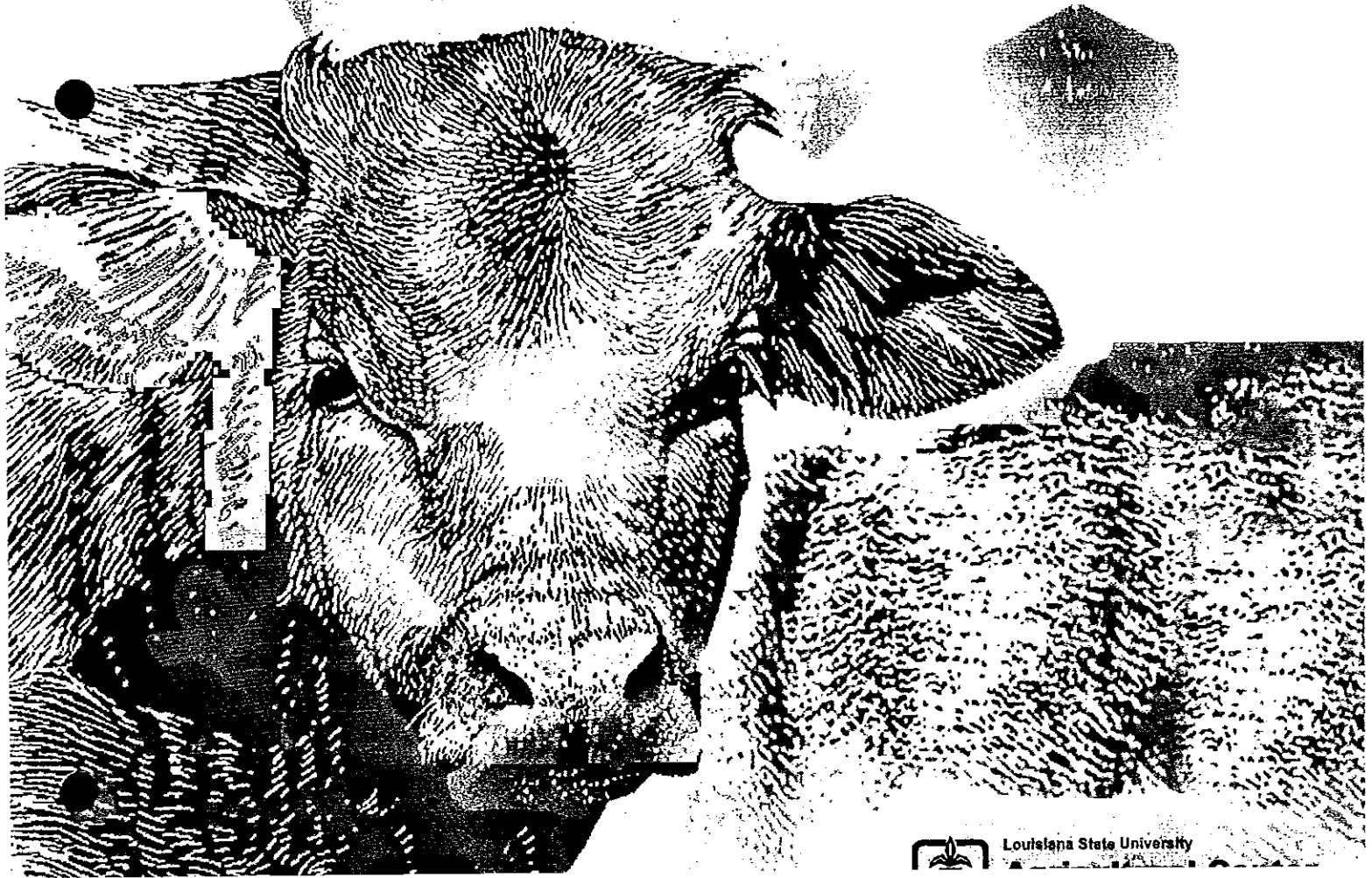




Beef Cattle Management Tips



Louisiana State University

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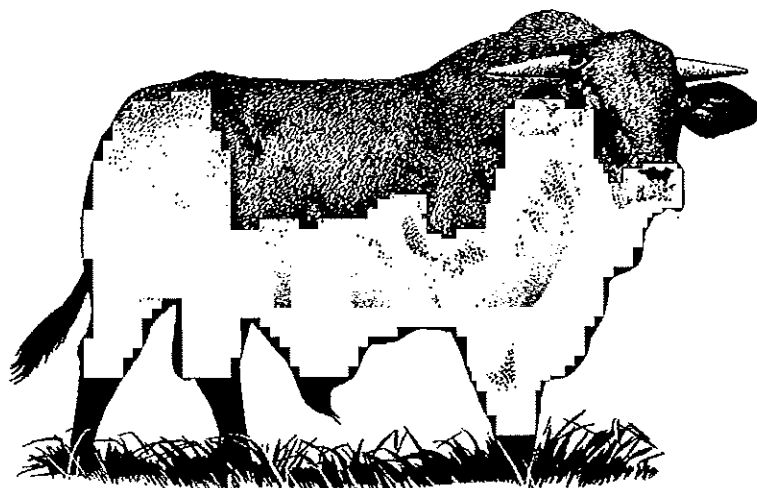
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Foreword

The word "tips" is really appropriate in the title of this publication. Because it is intended to be concise, only the "tip" of each subject is touched upon. Calling the subjects to mind is the object, while hoping producers will appreciate the reminders.

Because Louisiana is so diverse in environment and topography, the discussion of topics as presented here will not always apply to every situation. The underlying principles, however, will generally apply in most situations.

