



Beef Cattle Sciences

Beef Cattle Library

Common Beef Breeds of Oregon ¹

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Introduction

With the wide range of beef cattle breeds utilized in the United States, it can be difficult to choose the right breed for each operation. Additionally, the diverse climate, landscape and feed availability seen throughout Oregon further complicate this decision. While high-growth, high-milk producing cattle may be well suited for the lush pastures of Western Oregon, these cattle would not perform as well on the arid rangeland comprising much of Central and Eastern Oregon. Regardless, Angus and Angus influenced cattle are popular on both sides of the Cascade Mountains.

British Breeds

The primary British breeds found in the United States include Black and Red Angus, Hereford (both Horned and Polled) and Shorthorn. British breeds, when compared to Continental breeds, are typically smaller, earlier maturing, excel in fertility and calving ease, and offer higher quality, but less cutable carcasses. Cutability, evaluated as yield grades, is used to estimate the amount of retail product a carcass will yield. Consequently, British cattle are considered to be more maternal in type compared with Continental breeds (Greiner, 2009). While purebred British cattle can be used for commercial production, they are often crossed with Continental breeds to increase growth, muscling and cutability (Hammock, 2009).

Angus



Courtesy Genex Cooperative, Inc.

Developed in Northern Scotland, both red and black cattle were selected in order to improve breed quality regardless of color. Early contributors to the improvement of the breed emphasized the black coloring, resulting in Angus becoming a black breed. The breed was imported to the Kansas from Scotland in 1873. Early producers crossed Angus bulls with native Texas Longhorn cows to produce polled (naturally hornless), black calves that were better suited than native cattle to survive on winter range and weighed more the next spring (Burditt et al., 1995). Additionally, the breed's dark-pigmented skin helps to prevent cancer eye and sun-/snow-burn of udders. The American Aberdeen-Angus Breeders' Association was founded in 1883 (name shortened to American Angus Association in 1950s) and is the largest breed registry association in the world.

The popularity of the Angus breed is due to its ability to offer both maternal and terminal traits

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3. This article relies heavily on Burditt et al. 1995, as well as individual breed associations for information on breed histories.

(Table 1). Angus cattle have strong maternal traits, such as good milking capabilities, high fertility, easy calving and a docile nature. Additionally, adequate growth and fleshing ability combined with high marbling result in the production of high-quality beef products. Also, Angus cattle are a popular choice in crossbreeding programs. Black-baldy females resulting from Angus x Hereford crosses are highly sought after for their maternal characteristics, while other crosses, such as ChiAngus and SimAngus offer the maternal ability of Angus cattle and the improved performance of continental breeds. The creation of the Certified Angus Beef (CAB) program in 1978 has also helped to drive the increase in the breed's popularity. The nation's first branded beef program, CAB works to ensure beef quality, while also increasing marketing and profitability for producers.

Red Angus



Courtesy Genex Cooperative, Inc.

The origins of the Red Angus breed are similar to those of Black Angus. Originally a two-color breed, color selection did not occur in Angus cattle until the 1820's when black became the official color. However, it wasn't until 1917 that all non-black cattle were barred from the registry. In 1945, select cattlemen across the United States began breeding red cattle from Black Angus herds and the Red Angus Association of America was established in 1954. In order to show the intrinsic similarities between Red and Black Angus, breeders selected for polled, efficient cattle with minimal calving difficulties, strong maternal instincts and a high quality meat product (Burditt et al., 1995).

Since its start, the Red Angus Association has pushed breed associations forward. It was the first breed to require performance data (growth numbers, rib eye area, etc.) and the first to create a registry for F1 offspring. Additionally, the Red Angus Association continues to work improving

profitability of the breed through commercial marketing and certification programs.

Hereford



Courtesy Genex Cooperative, Inc.

Herefords originated from the red cattle of western England. The Hereford breed was brought to the United States in 1817; however, the first breeding herd wasn't developed until 1840. The American Hereford Cattle Breeders Association (later renamed the American Hereford Association) was formed in 1881. A few years later, the polled (naturally hornless) gene was identified and selected for. The American Polled Hereford Association was formed in 1910 and merged with the American Hereford Association in 1995 (Burditt et al., 1995). In 1995, the American Hereford Association established the Certified Hereford Beef (CHB) program. Like the Angus equivalent, CHB works to ensure product quality, as well as profitability.

Known for their red bodies and characteristic white markings, Hereford cattle have had a large impact on the beef industry throughout history. A hardy breed, Hereford cattle are able to adapt and thrive in a variety of climates. Much like Angus, Hereford cattle are a docile breed with high fertility, easy calving and good maternal instincts (Table 1). However, bad teats and eyes, issues commonly associated with the breed, can decrease longevity. Large teats have long been a concern within the breed and can impair proper colostrum and milk consumption, while as increasing the chance of injury. Similarly, Hereford cattle are prone to cancer eye. Selection of cattle with dark pigmentation around the eye can help reduce the incidence of cancer eye. Through selective breeding, Hereford producers have made significant progress in minimizing these concerns.

