

Bull Purchasing and Management

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Introduction

Making informed bull purchasing and management decisions is vital to the success of a cow-calf operation. The two main purposes of breeding bulls are to contribute high reproductive performance and transmit desirable genetics to the herd. Bull purchasing and management decisions impact both calf crop and herd genetics for many years. Bull management can be divided into the following seasons, which may vary in length depending on the operation: pre-breeding or conditioning (2 months), breeding season (2 to 3 months) and post-breeding season (7 to 8 months).

Prior to the Breeding Season

Bull Purchasing

Plan ahead. **Purchase bulls at least 45 to 60 days before the breeding season.** This gives the bull time to adjust to new surroundings and to recover from stresses involved in sale or transportation. It also provides enough time to find another bull if it is discovered that the bull purchased is of questionable or unsatisfactory breeding potential. Do not wait until the last minute to find a bull and then immediately turn him out to pasture with the cow herd. It is important to prepare a good **strong bull pen** to hold a new bull before he arrives. Posts should be placed no more than 8 feet apart. Electric fencing may be necessary to effectively confine bulls.

Purchase bulls from **reputable breeders** who provide records of their herd health programs. Obtain available records and breed registration papers from the breeder. Inquire about performance information such as birth weight, weaning weight, yearling weight, average daily gain, weight per day of age, weight ratios, feed efficiency, size of contemporary group, frame size and scrotal circumference data from a bull test program or carcass trait (body composition) information from ultrasound scan data. Expected progeny differences (EPDs) may also be available from seedstock producers and may give an indication on how a bull's calves are expected to perform for certain individual traits relative to calves from other bulls within the same breed.

Visual appraisal of structural soundness and conformation is also useful in the selection process. Consideration should be given to the temperament (disposition) of sires used in breeding programs as well. Many breeders will supply this type of information upon request. Some breeders provide additional customer service in the form of bull guarantees or calf buy-back programs.

Bull Leasing

Bull leasing may be an attractive option for producers interested in genetic improvement while reducing the capital investment and operating expenses needed for acquiring and keeping a breeding bull. Leasing allows a producer to use bulls that

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have a higher dollar value (and superior genetics in many cases) than the producer might be willing to pay if buying bulls. There are many different types of leasing arrangements available. When considering leasing as an option, compare the costs and returns from leasing a bull versus buying a bull.

It is also important to outline the responsibilities of all lease participants in enough detail to answer any questions that might arise if the bull gets sick, dies or is determined to be an unsatisfactory breeder. If any expenses are to be shared, then the contribution of each party should be decided up front. Responsibility for unexpected expenses should also be determined at the time the lease is signed. Deciding these questions ahead of time protects both the owner of the bull and the producer leasing the bull.

Leased bulls are usually only kept during the breeding season, so bull maintenance costs are not incurred outside of the time the bull is kept. Feed costs alone for one bull may run close to \$350 per year. Veterinary, medicine, labor and breeding soundness examination costs will add to the cash outlay associated with keeping a bull. The bull owner should determine the costs of bull ownership in order to set a rental rate that will cover and provide a return above these costs.

Cash leasing rates typically average \$500 to \$700 per bull for a single breeding season; however, this will vary depending on the cattle market and the quality of the bull. Bulls can lose value as breeding animals over time. The salvage price of a bull at the end of his useful life is often much less than the initial purchase price of the bull. This lost value is referred to as depreciation and can be spread out as an annual cost over the useful life of the bull.

A \$2,500 bull that depreciates to \$700 loses more value each year $[(2500 - 700) \div 6 \text{ or } \$300 \text{ per year over 6 years}]$ than a \$1,400 bull that depreciates to \$500 $[(1400 - 500) \div 6 \text{ or } \$150 \text{ per year over 6 years}]$. This depreciation cost difference may be factored into the lease rate so that the bull with the higher initial value and higher annual depreciation cost is offered for lease at a higher rate than the less valuable bull.

Although cash leases are more common, producers may also lease bulls on a share basis. This share basis typically involves use of a bull in return for a share of the calf crop. Returns from calf sales and, on rare occasions, returns from cull bull sales are usually shared in the same proportion as each party contributes to costs. Because the value of calf production returns will vary with market fluctuations and herd productivity, the cost of a share lease is subject to these changes unlike a cash lease. Share lease arrangements can be customized to individual

situations. The proportions of input costs (land/pasture, labor, management, buildings, machinery/equipment, feed and other cash costs) and calf crop or cash receipts each lease participant is responsible for can be tailored to fit the level of risk each party is willing to assume. Share leases allow the bull owner and the producer leasing the bull to share risk. Participating in this type of lease may be a way to obtain the use of bulls under situations when cash or credit is limited.