Animal Identification

The start of any planned beef cattle production program is individual animal identification. Identification is fundamental to keeping production records, which are fundamental to management decisions such as culling or selection. It's especially important to know (by number or other identifying marks) which cows have calved regularly and which have not. It's impossible to be progressive without individual animal identification.

Methods of identification vary from the simple eartag to the more permanent brand. Usually a back-up identification is recommended when eartags are the choice. A legible tattoo in the animal's ear is permanent and can be referred to when tags are lost. Tags and brands are also used together in many instances. The idea is to have a system in place that is convenient and permanent.

A good system provides more than identification. It can indicate such additional information as sire, breed combination or year of birth. A basic system is better than none. A more complete system is desirable, but it depends on your needs.

Brands, burned into an animal's hide, have been used for centuries to indicate ownership. Modern brands can be hot or cold and may indicate more than ownership. To prevent reducing the value and usefulness of hides, it is recommended that brands be placed on the lower shoulder or hip areas. Under some working conditions, brands are placed on areas that facilitate their interpretation, but keep hide value in mind when possible.

Purebred breed registries have specific identification requirements. Beginning breeders should inquire about the requirements for the breed they intend to produce and register.

Requirements for a legal ownership brand can be obtained from:

*The Livestock Brand
Commission*

*Louisiana Department of
Agriculture and Forestry
P. O. Box 4048*

Baton Rouge, LA 70821-4048

Production Objectives

High on the list of tips for a successful beef cattle program is a list of objectives, or goals, you want to achieve. A specific breeding season and desirable calving dates, production indicators like calving percentage, weaning percentage and weights, yearling weights and pasture improvements are just some of the objectives you could identify and work toward. Anything a producer wants to do or wants to achieve can be considered an objective. Objectives should be clear, however, so management can rank their importance. Con-

sidering more objectives than can be achieved complicates the issue.

One of the most important objectives should be producing for a special market. Marketing is probably the most overlooked consideration in beef production. Seasonal markets, feeder calf sales, F-1 heifer sales and 4-H club calf sales are examples of special markets.

Crossbreeding is sometimes required to meet the restrictions of special markets. Don't overlook the advantage of combining the strong points of different breeds and the beneficial effects of heterosis or hybrid vigor.

For a more comprehensive discussion of crossbreeding, ask your extension agent for publication 2319, "Crossbreeding for Beef Production."

Breeding Seasons

Breeding seasons and calving dates are almost synonymous. If bulls are allowed to be with cows on a year-round basis, calves will be born throughout the year. If bulls have restricted access to the cow herds, calves will be born in a restricted period. Thus, the terms restricted breeding and restricted calving season evolve.

In Louisiana, breeding seasons range from year-round to 60 days. When restricted breeding is practiced, the most popular periods are April 15 through July 15 (a spring breeding season lasting 90 days and producing calves from late January through late April) and December 15 through March 15 (a winter breeding season lasting 90 days and producing fall calves from late September through December). Other similar schemes are used when calves are desired earlier or later to coincide with the peak of forage (feed) avail-

ability. (As a rule, calves will be born 2 ° months earlier than the date the bulls were put out, through 2 ° months earlier than the date the bulls were separated from the cow herd.)

Reducing the breeding season to 90 days or less allows for concentrated management which:

- 1. Saves more calves at birth*
- 2. Coordinates other management practices such as castration, vaccination, pregnancy testing, etc.*
- 3. Facilitates marketing*
- 4. Increases calf uniformity*

The only disadvantage of a restricted calving season is that it forces marketing within a narrow period. Owners of large herds can reduce that liability by using both fall and spring calving season.

Avoid summer calves. They seldom develop satisfactorily. Usually, they are small, stressed and unthrifty and are not heavy enough at sale time to pay for their dam's expenses.

Bull Selection

Factors to consider in bull selection are breed, mature weight, potential fertility and genetic ability to achieve specified objectives. Nothing facilitates bull selection like a good, reasonable set of production objectives or goals. Bull selection then becomes a matter of following the "recipe."

Choice of breed is largely personal, provided the breed chosen fits in a category of breeds best suited for a specific purpose. For example, if the breed fits a category of relatively low birth, yearling and mature weights, it may be considered early maturing and suitable for use when one of the goals is to minimize birth problems. On the

other hand, if the breed belongs to a category known for high birth, weaning and yearling weight, it is suitable for attaining goals of increased weaning and yearling weights and feedlot performance. A general purpose breed may fall in-between these categories. So, even though breed selection remains mostly a personal preference, logically the breed should fit the objectives specified for the herd.

Variation exists within each breed. By using EPDs (Expected Progeny Differences), it's possible to express personal preference and also choose a bull or bulls that will meet production objectives with little or no compromise.

Environmental adaptability is important, especially if the bull is expected to produce heifers for replacements. A bull with a high EPD for milk production may not be best for restricted environments like those found on Louisiana's Gulf Coast and in piney woods. Hot, humid, insect-infested environments require bulls (and cows) that are tolerant to those conditions. Brahman and Brahman based breeds are generally best suited for Louisiana's harsh environments.

All bulls intended for breeding purposes should have passed a BSE (Breeding Soundness Exam) administered by a qualified veterinarian. This exam, designed to differentiate the low fertility bulls from the bulls of acceptable fertility, should be performed before purchase and again before each breeding season in which the bull will be used.

Several Louisiana county agents and their local cattlemen's associations provide facilities and qualified veterinarians, on a specified date, for BSE exams.

This service is designed primarily for owners of one or a few bulls, and a nominal fee is charged on a per bull basis.

