Arkansas 4-H Horse Judging Camp Set for June 28
Mark Russell, Assistant Professor

4-H members interested in sharpening their horse show judging skills can learn new skills at the Arkansas 4-H Horse Judging Camp set for June 28 at the C.A. Vines Arkansas 4-H Center. A variety of classes, including western and English disciplines and halter and performance classes, will be covered. Participants will learn what to look for, know the rules and be able to offer a clear set of reasons for their judgment of competitors. The cost is $15 for 4-H members and $10 for parents or leaders. The camp is accepting all levels from beginner to advanced youth, ages 9-19. A continental breakfast and lunch will be provided. The camp runs from 8:30 a.m.-5:00 p.m. Participants can register at 4-H online: https://ar.4honline.com/. For more information, contact Russell at 501-671-2190 or by email at mrrussell@uaex.edu.

Batesville Station Livestock and Forage Field Day
Don Hubbell, Station Director

The annual field day will be on Tuesday, April 17, at the Livestock and Forestry Research Station. Registration begins at 8:30 a.m. Program will begin at 9 a.m. We will begin the program with Drs. John Jennings and John Boyd presenting information on weed and forage management for drought-stressed pastures.

Dr. Shane Gadberry will discuss mineral requirements and supplementation. Attendees are encouraged to bring a mineral tag to see how your mineral compares to what your cows’ needs are. Dr. Tom Troxel and Dr. Jennings will talk about how forage decisions are made and how they impact the marketing strategy for the calves in the “300 Days of Grazing” demonstration herd.

After lunch, Dr. Paul Beck will present some of his work on implant timing of newly received calves and subsequent grazing performance on winter annuals.

Our guest speaker this year is Dr. Derrell Peel, livestock economist at Oklahoma State University. His presentation will cover some factors concerning future herd expansion and price trends in the near future.

Dr. Peel is regularly featured in popular beef publications for his insight and knowledge of the beef cattle industry. His presentation is titled “Challenges and Opportunities in Today’s Cattle Markets.”

The registration and meal at noon are provided free of charge. For more information, you can call the research station at 870-793-7432 or visit our web site at www.batesvillestation.org.
Recognizing Stress in Horses
Mark Russell, Assistant Professor

More often than not, our horses will show signs of stress. And just as often, horse owners can control the amount of stress seen in our horses. There are many indicators of stress. If stress levels stay low, chances are the ride and overall experience will be much more positive. Further, you will add life to your horse and allow him to be much happier, and his overall health will increase as well. But how do we recognize stress in our horses? Does it increase when we leave home? Chances are, the less frequently you leave home with your horse, the higher the stress level will be when you do leave. Nevertheless, horses can show signs of stress at home on a daily basis in some cases.

Horses experiencing stress may offer many signs to owners. For example, they may appear to be frightened and/or nervous. We may see this in the form of running, or in some cases, they develop vices such as cribbing and stall weaving. Abnormal sweating can also signal a stressful situation for your horse. Muscle tone can also provide some clues. If the horse is tense and the muscles are contracted, it may be tying up. If the muscles are flaccid and extremely relaxed and the horse is depressed, the central nervous system may be damaged. If any of the signs are observed, a closer inspection is needed.

In order to fully recognize a horse’s change in condition, it is a good idea to keep permanent records for each horse in your care. The file should include:

1. Permanent identification, birth date and registrations
2. Reproductive history, breeding dates and foaling dates
3. Weight and condition scores
4. Normal temperature (T), pulse (P) and respiration (R) or TPR
5. Deworming dates and products used
6. Vaccination dates, diseases and products used
7. Illness dates, diagnoses and treatments
8. Injury dates and treatments
9. Surgery dates and outcomes
10. Allergy causes

Stress can be grouped into four different categories for horses:

1. Behavioral or psychological
2. Mechanical
3. Metabolic
4. Immunological

**Behavioral Stress** – Horses do not see the world as we do. They have what is known as monocular vision as well as binocular vision. With the monocular vision, they are able to see to each side of their head much better than humans. They also have binocular vision, which allows them to see objects in front of them. However, horses are unable to see approximately 4 feet directly in front of them. Further, horses hear much better than humans. All of these factors can be possible explanations of why they seem to spook easily and without warning on occasion.

When a horse is stressed, he may also show signs of agitation. A horse that is agitated may lay his ears back and swish his tail. This is not to be confused with a horse that is fearful. This horse will clamp its tail down, its body is tense and eyes may be wider than normal.

Horses are known to also feel less stress when around other horses. Even if a horse cannot be in the same pasture as other horses, they will feel more ease when they are able to see other horses that are in close proximity.

