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Texas Adapted Genetic Strategies for Beef Cattle VII: Sire Types for Commercial Herds

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Choosing types of sires is one of the most important decisions for beef producers. That choice should depend on:

- Climatic, management, and market conditions
- Number of production phases
- Breeding systems
- Types and breeds of cows in the herd
- Characteristics of sire types and breeds that complement the factors above

Producers need to assess the production conditions accurately to make sure that they are compatible with the potential for genetic production. The genetic considerations for herds marketing at weaning should differ from those for marketing on a value-based carcass grid.

For a discussion of the two primary genetic factors, see the Texas A&M AgriLife Extension service publication *Texas Adapted Genetic Strategies for Beef Cattle III: Body Size and Milking Level.*

Breeding systems are crucial factors in choosing types, breeds within types, and individuals within breeds. There are two basic commercial breeding systems:

- **Continuous systems,** in which females from the herd are retained for breeding. These systems should use types and breeds that are similar and, in general, have moderate levels of production for primary characteristics.
- **Terminal systems,** which do not retain females. Terminal systems can use dissimilar sire and maternal types.

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Texas Adapted Genetic Strategies

For more information, see *Texas Adapted Genetic Strategies for Beef Cattle IV: Breeding Systems.*

To produce efficiently, the types, breeds, and individuals must be compatible with production conditions and breeding systems. Most cattle can be categorized by genetic classification as Bos taurus (non-humped) or Bos indicus (humped, also called Zebu) and by breed averages for body size (weight), milking potential, and body composition.

Until recently, it was relatively easy to group the major breeds based on differences in these characteristics. But body size and milking potential are now more similar among many of the major breeds than previously, especially when the Continental European breeds were first introduced and the British breeds had not started genetic selection to increase size and milk.

Even so, the traditional functional types are still a logical starting point for designing an adapted breeding program. Below are the types and most numerous breeds listed alphabetically within type:

- **British Beef:** Angus, Hereford, Red Angus, Shorthorn
- **Continental Beef:** Charolais, Chianina, Limousin, Maine-Anjou
- **Continental Dual Purpose:** Braunvieh, Gelbvieh, Salers, Simmental
- **Dairy:** Holstein, Jersey
- **Bos indicus:** Brahman
- **American** (part Brahman base): Beefmaster, Braford, Brangus, Red Brangus, Santa Gertrudis, Simbrah
- **Specialty:** Breeds varying widely in characteristics, so they cannot to be placed logically in any of the above groups

Bos taurus and Bos indicus were combined to create an intermediate type, the American breeds. Recently, some of the Continental and British breeds listed above have been combined to create intermediates to those types. The more numerous of those combinations (and their registry association) in Texas include Beef Builder (Braunvieh), ChiAngus (Chianina), Balancer (Gelbvieh), LimFlex (Limousin), MaineTainer (Maine Anjou), Optimizer (Salers), and SimAngus (Simmental).

Also, some American or Bos indicus have been combined with British or Continental to decrease the percentage of Bos indicus. Of these, the more numerous in Texas include Angus Plus (Red Angus), Advancer (Beefmaster), UltraBlack and UltraRed (Brangus), Southern Balancer (Gelbvieh), and SimAngus HT (Simmental).

Producers should estimate from the proportions of their constituent breeds the functional characteristics and therefore best uses in commercial herds of these new intermediate combinations.

For a more complete discussion of breeds, see *Texas Adapted Genetic Strategies for Beef Cattle V: Types and Breeds, Characteristics and Uses* and *Texas Adapted Genetic Strategies for Beef Cattle VI: Creating Breeds.*

Producers who market at weaning via traditional methods often are subject to biases and visual perceptions that may reduce prices unjustifiably, especially for new breeds, unusual breeds, and their crosses. In Texas, traditional producers can avoid or minimize price discounts, while maximizing production efficiency in their environments, by producing medium- to large-frame calves that are at least 1/4 British, no more than 1/2 Continental, and no more than 1/4 Bos indicus. For high-quality markets, use higher percentages of higher-marbling British breeds. For lean-beef markets, use higher percentages of Continental.

Prices differ somewhat even within these ranges. These differences change over time in the exact percentages favored, and the variations are usually smaller and shorter term than for cattle outside these ranges.