Some characteristics of a bull can be appraised visually. Short sheaths, large testicles, soundness of feet and legs and muscle thickness are desirable characteristics. A hanging prepuce, injured penis and light pigmentation around the eyes are some of the undesirable traits.

Remember, bulls have only two purposes: to impregnate cows and to transmit genetics compatible with the breeder's objectives.

Anything affecting these two purposes should be carefully evaluated.

For more information about EPDs, ask your extension agent for "Understanding EPDs," Pub. 2692.

Biological Types and Adaptation

With more than 80 breeds to choose from and numerous combinations of breeds as well (referred to as composites), different biological types are available. A short study of North, Central and South America, as well as Europe, Africa and other cattle-producing areas, will reveal that different types are preferred in different regions. In Louisiana, the geographical areas largely divide into north and south Louisiana. Temperature, humidity, forage species and quality dictate to a certain extent types most likely to live and produce satisfactorily. Large, late maturing types require more forage (feed), while small, moderate milk producers will require less feed and may be best for production in limited environments. The question to ask is, "Which breeds or combination of breeds will produce the largest number of

calves per unit of cow in the chosen production environment?" Personal preference should be curbed when serious evaluations are being made.

Since females constitute the largest part of any cattle operation, it's especially important that they be of a type which is compatible with the production environment. Remember, it is a fact that larger cows require more feed (land, forage, space, etc.). Additional production is necessary to offset additional inputs.

Crossbreeding And Adaptability

Crossbreeding is the most potent tool producers can use to cope with adaptability and produce an acceptable market product. For example, crossing the Brahman (B) and Angus (A) breeds results in an F1 (AxB) or F1 (BxA), which will produce above the average level of the two breeds making up the F1s. In crossbreeding, hybrid vigor is frequently expressed for traits largely controlled by environmental influences. As a general rule, the more genetically unrelated the breeds being crossed are, the more hybrid vigor will be realized.

A common practice in Louisiana is using an adaptable Brahman cross female bred to a breed of bull noted for rapid growth and good carcass characteristics. Because the cow is adaptable, produces a good environment (milk) for her calf and the calf inherits growth and carcass potential, total production is increased.

Many potential types of breed combinations can be used to achieve production goals. Struggling with only one breed might take forever to get the job done.

For a thorough review of

crossbreeding and crossbreeding systems, ask your county agent for Pub. 2319, "Crossbreeding for Beef Production," and Pub. 2239, "Louisiana Beef Cattle Production."

Beef Cow Fertility

A high calving rate (fertility) is the most economically important trait in beef production. This is especially true when it can be achieved without additional or only marginal dollar inputs.

Factors affecting fertility are:

- 1. An ample forage or feed supply promoting good cow body condition*
- 2. Well-developed replacement heifers*
- 3. Highly fertile bulls*
- 4. Health programs to control or prevent diseases and external and internal parasites*

Overfeeding is not necessarily the answer to increased fertility and profitability. For example, it may cost \$3,000 to increase weaning rate by 5 percent or five extra 500-pound calves per 100 cows. With calf prices at \$0.80 per hundred weight, the increase in gross profit would be less than the expense (\$3,000 vs. \$2,000). Other less expensive management practices or higher calf prices might change the situation.

For more information on fertility, ask your extension agent for Pub. 2308, "Factors Affecting Reproduction in Beef Cattle." See Supplement II for additional information.

Factors Causing Calving Difficulties and Losses

Calf birth weight, especially in 2-year-old heifers, is the primary cause of dystocia, a catchall term for factors causing calving difficulty. Dystocia is the

primary cause of calving problems.

Birth weight is more highly influenced by genetics than by environmental factors such as season and feeding level during gestation. Essentially, this means that using bulls that have high birth weights or high EPDs for birth weight is a risk. When crossbreeding with Brahman bulls, longer gestation periods and hybrid vigor for birth weight are also factors to consider. Even with mature cows, high birth weight bulls should be avoided.

The over- or underfeeding of protein-high feeds and certain forages should be avoided. A general recommendation is to follow National Research Council guidelines for pregnant heifers and cows. Malnourished, weak animals are not the solution to dystocia.

Accidents also account for considerable calf losses in Louisiana. The two most common forms of accidental calf losses are drownings and crushings. Because of the many ditches, canals, ponds and other water containers, drownings constitute a larger portion of calf deaths than in other states. Also, in an effort to provide warmth and dryness, mothers frequently deposit newborn calves in accumulated waste at feeding sites. Crushing or trampling by hay delivery machinery or by hungry cows frequently occurs.

Pelvic area of heifers, once thought to be important in calving-related problems, is now considered much less significant. Only females with extremely small pelvic areas should be discriminated against.

Cows experiencing severe dystocia are poor prospects to rebreed and calve on time during

the next calving season. From a herd economics standpoint, they should probably be culled.

Precautions at Calving

Precautions at calving time should actually start with preparations before calving time. As mentioned, selecting bulls which are likely to minimize calving problems is a must. Moving pregnant heifers and cows to the highest, driest pasture, preferably pasture with or next to cattle handling facilities, is very important. Increasing surveillance and feeding in late afternoon instead of morning will result in more timely help when needed. Avoid overfeeding and underfeeding. Good body condition (body condition scores of 5 to 7) is all that is needed. In large herds, separating pregnant heifers from mature pregnant cows allows you to focus where problems are most likely to occur.

