Master Cattleman Quarterly

Oklahoma State University

Nutrition Tips for Stressed Stocker Cattle

Dana Zook, NW Area Extension Livestock Specialist

Stress is the principal factor affecting the health of newly weaned or shipped stocker calves. Just imagine a kindergarten student riding the bus to school the first day. This student will experience new food, activities and people. Some of these kids are excited for their first day but some of them are just plain mad! These kids will have an adjustment period, but if things go smoothly their first couple days away from home, things will go well from there on out. Much is the same with newly received cattle. Stress compromises the immune system which can have a negative effect on feed intake and weight gain. Comingling and shipping can cause even the healthiest calves to stop eating. For this reason, proper nutrition is an essential component to getting calves through the receiving period free of illness.

A survey of 24 beef producing states completed by USDA APHIS reported that 50% of beef operations market calves at weaning and 31% of calves sold have never been vaccinated for respiratory disease. The absence of preconditioning programs in cattle herds across the country does present some difficulty to producers in Oklahoma's stocker sector. Preparation to minimize stress and address potential sickness is essential to maximizing cattle performance this winter on wheat.

Right off the truck, cattle should be provided with fresh clean water. Long haul cattle have been without water for hours and rehydration is essential to future feed intake and weight gain. In the first 24 hours off the truck, it is also important to provide a familiar feed source such as a high quality grass hay. After calves have been settled in, a receiving ration should be provided.

The quality of the ration is as important as feeding management. Because feed intake will be low during this time, receiving rations should be designed to maximize intake and provide greater concentrations of nutrients. A calf weighing 550 lbs. may only consume 7 to 10 pounds of feed initially (1-2% BW) and so it is important to make sure nutrient needs are met. Rations should be highly palatable with high energy/high fiber based commodities such alfalfa, soybean hulls, and wheat midds. A number of companies in the area offer starter feeds that contain a complete package of vitamins and minerals. This option is favored when labor is in short supply or when availability of other quality feed ingredients is lacking.

Initially, complete feeds that include fiber components are preferred over free choice hay. When free choice hay is provided, calves may forgo the ration and eat only hay, leaving them undernourished. Timely feeding practices twice daily is important to keep cattle coming to bunk; this also allows for easy identification of calves showing signs of illness.

Typically, receiving rations contain some sort of coccidiostat to prevent subclinical coccidiosis. Research has proven that coccidiostats improve feed efficiency and rate of gain when included in receiving rations. Some additives approved for aiding in the prevention of coccidiosis included Decoxx®, Bovatec®, and Rumensin®. A veterinarian should be consulted to determine which coccidiostat will work best for the feeding situation.

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Fall 2016: Decision Making for Livestock Operators

Scott Clawson, Northeast Area Agriculture Economics Specialist

There is no doubt fall is on the way as county fair rains are coming to fruition, the air conditioner is finally getting a breather, and high school and youth football evening practices can be seen in every small town in the state. This is unquestionably my favorite time of year. But for cattle producers, this seasonal change leads to a decision making time. Evaluating inputs and determining the best use of available resources (feed, hay, calves, etc.) can be a challenging but important process. There is plenty to be said for operations that have a set plan every year. Chances are they have developed a specialized skill set for managing their production system. In this case, everything from forages to equipment have been tailored over time. These things hopefully lead to efficiencies that in turn have higher profit potential. At the same time, it's important to take stock of the inputs we have available, look at the current feed and hay prices, and determine where our best options are in the market. One of the most important ways to evaluate options is to look at value of gain (VOG) and cost of gain (COG).

VOG is simply calculating the difference in value for a calf from the beginning of a grazing/feeding period to the end of the period, but doing so on a per pound basis. Calculating VOG requires some pretty math.

The important part is how we use this information. Some information in the calculation needs to be thought about so we know how to interpret this number. Let's discuss a couple of them.