**Mechanical Stress** – Stress level in horses can also increase greatly when there is some type of structural injury. Examples of this may include lameness, local inflammation, swelling, heat and/or pain. Checking for injury or lameness should be a part of the everyday routine for maintenance of your horse. The best time to do this is while feeding in the morning and again at the evening feeding session.

**Nutrition and Metabolic Stress** – The horse’s digestive system is designed to handle frequent small meals. Further, when horses are in a grazing environment, they are better able to maintain optimum health. To reduce stress, horses require that a certain proportion of the diet be roughage. Vitamin and mineral requirements must also be met but not exceeded for the stage and condition of the horse.

Three metabolic problems in horses are closely related to nutrition:

1. Colic
2. Laminitis
3. Tying up

**Immunological Stress** – Stress caused by disease and/or parasites can range from superficial discomfort to death. A good vaccination program is the best defense against infectious diseases. Additionally, an effective deworming program must include good management practices as well as regular use of antiparasitic drugs. Some important guidelines include:

- Treat all horses at the same time.
- Rotate clean horses to clean pastures.
- Design feed and water facilities to prevent fecal contamination.
- Remove manure frequently from stalls and paddocks.
- Clip and harrow pastures regularly.
- Consult with a veterinarian on selection and use of antiparasitic drugs.
- Monitor the effectiveness of the parasite control program by checking egg counts in feces.

As horse owners, we will never completely be able to keep our horses from becoming stressed. However, with routine checks and awareness, we may be able to manage it. Special thanks to Dr. Rick Parker, equine professor from College of Southern Idaho, for his contributions to this article.
Take Advantage of This Market
Shane Cadberry, Associate Professor

According to the most recent U.S. Drought Monitor, the majority of Arkansas, has returned to normal soil moisture, while areas from central Kansas and south through Texas and regions of the southwestern U.S. remain in a moderate to exceptional drought intensity. Georgia and parts of Florida and South Carolina are also experiencing exceptional drought intensities. Along with restored moisture, winter in Arkansas was exceptionally mild. According to preliminary data of the National Weather Service out of Little Rock, December, January and February were 2.7, 5.7 and 4.5 degrees above normal.

Cattle producers who sowed small grain and ryegrass pastures last fall should start to see the reward for their labor. Others, however, may still be a month or more away from having sufficient pasture forage for grazing. Until then, cattle producers will notice their cattle will spend more time seeking out whatever cool-season pasture plant they find palatable, such as little barley and buttercups, and less time at the round bale feeder.

While grassy weeds may provide greater protein and energy than hay or other fillers that were used this winter to stretch a short hay supply, they tend to mature quickly, such as little barley, or become toxic if cattle develop a desire to continue consuming buttercups through plant maturity. In addition, the overall amount of dry matter available in early spring is low, as plants contain 80 percent water content during this time. Past Extension demonstrations monitoring the monthly growth of replacement heifers observed between February and March recorded a lag in daily gain when heifers were being developed on a hay and supplement diet in a large pasture. The cattle producers participating in the demonstration recognized that the heifers during this period would spend more time seeking our green, growing forage instead of eating hay. The response observed during this transition may be due to many factors, including restricted intakes, greater energy expenditure and rumen microbial adjustment to a new diet.

With drought conditions lingering in the southwestern U.S. and the U.S. calf crop the smallest it’s been since 1951, calf prices should remain strong. Cattle producers need to focus on managing their cattle and pasture resources to take advantage of this market and capture higher returns.

Many cows in Arkansas were wintered on low-quality hay or a hay substitute such as poultry litter or cotton gin waste. The mild winter greatly benefited the cow herd. A general rule of thumb is for each degree below a cow’s lower critical temperature, her energy need increases 1 percent. Alternative roughages fed this winter contained insufficient amounts of digestible nutrients to maintain body condition at thermoneutral environment. Imagine how thin cows would be today if this winter mimicked 2009-10.

Despite the mild winter, many cow herds are thin today due to cows being on a low to moderately-low quality diet for a really long time. Allowing cows to become excessively thin now is going to result in lost income during a period when ranch income could be record high.

Given the current condition of the cow herd, steps cattle producers should take to take advantage of this market include –

1 Manage access to pasture. If thin cows are spending too much time chasing after a little amount of green grass, confine these cows to a smaller area and feed them roughage and sufficient supplement to balance their energy and protein needs. As pasture conditions improve, consider limit-grazing pastures twice per week initially, allowing the pasture to become the supplement. Previous research at the University of Arkansas Southwest Research and Extension Center showed that limited pasture grazed twice per week had the same response as a hay-based diet with energy needs balanced using a byproduct feed.

