

ANIMAL SCIENCE E-NEWS

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The University of Arkansas's Division of Agriculture launched the Grass to Grid program for experiential learning of cattle management, performance, and marketing after cattle leave the farm and are fed in a commercial feedyard for slaughter. Arkansas ranchers are looking to this program for various reasons including gaining experience with retained ownership without going "all in", as well as, using this program for a complete carcass assessment to know more about their cow herd's genetic merit for carcass traits and using that knowledge with their freezer beef program at home. Questions commonly asked about retained ownership include 1) how can someone project if they can make money, 2) how are cattle managed at the feedyard, 3) what costs are incurred, and 4) how does grid marketing work?

Breakeven is a common way of studying whether money might be earned or lost with retained ownership. Live cattle futures price is helpful for estimating an ending value. The live cattle futures price must be close to the month that cattle will be marketed. Cattle

Grass to Grid Program – The Basics of Feedlot Finishing and Grid Pricing

Dr. Shane Gadberry, Professor - Livestock and Forestry Research Station



Calves at a feed bunk.

are often marketed at approximately 0.5" fat thickness over the rib and loin area, so the market date will be influenced by the breed type, weight, frame, muscling, and sex of calves when they arrive at the feedlot. Due to the high throughput at commercial feedlots, feedlot managers are experienced at predicting the rate of gain cattle will achieve while at the feedyard. This will allow them to determine the days on feed required to achieve the 0.5" of fat thickness, which can give ranchers and potential marketing date.

When cattle arrive at a feedlot, they are penned with familiar feed such as hay and water. Following arrival, cattle are processed to prepare them for their home pen. This

processing usually involves vaccine boosters, deworming, applying a growth promoting implant, and pen id tagging. If carcass data is going to be collected, the cattle often get an electronic id tag too. The time between arrival and processing varies with the time-of-day cattle arrive and how far they were shipped. Once cattle get to their home pen, they will be placed on a step-up diet program that over the course of 3 to 4 weeks transitions cattle and their digestive system from a familiar high forage diet to a high concentrate diet. At the end of the transition, the cattle are now consuming a diet that is very low in roughage. These diets are formulated for protein, energy, fat and fiber using regionally available ingredients and fortified with minerals, vitamins, and feed additives that improve feed efficiency and help reduce incidences of health problems like bloat or liver abscesses. As cattle get close to their final weight and fat cover, feedlots may adjust the diet again to improve production efficiency. Feedyards have a person that is a bunk reader. This person examines the animals and feed consumption to make the decision of feed changes such as increasing feeding amount as the cattle grow. When a calf becomes ill, that calf is pulled from its pen and treated. Depending on the severity and pen location, the calf may be housed in a hospital pen instead of immediately returning to its home pen. A healthy calf will average more than 3 lbs per day weight gain in a feedyard. The cost of growing cattle in a feedyard is the summation of all these itemized expenses: processing fees, yardage, feed, and medicine. There is also shipping expense to get cattle to the feedyard and from the feedyard to the processing plant. This is where visiting with the feedyard about cost of gain comes into figuring whether retained ownership places potential returns above or below the breakeven value.

To summarize with an example, suppose 600 lb, 45-days weaned, preconditioned calves are going to be shipped to the feedyard in mid-June. The cattle are expected to weigh 1350 lbs when ready for market. The weight gain is projected at 3.5 lbs/d. This estimates the cattle will be fed about 214 days (or about 7 months). So, marketing will likely occur in January. Live cattle futures aren't traded in January, but the nearby futures price is \$132/cwt. There is a term called basis which is the difference between the price cattle receive in comparison to the futures market for a given marketing region. If the area the cattle are marketed generally see a price that is \$2 below futures, the adjusted January value is now \$130/cwt. Without accounting for carcass merit premiums and discounts, a general expectation is the cattle might be worth \$1,755 come January. Alternatively, selling the calf at 600 lbs in June is an option. Assuming the calf is worth \$165/cwt as a preconditioned calf in June and after marketing fees are deducted from the sell value, the calf's value is determined to be \$930. The estimated value of gain is \$825 (the difference between the value at time of feedlot marketing and receiving). The estimated breakeven cost of gain per pound is \$1.24/lb (the value of gain divided by

