



Kentucky Beef Newsletter June 2017

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Timely Tips

Dr. Roy Burris, Beef Extension Professor, University of Kentucky

Spring-Calving Cow Herd

- Observe the cows and bulls as the breeding season continues. Watch bulls for injury or lameness and change bulls if a high percentage of cows are returning to heat. Record cow breeding dates to determine next year's calving dates and keep records of cows and bulls in each breeding group.
- Keep a good pasture mineral mix, which contains adequate levels of phosphorus, vitamin A, selenium and copper, available at all times.
- Cows should be on good pasture with clover and preferably low endophyte levels in fescue for the spring breeding season. Keep pastures vegetative by clipping or making hay. They should have abundant shade and water. Cows should become pregnant before July when temperatures and heat stress can ruin the "spring" breeding season.
- Consider a special area for creep grazing calves, or practice "forward grazing" this summer, allowing calves to graze fresh pasture ahead of the cows. This can be accomplished by raising an electric wire or building a creep gate.

Fall-Calving Herd

- Cull cows at weaning time
 - Smooth-mouthed cows
 - Cows weaning light weight and/or poor-quality calves
 - Open cows
 - · "Problem cows" with bad feet, teats, udders, etc.
- Pregnancy test cows if not done previously
- Select replacement heifers on the basis of:
 - temperament
 - conformation
 - weaning weight

- dam and sire records
- Select more than needed to allow for culling after a short breeding season

<u>General</u>

- Clip grazed-over pastures for weed control and so that seed heads do not irritate eyes. Pastures should be kept in a vegetative state for best quality.
- Finish harvesting excess pasture as hay soon! It should be cut before it becomes too mature. Be sure and replenish your reserves. Try to put up more than you think you will need in case of a late summer drought.
- Prevent/Control pinkeye
 - consider vaccinating,
 - control flies,
 - clip tall, mature grass,
 - treat problems quickly.
- Control flies. Consider changing insecticides and/or methods of control this year, because insecticide resistant flies may have developed if you have used the same chemical year after year. Consider pour-on and sprays that allow you to put cattle in the corral or through the chute with little stress on them. It will make subsequent trips through the "chute" less stressful.
- Maintain a clean water supply and check it routinely. Water is extremely important in hot weather.
- Keep pastures small for rotational grazing so that nutritive quality can be maintained. They should be small enough so cattle do not graze longer than a week. As the season progresses, you need several paddocks to give each properly stocked pasture about 4 weeks' rest.
- Pasture should supply adequate energy, protein and vitamins at this time. However, be prepared for drought situations. Don't overgraze pastures so that recovery time will be faster. Overgrazed pastures will recover very slowly during July/August.

And Davis said "Watch this"

Dr. Roy Burris, Beef Extension Professor, University of Kentucky

There is one thing that I know for sure and that is – when someone says "watch this", something interesting is about to happen. As a matter of fact, when someone says "watch this" what they really mean is "watch out" or "hang on"!

That reminds me of my friend Davis whom I met when I started high school. He was a year older and already wearing his blue and gold FFA jacket. Soon we were both officers in our local chapter. So when I graduated high school and decided to study agriculture at Tennessee Tech, he was already there and majoring in animal science. Davis called me and said that he had a good deal on a room but needed a roommate. Both of us thought that "the devil that you know is better than one that you don't know", so our adventure continued. We were pretty good boys but we got distracted sometimes.

Davis was not the most studious person that I have ever met but he definitely possessed the "gift of gab" and had an entrepreneurial spirit. Traits that would serve him well in his career. His first job was delivering flowers for Sammie's Florist in Cookeville, TN. He got to drive a big ole station wagon. One night, during the first snow storm of the year, Davis came by so that we could get out in the snow – on slick roads. He pulled into a bank parking lot and proceeded to show me how you do a "doughnut" in that big old tank of a car. He hadn't much more than said "Watch this!" until we crashed into a street light. A policeman soon arrived at the scene and asked what happened. Well, Davis reared back and said "Sir, a little boy walked in front of me and I swerved to miss him". I cringed and waited for the officer to point to the fact that there were no footprints from this child who would have to have been out late – on a school night – in a snow storm – by himself – in a bank parking lot! But the officer said "Son, you did the right thing that street light can be replaced but a human life

can't." He even took us to the flower shop and told the owner that Davis had heroically avoided hitting a kid. Everyone made a fuss over him and I thought he was going to get a key to the city or some big award. Talk about turning lemons into lemonade!