2 Manage cows according to body condition. Invest more in thin cows. Many cows are now calving, and it will be difficult to restore thin cows to a good body condition within 45 to 60 days for breeding. However, placing thin cows on a higher plain of nutrition can not only increase the odds of getting them bred back but also can benefit the developing calf by ensuring that sufficient nutrients are being delivered for milk production.

3 Try to avoid breeding thin cows and replacement heifers on toxic fescue pastures. Research at the USDA-ARS station in Booneville showed that cow groups that were in moderate body condition had a lower pregnancy rate while grazing toxic fescue compared to groups in good body condition. However, when groups in similar body condition were compared on bermudagrass pasture, pregnancy rates did not differ. A study recently published in the 2011 Arkansas Animal Science indicated heifers on nontoxic fescue were 2.25 more likely to become pregnant compared to heifers on toxic fescue. In addition, research has shown toxic fescue can negatively affect semen quality.

4 Manage cow and bull health and evaluate breeding soundness. Spring-calving cows are often transitioning from hay to pasture as breeding season approaches. During this time, cows do not need internal parasite burdens restricting nutrient availability and absorption, so cows should be dewormed. This is also a time to give cows their annual booster shots if they were not administered at weaning or prior to calving. At this point, it is becoming a little late in the season to discuss breeding soundness; however, having bulls examined for breeding soundness is very important to take...
advantage of any market situation. If numbers help convey the importance of testing for breeding soundness, a recent bull test clinic in central Arkansas had 17 percent of bulls fail the semen evaluation. This was equivalent to 3 of 18 bulls. If running 30 cows per bull during the breeding season, this multiplies to potentially 90 cows not breeding. It takes two to three years to recover the cost of maintaining an open cow on the farm, so how can a breeding soundness exam not be worth the investment.

5. **Manage the calf crop for minimal death loss and maximum growth potential.** If tagging calves at birth, give the calves a growth implant or implant calves at processing/branding time (3 months of age). Vaccinate calves for blackleg by this time. Castrate male calves at birth or three-month processing. If selling calves at weaning, deworming calves 85 days prior to weaning has showed a 10.2 pound improvement in weaning weight (2011 Arkansas Animal Science Research Report).

6. **48-hour calf removal.** Removing the suckling influence of calves for a two-day period when calves are at least 45 days of age can help females resume estrous. Dr. L. R. Sprott’s publication, *Calf Removal – A Way to Stimulate Reproduction in Cows*, Texas A&M University, indicates that pregnancy rates during the first 21 days of breeding following 48-hour calf removal will usually be about twice the pregnancy rate of cows whose calves were not removed. Research has shown that cows that breed early during the breeding season will produce more pounds of calf weaned throughout their lifetime than cows that breed late in the breeding season. Calves born early in the calving season are heavier at weaning, and heavier calves bring more total dollars at market.

7. **Early-wean calves.** If implemented early, weaning may help increase the percentage of cows that get bred back during the breeding season. In addition, it may be more economical to put weight on the calf by feeding the calf independently instead of trying to feed the calf through a cow in thin condition. Creep feeding, as opposed to early weaning, can improve weight gains of calves, but creep feeding does not benefit the cow as much as early weaning. Creep-fed calves continue to nurse, which puts greater nutritional demand on the cow, and the efficiency of creep feed conversion to gain can be low if there is ample, high-quality forage available.

8. **Retain ownership of calves.** High feed prices have improved the value of weight gained on pasture. The calf crop income for the 300 Days Grazing demonstration herd increased 9 to 15 percent the previous three years through retaining ownership for 42 to 72 days.

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**Forage Brassicas: Alternative Winter Annuals**

Kenny Simon, Program Associate, Steven M. Jones, Associate Professor and John Jennings, Professor

Forage brassicas can extend the grazing season by providing green grass when other forages are less productive, therefore reducing the dependence on stored or purchased feed. They develop quickly to provide palatable and nutritious forage for livestock. They are also highly productive, digestible and contain relatively high levels of crude protein and energy. However, forage brassica leaves are very low in fiber. While transitioning animals to the brassicas, make hay available or limit-graze them to reduce digestion problems.