Another good idea is to have obstetrical equipment and disinfectant on hand for emergency use. Although Louisiana is a brucellosis-free state, using plastic gloves when helping with delivery still makes good sense. Talk with your veterinarian about when he or she wants to be involved in deliveries. Don't hesitate to call when you can't handle or don't understand the situation. While talking to the veterinarian, ask for a vaccination regime that should help improve calving rates in both heifers and cows. If a vaccination program is in place, it should be state of the art. Biologicals and research recommendations change. Be sure your health program is up to date.

For more information on handling calving difficulties, order Handbook of Livestock

Management Techniques, 1981. R.W. Battaglia and V.B. Mayrose. Burgess Publishing Company. Minneapolis.

Factors Affecting Costs and Returns

In the simplest way, annual costs can be described as the total dollar input necessary to run a cattle operation for a year. Every cost! For many reasons, cost of production remains an illusive figure for most. Most seriously underestimate the total dollar input, giving a false impression about net returns. The ability to estimate production costs accurately is as important as a restricted breeding (calving) season in herd management and financial evaluation.

Costs are generally expressed on a per cow basis. Research reports and synthesized budgets generally show the cost of production per cow in the Southeast is about \$300 to \$350 per cow. Each operation is different, so those estimates will not apply to all situations. The point is, a thorough record of all expenses, not just out-of-pocket expenses, should be kept. The reference below gives legitimate costs that few would think of as expenses. Feed, fertilizer and fencing seem logical, but what about four-wheelers, horses and horse feed, water lines, wells and pumps, electricity, trucks, trailers, etc.?

Income from the sales of products (bulls, cows, calves, yearlings or fat cattle and excess hay) determines the usual source gross returns.

In Louisiana, income from calf sales represents the largest portion of returns. Weaning rate, weight and price at sale time are the most important factors affecting returns in a cow-calf opera-

tion. Quality and genetic make-up are also considerations in fixing price.

The concept of breakeven price should be understood. Breakeven is a figure resulting from the ratio of total cost of production per unit and total product available for sale per unit.

marketing is planned after a backgrounding period, weaning is more labor and facility intensive. It occurs when calves are 7 to 8 months of age and involves physical separation from their dams. A handling facility is needed to restrain calves while vaccination, dehorning, castration, deworming and re-tagging take place.

Different philosophies exist about separation. Preferences run from moving the cows

practice of short duration, say 35 to 45 days, designed to prepare a calf for life after weaning. It could also mean coupling the short period of intense management with a longer period of feeding or grazing designed to prepare calves for the feedlot.

The shorter period, when combined with a cow-calf operation, actually starts before weaning with a round of vaccinations designed to help calves through stressful periods. Booster vaccines and the introduction to feed and water troughs follow. Intensive observation for signs of respiratory diseases is essential as well as handling facilities for restraining animals when additional medication is necessary. Death during the first few weeks after weaning is a real possibility.

Purchased calves or yearlings can be handled the same way: a short period of medication and intensive care and observation, then a trip to the feedlot, or a short period plus grazing or feeding for a longer period and then the feedlot. The objective is to end up with an animal more tolerant of the environment, more resistant to diseases and capable of subsequent maximum performance.

Backgrounding without a marketing strategy can be costly. Usually, the price spread per pound between heavier and lighter calves is negative, so the owner should plan to market in a manner most likely to return dollar investments and provide an opportunity for profit. This could involve retained ownership through various stages from farm to slaughter.

The main objections of producers to backgrounding are reluctance to provide land and facilities for that purpose and acceptance of additional risks.

$$\text{Breakeven price} = \frac{\text{annual cow cost}}{\text{Average weaning weight} \times \% \text{ calf crop}}$$

Example:

$$\begin{aligned} \text{Breakeven price} &= \frac{\$300 \text{ (per cow)}}{500 \text{ lb} \times 85\% \text{ (calf weight} \times \% \text{ calf crop)}} \\ &= \frac{\$300}{425 \text{ lbs.}} \\ &= \$70.29 / \text{hundredweight} \end{aligned}$$

If sale weight is valued at \$75 per hundred, the producer in this example will make a profit.

For a thorough list of costs, ask your county agent to show you the beef cattle budgets in "Projected Costs and Returns and Whole Farm Analysis for Major Agricultural Enterprises, Louisiana 1998," Department of Agricultural Economics and Agribusiness, Louisiana State University Agricultural Center.

Weaning Calves

Most Louisiana calves are weaned on the way to or in stockyards. While not necessarily the recommended practice, small herds and lack of facilities make this practical. Inoculation, dehorning and sometimes castration are bypassed for the sake of simplicity.

In larger operations where heifers are retained and developed for replacements, or when

a distance away to separation by a sturdy barrier allowing only visual contact between cows and calves. Proponents of the latter claim calves walk the fence line less and are therefore stressed less when they can see their mother. The cows can be moved when they and their calves pay less attention to each other.

Pregnancy testing fits in nicely with the weaning process. When the bred and open cows are identified, the breeder can send them to different pastures or hold them in different groups until further management decisions are made.

For working facility plans, ask your county agent to provide you with a drawing of a cattle working corral from Extension's Division of Animal Science.

Backgrounding

Backgrounding means different things to different people. It could mean a management

Replacement Females

Replacement heifers are needed to take the place of an older cow, an inferior cow or to increase herd size. The breeder's objective is to make the changes without excessive costs or time loss. At the same time there is an opportunity to make genetic improvement in purebred herds and to practice some "genetic meshing" in commercial herds. It's important to have a specific program for developing replacements in the overall herd management program. Even more important is matching the overall herd production with the feed and forage production program. Since they are not yet producing units, replacement heifers have often been relegated to the role of scavengers. They should be considered as investments in the future.