Davis moved on to working at the local funeral home where he could make a few dollars, meet a lot of people and he even got to drive a big black hearse sometimes – Uh Oh! Back in those days the hearse at the local funeral home also served as an ambulance to make emergency runs for the hospitals. So Davis woke me late one night to accompany him on a run to Livingston. I didn't ask for any details – just jumped in that big, black hearse and Davis said "Watch this!" We took off with the siren on and were just hitting the high spots. All of a sudden somebody raised up behind me and started cursing and yelling. I didn't know we had a passenger! But, this guy had wrecked his car and Davis had taken him to the ER in Cookeville but they wouldn't admit him because he was drunk and belligerent. So he was getting a ride to Livingston where hopefully we could unload him.

Davis let the hammer down on that hearse as our passenger cursed and said "I ain't dyin'!" I ain't dyin'! Am I dyin'? Based on the way he finally settled down and the words that he uttered, I think that he "found Jesus" in the back of that hearse. I know that when we pulled into the Livingston hospital, he went into that hospital a changed (and sober) man.

That was a long time ago and both of us happily reminisce when we get together but we wouldn't advise doing that stuff again. Now when someone says "watch this", I scream don't do it. Been there, done that.

Do You Use a Dart Gun? BQA Guidelines Still Apply Michelle Arnold, DVM (Ruminant Extension Veterinarian, UKVDL), Dr. Jeff Lehmkuhler, Beef Extension Specialist, University of Kentucky

Dart guns used to administer medications to sick cattle in the pasture have become increasingly popular in the past few years. It is often easier, faster and less stressful to medicate an animal with a dart rather than having to get it up from a remote field to work through the chute. However, there are associated risks with remote drug delivery (RDD) to animal health, animal welfare, human safety, and the safety and quality of the food products produced from dart-treated animals. Unfortunately for the beef industry, there are confirmed reports of darts and dart components being found in carcasses at packing plants. This could create a significant beef quality disaster at the consumer level if a dart is missed at the packing plant and makes it into the food supply and on to the news. In situations where remote delivery (darting) of medication is used, producers should still comply with the National BQA Guidelines for injections including using the correct route of administration, needle



selection, medication selection and volume, as well as meeting all record keeping requirements to properly observe withdrawal times.

The beef community has worked many years and spent huge sums of money to decrease injection site defects that negatively impact consumer acceptance of beef. The BQA-approved location for intramuscular (IM) and subcutaneous (SQ) injections is in the neck, which is a relatively small target to hit with a dart. There are reports of cattle being injured by errant darts that hit their heads, fractured shoulder blades and spinal damage from darts hitting cervical neck vertebrae. Figure 1 and 2 illustrate the positions of important areas to avoid surrounding the recommended BQA triangle injection area. Targeting areas other than the neck such as the rear leg is never acceptable. Darts should not be used in the calf's round or any other site that would result in carcass damage.



When is remote drug delivery appropriate?

Darts should not be used unless the animal's health and well-being are in jeopardy. RDD is not a tool to deliver routine preventative medications (vaccinations), or to treat an entire herd, or as a substitute for having adequate labor and facilities to properly care for animals. Situations where dart gun use is considered appropriate include:

- Working facilities for conventional handling such as a corral and chute are not available where the cattle are located.
- Excessive stress on the animal will result from conventional handling and treatment. Examples are weather extremes, excessive distance from facilities, animal is crazy and refuses to drive, diseases involving lack of available oxygen where exercise may result in sudden death (such as a clinical anaplasmosis case) or cases involving blindness in which the animal cannot be driven through a gate into a facility.
- Administering treatment conventionally will result in a delay expected to adversely affect animal health or welfare.
- Human safety will be placed at unacceptable risk to handle animals conventionally.