- What is it telling us is a possible breakeven? In this case, do we feel that we can grow those steers from 550 lbs. to 750 lbs. for less than $220 or $1.10/ lb.? If yes, we need to dig a bit deeper to ensure that our total costs are covered and how certain are the returns we are expecting. If we don't feel we can add that additional weight for $220, we need to go back the drawing board.
- How do we get an expected sell value? This calculation is observed to be completed several different ways. One way is when both prices are taken at a single point in time. For example, we pull a market report from a sale and look at the price for 500 lb. steers and compare it to the price for 750 lb. steers. While a simple way, there may be a better way to approach it. Let's say for instance we are planning to market these cattle in March. We can take the March Feeder Cattle Contract price ($126/cwt) and use this as a predictor. We still need to know an average basis. The Livestock Marketing Information Center shows a 2011- 2015 average basis using OKC cash prices of $1.11/cwt. So, we could use $127.11/cwt or $1.2711/lb. as a predicted price. This changes the VOG to just over $.50/lb. The usage of this price drastically changes the VOG calculation. While not always the case, this is a reflection of our current cash and futures markets.

1. Let's say we can BUY a 550 lb steer for $1.55/lb.

   His cost is:

   550 lbs * $1.55/lb = $852.50

2. Let's say we EXPECT to SELL a 750 lb steer for $1.43/lb.

   His value is:

   750 lbs * $1.43/lb = $1,072.50

3. We take our Sell value and subtract our Buy Value..

   $1,072.50 - $852.50 = $220/hd

4. This number is commonly discussed as per lb. number. So we divide the value and the amount of weight change.

   $220 ÷ 200 = $1.10/lb

At the end of the day, this is just one piece of the decision making process. However, it can be very useful in vetting some ideas on what to do. With regard to price prediction, there is not a 100% accurate tool out there. Having a sound understanding of our costs and a realistic view of animal performance is crucial to the success of any cattle venture.

What's Next for Cattle Markets?

Derrell S. Peel, OSU Extension Livestock Marketing Specialist

The cattle and beef industry has transitioned to a growing supply situation. 2016 beef production is projected to increase 4 to 4.5 percent to roughly 24.7 billion pounds. This is up from the 2015 level of 23.7 billion pounds, a 22 year low. Cattle slaughter for the year to date is up 4.7 percent year over year. However, lower carcass weights in 2016 are moderating the increase in total beef production compared to last year. The most recent cattle carcass weights are nearly 16 pounds less than the same point last year. Cattle slaughter is expected to maintain the current pace for the remainder of the year while carcass weights are expected to remain below year earlier levels for the balance of 2016. Beef production in 2017 is expected to increase another 4 to 4.5 percent which would bring total beef production back to 2013 levels.

Beef cow herd expansion is likely continuing in 2016, albeit at a slower pace than 2015. 2016 began with a beef cow herd inventory of 30.3 million head, the result of a one million head jump in 2015, a 3.5 percent year over year increase. That followed a slight 2014 increase in herd inventory from the January 1, 2014 low of 29 million head; the lowest beef cow herd since 1962. The current situation for cattle inventories and herd expansion is uncertain as a result of the USDA-NASS decision to suspend the July cattle inventory report. The beef cow herd is expected to be up 1.5 to 2 percent year over year on January 1, 2017, though growth up to 2.5 percent is possible. On the other hand, herd expansion may have slowed faster and more abruptly in 2016. Both heifer and beef cow slaughter have increased sharply in recent weeks. This might affect 2016 herd expansion but more likely is an issue for 2017 herd expansion. The 2016 calf crop is certainly bigger but by how much is not known. Feeder cattle supplies, estimated to be up over 5 percent on January 1, 2016, will continue to grow although decreased feeder cattle imports from Mexico and Canada along with slightly increased veal slaughter partially offset larger the calf crop.

