A few years ago a team at the University of Arkansas Division of Agriculture made the visionary decision of establishing the Watershed Research and Education Center (WREC) on a university-owned research farm in Fayetteville. Sitting smack in the middle of the urban/rural transition in a highly visible location, this center is rapidly developing into a first-class facility for investigating and demonstrating best management practices in livestock agriculture.

Encompassing about 250 acres of pasture- and cropland, the location for the center proved ideal for enabling researchers and extension personnel to engage in a novel form of cooperation and educating the public. While still in the process of developing infrastructure, a number of workshops, farm visits and student classes were hosted for local producers, citizens and national and international groups alike. The heart of WREC is a riparian zone that already stretches for about 2,000 feet along an intermittent stream that drains residential areas to the east of the farm, dissects WREC in a westward direction and leaves the center as it borders on Interstate 540. This geographic feature was the main reason for establishing a new center there. The population in Northwest Arkansas has been growing rapidly during the past decades and will put increased pressure on water and land resources in the future. The location is thus ideal to bring stakeholders together to work on the challenging task of producing food for a growing population while maintaining the sustainable use of natural resources.

The riparian zone is comprised of various native tree and brush species that were planted on either side of the creek as a 150-feet wide buffer zone with the intent of mitigating runoff and nutrients it may carry with it. Parts of the buffer zone are native grasses that not only provide habitat for various wildlife species but which can also be harvested as cellulosic biomass for generating energy. The U.S. Geological Survey (USGS) established very early in the process several monitoring stations along the creek for a quantitative flow analysis of waters passing the farm. The setup allows researchers to determine the magnitude of runoff and associated nutrient intake from each section of the farm based on management practices. North of the creek the center encloses a wetland area that will be developed for teaching and research purposes.

Four-acre paddocks were restructured into large pastures to allow qualitative and quantitative edge-of-field measurements of runoff in the future. Currently, there are 20-acre swaths of novel endophyte tall fescue, orchardgrass, bermudagrass and mixed grass pastures and cropland used for annual forages. Several other pastures will be restructured and established in different annual and perennial forages in the future. The year 2012 also marked the return of cattle to the property after a period of fence rebuilding and establishing a cattle working facility. With the dedicated work of the farm crew, several thousand feet of permanent fences were reestablished according to long-term plans for WREC, enabling state of the art animal science research in ruminant nutrition and forage agronomy. Several graduate students have completed their research using facilities and pastures at WREC.

As public outreach is a large part of the core philosophy of WREC, the center is open to farm tours and
educational activities for the general public, university students and pupils from surrounding school districts. Local citizens recently visited the place as part of the UA Agricultural Experiment Station “Appreciation Day,” celebrating 150 years of the land grant mission.

In the past, research was showcased to high school students and pupils from middle schools during field visits. Undergraduate students from the Animal Science Department have used the opportunity to learn about forage crops as part of their curriculum. With increased opportunities for student education, research and outreach to the public, WREC is on its way to becoming a regionally important research and education center.

Livestock judging is a process of evaluating, selecting and placing various livestock species. Selection of project animals is actually judging livestock, comparing the merits of one animal against the merits of other potential project animals. Livestock producers, breeders, feeders, buyers and packers evaluate livestock for their potential as well. In 4-H, livestock judging contests and workshops are conducted throughout the year to test the knowledge and evaluation skills of 4-H members.

Livestock Skills contests are a relatively new educational tool to provide youth with an experiential learning opportunity that focuses on food animal management. The content of this contest provides a framework for youth to learn a variety of topics related to the production and management of beef cattle, meat goats, sheep and swine. Participants in these events will learn about different breeds of livestock, feedstuffs used in livestock diets, equipment used in raising and showing livestock and in processing meat, wholesale and retail cuts of meat derived from livestock, expected progeny differences (EPDs), common calculations used to measure animal performance and profitability and evaluating hay quality.

Historically, youth livestock shows have been considered valuable for several reasons. From an animal agriculture perspective, youth livestock shows allow for recognition of superior animals and breeding/production efforts. Through the raising and exhibition of livestock, youth are exposed to the animal agriculture industry and many are motivated to pursue further education and related careers. Competition can be a great motivator, and livestock projects afford youth opportunities to develop important life skills.

Each year livestock judging and livestock skills teams compete at the Arkansas State 4-H O-Rama in Fayetteville. The highest placing team in each contest represents Arkansas at the

Rebuilding Herds, Pastures Top Agenda at River Valley Beef Cattle Conference
Dr. Tom Troxel, Professor

- A representative from CattleFax will speak on the beef cattle market outlook

A registration fee of $20 will be collected at the door. The conference is from 8:30 a.m. to 1 p.m.

