

Standard Procedures for Beef Cattle

Ronnie Silcox
Extension Animal Scientist

Where do I find a frame score chart? How do you adjust a weaning weight? What is a contemporary group? What are the standards for bull breeding soundness evaluations? When you have questions like these, you need BIF's *Guidelines*.

The Beef Improvement Federation released the eighth edition of *Guidelines for Uniform Beef Improvement Programs* in July 2002. *Guidelines* includes standard procedures for collecting and using beef performance data.

The full text of BIF *Guidelines* is available on the web at www.beefimprovement.org. Printed copies of the book can be ordered for \$15 from:

Beef Improvement Federation
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Athens, GA 30602

The chapter on breeding herd evaluation contains such topics as body condition scores, calving ease scores, disposal codes and information on whole herd reporting.

The chapter on animal evaluation contains formulas for adjusting weights, frame score charts, carcass evaluation formulas, ultrasound methods and central test procedures.

There are also chapters on biotechnology, National Cattle Evaluation and utilization. The Glossary defines many of the terms encountered in beef performance programs.

If you work with beef cattle, visit and bookmark www.beefimprovement.org. BIF's web site also contains fact sheets and proceedings of the 2002 conference on beef cattle efficiency.

BIF is a federation of US and Canadian beef breed associations, state and provincial performance organizations and other organizations involved in beef cattle improvement.

Catfish Aquaculture in Georgia Has Variable Returns

Gary J. Burtle
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Where you are in Georgia makes a big difference in the amount of money you are paid for your catfish. Whether you produce large catfish or small, location has the most to do with the type of market catfish are sold in. Recently, our economic downturn hurt all catfish markets, however, since the first of the year, some areas have returned to prices offered before September 2001. The catfish industry in general is suffering from high inventories on the farm, low processor prices, and competition from Asian fillets.

The bright spots in Georgia are the live catfish market and the small catfish market. Fee fishing ponds continue to operate as before 2001. These live fish markets require healthy catfish that are 1.5 pounds in size and larger. Most of the production acreage for this market is in west central Georgia. However, fee fishing operators are located in most counties in the state. Prices for catfish sold to these operators range from \$0.75 to \$0.95 per pound.

Small catfish, less than 0.75 pound in size, are in demand in southwest Georgia. Several producer-processors have indicated a shortage of these small catfish due to a continued demand for this product at restaurants in Georgia and up the Atlantic coast. At least one processor is concentrating on high quality fish markets at upscale prices that reflect the additional attention to quality. These small catfish may receive a pond bank price that is 20% higher than for larger catfish. However, costs associated with these small fish must be recovered by stocking at high density and harvesting more frequently. A supply of high quality fingerlings must be available throughout the year for sustained production of small catfish.

Catfish producers who sell to out-of-state processors are in better shape than their counterparts in Mississippi or Alabama, yet prices are lower than most producers need to break even on both fixed and variable costs. Prices of less than \$.55 per pound at the pond bank are common. Yet some producers of large catfish receive more per pound for quantities of 2,000 pounds or less per load. Depending on the source of information, these prices may continue to be low or may enter a period of boom and bust cycles due to pond catfish inventory reduction followed by supply shortages and the reverse. One source indicates an estimated 20% reduction in Mississippi catfish inventories within a year.

One definite trend is a continued demand for catfish by the American consumer. Processor volume continues to increase each month. Some of the increase can be credited to lower prices for catfish products at retail outlets. However, consumers are continuing to be satisfied with the quality and taste of farm-raised catfish. A recent survey of consumer attitudes toward catfish indicated that the largest catfish buying sector is among college educated middle income Americans rather than Americans with lower incomes. However, that finding may indicate that catfish is priced higher than some other meat or seafood items.

Midsummer Cattle Working

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Extension Animal Scientist
Tifton, Georgia

Working cattle during the summer can add substantial value to calves at weaning time. Cattle can be dewormed, treated for flies, vaccinated, calves dehorned, calves implanted, bulls removed, and cows pregnancy checked. Spending one morning working your cattle this summer can result in a bigger paycheck this fall.

