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BREEDS OF BEEF AND MULTI-PURPOSE CATTLE



By Harlan Ritchie

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ACKNOWLEDGEMENTS

The inspiration for writing this book goes back to my undergraduate student days at Iowa State University when I enrolled in the course, “Breeds of Livestock,” taught by the late Dr. Roy Kottman, who was then the Associate Dean of Agriculture for Undergraduate Instruction. I was also inspired by my livestock judging team coach, Professor James Kiser, who took us to many great livestock breeders’ farms for practice judging workouts.

I also wish to acknowledge the late Dr. Ronald H. Nelson, former Chairman of the Department of Animal Science at Michigan State University. Dr. Nelson offered me an Instructorship position in 1957 to pursue an advanced degree as well as teach a number of undergraduate courses, including “Breeds of Livestock.” I enjoyed my work so much that I never left, and remained at Michigan State for my entire 47-year career in Animal Science. During this career, I had an opportunity to judge shows involving a significant number of the breeds of cattle reviewed in this book. I wish to acknowledge the various associations who invited me to judge their shows and become acquainted with their breeders.

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Finally, I wish to acknowledge Oklahoma State University and its Department of Animal Science for allowing me to use photos of the breeds of cattle from their website. Doctor Robert Kropp has been especially helpful in this respect.

FORWARD

The legendary American humorist, Will Rogers, once said, “I’ve never met a man I didn’t like.” In this author’s case, “I’ve never met a breed of cattle I didn’t like.” Expressed another way, I believe that every breed of livestock has at least one valuable feature that is worth preserving. William Beebe had similar feelings in saying, “When the last individual of a race of living things breathes no more, another Heaven and another Earth must pass before such another one can be again.” When the needs of the animal industry change over time, genetic diversity is a valuable, and for the matter, a necessary asset. That is the basis for writing this book.

There are hundreds of breeds of cattle in the world. I have chosen to narrow the breeds covered in this publication to beef and multi-purpose cattle, because of my having worked with a number of these breeds during my career as a beef cattle specialist at Michigan State University. I further confined the number of breeds based on those I have worked with directly in the U.S. and those I have studied on visits to Europe, Canada, Mexico, South America, and Australia. For information on Asian and African breeds, I have relied almost entirely on publications cited in the “References” section.

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ORIGIN AND DOMESTICATION

The ancestry of modern cattle can be traced back to a species of wild cattle known as the Aurochs (*Bos primigenius*), which originated in the Indian subcontinent. The earliest Aurochs were native to a warm area extending from Turkistan up to the Indian and Arabian deserts. The Ice Ages prevented its spread to Europe, but the species did extend its range there during the Interglacial periods, only to recede again as the climate of Europe grew colder. Only after the last Ice Age, about 250,000 years ago, did the Aurochs permanently spread from western Asia over large areas of the globe: eastward to China, and westward to the Middle East, northern Africa and Europe. As the species spread, it began to differentiate into two major types which are sometimes regarded as separate subspecies: *Bos primigenius primigenius*, the ancestor of today's European humpless cattle, and *Bos primigenius namadicus*, the Asian form that is the direct ancestor of the Zebu.

Reconstructed skeletons reveal that the Aurochs was an extremely large, sturdy animal. Bulls were 6 to 6½ feet tall at the withers and about 10 feet long. Their horns measured up to 3 feet or more, their necks were massive, and their forequarters deep and heavy compared to their hindquarters.

About 5,000 to 10,000 years ago, the first Aurochs were tamed and the process of domestication began. Under man's care, the Aurochs underwent dramatic physical changes. The size of the animal diminished greatly, and the fore- and hindquarters became more proportional. The brain capacity became smaller and the skull changed shape. Horns became smaller and thinner or were eliminated altogether, and the solid browns and blacks of the Aurochs coat took on new patterns and hues. So quickly did the Aurochs change in type that cattle depicted in 4,500-year-old Egyptian paintings would strike most modern cattle producers as small, but otherwise would not look out of place if observed in someone's pasture today.

The Aurochs survived in Europe until 1627 when the last member of the species, a cow as it happens, was killed by poachers on a hunting reserve near Warsaw, Poland.

ESTABLISHMENT OF BREEDS

Distinct breeds did not emerge until the second half of the 18th century when the industrial revolution in Europe created a need for more productive animals. As a result of the industrial revolution, the human population not only increased sharply but also began to shift from the countryside to the city. Demand for beef and milk rose accordingly and, with advances in mechanization, the need for draft cattle decreased as horses and machines took their place. More than any other single factor, the need to feed the workers of the newly created mills and factories were responsible for the advent of modern breeds and breeding practices. Old triple-purpose (meat/milk/draft) native cattle types that had been raised for centuries began to decline, and in their place, more productive double- and single-purpose cattle were bred. It is probably not an exaggeration to state that the industrial revolution spawned a cattle revolution.

THE BRITISH BREEDS

Robert Bakewell

A concentrated effort on breed development did not take place until Englishman Robert Bakewell began his breeding experiments with English Longhorn cattle in 1760. The cattle of that day were extremely large-framed, late-maturing animals that were flat-muscled and when finished for market were very rough and patchy in their fat covering over the top, rump, and upper ribs. Finished steers weighed as much as 3000 lbs or more when marketed at 4 to 5 years of age. At that time, cattle were raised for the dual-purpose of producing both meat and milk. But Bakewell concentrated solely on meat production, placing no selection pressure on milking ability. He selected for early-maturing, smooth, easy-fleshing animals with wide tops and deep chests. Upon establishing an ideal type, his breeding plan was to mate "the best to the best" regardless of relationship. This resulted in the concentration of the blood (line- and inbreeding) of animals that possessed his sought-after traits, thereby fixing the desired type and establishing true breeding lines. Bakewells' contemporaries were highly

critical of his methods because they were strongly opposed to the “incestuous” inbreeding of animals. These criticisms soon subsided when Bakewell’s methods began to yield positive results.

Because of Bakewell’s success in implementing his principles of “like begets like” and mating “the best to the best,” other stock breeders in England and Scotland applied these principles in the development of the other British breeds. As these new and improved breeds developed, the English Longhorn fell out of favor and eventually out of use.

About this same time, cattle were imported from the continent of Europe into the Eastern counties of England. These were dairy-type cattle from Holland that were primarily of the Large White Dutch or Flanders breeds. Consumers in Holland and other low countries viewed dairy products as a special delicacy, which led to the development of these dairy breeds and subsequently the Holstein-Friesian breed. However, English palates, especially those of well-to-do Britons, demanded a more substantial protein source than dairy products. They relished well-marbled beef, which was a major factor that led to development of the improved British breeds.

THE BRITISH BREEDS

The American Breed



Development in the United States

The American Breed was developed by Art Jones on his ranch near Portales in eastern New Mexico, close to the Texas border. This region is a harsh environment for cattle, with only 8 to 12 inches of rain per year and much of the forage consisting of alkaline sacatone grass. In order to develop cattle that would better fit his production environment, Jones began in 1948 to cross other breeds with his Hereford base. Shorthorn was used for mothering and milking ability and Charolais for growth and ruggedness. When Jones evaluated this combination, he felt that he still did not have the level of hybrid vigor for growth and hardiness he desired. To improve these traits, he first added Brahman blood. Then, over the next three decades, Jones incorporated American Bison into the mixture. The presence of Bison blood in all foundation animals was confirmed by tests conducted at Texas A & M University’s Immunogenetics Laboratory.

The American Breed Today

By 1974, the composition of the American Breed was fixed at ½ Brahman, ¼ Charolais, ⅛ Bison, 1/16 Hereford and 1/16 Shorthorn. The cattle have red pigmented skin, and vary somewhat in hair color. They are not overly large cattle and are reported to calve easily.

The American White Park



Development in North America

The origin of the American White Park is not clear. Some believe it is largely descended from the British White breed. Others believe it is primarily Angus in origin with some blood introduced by White Park cattle brought into Canada during World War II. According to this theory, the offspring of the original importation were sent to the Bronx Zoo, and from there they were split into two groups. One group was sent to the King Ranch in Texas, where it became the nucleus herd of the White Park breed in the United States. The other group was sent to Washington and played a role in the formation of the American White Park breed.

Regardless of the origin of the breed, the American White Park should not be confused with the ancient White Park of England. In genetic marker tests, the White Park has been found to be a distinct breed from either the American White Park or the British White Breed. Therefore, any contribution the White Park may have made to these two breeds has been greatly diluted by the infusion of other breeds. The American White Park Cattle Association of American was formed in 1975. It maintained an open herd book for 6 months during which time 300-400 animals of varying documentation, but the correct type, were accepted. Since that time, a number of purebred British White bulls have been imported and introduced into American bloodlines.

The American White Park Today

The American White Park is promoted and selected as a beef breed. It is white with black or red points on the muzzle, eyes, and ears. The cattle are predominantly polled with 3 to 5% horned. In size and overall type, they are very similar to the British White.

The Angus



Development in Scotland

The Angus breed (originally referred to as “Aberdeen-Angus”) was developed in northeastern Scotland primarily in the counties of Aberdeen, Angus, Banff, and Kincardine. These counties border the North Sea and are characterized by land that is either rough or mountainous. Polled cattle apparently existed in Scotland before recorded history, because the likeness of such cattle can be found on ancient sculptured stones in Aberdeen and Angus counties. Black hornless cattle are mentioned in the middle of the ninth century and references are again found in early sixteenth century charters. The body size was larger and the frequency of polled animals was greater in lowland than in upland districts. In the county of Banff, a local type of black, horned, large but slow maturing cattle existed, and very early in the nineteenth century, the cattle were crossed with Galloway, Shorthorn, Ayshire, and Guernsey cattle. But there is no knowledge of the extent to which such crossbred progeny were used as foundation animals for the Aberdeen-Angus breed.

The early cattle in northern Scotland were not necessarily of uniform color, and many of them had varied color markings or broken color patterns. Most of the cattle were polled, but some had horns. The trait that is now commonly called polled was often referred to in old Scottish writings by the terms of “doddies” or “humlies.” Two strains were used in the formation of what would later be known as the Aberdeen-Angus breed. In the county of Angus, cattle had existed for some time that were known as Angus doddies. In the county of Aberdeen, other polled cattle were found that were called Buchan humlies, Buchan being the primary agricultural district Aberdeen. The cattle in the region were early valued as work oxen, as were most other strains of cattle that later became breeds. But by the beginning of the nineteenth century, the polled cattle in Aberdeen already had a favorable reputation for the production of high quality, well-marbled carcass beef.

Improvement in Scotland

Over time, it appears that the strains of polled cattle from Angus and Aberdeen were crossed and recrossed eventually leading to a distinct breed that was not greatly different from either of the two strains. Hugh Watson of Angus County is generally regarded as the first real improver and, consequently, the founder of the breed. In 1808, when 19 years old, Watson started farming and brought with him from his father's farm six of the best cows as well as a bull, all of which were black and polled. Along with these animals, he visited the leading Scottish cattle markets and ended up purchasing the ten best heifers and best bull he could find that possessed the traits he was striving to breed. The heifers were of various colors, but the bull was black. Watson decided that the color of his herd should be black, so he started to breed in that direction.

Watson applied the methods employed so successfully by the Colling Brothers on the Shorthorn breed by mating the "best to the best" regardless of relationship. Consequently, his herd was rather closely inbred even though he did not necessarily intend it to be so. Watson's favorite herd sire was Old Jock, who was given the number "1" in the herd book at the time it was started in 1862. The bull was born in 1842 and was used very heavily in the herd from 1843 to 1852. He was awarded the sweepstakes prize for bulls at the Highland Society Show in 1852, when he was nearly 11 years old. The Watson cow, Old Granny, also contributed a great deal to the breed. She was born in 1824 and did not die until she was killed by lightning at 35 years of age. She is known to have produced a total of 29 calves, eleven of which were registered in the Herd Book. A very high percentage of Angus cattle today trace to either Old Jock or Old Granny or both. Watson fitted and showed his cattle extensively. At his first show in 1829, he had the first prize pair of steers. One of these steers was exhibited later that same year at the famous Smithfield show in London, where he attracted a great deal of attention. When slaughtered after the show, his trimmed fat weighed an amazing 240 lbs—about 84 lbs more than the fat of the famous Durham Ox. In contrast to today, fat was considered nearly as valuable as lean meat at that time. The Aberdeen-Angus breed was threatened with extinction after 1810, when word spread that the Shorthorn bull, Comet, had sold for \$5,000. Soon thereafter, good herds of Shorthorn cattle were established in Scotland. Cattle producers began using Shorthorn bulls on their polled Aberdeen-Angus cow herds. Crossing in this fashion became almost a craze. For a time, it seemed as if farmers had been rendered oblivious to the risks of totally running out of their purebred black polled cows. However, a few far-sighted purebred breeders recognized the danger which threatened their native polled cattle and became determined to preserve the breed.

William McCombie of Tillyfour in Angus country stood out among these breeders as "the great preserver" of the breed. He began breeding cattle in 1830 and continued until his death in 1880. McCombie was a master at blending the Angus and Aberdeen strains. He practiced inbreeding with much success to establish the type of animal he desired. McCombie used the show ring to publicize his herd and had unparalleled success in doing so. His show ring career reached its pinnacle in 1878 at the International Exposition in Paris. There he won first prize as an exhibitor of cattle from a foreign country as well as the grand prize for the best group of beef-producing animals bred by any exhibitor. In addition to the breeding classes, McCombie also showed steers in the market shows. The most famous steer he produced was Black Prince, who won both the Birmingham and Smithfield shows in 1867 when 4 years of age. Black Prince weighed 2,200 lbs and was quite large-framed. It was said, "a short man would need a ladder to see over his back."