Since replacement heifers are only a small portion of the herd, they require a relatively small portion of the total nutrients available. Small changes in the costs of developing replacement heifers will not greatly affect overall efficiency of herd production. Savings in one regime relative to another would probably be negligible compared to the positive changes in efficiency of production when well-developed heifers of a prespecified type, capable of continuous reproduction, are put into the herd.

A program for developing replacements might start before weaning and be successfully completed only after the female has conceived for the second time without skipping a year. There are times for limited and liberal nutritional levels. Guidelines are available, but since conditions vary greatly (from ranch to ranch, among cattle breeds and types,

etc.), a manager who is aware of the facts, has a good set of records and weights and a goal to achieve will be successful. A shotgun approach is to have heifers weighing between 600 and 800 pounds at first exposure. Larger breeds or types should be nearer 800 pounds, and smaller types, at least 600 pounds.

For a review of research dealing with replacement heifers, ask your extension agent for the Experiment Station bulletin "Reproductive Performance of Beef Heifers First Exposed at 24, 30 or 36 months." No. 818, 1989.

Standard Performance Analysis (Economic Analysis)

Some of the data called for in a Standard Performance Analysis are :

1. *Pregnancy percentage*
2. *Calving percentage*
3. *Calf death loss*
4. *Calf weaning percentage*
5. *Actual weaning weight, males*
6. *Actual weaning weight, females*
7. *Average weaning weight per calf*
8. *Pounds weaned per exposed female*
9. *Pounds weaned per acre used per exposed female*
10. *Total investment per breeding cow*
11. *Total cost per calf produced*

All of the above are needed to calculate cost and returns from a beef cattle operation and to secure loans from lending institutions.

For a complete Standard Performance Analysis format, contact the National Cattleman's Beef Association, P. O. Box 3469, Englewood, CO 80155. Phone (303-694-0305).

Growth-promoting Implants

Reviews of research reports consistently show that implanting calves will increase preweaning growth rates from 0.1 to 0.14 pounds daily. Furthermore, implanting at 2 months of age does not affect response to subsequent implants in the post-weaning phase of growth. The results of implanting potential replacement heifers are not so clear-cut. Most agree that one implant before weaning will not significantly affect later reproductive performance, but avoid implanting after weaning.

Translating the results into economic returns, when a producer implants and weans at about 7 to 8 months of age, a \$9.60 to \$14.40 advantage over non-implanted calves is realized when both bring \$0.80 per pound. Other reviews show as much as 18 pounds gain over non-implanted calves.

Several types of implants are available. The choice is usually based on local availability and the ease and convenience of administration. Cost runs from \$1 to \$2 per head, and the effective time period varies.

Calf buyers sometimes give the impression that previously implanted calves are worth less to them, but research has shown that both implanted and non-implanted calves sell for the same amount at sale time.

The implants available are made with copies of naturally occurring hormones in animals and plants, so beef consumers should have no human health concerns.

A good review of implants for suckling calves can be obtained from Dr. Glenn Selk, Animal Science Department, Oklahoma State University, Stillwater, OK 74078

Vaccinations

Recommendations vary. Products vary. Methods of administration vary. Appropriate times vary. Booster recommendations vary. The only way to be sure of getting maximum protection is to consult a veterinarian familiar with the area of production. His or her recommendations relative to time (ages), products and handling methods will be invaluable. Remember, only selected people can administer the brucellosis vaccine.

Some of the things a producer can do are:

1. *Read and follow product label directions.*
2. *Record products used, dates used and animals receiving the treatment.*
3. *Administer subcutaneously (under the skin) whenever possible.*
4. *Choose sites of administration in the neck and fore flank. Intramuscular injections are for the neck region only.*
5. *Use 16 or 18 gauge needles of 1/2 to 3/4 inches for subcutaneous injections, slightly longer for intramuscular injections.*
6. *Inject no more than 10 cc per site, and keep sites at least 4 inches apart.*
7. *Never inject in the back, rump or round.*
8. *Change needles frequently.*

See Supplement I for a format to work from.

Minerals for Beef Cattle

Good mineral supplementation is important but does not replace protein and energy supplementation during winter. Most commercially available mineral supplements come in loose or block form and are

designed to be fed free choice. A mineral supplement that has been used successfully in Texas when cows are on summer grasses or hay contains:

Usual consumption is 2-4 ounces daily.

In coastal parishes, saltwater intrusion into the water supply may affect mineral consumption. In those cases a mineral mixture containing less salt might be beneficial.

12% calcium	5% magnesium	0.0035% selenium
12% phosphorus	0.4-0.55% zinc	0.2% copper

Minerals should be provided year-round in a feeder that offers protection from the weather. Placing the feeder in areas where cows congregate for shade and rest is a good idea.

External Parasite Control

Controlling external parasites is a must for successful cattle production in Louisiana. Maximum benefits are obtained only when a good pest control program is followed all year. Ask your county agent for Pub. 1418, "Control External Parasites on Beef Cattle."

Internal Parasite Control

Conditions in Louisiana are ideal for internal parasite infections. Liver flukes, lungworms, roundworms and tapeworms abound. The objective of any internal parasite control program is simply that: control. Internal parasites cannot be eliminated, but they can be controlled by pasture management and the administration of anthelmintics (dewormer) at appropriate times.

Overstocked pastures are ideal for infecting animals. Although rotating cattle from pasture to pasture has not proved

to be helpful, young cattle should be assigned to areas less likely to have a high level of contamination. Reduced pasture contamination can be accomplished by vacating pastures in summer or rotating pasture with hay and other crops.