Equipment Selection and Training

Producers using dart guns must understand the gun being used and be able to adjust the velocity of darts based on distance, power charges, power adjustments, dart size, and any other factors described by the manufacturer. Equipment should not be used on animals until the operator has practiced and is proficient in its use. Producers should practice both range estimation and marksmanship skills using properly-sized manufacturer practice darts. "Sight in" and practice until consistent in delivering dart to target under various weather conditions, especially windy days. Siting may be improved with the addition of a scope. To insure BQA appropriate injections, the approximate maximum range for darting is that which a producer can consistently hit a 5 inch target under field conditions. For most situations, the appropriate range is relatively short (20 yards or less) and is easily achieved with a pneumatic system. Dart delivery should be as close to the animal as practical. **Shorter ranges with appropriate lower power settings are more BQA friendly. Cartridge powered guns with improper charge selection can be grossly overpowered at the short ranges utilized for medicating cattle-resulting in animal injury and/or dart penetration into the animal's muscle.**

Producers should be patient in shot selection. Darting should be avoided on moving animals and those that do not present a clear, "broadside" view of the neck injection triangle. Long shots, using high power settings, overestimating the range, and/or improper shot placement can result in animal injury or carcass defects. Purchase multiple magazines so that different size charges can be readily available when required for different

distances. Never use dart delivery charges that are not provided by the manufacturer. Never use charges designed for nail guns in medication dart delivery guns. Maintain and clean all working parts of a dart delivery system.

Dart cleanliness, needle sizes, types

• Cleanliness and sterility of darts is critical! Refillable darts must be thoroughly cleaned just as re-usable syringes are cleaned with hot water, not using soap or disinfectants and a final sanitizing with boiling water. There are confirmed reports of injection site abscesses from medication dart usage, likely from using unsterile darts and/or contamination while filling the dart with medication. Additionally, only 10 mL of medication should be administered per injection site, and when multiple injections are required, they should be a minimum of 4 inches apart. Drugs that require a large volume and multiple injections are not recommended to be delivered by dart.

- The size of the dart must match the volume of the medication to be delivered. Partially filled darts have an erratic flight pattern, therefore the targeting is not dependable.
- Since SQ administration is the goal, needle (cannula) length should not exceed 1/2" on cattle <18 months of age and not exceed 3/4" for mature cattle.
- Multi-port (multiple holes in the delivery needle) dart needles are recommended.
- Darts preferably should be single use to prevent "burring" and needle breakoff.

Appropriate drugs to use in darts

• The Food and Drug Administration (FDA) regulates the approval of routes of administration of all animal drugs. Dart delivery falls under the FDA Animal Medicinal Drug Use Clarification Act (AMDUCA) regulations so all drugs used in a medication dart require a valid Veterinary Client Patient Relationship (VCPR) with a licensed veterinarian. These regulations require the use, including route of administration, of all prescription medications to strictly follow the written directions of the veterinarian prescribing the drugs. Without these written instructions the use of medications in darts is illegal.

• Always follow label requirements including indications, dosage and administration guidelines set forth by FDA. It is against the law to alter drug concentration or to combine drugs in order to fill a dart. Mixing drugs or diluting drugs with saline is prohibited.

• Drugs should be examined and selected that have appropriate syringability. Viscous (thick), high dose volume medications should be avoided. No more than 10 cc of any product should be administered per injection site.

Record the drug used, the date of treatment, and individual identity of all animals treated for proper withdrawal time calculation. If unable to accurately record the identity of the treated animal then the entire group must be held to the labeled withdrawal timeframe for the most recently treated animal within the group.
The product use and safety profile of any medication used in a dart must be carefully evaluated. Use of some products in a dart may be illegal, pose unacceptable safety risk, cause tissue damage, or increase the risk of

chemical residues. Examples of inappropriate products to use in RDD:

- Tilmicosin (MicotilTM): Human Safety (Operator)
- Flunixin meglumine (BanamineTM): Tissue Damage, residue risk, and only approved for IV administration
- Ceftiofur (Excede[™]): Route of administration is restricted by Federal law. Excede[™] is approved only for injection in the ear.

Retrieving darts after use

• Monitor treated animals and retrieve all darts as soon as possible once they fall out. All darts that do not reach their intended target should be accounted for and retrieved.

• Do not leave used darts in the environment. Serious injury to cattle, a horse or especially a human could occur if a spent dart is stepped on. When possible, select darts that the manufacturer has painted safety orange or safety lime green to make them easier to find following use.