Another very influential Scottish herd was that of Ballindalloch in the county of Banff, owned by Sir George MacPherson Grant. His herd was established by drawing heavily on Tillyfour cattle from William McCombie. His most valuable purchase was that of the bull Trojan sired by Black Prince of Tillyfour. The Ballindalloch herd is well-known for establishing several famous cow families—the Ericas, Jilts, Miss Burgesses, and the Georginas. Angus breeders in Scotland placed a great deal of emphasis on cow families. The same was true in America until recent times. At one time, the craze over cow families reached ridiculous proportions when rather mediocre females of a certain scarce, fashionable cow family would sell at significantly higher prices than excellent females of a more numerous, ordinary family.

Establishment in America

The first Angus cattle to reach North America were sent to Montreal in 1859 or 1860, but there is no record of what became of these animals. In 1873, George Grant of Victoria, Kansas imported the first Angus into the U.S., when he brought over four bulls that he crossed on Texas Longhorn cows. These resulting progeny were favorably accepted on the Kansas City market. Several other notable importations took place from 1878 to 1882.

W.A. McHenry of Denison, Iowa is generally considered the master Angus breeder of his era. In 1887, he purchased a bull and the female Barbarity 2nd, which was the founder of the Barbara cow family. At the 1894 World's Fair in Chicago, his show herd dominated the competition. In 1916, the McHenry herd was sold to the firm of Esher and Ryan at Irwin, Iowa. Included in the acquisition was the great 2-year-old bull, Earl Marshall, who turned out to be the most influential sire in the history of the breed in the U.S. He was a prepotent sire whose sons also contributed greatly to the breed.

J. Garret Tolan of Pleasant Plains, Illinois, followed McHenry as the breed's most prominent herd for the better part of four decades. Tolan dominated the International Livestock Exposition Angus shows in Chicago with his Eileenmere line of cattle, starting in 1929 with Eileenmere 15th up to 1954 with Mr. Eileenmere.

After J. Garret Tolan, Ankony Farms in New York became the leading herd in the breed. It was founded in 1948 by a partnership between Allen Ryan and Lee Leachman. Later, other owners that included Les Leachman and Myron Fuerst became involved in the operation. Like Tolan before them, Ankony Farms dominated the International Livestock Exposition in Chicago until the International closed in 1975. One of the highlights of the International Show was the inter-breed carcass competition. During the 75-year history of the show in Chicago, Angus cattle won the carcass championship 87% of the time.

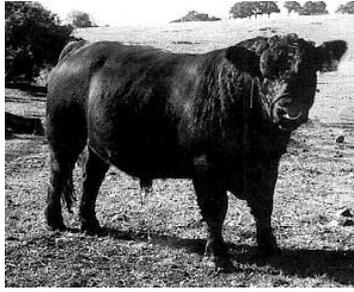
The Angus Today

For the past 30 years, the growth of the Angus has been remarkable. By the mid 1970s, Angus registrations had exceeded those of Herefords. The breed received a boost when Certified Angus Beef (CAB®) products were put on the market. From a humble beginning in 1978, CAB® has become a formidable brand in the market place. Today, the fed cattle destined for CAB® represent 7% of all fed cattle in the U.S.

In its most recent GPE evaluation (Cycle VII), U.S. MARC data showed that today's Angus-sired steers are comparable to Simmental- and Charolais-sired steers in postweaning avg. daily gain, final slaughter wt., and carcass wt. Angus, along with Red Angus, were significantly higher in percentage of carcasses grading Choice than the average of all other breeds (88.8 vs. 61.5%). Fat thickness and numerical yield grades were the highest of all breeds (.58 in. and 3.44, respectively). Percentage of retail product was similar to the other two British breeds and significantly lower than the average of the Continental breeds (59.7% vs. 63.5%). Shear force of rib steaks was similar to Herefords and Red Angus and significantly lower than Continentals (8.9 vs. 9.6 lbs). Sensory tenderness scores were not significantly different from other breeds, except for the Gelbvieh which was the lowest. Of the six endpoints for feed efficiency, Angus-sired steers were the most efficient when fed to a constant marbling endpoint of Low Choice.

The American Angus Association was established in 1883. In 2007-08, the association registered 347,572 cattle, which ranked it first among all by U.S. beef breed associations.

The Australian Lowline



Development in Australia

The Australian Lowline is the result of a large research project initiated in the Trangie Agricultural Research Centre in 1974 with the objective of studying the effects of divergent selection for growth rate. Initially, 85 low growth rate cows were selected from the Trangie Angus herd to establish the “Lowline” herd. These cows were mated to yearling Angus bulls also selected for low growth rate from birth to a year of age. At the same time, a high growth rate line (Highline) and a randomly selected line (Controline) were established.

Since 1974, the Lowline herd has remained completely closed, with all replacement bulls and heifers selected from within the line on the basis of low growth rate. As a consequence, the Lowline cattle are now smaller at all stages of growth, from birth to maturity, than cattle in the other two lines. During the early 1990s, the Trangie Research Centre released Lowline animals into the industry. At a meeting in 1992 of 14 interested persons, the Australian Lowline Cattle Association (ALCA) was established.

The Lowline Today

Like other Angus, the Lowline is black and naturally polled. In mature size, it is only about 60% of the size of normal Angus. As they stand today, they are generally considered to be the smallest of beef cattle breeds. Birth weight of calves averages 45 to 53 lbs. Their growth rate at first is very rapid due to the milking ability of their dams, and they often double their birth weight during the first 6 weeks of life. At 8 months of age, heifers average 240 lbs and bulls 300 lbs. At a year of age, they average about 420 and 510 lbs, respectively. At maturity, cows average about 710 lbs in good condition and stand only 37 to 41 inches tall at the withers. Mature bulls in good condition top out at about 880 lbs and stand between 39 and 43 inches tall.

Lowline females are somewhat unique physiologically. Heifers generally do not cycle until they reach a weight of about 485 lbs, which will occur when they are between 14 and 18 months of age. To low-acreage, part-time hobby farmers, this is often advantageous because the heifers can continue to run with their virile brothers well after weaning without risk of conceiving until they achieve the critical weight. Lowline cattle do not carry the achondroplasia (dwarfism) gene; therefore, there is no risk of genetically generated deformity or abortion.

Lowline beef can be marketed as a premium product known as “Lowline Boutique Beef.”

The British White



Development in England

The British White first became noticed in 1697, when there was a dispersal of these cattle at Whalley Abbey. This herd is considered the origin of the breed and was probably developed by crossing a polled bull from

Cleveland, in northeast England, with “wild” horned white cattle of the area near Whalley. These cattle went to Gisburne and then on to Somerford around 1725. From there, it spread to East Anglia, which was the center of activity for the British White for many years. The oldest existing herd, Woodboastwick, is located there.

Although they are different breeds, the British White and the White Park were kept in the same herd book from 1921 until 1946, when a separate herd book was established for each breed. Originally, two types—polled and horned—were admitted into the British White Society, but since 1948 only polled cattle have been accepted for registration.

Introduction to America

The British White Cattle Association of America (BWCAA) was established in 1988. It joins the British White societies of Great Britain and Australia in promoting the breed. There is much confusion in the United States between the three white breeds—White Park, British White, and American White Park. There are three separate associations, and cattle of the same color are accepted by all the associations. But the White Park is a horned breed, and blood typing has shown it to be very distant in relation to most modern breeds of cattle. In addition, the White Park is larger-framed than the other two white breeds.

The British White Today

The British White was considered a dual-purpose meat/milk breed until 1950. Since then, selection has been for beef production. As the name implies, the color is white with black points. Normally, the muzzle, eyelids, teats, and feet are black. However, a few cattle have all red points, which is acceptable for registration. In weight, mature cows can range from 1,000 to 1,500 lbs, and mature bulls from 1,800 to 2,300 lbs. They are generally smooth polled, although an occasional scur may be found.

The Devon



Development in England

The Devon, sometimes called North Devon, to distinguish it from the South Devon breed, is one of the oldest beef breeds in existence today. Some authorities believe the Devon’s origin is prehistoric, the assumption being that the breed descended directly from *Box longifrons*, a smaller type of aboriginal cattle in Britain. It is considered possible that the red cattle of North Devon may have contributed to the Hereford and other British breeds.

The Devon originated in southwestern England, primarily in the countries of Devon, Somerset, Cornwall, and Dorset. For centuries, herds of red cattle grazed in this cool, moist region. History has recorded that the Romans found red cattle when they occupied this area in 55 B.C. There is some evidence that the seagoing Phoenicians may have taken some ancestral red stock from northern Africa or the Middle East to Southwestern England during their search for tin. Some animal breeders speculate that this might account for the breed’s unusual ability to adapt to hot climates in spite of its centuries of exposure to the damp, chilly hills of England’s coast.

The early improvers of the breed were Francis Quartly and his brothers William and Henry, and John Tanner Davy and his brother William. It is generally agreed that Francis Quartly accomplished for the Devon what the Colling brothers did for the Shorthorn. The Devon herd book was founded by Colonel John Tanner Davy in 1850. In 1884, the Devon Cattle Breeders’ Society was organized and took over the herd book.

Introduction to America

In 1623, the British ship “Charity” brought a consignment of red cattle (one bull and three heifers) from Devonshire to Edward Winslow, the agent for the Plymouth Colony. These Devonshire cattle, brought in by the Pilgrims, were probably the first purebred cattle to reach North America. The Devon was originally a triple-purpose breed, but modern Devons are raised primarily for beef.

The Devon Today

As noted before, the Devon is red in color, varying from a deep rich red to a light red or chestnut color. A bright ruby red color is preferred, which accounts for their nickname, “Red Rubies.” The hair is of medium thickness and is often long and curly during the winter. However, they shed easily and their coats are short and sleek in the summer. Mature cows average about 1100 lb in weight; mature bulls about 1900 lb. Compared to most other beef breeds, they tend to be finer-boned and lighter-muscled.

The Devon was evaluated in Phase 3 of U.S. MARC’s Germ Plasm Evaluation program. Percent of unassisted births (94%) was similar to the other British breeds. Weaning weight (426 lb), along with the Red Poll was the lowest of all breeds evaluated. The same was true for final slaughter weight (1034 lb), which was 118 lb lighter than Hereford x Angus crosses. Marbling score was the lowest of all British breeds. Percent retail product (68.5%) was comparable to other British breeds. Furthermore, reproductive traits did not differ significantly from other British breeds. Weaning weights of their calves (476 lb) were among the lightest of all breeds evaluated.

The Dexter



Development in Ireland

This miniature breed of cattle originated in the south and southeast of Ireland where they were raised by small land holders. Its origin is relatively obscure. There is evidence of its existence as early as 1776. Some people suggest that they derive their name from a “Mr. Dexter,” an agent of Lord Hawarden, who sought to develop a small animal suitable for milk production, and for fattening within the limits of the resources on his property. Others believe the Dexter resulted from crosses between the Kerry and some other breed, perhaps the Devon or possibly a French breed. It has also been proposed that they are the result of a mutation within the Kerry population.

The Dexter flourished in Ireland in the late 1800’s, and a herd book was established in 1887. However, as a result of continual cattle sales to England, the breed nearly disappeared from Ireland by the turn of the century. Shortly after World War I, the Irish herd book was closed.

Introduction to America

The first recorded knowledge of the breed in America is when more than 200 Dexters were imported to the United States between 1905 and 1915. Most of these were purchased by three breeders—one each in Kentucky, New York, and Minnesota. Since 1950, a number of other breeders have imported Dexters from England. In 1982, a Canadian breeder imported several head from England.

The Dexter Today

The Dexter is the smallest of the British breeds, mature cows weighing 650 to 750 lbs, and mature bulls 850 to 1100 lbs. Based upon standards adopted by the American Dexter Cattle Association, the ideal 3-year-old bull weighs less than 1000 lbs and measures 38 to 44 inches in height at the withers. The ideal 3-year-old Dexter cow weighs less than 750 lbs and measures 36 to 42 inches in height. Most Dexters are solid black in color, but some can be reddish-brown and occasionally dun-colored.

The Dexter is considered a dual-purpose meat/milk breed. Average milk yield of recorded Dexter cows in Great Britain is about 5,300 lbs with a butterfat content of 4.2%. The breed can adapt to a variety of climates and is gentle to handle.

The Droughtmaster



Development in Australia

The Droughtmaster was developed in the hot, tropical climate of northern Queensland. Development began in the 1930s with initial crossing of the Shorthorn and Brahman breeds. The objective was to form a breed composed of $\frac{3}{8}$ to $\frac{1}{2}$ Zebu blood with the remainder consisting of European blood, principally Shorthorn. The Zebu portion came from the Red Brahman. A breed society was established in 1956.

Although the Droughtmaster is found primarily in Queensland, it has spread throughout much of Australia. It has also been exported to Africa, Asia, and various islands of Oceania.

The Droughtmaster Today

The Droughtmaster is basically red in color; however, it can vary from a golden color to a deep red. Droughtmasters may be either horned or polled, with the majority of the registered cattle carrying the polled trait. Like most other Brahman-influenced breeds, they exhibit tick tolerance.

The Droughtmaster is a large breed that is medium to slightly late in maturity. The best specimens are thickly muscled, and the carcasses yield a high percentage of lean beef. Mature cows range in weight from 1,400 to 1,600 lbs; mature bulls from 2,000 to 2,400 lbs.

The English Longhorn



provided by Alan Cheese

Development in England

The English Longhorn originated in northwest and central England and Ireland. It was the first breed, in the mid 1700s, that was improved by Robert Bakewell of Leicestershire. Bakewell was a farmer of reasonable wealth who was born in 1726. Prior to the time of Bakewell, farmers practiced the breeding of unrelated animals and avoided the mating of animals that were closely related. Bakewell demonstrated with his Leicester

sheep and his long-horned cattle that animals of close relationship could be mated, and if rigid culling was practiced, desirable traits could thereby be fixed more rapidly than by mating unrelated animals.