Beef consumption is projected to increase about 1.5 percent in 2016 compared to one year ago. This is a smaller increase than for beef production because decreased beef imports will offset some of the increase in beef production. 2016 pork consumption is expected to be close to year ago levels as a slight increase in pork production is expected to be offset with increased pork exports. Broiler consumption is expected to increase 1.5 to 2 percent year over year, with limited recovery in broiler exports partially offsetting a nearly 2 percent increase in broiler production. Total meat consumption is thus expected to increase 1-1.5 percent compared to last year while total meat production will increase some 2.6 percent. Retail beef prices peaked in 2015 and are slowly declining as beef supplies increase. All in all, retail beef prices are holding quite firm in the face of more beef and other meats and indicate that beef demand remains robust.

Beef imports are expected to decrease in 2016 after jumping sharply in 2014 and 2015. Beef imports for the first half of the year are down sharply from Australia and down as well from New Zealand, Brazil, Uruguay and Nicaragua but up year over year from Canada and Mexico. Year to date total beef imports are down 13 percent compared to last year. The recently announced opening of the U.S. market to fresh beef imports from Brazil is not expected to have significant immediate impacts. Over time, imports of Brazilian beef will likely grow as the new import source substitutes for beef from other sources, primarily Australian beef. Total beef imports are not expected to change dramatically as a result. Beef exports are slowly recovering in 2016 after dropping in 2015. Recovery in beef exports is sporadic with year to date exports up to Japan, South Korea and Mexico but down year over year to Canada and Hong Kong. Total year to date beef exports through June were up 2 percent from 2015. The strong U.S. dollar continues to provide trade headwinds making beef exports less attractive and imports more attractive in the U.S. market. Continued progress on beef trade is expected with slowly growing exports along with decreased beef imports for the balance of 2016 and into 2017.

Cattle and beef markets look to be more stable but prices will likely erode modestly into 2017 under growing supply pressure. However, beef demand, both domestic and international, will determine just how much price pressure will impact cattle and beef markets. Stay tuned.

Oklahoma Quality Beef Network Fall Sales Set

Gant Mourer, OSU Animal Science Department

Once again the Oklahoma Quality Beef Network (OQBN) is preparing for fall sales. Last winter proved to be challenge for many in the state due to negative market structure, but many of use have had an above average summer in terms of rainfall and generally speaking pasture conditions are in good shape heading into the fall. At this point many producers are deciding how to market calves this fall. With moderating cattle prices, the decision to precondition calves prior to shipping will be much harder for some, but the ability to add pounds with lower cost hay and wheat pasture may be an indicator to retain calves a short time longer. Many management options exist and even with decreased prices, those management options are still valuable to producers and may have more value than many think.

The Oklahoma Quality Beef Network (OQBN) is available to aid producers in making preconditioning decisions and capturing value of preconditioned calves when it becomes time to market. OQBN is a program, which began in 2001, and is a joint effort by Oklahoma Cooperative Extension Service (OCES) and the Oklahoma Cattlemen's Association. At its core, OQBN provides improved communication among producers of all segments of the beef industry and allows for increased education while providing tools to improve access to value-added programs. One way in which this is done is through the OQBN Vac-45 health verification program. Cattle meeting the management requirements are verified through OCES and can be marketed as OQBN Vac-45 cattle. Once verified, producers have the option but are not obligated to market cattle in a certified OQBN sale.

The program benefits both buyers and sellers in severalways, including reduced shrink, improved immune system, plus weight gain during the weaning period, increased market demands and feedlot performance. In addition to healthier, heavier calves when sold, sellers may earn higher prices per/cwt. In 2015, OQBN participants realized almost $11.00/cwt premium over cattle that had no weaning or health history. The value of gain for those calves continues to be well over a $1/lb if the market holds and cost of gain continues to hover around $0.75-0.85/lb with death loss less than 0.5% and many producers seeing 0%. Buyers offset purchase prices by very low death loss themselves with many turning cattle out on wheat pasture right when they got home. Those cattle also gained 2-3 lbs from day one.