Shorthorn



Courtesy Genex Cooperative, Inc.

Shorthorns were first brought to Virginia in 1783 under the name Durham. Early in its history, the breed was valued for its meat and milk qualities as well as its adaptability. In 1846 the American Shorthorn Herd Book was the first published in the country for any breed and was followed by the formation of the American Shorthorn Association in 1872. Beginning in the 1870's, Polled Shorthorns were identified and selected for. The American Shorthorn Association also offers an Appendix Registry program, allowing breeders to register Shorthorn cross animals.

Shorthorns can be red, white, roan or red and white. Like other British breeds, Shorthorns offer strong maternal qualities, such as high fertility rates, early maturation and moderate to high milk production (Table 1).

Continental Breeds

Continental breeds include Charolais, Limousin, Maine-Anjou, Simmental and Tarentaise. In general, Continental breeds are larger, later maturing, harder calving and produce lower quality, higher yielding carcasses when compared to British breeds (Greiner, 2009). Due to high growth, muscling and cutability characteristics, Continental breeds are most effectively used as terminal sires; however, they can be used to increase size and muscling in females without increasing milk production (Hammock, 2009).

Charolais



Courtesy Genex Cooperative, Inc.

Developed in central France, historical evidence suggests that Charolais have been around since 878 A.D. As shown in Table 1, Charolais are very large framed, heavy muscled cattle with very high cutability. In contrast to many breeds with very high cutability, Charolais cattle still offer moderate marbling (Table 1). Consequently, the breed has been highly regarded for its meat since the 16th century.

Shortly after the First World War, the Charolais breed was imported into Mexico. From there, the breed made its way into the United States in 1934. Numerous Charolais associations were formed starting in the late 1940's and were eventually merged into today's American-International Charolais Association. Due to limited availability of pure Charolais cattle, American breeders utilized a "breeding-up" program to expand the breed. This involved a five year breeding program to produce a 31/32 Charolais offspring. Although naturally horned, polled Charolais were developed through the breeding-up program, using breeds with the polled gene (Burditt et al., 1995).

Similar to many continental breeds, Charolais cattle are well suited for use as terminal sire breed. While their large size and heavy muscling lead to higher performing calves, low milk production and later mature age result in females with less than ideal maternal characteristics when compared to many British breeds (Table 1). Additionally, elevated birth weights and heavily muscled calves can result in calving difficulties.

Limousin

Courtesy Genex Cooperative, Inc.

Limousin cattle are native to the rugged terrain of central France. Consequently, Limousin developed into a hardy, adaptable breed originally used for work (draft animals) and for beef. Due to the harsh environment in which the breed originated, Limousin developed a volatile temperament to aid in survival. Beginning in the 1850's, Limousin's topped French cattle shows and carcass competitions, establishing the breed's meat animal reputation. Throughout the late 1800's and early 1900's, breeders began to select for medium-framed, deep chested animals with strong top-lines and heavily muscled hindquarters. Subsequently, Limousin became a more efficient, adaptable breed designed for meat production.

Due to the presence of foot-and-mouth disease, French cattle were not eligible for importation into the United States. However, the Limousin breed made its way to North America in 1968. Canada agreed to import French cattle following a three-step quarantine program. The first semen was available in the United States in 1969 and the first bull was imported from Canada in 1971. As the breed entered North America, producers from Canada and the U.S. formed the North American Limousin Foundation (NALF). In 1998, the foundation created the temperament EPD to rate docility, allowing producers to select for calmer cattle.

Productive characteristics of Limousin cattle are included in Table 1. Today, Limousin can be black or red, as well as horned or polled. However, the majority of annual registrations are black and polled. In 2002, NALF established Lim-Flex, a Limousin x Angus crossbreeding program. This hybrid provides a balance of Limousin muscling and efficiency, with the maternal ability and marbling of Angus (Burditt et al., 1995).

Maine-Anjou

Courtesy Genex Cooperative, Inc.

Developed in the fertile northwest of France, Maine-Anjou is a large multipurpose breed. While today's Maine-Anjou tend towards beef production, early animals were used for both milk and meat production, as well as for draft purposes. The first Maine-Anjou cattle in North America were imported to Canada in 1969. The Maine-Anjou Society was formed by producers from both Canada and the U.S in 1969, followed by the American Maine-Anjou Association in 1976 (Burditt et al., 1995). To account for increases in Maine-Anjou crosses, the association created the Maine Tainer program, giving producers the ability to register cattle with 1/4 to 5/8 Maine-Anjou blood.