Following the development of this “revolutionary” breeding system by Bakewell, Shorthorn breeders as well as breeders of other classes of livestock adopted his methods. He selected the English Longhorn for rapid growth and heavy hindquarters. His selection practices led the Longhorn to become the most widely used breed throughout England and Ireland until it was surpassed by the Shorthorn in the early 1800s. Today, Robert Bakewell is often affectionately referred to as the “Father of Animal Breeding,” although it is said that in his time he was considered very eccentric and lacking in mental stability. This was an example of genius in animal breeding not being appreciated in his day. A breed society and herd book was established in 1878.

Introduction to America

During the latter half of the 19th century, a considerable number of English Longhorns were exported to the United States, but had no appreciable influence on the cattle population. The long-horned cattle of the southwestern U.S. were derived mostly from descendants of Spanish cattle imported into Mexico. These cattle had similarly shaped but much longer horns, and were more rangy and not as well-muscled as the English Longhorn.

The English Longhorn Today

Only a few herds of Longhorn cattle remain in England today. Even in Bakewell’s time, the breed was declining in numbers, and the adoption of Bakewell’s methods by the Shorthorn breeders of his time was a major factor in the near-extinction of the Longhorn. In 1980, the breed was rescued by the Rare Breeds Survival Trust (RBST). The efforts of the RBST resulted in 255 registered English Longhorns.

The Longhorn is used primarily for meat production. Mature cows weigh 1,300 to 1,400 lbs, and mature bulls 2,000 to 2,200 lbs. Frame size is 5.5 to 6.5 on a scale of 1 to 9. Color varies considerably. Red on the sides is most common, but the cattle may be yellowish gray, brindle, or deep mahogany to nearly black. A white, often lightly spotted topline, which can be quite broad over the rump, is always present. Often, there are white markings on the legs, face, and underline. The Longhorn is relatively late-maturing. This trait can be improved by crossing with other British beef breeds.

The Galloway



Development in Scotland

The Galloway breed was developed in the province of Galloway in southwestern Scotland, where the climate is damp and cloudy, the valleys are fertile, but the uplands are very rough. It is believed that Galloway cattle are descendants of wild cattle that were in the region when the Romans first visited Britain. It is said that the Galloway was never crossed with other breeds and is the oldest breed of cattle in Britain.

During the late 1700s and early 1800s, both horned and polled Galloway cattle were prevalent in the region. Breeders preferred the polled trait and started selecting in that direction. The early Galloway cattle were of various colors, but black was the color preferred by breeders.

Introduction to America

The first Galloway cattle in America were shipped to Ontario in 1853 and to Michigan in 1870. These cattle were well adapted to the harsh climate of Canada and the northern U.S. Consequently, the breed spread rapidly throughout the region. However, their popularity declined during the late 1800s and early 1900s and gave way to the increasing popularity of the Angus. It soon became evident that the Galloway lacked the thickness of fleshing and overall beefiness of the Angus.

The Galloway Today

Even though there are only minimal numbers of Galloway cattle today, there continues to be a significant number of dedicated Galloway breeders in America. In addition to the Galloway Cattle Society of America, there is also an association for the registration of Belted Galloways. Both of these strains had their origin in southwestern Scotland.

The Gloucester (Old Gloucestershire)



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Provided by Mrs. Sarah J. New

Development in England

The Gloucester is an ancient breed that was found as early as the 13th century in the Severn Vale of Gloucestershire in southwest England. They were developed as a triple-purpose breed, and were valued for their milk (producing Gloucester cheese), their beef, and for producing docile oxen. Recognized as a distinct breed since the early 1800s, herds of Gloucester cattle flourished in the Cotswalt Hills of Gloucester and in adjoining England counties for some 50 years before they were displaced by Hereford, Shorthorn, and Friesian cattle.

After World War I, most Gloucester cattle were concentrated in two major herds. One herd, the Bathurst, was bred for beef with Shorthorn, Friesian, and possibly Welsh Black blood, introduced to prevent tight inbreeding. The other herd, Wick Court, was bred primarily for milk with Jersey blood introduced. The herds were dispersed in 1966 and 1972, respectively; the breed society had already been disbanded in 1945. Efforts to preserve the breed began with the establishment of a new breed society in 1972, and the establishment of a Gloucester sperm bank by the Rare Breeds Survival Trust. By 1979, there were 86 animals in 20 herds, and currently there are over 700 registered Gloucester females.

The Gloucester Today

Today, the Gloucester is a dual-purpose milk/meat breed. Under appropriate management, cows produce 6,500 to 7,000 lbs of milk per lactation. Under intensive management systems, calves can be finished for harvest by 2 years of age. The Gloucester is not a large breed; mature cows weigh an average of about 1,100 lbs, mature bulls about 1,650 lbs. In color, they are blackish brown with black head and legs, a white stripe down the back, and a white underline.

The Hereford



provided by Dr. Robert Kropp

Development in England

The Hereford originated in the county of Hereford which is located in southwestern England. Herefordshire was not as fertile as the Tees River Valley where the Shorthorn originated. Consequently, Herefordshire farmers depended more on forage and less on roots and harvested crops for the production of market beef. The heavy dependence upon forage may have better adapted the Hereford to its eventual use on the rangelands of North America.

The early native cattle of Herefordshire were valuable primarily as draft animals. Size and strength were, therefore, the two traits of greatest value. The beef that was consumed came from aged steers and cows that were approaching the end of their usefulness. Therefore, these early Hereford cattle were dual-purpose draft/meat animals as opposed to the dual-purpose meat/milk animals that characterized the early English Shorthorn cattle. The original local cattle of Herefordshire were mostly solid red. The white markings of the Hereford breed seem to have resulted from an infusion of Flemish, Welsh, and possibly Teeswater breeding. The early Herefords were both white-faced and brockle-faced. In the early 1800s, a feud developed between the advocate of these two color features. After a lapse of many years, the adherents of the white-faced feature won out.

Benjamin Tomkins was the first breeder to improve the cattle of Herefordshire and is generally regarded as the founder of the breed, but his son Benjamin Tomkins, Jr. made the most significant improvements. The elder Tomkins began breeding cattle in 1742. He put strong selection pressure on the two traits that he considered most important—a hardy constitution and a propensity to put on flesh at an early age. The son started breeding cattle in 1769 and put even greater selection pressure on early maturity than his father. Extreme size was sacrificed in his cattle to gain some refinement. He succeeded in establishing an earlier maturing type that was shorter-legged, more refined in the bone, and had superior fleshing qualities. Both Tomkins used linebreeding to fix the type of cattle they desired. The Tomkins herd was dispersed at auction in 1819 for an average of \$745, which was considered high at the time.

Improvement and Expansion

William Hewer, born in 1757, and his son John, born in 1787, were the breeders who fixed the color pattern of present-day Hereford cattle. They also improved the quality and conformation of the cattle. They practiced close inbreeding to secure the color and type they desired.

Thomas Jeffries supplied some of the first Hereford cattle that came to the U.S. However, the herd of T.J. Carwardine contributed more directly to modern American Herefords than any other English herd. Carwardine purchased the bull Lord Wilton, that was calved in 1873, from another early breeder, William Tudge. This bull was an outstanding sire that gave the breed some needed refinement. During his time, Lord Wilton was the most popular bull of the breed in both England and the U.S., and many of his best sons were imported by American breeders. Carwardine also bred the great young breeding bull, Anxiety, who was used in the herd until he was exported to America as a 2-year-old in 1879. He was reported to have developed into the thickest, smoothest bull of any breed that had been seen in the U.S. Three of Anxiety's best sons were also sent to the U.S. Included among them was the most influential bull in American Hereford history, Anxiety 4th, imported in 1881. He was said to be the thickest hindquartered Hereford bull that could be found in England by his purchaser, the firm of Gudgell and Simpson, Independence, Missouri.

During the expansion of the Hereford breed in England, there was a trend to reduce their extreme size and to improve conformation. At the first Royal Show in 1839, the Grand Champion Hereford bull, Cotmore, weighed a phenomenal 3920 lbs. By 1889, fifty years later, weight of the Grand Champion bull had been reduced to 2,600 lbs. This change in type was first evident in the 1863 Royal Show, where there was notable downsizing of the winners. It picked up steam at the 1868 Royal Show, where quality and conformation clearly took precedence over size and scale. In fact, many classes were won by the smallest individual in the class. From thenceforth, quality rather than scale was the first consideration of English Hereford breeders.

Establishment in America

The first Herefords imported into the U.S. consisted of a bull and two heifers brought over in 1817 by the distinguished statesman, Henry Clay, who put them on his farm at Ashland, Kentucky. Clay used these cattle primarily for crossing on his Shorthorn herd. In 1839 and 1840, twenty-one females and a bull were exported to New York. A large wave of importations took place from 1848 to 1886 by 83 different breeders. During this period a total of 3,073 English Herefords were recorded in the American Hereford Herd Book. Most of these cattle were brought into the central states but some were sent to western range country.

Shorthorn bulls preceded Herefords to range country, when large numbers of them were sent in the early 1860s. This was prior to the importation of the Scotch Shorthorn and these bulls were of Bates dual-purpose breeding and consequently lacked the thickness and beefiness needed by western ranchers to improve their native Longhorn cows. Hereford bulls were first sent to range country in the early 1870s and made a very favorable impression on ranchers. A severe winter hit the western ranges in 1881, and an even more disastrous winter struck in 1886-87. Thousands of range cattle died during these winters. By far the greatest losses occurred among the Shorthorns, whereas the Herefords came through in surprisingly good shape. This secured the role of the Hereford as the breed of choice in range country.

Pedigree fads have occurred in nearly all breeds of cattle, and the Hereford was no exception. Following the dispersal of the famous Gudgell and Simpson herd in 1916, there was a craze for cattle of straight Gudgell and Simpson breeding, generally referred to as “airtight” breeding. Many airtight cattle sold at exorbitantly high prices. Some of these cattle were of inferior quality, and served to detract from the reputation of Gudgell and Simpson breeding.

From the 1890s on, the popularity of Hereford cattle spread rapidly throughout the U.S. and Canada. By 1930, Hereford registrations surpassed those of the Shorthorn breed to become the most numerous beef breed in the U.S. until they were surpassed by Angus in the 1970s.

The Hereford Today

At one time, polled cattle were registered in an association separate and apart from the American Hereford Association (AHA). Today, both polled and horned Herefords are registered by the AHA.

The Hereford is one of the 27 breeds evaluated in U.S. MARC’s Germ Plasm Evaluation (GPE) program. It has been included in each of the seven GPE cycles dating from 1970 to 2000. The data reviewed here is taken from the most recent cycle (Cycle VII) which included calf crops born in 1999 and 2000. These British breeds (Hereford, Angus, and Red Angus) and four Continental breeds (Simmental, Gelbvieh, Limousin, and Charolais) were evaluated in Cycle VII.

Hereford-sired calves had significantly higher average birth weights (90.4 vs. 84.2 lbs) than those sired by Angus and Red Angus bulls. Weaning weights were similar for the three British sire groups, but were significantly lighter than the Continental sire groups except for Limousin. Final slaughter and carcass weights were significantly lighter for Hereford-sired than for Angus- and Simmental-sired steers, but did not differ from other breed crosses. Percentage of carcasses grading Choice was significantly lower than the average of Angus and Red Angus (65.4 vs. 88.8%), but similar to the Continental breeds. Yield grade was numerically lower than the average of Angus and Red Angus (3.19 vs. 3.44), but significantly higher than that of the Continental breeds. Retail product percentage was significantly higher for all Continental-crosses than for the three British crosses, including Hereford (63.5 vs. 59.7%). A trait in which the Hereford breed clearly stood out was feed efficiency (live wt. gain per unit metabolizable energy consumed, lb/Mcal). This trait was evaluated at six different slaughter endpoints. Out of the seven breeds in Cycle VII, Herefords ranked first if fed to four of the six endpoints—time, weight, fat thickness, and fat trim percentage.

The American Hereford Association was established in 1881. In 2007-08, the association registered 69,344 cattle, which ranked third behind Angus and Charolais. About 50% were polled.

The Kerry



Development in Ireland

Kerry cattle are believed to be the descendants of ancient Celtic cattle, brought to Ireland as long ago as 2000 B.C. Up to the 19th century, they were the only breed in Ireland, but many subsequent importations and crosses have been made. Nevertheless, the Kerry has resisted all these changes, and some can still be found grazing in the marginal hill pastures of southwestern Ireland.

As breed classification became fashionable among cattle raisers, a distinction was made between the very small Dexter and the larger Kerry. Both were black in color, and for a short period of time both types were registered in the same herd book. The Kerry became the most prevalent breed in western Ireland by the mid-1800s. But when the Dairy Shorthorn from England began to enter Ireland in the mid-1800s, both the Kerry and the Dexter suffered from Irish Farmers' use of the Dairy Shorthorn in the crossing and breeding-out process. The breed declined during the 20th century to the point that by 1974 the total Kerry herd was estimated at only 5,000 head. And by 1983, the world population of registered Kerries had fallen to around 200 head. Since then, the Irish government has taken steps to support the breed's continuance.

Introduction to America

Kerry cattle were imported to the United States beginning in 1818. The breed prospered through the remainder of the 1800's and into the early years of the 20th century. However, by the 1930's, it had practically disappeared from North America. Today there are only a few Kerries in the United States and only a few herds, based on recent imports, in Canada.

The Kerry Today

The Kerry is predominantly black in color on the body, but has a lighter stripe along the spine. It is quite fine-boned in its skeletal make-up. Although larger than the Dexter, it is nevertheless relatively small in size. Mature cows weigh from 775 to 1,000 lbs and average about 48 in. in height. Mature bulls weigh from 1,200 to 1,300 lbs.