The following is a list of several OQBN sales scheduled this fall across the state. For a producer to take advantage of these value-added opportunities, the cattle must be enrolled in the OQBN Vac-45 program, follow one of three health protocols, wean by the deadline, and have cattle third party verified by extension personnel.

For additional information or questions about the Oklahoma Quality Beef Network, contact your local OSU Extension Office or Gant Mourer, OQBN Coordinator at 405-744-6060 or at gantm@okstate.edu. Additional information may also be found at www.oqbn.okstate.edu

Location	Contact	Phone Number	Sale Date	Wean Date
Cherokee Livestock	Tim Starks	580-596-3361	October 26, 2016	September 11, 2016
Woodward Livestock	Ronnie White	580-334-1112	November 3, 2016	September 19, 2016
Elk City Livestock	Brandon Hickey	580-497-6095	November 4, 2016	September 20, 2016
McAlester Stockyards	Lindsey Grant	918-423-2834	November 8, 2016	September 24, 2016
OKC West	Bill Barnhart	800-778-9378	November 9, 2016	September 25, 2016
Pawnee Livestock	Calvin Buchanan	918-852-5271	November 12, 2016	September 28, 2016
Blackwell Livestock	Gary or Grady Potter	580-363-9941	November 19, 2016	October 5, 2016
Woodward Livestock	Ronnie White	580-334-1112	December 1, 2016	October 17, 2016
OKC West	Bill Barnhart	800-778-9378	December 14, 2016	October 30, 2016

Monitoring Mineral Consumption is Core to Good Management: New resources are available to help you with recording and calculating your herds mineral consumption.

Chris Richards & Gant Mourer, Department of Animal Science

For most cattle in Oklahoma, the majority of their nutrition comes from grazing forage or consuming hay. One of the challenges in a forage based system is that the mineral content of the forage is continually changing. Additionally, the animals' requirements are continually changing with different stages of production. This is why we recommend a year round supply of minerals for cattle. Minerals can be supplied through supplemental feeds such as cake and cubes, liquid supplements, blocks, or tubs. By far, the most common form of providing mineral is through a loose mineral mix. Loose mineral mixes can be fed in an open container with drains for water. Several mineral mixes indicate that they are resistant to rain and would be more viable in open situations. Our recommendation is to keep loose mineral in a covered feeder that either has a flap or roof type cover. Proper mineral and vitamin nutrition contributes to strong immune systems, reproductive performance and calf or stocker cattle weight gain. Both over and under consumption of mineral supplements can cause issues, including unnecessary expense. Proper mineral consumption is especially critical when it contains medications such as chlortetracycline (CTC) or ionophores. Commercial mineral mixes have a target consumption rate included in the feeding directions.

Monitoring cattle mineral intake does not have to be complex. We have developed a *"Mineral consumption record"* that you can keep in your truck for recording the basic data you will need. The information includes the label recommended feeding levels and type of mineral along with the date mineral feeders were filled, the amount of mineral put out, and the number of cattle in the pastures that are consuming mineral. In cow/calf operations, young calves would not be considered to consume mineral mixes; however, as they get bigger they could be included gradually in the count. To assist producers calculate the mineral intakes of their cows, a "*Mineral intake calculator"* tool has been developed that calculates the average intake for their herd, but also calculates and visualizes the change in mineral consumption of their cattle over time. Both the "*Consumption Record*" and "*Intake Calculator"* can be found at the Beefextension.com website.

Calculating Potential Returns to Dual-Purpose Wheat

Roger Sahs, Extension Specialist

Many areas of the major wheat areas of Oklahoma have received beneficial rains over the past several weeks. If favorable soil moisture and soil temperatures continue to hold promise, early planting of wheat is likely to begin in the next few weeks and wheat could be ready for grazing earlier than usual this fall. As a result, many farmers are making plans for the next crop and trying to figure whether dual-purpose wheat offers the financial rewards necessary to offset the added risk of running stockers through the winter grazing period. Lower prices in the wheat and stocker markets have pressured profit margins, stressing the importance of managing costs and production risk. How can a producer calculate the profit potential from wheat grain and pasture?

