Too much risk?

By Paul Beck
Associate Professor

This past summer and fall, much of Arkansas experienced a severe drought. Hay for winter feeding is in short supply. In some cases, hay has been fed to livestock on short pastures for months. In talking to area producers, hay is being shipped into the area from areas not affected by the drought, or bales of crop residue (milo stubble, corn stalks, or rice straw) are being purchased and hauled to the ranch. This is a possible solution to the problem of feeding a cow herd through the winter. As an Extension specialist, I have been advising producers to consider aggressively planting small grains (oats, rye or wheat) along with annual ryegrass into drought-shorted pastures about a month earlier than normally recommended (in mid-September instead of mid-October). The theory is that since warm-season grass pastures were essentially dormant by the end of August due to extreme drought and heat this summer, there would be very little competition between the warm-season grasses and the newly emerged cool-season annuals.

Small grains and ryegrass are an excellent source of pasture for times when our permanent warm-season forage base is dormant. If these pastures are adequately fertilized during the fall and they are allowed to grow to 6 inches in height before grazing, these pastures can be used during the winter to provide supplemental pasture for the cow herd. Last year, at the Southwest Research and Extension Center near Hope, small grains and ryegrass were established in mid-September. Even with the drier than normal fall, oat, rye and ryegrass pastures were more productive than ever before. These pastures were used for stocker calves, which gained weight and value through the winter. These pastures would be equally good for cow-calf pairs. Last spring, extra pastures with excess mixed rye and ryegrass were harvested for silage at the SWREC and produced 4.5 tons of dry matter per acre.

Many producers followed these recommendations, yet many others decided this was too much risk! My question is it more risky to plant something to graze on your own farm or bring in hay of unknown quality to maintain the “normal” operating procedure? So, what has happened this year with the cool-season annual pastures planted this fall? Dry weather continued through September, and several small rain events occurred through early October. This is the worst possible type of weather for ‘dusting’ (or planting seeds into dry soil) small grains into a pasture. The result? All pastures planted at the SWREC emerged in late-October, whether planted in September or in October, but the fears of total stand failure in these severe conditions did not come to pass, and all pastures were ready.

Continued, p. 2
Too much risk?

Continued from p. 1

for cattle turnout by the end of November. Enterprise budgeting indicates that small grain/annual ryegrass pastures cost about $150/acre to establish and fertilize. Over the last 10 years, the lowest forage production for these pastures at the SWREC was around 5,000 pounds of dry matter per acre, at a cost of $0.03 per pound of dry matter. Purchased and delivered hay can cost up to around $200 per ton ($0.10 per pound or $0.11 per pound dry matter) and corn stalks (7% crude protein and 45% total digestible nutrients) costing $41/bale are around $0.06 per pound of dry matter; this is without considering feeding or storage losses. What risk to accept in an operation is something everyone must determine for themselves; but to me, it seems to be much less risky to depend on alternative cool-season forages than to rely totally on feeding purchased hay.

ABOVE – Oat and annual ryegrass in late-October that had been interseeded into a bermudagrass pasture at SWREC in mid-September. Even though the pastures were ‘dusted’ in and light rains through early October were not enough to germinate seed, rains in late-October were adequate for stand emergence!

AT RIGHT – Oat and annual ryegrass in early December that had been interseeded into a bermudagrass pasture at the SWREC in mid-September. Forage is approximately 8 inches tall across this pasture and is ready for cattle at any time.