• Make sure the dart is not retained in the animal.

• If the dart is found to be retained in the animal and cannot be retrieved manually, notify your veterinarian for

assistance.

• Needles or darts left in tissue must not be ignored. Ultimately the producer is responsible for the disposition of the darts. Ignoring proper charge selection and power settings along with inaccurate range estimation are the largest contributing factors of injury and darts penetrating too deeply into tissue.

Dart Failures

Several research trials evaluating the effectiveness of drug delivery, efficacy, the impacts on meat quality and other factors are underway. Initial results reveal some concerns with this method of medication transmission. As one example, an Iowa State University researcher used a Remote Drug Delivery (RDD) system to inject 15 Holstein calves weighing between 750-900 pounds with a 10 cc dart of tulathromycin (Draxxin®) fired from just under 30 feet with a ³/₄" 14 gauge needle. The darts remained in the animals for an average of one hour and, after collection, it was found that 4 of 15 darts failed to inject the antibiotic. These were situations in which the dart seemed to work properly but it actually did not. Another interesting finding compared drug levels in the blood between successfully darted animals and those treated in a chute. Even when the darts worked correctly, the darted animals showed much greater variability in drug levels compared to cattle treated normally. Tests have shown a single dart can deliver antibiotics both below the skin and in the muscle, resulting in erratic absorption.

Take Home Message

Treating animals in a chute takes away many of the variables associated with darts: drug and dosage limitations, depth of administration (in the muscle or under the skin), and placement in the right area of the neck. Chute



Photo by Dr. Hans Coetzee, Kansas State University

outweighs the negatives."

restraint also allows a thorough physical examination as well as administration of other appropriate treatments to the animal. However, there are times remote drug delivery makes sense when an animal's health is in jeopardy or the producer's safety is at risk. In these instances, producers should continue to follow BQA guidelines for injections to ensure food safety and prevent carcass defects. In an online discussion in a national cattle magazine

(<u>http://www.cattlenetwork.com/news/industry/dart-debate-join-discussion</u>), many producers summed up their thoughts on remote drug delivery similarly to these statements:

"Most of my darts fall out in a few minutes and very rarely do I find one that did not inject. I believe if given in the neck they are safe for the cattle and consumer."

"RDD (remote drug delivery) through using darts is one of the best tools ever created for keeping cattle healthy when used correctly. The amount of stress it removes from the cattle by not wrestling them up in a chute or roping them far BQA Advisory Statement Regarding the Use of Pneumatic Darts or Other Remote Injection Methods in Cattle.

http://www.bqa.org/Media/BQA/Docs/bqa_advisory_statement_on_the_use_of_pneumatic_dart_guns.pdf

BQA Guidelines for the administration of injectable drugs/products to cattle are available in the BQA National Manual and at bqa.org and other places. There are no BQA guidelines for the administration of injectable drugs/products by the use of pneumatic darts or other similar methods designed to administer injectable products into cattle from a distance. There are several challenges associated with the use of pneumatic darts or similar technologies for the administration of injectable drugs/products to cattle, including but not limited to the following:

1. Accurate assessment of cattle weights is not possible in these situations, leading to inaccurate dosing. Underdosing of antibiotics promotes an increase in antimicrobial resistance. Overdosing unnecessarily increases the costs of production and may increase withdrawal times. 2. The volume of many appropriate drug dosages cannot be accommodated with the current dart technology.

3. The product delivery can be administered to non-approved injection site(s) resulting in off-label or illegal drug use. This would include the subcutaneous administration of an intramuscular drug or vice versa.

4. The potential for significant bruising or collateral injection site lesions is directly in conflict with BQA guidelines and principles. Additionally, accurate individual identification becomes much more challenging, leading to misidentification, inaccurate withdrawal time assignment, increased potential for illegal residues, and/or managing a group of cattle based on the withdrawal time of a single unidentified animal.

5. The needles' potential to penetrate ligaments, joints and other tissues could result in permanent damage to the cattle, raising concerns for animal well-being and additionally, result in ineffective therapy.

6. Injection(s) administered beyond label directions without a veterinarian's approval and prescription is considered an extra label drug use (via method of administration) and may be out of compliance with FDA regulations.