Full-blood Maine-Anjou is a very large, red and white breed with known calving difficulties; however, present day purebred Maine-Anjou have become more compact, range in color from black to red or red and white, and efforts to decrease birth weights have helped alleviate calving problems.

As shown in Table 1, Maine-Anjou is a heavily muscled, high cutability breed that offers more maternal ability than many continental breeds. In addition, their high efficiency and overall balance make them a popular choice for club calf breeders looking to produce heavy muscled, moderate framed calves with show ring appeal.

Simmental

Courtesy Genex Cooperative, Inc.

The Simmental breed was developed as a multipurpose breed, used for meat and milk production, as well as draft purposes. Consequently, they are very large and heavily muscled with high milking potential (Table 1). Originally from Switzerland, Simmentals had early worldwide distribution, including entry into the U.S. in 1887. However, the breed was largely unsuccessful until the 1960s (Burditt et al., 1995). American Simmental cattle have the ability to adapt to hot and cold temperatures, to dry or humid climates, and to range or confinement rearing. While the original coloring consisted of red and white or yellow and white, the American Simmental Association accepts all colors and all color patterns.

Simmentals are often used a terminal sire breed to increase growth rate, muscling and cutability. However, the popular Simmental/Angus cross (SimAngus) is capable of producing offspring with high growth rates, cutability, and marbling. Additionally, female offspring offer high fertility rates and milking potential. Due to their large mature size and high milk production, Simmental and their crosses are best suited for areas with high nutrient availability (Table 2). Still, selection of individuals with moderate milk and growth could allow for use in areas with less feed resources.

Tarentaise



Courtesy Genex Cooperative, Inc.

Originating in the northern French Alps, Tarentaise cattle developed into a sturdy breed, capable of high milk production in difficult conditions. Beginning in the mid-1800's, French cattle breeders began to appreciate the many desirable traits in the reddish-brown, horned cattle. Medium framed and early-maturing, Tarentaise cattle offer natural muscling and marbling ability, as well as high milk quality (Table 1). Capable of thriving in harsh environments with limited forage availability, Tarentaise cattle were used to improve meat and milk production of the native cattle in

French colonies of North Africa during the early 1900's. By the 1970's, the breed had made its way to North America (Burditt et al., 1995).

The Tarentaise cattle presently found in the U.S. offer many of the same desirable traits. Highly adaptable with increased longevity compared to other breeds, Tarentaise cattle are well suited for harsh environments and areas of limited nutrient availability. Additionally, the breed's calving ease, high feed efficiency and disease resistance are appealing qualities for producers utilizing extensive range conditions. Tarentaise cattle also offer increase milk production and quality, as shown by their use for Beaufort cheese production in France.

American/Specialty Breeds

Brangus



Courtesy Genex Cooperative, Inc.

Developed in the 1930's, Brangus are by definition 3/8 Brahman and 5/8 Angus, polled and solid black, with Red Brangus being a separate breed. The crossing results in a breed that blends the characteristics of the popular parent breeds. Tolerant to heat and humidity, Brahman also offer insect and disease resistance, as well as good maternal instincts. These traits, combined with the carcass quality and maternal ability of Angus create a highly adaptable breed. Brangus females are highly fertile, with good milk production, while also offering heat and parasite tolerance. Additionally, research suggests Brangus calves are heavier at weaning than Angus calves; however, they also have higher birth weights and calf morbidity and mortality rates (Burditt et al., 1995). Like most breeds with *Bos Indicus* influence, Brangus are generally considered to be more difficult to work with under extensive management. However, producers have selected cattle with the purpose of easing these concerns, resulting in a more docile breed.

Wagyu



Courtesy Genex Cooperative, Inc.

Typically considered a single breed in the U.S., the term Wagyu actually refers to all Japanese cattle ("Wa" meaning Japanese or Japanese-style and "gyu" meaning cattle). Regional isolation has produced multiple strains including the black strains of Tajima, Shimane, Tottori and the red strains Kochi and Kumamoto. True Japanese Kobe beef is from the Tajima strain, a high marbling, small framed strain with low growth rates and excellent disposition. The Shimane strain produces faster growing calves with good meat quality, while also having higher fertility rates. Tottori cattle are larger framed, faster growing and known for their loose skin. The red strains of Kochi and Kumamoto are more strongly influenced by Korean and European cattle and are believed to have considerable Simmental influence. As a whole, Wagyu cattle are best used as a terminal sire breed to increase meat quality, without negatively impacting birth weight. However, Wagyu sired cattle average more days on feed, lower average daily gain, and older age at slaughter than traditional breeds (Radunz et al., 2009).