The Kerry can be classified as a dual-purpose milk/meat breed, but tends to be used primarily for dairy purposes. Milk production averages 7,000 to 8,000 lbs, but can occasionally exceed 10,000 lbs. Butterfat content averages about 4.0%. A notable feature of the Kerry is its hardiness and longevity. Many cows produce up to 12 years of age, while old dams of 20 are not exceptional.

The Lincoln Red



Development in England

This breed was developed in Lincolnshire and surrounding areas. The original cattle in their early unimproved state were noted for their large size. It was not until the late 18th and early 19th centuries that improvement efforts began. Three bulls were taken to Lincolnshire from Charles Collings' Shorthorn sale in 1810. This was later followed by the introduction of other Shorthorn breeding stock. These animals, crossed with the local cattle, established the Lincoln Red breed.

Introduction to America

Lincoln Red cattle were imported to Canada direct from England in 1966, with the Shaver Beef Breeding Farms the principal sponsors of the breed. This company was active in the introduction of other European breeds as well as the Lincoln Red.

The Lincoln Red Today

Originally, the Lincoln Red was developed as a dual-purpose breed, and remained so until the early 1960's. Today, it is considered a beef breed. Selection has been for a solid deep red color and a relatively large frame compared to the Beef Shorthorn. A polled strain was developed by the incorporation of Angus blood in a few English herds. Mature Lincoln Red cows weight about 1,400 lbs and mature bulls from 1,800 to 2,200 lbs.

The first Lincoln Red Shorthorn herd book was published in 1896. In 1925, the breed was amalgamated with the Shorthorn Society, then separated as the Lincoln Red Shorthorn Society in 1941. In 1960, the breed became recognized officially as the Lincoln Red and the word "Shorthorn" was dropped.

The Canadian Lincoln Red Association was organized in 1969 and incorporated under the Livestock Pedigree Act, whereby it is affiliated with the National Livestock Record.

The Luing



Development in Scotland

The Luing (pronounced "Ling") is a relatively recent breed that was developed on the island of Luing, which lies off the west coast of Scotland. In 1947, a selected group of first-cross Shorthorn x Highland heifers were mated to a Shorthorn bull. It was the progeny of this mating that served as the foundation on which the breed was built. In 1965, the Ministry of Agriculture officially recognized the Luing as a distinct beef breed and a herd book was established.

The Luing Today

Selection in the breed has been for beef-type conformation and rate of gain. The Luing is a hardy breed, as the cattle are raised in the open year-round. Color was disregarded in the process of development, and is quite variable: red to white, yellow, roan, or brindle. Body conformation, however is uniform. Seventh generation offspring were breeding in 1967, and it was evident by that time that a true type had been established. The Luing is a relatively short-legged, low-set animal. Frame score is about 4.5 on a scale of 1 to 9. Mature bulls average about 2,200 lbs in weight. In overall conformation, the Luing resembles the British Shorthorn.

The Mandalong Special



Development in Australia

Development of the Mandalong Special began at Mandalong Park, near Sydney, South Wales, in the mid-1960s. Five breeds were used in the development: Charolais, Chianina, Polled Shorthorn, British White, and Brahman. After four generations of breeding, the Mandalong special was stabilized with a content of 58.33% Continental, 25% British, and 16.67% Brahman bloodlines.

The Mandalong Special Today

The Mandalong Special is a hardy animal that is well adapted to the environment in which it was developed. Calves are small at birth, resulting in easy calving. In spite of its low birth weight, the Mandalong Special has a high rate of growth. It fattens easily on grass, with an ability to produce a well-muscled, high-quality carcass with an evenly distributed fat cover. The Mandalong Special is a relatively large breed. It varies in color from light cream to dun.

The Murray Grey



Development in Australia

The Murray Grey originated in southern New South Wales during the early 1900s. The name of the breed comes from its color and its site of origin along the Murray River, which serves as the boundary between the states of New South Wales and Victoria. In 1905, a light roan, nearly white Shorthorn cow on the Thologolony property of Peter Sutherland dropped a grey calf sired by an Angus bull. By 1917, the cow had produced a total of 12 grey calves sired by various Angus bulls. When her husband died in 1929, Mrs. Sutherland sold the herd of Greys to her cousin Helen Sutherland who started a systematic breeding program with eight cows and four bulls.

In the early 1940s, Mervyn Gadd started a second Murray Grey herd, using a grey bull from the Sutherlands and breeding up from Angus cows. Gadd was convinced that the Murray Greys were more efficient weight gainers, but it wasn't until about 1957 that a demand for them developed. Butchers paid a premium for the Greys because of their high cutability and less wastage. In 1962, 50 breeders joined together to form the Murray Grey Beef Cattle Society of Australia. In 1979, the Society absorbed the Tasmanian Grey breed, which had originated from crossing a white Shorthorn cow with an Angus bull at Parknook in 1938.

Introduction to America

In 1969, three different importers brought Murray Grey semen to the United States. In 1972, a yearling heifer and bull calf were imported to the United States. Another twenty-eight bulls and nine heifers were imported

from Australia by way of New Zealand. By 1976, the American Murray Grey Association reported that 83 bulls in the United States were listed as foundation sires, and their semen was available for distribution. In addition, 20 females were listed as purebreds. Because the total number of Murray Greys was relatively small, expansion in the breed has been largely through the grading up process.

The Murray Grey Today

The Murray Greys started winning carcass competitions in the early 1970s, and have continued to dominate the carcass classes at the Royal Shows in Australia. Murray carcasses can be said to be an ideal combination of muscle, fat trim, and marbling.

The Murray Grey is similar to the Australian Angus, but tends to be smaller-framed, finer-boned, and thicker-fleshed than the Angus. Mature cows weigh from 1,100 to 1,500 lbs, and bulls from 1,725 to 1,900 lbs. The calves of the breed are small at birth, and the cows milk well. Their survival and reproductive rate has been very satisfactory under a wide range of climatic conditions. The grey hair color plays an important role in reflecting heat. The skin color should be heavily pigmented or dark-colored as this helps prevent certain eye and skin problems, such as cancer eye and sunburned udders.

The Red Angus



Establishing the Red Angus Association

The American Angus Association does not register Red Angus cattle. This prompted a group of eleven breeders, who desired to perpetuate Red Angus as a recognized useful breed, to establish the Red Angus Association of America in 1954 in Fort Worth, Texas. These eleven people believed that performance is of utmost importance, and they decided to require weaning weights for registration in this new association. Seedstock selection at that time was based largely on show ring type standards that had little relationship to practical beef production. The preferred type of beef animal in the early 1950s consisted of one that was extreme in every respect: short-bodied, short-legged, short-headed, deep-bodied, very early-maturing, and extremely fat. The show ring winners typically had frame scores of 1 to 3 on a 10-point scale. Cattle that frame scored over 3 were considered too large. Most of the cattle competing in the major shows had been reared on nurse cows. This new association would not register a calf raised on a nurse cow unless the calf lost its dam.

The Red Angus Today

Perhaps the best way to understand the Red Angus breed today is to examine the Association's Core Policies. Following are these policies as presented in its Strategic Plan for 2003-2008.

- “The policy of the Red Angus Association of America (RAAA) is to discourage the more artificial practices in purebred cattle production and to place its faith instead in objective tests, consisting for the most part of comparisons within herds of factors of known economic importance and known heritability. By making this an integral part of the registration system, Red Angus breeders feel that even faster progress can be made toward the ultimate goal of more efficient beef production.”
- “The standing policy of the RAAA is that when the science exists to make a genetic prediction more precise and reliable, the science is implemented.”
- “The RAAA has a long standing policy supporting planned crossbreeding and the use of heterosis.”

- “The role of the Association is to objectively describe reproduction, growth, maintenance, and carcass traits utilizing the fewest EPDs possible to achieve this purpose. The concept of Economically Relevant Traits guides this process.”
- “The RAAA actively seeks out and implements new technologies that are based on sound scientific principles.”
- “The American Red Angus magazine is sent to all bull customers, so in general, the editorial content of the magazine has a commercial and technical focus; i.e., typical breed journal articles such as member profiles are avoided.”
- “The Association’s general role in assisting marketing of the membership’s cattle is to have the best objectively described cattle in the industry and to provide the best service to our members’ customers (commercial producers). Although, RAAA promotes overall demand for the breed through activities such as national advertising, the Association does not take a role in the marketing of an individual member’s cattle.”

With respect to physical traits, there is essentially no significant difference today between Red Angus and black Angus cattle. The only obvious difference is coat color. The color of Red Angus is an asset in extremely hot climates because it absorbs less heat than the darker coat of black Angus. It is worth noting that over time, since the breed was founded in the early 1950s, there have been fewer ups and downs in body type in Red Angus than in the blacks. This is likely due to the fact that objectively measured performance traits (growth, maternal, carcass, etc.) took precedence over subjective visually appraised physical traits. Red Angus did not participate in the compact/compact trend during the early ‘50s, nor did it get deeply engaged in the great “frame race” of the 1970s and ‘80s, when size of frame was a major factor in selection of seedstock.

U.S. MARC data from Cycle VII of the Germ Plasm Evaluation program showed that there were essentially no differences between the Red Angus and Angus breeds for any economically relevant traits.

For a breed that has been in existence for a relatively short period of time, the growth of the Red Angus is impressive. In 2007-08, the Association registered 47,064 cattle, which ranked it fifth among all beef breed associations, exceeded only by Angus, Charolais, Hereford, and Simmental.

The Red Poll



Development in England

At the end of the 18th century, there were two breeds of cattle in the East Anglia region of England, the Norfolk and the Suffolk which resided in the counties from which they derived their names. Both breeds were relatively small and fine-boned compared to other breeds at that time, and both were developed as dual-purpose meat/milk breeds. However, the Norfolk tended to be beefier in type, whereas the Suffolk tended to be heavier-milking. Shortly after 1800, John Reeves of Norfolk country purchased a bull in Suffolk and began crossing the two breeds. By 1846, the two breeds had essentially merged into one and were referred to as the “Improved Norfolk and Suffolk Red Polled Breed” until 1863, when the words “Improved Norfolk and Suffolk” were dropped from the title. The breed is now referred to as Red Poll.

Introduction to America

The first Red Poll cattle were imported in 1873 by G.F. Taber of New York State. In 1882, he imported more Red Polls. Other breeders imported cattle up until 1902. After then, practically no more Red Polls were brought over. The breed was established in the U.S. on total of about 300 head that were imported from England. The breed spread from the U.S. into Canada and enjoyed a steady increase in popularity during the first half of the 20th century. Since then, the cattle industry has become virtually completely specialized into dairy and beef type cattle. Consequently, dual-purpose cattle are currently in low use in North America.

The Red Poll Today

Today, the Red Poll has evolved into a viable beef breed in North America. Red Poll breeders have done an admirable job of increasing growth rate, thickness, muscling, and overall stoutness of their cattle. However, the three major British breeds (Angus, Hereford, and Shorthorn) still excel them in these traits. Carcass traits of the Red Poll are comparable to those of the other British breeds. Data from the Germ Plasm Evaluation (GPE) program at the U.S. Meat Animal Research Center revealed that calves sired by Red Poll bulls had the highest percentage of unassisted births (99.9%) among all 27 breeds evaluated. Their survival rate to weaning (95.7%) was the second highest among all breeds evaluated.

The Scotch (West) Highland



Development in Scotland

The West or Scotch Highland originated in the highlands of northwestern Scotland and on the Hebrides Islands. Like the Galloway, it descended from the wild cattle that inhabited the West Highland region. The particular area where the Scotch Highland originated is extremely rough and mountainous and adverse in its climate. By necessity, therefore, the breed had to adapt to its challenging environment in order to survive and thrive. Scotch Highland cattle are very unique in their appearance. They are relatively small in size with long, shaggy hair coats and widespread horns. Their heavy hair coats adapt them well to the harsh environment of the western highlands. They can be found in numerous hair colors: black, brown, red, brindle, white, and silver. Brown seems to be the most prevalent color.

Introduction to America

The first importations of Highland cattle to the U.S. and Canada were made in 1893. Since then, a number of other shipments have been made in order to broaden the genetic base of the breed. They have proven to be very hardy in the harsher environments of northern U.S. and Canada. However, they lack the growth rate and thickness of fleshing demanded by most North American cattle producers.

The Scotch Highland Today

There are relatively small numbers of Scotch Highland cattle in North America compared to the predominant British breeds. In recent years, however, there has been a renewed interest in the breed, and there is now a sizeable group of devoted breeders who are dedicated to breed expansion and improvement. Highland herds can now be found in virtually every state in the northern half of the U.S. and in every Canadian province.

The Shorthorn



Development in England

The Shorthorn breed was developed from old cattle stocks in the northeast of England in the counties of Durham, York, and the Northumberland. Before the breed was established, the animals were often referred to as Durham, or Teeswater cattle, the latter referring to the Tees River which formed the boundary between Durham county on the north and York county on the south. The Colling Brothers, Charles and Robert, who farmed in Durham county, are often referred to as the founders of the Shorthorn breed. In 1783, they visited Robert Bakewell and made a study of his breeding methods. In 1784, Charles Colling visited the Darlington market in Durham county and purchased the cow Duchess. She was described as being much lower set and easier-fleshing than most cattle of her day. Duchess became famous for the foundation of a family by that name. About that same time, Robert Colling purchased the bull Hubbach, who was used for 2 years and then sold. Hubbach sired some outstanding progeny but was not fully appreciated because of his lack of size for that period.