Comparing pasture-based stocker programs to dry-lot feeding

<table>
<thead>
<tr>
<th>Dry-lot feeding</th>
<th>Winter pasture</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cattle performance is dependable and predictable and is based on feed delivery.</td>
<td>• Pasture establishment costs have increased, with increases in fuel, fertilizer, seed, equipment and labor costs. Estimated establishment cost of $150/acre.</td>
</tr>
<tr>
<td>• SWREC research reported cattle fed 40% roughage diets consumed 3% of bodyweight, gained 4 lb/day with Feed:gain 4 lb feed/ lb gain.</td>
<td>• Drought conditions delayed emergence of small grains and ryegrass, but pastures still ready for turnout by mid-November!</td>
</tr>
<tr>
<td>• Feed costs have dramatically increased with increased demand and increased corn prices.</td>
<td>• Cattle performance on small grain pastures improved with ‘drier’ conditions over last 2 years, with calves gaining 2.5 lb/d in winter and 2.2 lb/d in the spring.</td>
</tr>
<tr>
<td>• Most rations adequate for gains &gt;2 lb/d costing around $230/ton</td>
<td>• Pressures on labor and management are less intense than with dry-lot feeding, but land requirement increases.</td>
</tr>
<tr>
<td>• Total cost of gain (animal management, labor, feed, and feed mixing) is around $81/cwt.</td>
<td>• Total cost of gain = $54/cwt, and net return = $172/calf.</td>
</tr>
<tr>
<td>• Even with increased feed cost growing cattle on byproduct based dry-lot diets can be profitable, with calculated net returns of $80 per steer.</td>
<td></td>
</tr>
</tbody>
</table>

Dry-lot feeding

Winter pasture
Re-focus on research: Interseeding cool-season annual grasses into bermudagrass sod for stocker cattle production

Issue
There are approximately 840,000 calves produced annually in Arkansas, most of which are sold in the fall at weaning. Typically, there is a $15/cwt difference between the average low-market price for calves in the fall and the high-market in the spring. Arkansas production budgets indicate economic losses of around $96/cow. Retained ownership of calves by the producer could improve profitability, if calves can be grown at a high rate of gain economically. High stocker cattle gains are a product of high forage quality and forage availability that is adequate to maximize forage intake. Because much of the land is not suited for cultivation and low machinery requirements, interseeding of small grains such as wheat, oats and rye or the cool-season annual ryegrass into warm-season grass sod is common throughout the southeastern United States. Research has been conducted at the SWREC that was designed to compare gains of stocker cattle grazing interseeded small grain or combinations of small grain and ryegrass in southern Arkansas.

Action
This research was designed to evaluate the effect of species of cool-season annual grass interseeded into bermudagrass sod on the growth of stocker calves, grazing-d/acre, and gain/acre. Twenty-four 2-acre pastures were planted to small-grains or combinations of small grains and annual ryegrass in late-October of 2002. Oats, rye and wheat were planted at 120 lb/acre individually, or with 20 lb/acre annual ryegrass. Grazing was initiated when adequate forage was accumulated to support three calves/pasture on Dec. 18, 2003. The calves were fed 2 lb corn-based supplement daily to supply required minerals. There were no differences in ADG, with calves averaging 1.09 lb during the winter and 2.48 during the spring grazing periods. The addition of ryegrass increased the number of grazing-d/acre by an average of 34 and gain/acre by an average of 133 lb/acre. Wheat and wheat-ryegrass increased gain per acre by 74 lb compared to the average of the other treatments. Using oats and oats-ryegrass tended to produce 69 lb/acre less gain than the average of the other treatments during this cooler-than-normal winter. Over the last two years steers at the SWREC have grazed combinations of wheat/annual ryegrass, oats/annual ryegrass or rye/annual ryegrass, which can shed some light on the results of the previous research. When steers were stocked at 2 steers per acre during both the winter and spring; average daily gains were 0.7 pounds per day during the winter and 3.2 pounds per day during the spring. While steers stocked at 1.5 acres per steer during the winter and 2 steers per acre during the spring gained 2.5 pounds per day in the winter and 2.2 pounds per acre during the spring. Even though the steers stocked at the high rate during the winter and spring expressed compensatory gain in the spring, considerable amounts of hay were fed during the winter due to low forage allowance, and the total season gain was 1.5 pounds per day, compared to 2.4 pounds per day for the steers with lower stocking rate during the winter. Pasture production and animal performance for oats have been similar to wheat and rye pastures in the last two years, indicating it can be an excellent addition to pastures in mild years.