Producers with a large cow herd may want to consider owning one or more bulls in addition to using leased bulls. This helps ensure access to desirable herd sires in the event quality leased bulls are not readily available in future breeding seasons. In addition, owned bulls may be sold for salvage value at the end of their useful life in the herd to offset a portion of the initial purchase price or cost of raising home-grown bulls. However, interest and depreciation costs will be incurred with owned bulls unlike with many leased bull arrangements.

How Much Is a Bull Worth?

Performance information along with any expected progeny differences (EPDs) give an indication of the expected performance of a bull's calves for particular traits such as growth performance relative to the performance of calves sired by another bull or group of bulls. Using this information, educated purchasing decisions can be made regarding the purchase price differences that can be justified when comparing bulls. To illustrate differences in bull value, here is an actual scenario from the Livestock and Forestry Branch Station in Batesville, Arkansas. Bull A and Bull B were exposed to cows of similar genetic merit. Bull A sired calves that weighed on average 436 pounds at weaning. Calves sired by Bull B weighed 543 pounds on average at weaning.

Weaning weight difference between Bull B and Bull A is $543 \text{ pounds} - 436 \text{ pounds} = 107 \text{ pounds}$.

Lighter weight calves typically sell at a higher price per pound than heavier weight calves. If calves sired by Bull A could be sold for \$0.92 per pound and calves sired by Bull B could be sold for \$0.78 per pound, then gross returns from each bull would be as follows:

Bull A: $436 \text{ pounds} \times \$0.92 \text{ per pound} = \$401 \text{ per calf sold}$

Bull B: $543 \text{ pounds} \times \$0.78 \text{ per pound} = \$424 \text{ per calf sold}$

The difference in gross returns per calf would then be:

$\$424 \text{ (Bull B)} - \$401 \text{ (Bull A)} = \$23 \text{ per calf}$

If each bull can be expected to sire 25 calves per year, then the difference in gross returns per year between the two bulls would be:

$$\$23 \text{ per calf} \times 25 \text{ calves per year} = \$575 \text{ per year}$$

Over 5 years, the difference in gross returns between the two bulls would be:

$$\$575 \text{ per year} \times 5 \text{ years} = \$2,875$$

If Bull B cost \$1,000 more than Bull A, then it would take 20.9 months to capture the difference in purchase price with added returns from calf sales:

$$\$1,000 \div \$575 \text{ per year} = 1.74 \text{ years or } 20.9 \text{ months}$$

Using Bull B as a herd sire beyond 20.9 months more than justifies paying the \$1,000 premium for him over Bull A. This ignores interest and depreciation costs and assumes there are only weaning weight differences in the calves sired by the two bulls. If Bull B is also superior to Bull A in his ability to transmit heavier muscling, enhanced carcass characteristics or other economically important traits to his calves, then an even higher premium may be justified over the same payback period. This illustrates the financial importance of making bull-purchasing decisions based on as much useful and reliable information as is available.

Breeding Soundness Evaluations

Information provided by a breeding soundness evaluation (BSE) is useful when considering whether or not to purchase or lease a particular bull. A BSE is used to evaluate bull breeding potential and can be performed by a veterinarian. It consists of a physical examination in which the reproductive organs are palpated, a scrotal circumference measurement and an evaluation of semen quality. The physical examination is important because the bull must be physically sound enough to travel across pastures or paddocks (sound feet, legs, shoulders and hips are needed for ease of movement), find cows and heifers in heat (largely dependent on good vision) and successfully mate with herd females. Scrotal circumference is an indicator of semen-producing capacity, with larger scrotal circumferences indicating enhanced semen-producing capacity. In addition, **as scrotal circumference increases, daughter age at puberty decreases**, which has implications for the lifetime productivity of a bull's daughters. The semen quality evaluation assesses morphology and motility. Minimum requirements for acceptable semen quality are ≥ 70 percent normal sperm and ≥ 30 percent motile sperm.

Ideally, a bull will have passed a BSE prior to purchase. A BSE should be performed annually on each bull about 60 days prior to the start of the breeding season. This allows time to recheck or replace bulls receiving suspect scores. Do not use a bull that fails a BSE. Because the breeding potential of a bull can change over time, BSEs should be conducted on a regular basis. Disease, injury and environmental conditions can affect proper function of the testes and impair reproductive performance. An annual BSE is essential, especially when there is only one bull for the entire operation, one bull per breeding herd or a high female to bull ratio is used.