The bull Favorite, bred by Charles Colling, developed into the greatest sire of his day. For many years, the bull was used indiscriminately upon his own offspring and often mated back to his daughters through the second and third generations and in some cases into the fourth, fifth, and sixth generations. In 1804, Favorite sired the bull Comet, which was the result of intense inbreeding. Charles Colling considered Comet to be the best bull he had ever bred, and when his herd was dispersed in 1810, Comet sold for the then unheard-of price of \$5,000. The Colling brothers attempted to produce more moderately-sized cattle instead of the extremely large animals which captured the fancy of other breeders. They encouraged earlier maturity and better carcass conformation, and their stock, although considered patchy by modern standards, were relatively smooth fleshed.

The Colling brothers were also good salesmen who believed in advertising their cattle. The second calf sired by Favorite was steered and became known as the “Durham Ox.” He was fitted for public exhibition and was reported to weight 3,400 lbs. In those days, the cattle were exhibited but were not shown competitively as our cattle are today. Favorite also sired a free-martin heifer that became famous by the name “The White Heifer that Traveled.” This non-breeder attained a weight of 2,300 lbs. These two animals were toured throughout the country in somewhat of a side show exhibition. The publicity that was accorded to them did much to advertise the new breed of Shorthorn cattle that was just being formally founded. It is known that some Galloway breeding was infused into the Charles Colling herd and some cattle carried this blood when the herd was dispersed.

Thomas Booth and his sons in York county were the next important improvers of Shorthorn cattle. Starting in 1790, they purchased Colling-bred bulls and mated them to rather large females from other herds. The bulls he purchased were much more refined than the cows to which they were mated. Most early Shorthorn breeders selected for dual-purpose meat/milk cattle. However, Booth placed great emphasis on fleshing qualities, and valued beef almost to the exclusion of milk. After establishing the type of cattle he desired, Booth practiced inbreeding with considerable success.

The other influential breeder in the early years of breed development was Thomas Bates of Northumberland county. He established his herd largely on the breeding of the Colling brothers and purchased his first cattle from them in 1800. In 1804, he purchased the cow Duchess, a tightly inbred descendant of Favorite. At the Charles Colling dispersal in 1810, he purchased Duchess 3rd, sired by Comet and a granddaughter of his original

Duchess cow. These two females became founders of the famous Duchess family. So convinced was Bates of the value of this particular line that he launched a program of intense inbreeding. Unfortunately, the Duchess females were extremely low in fertility and by 1831 the family had produced only 32 cows in 22 years. Bates selected for heavy milking qualities in his herd, and the current Milking Shorthorns are largely descendents of his breeding. Thomas Bates died in 1849, and his herd was dispersed in 1850 by his nephew.

Improvement in Scotland

By the early 1800s, Shorthorn cattle were already prevalent in southern Scotland. However, they had not yet been introduced to the northern regions, where the environment was harsher and the land much more rugged and less productive. Much of the Scottish improvement of the breed was a result of the efforts of Amos Cruickshank in Aberdeen County in northeastern Scotland. Being a typically frugal Scotsman, Cruickshank bred practical cattle that could subsist on high forage diets that included straw and other coarse roughages. He had little use for aesthetic beauty or fashionable pedigrees. Cruickshank bred Shorthorn cattle from 1835 until his death in 1895.

Cruickshank selected for cattle that were shorter-legged, earlier maturing, easier-fleshing, wider-topped, and deeper-middled. He did not select for the dual-purpose type, but like Thomas Booth, bred strictly for beef type cattle. In 1860, the outstanding breeding bull, Champion of England, was born. His progeny were blocky, low set to the ground, and exceptionally easy feeding. Cruickshank fixed this type by concentrating the blood of Champion of England in his herd through tight inbreeding. Many other breeders adopted Cruickshank's breeding program by producing cattle of the Scotch Shorthorn type. Consequently, he was viewed as somewhat of a "saviour" of the Shorthorn breed.

Establishment in America

From 1820 to 1850, many Shorthorn cattle were imported into the eastern and central United States. Most of these early cattle were of the dual-purpose type and came from the Thomas Bates herd. Americans were familiar with Bates' success with the Duchess family. Therefore, cattle that were of straight Duchess breeding were highly valued regardless of their individual merit. Out of this emerged the "Bates-bred boom" in the U.S. The craze for Bates-bred cattle was fueled by a sale in New York in 1873, when a Duchess female sold for a world record price of \$40,600 and eleven Duchess females brought a staggering average of \$21,709.

High prices for fashionably bred Shorthorn cattle continued until 1878, when the first American Fat Stock Show was held in Chicago. This gave cattlemen an opportunity to compare the merits of several breeds. When the highly promoted Shorthorns were exhibited alongside the newly introduced breeds, the Hereford and Aberdeen-Angus, the comparison proved to be very unfavorable, because many of the Shorthorns were narrow-made thinly fleshed cattle that had little individual merit to support their highly touted pedigrees. This resulted in a severe collapse in Shorthorn prices throughout the U.S.

The breed began to regain its popularity when the first Scotch Shorthorns were imported during the 1880s and 1890s. It was revealed that the Scotch-bred cattle could perform on western grass as well as in the feedlot. Scotch cattle gradually replaced the English-bred Shorthorns throughout the U.S. This served to cement the future of the Shorthorn breed in America.

The Shorthorn Today

Both horned and polled Shorthorns are registered by the American Shorthorn Association. Today's Shorthorn is a considerably improved breed over its ancestors. This was demonstrated in U.S. MARC's Germ Plasm Evaluation (GPE) program. The Shorthorn was one of 26 breeds evaluated in the first four cycles of the GPE, which lasted from 1970 to 1990. The program consisted of mating 26 breeds of sires to Angus, Hereford, or Angus-Hereford cross cows to produce F₁ calves. The sire breeds consisted of seven British, eleven Continental, five *Bos indicus*, two dairy, and the American Longhorn breed.

Weaning, final slaughter, and carcass weights of Shorthorn-sired steers were similar to Hereford-Angus steers, similar to many of the Continental-sired steers, and heavier than several other Continentals. Marbling scores and percentage of carcasses grading Choice were the highest of all 26 breeds. Fat thickness, ribeye area, fat trim, and percent retail product were comparable to Hereford-Angus crosses.

Age at puberty did not differ from other British crosses, but pregnancy rate was somewhat higher for Shorthorn-sired heifers than for Hereford-Angus heifers (89.0 vs. 80.1%). Shorthorn-sired mature cows produced calves with heavier birth weights than other British-cross cows, but did not differ in percentage of assisted births. Calves out of Shorthorn-sired cows had heavier weaning weights than all other British-cross cows, and were comparable to weaning weights of calves out of Continental-cross cows.

The American Shorthorn Association was established in 1882. In 2007-08, the association registered 19,700 cattle.

The South Devon



Development in England

The South Devon originated in southwest England in the counties of Devon and Cornwall, where it has been a distinct breed since the 16th century. It is the largest-framed of the British breeds and is not related to the Devon, which also originated in southwest England. The South Devon was developed as a dual-purpose meat/milk breed, whereas the Devon is strictly a beef breed.

The South Devon Herd book Society was formed in 1891, but interest in the breed was stimulated when the Ministry of Food agreed that the milk of this breed should be sold separately as South Devon milk and at a premium price. Average milk production in a 305-day lactation is about 6,550 lb, with a butterfat percentage of 4.2%.

Hair color is a rich medium red or yellowish red. It is medium thick and long, with a tendency to curl. The average weight of mature cows is about 1,450 lb, while mature bulls weigh as much as 2700 lb. South Devons are available as both horned and polled. Some blacks are also available.

Introduction to America

The first South Devon cattle were brought to the U.S. in 1969. In 1974, the North American South Devon was formed for the purpose of development, registration, and promotion of the breed.

The South Devon Today

The South Devon shares a common blood factor with the Zebu, and this relationship may account for its ability to withstand the climates of the tropical countries to which they have been exported. The breed is now well established on five different continents.

The South Devon was evaluated in Cycle 1 of U.S. MARC's Germ Plasm Evaluation program. Birth weight, percent of unassisted births, and survival rate to weaning of South Devon crossbred calves did not differ from Hereford x Angus calves. However, weaning weight, postweaning avg. daily gain, and final slaughter weight were all lower than Hereford x Angus steers. Percent of South Devon carcasses grading USDA Choice (72.6%)

was the highest of all beef breeds, except for Shorthorn (74.7%). South Devon-sired carcasses were slightly lower in backfat and higher in percent retail product than Hereford x Angus carcasses.

Age at puberty of South Devon-sired heifers was among the youngest (352 days) of the 26 breeds evaluated in Cycles 1-4. Percent of unassisted calvings (85%) and weaning weights (492 lb) of calves from South Devon-sired cows were comparable to Hereford x Angus cows.

In summary, the South Devon is unique in its combination of providing a relatively lean carcass together with a high degree of marbling.

The Sussex



Development in England

The Sussex breed was developed in the countries of Sussex and Kent in southeastern England. During the first part of the 19th century, the farmers of Sussex started to select a beef type of animal from the red cattle they had been using for draft purposes. By 1840, Sussex cattle were well known in the region as useful beef animals. The Sussex was never used as a milk animal. In 1874, the herd book was established, and in 1879 the first edition was published. A polled section was added in 1979.

Introduction to America

Sussex cattle were introduced to the United States in 1884 on the farm of Overton Lea in Tennessee. Descendants of the Lea herd found their way to Texas. In the early 1890s, these cattle were used as a nucleus to establish a small purebred herd on the ranch of T.D. Wood in south Texas. Later, during the period of a drought, the Wood cattle were sold back to a breeder in Tennessee. Small herds of Sussex cattle were known to exist during the first decade of the twentieth century in Tennessee, Oklahoma, Indiana, and Texas, but they eventually disappeared. It is estimated that there are currently no more than 200 head of purebred Sussex cattle in the United States.

In 1947, there was a small importation of Sussex cattle to south Texas. Then, over the period of 8 years, a grandson of T.D. Wood imported a total of 44 females and 14 bulls to the state. In 1971, there were four Sussex breeders in south Texas. They were largely producing purebred Sussex bulls to be crossed on Brahman cows. This cross resulted in the establishment of a new breed called the “Sabre,” which was developed on the Lambert ranch in Refugio, Texas. The Sabre is composed of $\frac{7}{8}$ Sussex and $\frac{1}{8}$ Brahman.

The Sussex Cattle Association of America was established in 1966 in Refugio, Texas.

The Sussex Today

The hair coat of the Sussex is a solid medium red that becomes curly in the winter. Only the tail switch is white. In body type, the Sussex is quite thick and beefy. In England, mature cows weigh 1,300 to 1,500 lbs; mature bulls 2000 lbs or more. In South Texas, the Sussex is somewhat smaller than its English counterpart. Although the Sussex is a strongly horned breed, a polled strain, based on the progeny of a Red Angus bull has been developed in England. They can be registered if they are 15/16 Sussex. Some of the Sussex cattle in the United States also carry the polled gene.

It is interesting to note that the Sussex has been exported to southern Africa and other tropical regions of the world because the breed adapts well to hot climates and resists the tick-borne disease.

The Welsh Black



Development in Wales

Prior to the days of modern transportation, Wales was relatively isolated from England, and there was little communication even between North and South Wales. A distinct type of horned black cattle was developed that is reported to trace back to the stock which the ancient Britons took with them as they were forced back into the mountains by the invading Saxons.

Originally, there were two strains of Welsh Blacks, both of which were dual-purpose meat/milk cattle. The cattle raised in North Wales were a small compact type, whereas those in South Wales were of a much larger, rangier type. A herd book for each was established in 1883. The difference in type was partially due to the difference in nutritional level between the two regions. The successful intermingling of the two types over a period of about 90 years resulted in an optimum-sized animal that is now raised only for beef. Welsh Blacks can be found throughout the U.K.

Introduction to North America

Welsh Blacks were imported to North America in the late 1960's and early 1970's. The greatest concentration of Welsh Blacks is in the province of Alberta.

The Welsh Black Today

The majority of Welsh Black cattle are horned and black. They vary in color from rusty black to jet black. Some white is permitted on the underline if it is back of the navel. The breed carries a low incidence of the recessive red gene. Consequently, some cattle in the breed are red in color. There are also naturally polled Welsh Blacks available in increasing numbers in both blacks and reds.

The winter haircoat of the Welsh Black is quite long and shaggy, which aids in its adaptability to the wet, cold climate and the rough mountains and hill country of Wales. The Welsh Black is a moderate-sized breed, with mature cows averaging about 1100 lbs. Like other British breeds, the Welsh Black is not as heavily muscled as most Continental breeds of cattle. It is a relatively late-maturing breed that is slower to fatten than the Angus, Hereford, or Shorthorn. However, they are an extremely long-lived breed, and many are at their best when 10 to 14 years old.

The White Park



Provided by Baylham House

Development in the British Isles

White cattle with colored points are first mentioned in old Irish writings dating back nearly 2,000 years. They are later found again in Welsh law which was set down at Dynevwr Castle by a series of rulers from 856 to 1197 AD. The current Dynevwr herd dates back to that period. Three other herds, the Chartley and Chillingham herds in England and the Cadzow herd in Scotland, date to the mid-1200s.

Writers of the time differed as to the origin of these cattle. Some contend they were imported to England while others believed they were direct descendants of the Wild White Bull that roamed the forests which once covered the British Isles. If they were imported, there are those who believe they were brought in by the Norsemen when they invaded Britain, whereas others believe they are descendants of cattle brought to England by the Romans during their period of occupation.

In the early 1800s, there were more than a dozen White Park herds, but most of them were gone by 1900. Only six herds are remaining today. Of these, the best known is the Chillingham herd.

Introduction to North America

In the late 1930s, one or two pairs of White Park cattle were imported to Canada. Their offspring eventually found their way to the Bronx Zoo. However, the Zoo determined they did not have the facilities needed to house the wild cattle over the long term. A deal was made with the King Ranch, who took four of the animals to Texas where they remained for nearly 40 years. Since then, remnants of the herd have changed hands several times.

