

# ANIMAL SCIENCE E-NEWS

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## Arkansas 4-H Teams Mowed Down Competition at 2016 Mid-America Grassland Evaluation Contest

John Jennings, Professor, Extension Forages

Arkansas 4-H Grassland Evaluation teams mowed a wide swath through the competition, taking top honors at the 2016 Mid-America Grassland Evaluation Contest June 8th in Springfield, Missouri. Arkansas students took first, second, third, fourth and fifth high 4-H individuals, tied for overall high individual and took first, third and fifth place 4-H teams and overall high point team.

The competition was very tight, and the top 25 students, including 4-H and FFA, were separated by only 43 points. The contest included a field of 19 teams from five states including Arkansas, West Virginia, Indiana, Ohio and Missouri.

Cleburne County 4-H took first place 4-H team and first place team overall, scoring 1,075 points out of a possible 1,200 points to edge out a close West Virginia FFA team for top honors. The team was coached by Cleburne County staff chair Michelle Mobley.

Team member Stephen Wilson was high 4-H individual and tied for overall high individual of the contest. Rachel Wilson was second high individual, followed by Luke Wilson as third high 4-H individual. Spencer Beavers also competed on the Cleburne County team. Kathryn Bechdoldt competed as an individual from Cleburne County in the contest and placed fourth high individual.

Randolph County 4-H took third place team. Team members included Blaine Huddleston, Will Sparks, Brittany Luttrell and Clara Luttrell. Huddleston took fifth high 4-H individual and rounded out the Arkansas sweep of 4-H high individual awards. The Randolph County team was coached by Randolph County staff chair Mike Andrews.

The Madison County 4-H team took fifth place 4-H team and was coached by Madison County 4-H agent Jerry Jo Hamm. Team members were Mitchell Nelson, Laura Ogden, Cody Ogden and Cheyenne Walkingstick.

The Van Buren County team was coached by Van Buren County staff chair Danny Griffin. Team members included

Brooklyn Smith, Sarah Megee, Breanna Huggins and Riley Sawyer. White County qualified a team as well with team members Cody Acock, NoraLee Townsend and Sarah Gaskin. Coaches were Amy Heck and Brett Gordon. Heck said "This was our first experience and it was a great one. We look forward to returning next year."

To qualify for the Mid-America Grassland Contest, each team had to place in the top five of the Arkansas Grassland Evaluation Contest. The students have to complete four sections in the contest including Grassland Condition, Wildlife, Soils and Plant ID. For the Grassland  
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Cleburne County 4-H team – First place 4-H team and Overall High Point Team at the 2016 Mid-America Grassland Evaluation Contest.



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## Ecosystems Services May Be Key for Future Farm Income

Dirk Philipp, Associate Professor - Forages

Grassland agriculture is usually associated with animal production only, but there are other benefits that may become crucial in forging an income from raising livestock and taking care of the land. Currently, income rests squarely on food output per unit area, but income can be diversified to build more resilient agribusinesses and communities.

Ecosystems services from grasslands can be placed into four categories, of which the first is called “provisioning services.” This covers what we usually associate with “production agriculture,” such as output of a certain commodity or animals per unit area. Milk, meat and hay are prime output examples in this category, although other services such as groundwater recharge and reduction of nutrient outflow also fall under this category.

“Regulating services” are those that offset environmental impacts from other industries and include air quality mitigation, flood prevention from increased peak flow coming from urbanized areas, erosion control and drought mitigation. “Habitat services” are provided by maintaining and enhancing habitat for wildlife on site and travel corridors for migrating species. Lastly, “cultural services” are those that attract recreational activities and the tourism industry by providing the aesthetics necessary for bird watching and vacationing.

Incorporating successfully these particular service categories into a

livestock business plan is not as far-fetched as one might think and may hold the key for long-term rural sustainability. In some instances, these services are already incorporated or build a centerpiece of the farm operation. Many large former cattle ranches in Texas now focus on providing a place for hunting, as income from this activity is more profitable than cattle ranching alone. This requires the maintenance of certain habitat structures, which serve as refuge for other species as well.

The setup of current popular cost-share programs may not be optimal for achieving additional income from ecosystems services as these programs often address on-farm conservation issues but not off-farm ecosystem necessities of the surrounding landscape. Although there’s no political and financial framework yet in place to account directly for grassland ecosystems services in the U.S., enhancing these services is crucial in urban-rural transitioning zones that are very common now in the southeastern U.S. Research has shown that ecosystems services might potentially be as high as \$2,500 per acre a year, but this depends on the demand for certain services from the categories previously described.

The largest potential for additional income stems from maintaining water quality and quantity. This was shown with a program in southern Florida near the Everglades where state agencies paid cattle ranchers for water retention and

nutrient removal in wetland areas rather than relying on indirect measures such as cost shares or other incentives. This may be a model for other areas in the southern U.S. but requires careful assessment of the structure and location of pasturelands in their geographic context.

Water quality improvement through nutrient retention on pasturelands is feasible but requires improvements at the intersection of land and surface water. For example, the number one pollutant in streams in Northwest Arkansas is sediment that is washed from properties, dirt roads and eroding stream banks bordering pastureland. Improvements here include the creation and maintenance of buffer zones around streams that minimize sediment intake and, congruently, nutrient removal.