OSU Extension Current Report CR-212 "Should I Buy (or Retain) Stockers to Graze Wheat Pasture" has been recently updated and outlines the major decision parameters associated with wheat and stocker enterprises. The publication is available from your OSU county Extension office or online at osufacts.okstate.edu.

The economic consequences of utilizing additional wheat forage primarily depend on the following considerations as detailed in the publication:

1. The costs of producing forage to be grazed. The costs of establishing dual-purpose wheat are frequently higher than grain-only systems. Heavier seeding rates for dual-purpose wheat are recommended and additional nitrogen may be needed to maintain grain yields if grazing is allowed.
2. The returns to livestock utilizing small grain forage or the potential income from grazing leases. Livestock returns depend on factors such as purchase price, sup-

Calculating Potential Returns to Dual-Purpose Wheat (cont.)

plemental feed costs and other production inputs, the amount of forage produced before winter, the efficiency of livestock converting forage to weight gain, and finally, the sale price of cattle. Wheat producers who do not have the time and/or capital associated with livestock ownership may consider lease grazing rights to others for a fixed rental rate per acre as an option.

3. Forage yields since the amount of forage produced is influenced greatly by the planting date, weather, variety selection, and fertility.

The sample wheat and stocker budgets illustrated in CR-212 combined with forage production data and stocking rate considerations provide the necessary information to calculate the wheat and stocker return worksheet shown in Table 1.

In this example, the grain budget shows marginal positive returns to overhead, risk, and management. However, negative returns to the stocker enterprise more than offset the returns from the wheat enterprise. Poor expected returns highlight the importance of managing production costs and locking in better prices when marketing opportunities permit.

Even with good records to indicate likely costs and yields and an expert forecast of market prices, profit po-

Table 1. Worksheet for Calculating Per Acre Returns to Dual Purpose Grain & Forage Production
Dual Purpose Wheat Returns to Land, Overhead, Risk and Management
(Without Government Payments)

	Example	Your Value
Total Receipts	$196.48	_____
- Total Operating Costs (custom harvest adjusted)	-172.63	_____
- Total Fixed Costs	-18.82	_____
Wheat Returns per Acre	$5.03	_____ (A)
Stocker Returns to Land, Overhead, Risk and Management		
Total Receipts	$970.75	_____
- Total Operating Costs (w/additional fertilizer/seed)	-1,018.75	_____
- Total Fixed Costs	-10.15	_____
Stocker Returns per Head	-$58.15	_____ (B)

Stocking Rate (Head per Acre):

Head/Acre = Lbs DM Produced per Acre / (Lbs DM per Lb of Gain) x (Lbs of Gain per Head)

= 1,800 / 10 x 240

= .75 _____ (C)

Stocker Returns per Acre = Stocker Returns per Head (B) * Head/Acre (C)

= - $58.15 x .75 _____

= - $43.61 _____ D)

Total Returns (S/A to Land, Overhead Risk, and Management		
Wheat Returns (A)	$5.03	_____
+Stocker Returns (D)	-$43.61	_____
Total Returns	-$38.58	_____

Calculating Potential Returns to Dual-Purpose Wheat (cont.)

tential from a particular plan is uncertain. Since the results shown in Table 1 are based on a strict set of assumption and conditions, producers are encouraged to tailor the worksheet with their own wheat and stocker budgets. Sample crop and livestock budgets are available to view and download at the OSU Enterprise Budget website at www.agecon.okstate.edu/budgets. The cost and return summaries allow quick and easy changes. For those interested in more advanced budget building features, OSU Enterprise Budget Software is also available. Additional information on OSU enterprise budgets is available through your local county extension office, at the budget website previously mentioned or by calling Roger Sahs at 405-744-7075.