In the 1970's, White Park cattle were imported to Canada and the U.S., and semen from the Dynevwr herd was imported as well. In 1995, there were only five herds across North America. In addition to the U.S. and Canada, a few White Park cattle can be found in Britain, Germany, Denmark, and Australia.

The White Park Today

The current status of the White Park is critical, with a breeding population of less than 50 animals in the U.S. and a worldwide population of only 500 purebred females in 79 herds. An on-going program has been put in place to help ensure its survival.

The White Park is genetically far distant from all other British breeds. This has been established by blood typing. The breeds that appear to be the most closely related to the White Park are the West Highland and Galloway breeds of Scotland.

Mature bulls in the Chillingham herd weigh only about 1,100 lbs and mature cows about 850 lbs. These animals are somewhat smaller than those in the original herd, based on skulls found in Chillingham Park. The diminished size is thought to be a result of close inbreeding over time.

THE CONTINENTAL BREEDS

FRANCE

The Abondance



Development in France

Like the Montbeliard and Pie Rouge, the Abondance originated from Simmental cattle brought to France from Switzerland. It was developed during the mid- and late-1800s in the provinces of France just west of the Swiss border. The Abondance Breeding Association was established in 1894 and has been working with the Eastern Red and White Association since 1945.

The Abondance Today

Like the Montbeliard, milk production has been emphasized in the selection criteria followed by the French Herd book Association. Consequently, Abondance cows tend to give greater milk yields than the Swiss cattle. Average yield ranges from 8,800 to 11,000 lbs., with 3.7% butterfat content. In body size, the Abondance is the smallest of the Simmental derivatives. Mature cows weight from 1200 to 1375 lbs, mature bulls from 1985 to 2425 lbs. Frame size is 4.5 to 5.0 on a scale of 1 to 9. It is similar in muscle thickness to the Montbeliard. Compared to the other Simmental derivatives, its hair coloring is solid red over most of the body. It has a white underline and face. A few individuals have a white topline. A red color patch around the eyes is typical. The Abondance accounts for approximately 2% of the French cattle population.

The American (Américaine)



Development in France

Beginning in 1840 on the Brittany peninsula in the northwest of France, two breeds were developed by crossing Shorthorn bulls imported from England with local cattle. Two breeds resulted from these matings, the Maine-Anjou and the American, which have been maintained separately and still have different herd books.

The American was developed from the crossing of English Shorthorn (Durham) bulls on the native Brittany red and white, draft/milk cattle and then interbreeding the progeny. The percentages of these two base breeds are not known. The size of the local cattle that made up the composition of the American are said to have been somewhat smaller than those from which the Maine-Anjou breed was derived. A herdbook was established in 1919.

The American Today

The American was developed as a dual-purpose milk/meat breed, although it tends to be more dairy than beef in its conformation. Average milk production of recorded American cows is about 5,900 lbs containing 3.62% butterfat. Mature cows weigh from 1,400 to 1,600 lbs, and mature bulls approximately 2,400 lbs. The American is usually a solid dark red, but some individuals have white markings on the underline and lower legs.

In attempts to improve milk production, while at the same time retaining good beef conformation and rapid growth, Meuse-Rhine-Ijsell bulls from Holland and some Rotbunte bulls from Germany were used on the American Starting in 1963. With this consolidation a new red breed has been developed, the “Rouge de l’Oest” (Red of the West).

The Aubrac



Development in France

Development of the Aubrac breed started during the 1600s in the province of Aveyron in south central France at the Benedictine Abbey of Aubrac. Controlled breeding was practiced by the monks until the Abbey was destroyed during the French Revolution. Selective breeding was promoted by the French government between 1840 and 1880, with Brown Swiss blood used to improve the breed. The breed was developed primarily for meat and draft purposes, but milk production became increasingly important during the early 1900s, resulting in greater selection for this trait. Consequently, they eventually became regarded as a triple-purpose breed (meat/milk/draft).

The region in which the Aubrac was developed is defined as having a modified Continental climate. It is a mountainous, semi-desert region. The cattle are grazed on open mountain pastures on the high plateaus from late May to mid October. In the summer months, the wind-swept plateaus are quite hot during the day and cold at night; the range in temperature may be as much as 50° F. During the winter months, the cows are stall-fed hays and straws supplemented with rye meal and oilcakes. The conditions under which the Aubrac was developed indicates that it is adaptable to a wide range of environments.

The Aubrac Today

Aubrac cattle are of moderate size, with mature bulls averaging about 1,820 lbs and mature cows about 1,275 lbs. Frame score averages about 5 on a scale of 1 to 10. Calves are relatively small at birth, averaging 60 to 65 lbs. Aubrac coat color ranges from light yellow to brown, and is darker on the shoulders and rump. In body type, the Aubrac is very thick, stout, and heavily muscled. It is relatively compact in its make-up.

The Bazadais



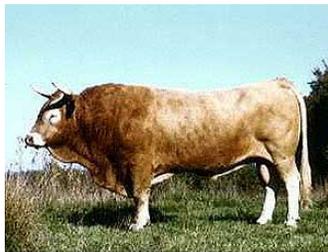
Development in France

The Bazadais breed is located in the Gironde-Landis area in southwest France. The exact origin of this breed is unknown, but it has been found in the region for centuries. The popularity of the Bazadais started to increase in the late 1800s. It steadily increased in numbers until World War II. Although a herd book was established in 1895, a breed society was not formed until 1976.

The Bazadais Today

The Bazadais was originally used as a work animal, but has gradually been transformed into a beef breed. It is a moderately large sized breed. Mature cows average about 1,435 lbs in weight; mature bulls approximately 2,100 lbs. Frame size is 5.5 to 6.0 on a scale of 1 to 10. Color ranges from a medium to dark gray. In total numbers, it is not a major breed in France.

The Béarnais (Basco-Béarnais)



provided by Ferme Conservatoire de Leyssart

Development in France

The Béarnais is one of two strains of the Pyrenean Blond breed, the other being the Lourdais. The Béarnais is an ancient breed that was originally selected more for its aesthetic attributes (especially for their horns) than for reasons of productivity. The breed originated in the southwest corner of France in the Pyrenean mountain region adjacent to the Spanish border. It was developed as a triple-purpose draft/meat/milk breed. In recent times, increased selection pressure has been placed on beef production. A herd book was established in 1981.

The Béarnais Today

Compared to its relative, the Blonde d'Aquitaine, the Béarnais is not as large or muscular. Average frame score is 5 on a range of 1 to 9. It is a medium blond in color. The breed has declined in number to the point that it is in danger of extinction. As a result, most of the Béarnais cattle are owned by a conservatory known as the *Conservatoire des Races d'Aquitaine*. A few Béarnais are still milked by some mountain farmers. The cows produce only 15 to 18 lbs of milk per day. The milk is used for making a cheese that is similar to the cheese made from sheep or goat's milk.

The Blonde d'Aquitaine



Development in France

The Blonde d'Aquitaine was recognized in France in 1962 as a distinct breed, having been formed from an amalgamation of three breeds: The Garonne, the Quercy, and the Blond Pyrenean. These breeds occupied the southernmost region of France, not far from the Pyrenees mountains which border northern Spain. These breeds trace to cattle that were in the region during the Middle Ages, when blonde cattle were used to pull carts carrying weapons and other goods.

At the beginning of the 19th Century, the Garonne breed occupied a vast area of the region. Intense selection for a preferred type began in 1820. To improve functional characteristics, English Beef Shorthorns were introduced around 1860. Because working ability was of utmost importance and the Shorthorns had not preserved this characteristic, breeders started to cross with the Charolais, but quickly abandoned this and used Limousin bulls. Finally, this was followed by selection back toward the original type, which was primarily valued as a draft animal but also for its meat and milk.

Introduction to America

The first Blonde d'Aquitaine cattle were imported into North America in 1972. The breed had the misfortune of arriving in North America after numerous other Continental breeds had preceded it, starting in 1968. Consequently, this has prevented it from gaining strong foothold in the U.S.

The Blonde d'Aquitaine Today

Blonde d'Aquitaine cattle are very muscular, being similar in this respect to the Limousin and Charolais. Mature Blonde bulls average about 2,500 lbs in weight, and mature cows approximately 1,500 lbs. For a larger breed, the Blonde is relatively fine-boned in its skeletal make-up.

The breed is solid in color, ranging from fawn to wheaten to slightly red. The hair is short and never curly. The color lightens with age on the legs, lower abdomen, and flanks. The skin is pinkish in color, without black or brown coloration around the orifices.

The Charolais



Development in France

The Charolais originated in west central France in the Charolles district and in several neighboring departments (provinces). The breed is said to have descended from an ancient cream-colored ancestral form that probably had much in common with the Simmental cattle of Switzerland and Germany. The foundation stock of the present breed were crossed to a limited extent with white Beef Shorthorn cattle from England. Like most other cattle of Continental Europe, the Charolais was used for draft, milk, and meat. Compared to cattle breeders in the British Isles, the French have long selected for size and muscling. They selected for more bone and power than did the British breeders. They paid little attention to refinement because they were more focused on substance and strength.

Two different Charolais herd books were established, one in 1864 and another in 1882. In 1919, the two societies were merged. The popularity of the breed increased steadily throughout the 20th century. Presently, Charolais are distributed throughout 62 departments of France and have been exported to more than 70 countries. Of the 17 major breeds in France, Charolais is the fourth largest in numbers and accounts for about 9% of the total cattle population. In their native country, they are no longer a multiple purpose breed. Instead, they are raised solely for meat production. Mature bulls weight about 2,600 lbs, and mature cows approximately 1,875 lbs.

The town of Nevers in France annually holds a livestock exposition. As early as 1849, Nevers had a special showing for Charolais cattle. Three years later, in 1852, the National Exposition at Versailles opened a special section for the breeds, and a 21-month-old Charolais entry was selected as the Overall Grand Champion Bull. The Charolais Herd Book of France was initiated in 1864.

Establishment in America

The first Charolais came to the U.S. by way of Mexico. Jean Pugibet, a Mexican industrialist of French ancestry, imported two bulls and ten females in 1930. He made two more importations from France, one in 1931 and another just prior to his death in 1937. In 1936, the King Ranch purchased two bulls from Pugibet and brought them to their Texas ranches. Following this, at last six other southern ranches and possibly others imported Charolais cattle from Mexico.

There was a foot and mouth disease (FMD) outbreak in Mexico during the mid-1940s. Imports were then banned from Mexico as well as other countries that had FMD. In 1966, the ban was lifted and there were two importations from France through Canada. That same year, two small importations came from the Bahamas and one from the French island of St. Pierre Miquelon. These early importations were used to cross on existing

U.S. breeds in a grading-up process. When cattle reached the percentage of 31/32 (five generations), they were registered as purebreds. During this period of time, semen from full French Charolais bulls in Canada was also used for the grading-up process.

The Charolais Today

Some of the early full French bulls used in the U.S. sired extremely large calves that resulted in an unduly high percentage of assisted births. Discontinued use of these bulls eventually corrected much of this problem. U.S. and Canadian breeders selected for cattle that were not as coarse-boned or extreme-muscled as the imported French cattle. The end result of this selection pressure is a Charolais breed that more ideally fits the needs of the North American beef industry.

Even though the current Charolais is a smoother, more refined animal than its French counterpart, it still excels in growth traits. Out of 26 breeds evaluated in the first four cycles of U.S. MARC's GPE study, Charolais-sired calves ranked first overall in 200-day weaning wt., postweaning avg. daily gain, final slaughter wt., carcass wt., and pounds of retail product. Like other continental breeds, the Charolais does not have the degree of marbling of the British breeds. However, out of 11 continental breeds evaluated by U.S. MARC, Charolais-sired steers ranked fourth, with 59% grading USDA Choice. In a later evaluation, steaks from Charolais-sired steers did not differ from British steaks in shear force or sensory tenderness scores. Although Charolais females do not milk as heavily as the dual-purpose Continental breeds (Simmental, Gelbvieh, etc.), they nevertheless produce enough milk to allow the calves to express their genetic ability to gain weight rapidly.

Among the nine breeds evaluated for feed efficiency (live wt. gain per unit metabolizable energy consumed) Charolais ranked third when fed to a constant endpoint of 465 lbs of retail product.

Most Charolais are white in color, but currently there are some red Charolais cattle being propagated, primarily in Canada.

The American International Charolais Association was established in 1957. In 2007-08, the association registered 75,569 cattle, which ranked second among all beef breeds and first among the continental breeds.

The Gasconne (Gascony)



Development in France

The Gasconne evolved from ancient indigenous types of cattle in the extreme south of France in the foothills of the French Pyrennes mountains. This region is known as Gascony, from which the breed takes its name. The Gasconne is related to the Blonde d'Aquitaine and the Piedmontese to which it bears some resemblance.

There are two types of Gasconne cattle: 1) a larger type, the Gasconne ar'eoie; which is light gray and has a light muzzle; and 2) a smaller type, the Gasconne a'muqueuses, which is darker gray and has a black muzzle. Separate herdbooks were established in 1856 and 1894, respectively, but were combined into a single herdbook in 1955.

The Gasconne Today

The Gasconne was developed as a dual-purpose draft/beef breed, but has evolved into a single-purpose beef breed. It is heavily muscled and produces a lean, high cutability carcass. The Gasconne is moderate in size. Mature cows weigh 1,100 to 1,325 lbs; mature bulls, 1,750 to 1,875 lbs. Frame size is about 5.5 on a 1 to 9 scale. It accounts for about 2% of the French cattle population.

The Limousin



Development in France

The Limousin breed originated in the province of Limousin, now the departments (provinces) of Haute-Vienne and Corrèze, in west central France. It is believed that the Limousin may share some ancestry with the Blonde d'Aquitaine breed. Breed development began in the late 1600's and was well established by the late 1700's. Selection was for good draft qualities as well as meat production. Therefore, the cattle were primarily developed as a dual-purpose draft/meat breed and not many were milked. These early cattle were described as "strong, fast, and active."