7. The possibility of needles remaining in the tissue following this type of administration presents an additional risk. Darts that remain attached to the animal for a period of time and subsequently become dislodged in the field or pasture can become a hazard to other livestock or personnel.

8. The entire dart can become imbedded in muscle tissue and create a significant BQA issue at the packing plant or at the consumer level if not identified at the packing plant.

9. Experiences with the use of darts in cervid (deer) production indicate that "gut shots", broken limbs, darting the wrong animal, establishing the correct animal ID for drug withdrawal records, and other problems are commonplace and do not conform to BQA guidelines for food animal production.

10. The potential for illegal compounding of drugs is probable with these methods.

11. In the process of trying to target the injection triangle in the neck, it becomes more likely for the dart to strike sensitive tissue in the head, such as the eye or cranial nerves.

12. Some antibiotic compounds have significant human health impacts if accidentally injected into people. An accidental occurrence of an injection into a human could result in death.

13. The cylinder of the delivery dart, where the antibiotic or other injectable product is placed, can become contaminated by bacteria. This can promote antimicrobial resistance as well as infections/ abscesses at the site of injection.

The companies manufacturing, selling and promoting these methods of drug and product delivery have the responsibility and the obligation to develop data to establish efficacy, safety, animal welfare, food safety, and other concerns as compared to current BQA approved methods of drug/product administration. It is also possible that FDA approval may be required for drug delivery by these methods of injecting drugs/products and that issue needs to be addressed by the manufacturers. Until such time as this critical data becomes available these methods do not meet BQA injectable product administration guidelines.

The Forage Doctor

Dr. Jimmy Henning, Extension Professor, Forage Specialist, University of Kentucky

They said I had iron toxicity.

One of the constants in the forage world seems to be the love-hate relationship that practicing agriculturalists have with haymaking. We spend a lot of time talking about cutting management, hay testing, curing and baling tweaks and so on. Baler makers have developed lines of balers that will net wrap (old news) but also semi-chop moist hay to encourage the ensiling process.

It is the 'other hand' point of view that leads to this article. A nationally-recognized economist recently told me that he felt that the biggest challenge to the profitability of cattle operations was iron toxicity. Meaning their hay making equipment costs were eating up the profits of their cattle enterprise. While I am sure his statement was based on hard numbers, it has always struck me as oversimplification of a complex situation. The problem is that university experts can endorse two separate points of view (make hay vs all grazing and buying hay) without acknowledging and reconciling them. So I am going to think through this with you over the next few paragraphs.

First, a disclaimer: I am not an economist, have never claimed to be, and after this article will probably be outlawed from using the word and taken off their Christmas card list!

Observation 1. The average cattle operation in Kentucky is a part-time enterprise. The commodity in shortest supply is time. Completing all tasks on time using the most cost effective and economically optimized methodology is a worthy but often unattainable goal.

Observation 2. Farmers are by nature a conservative group. Farmers must manage risk, looking for safety nets wherever possible. Livestock enterprises are doubly complex because animals have to eat and drink every day. Having a buffer of feed against a drought is a key safety net. Being in control of their cutting time and the source of their hay supply is a safety net and a risk management tool. Owning the equipment to do this does have a cost, but the 'sleep at night factor' has a value as well. In a perfect world, a farmer could sell they hay equipment and just buy hay when needed. This scenario can and does work for some. In reality, farmer practice says they greatly prefer to have control over their feed supply by being able to make their own hay. This ability does give them a chance to reap the benefits of improved forages, more optimum cutting dates and curing, but above all it removes a risk that they will not find hay of the desired quality at a proper price.

Observation 3. Grazing year-round in Kentucky is challenging and in some years impossible. The seasonality of our cool-season base forages means that two-thirds of the annual production has occurred by the time you read this article. The prevailing thought is that we can probably graze 330 days of the year with a combination of rotational grazing, annuals (summer and winter), and stockpiling. I And I believe that Kentucky producers should graze as much as they can. That is not to say that every day grazing is always the cheapest way to feed livestock.

My conclusions.

• Hay making is expensive. Equipment is not cheap so watch your spending. Keep your costs as low as possible. Finding a reliable, compatible partner to share costs can be a good way to lower costs.