Deworming of calves will result in heavier weaning weights. Increased weaning weights of 25 to 40 pounds have been reported. Cows can be dewormed at this time if they were not dewormed in the spring. The risk of infection is at the lowest level during the summer months in Georgia. Therefore, it is recommended to worm both cows and calves at this time. This will reduce the number of parasites in the pasture, and possibly reduce the incidence of infection the following spring when grazing begins. Do not wait until weaning to deworm calves because substantial reductions in growth is done prior to weaning. Deworming at weaning does nothing to increase the profits of cow/calf producers that sell calves at weaning. Calves should be wormed about 45 to 60 days before weaning.

If you have not vaccinated for Blackleg, it should be given along with other clostridial diseases in a 7-way vaccine. If calves have been given a 7-way vaccine previously, they should be boosted at this time. It costs less than a dollar to vaccinate for blackleg. Saving one animal can pay for several hundred doses of vaccine.

Calves can be implanted at this time or re-implanted if given an implant at birth. It is a good idea to not implant replacement heifers. Implanting calves will increase weaning weights by 20 to 30 pounds. Be sure to read and follow label instructions and re-implant according to manufacturers recommendations. Also, dehorn calves at this time to avoid discounts on sale day.

Cull any cows that have lost a calf or did not calve during the spring. Cow prices will decline now through fall. Check cows for any health problems. Cull cows now before their condition declines to a point that severe discounts will occur. Check cattle for pinkeye and treat immediately.

Remove bulls to shorten the calving season. Year round calving is a huge problem in Georgia. Management practices such as pregnancy checking, implanting, vaccinating, are difficult to complete when calf ages are spread out over the course of the year. Cattle have to be worked several times over the course of the year, which increases labor. Cows that have not calved in a consistent 12 month cycle go unnoticed in a year-round calving system. Having a defined calving season is critical to adopting sound management practices.

A midsummer deworming of calves can pay in several ways. Many herds are small enough to be worked in just one morning. By performing multiple procedures on calves at one time, labor costs can be kept to a minimum.

Managing Horses On A Few Acres - Part II

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Extension Equine Specialist

In the last Livestock Newsletter I discussed the establishment of a one acre pasture to help maintain a mature horse ridden lightly three to four times a week. Ideally, a mature horse maintained on pasture will require two acres. Two acres will provide all the forage for eight to ten months in Georgia, provided the pasture is managed properly. In this Newsletter I will discuss facility requirements and the planning of a year round feeding schedule.

Facilities for a horse may be very simple and inexpensive to quite elaborate. Contrary to what many people believe, the horse can withstand extremes in the environment without much protection. As long as the horse can get out of the wind they will be comfortable. It has been suggested that the adult horse's thermal comfort zone (this would be temperature based on humidity and wind speed) ranges from 45 to 85° F. So the minimum shelter for a horse would be anything that provided a wind break in the form of a solid fence, properly planted trees, wall or an open three-sided shed that faces to the south east and has a minimum height of twelve feet. The twelve foot height helps to provide adequate ventilation in the summer months. Other minimum considerations for a horse facility would be for hay and feed storage, bedding, tack and equipment. Equipment storage may include a horse trailer, some type of tractor, etc. Another consideration is how manure will be handled. That is, will it be composted and once composted how will it be utilized?

An excellent horse barn plan for maintaining a horse and equipment on small acreage is a "Convertible Barn Garage." This type of structure offers flexibility especially as it relates to resale value. It can be a barn or a garage. The structure starts as a garage with doorways on the sides and sliding doors at either end (see figures 1 and 2). Then, when partitions are added between the stalls and the garage - door openings are filled with the same lumber, the structure becomes a working stable. The size of the structure shown in figures 1 and 2 is 30 feet X 36 feet. Obviously you can custom design a smaller structure. The design also allows for storage of hay in a loft as well as providing enough space for a tack room, feed room and some equipment storage or you can construct up to six stalls, 10 feet X 12 feet or any combination of stall numbers, sizes, etc. with tack room, feed room and equipment storage space. The beauty and simplicity of this design is that you can also have a run-in stall simply by leaving one of the door openings open.

Besides the one acre pasture per horse minimum, a small turn out paddock should be provided between the pasture and whatever barn or shelter is constructed for the horse. The turn out drylot paddock area should be large enough to provide the horse adequate area to run and exercise freely. A good size exercise and turn out paddock would be 100 feet by 60 feet (6,000 sq ft) which is a little over 1/8 of an acre. The drylot paddock will provide a place to keep the horse off the pasture whenever pasture conditions dictate, such as no forage, to allow some regrowth, too much forage when the horse is overly fat and environmental conditions such as excessive mud.