Forage brassicas were established on four farms in 2011 as part of the 300 Days of Grazing Program. These demonstrations were implemented in Cleburne, Faulkner, Ouachita and Sebastian counties. The two forage brassica varieties used in our demonstrations were Appin and Pasja, products of Ampac Seed Company. The third brassica variety used was a seven-top. Seven-top is commonly used as a vegetable crop but has a history of being used as a forage crop for small ruminants and in deer food plots in Arkansas. Turnips were seeded at 5 pounds per acre. In addition to the turnips, Marshall ryegrass was seeded at 22 pounds per acre. Turnips and ryegrass were broadcast seeded on a prepared seedbed the last week of August.

Three years of data reveal several recommendations for forage brassicas. We have compared different planting methods and have discovered two methods work well for planting small grains and ryegrass do not work well for planting turnips: broadcasting seed in short grass sod and covering with a tire drag and planting with a no-till drill into short grass sod. Our findings suggest that turnips and other forage brassicas are best planted by early September on a tilled or lightly disked seedbed, whereas planting in October is too late. Brassica seed should be planted between ¼” and ½” deep. Do not plant the seed too deep! Roll or cultipack the seedbed, broadcast the seed and then lightly roll or cultipack to cover the seed.

Grazing may begin 50 to 75 days after seeding, depending on the species and weather.

Yield and quality samples were taken approximately 70 days after planting. Table 1 shows the forage yield and quality analysis averages for locations where no fertilizer was applied. Note ryegrass overseeded in grass sod with no
fertilizer had not reached adequate forage height to sample or graze. Table 2 shows the yield and quality analysis averages for a location where 45 units of N were applied per acre at planting. The crude protein and TDN levels of the turnips exceed the nutritional requirements for all classes of livestock. Remember that these results were achieved in a historical drought year.

Proper grazing management is important to optimize the true potential of these crops. The plants should be grazed similar to wheat. Turn in when the plants have reached 10 to 12 inches in height and pull out when they have been grazed down to 4 to 6 inches. Rotational or controlled grazing can potentially increase forage utilization over continuous grazing by more than 50 percent. Increasing forage utilization creates additional management options such as (a) increasing the number of animal units, (b) extending grazing during drought and (c) reducing input costs and time savings. Strip grazing small areas will provide the most efficient utilization.

The question is always, is the practice practical and cost efficient? The cost savings of each farm is presented in Table 3. The preliminary results from these demonstrations show that the use of turnips is a cost-efficient way to produce high-quality forage at a time of year that can be devoid of acceptable grazing. Due to the mild winter and the use of rotational grazing, the forage turnips have continued to put on vegetative leaf and are still being grazed. The ryegrass is beginning to grow as a result of good moisture and longer day length.

<table>
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<th>County</th>
<th>AU</th>
<th>Acres</th>
<th>Actual Cost</th>
<th>Comparison Cost</th>
<th>Total Savings</th>
<th>AU Grazing Days/Ac</th>
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<td>158</td>
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<tr>
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<td>$893.93</td>
<td>$777</td>
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*45 units of N applied/acre
Implants and Performance of Stocker Calves

Paul Beck, Professor

Many of the best and most up-to-date cattle producers in Arkansas are involved with raising stocker cattle. Producers who have no problem with investing $10 to $15 per calf for the latest antibiotic to reduce mortality losses forgo the $1 to $2 per calf investment in growth-promoting implants for their cattle. One reason for this may be that producers can easily track sick pulls and death losses associated with respiratory disease but may not be able to see the 10 to 15 percent increase in performance gained from use of implants. Another possible reason may be the belief that use of implants prior to the finishing phase will either decrease performance during finishing, reduce carcass quality or both. Over the last three years, we have conducted research studies determining the benefits of implants pre-finishing and tracking the effects of pre-finishing implants through finishing and slaughter.

In one study, steers were placed on wheat pasture at the University of Arkansas Livestock and Forestry Branch Station at Batesville either after receiving an implant (Component TE-G with Tylan, Elanco Animal Health) or were not implanted. Also, cattle in separate pastures were offered a non-medicated mineral, a mineral medicated with Rumensin or pressed protein blocks medicated with Rumensin. Steers fed the non-medicating mineral that did not receive an implant gained over 2.3 pounds per day, which is excellent performance for grazing steers. But the implanted steers fed the non-medicated mineral gained 2.7 pounds per day, an increase of 0.4 pound per day! While implanted steers fed the medicated mineral and blocks gained 0.55 pound more per day than steers fed the non-medicated mineral that did not receive an implant. Over a 100-day grazing period, supplying an ionophore and an implant would increase body weight gains by 55 pounds.