1 Hay making is a staple of Kentucky cattle farms. Is it holding back my farm profitability?

- Make the best hay possible. Making bad hay is expensive even with low equipment costs. Bad hay limits production, costs money and wastes time the commodity in shortest supply. A compelling argument can be made that it may be *more* economical to make haylage (a higher cost option) because the product is better and there is greater animal output per forage input.
- Making your own hay can still be consistent with operating an economically efficient operation, and will contribute greatly to the 'sleep at night factor.' This factor has value, but is hard to quantify in hay making budgets.
- Know your costs of operation. You cannot manage what you cannot measure. What does it cost to make hay? Is there a cheaper source of nutrients? You are probably not going to sell your hay making equipment even if you find a source, but it will give you back some time.

Perhaps all of the 'university' experts stretched end-to-end might still not reach a conclusion on the economics of owning hay-making equipment. But there are some darn good reasons to.

Happy foraging.

Kentucky Beef Cattle Market Update

Dr. Kenny Burdine, Livestock Marketing Specialist, University of Kentucky

Summer is here and feeder cattle markets keep rolling. At the time of this writing (June 13, 2017), CME© August Feeder Cattle Futures were right around \$150 with fall contracts in the mid-upper \$140's. While CME© Feeder cattle futures have pulled back a little in early June, the local cash markets have hardly missed a beat. The market improvement that has been seen since last fall has been quite impressive and probably has not gotten the attention it deserved because of how sharply prices dropped from spring to fall of 2016.

As always, there is a pretty long list of factors impacting our feeder cattle markets. While fed cattle prices have been volatile, they have stayed strong and not show much of their typical June weakness yet. Feed prices have been relatively stable, at least compared to recent history. Beef exports for 2017 have been much stronger than last year and the expectation of trade with China in the near future is also encouraging for exports in the second half of 2017. And finally, dressed harvest weights began 2017 at roughly 2016 levels, but are now running about 20 lbs per head below 2016 levels. All these factors have supported our feeder cattle markets during the first half of the year.

I wanted to show a monthly price chart for both steer calves and heavy feeder steers this month to put this recent rally into perspective. Figure 1 shows monthly prices for 550 lb steers in Kentucky. The monthly prices I am showing are simply an average of the weeks that fall in that month. One can easily see the sharp drop from March 2016 to October 2016. Some of that was seasonal, but most was not. The difference in value of a 550 lb steer from March to October of last year was more than \$400 per head. One can also easily see the rally from October 2016 to May 2017. Again, part of this rally was also seasonal, but represented a difference in calf value of more than \$200 per head.



Source: USDA-AMS, Livestock Marketing Information Center, Author Calculations

Figure 2 shows the exact same data for 850 lb steers. As expected, there is not as much variation in their prices, but the steep decline from summer to fall last year is very apparent. As is the increase in prices seen this spring. Seasonally, these heavier feeder cattle prices tend to hold their ground through summer, unlike calf prices. Of course, seasonal patterns don't always hold and we have seen several examples of this over the last few years.





Source: USDA-AMS, Livestock Marketing Information Center, Author Calculations

It will be very interesting to see how the recent run-up in prices impacts cattle numbers over the course of the year. Fall prices will have more impact than spring as most of our cow-calf operations calve in the spring of the year. With the exception of some areas in the Northern Plains, most of cattle country is in pretty good shape in terms of moisture as of mid-June. While there is always the potential for something unexpected to impact the cattle markets, I feel like the trajectory of harvest weights will be the key factor to watch over the course of the summer.

Figure 3 shows dressed steer weights for the current year, last year, and for 2011-2015. The decrease in harvest

weights from January to May was a major driver in the markets this spring. Favorable feedlot profitability seemed to result in feedlots pulling cattle forward for harvest and brought the market more current. Seasonally, weights tend to increase from now until fall, and I would expect the same thing this year. But, I also expect weights to run below 2016 levels for the rest of the year. A fed cattle market that remains current is always good news for feeder cattle markets as it puts those feedyards back in the market sooner, and ideally, coming of a profitable closeout cycle as they currently are.



Source: USDA-AMS, USDA-NASS, Livestock Marketing Information Center