To plan a year round feeding schedule, expected forage production and utilization needs to be determined from the acre of pasture per horse. If you follow the recommendations from Part 1 (May/June 2002 Newsletter) and establish an improved variety of common bermudagrass and overseed with annual ryegrass in the late summer or early fall, total dry matter forage productions can be roughly estimated. A well maintained pasture should provide enough forage for a mature 1200 pound horse ridden lightly for eight to ten months of the year. In other words when planning supplemental forage needs (hay needs) plan for four of eight months. This should provide enough forage with available pasture forage to meet the year round needs. The hay should only be purchased once a year. The amount of hay needed to provide a total of four months of forage for the horse in this example would be approximately one and one half tons (3,000 pounds) or about 65 bales of Bermudagrass hay or other type of grass hay. Purchasing of the total hay needs per year, one time a year, will allow for testing of the hay for nutrient content so that if other supplemental feed is needed exact nutrient requirements for the horse can be determined. A 1200 pound mature horse being ridden lightly or doing what is considered light work can be maintained primarily on good quality pasture and hay with little additional supplementation of feed. Mineral and vitamin needs can be met by feeding 1 to 1.5 pounds of commercial supplements commonly referred to as "Oat Balancers". These "Oat Balancers" have higher levels of protein, minerals and vitamins than are routinely formulated in horse feeds. In addition, a horse should always have free choice access to salt.

Facility and feed requirements for a mature horse, ridden lightly, maintained on one acre of improved pasture, have been discussed. With adequate understanding of a horse's needs, land and facility requirements can be planned for or existing land and facilities can be modified to maximize horse comfort and minimize the expense of maintaining the horse.

Proper Hay Utilization

Dan T. Brown
Extension Animal Scientist

Hay is the basis (or Backbone) for the majority of the beef cattle operations in Georgia in terms of providing supplemental feed. Most beef herds are fed hay during the periods that grazing (forages) are not sufficient. Generally, this is during the winter months. It can also be at other times, such as during summer or early fall droughts.

Hay is expensive! Therefore, proper hay utilization is very important not only to reduce costs but also to insure that the animal's nutrient requirements are being met. Correct utilization starts with:

1. Producing high quality hay - proper fertility and harvesting at the optimal state of production.
2. Storage and handling - all hay should be stored under cover. Hay stored outside may easily have spoilage to a depth of 4-5 inches. With a bale diameter of 4-6 feet, this results in a loss of 25-35% of the dry matter. Use hay rings when feeding to reduce added wastage.
3. Forage Test - only then do you know the nutrient content. Hay rations then can be properly supplemented for the different classes of livestock.
4. Feed the poorest quality hay to the dry cows and mature bulls. Save the best hay for replacements and lactating cows.
5. Estimate the hay tonnage needed. Do not waste but do have enough on hand to properly feed the cow herd for your normal feeding period (with a little put back for emergencies).

For optimum performance, animals nutrient requirements must be met on a daily basis. If the hay's forage analysis does not meet these needs, then additional protein or energy (TDN) must be added. The nutrient requirements for beef animals are as follows (dry matter basis):

Class	Crude Protein (%)	Total Digestible Nutrient (%)
Dry Cows/Mature Bulls	8	52
Lactating Cows	11.2	56-58
Young Growing (Repls./Dev. Bulls)	11.2	63-65

Hay and Forage Analysis
(Examples of Analysis only - this doesn't imply Normal Analysis)

Hay	Crude Protein %	TDN(%)
1. Fescue	11.3	59.8
2. Tift 44	8.0	52.1
3. Coastal Bermudagrass	9.6	56.2
4. Tift 85	11.1	56.3
5. Bahia	7.8	48.5

Select the best hay for replacement heifers. This would be the fescue. It most closely meets the requirements. You would only need to add some energy (TDN).

Which hay most closely matches the needs of a dry, pregnant cow? The Tift 44 is a fit.

What hay most closely supplies the needs of a lactating cow? Tift 85

Which hay does not meet the needs of a heifer, dry cow or wet cow? Bahia

Which hay sample was harvested at the most optimum stage of production?

Fescue TDN level is almost a direct correlation with stage of forage maturity at harvest. The more mature the forage, the lower the TDN quality.

Which hay sample received the least amount of nitrogen during production? Bahia

The percent crude protein is correlated to nitrogen fertility. As fertility increases, crude protein increases!