the 750 lbs of weight gained in the feedyard). The feedyard indicates the feeding cost of gain is projected at \$1.20. Since the breakeven cost is greater than actual cost, retaining ownership could be profitable. Shipping and marketing costs haven't been factored into cost of gain but are real costs and must be less than \$30/head in additional expense for this example to breakeven. Cattle feeders can also use projections to determine risk management strategies. An estimate of initial calf value and cost of gain can be used to determine a breakeven market price to compare against the futures market. Futures and options trading are all tools that can be used to help manage risk with larger groups of cattle while Livestock Risk Protection (LRP) can be used for risk management of groups with fewer head fed annually. Feedyards can connect feeders with businesses that assist with risk protection. Feedyards also manage risk with grain since they purchase large quantities of grain throughout the year. Financing is another consideration with cattle feeding. Most people that participate in a program like Grass to Grid will own their cattle. Internet resources such as the Sterling Beef Profit Tracker provide estimates of feeder calf and fed calf values as well as feeding costs. Studying these types of resources can help one become acquainted with calculating costs and returns.

Cattle that are sold based on premiums and discounts for carcass merit are associated with the term grid marketing. A grid will have a base price that hopefully aligns with the futures market. The base price today reflects a 600 to 900 lb carcass that grades USDA Choice Quality Grade and USDA Yield Grade 3 to 4. A carcass that falls outside the weight range receives a discount for being too light or too heavy. A carcass that grades Prime or meets a certain marketing program specification such as Certified Angus Beef receives a premium while a carcass that doesn't have enough intramuscular fat (marbling) to grade USDA Choice is discounted. A carcass that has too much fat relative to lean (USDA Yield Grade 4 to 5) is discounted while a carcass that has greater lean muscle relative to fat (USDA Yield Grade 1 to 2) may receive a small premium. USDA has a weekly summary of grid premiums and discounts. https://www.ams.usda.gov/mnreports/lm_ct155.txt. Not all cattle are profitable on a grid and a feedyard may offer assistance with market timing and method for greatest profit potential. The USDA National Weekly Cattle and Beef Summary (<https://www.ams.usda.gov/mnreports/lswwcbs.pdf>) is also a good reference to current information on cattle value and production. The current national average is a 1400 lb live weight, 843 lb carcass weight for a 63 to 64% dressing percentage. Cattle finished in the southern region of the US are grading 73% USDA Choice whereas cattle in the northern region are grading 85 to 90% USDA Choice.

We encourage producers to learn more about the beef they produce and the Grass to Grid program is one opportunity to learn by doing without taking on too much risk. ■

Livestock Antibiotic Regulations are Changing Again!

Heidi Ward, DVM, PhD - Associate Professor and Livestock Veterinarian

By now, everyone in the beef cattle industry should be aware of the Veterinary Feed Directive (VFD) that placed restrictions on how producers purchase and use antibiotics in feed. This past summer, the Food and Drug Administration (FDA) sent out a new request to animal drug companies to require veterinary oversight of injectable and topical antimicrobial products. All the drug companies complied and the final rule has been written as the code of federal regulations #263 (CFR #263). The target date to have all antibiotics become prescription drugs is January 2023.

Starting next January, livestock producers will have to receive a prescription from a veterinarian in order to purchase antibiotics either at a feed store or online. Will feed stores need a special license to sell prescription drugs? Can injectable antibiotics be used in an extra-label manner? For how long will an antibiotic prescription be honored? All of these are questions that still need to be answered. Meanwhile, producers are en-

couraged to establish a veterinary-client-patient-relationship (VCPR) with a veterinarian now to prepare for the regulatory changes. In order to establish a VCPR, a veterinarian will have to either visit the farm or examine at least one animal in their clinic once per year. Veterinarians know prescription drug regulations and will have little to no problem adjusting to the changes. Also, online livestock companies have sold prescription drugs before, so this should not be a big change for them either. The bottom line is not to panic. Antibiotic use can be kept at a minimum by sticking to a sound herd health program. Vaccination schedules and low-stress cattle handling will be more important than ever. The Beef Quality Assurance (BQA) program teaches these concepts, so if this is new to you, please look into becoming BQA certified by visiting www.bqa.org. You can also consult with your county Extension agent. As always, the best way to develop a herd health program for your operation is to consult with your veterinarian. ■

Selenium in the Equine Diet

Dr. Mark Russell, Associate Professor - Equine

Over the last several months, our office has received several inquiries concerning selenium in their horse's diet. There are certain problems with selenium deficiency, but also problems with too much selenium in your horse's diet. There have been reports of soil in Arkansas farms being selenium deficient.