As a result of the 2012 drought, many cattle producers sold a percentage of their cowherd. How are they going to rebuild? Dr. Tom Troxel, associate head, Animal Science Department, for the University of Arkansas will address this critical question and provide options and ideas on rebuilding the cowherd.

Pastures were devastated during the drought. Managing these pastures will be very important as the spring growing season approaches. Dr. John Jennings, professor - forages, Animal Science Department, for the University of Arkansas will provide practical, science-based best management practices to rebuild pastures.

Volatility is the most common word used to describe the cattle market and the cost of production. A speaker from CattleFax will discuss the cattle market and provide some insight into where the market is going. In addition, expansion is another word many are using in today’s cattle industry. Should the cow/calf industry expand? Is this not the time to expand? CattleFax will sort out the data and provide some insight.

For more information about cattle production, visit www.uaex.edu or www.arkansas-livestock.com or contact your county extension office.

Arkansas 4-Hers Successful in National Events
Steven Jones, Associate Professor

Even though many cattle producers have purchased hay, many are still short hay. Not all feedstuffs are appropriate for all classes of beef cattle. Dr. Paul Beck, professor, Animal Science Department, for the University of Arkansas will discuss the uses and limitations of alternative feedstuffs for cattle.

Historically, youth livestock shows have been considered valuable for several reasons. From an animal agriculture perspective, youth livestock shows allow for recognition of superior animals and breeding/production efforts. Through the raising and exhibition of livestock, youth are exposed to the animal agriculture industry and many are motivated to pursue further education and related careers. Competition can be a great motivator, and livestock projects afford youth opportunities to develop important life skills.

Each year livestock judging and livestock skills teams compete at the Arkansas State 4-H O-Rama in Fayetteville. The highest placing team in each contest represents Arkansas at the
A handful of pigeon fever cases have recently occurred in northwest Arkansas near Springdale. Pigeon fever is a disease that causes abscesses and a mild fever in horses. The disease is typically more prevalent in drier climates and is not common for Arkansas, but this year’s drought conditions may have been ideal for disease development.

Pigeon fever is due to an infection by the bacterium Corynebacterium pseudotuberculosis that leads to pectoral abscesses in the chest area. The abscesses cause the appearance of a protruding breast muscle, which gives the appearance of a pigeon breast and hence the name, “pigeon fever” (see Figure 1). Abscesses may also occur along the belly and the lower neck region or on a front or rear limb of an infected horse. Affected horses may appear weak and exhibit stiffness or lameness associated with the swollen tissue. At first glance, an owner of an infected horse may think their horse has been injured due to a kick from another horse.

The infectious organism usually lives in the dry soil and manure. Transmission of this disease is usually due to flies, but horse-to-horse contact or contact with contaminated soil or tack can also allow the infectious bacteria to affect a susceptible horse. Although people are not infected by this disease, they can inadvertently transmit the organism on clothing, hands and shoes. Recent cold snaps should help decrease the chance of this disease spreading; however, during the early fall, balmy temperatures and dry conditions were prime for disease development.

Pigeon fever is a treatable disease, and most cases lead to superficial abscesses that are treated with heat packs and lancing for drainage. Once the abscess is surgically lanced, it should be cleaned and flushed daily with disinfectant. Most cases do not require antibiotics, and many veterinarians feel that antibiotics may delay abscess maturation. Furthermore, deep abscesses may occur in the lungs or other internal organs. These occurrence are much less common but may require antibiotic therapy.

If horse owners suspect their horse may be infected, a veterinarian should be contacted for treatment assistance. The infected horse should be isolated to minimize the likelihood of exposing other horses. Also, keep in mind that discharge from a ruptured abscess contains a high number of bacteria and can contaminate the environment. Any tack or other equipment such as brushes, buckets or bedding should be disinfected with a mild bleach solution. Owners need to maintain good hygiene after handling a sick horse. Good fly control will also help limit the spread of this disease to other horses.

Currently, there is no commercially available vaccine for the disease. Horses that have experienced an infection will have immunity for several years against the infectious bacteria. Other farm animals such as sheep and goats can become infected with a different strain of the same organism. Cattle can become infected with either strain, and infected cattle could act as vectors of this disease to horses (or vice versa).
Calving Ease: An Economically Important Production Concern

Bryan Kutz, Instructor

Since calving difficulty is such an important economic problem, one way to address the problem is through genetic selection. Using a low birth weight bull is one step that can be taken to prevent calving difficulty. Calf shape also needs to be considered. The shape of the head and shoulders can also be attributed to calving difficulty. However, many people wouldn’t argue that birth weight is the genetic trait that can be most highly correlated with dystocia. Table 1 illustrates how the incidence of dystocia increases as birth weight increases and indicates why full attention should be given to this production concern.