Herd Health Program

Purchasing or leasing **virgin bulls** may help avoid introduction of diseases into the herd. It is recommended that your local veterinarian test bulls for vibriosis, leptospirosis and trichomoniasis, particularly if bulls were purchased from a sale barn or other facility where they may have been co-mingled with infected cattle. Keep newly purchased bulls isolated from the rest of the herd for at least three weeks after arrival. This **quarantine period** is important in preventing the introduction of disease into the herd. During the quarantine period, observe bulls for disease and feet, leg, back, eye or libido problems that may compromise breeding performance. The quarantine period may also be used to slowly adapt bulls to a new diet. Bulls coming off a grain-based bull performance test need a hardening period to adjust to a forage-based diet prior to being turned out to pasture to minimize the risk of digestive problems. Bulls to be used in multi-sire groups should be placed together ahead of turn out. This gives them a chance to become accustomed to one another and may help minimize fighting over females.

It is important to keep bulls healthy to prevent the spread of disease throughout the herd and to ensure that they are able to successfully breed females. A comprehensive herd health program should target the females in the herd as well. Consult your local veterinarian for a herd health program suited to your area. Follow Beef Quality Assurance guidelines and product label directions for proper injection sites and administration. Treating bulls for internal (worms) and external (flies, lice, grubs) parasites is an important component of a good herd health program. Parasite control should involve deworming at least twice a year, autumn grubicide application, treatment for lice around January and horn and face fly control during fly seasons. Treatment for external parasites not only prevents performance losses but also improves the appearance of the bull, which may be valuable when it comes time to market the bull.

General Bull Health Guidelines

- ⇒ IBR recommended annual (killed or intranasal)
- ⇒ BVD recommended annual
- ⇒ PI3 recommended annual
- ⇒ BRSV recommended annual
- ⇒ Leptospirosis (5-Way) recommended annual (every 3 to 6 months in some areas)
- ⇒ Vibriosis optional annual (30 to 60 days before breeding)
- ⇒ Trichomoniasis optional annual (30 to 60 days before breeding)
- ⇒ Treat for internal and external parasites (twice a year)

Nutrition

Bulls should be fed to meet nutritional needs and ensure reproductive performance. Bulls that are either under- or over-fed will have lower sexual activity. Herd bulls must be in good condition to be fertile and sexually active. A **body condition score of 6** (where 1 = very thin and 9 = obese) is a good target for bulls at the beginning of breeding. Bulls in a body condition score of 6 are in high moderate

condition with considerable fat cover over the ribs and tail-head and firm pressure needed to feel the spine. Overfeeding and lack of exercise can result in reduced fertility as well as wasted feed and money. Bull nutrient needs differ depending on the age, size and activity level of the bull. Because yearling bulls are still growing, the nutritional requirements of yearling bulls are higher than those of mature bulls. Supplemental feed may be necessary to meet the nutritional requirements of young bulls or bulls on poor pastures. Nutrient requirements of bulls at various expected mature weights, body weights and average daily gains are listed in Table 1.

During the Breeding Season

Breeding Management

Providing a **satisfactory breeding area** is essential. Good footing is a must. Clear pastures and paddocks of wire, scrap metal, boards and other debris that may pose an injury risk to bulls. Turn bulls out with heifers four weeks in advance of turning bulls out with the mature cow herd. The first estrus in heifers may not be fertile, and gestation may last slightly longer in heifers than in mature cows, so breeding ahead of the mature cow herd allows more time for heifers to rebreed after

Table 1. Nutrient Requirements of Yearling and Breeding Beef Bulls

Expected mature weight, lbs	Body weight, lbs	Average daily gain, lbs	Daily dry matter intake, lbs	Total Digestible Nutrients (% dry matter)	Crude Protein (% dry matter)
1,700	900	0.44	22.0	50	6.0
		3.12	21.5	80	10.2
	1,300	0.44	29.0	50	5.6
		1.55	30.7	60	6.0
	1,700	0.00	32.9	46	5.6
		0.44	35.5	50	5.4
2,000	1,000	0.49	23.8	50	6.1
		3.49	23.2	80	10.5
	1,500	0.49	32.3	50	5.6
		1.73	34.1	60	6.0
	2,000	0.00	37.2	46	5.6
		0.49	40.1	50	5.2
2,300	1,200	0.54	27.3	50	6.0
		3.84	26.6	80	10.1
	1,700	0.54	35.5	50	5.6
		0.91	37.5	60	6.1
	2,300	0.00	44.5	46	5.2
		0.54	47.0	50	5.1

calving. **Observe the cow herd closely**, and **keep accurate records** to assure that the bull finds cows in heat, services them and that a large percentage of cows conceive to the first service. This can help in identifying and culling bulls that are not satisfactory breeders. A bull with superior genetics cannot contribute to genetic improvement in the herd unless he actively seeks out females in heat and settles them.

