

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 genetic decisions beef producers make. That choice depends on:

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

Production conditions must be assessed accurately to make sure they are compatible with genetic production potential. For a discussion of two primary genetic factors, see E-188, *Texas Adapted Genetic Strategies for Beef Cattle III: Body Size and Milking Level*. Genetic considerations for marketing at weaning may not be the same as for retained ownership, especially when carcasses are sold on a value-based price grid.

Breeding systems are crucial in choosing types, breeds within types, and individuals within breeds. There are two basic commercial breeding systems—continuous and terminal. In continuous systems, females from the herd are retained for breeding. Terminal systems do not retain females. Continuous systems should use cattle that are similar and, in most cases, have moderate production characteristics. But terminal systems can use dissimilar, specialized sire and maternal types. For more information, see E-189, *Texas Adapted Genetic Strategies for Beef Cattle IV: Breeding Systems*.

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**Texas Adapted
Genetic Strategies**

Types, breeds and individuals must be compatible with production conditions and breeding systems for efficient production. Most cattle can be categorized by genetic classification (*Bos taurus*, humpless cattle, or *Bos indicus*, Indian or humped) and by breed averages for body size, milking potential and body composition. There are six functional groups:

- British Beef—Angus, Hereford, Red Angus, Shorthorn
- Continental Beef—Charolais, Chianina, Limousin
- Continental Dual Purpose—Braunvieh, Gelbvieh, Maine-Anjou, Salers, Simmental
- Dairy—Holstein, Jersey
- *Bos indicus*—Brahman
- American (generally part Brahman)—Beefmaster, Braford, Brangus, Red Brangus, Santa Gertrudis, Simbrah

The breeds listed above are most numerous in Texas. For a more complete discussion of breeds, see E-190, *Texas Adapted Genetic Strategies for Beef Cattle V: Types and Breeds, Characteristics and Uses*, and E-180, *Texas Adapted Genetic Strategies for Beef Cattle VI: Creating Breeds and Composites*.

Producers can be most flexible in choosing types and breeds if they can document and merchandise genetic merit or, even better, retain ownership. Those who market through traditional methods are subject to biases and perceptions that may lower prices. In Texas, traditional producers can avoid or minimize price discounts while maximizing production efficiency by producing medium- to large-frame crossbred calves that are at least $\frac{1}{4}$ British, no more than $\frac{1}{2}$ Continental, no more than $\frac{1}{4}$ *Bos indicus*, and no more than $\frac{1}{4}$ Dairy. For high-quality markets, higher percentages of British are needed. For lean-beef markets, higher percentages of Continental are more applicable.

There are some price differences even within these ranges. These differences vary over time as to the exact percentages favored, and they are usually small and short-term as compared to cattle outside these ranges. Price differences may be partially or totally offset by considerations of production efficiency.

Traditional cow/calf producers should heed industry preferences while emphasizing biological and economic efficiency from production to weaning.

In saving replacement females, it is important to note that some breed-type combinations not preferred as stocker-feeders may be useful, particularly $\frac{3}{8}$ to $\frac{1}{2}$ *Bos indicus*. In Texas and much of the southern U.S., part-*Bos indicus* cows have advantages too important to ignore. These include calving ease, maximum hybrid vigor, longevity, and climatic and forage adaptability. Also, bulls with some *Bos indicus* genetics are better adapted to tropical or subtropical environments.

These are the applicable sires for commercial cow herds of the various groups.

- **British cows**—If cows are straightbred, they can be bred to the same breed of sire as the cows to produce straightbred calves, but calves lack hybrid vigor and there may be price discounts for some straightbreds. Crosses within the British group are desirable, producing such types as “black-baldies.” Continental sires can be used, particularly to increase carcass leanness and, in some cases, weight gain. American-group sires add a “touch of ear” for either stocker-feeder or some replacement female buyers. Brahman sires (not recommended on first-calf heifers) produce the highly regarded Brahman F_1 female, which should be developed at least to breeding age to fully capture market potential. Realize that prices for half-Brahman steers probably will be discounted. The main cautions with British-group cows are: 1) avoid low-calving-ease, high-birth-weight sires to reduce calving problems, 2) don’t produce straightbreds that are price discounted in your area, and 3) exclude sires that may produce highly discounted small-frame calves.
- **Straight *Bos indicus* cows**—For commercial production, pure Brahman and any other pure *Bos indicus*-group cows should produce F_1 replacements, primarily by British-group sires. *Bos indicus* or American

sires should not be used on straight Bos indicus commercial cows since calves will be significantly discounted for being over half-blood. Bos indicus sires could be used only to obtain straightbred commercial Bos indicus females for F₁ production, but straightbred Bos indicus steers will be severely price discounted.