The use of dewormers, especially the newer ones, has been effective in maintaining the level of parasite damage below economic impact. While there is

some debate about the best time of administra-

tion, the traditional spring and fall routine works well. In heavily infected herds, three times annually might be necessary.

This is another area where a veterinarian familiar with the conditions and potential parasite load can help you. Ask for recommendations and calculate costs per dose. Remember, internal parasites work slowly and their damage may not be recognizable on a day-to-day basis. In Louisiana, it's probably best to treat the animals regularly.

New, more effective products for deworming come about frequently, and any list may be outdated very soon. So, at any time the choice is yours. It should be an informed choice.

Louisiana State University has some of the best large animal parasitologists in the nation. Your county agent can arrange consultations.

Pasture and Pasture Management

Pasture management is one of the most important aspects of beef production in Louisiana. Forage availability and quality affect reproductive efficiency, calf weaning weights and growth

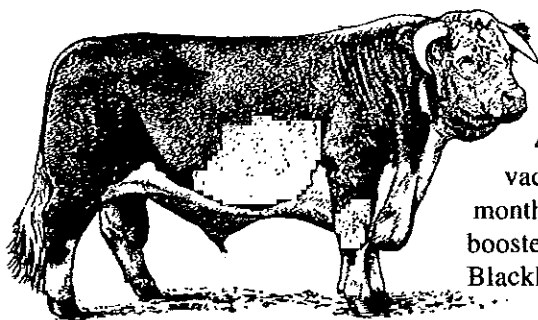
rates of young animals. Costs associated with pasture establishment and management are major items in the cost of maintaining cow herds and producing weaned calves. Producing an adequate supply of good quality forage and efficient use of the forage are goals of pasture management.

"Louisiana Beef Cattle Production," Pub. 2239, contains recommendations for crops for various types of pasture, establishing pastures, liming and fertilization, grazing and harvesting, controlling pests, renovating and over-seeding. In addition, your parish extension agent has the current recommendations for seeding and fertilizing rates and weed control.

Conclusion

The objective of this publication is to provide tips on some aspects of beef cattle management and to suggest references, most of which are available without charge through your parish extension office. Those desiring a more in-depth treatment of beef production may wish to obtain the reference below. It is written for college seniors and is available at the LSU Bookstore or from the publisher. Although scientific, it is clearly presented and easily read and understood.

Beef Production and Management Decisions. Second Edition. Robert E. Taylor. Macmillan Publishing Company. New York.



Supplement I

Vaccines for Cattle

Steven S. Nicholson, D.V.M.
Louisiana Cooperative Extension Service

The following are diseases for which commercial vaccines are available:

Anaplasmosis ... Major killer of adult cattle in Louisiana. Bulls should be vaccinated and boosted annually before the horsefly season begins. One anaplasmosis vaccine has been available since the 1960s. It does not prevent the disease from occurring but reduces the severity of it. The manufacturer says the vaccine will no longer cause calf losses if given according to the schedule shown on the label. A new vaccine developed at LSU is now available (March 1995). It prevents severe illness, and it is safe. Yearling age herd replacements and older cattle should receive two doses, two to four weeks apart, for the initial series. Booster is one dose annually. There is no concern about stage of pregnancy at vaccination with this product.

Anthrax ... In some areas of the state, it is recommended that cattle and horses receive this vaccine. The vaccine is live and will not cause anthrax. Presence of antibiotics in the vaccinated animal will neutralize the vaccine. The pinewood/hill areas where low soil pH occurs are not included.

Blackleg ... All calves in the state should receive this inexpensive product at 4 to 8 months of age. If vaccinated earlier than 4 months, it is suggested that a booster be given at weaning. Blackleg strikes suddenly and

kills your best calves! The vaccine can be given as a single unit or in a combination product. See clostridium vaccines below.

Bovine Respiratory Syncytial Virus (BRSV) ... A form of calf pneumonia which may be a problem in some beef and dairy operations. If pneumonia is a problem in 2- to 6-month-old calves at your place, you may want to have blood tests done to see if BRSV is the cause. Two doses of the modified live vaccine, two to three weeks apart beginning in calves one month of age, have been suggested. The vaccine virus must be live to stimulate the cell mediated immune system. Two doses must be given. Allergic response can occur; have epinephrine on hand. Vaccination of cows may provide some protection through the colostrum.

Brucellosis ... Vaccinate all heifer calves 4 to 12 months old. Louisiana has a brucellosis-free status, and government support for brucellosis vaccination programs may be ending. It is wise to continue to vaccinate heifers, even at your own expense, for the next few years.

Bovine Virus Diarrhea (BVD) ... Many herds contain one or more carriers which shed noncytopathogenic virus in the stool, saliva, etc. Nonimmunized heifers or cows may be exposed to the virus during pregnancy. If the noncytopathogenic virus (from carriers) infects the fetus roughly between 45-145 days of gestation, this fetus will become another carrier. This maintains the virus in the herd. This virus can mutate to form cytopathogenic virus capable of causing embryo and fetal losses and BVD illness in susceptible animals. A severe, fatal condition called mucosal disease kills carriers when they

are infected with cytopathogenic virus.

Replacement heifers should be protected before they enter the breeding herd. Vaccination with "killed products" requires two doses, two to four weeks apart, initially. If that schedule is not followed, immunization has not occurred, according to immunologists. Killed products need boosting at 6 months or annually. To be sure the cell mediated immune system is stimulated, vaccination of replacement heifers at 8 to 12 months of age with modified-live virus may be a better approach. This provides stronger, longer protection. Pregnant cows should not be vaccinated with live BVD vaccine.