It is documented that cattle from the Limousin region were valued for their well-muscled beef characteristics in the 1700s and were in strong demand in the Paris market. Toward the end of the 1700s, an unsuccessful attempt was made to cross Limousin with Durham cattle from England. The resulting Durham strains were bred out during the 19th century, thereby allowing the Limousin to recover its muscularity and regain its popularity. The French Palate has never acquired a taste for highly marbled beef. It has always demanded a high lean, low fat product. The French Herd book was started in 1864.

The popularity of the Limousin flourished during the first 30 years of the 20th century. This was followed by a period of decline, between 1930 and 1960. Much of this decline can be attributed to World War II, which was very nearly fatal to the breed. Starting in the early 1960s, the breed rebounded due to the tenacity of twenty or more influential breeders, who formed an organization known as EPPA, headed by a dynamic personality, Mr. Louis de Neuville. These people were "open-air" breeders who raised their cattle outside, which was not a common practice at the time. Other breeder groups were formed and by 1979, Limousin cattle had spread to 49 departments. There was even further growth from 1979 to 1988, when the breed grew by 10% in its own region and by 28%, 46%, and 78% three other regions. By 1988, the Limousin was the second leading beef breed in France. During the 20th century, the Limousin increased considerably in muscling and weight. At the turn of the century, the average cow weight was only 935 lbs, while today it is 1,325 lbs. Today, mature bulls average about 2100 lbs.

Establishment in America

The first Limousin animal exported from France to North America was a bull named "Prince Pompadour." He was purchased from Emile Chastanet, an outstanding breeder who was a member of ELPA. Chastanet had in turn purchased him from the Pompadour Breeding Research Center owned by the French government. The bull was exported to Canada in 1968, the same year that the North American Limousin Foundation was established in Denver, Colorado. Prince Pompadour was not only an outstanding individual, but he also turned out to be a great sire. His semen was used extensively in the U.S. and Canada, and he left an estimated 60,000 progeny. His daughters provided the basis for many foundation herds in North America.

In 1969, six bulls and four females were imported by the Canadian Department of Agriculture. Five of the bulls were leased to AI organizations. They were: Décor to ABS; Danseur and Dary to Prairie Breeders; and Dandy and Diplomat to Bov Import, Inc. Of these five bulls, Décor, who was bred by the Pompadour Research Center, sired the most progeny.

The Limousin Today

The Limousin has enjoyed broad acceptance throughout North America primarily because of its efficient production of red meat. It is not a high growth breed when compared with three other major Continental breeds (Charolais, Gelbvieh, and Simmental). Recent data from Cycle VII of U.S. MARC's GPE program shows that Limousin-sired calves had lower weaning weights than these three breeds. Postweaning avg. daily gain was lower than three British breeds (Hereford, Angus, and Red Angus), resulting in the lowest slaughter and carcass weights of the seven breeds evaluated. However, its high dressing percentage and high percent retail product yield resulted in pounds of retail yield that were significantly greater than the average of the British breeds (504 vs. 481 lbs) and comparable to the other three continental breeds. Numerical yield grade was significantly lower than the average of the British breeds (2.43 vs. 3.36) and similar to the other continental breeds.

As expected, percentage grading USDA Choice was significantly lower than the British breeds (56.9 vs. 81.0%). However, Limousin rib steaks did not differ from British rib steaks in either shear force or sensory panel tenderness scores.

Estimates of feed efficiency (live wt. gain per unit metabolizable energy consumed, lb/Mcal) to six different slaughter endpoints were greater for Limousin-sired steers than the other Continental breeds for three of the six endpoints.

Age at puberty was significantly greater for Limousin-sired heifers than all other breeds. However, final pregnancy rate (87%) did not differ significantly from the other six breeds. Calf wt. weaned per cow exposed for first calves at 2 years of age was not significantly different for Limousin-sired heifers from other breeds.

The original color of Limousin was red, but a high proportion of Limousin cattle in North America are now black.

The North American Limousin Foundation was established in 1968. In 2007-08, the Foundation registered 37,742 cattle, which ranked sixth among all breeds and third among continental breeds.

The Lourdais



provided by Ferme Conservatoire de Leyssart

Development in France

The Lourdais is one of the two strains of the Pyrenean Blond breed, the other being the Béarnais. Like the Béarnais, it was developed in the southwestern corner of France as a triple-purpose draft/meat/milk breed. However, the Lourdais eventually became recognized as more of a milk producer than was the case for the Béarnais. Lourdais cows could be expected to produce about 45 lbs per day compared to less than 20 lbs for the Béarnais.

The Lourdais Today

The Lourdais is comparable in size to the Béarnais, but a bit more dairy-like in its conformation. It is considerably lighter in color, ranging from white to a light creamy-wheat. In the 1980s, only 30 cows and a single bull existed, and the Lourdais was in danger of extinction. Currently, there are about 100 animals nationally, a number of which are maintained at the “Ferme Conservatoire,” acting as a type of nursery herd. The farm has made an effort to conserve those that are the best milking cows.

The Maine-Anjou



Development in France

The Maine-Anjou originated in the northwestern part of France. This region is excellent for beef production as it has both pasture land and fertile tillable land. At the beginning of the 1800s, the cattle in this region were large-well-muscled animals with light red coats spotted with white. These cattle were known as the “Mancelle” breed. In addition to their size and marbling, the breed had a reputation for easy fattening.

In 1839, the Count de Fallou, a land owner, imported Durham (Shorthorn) cattle from England and crossed them with the Mancelle. This cross was very successful, and by 1850, Durham-Mancelle cattle were winning championships at the French agricultural fairs. In 1908, the Society of Durham-Mancelle breeders was established at the town of Chateau-Gontier in the Mayenne district. A year later, the name was changed to the Society of Maine-Anjou Cattle Breeders, a name taken from the Maine and Anjou River valleys. The breeders were mostly small farmers whose goal was to maximize income from their small parcels of land. For this reason, the Maine-Anjou evolved as a dual-purpose breed, with the cows used for milk production and the bull calves fed for market. However, their milk production is not high. In some herds, half the cows are milked and the other half are used to raise two calves each. Average milk production is about 5800 lb over a 300-day lactation. Today, the breed is used primarily for beef production.

The Maine-Anjou is the largest breed in France, even larger than the Charolais. Mature bulls average about 2,750 lb and mature cows approximately 1,985 lb. The coat color is dark red with white marking on the head, underline, hind legs, and tail. A large proportion of red with minimal white is the preferred color in France. Among the 17 major cattle breeds in France, the Maine-Anjou ranks seventh in number of registered cattle.

Establishment in America

The first Maine-Anjou cattle imported into North America came to Canada in 1969. Semen from the imported Canadian bulls was then used in the United States on British-bred cows in a grading up process to attain purebred status. An animal was considered purebred if it consisted of 15/16 Maine-Anjou blood or higher, which would require four generations of Maine-Anjou sires. In 1996, this was changed to a percentage of 7/8 to achieve purebred status.

The Maine-Anjou Society was incorporated in Nebraska in 1969, and included both American and Canadian members. In 1971, the name was changed to the International Maine-Anjou Association and headquarters were set up in the Livestock Exchange Building in Kansas City, Missouri. In 1976, the name was changed to the American Maine-Anjou Association. In 2001, the association purchased a building in Platte City, Missouri as its permanent headquarters.

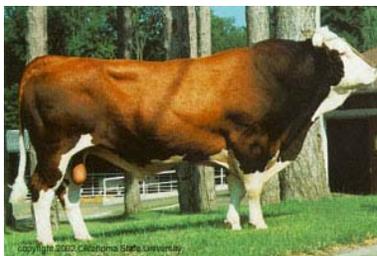
In 1973-74, semen from the early imported breeds of bulls was used on the Hereford-Angus cow herd at U.S. MARC in its Germ Plasm Evaluation (GPE) program. Average birth weight of Maine-Anjou sired progeny was the second highest of the 25 breeds evaluated, and the percentage of assisted births was the highest. The calves were very growthy, ranking second in postweaning avg. daily gain and final slaughter wt. Only 49.5% of the Maine-Anjou sired carcasses graded USDA Choice compared to 64.7% for Charolais crosses and 74.5% for Hereford-Angus. Other carcass traits (fat thickness, ribeye area, % retail product, etc.) were similar to the other Continental breeds. The female progeny of Maine-Anjou sires were excellent in reproductive traits, comparable to Hereford-Angus females and the best of the continental breeds.

The Maine-Anjou Today

Today's American Maine-Anjou is an improved breed over its imported ancestors. It has been successfully altered to better meet the needs of the North American beef industry. Through selection, it has been refined and downsized in its skeletal make-up without compromising its propensity to gain rapidly from birth to slaughter. The breed's ability to marble and produce USDA Choice grade carcasses has been improved without sacrificing its ability to yield a high percentage of lean retail product. In a recent feedlot study, two groups of Maine-Anjou sired steers weighing 1,265 and 1,378 lbs, respectively had carcasses that performed as follows: 86% and 97% graded Choice or higher; yield grades were 2.77 and 3.42; premiums/head were \$30.42 and \$23.34. Calving difficulty is much less of a problem today than it was during the early days of the imports. The Maine-Anjou has always been known for its excellent disposition and today's cattle are no exception. Like most other Continental breeds in America, a high percentage of Maine-Anjou cattle are now black instead of the original red and white spotted color.

In fiscal 2007-08, the American Maine-Anjou Association registered 12,316 cattle, which ranked sixth among continental breeds.

The Montbeliard



provided by Stephane Fitamant

Development in France

The Montbeliard was developed in eastern France as a derivation of the Swiss Simmental. It was brought from Switzerland to France by the Mennonites during the 18th century. Originally known as the "Alsatian" breed, the present name comes from the principality of Montbeliard, where it was developed. The Montbeliard herd book was established in 1880. The Mamet family of Haute Doubs were the leaders in the selective breeding of these cattle, especially in the improvement of their milking qualities.

During the 20th century, Montbeliard cattle were exported from France to the French Cameroons and from there throughout the world. By 1979, nearly 1 million Montbeliard cows were reported worldwide.

The Montbeliard Today

The Montbeliard was developed as a dual-purpose milk/meat breed, but has been gradually developed into primarily a dairy breed. As a result, it more refined in its conformation and not as thickly fleshed as the Swiss Simmental or the Pie Rouge of France. Consequently, it is lighter in body weight. Mature Montbeliard cows average about 1,500 lbs, mature bulls about 2,300 lbs. Frame size is approximately 6 on a scale of 1 to 9. Milk yield of recorded cows averaged 8,750 lbs in 1961. Twenty years later, in 1981, average milk yield increased dramatically to 12,240 lbs. Butterfat content of the milk is about 3.65%.

The Montbeliard has the white face of the Swiss Simmental, but the color patches on the body are almost always dark or bright red instead of the tan or light yellow predominant among the Swiss cattle. The French breeders have selected in favor of the darker color, and discriminate against the light reds and yellows. The Montbeliard accounts for about 6% of the total cattle population in France.

The Normande



Development in France

The Normande breed originated from cattle that were brought to Normandy in northwestern France by the Viking conquerors in the 9th and 10th centuries. For over a thousand years, these cattle evolved from an earlier type of draft cattle into a dual-purpose meat/milk breed. The breed was influenced to some extent by the crossing with Shorthorn bulls brought in during the late 1800's.

Although the breed was decimated by the Allied invasion of Normandy during World War II, the Normande has rebounded to the point that there are currently 3 million of them in France, accounting for about 20% of the nation's cattle population. They are located primarily in the northwest of France, but it is also present in significant numbers in the center of the country. In France, they play an important role in providing milk for the production of Camembert cheese.

Normande cattle have been exported world-wide, but their greatest acceptance has been in South America, when the breed was introduced in the 1890's. Columbia has the greatest number of Normandes, with the remainder primarily in Brazil, Ecuador, Paraguay, and Uruguay. They are a highly adaptable, hardy breed and have done well in beef operations in the Andes Mountains at elevations up to 13,000 feet.

Introduction to America

Normande cattle were brought to North America from France during the late 1960's and early 1970's, when a great wave of other Continental breeds were introduced to North America. Unfortunately, the breed has not flourished in North America like it has in its native country. The reason for this may be the fact that the most popular continental breeds tend to have more muscle, or more growth, or both, than the Normande.

The Normande Today

The Normande is a medium frame size breed with most cows weighing 1,200 to 1,500 lb, and bulls from 2,000 to 2,400 lb. While selection in purebred Normande herds is mainly for milk production, much attention is also paid to beef production. Milk production averages about 7,500 lbs per lactation, with some cows producing 10,000 lb or more. Butterfat content averages 4.1%. In North America, where the breed is used strictly for beef production, purebred and crossbred Normande cows produce calves with weaning weights that range from 500 to 700 lb.

The color of the Normande is dark red, brown, or black, distributed in patches on a white background. Within the breed there is a wide variation in color, from nearly all white to mostly colored. The face is mostly white, with small colored patches around the eyes, giving the spectacled appearance for which the Normande is known.

The Parthenaise



Development in France

Parthenaise cattle are of very ancient origin, and existed in western France for hundreds of years. They experienced a period of popularity in France after winning first prize in 1853 at the National Cattle Show of Paris. By 1890, a well-designed breeding program had been initiated, and a herd book was established in 1893. In the early part of the 20th century, there were at least 1 million cattle in the breed. Since then, the Parthenaise has gradually declined in numbers, and has been increasingly replaced by Charolais, Friesian, and Normande cattle.

Introduction to America

Parthenaise cattle were brought to Canada after many of the other Continental breeds had already been introduced. A Canadian herd book was established in 1993.

