Stefanie Smallhouse is married to a fifth-generation farmer and rancher in Southern Arizona. She previously worked for a federal land management agency as a wildlife biologist, and is currently working to further conservation of Arizona’s natural resources through the locally led efforts of Arizona landowners.
It takes a group of dedicated individuals to pull together all the pieces and put on a program such as this. The Summer Agricultural Institute would like to thank the 2010 SAI Planning Committee for all their efforts to organize and coordinate the entire week of activities.

Brandon Moak - Committee Chair
University of Arizona Cooperative Extension, Maricopa County

Committee Members

Colleen Bergum  Dairy Council of Arizona
Karol Brill  Arizona Department of Agriculture
Brett Cameron  Arizona Department of Agriculture
Farm Family Hosts  Local Farmers and Ranchers
Dennis Fiscus  Arizona Department of Education
Jeannette Fish  Maricopa County Farm Bureau
Tyler Grandil  Arizona Department of Education
Peggy Jo Goodfellow  Arizona Farm Bureau
Victor Jimenez  University of Arizona Maricopa Agricultural Center
Marge Martin  Arizona State Cowbelles, Inc.
Monica Pastor  U of A Cooperative Extension, Maricopa County
Carrie Robbs  Arizona Beef Council
Erin Taylor  U of A Cooperative Extension, Maricopa County
Terri Verason  Dairy Council of Arizona
Jimmy Wojcik  Arizona Department of Education

HAVE A GREAT SUMMER!