Matching Cattle to the Environment

When selecting a breed to utilize in an operation, it is important to match the breed to the environment. As shown in Table 2, cows with different mature size, milking potential and fleshing ability are better suited to areas with different nutrient availability. For example, cattle with lower nutrient demands (smaller, light milking, easy fleshing animals) are better suited for areas with low nutrient availability than large, heavy-milking cows. Likewise, Figure 1 suggests that the smaller framed, easier fleshing British breeds wean heavier calves at lower levels of dry matter intake than Continental breeds. Conversely, the larger size and greater growth rate of Continental breeds allow for greater

growth at high levels of dry matter intake. It should be noted that considerable variability within breeds exists and that EPDs are a useful tool when selecting cattle. Additionally, an across breed EPD calculator (Riggs and Bohnert, 2013) is available on the OSU Beef Cattle Sciences website and allows for the comparison of individuals of different breeds.

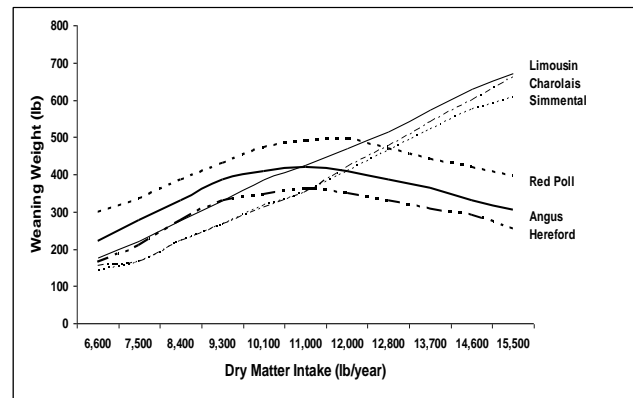


Figure 1. Predicted weight of calves weaned per cow exposed at varying dry matter intakes for 6 breeds of cattle (adapted from Jenkins and Ferrell, 1994).

Conclusion

There is no ideal breed of cattle that is superior for all characteristic of beef production, which leads to the known benefits of heterosis. Use of crossbreeding programs allow for the blending of desirable traits of different breeds to produce animals well-suited for specific environments. When selecting breeding animals, it is important to remember that variation within breed can be greater than the difference between breeds. Consequently, the use of EPDs is important when selecting animals for either a purebred or crossbreeding program.

References

- Burditt et al. 1995. Oklahoma State University Breeds of Livestock. <http://www.ansi.okstate.edu/breeds/cattle/> (accessed 2/15/13).
- Greiner. 2009. Virginia Cooperative Extension. 400-803.
- Hammack. 2009. Agrilife Extension (Texas A&M System). E-190:1-6.
- Jenkins and Ferrell. 1994. J. Anim. Sci. 72:2787-2797.
- Radunz et al. 2009. J. Anim. Sci. 87:2971-2976.

Riggs and Bohnert. 2013. OSU Beef Cattle Sciences. BEEF055.

Weaber. 2010. Beef Sire Selection Manual. Second Edition. Pages 58-64.

Table 1. Functional Levels of Major Cattle Breeds in Oregon¹. *Adapted from Hammack, 2009; Weaber, 2010.*

Functional Type Breed	Body Size ^{2,3}	Milking Potential ²	Age at Puberty ⁴	Hot Climate Adaptability ²	Fleshing Ability ²	Muscle Expression ²	Cutability ^{2,5}	Marbling ²
British Beef								
Angus	M	M	H	M	H	M	L	H
Red Angus	M	M	H	M	H	M	L	H
Hereford ⁶	M	L	M	M	H	M	L	M
Shorthorn	M	M	M	M	H	M	L	H
Continental Beef								
Charolais	VH	L	L	M	M	VH	VH	M
Limousin	M	L	L	M	M	VH	VH	L
Dual Purpose								
Maine-Anjou	H	M	M	M	M	H	H	M
Simmental	VH	H	M	M	M	H	H	M
Tarentaise	M	M	H	M			M	M
American								
Brangus	H	M	M	VH	H	M	L	M
Specialty								
Wagyu	L	L	H	M			M	H

¹ Breeds thought to be most common or familiar in Oregon. Evaluations are estimates of purebred breed-wide averages compiled from research reports.

² VL=very low, L=low, M=medium, H=high, VH=very high, EH=extremely high. Range exists within these categories, so breeds with the same designation do not necessarily average exactly the same level of trait expression. Also, considerable individual variation exists within breeds.

³ Evaluated as body weight at the same age and body condition.

⁴ VL =very late, L=late, M=medium, H=early, VH=very early

⁵ Under similar nutrition.

⁶ Horned and Polled.

Table 2. Matching Cowherd Functional Levels to Nutrition. *Adapted from Hammack, 2009.*

Nutritional Availability ¹	Mature Size	Milking Potential	Fleshing Ability
Low	Low to Medium	Low to medium	High
Medium	Medium	Medium	Medium to High
High	Medium to High	Medium to High	Medium

¹ Quantity, quality and consistency of nutrition whether from grazing, harvested forage, or supplemental concentrates.