Some combinations not generally preferred as stocker-feeders may be a logical choice for replacement females, particularly 3/8 to 1/2 Bos indicus. In Texas and much of the southern United States, part-Bos indicus cows have advantages too important to ignore, including longevity, calving ease, maximum hybrid vigor, and climatic and forage adaptability. Also, bulls with some Bos indicus genetics are better adapted to tropical or subtropical environments.

Traditional cow/calf producers marketing at weaning should heed the preferences of their marketing systems while emphasizing biological and economic efficiency to weaning. To increase revenue, document genetic merit and market it to the buyer or, better yet, retain ownership through finishing and market on value-based carcass grids.

Otherwise, the performance of market calves beyond weaning and their eventual carcass merit are of no economic importance to these traditional producers and should not influence decisions on selection of sires.

Following are the most applicable sires for commercial cow herds:

British cows: Although straightbred British cows can be bred to the same breed of sire to produce straightbred calves, such calves lack hybrid vigor. Also, some straightbreds incur price discounts.

To produce progeny such as Angus-Hereford "black baldies," cross within the British breeds. If you save heifers and want to add limited amounts of Continental genetics in the cow herd, use Continental-British intermediate sires. Continental sires can improve USDA Yield Grade and, in some cases, weight gain.

American sires add a "touch of ear" for either stocker-feeder marketing or some replacement female buyers. American-British intermediate sires would create even less "ear."

Brahman sires (not recommended on heifers) produce the highly regarded Brahman F1 female. To fully capture their market potential, develop Brahman F1 females at least to breeding age. Prices for half-Brahman steers will probably be discounted.

The main cautions with British cows are 1) avoid low-calving-ease, high-birth-weight sires and 2) don't produce straightbreds that are price discounted in your area.

Straight Bos indicus cows: For commercial production, straight Bos indicus cows should be used most logically to produce F1 replacements. For this purpose, Hereford sires are most often used or, less frequently, Angus.

Do not use Bos indicus or American sires on straight Bos indicus commercial cows because the calves will be significantly discounted for being over half-blood. You might use Bos indicus sires to create straightbred commercial Bos indicus females for crossing to produce F1 females; however, the price of straightbred Bos indicus stockers or feeders will be severely discounted.

Part Bos indicus cows: This includes true F1 or other part Bos indicus, including cows of the American type. Terminal crossing can apply using Continental, Continental-British intermediate, or British sires, which also would reduce Bos indicus percentage in any females retained for replacements if the producer so desires.

American sires are appropriate (including for straightbreeding) to maintain 3/8 to 1/2 Bos indicus replacements (especially for hot and humid conditions) unless the cows are more than 1/2 Bos indicus; however, stocker/feeder progeny are usually somewhat price discounted. Using American/Bos indicus-British/Continental intermediate sires reduces the percentage of Bos indicus more than does using American sires. To avoid significant price discounts in stocker/feeders, do not use pure Bos indicus sires on part Bos indicus cows for commercial production.

Part Continental cows: British sires produce desirable slaughter offspring and can be used for female replacements. American sires add some Bos indicus background for hot-climate adaptability as would, to a lesser degree, American/Bos indicus-British/Continental intermediate sires. Continental-British intermediate sires maintain higher levels of Continental than do British sires.

In general, avoid using Continental sires on part Continental cows, except when targeting the lean-beef market, as visibly high-percentage Continental calves may be price discounted. Also, high-percentage Continentals may not be as useful for brood cows as they might milk excessively and/or be too muscular (possibly leading to low body condition and reduced reproduction) for many Texas pasture and range conditions.

First-calf heifers: The most applicable sires are documented individuals of known calving ease, which is most influenced by birth weight. Such sires are most easily found in smaller individuals from British breeds, small dairy or dual-purpose breeds, and some specialty breeds, especially Texas Longhorn. An unsupported claim of "calving-ease bull" is often worthless.

Do not reduce birth weight to extremes below than needed for calving ease because it may unnecessarily reduce calf sale weight and, with some easy-calving breeds, market price.

When choosing a commercial beef sire, avoid:

- Calving difficulty
- Body size and muscling that are too low or too high for production efficiency and market desirability
- Milk production that is too low or too high for production efficiency
- Levels of Bos indicus that are too high for acceptable market calf value

Many genetic combinations will avoid these problems and result in the optimum, most profitable production.

For further reading

To obtain other publications in this Texas Adapted Genetic Strategies for Beef Cattle series, contact your county Extension office or visit the website of the AgriLife Extension Bookstore (http://agrilifebookstore.org) or the Texas A&M Animal Science Extension (http://beef.tamu.edu).

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