Bull Power

How much bull power do you need? “Bull power” refers to the number of cows a bull can effectively service and depends on many factors. Placing a bull with too many cows to service may result in many open cows. The number of females a bull can handle depends upon bull maturity, soundness, fertility and condition as well as pasture size and length of the breeding season. Less sexually mature bulls should be placed with fewer females than their older counterparts (Table 2). In general, do not expose a young bull to more than 15 cows or heifers during breeding time.

Bulls should be well developed and at least 24 to 30 months of age before they are allowed to run with 25 to 30 cows during the breeding season. A “rule-of-thumb” for the proper bull to female ratio is one cow or heifer per month of age of the bull up to 30 months of age. For example, an 18-month-old bull could run with 18 females, and a 2-year-old bull (24 months of age) could be exposed to 24 females. It may be wise to separate bulls based on age if multi-sire breeding pastures are utilized. Older bulls may exhibit dominance over younger bulls (less than 4 years old) and allow younger bulls fewer chances to mate if allowed to run in the same breeding group. If multi-sire breeding groups are used, older bulls should be in separate groups from younger bulls.

Table 2. Bull Power Guide

Bull age, months	Number of females exposed to breeding per bull
12 to 15	10 to 12
15 to 18	12 to 18
18 to 24	18 to 24
24 and up	24 to 30

Controlled Breeding Season

Risk of injury to bulls is reduced and they are allowed to rest and regain condition by going to a controlled breeding season. Implementation of a controlled breeding and calving season can be accomplished over time without sacrificing production and offers several advantages over a year-round

(uncontrolled) breeding and calving season. It allows matching nutritional needs of the herd to forage resources, facilitates more intense monitoring of breeding and calving, facilitates working (vaccinating, castrating, growth implanting) more calves of a similar age at once and produces calves of uniform age at sale time that can be sold in groups to capture group sale premiums. With a controlled breeding season, bulls are allowed time to rest and regain body condition that might have been lost during the breeding season. Not having bulls running with the cow herd year-round may also reduce the risk of injury to bulls. The key to implementing a controlled breeding and calving season is to **be diligent about putting bulls up on schedule**.

After the Breeding Season

Bull Confinement and Culling

Herd bulls should be kept in a separate paddock or pasture away from cows and heifers during the non-breeding season with plenty of exercise room, protection from severe weather, adequate shade, access to clean water and access to a mineral supplement. Provide ample feeder space if there is competition for feed from other animals in the paddock. Decisions on bull culling and acquisition will need to be made well in advance of the next breeding season. Reevaluate your herd sires on a regular basis as goals change, selection criteria is modified and new information becomes available. The conclusion of the breeding season is an excellent time to perform BSEs on bulls to aid in determining which bulls to replace in the breeding herd. Bulls may need to be culled for failure to pass a BSE, lack of libido, injuries, poor vision, undesirable conformation or inferior calf performance.

Management Groups

Bull management needs change throughout the year. Managing bulls properly during the non-breeding season is important because bulls need this time to rest and regain condition. Maintaining adequate nutritional and health programs is a year-round challenge. Monitor pasture conditions and seasonal health concerns throughout the year, and adapt nutritional and health programs to the changing production environment. Bulls may be divided into management groups in order to more effectively meet the different nutrient needs of each group. Separating younger and older bulls may be particularly important in preventing injuries and meeting nutritional requirements. This is a good time to assess body condition scores on bulls to determine nutritional needs and tailor forage and feeding programs to ensure adequate body condition at the start of the next breeding season. Overworked

bulls can lose significant body condition during the breeding season and may require extra nutrients to get back into shape before the next breeding season.

Summary

Purchasing or leasing a bull is an investment in future calf crops and herd genetic improvement. This investment does not end with the initial purchase but extends to the resources (including time and money) required for good bull management. Poor management of herd sires can dramatically affect **calf crop percentage**. Calf crop percentage (number of calves born ÷ number of cows exposed to breeding) is the most important factor in determining the number of pounds of calf weaned per cow maintained in the breeding herd and can significantly impact the **profitability** of your operation. With a little planning and effort, Arkansas cow-calf producers can

reap the rewards of successful bull acquisition and management strategies. For more information about bull purchasing and management, contact your local county Extension office.

References

- Oklahoma Cooperative Extension Service. *Breeding Livestock Lease Agreements*. 2000. Oklahoma State University Extension Facts. AGE-571.
- University of Arkansas Cooperative Extension Service. 2010. *Beef Cattle Herd Health Vaccination Schedule*. FSA3009.
- University of Arkansas Cooperative Extension Service. 2010. *Nutrient Requirements of Beef Cattle*. MP391.

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