Estimating the hay needs for the herd is not difficult. Quite often we run short. Always figure on needing more for emergencies; a longer, harder winter, wastage and spoilage. An average animal's hay consumption is as follows (based on a 1000 lb mature cow):

Class	Approx. lbs/hd/day
Dry Cow	20
Wet Cow	25-28
Replacement Heifer	10-12
Bred Replacement Heifer	18-20
Bull	28-30

Hay Requirement = lbs/hay/day X Number of Head X days to feed

As an example, if you had a 31 head herd (including 1 bull) and fed hay for four months (2 mos.-cows dry and 2 mos.-cows were lactating), you would need 37.5 tons of hay. Example:

Class	No. Head	lbs Hay	Days to Feed	Total lbs
Dry Cow	20	20	60	24,000
Wet Cow	20	25	60	30,000
Repl. Heifer	5	10	120	6,000
Bred Heifer (dry)	5	18	60	5,400
Bred Heifer (wet)	5	20	60	6,000
Bull	1	30	120	3,600

Ammonia Problems in Commercial Catfish Ponds

Gary J. Burtle
Extension Aquaculture Specialist

High levels of ammonia in catfish ponds have been blamed for extensive and usually uncontrollable losses in Georgia. Ammonia, the natural product of protein metabolism in catfish, can be present at toxic concentrations in catfish ponds under certain conditions. The toxic relationship of ammonia to fish is complex because chemical, physical, and biological interactions influence the determination of toxic concentration of ammonia.

Normally, the amount of toxic ammonia is a relationship dependent on water temperature and pH. The toxic ammonia, un-ionized ammonia, increases with temperature and pH values. An equilibrium exists between two forms of ammonia in water, the un-ionized form and the ionized form. The ionized form is most abundant and the un-ionized form exists in very small quantities when water pH is near neutrality or a pH of 7.0. However as pH rises and at warm temperatures, the percentage of ammonia that exists in the un-ionized form may exceed 25% of the total ammonia. This phenomenon is the usual cause of ammonia toxicity to catfish.

Confusing that relationship, un-ionized ammonia is more toxic when pH is lower than at high pH. Therefore, small quantities of un-ionized ammonia can be toxic at a pH of 6.5 but are not toxic at a pH of 8.0. Since pH level changes during the day in fish ponds, it is possible to have toxic ammonia conditions as the day progresses even though the total ammonia concentration does not change.

Chronic exposure to ammonia has an effect on catfish that further confuses the estimation of toxic concentration. As catfish are exposed to low concentrations of un-ionized ammonia, they become accustomed to or acclimated to the ammonia. This means that they will feed normally and grow normally at an ammonia concentration that would be toxic if the fish were suddenly exposed to it.

Ammonia concentrations increase in catfish ponds when the amount of feed increases. About 50% of the feed consumed by catfish is excreted as waste, some as ammonia. In the summer months, most of the ammonia in catfish ponds is quickly utilized by algae (phytoplankton) or is converted to nitrate by bacteria. In cool weather, algal populations become less abundant, change in species composition, and utilize less ammonia. Bacterial metabolism also slows down in cool weather. As a result, ammonia toxicity is a concern in the fall and early winter months.

Ammonia, pH and temperature should be monitored regularly to alert the fish producer to potentially toxic conditions. Usually a test taken weekly will identify periods of rising ammonia concentration in time to take corrective action.

Examples of toxic ammonia concentrations in catfish ponds:

Example 1. Catfish pond is very turbid, very little planktonic algae is seen upon microscopic examination of the pond water. Total ammonia concentration is 3.5 ppm, pH is 8.6 and water temperature is 24° C. Under these conditions, about 0.6 ppm un-ionized ammonia is present. The turbid condition of the pond should be cleared up so that phytoplankton can grow and utilize the available nitrogen from ammonia.

Example 2. An algal die-off has occurred and the total ammonia concentration in the catfish pond has risen to 12 ppm. Pond temperature is 18° C and pH is 8.2. Under these conditions the rapid change in ammonia could cause fish losses at the un-ionized ammonia concentration of 0.62 ppm. The algal bloom should be encouraged to return, possibly by the addition of phosphate fertilizer.