In another study conducted at both the University of Arkansas Livestock and Forestry Branch Station at Batesville and Southwest Research and Extension Center at Hope, steers were implanted (Synovex-S, Pfizer Animal Health) upon arrival at the receiving pens, following delays of 14 and 28 days, or were not implanted. Implanting during the receiving period did not affect animal performance or animal health during the receiving period, but implants did increase gains while steers grazed cool-season annual pastures (wheat pasture at LFRS and rye or oat pasture at SWREC). Implanting increased overall average daily gain by 0.3 pound per day, but during the last 28-day grazing period, steers implanted on arrival gained less than steers implanted either on day 14 or 28 of receiving. During-receiving energy is likely being used by steers to combat stress and enhance immune function, as opposed to increasing performance in response to implants. While grazing steers were able to respond to implants by increasing weight gain, early implants were playing out before the end of the grazing season.

In the last study, sponsored by the Arkansas Beef Council and the Noble Foundation, steers and heifers from the SWREC cow herd were implanted (or not implanted) prior to finishing as calves (shipped to feedlot at 10 months of age) or as yearlings (shipped to feedlot at 15 months of age) after a stocker period with restricted gains (<1 pound of gain per day) or unrestricted gains (>2 pounds of gain per day). Implants increased pre-finishing gains of all cattle whether they were calf-fed, restricted gain yearlings or unrestricted gain yearlings. Interestingly, performance during finishing was not affected by implants pre-finishing. Carcass quality and tenderness were not affected by implant pre-finishing in calf-fed or unrestricted yearlings, but carcass quality grade of restricted gain yearlings was decreased and toughness was increased with implanting of restricted growth yearlings.

Growth promoting implants are a valuable tool for stocker producers with the potential to increase returns by up to $50 per calf. With judicious use of this technology, there is no detrimental effect on carcass quality or eating satisfaction of beef.

Hay Feeding, Wood Splitting and Forage Education

John Jennings, Professor

Winter has ended and so has hay feeding and cutting firewood along with it. Those last two don’t seem related, but I’ll make it seem that way if you read long enough. We have worked very hard with producers across Arkansas to help them reduce hay feeding by using a number of forage management practices in the 300 Days of Grazing Program. At meetings when we present demonstration results collected from farms to other farmers, we are sometimes met with disbelieving comments. For instance, at the Batesville Research Station, we are managing a fall-calving herd with the same recommendations we make to producers enrolled in the 300 Days of Grazing demonstrations. This winter we did not have to feed hay until February 8, due to grazing of stockpiled fescue produced last fall.

Many folks just don’t believe it. Over the past 14 years, we have conducted well over 100 stockpiled forage demonstrations on typical Arkansas farms. Only one had a negative return, and that was a loss of about $1 per animal unit. For a gambler, those odds would be as close to a sure-thing as you could get. But the point is that many people are just too hard-headed to believe in a practice that has been proven on farms just like theirs. They are as hard to crack as a piece of knotty post oak firewood.

Here is where hay feeding, wood splitting and education all come together. Back in the day, a woodsplitter was a kid
with a pair of gloves and a splitting maul, unlike the motorized conveniences of today. I was the assigned woods splitter in our family since Dad did not share his chainsaw. He taught me that for easiest splitting, the piece of wood should be stood up with the small end up, meaning the end that was closest to the top of the tree when it was cut. He also showed me that each piece of wood has small heart cracks at the center showing where the wood naturally wanted to split. Also on large pieces of wood, you never started hitting the piece of wood in the center, but you lined up with the natural heart cracks and aimed the maul to hit the far edge away from you, then the edge closest to you, then you hit the center. Done correctly, the first lick would cause the wood to split slightly through the heart crack, then the other blows would split the wood apart. Some knotty pieces took many blows. The sound of the maul would resound in a sharp “whack” sound over and over with no apparent results. But you knew when you finally won the battle when instead of hearing a “whack” the sound of maul meeting wood resulted in a deep “thunk” sound, meaning the wood had just cracked. Splitting that chunk of wood apart was easy after that point was reached.

I relate all this to a producer we have worked with over several years. He has tried several practices to improve his cattle operation but just didn’t believe that you can apply fertilizer during the hot weather of late summer and get any fall grass growth from it. He was convinced that stockpiling forage for winter grazing just wouldn’t work. I politely showed him results from other farms, mentioned how much he could save on hay and offered to help him enroll in a demonstration program to try it; all to no avail. This guy was more like trying to split seasoned hickory instead of post oak. Late this winter I ran into him at a beef conference and asked how his cows were wintering. With a sheepish tone in his voice he said: “I didn’t fertilize like you said to, but I did hold off from grazing a pasture and let it grow up in the fall. My cows grazed it till the middle of January. That stockpiling just might work!” At that moment I think I just heard a “thunk.” The rest will be easy.