Detecting Carrier/BVD Virus Shedders

Many carrier cattle (remember, these were infected in-utero) do not respond to BVD vaccine. Their immune systems do not recognize it as "foreign." In fact, vaccination followed by blood test is one method of finding carriers in the herd. Modified-live BVD vaccine may cause fatal mucosal disease in carriers. A more effective method of finding carriers is to have blood samples examined for presence of virus by culture or antigen (virus) recognition tests. Carriers are then eliminated from the herd.

Clostridial Diseases

Clostridium Species Diseases

<i>C. chauvoei</i>	<i>Blackleg - gas gangrene of muscle</i>
<i>C. septicum</i>	<i>Malignant edema - muscle</i>
<i>C. novyi</i>	<i>Fatal liver disease, Black's disease of sheep</i>
<i>C. hemolyticum</i>	<i>Red water - liver, blood</i>
<i>C. sordellii</i>	<i>Acute, fatal</i>
<i>C. perfringens type C</i>	<i>Hemorrhagic Enterotoxemia of baby calves, lambs</i>
<i>C. perfringens type D</i>	<i>Enterotoxemia of calves, feedlot cattle, lambs</i>

Various combinations of products are available. Blackleg is the most common of those listed here. Consult your veterinarian about the need for using other products. Scheduling of red water and hemorrhagic enterotoxemia booster vaccinations is very important. Use products labeled for use under the skin (subcutaneous). Pull up a skin "tent" in front of or behind the shoulder, and inject.

Infectious Bovine Rhinotracheitis Virus (IBR) ...

This herpes virus may cause severe inflammation in the windpipe (trachea) and lung, tissues around the eyes (conjunctiva) and on the lining of the vulva. The location of the lesions may vary. It is also a significant cause of abortion. All breeding replacement heifers should receive modified-live products well before first breeding (8 to 12 months of age). When killed products are used, boosters are indicated! IBR intra-nasal vaccine can effectively protect the respiratory system, even at an early age when antibodies from colostrum block injectable vaccine.

Leptospirosis (Lepto) ... At least five or more kinds of Lepto are found in our cattle. Wild animals such as skunks and rats are also sources of infection, which is spread in urine. Lepto causes abortions or deaths or stunting of young cattle if the cows are not well immunized.

Protection to the calf through the first milk (colostrum) may last four months. All calves and cattle in the state should receive annual vaccinations. Some herd situations may require vaccination at 6-month intervals. Begin with calves at same time you give blackleg, give a booster three to four weeks later and again just before heifers are bred and annually or semiannually.

Haemophilus Somnus ...

The bacteria are sometimes found in the respiratory tract and reproductive tract of cattle. It is a known cause of pneumonia (probably secondary to a virus) and may cause an occasional abortion. In feedlot cattle, it may infect the brain. Most cattle are exposed from time to time although significant disease does not often occur. Vaccines have not been particularly effective against the various strains of the germ.

Parainfluenza Virus ... A virus common to all cattle operations, it causes mild respiratory disease which may set the stage for shipping fever pneumonia. Natural infection does not produce long-lasting immunity nor do vaccines. Often included in the IBR-BVD products.

Pasteurellosis ... Caused by bacteria commonly found in the upper respiratory tract of cattle. *Pasteurella hemolytica* is the germ responsible for the so-called shipping fever pneumonia.

Pasteurella are difficult organisms to prepare effective vaccines against. New technological breakthroughs may enable manufacturers to come up with a truly effective product against the various strains. If injected before the stress of weaning, these

products may reduce losses caused by outbreaks of pneumonia in stocker cattle. Products designed to produce antitoxin to neutralize the pasteurized toxin are also a new concept in shipping fever prevention.

Pinkeye ... The organism *Moraxella bovis* is the major cause in cattle. Pinkeye varies from mild to severe infection with loss of sight. Discuss use of pinkeye vaccine with a veterinarian familiar with cattle diseases in your area.

Vibrio ... A common venereal disease of cattle in Louisiana. There will be no signs of the disease in your herd other than repeat breeding. It is important to vaccinate bulls, breeding age heifers and cows annually as a routine procedure. Do it.

Calf Scours

Vaccines ... Are available to reduce losses caused by *E. coli* bacteria and rota and corona viruses. The two viruses are combined and can be used in cows near term to increase protection through the milk. Newborn calves can be vaccinated by spraying the vaccine into the mouth as soon after birth as possible. *E. coli* vaccine is given to cows before calving and protects through the milk. An antibody concentrate for *E. coli* is available to give orally to newborn calves. Also, colostrum replacement products are

Summary of Vaccination Recommendations for Heifers and Cows

Disease	Age	Remarks
1.Brucellosis	4 - 12 months; the earlier the better	Heifers only
2.Lepto (5 way)	Begin at 4 - 6 months when blackleg and brucellosis given. Two to 3 doses prior to breeding age	Boosters twice annually
3.Blackleg Malignant Edema	All calves at 4 to 8 months	Multiple "clostridium" vaccine available. Some include "redwater." Annual booster
4.IBR-BVD	"Killed" product 2 doses 3-4 weeks apart before first breeding or modified live at 8-12 months of age	Annual booster Booster annually with killed product
5.Vibrio	1 month before breeding of heifers	Annual boosters just prior to breeding if possible
6.Anaplasmosis	Vaccinate bulls twice 6 weeks apart Bulls Cows (expensive) Consult your veterinarian	Annual boosters Annually
7.Other Diseases		As indicated

available to feed calves during the first day of life.

These may help but are no substitute for an adequate amount of good quality colostrum. *E. coli* vaccine products have been effective where vaccination schedule is followed. Remember, the calf must nurse and swallow at least two quarts or more of first milk within a few hours after birth!