The following information discussing selenium was made available through the American Association of Equine Practitioners (AAEP) and written by Amanda House, DVM, DACVIM, University of Florida College of Veterinary Medicine.

- Selenium is a trace mineral that is essential for cellular function in the body. Fortunately, large doses of selenium causing acute toxicity and death are uncommon in the horse. In fact, more often the opposite situation is problematic. Many areas of the United States produce selenium deficient forage including parts of the Pacific Northwest, the Great Lakes, and down the Eastern Seaboard into Florida.
- The clinical syndrome that results from selenium (and Vitamin E) deficiency is called white muscle disease. White muscle disease is a degenerative disease that affects skeletal and cardiac muscle in foals and other farm animals. Young, fast growing animals nursing from dams fed a diet low in selenium and vitamin E are commonly affected. The primary signs in young animals with white muscle disease are recumbency, fast heart rates, failure to suckle, difficulty swallowing, and discolored (red to brown

tinged) urine. Laboratory tests are available to diagnose selenium deficiency.

- Selenium toxicity is more often a chronic condition. Certain "indicator" plants may reveal high levels of soil-based selenium (such as locoweed), and are common in areas such as Colorado and New Mexico. As previously mentioned, Florida is typically considered selenium deficient or adequate soil, depending on the region. The chronic signs of selenium toxicity are characterized by hair loss of the mane and tail, cracking of the hooves, and often signs of lameness, excess salivation, and respiratory failure. Severe overdose of selenium can lead to death. In these severe cases, the signs of overdose may include a staggering gait, blindness, labored breathing, respiratory failure, collapse, and muscle tremors. Selenium status in horses can be measured using serum, plasma, or whole blood selenium levels. If you are concerned about selenium levels, consult your local veterinarian for additional information on testing.
- The FDA has set a daily recommended level of selenium for an "average" horse at a total of 3 mg per day. Many different types of feeds and supplements contain selenium. Take the time to read the labels and calculate how much, if any, selenium is contributing to your horse's diet. Know what part of the country your hay comes from and test it on a regular basis. Consult often with your veterinarian or nutritionist when making changes to your horse's diet. ■

Fall Weaning Study Update

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Beef cows on pasture.

As we are on the cusp of starting (re-starting I guess) the Grass to Grid program, this might be a timely opportunity to discuss weaning options. Research abounds with information discussing the benefits of weaning from an animal husbandry standpoint, however the practice is not well adapted by beef cattle producers. Oftentimes, producers do not fully understand the cost, and some may think that they do not have the facilities for weaning calves. Last fall, we conducted a study (Year 1 of 3) at Southwest Research and Extension Center to examine the effects of three weaning methods on post weaning performance of beef cattle. The treatments were as follows:

- 1. Drylot.** Cattle were moved into a dry lot and fed a mixed ration daily. This would serve as our “control” since many people associate preconditioning with this type of scenario. This requires specialized facilities (pens) and feedbunks.
- 2. Pasture.** Cattle were moved into a pasture away from their mothers. They still had grass to graze and were fed

a supplement at a limited rate. This requires a separate pasture and a feed bunk.

- 3. Fenceline.** Calves were moved into an adjacent pasture, where they still had nose to nose fenceline contact with their dams, and were fed a supplement at a limited rate. This method requires a separate pasture, with a solid fence and a feed bunk.

In all instances, cattle had free choice access to a complete beef mineral. Cattle were weighed every 7 days up to day 28, then they were weighed at d 56.

Based upon results of this first year’s work, cattle Fenceline and Pasture weaned had greater body weight and average daily gain up until day 21. Seven days following weaning all groups had lost weight, most likely due to the stress of weaning, however it seems that Fenceline and Pasture had less weight loss compared to Drylot. We hypothesize this is due to the both the Fenceline and Pasture group being in a familiar environment, with a familiar feed (grass), whereas Drylot were exposed to a completely new environment. This same effect continues until day 28 at which time the Drylot have come back and are comparable to the other treatments. This agrees with data from Mississippi State that showed in Brahman influenced heifers it took 21-28 days after weaning before they were consuming enough feed to meet maintenance requirements. From a cost perspective over the 56-day period, it cost about \$2.50 per head daily for the Drylot treatment, whereas the other two treatments were around \$1.10 per head per day. While it may be too early to make any suggestions, based upon what we have seen so far, it may be more economical to wean in pasture, especially for the first 28 days. Some preconditioning programs require a minimum of 28 days, so in those situations pasture or fenceline weaning might be the better option. ■