Southern Regional Aquaculture Center Plans Research for Catfish and Other Pond Fish

Gary J. Burtle
Extension Aquaculture Specialist

The Industry Advisory Committee and the Technical Committee for the Southern Regional Aquaculture Center (SRAC) of USDA met recently to prioritize projects for funding. Top on the list was an initiative to improve production efficiency in fish ponds using methods of water quality management, feeding schedules, and stocking programs to increase production and lower costs. Second in priority was the topic of hatchery technology for catfish hybridization. The next priority involved batfish and ornamental fish species and their nutrition and feeding. Also on the list of important issues, but not funded in this round of voting, were issues of fish vaccination, fish fingerling production efficiency, improvement of hatchery techniques for fresh water or salt water species in the region, evaluation of inland saltwater production, non-lethal methods of fish health certification, solids management in flow-through systems, and investigating technology for development of new aquacultural species.

The title for the top project will be "Development and evaluation of methodologies for increasing intensity and efficiency of pond systems." A funding level of \$1,000,000 over a period of four years was requested as this recommendation was sent forward to the SRAC Board of Directors. Such a high level of funding will postpone implementation of this project until after the 2003 USDA appropriation if it is approved by the Board. Also, this project along with two previously approved projects, one concerning fish harvesting and the other concerning fish diseases, will utilize all available funding through SRAC until at least 2004. Therefore, it is not likely that the second or third priority projects will be funded in a timely manner and possibly not at all.

The operating policies of SRAC were examined and several changes were recommended. These included expanding the Industry Advisory Committee from 13 members to 21 members with at least one from each state and territory in the southern region. The Technical committee was expanded from 24 to 30 members so that each state could have two permanent seats, one for research and one for extension. Several other measures were recommended to clear up ambiguities and improve the fairness of SRAC in providing a means for the aquaculture industry to set research priorities in a variety of species for the 13 states or territories in the southern region.

Members of the SRAC Board are Deans or Directors of Research or Extension listed below:

Harold R. Benson, Kentucky State University
W. S. Clarke, Virginia State University
Paul Coreil, Louisiana Cooperative Extension Service
Charles Lee, Mississippi State University
Ivory Lyles, Arkansas Cooperative Extension Service

David G. Morrison, Louisiana State University
Daniel Smith, Clemson University Cooperative Extension Service
Vance Watson, Mississippi State University
Greg Weidemann, University of Arkansas

If you would like to discuss the project development process or the issues of priority you may contact me at 229-386-3364 or fish@tifton.cpes.peachnet.edu. More information about the Southern Regional Aquaculture Center can be obtained from the website at www.msstate.edu/dept/srac/.

DATES TO REMEMBER

July 26-27	Limousin Assoc. Field Day	Athens
August 2-3	GCLPA Futurity	Athens
August 4	Block & Bridle Summer Classic	Athens

Estrous Synchronization Update

Timothy W. Wilson
Extension Animal Scientist

Most beef cattle producers who utilize artificial insemination take advantage of estrous synchronization. There are many protocols available in the market such as Ov Synch, Co-Synch, and Select Synch, just to name a few. Needless to say, determining which estrous synchronization protocol is right for you will require some background knowledge. Producers must decide how much time, money, and labor they are willing to allocate to a protocol.

Each year scientist around the world perform and evaluate research to determine which estrous synchronization protocols will bring females into heat without reducing conception rates. One product that has been available in various countries and was being evaluated by the Food and Drug Administration (FDA) for approval in the United States is a controlled internal drug-releasing device commonly known as a CIDR. This past May, the FDA approved a brand of CIDR, for use in beef cattle and dairy heifers called EAZI-BREED™ CIDR®.

An EAZI-BREED CIDR is a T-shaped insert that has a specially designed flexible nylon spine that is coated with 1.38 grams of progesterone in molded silicone and has a polyester tail attached on the end for easy removal. This product is labeled for use in combination with Lutalyse® in estrous synchronization protocols. Although the product is similar to others used outside the United States, there have been some adaptations made to the approved product label. When using this product, it is important to follow the label provided.

This product is inserted into the vagina and allows for a slow release of progesterone into the blood stream. Progesterone concentrations are elevated for seven days until the device is removed. A shot of Lutalyse, a prostaglandin, is given on day six to induce the regression of the corpus luteum. As the corpus luteum regresses and progesterone concentrations are decreased, a follicle on the ovary will increase in size becoming dominant and ultimately ovulate.

The approval of this new product in the United States should help enhance the options producers have when selecting an estrous synchronization protocol that is right for them. If you have any questions regarding this topic, please feel free to contact your local county agent or call me at (912) 681-5639.