Prussic Acid Toxicity

Barry Whitworth, DVM , Area Food/Animal Quality and Health Specialist for Eastern Oklahoma

Throughout summer as the temperature rises and the ground gets drier, plants in the sorghum family may become toxic. A common scenario for a veterinarian is to receive a call from a frantic rancher who says that his cows are “dropping like flies” or that he has found several dead cows after turning his cattle on to new pasture. One question the veterinarian will probably ask is if the cattle have been grazing Johnson grass.

Hydrocyanic acid (HCN) which is also referred to as cyanide or prussic acid is a toxin in these plants that causes problems. The toxin is created when the harmless hydrocyanic glycosides in plants are stressed and break down. Once the hydrocyanic glycosides in the plants are damaged, they quickly convert to prussic acid which can kill an animal within minutes when consumed. When cattle ingest the plants high in hydrocyanic glycoside and break them down by chewing, the prussic acid is released in the rumen and absorbed into the blood stream. Once in the circulatory system, the toxin prevents cells in the body from taking up oxygen. The blood becomes saturated with oxygen which cannot be absorbed by the cells which is why normally dark venous blood appears bright red. The clinical signs are excitement, muscle tremors, increased respiration rate, excess salivation, staggering, convulsions, and collapse. The cattle actually die of asphyxiation.

In plants, especially in the sorghum family, prussic acid is highest in the leaves of young plants with the upper leaves containing the highest amounts. The amount of prussic acid increases when the plant is stressed such as in drought situations or following a frost. Fertilizing with large amounts of nitrogen can also increase potential for prussic acid toxicity as does nitrogen and phosphorus soil imbalances. Certain sorghum families are more prone to prussic acid toxicity than others. For example, Johnson grass has a high potential for toxicity while Pearl or Foxtail millet are low. When planting sorghums for grazing, producers may want to check the toxic potential of the particular variety.

When producers encounter animals displaying clinical signs of prussic acid toxicity, they should immediately remove all the animals that appear normal to a new pasture and contact their veterinarian. The veterinarian will treat the sick animals with two drugs (sodium nitrite and sodium thiosulfate) that reverse the toxicity. Treatment can result in a full recovery if initiated quickly.

Producers may want to take the following steps to prevent prussic acid toxicity:

- Never turn hungry cattle into a new pasture
- Take soil samples and fertilize accordingly
- Graze mature plants
- Wait until plants are cured before grazing after frost (usually at least 7 days)
- Rotate pastures to keep cattle from consuming lush regrowth
- Place 1 or 2 cows in a pasture and observe for problems before turning in all the cattle

One last point, the drugs used to treat prussic acid toxicity can be difficult to obtain. For this reason, producers should maintain a good relationship with their veterinarian. It is a good idea to contact your veterinarian before grazing potential toxic plants to make sure that your veterinarian will have the necessary drugs on hand to treat the

Prussic Acid Toxicity (cont.)

cattle if a problem should arise.

Plants can be tested for prussic acid but it can be challenging. If not done properly, producers may get a false since of security. The best practice is to visit with your local veterinarian or Local County Extension Educator before grazing forages that may contain prussic acid. A fact sheet that contains information about prussic acid is available from Oklahoma State University. The fact sheet is title *Prussic Acid Poisoning* PSS-2904 which can be found at http://osufacts.okstate.edu.

Save the Date! Rural Economic Outlook Conference, Friday, Oct. 21, Conoco Phillips Alumni Center

Join us to hear a variety of experts with information on agricultural economic and financial issues, livestock and grain reports and the outlook for business in China. A full agenda is posted on http://agecon.okstate.edu/extension/ruralconference.asp

Early registration is only $50 and at the door $70 and includes breakfast and lunch and two breaks. Register online at the Oklahoma State Marketplace: https://secure.touchnet.com/C20271_ustores/web/store_main.jsp?STOREID=68

Damona Doye
515 Ag Hall
damona.doye@okstate.edu

David Lalman
201 Animal Science
david.lalman@okstate.edu