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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 genetic decisions facing beef producers.

That choice depends on:

- Climatic and management conditions and number of production phases involved
- Breeding systems used
- Breeds or types and individual performance levels
- Types of cows currently in the herd.

Production conditions must be assessed accurately to avoid incompatibility caused by too much or too little genetic production potential. For a discussion of two important genetic factors, see E-188, "Texas Adapted Genetic Strategies for Beef Cattle—III: Body Size and Milking Level." Also, genetic considerations may not be the same for marketing at weaning as for retained ownership, especially when selling on a carcass grid.

Breeding systems are crucial in choosing breed types and selecting individuals. Commercial breeding systems comprise two types—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, moderate in most production characteristics. 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."

Finally, breed types and individuals within breeds must be compatible with production conditions and breeding systems for efficient production. Most cattle can be classified based on species content (either *Bos taurus*, humpless cattle; or *Bos indicus*, Indian or humped) and on breed averages of body size, milking potential and body composition, into one of six functional types:

- 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

Of cattle in Texas, the breeds listed are thought to be most numerous. There are other breeds in all groups. 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 who document and merchandise true genetic merit or, particularly, retain ownership can be most flexible in choosing breed types. Those who market through traditional methods are subject to biases and perceptions, often resulting in price differences that may not be justified but are nevertheless real. These traditional producers can maximize production efficiency and avoid or minimize severe price discounts by producing medium- to large-frame crossbred calves of at least 1/4 British, no more than 1/2 Continental, no more than 1/4 Bos indicus and no more than 1/4 Dairy. For high-quality markets, higher percentages of British are desirable. For lean-beef markets, higher percentages of Continental are applicable.

Some price difference exists even within the above ranges that:

- Varies over time as to the exact breed-type percentages favored
- Is usually small and short-term, compared to differences for cattle falling outside these ranges
- Is partially or totally offset by considerations of production efficiency.

Cow/calf producers should keep these industry preferences in mind but place primary genetic emphasis on biological and economic efficiency of production to weaning.

It is important to note that in saving replacement females, some breed-type combinations not preferred as stocker-feeders may be useful, particularly 3/8 to 1/2 *Bos indicus*. Under many Texas conditions, part-Bos indicus cows have advantages too important to ignore, including calving ease, maximum hybrid vigor, and environmental and forage adaptability. Also, *Bos indicus* genetics makes bulls more adaptable to tropical or subtropical environments.

Applicable sire types for commercial cow herds of various breed types include:

- Basically British cows—Although straightbreeding is appropriate using the same breed of sire as the cows, it will result in a loss of hybrid vigor and possibly some price discount. Crosses within the British group are desirable, producing such types as "black- baldies." Continental sires can be used to increase rate of gain and muscling. American sires add a "touch of ear" for either stocker-feeder or replacement female buyers. Brahman sires (not recommended on heifers) produce the highly regarded Brahman F_1 female, which should be developed at least to breeding age to capture market potential. Realize that half-Brahman steers probably will be price discounted. The main cautions with British-type cows are to exclude small-frame sires, which may produce highly discounted "shorts," and avoid high-birth-weight sires to reduce calving problems.
- Straight *Bos indicus* cows—For commercial production, pure *Bos indicus* or Brahman cows should produce F1 replacements, mostly by British-type sires. *Bos indicus* or American sires should not be used on straight *Bos indicus* commercial

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cows, since calves will be discounted for being over half-blood. *Bos indicus* sires could be used here only to obtain straight *Bos indicus* females for F_1 creation, but straight *Bos indicus* steers will be severely price discounted.

Bos indicus-base cows—This includes part but not pure *Bos indicus*, that is, true F_1 or other *Bos indicus* base, including American-type cows. Terminal cross sires are excellent, often Continental types but also higher gaining sires of British type. These Continental or British sires also reduce *Bos indicus* percentage in replacement females if that is applicable. Especially under hot and humid conditions, American sires are appropriate to maintain $^3/_8$ to $^1/_2$-*Bos indicus* replacements unless cows are high-percentage (over $^1/_2$) *Bos indicus*. Straightbreeding of American breeds also can be used, especially to generate replacements. Pure *Bos indicus* sires should not be used on part-*Bos indicus* cows for commercial production.

Continental-cross cows—British sires produce desirable slaughter offspring. These British-Continental crosses also are high-producing replacements if production conditions are suitable, especially if the operator wants no *Bos indicus* genetics in the herd. American-type sires add Bos indicus for hot-climate adaptability. *Bos indicus* sires give Bos indicus-Continental heifers, which may be applicable where forage quantity and quality are adequate. Continental sires should generally be avoided on part-Continental cows, except when targeting the lean-beef market, as high-percentage Continental calves may be price discounted. Also, high-percentage Continentals generally are undesirable as brood cows as they can be too big, 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 low birth weight and calving ease. These are most easily found in smaller British, some American or other tropical-adapted breeds, small dairy or dual-purpose breeds, and some speciality breeds, especially Texas Longhorn. Female offspring from these "heifer sires" also may be used as replacements where consistently severe nutritional limitations favor smaller cow size.

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.

Many genetic combinations exist to avoid these problems and result in profitable or optimum production.

For further reading

To obtain other publications in this Texas Adapted Genetics Strategies for Beef Cattle series, contact your county Extension office or see the Extension Web site *http://tcebookstore.org* and the Texas A&M Animal Science Extension Web site *http://animalscience.tamu.edu*.

MATCHING SIRES TO THE COW HERD

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

M= Market: Meets preferred market breed-type formula (minimum $^1/_4$ British, maximum $^1/_2$ Continental, maximum $^1/_4$ Bos indicus, maximum $^1/_4$ Dairy). Heifers also applicable for replacements when genetic type is matched with conditions.

R = Replacement: Primarily for replacement females (steers usually discounted).

S = Smaller, 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 British crosses.

4 = Brahman X British F_1, also American X Brahman - British.

5 = American X British or American X Continental.

6 = Crossbred unless desiring straightbred replacements.

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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