Impact
Wheat was superior to the other small grains in the trial conducted in 2003. This was due to winter kill in oats and the early maturity of rye pastures, yet all small grains were similar in 2009 through 2012. Annual ryegrass is a necessary addition when interseeding cool-season annuals into bermudagrass sod because the late maturity of annual ryegrass lengthens the grazing season. Economics of this forage program were analyzed using the seasonal prices for 450-lb calves in December and 750-lb feeders in May; value of gain currently is estimated to be $120/cwt for winter grazing and $90/cwt for spring grazing. Cost of establishment of small grain pastures is around $150/acre, including seed, fertilizer, labor and all equipment costs. Total cost of gain for these steers was 54 cents/pound. Net return above all pasture and cattle costs based on the average performance across the years of these studies was about $225/acre, or $100/steer. In conclusion, interseeding small grains and ryegrass into bermudagrass sod can be profitably used to increase income for Arkansas producers, but performance and profitability is improved if cattle are stocked appropriately based on forage availability.
Be vigilant for Grass Tetany this spring

By Shane Gadberry
Assoc. Prof.-Ruminant Nutrition

The quality of spring forage is hard to surpass and easily exceeds the protein and energy needs of mature beef cows; however, some cattle producers may realize unpleasant results if adequate precautions are not taken before grazing. During periods of rapid spring forage growth, forages may take up an excessive amount of potassium from the soil. During this time, cattle become susceptible to a condition termed grass tetany – a condition associated with inadequate magnesium in the diet as excess potassium blocks magnesium uptake by plants and magnesium absorption in the cow. Mature lactating cows are most susceptible because not only is dietary magnesium limited, but these cattle are also losing magnesium through the milk they produce.

The most common method of preventing grass tetany is to supplement the herd with magnesium beginning at least 1 month prior to spring grazing. Mineral supplements that contain 10 to 12% magnesium as magnesium oxide, such as High Mag minerals, are commonly used. At 3 to 4 oz intake, such minerals will provide 40 to 50% of a cow’s daily magnesium requirement. Some producers will opt to blend higher rates of magnesium into their mineral and add cottonseed meal or similar feedstuffs to increase supplement palatability and magnesium consumption. Magnesium oxide is commonly used for supplemental magnesium because of its high magnesium concentration (55-60%). Magnesium sulfate (Epsom salts) may also be considered; however, the magnesium content of Epsom salt is below 20%, and magnesium sulfate in excess of 140 g per day will have a laxative effect. Magnesium sulfates and chlorides are water soluble, allowing for supplemental magnesium to be delivered through a water tank; however, managing magnesium supplementation through water may be more difficult than supplementing through feed.

Cattle with grass tetany become excitable, develop muscle tremors, and have difficulty breathing and in the worst case, death. As a result, care must be taken when handling and treating cattle that are exhibiting symptoms to avoid exacerbating the situation. Cattle diagnosed with grass tetany should be treated by slowly administering a calcium/magnesium solution intravenously, given additional magnesium subcutaneously and removed from the susceptible pasture. A veterinarian should be consulted for diagnosis and treatment. If deaths have occurred, your veterinarian should be consulted to properly establish cause of death.

Well-fertilized spring pasture poses the greatest risk for grass tetany. Cattle producers should include magnesium supplementation during hay feeding. To assess the risk for grass tetany, forages may be tested for major mineral content (calcium, phosphorus, magnesium, potassium, sodium and sulfur) to calculate a “tetany ratio.” Major mineral analysis costs $6 per sample at the University of Arkansas Agricultural Diagnostics Service Laboratory. The ratio examines the quantity of potassium to the quantity of magnesium and calcium, and ratios greater than 2.2 are likely to result in grass tetany. Unfortunately for growing forages, there is usually a one-week lag between stage of growth and receiving forage test results from the lab. For properly cured hays, mineral content is stable and the forage analysis will be current.

Have questions?

If you have questions regarding this article, pasture management, or balancing beef cattle diets, feel free to contact your local County Extension office or Paul Beck at 870-777-9702 or pbeck@uaex.edu
The extreme weather we have experienced during the past year has affected our forage production in Arkansas. Many parts of Arkansas have been exceedingly dry during the summer and fall months, and some producers have been feeding hay since mid-summer. So not only was hay scarce going into winter, but also the hay that was cut last year may have been cut late and at a more mature stage due to the flooding and heavy rains we received last spring. More mature hay will have less nutritional value and more stem than hay cut during average years. These factors have led to cattle entering the winter in poor body condition, just when their nutritional requirements will begin to increase.