The sire utilized in breeding schemes plays the most important role in determining calf weight, but the genetics of the dam should not be overlooked. The heritability of birth weight is nearly 48 percent. Therefore, by using selection pressure on bulls for birth weight and calving ease, it would be possible to alleviate many existing calving problems within a herd. The sex of a calf can also influence birth weight. Bull calves are generally heavier at birth than heifer calves. Bull calves can outweigh heifers by 1.5 to 10 pounds at parturition. However, this occurrence is difficult and expensive to control.

EPDs for birth weight, calving ease and maternal calving ease should be considered when selecting sire for use of first calf heifers (select for a calving ease sire). For example, evaluate the information on the following two sires (Table 2).

- Bull A is expected to sire calves that come 3 pounds lighter at birth on average than Bull B.
- You would expect 4 percent more calves from Bull A to be born unassisted than Bull B.
- Daughters of Bull B have a 3 percent greater likelihood of calving unassisted compared to daughters of Bull A.

In general, Bull A should be an easier calving sire, since birth weight accounts for a major portion of the calving difficulty. However, now with many breed associations reporting calving ease EPDs, the simultaneous use of these figures can help identify young bulls that can be used on females without causing major dystocia. Calving ease EPDs also have an advantage in that this measurement of performance is not affected by management and nutritional factors that may influence actual birth weight. Calving ease maternal should be seriously considered if you are planning to keep replacements from a group of calves, because this figure is really a second-generation calving ease predictor.

In the cattle industry, producers do not typically plan matings to increase calving difficulty. Proper sire selection and heifer development can go a long way in eliminating calving problems. Although, these practices are very important, do not overlook the maternal influence on calving difficulty.

The sire of the replacement heifer can impact how easily a heifer will calve. Pay close attention when selecting replacement heifers to the maternal grandsire’s (heifer’s sire) birth weight performance and EPDs for calving ease. In this case, calving ease maternal is the best predictor (if reported).

While sex of calf, embryonic death and abnormal presentations are hard to control, good management, nutrition and proper sire selection can help prevent calving difficulty. Calving difficulty could result in loss of calf and potentially your cow and greatly affect bottom line profitability. It is important to identify the proper genetic balance for your cowherd and ultimately reach your production goals.

Table 1
Effect of Birth Weight on Ease of Calving
in Percentage Simmental Females

<table>
<thead>
<tr>
<th>Ease of Calving</th>
<th>Normal Birth</th>
<th>Hand Pull</th>
<th>Mechanical Puller</th>
<th>Caesarean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Females</td>
<td>68</td>
<td>34</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>Percentage of Total</td>
<td>56.7</td>
<td>28.3</td>
<td>13.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Birth Weight (lb)</td>
<td>81.1</td>
<td>88.3</td>
<td>100.3</td>
<td>121.0</td>
</tr>
</tbody>
</table>

(Meacham, Virginia Tech)

Table 2
Using EPDs to Compare Bulls for Calving

<table>
<thead>
<tr>
<th>Actual Birth Weight EPD</th>
<th>Birth Weight EPD</th>
<th>Calving Ease EPD</th>
<th>Calving Ease Maternal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bull A</td>
<td>85</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Bull B</td>
<td>96</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 3
Effect of Dam’s Age on Calving Difficulty

<table>
<thead>
<tr>
<th>Dam’s Age</th>
<th>Research Station</th>
<th>Percent Calving Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 years</td>
<td>MARC</td>
<td>54</td>
</tr>
<tr>
<td>3 years</td>
<td>CSU</td>
<td>16</td>
</tr>
<tr>
<td>4 years</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>5 years &amp; over</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

(Ritchie, Michigan State University)

Table 3 illustrates why it is important to know the age of your cowherd and to select your herd bull accordingly. Perhaps, separating the first calf heifers to breed to a calving ease sire would be economically smart. Breeding first calf heifers two to three weeks prior to the cowherd can also be an important management tool. These practices concentrate the breeding season so you can give more time and attention to calving and allow heifers more time to rebreed the following year.

In the cattle industry, producers do not typically plan matings to increase calving difficulty. Proper sire selection and heifer development can go a long way in eliminating calving problems. Although, these practices are very important, do not overlook the maternal influence on calving difficulty.