Endotoxin Vaccines

Dairy cows are subject to diseases such as coliform mastitis in which *E. coli* or related bacteria release endotoxins responsible for severe illness, shock and often death. These vaccines require two or three doses before protection is induced. Disease severity and mortality are reduced significantly.

Supplement II

System of Visual Body Condition Scoring (BCS) for Beef Cattle

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Group	BCS	Description
Thin Condition	1	Emaciated - Cow is extremely emaciated with no fat detectable over spine, hipbones or ribs. Tail-head and ribs project quite prominently.
	2	Poor - Cow still appears emaciated and tail-head and ribs are still very prominent. Spine is still very sharp, but some tissue cover exists along the spine.
	3	Thin - Ribs are still individually identifiable but not quite as sharp. Some tissue can be seen along spine and over tail-head with some tissue cover over top portion of ribs.
Borderline Condition	4	Borderline - Individual ribs are no longer completely obvious. The spine can be easily identified but is more rounded rather than sharp. Some fat cover over ribs and hip bones, but tail-head is still somewhat prominent.
	5	Moderate - Cow has generally good overall appearance. Top line is well rounded. Some fat cover over ribs and areas on either side of tail-head. Hip bones and pin bones are not noticeable.
Optimum Moderate Condition	6	High Moderate - A noticeable degree of fat cover is seen over ribs and around tail-head. Top line is becoming flat. Cow has above average appearance.
	7	Good - Cow appears fleshy and obviously carries considerable fat. Very spongy fat cover over ribs and around tail-head. "Rounds" or "pones" beginning to be obvious. Some fat around vulva and in brisket. Top line has become flat.
Fat Condition	8	Fat - Cow very fleshy and over-conditioned. Spine impossible to see. Cow has large fat deposits over ribs, in brisket, around tail-head and below vulva. "Rounds" or "pones" are obvious.
	9	Extremely Fat - Cow obviously extremely wasty and patchy and blocky. Tail-head and hips are buried in fatty tissue and "rounds" or "pones" of fat are protruding. Bone structure no longer visible. Animal's mobility may even be impaired by large fatty deposits.
		<p>Failure of cows to become pregnant after calving is the primary cause of a low calf-crop percentage.</p> <p>A high calf-crop percentage depends on good nutrition both before and after calving.</p> <p>Body condition scoring is a system of visually estimating the degree of fatness of beef animals and is a good indicator of the recent nutritional level of that animal.</p>

Effect of Feeding Level Before and After Calving on Body Condition Score and Reproduction in Mature Cows.

Feeding Level	No. of cows	BCS at calving	BCS at breeding	% in heat by 60 days	No. pregnant
High-high	21	6.8	6.4	80	20
High-low	22	6.5	5.6	81	17
Low-high	20	4.4	4.9	45	19
Low-low	20	4.5	3.6	17	4

aWiltbank et al. (1962).

Effect of Body Condition Score at Calving on Rebreding Performance of Mature Beef Cows ^a

Days to 1st heat		% Rebred	
<4	>5	<4	>5
61	49	84	91

aRichards et al. (1986).

Effect of Parturition Weight and BCS Change on Postpartum Reproduction in Beef Cows ^a

Body Condition Score 5 = threshold for mature cows at calving

	Group 1 BCS = 3 or 4	Group 2 BCS = 5 or 6	Group 3 BCS = 7 or 8
No. of cows	35	41	27
Nov. wt.	975a	1116b	1250c
Nov. BCS	3.7a	5.4b	7.1c
Parturition	1.9a.	47b	-.88c
Adg			
Calving wt.1154	1162	1156	
Calving BCS	5.0	5.0	5.0
Wt. at breeding	1137	1123	1130
BCS at	5.5	5.7	5.8
Breeding			
% cycling	56	48	58
% pregnant	91	95	93

a Morrison and Castle (1996).

Conclusion: Postpartum reproduction of mature beef cows which calve at BCS 5 was not affected by drastic changes in body weight or BCS during the last 3 months before calving.

Rebreeding Rate of 1st Calf Heifers as Affected by Body Condition Score at Calving and Weight Gain after Calving ^a

Item	% Pregnant
Body Condition Score	
4	56b
5	80c
6	96d
Weight gain	
Low	70c
High	84d

a Morrison et al. (1989).

b,c,d Differences are significant at P.05.

Effect of Weight and Body Condition Score Change Before Calving on Reproduction in 1st Calf Heifers

Item	Pregnancy rate, %	Days to Pregnancy
BCS change before calving	No effect	No effect
Wt. change before calving	No effect	No effect
BCS at calving		
4	65b	92b
5	71c	82c
6	87d	74d
7	91d	76d

a Morrison et al. (1993).

b,c,d Differences are significant at P.05/

Conclusions

To optimize rebreeding rate:

1. Mature beef cows should calve at a body condition score (BCS) of 5 or higher.

2. Mature beef cows calving at BCS of 5 or higher can lose some weight after calving but should be gaining weight by 60 days after calving.

First-calf heifers should calve at BCS of 6 or higher and gain moderate amounts of weight after calving.

For both mature cows and first-calf heifers, weight and body condition score changes before calving do not affect rereading rate so long as the minimum BCS is reached by calving. Recommendations

1. Individually score each cow for body condition about 3 months before the start of the calving period.

2. Sort cows into groups based on BCS and feed (manage) so that the minimum BCS (cows = 5; heifers = 6) is reached by the time of calving.

3. Follow proper herd health procedures regarding vaccinations and deworming.

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