Many cows will be dealing with increased nutritional requirements due to heavy gestation and colder temperatures, and some cows will begin calving. Because of poor pasture conditions and prolonged hay feeding, cows will be facing these increased nutritional demands in poorer body condition compared to an average year. This can lead to health problems such as protein and energy malnutrition, where a cow’s energy demands exceeds her daily intake. Cows may appear to have a good appetite and exhibit rumen fill, but not necessarily exhibit good body condition and are in a negative energy balance. Eating poor-quality hay may not provide adequate energy to a cow in this situation, and the cow will continue to lose body weight. This issue generally occurs during late gestation in cattle exhibiting poor body condition, and pregnant heifers are particularly susceptible. Affected cows may tremble and stumble, eventually going down and become unable to get up. This most commonly occurs in combination with a cold snap, and once animals go down, treatment is usually unsuccessful. Preventing the issue with adequate nutrition is best approach.

Also, winter tetany could be an issue this year. This is similar to grass tetany, which often occurs in the spring with new forage growth. With winter tetany, cows develop a combination of low blood magnesium and calcium. It occurs most commonly when mineral supplementation has been neglected during a long period of hay feeding and lactating cows are most susceptible. Stress related to factors such as severe winter weather or from hauling and handling can induce clinical signs of winter tetany. Clinical signs associated with winter tetany include nervousness, stumbling, muscle twitching, and finally, a cow that goes down cannot rise. Cows should be treated immediately by a veterinarian otherwise death can occur.

Lastly, parasite burdens may abnormally high this winter. With poor pasture and low forage height during summer and fall, cows were grazing closer to the ground and nearer to fecal pats, allowing more parasite larvae to infect them. Intestinal parasites may be robbing what little nutrition the cow is receiving from her daily intake. Internal parasites in the gastrointestinal tract can cause loss of body condition, diarrhea and weakness exacerbating the other issues mentioned above. Also, winter is also the most common time to see lice and mite infestations, which cause loss of body condition and anemia. Control of both internal and external parasites with dewormers and insecticides are critical this winter.

Problems observed this winter will likely carry into spring this year. Cows will be calving in below normal body condition. Colostrum quality may be inferior compared to normal years, leading to decreased calf immunity and calf

continued pg. 6
Winter is never easy, but this one may be even harder ...

continued from pg. 5

health problems. Also, thin cows can be expected to have fertility issues during the following breeding season, resulting in lower pregnancy rates.

To prevent potential problems, producers should take an inventory of body conditions scores on the cows in their herd. Sort cows based on body condition and supplement the animals that are in need of better nutrition. When calculating and planning for supplementation is important to first have a nutritional analysis performed on your hay. Producers can utilize their county Extension agent to assist them with developing a supplementation plan. It is much easier to increase body condition in cows before, rather than after, they calve. High nutrition after calving is directed first toward milk production, and feeding cows to gain condition after calving has little effect on increasing body condition. An ideal body condition score for cows prior to calving is a 5 to 6.

Winter is never easy, but this one may be even harder. Be aware of that potential problems exist this winter due to shortage of pasture and poor hay production that we have experienced. Plan now to prevent future losses in production or death losses, which can have a permanent impact on the sustainability of your operation.

Mark your calendar for March 20.

Join us for the annual Cow-Calf Conference/Beef and Forages Field Day at SWREC.
Upcoming Events

- **March 20** Cow-Calf Conference/Beef & Forages Field Day. Call SWREC for more information.
- **April 17** Livestock and Forage Day, Batesville Station.
- **April 26** Horticulture Field Day at SWREC.
- **July 26** Forestry Field Day at SWREC.
- **Oct. 4** Forestry/Wildlife Field Day at Batesville Station.
- **Nov. 22** Thanksgiving
- **Nov. 25** Historical date for start of hay feeding (whether they need it or not!)