As removal of nutrients is most effective in wetlands or areas that stay wet for some time during the year, some pastureland may have to be managed differently to get the full benefit of regulating ecosystems services. Urban communities are very interested in leveraging increasing costs for wastewater treatment, and any reduction in nutrient and sediment load should be financially compensated. Direct reimbursement for certain practices that enhance the environmental quality of landscapes characterized by grassland agriculture will also be more attractive to landowners and producers instead of any regulation by federal or state agencies. ■

### Arkansas 4-H Teams Win at Mid-America Grassland Evaluation Conference *(Cont.)*

Condition section, the students must assess current grazing conditions in the field, determine fertilizer and weed control recommendations, calculate how much forage is needed in spring, summer, fall and winter for an example herd and make recommendations for improvement – all in 25 minutes. For the wildlife section, students must evaluate the field habitat value for quail and rabbits, make recommendations to improve the habitat and answer 20 questions on wildlife management. In the soils section, students must locate the contest site on a soil map, determine the correct soil, answer questions evaluating the soil, guess the slope of the field and determine suitability of 10 forages for that site. In the plant ID section, the students must correctly identify 25 pasture plants from a list of 75 possible species. An extra twist is that to receive points for a correct plant ID, each plant’s life cycle has to be answered correctly as well. Many county agents and vo-ag teachers from several states have commented that it is probably the practical and most real-life contest available. ■

## Blackleg: A Constant Summer Threat

Heidi Ward, DVM, Ph.D., Assistant Professor and Veterinarian

With the spring rain ending and the summer heat on full blast, it is time to address Blackleg, the nemesis of all beef cattle. Although the disease is brutal and costly, it is also completely preventable through vaccination.

### What Is Blackleg?

Blackleg is caused by bacteria called *Clostridium chauvoei* that secrete deadly toxins in the bloodstream of infected animals. This disease progresses very rapidly, and cattle can die suddenly without any obvious symptoms. Cattle between the ages of six months and two years that are on a high plane of nutrition and rapidly gaining weight are most susceptible to the disease.

### How Do Cattle Get Blackleg?

*Clostridium chauvoei* can be present naturally in the digestive tract of healthy animals with no adverse consequences. The bacteria can also be found in contaminated soil. When conditions are unfavorable for their growth, the bacteria form spores that are very resistant to heat and cold. Clostridium spores can persist in the environment for years and can be spread by the wind when the weather is

hot and dry. When cattle ingest the spores while grazing close to the ground, the bacteria become active and grow rapidly. The bacteria then enters the bloodstream through the small intestine.

### What Exactly Does Blackleg Do to Cattle?

Once in the bloodstream, the bacteria travel to muscle tissue where they produce large amounts of a gas byproduct as they grow and reproduce.

**Although blackleg is brutal and costly, it is also completely preventable through vaccination.**

The buildup of gas is a hallmark sign of the disease as the infected area often makes a crackling or popping sound when pressed. The most common areas of infection are the hip, shoulder, chest and back. The muscle typically swells and is hot and painful to the touch in the beginning but becomes insensitive and cold as the swelling cuts off blood supply to the area, causing the characteristic black tissue. Once these symptoms occur, the animal usually has only 12 to 48

hours to live before it dies of exposure to the lethal toxins secreted by the bacteria.

### Can Blackleg Be Treated?

Unfortunately, once symptoms are seen, the infection is usually past the point of no return. However, if Blackleg is suspected, cattle should be treated as soon as possible with penicillin G. Suspect cattle should be isolated and susceptible cattle vaccinated and moved to a clean pasture immediately.

### How Is Blackleg Treated?

Vaccination is the best way to combat Blackleg. The clostridial 7-way vaccine is considered a core vaccine for herd health. Calves should be given their first vaccine at two to four months of age. It is extremely important to booster with a second injection three to four weeks following the first injection; otherwise, it is as if the calf was not vaccinated at all! Adult cattle should be given the vaccine annually as part of the regular herd health plan. If an outbreak does occur, it is recommended that the producer contact a veterinarian for specific instructions on how to treat the cattle and how to dispose of carcasses appropriately. ■

## Extension Animal Science Offers Basic Spreadsheet Skills for Cattle Recordkeeping

Shane Gadberry, Associate Professor - Ruminant Nutrition

A new workshop is being offered through county Extension offices covering the basics of using a spreadsheet program for recording and summarizing beef cattle production records. The program is designed for cattle producers who are seeking a DIY (do-it-yourself) approach for basic recordkeeping. The hands-on class provides examples in Microsoft Excel and LibreOffice Calc. For the budget minded, LibreOffice is an open source, fully functional office suite that includes a spreadsheet program. The program is free to download over the internet.

The four-hour class includes working with an example cow herd inventory to create a layout, enter records, apply formulas,

sort and filter and utilize pivot tables to summarize herd records. While the workshop focuses on how to build spreadsheets, the class also discusses some disadvantages of spreadsheets on a local device for recordkeeping in comparison to other options available today.

The workshop fee is \$50 and covers the costs for a 45-page workbook with step-by-step instructions, a USB drive with example worksheets and refreshments. Attendees are encouraged to bring their own laptops to the class, and laptops will be available to use during the workshop for participants who own desktop computers. For more information, contact your local county Extension agent. ■