- **Bos indicus-base cows**—This includes part but not pure Bos indicus—that is, true F₁ or other Bos indicus base, including American-group cows. Terminal crossing can apply using sires, depending on market targets, from either the Continental groups or the British group. British sires also reduce Bos indicus percentage in females retained for replacements if that is desired by the producer. Especially under hot and humid conditions, American-group sires are appropriate (including for straightbreeding) to maintain ⅔ to ½ Bos indicus replacements unless cows are more than ½ Bos indicus; however, stocker/feeder progeny are usually price discounted. Pure Bos indicus-group sires should not be used on part-Bos indicus cows for commercial production.
- **Continental-cross cows**—British-group sires produce desirable slaughter offspring. These British-Continental crosses also can be used for female replacements if production conditions are suitable, especially if the operator wants no Bos indicus genetics in the herd. American-group sires add Bos indicus for hot-climate adaptability. Continental sires should generally be avoided on part-Continental cows, except when targeting the lean-beef market, as high-percentage Continental calves are usually price discounted. Also, high-percentage Continentals generally are not desirable as brood cows as they can be too large, too muscular, or milk excessively (leading to low body condition and poor reproduction) for many Texas pasture and range conditions.

- **First-calf heifers**—Most applicable are sire types and individuals of known calving ease, which is most influenced by birth weight. These sires are most easily found in smaller individuals from British, some American or other tropical-adapted breeds, small dairy or dual-purpose breeds, and some specialty breeds, especially Texas Longhorn. Female offspring from these “heifer sires” also might be used as replacements where consistently severe nutritional limitations dictate small cow size. Note: Birth weight should not be reduced to extremes below that needed for calving ease or else there may be unnecessary reductions in calf sale weight and, with some easy-calving breeds, market price discount.

In commercial beef sire selection, avoid:

- Body size and muscling too low or too high for production efficiency and market desirability
- Milk production too low or too high for production efficiency
- Levels of Bos indicus too high for market calves or too low where needed for cow herd adaptability
- Calving difficulty

There are many genetic combinations that 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 see the Texas AgriLife Extension Bookstore (<http://agrilifebookstore.org>) or the Texas A&M Animal Science Extension Web site (<http://beef.tamu.edu>).

Matching Sires to the Cow Herd

DAMS	SIREs				
	British	Bos indicus ¹	American	Continental	Heifer ²
British ³	M, R ³	(R)	M, R	M	(R) ⁸
Bos indicus ¹	(R)				(R) ⁸
Bos indicus-British ⁴	M, R		(R)	M	(R) ⁸
American	M, R		(R) ⁶	M	(R) ⁸
American-Cross ⁵	M, R		M, R	M ⁷	(R) ⁸
Continental-British	M, R	(R)	M, R	M ⁹	R
Continental-Bos indicus	M, R		(R)	M ⁹	R
Heifers (1st breeding)	S		S		S

M = Meets preferred market formula (minimum ¼ British, maximum ½ Continental, maximum ¼ Bos indicus).

R = Also for replacement females.

(R) = Primarily for replacement females; stocker/feeder market calves usually discounted

S = Smaller, calving ease, low-birth-weight individual sires.

¹ = Straight Bos indicus, such as Brahman.

² = Small Dairy or Dual Purpose, small tropical-adapted non-Bos indicus, Texas Longhorn.

³ = Straightbred or crosses among British.

⁴ = Brahman X British F₁, also American X Brahman-British.

⁵ = American X British or American X Continental.

⁶ = Straightbred or crossbred among American.

⁷ = Not on American X Continental dams, except for targeted lean-beef market.

⁸ = Only to produce relatively small body size replacements.

⁹ = Only for targeted lean-beef market, no replacements saved.

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Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Edward G. Smith, Director, Texas AgriLife Extension Service, The Texas A&M System.

Revision