The Parthenaise Today

In its native country of France, the Parthenaise was transformed from a triple-purpose draft/milk/meat breed into a dual-purpose meat/milk breed. Average milk yields are relatively low at about 6,600 lbs in a lactation. Fat content, however, is relatively high at 4.4%. Consequently, the milk has been valued for butter making.

The Parthenaise breed is moderate in size. Mature bulls average about 2,300 lbs; mature cows about 1,400 lbs. Frame size would score about 5 on a 1 to 9 scale. The Parthenaise is a heavy-muscled breed, similar to the Limousin and Charolais. As a result, lean meat yield (cutability) from the carcass is quite high.

Color-wise, the Parthenaise is reddish buckskin with black skin pigmentation. However, the underline and insides of the legs tend to be pearl gray in color. The coat color is darker in the male than in the female. The breed accounts for about 1.7% of the cattle population in France.

The Pie Rouge de l'Est (Eastern Red and White)



Development in France

The Pie Rouge has been reported to have originally evolved from the ancient Jurassic brachiocephalic breed, and more recently from the old Franche-Comte' breed, which until the late 1800s was found only in the Jura Mountains. During the 20th century, a reorientation of breeding practices occurred, and the breed evolved from a crossing of the Swiss Simmental with a number of old varieties including the Haute Bresse and the Doubs (yellowish, coarse, dual-purpose cattle of the Jura Mountains) and the more refined Franche Comte'. It has been reported that some Montbeliard and Abondance blood was also used in the development of the Pie Rouge.

The Pie Rouge Today

The Pie Rouge does not appear to have been so rigidly selected for milk production as were the Abondance or Montbeliard. Consequently, it is considerably thicker-fleshed than either of the other two breeds. However, it tends to have a bit more of a dairy conformation and is slightly larger framed than the Swiss Simmental. Nevertheless, it is very nearly indistinguishable from the Swiss cattle. It is found in 25 provinces of eastern France and has been exported throughout the world.

In its native country, the Pie Rouge is a dual-purpose milk/meat breed. Average milk yield in milk-recorded herds is about 9,700 lbs, with a butterfat content of 3.7%. Mature cows range in weight from 1,500 to 1,650 lbs. Frame size of Pie Rouge cattle is 6.5 to 7.0 on a scale of 1 to 9.

Preferred color of the Pie Rouge, like the Abondance and Montbeliard, is a dark or bright red rather than the light red or yellow coloration of the Swiss Simmental. The Pie Rouge accounts for about 3.5% of France's total cattle population.

The Salers



provided by Dr. Robert Kropp

Development in France

The Salers breed originated in south central France in the Auvergne region, which is characterized by poor volcanic soil, very hilly terrain, high rainfall, and long winters (6 to 7 months). Because of this environment, it is nearly impossible to grow cereal grains. Consequently, the cattle are fed almost entirely on native grasses in the summer and hay in the winter. The breed, which has been raised in the region for a very long time, took its name from Salers, a small medieval town in the heart of the volcanic area of the region. The breed is considered to be one of the oldest and most genetically pure of all continental breeds.

Until modern time, the Salers was considered a triple-purpose meat/milk/draft breed. Today, it is used primarily as a beef breed in France, although some are still being milked for the purpose of cheese production. When milked, the average production of registered Salers cows is about 5,700 lbs in a 265-day lactation period. The fat content averages 3.7%.

Until the 1960s, Salers cattle were found only in a few provinces in the region. Since then, they have spread throughout France. The small herds in the south of the Auvergne region that were used to produce veal and milk are now specializing in milk production. At the same time, some large dairy herds in other regions are changing over to cow-calf production.

In France, the Salers is considered to be a medium to large sized breed, with mature cows averaging about 1300 lbs and mature bulls about 2,100 lbs in breeding condition. The hair color is typically a uniform dark mahogany red and often slightly curly. The horns curl outward and forward with the tips turned upward and backward. The Salers herd book was established in 1908.

Establishment in America

The Salers was one of the last continental breeds to be imported into North America. The first Salers bull, Vaillant, was imported into Canada in 1972. His semen was sold both in the U.S. and Canada. The American Salers Association was founded by fourteen cattlemen in Minneapolis, Minnesota. The first Salers imports made directly into the U.S. came in 1975, with the arrival of one bull and four heifers. From 1975 to 1978, 52

heifers and 6 bulls reached the U.S. and more than 100 Salers cattle arrived in Canada. These cattle were the foundation of the breed in North America.

The Salers Today

The Salers breed has expanded and can now be found in nearly every state in the U.S. Because of its adaptability to extensive range conditions, many Salers-cross cattle are concentrated in western range country.

The breed was evaluated in Cycle IV of the Germ Plasm Evaluation (GPE) program at U.S. MARC. Birth wt. of Salers-sired calves (80.9 lbs) was similar to that of Hereford x Angus crosses. The percent of unassisted births (95.2%) was among the highest of the 26 breeds evaluated in the first four cycles of GPE. Average weaning wt. was also among the highest of the 26 breeds evaluated. Postweaning avg. daily gain (2.70 lbs) and final slaughter wt. 1,148 lbs) were similar to Simmental- and Maine-Anjou-sired steers.

Percent of Salers carcasses grading USDA Choice (49.5%) was lower than Simmental, Braunvieh and Pinzgauer, but comparable to Tarentaise, Maine-Anjou and Gelbvieh. Pounds of retail product (478) was similar to the Chianina and Maine-Anjou and greater than all other breeds except Piedmontese and Charolais.

Age at puberty for heifers (365 days) was comparable to Hereford x Angus crosses, and pregnancy rate (89%) was among the highest of all breeds. Percent of unassisted calvings from Salers-sired cows (92%) was also among the highest of all breeds. Although it has not been objectively evaluated by scientific research, the breed has been known for its nervous temperament. However, selection for docility in recent years has led to improvement in this trait.

In 2007-08, the American Salers Association registered 14,399 cattle.

The Tarentaise



Development in France

The Tarentaise breed has descended from an ancient Alpine strain of cattle. It originated in southeastern France in the province of Savoie, which was the site of the 1992 Winter Olympics. This is a rugged mountainous region, where temperatures range from an average of about 32° F in mid-winter to about 65° F in mid-summer.

In France, the Tarentaise is used solely for milk production for the making of Beaufort cheese. Cows produce approximately 12,000 lbs of milk in a 305-day lactation with no concentrates fed in the summer. The milk averages about 3.6% fat. Cows are managed under intensive grazing management in the summer and kept in the barn from October through April because of snow and the danger of avalanche. Their basic ration is hay, and sometimes haylage. Only the high-producing cows get up to 5 lbs of concentrates daily, and then only for the 6 weeks prior to AI breeding season. Most calving and breeding occurs in winter. In May, the cows are turned out on lush pastures at 2,500 feet. In June, they are moved to high, steep pastures at an average elevation of 8,000 feet where daily temperatures often swing from below freezing to highs above 80°F.

The first Tarentaise in North America were imported into Canada in 1972. A year later, they were introduced to the U.S. They have also been exported to Equatorial Africa and the Indian sub-continent, where they are used as dairy cattle. It is obvious that the breed can adapt to a wide range of environments, from the Alps to deserts and from dry plains to humid coasts.

The Tarentaise Herd Book was stated in 1888. It was revised in 1922 with more severe standards and more enforced rules. Females are not registered until they have produced at least 5,700 lbs of milk in their first or second lactations.

The Tarentaise Today

The Tarentaise is a moderate sized breed, with cows weighing between 1,200 and 1,300 lbs, and bulls ranging from about 1800 to 2200 lbs. The cattle in the valleys tend to be somewhat larger than those in the mountains. The Tarentaise cattle have yellowish fawn-colored hair, which is darker in males than in females. The muzzle is black in color. Black hairs are normal on the ears, the poll, and also occur on the tail. The body orifices are also black colored. The udder quality of Tarentaise cows is exceptional. The udder is firmly attached both fore and rear, and teat size is small. Pendulous udders and balloon teats are virtually never seen.

The Tarentaise was evaluated in Cycle III (1975-76) of the Germ Plasm Evaluation (GPE) program at U.S. MARC. Birth wt. and percent of unassisted births were similar to Hereford x Angus crosses. Percent survival to weaning (94.0%) was the highest of all 27 breeds evaluated in the GPE program. Weaning wt. was not significantly different from Hereford x Angus crosses, but postweaning avg. daily gain and final slaughter wts. were somewhat lower than Hereford x Angus crosses (2.49 vs. 2.74 and 1079 vs. 1152). Percent of Tarentaise carcasses grading USDA Choice (49.3%) was similar to that of four other continental breeds (Gelbvieh, Maine-Anjou, Salers, and Limousin). The same was true for fat thickness (0.42 in.) and percent retail product (69.2%). Pregnancy rate of Tarentaise heifers (94.4%) was among the highest of all breeds evaluated.

Research conducted at South Dakota State Univ. showed that Tarentaise x Hereford crosses were 10% more feed efficient than the other breeds evaluated (straightbred Hereford, Simmental, x Hereford, and Angus x Hereford). This, together with their carcass leanness, resulted in the lowest amount of total cow/calf feed required per pound of retail product produced.

In fiscal 2007-08, the American Tarentaise Association registered 1,500 cattle.

BELGIUM

The Belgian Blue



Development in Belgium

The Belgian Blue originated in central and upper Belgium and they, at one time, accounted for nearly half of the cattle in the national herd. During the last half of the nineteenth century, native red spotted and black spotted cattle were repeatedly crossed with Dutch Friesians and with English Shorthorns, from which they acquired their roaning gene. At the turn of the twentieth century, certain French breeds, particularly the Charolais, were used on these native cattle. From this heterogenous population, an improved dual-purpose meat/milk type of animal of blue and white color was established in the 1890s and early 1900s.

During the late 1950s, a debate arose among the breeders whether to maintain the dual-purpose type as it was or to select for more muscling. The muscling group won out. During this period, three prominent AI sires were used heavily, thereby established the desired type within the breed. Because the newborn calves are so heavily muscled, a relatively high percentage of them are taken by cesarean section.

Introduction to America

Belgian Blue cattle were introduced to North America during the wave of importation of continental cattle in the 1970s. However, it has not experienced the popularity of many other continental breeds in the U.S.

The Belgian Blue Today

European comparisons between the Belgian Blue and the Charolais found the Belgian Blue to have a greater muscularity, milk yield, and daily gain. As might be expected, the Belgian Blue performed lower in calving ease and calving percentage. It is a large breed, with females averaging about 1,600 lbs, and bulls about 2,500 lbs.

Belgian Blue half-bloods were evaluated in Cycle V of the Germ Plasm Evaluation program at U.S. MARC. Other breeds evaluated were Hereford, Angus, Brahman, Boran, Tuli, and Piedmontese. Percent of unassisted births was the lowest (92.8%) of all breeds except for Brahman (88.7%), but calf survival to weaning (95.8%) was comparable to the average of the British breeds. The same was true for weaning wt. (526 lb). Postweaning avg. daily gain (2.80 lbs) and final wt. (1248 lbs) were lower than the average of the British breeds (2.98 and 1274 lbs, respectively) but higher than that of the other six breeds in Cycle V.

Percent of carcasses grading USDA Choice (23.8%) was the lowest, but ribeye area (13.34 sq in) was the largest of all breeds. Percent of retail product (69.3%) was highest of all breeds except for Piedmontese (71.0%). Pounds of retail product (508 lbs) was considerably higher than the other breeds. Percent grading USDA Choice (23.8%) was the lowest of all breeds. However, meat tenderness, as measured by Warner-Bratzler shear force (10.7 lbs), was similar to the Hereford (10.6 lbs). This is not surprising, because the Belgian Blue carries the same mutant myostatin gene as the Piedmontese.

Age at puberty (348 days) was the youngest of all breeds except for the Piedmontese (348 days), but pregnancy rate of heifers (85.0%) was the lowest of all breeds except for the Brahman (84.2%). Age at puberty of bulls (325 days) and scrotal circumference (31.0 cm) were similar to the average of the two British breeds (320 days and 31.8 cm, respectively).

First-calf half-blood Belgian Blue heifers did not differ significantly from the average of Hereford and Angus for calf birth wt., percent unassisted births, percent of calves born and weaned, weaning wt., and pounds of calf weaned per cow exposed. However, mature half-blood cows were higher than all other breeds for calf birth wt., (94 lb) and lower for percent calf crop born (89.2%) and weaned (79.0%). Calf weaning wt. (502 lbs) was higher than all other breeds except for Brahman (516 lbs).

An interesting comparison was made in Cycle V between progeny (both steers and heifers) of Belgian Blue and Charolais sires. Following is a brief summary of the statistically significant differences in postweaning growth and carcass traits that were observed.

- Charolais-sired heifers were higher in postweaning avg. daily gain, final slaughter wt., and carcass wt.
- Belgian Blue-sired heifers had a numerically lower yield grade (1.66 vs. 1.84).
- Belgian Blue-sired steers had a higher percentage of carcasses that graded USDA Standard (7.5 vs. 0.3%).
- Belgian-Blue sired steers had greater carcass fat thickness (.288 vs. .237 in.), but did not differ in other carcass traits.

In summary, the Belgian Blue can be characterized as a terminal sire breed that would be expected to increase pounds of retail product without jeopardizing meat tenderness.

The Red and White Campine



Development in Belgium

The Red and White Campine breed developed from the fusion of ancient north European cattle types, which inhabited the northeast corner of Belgium, with various strains of imported stock. Development is reported to have begun in 1838. Improvement was made by the introduction of British Shorthorn blood from 1844 to 1851. Additional improvement was made with the introduction of Meuse-Rhine-Ijssel cattle from the Netherlands, which reached a peak during the period of 1878 to 1888. There is also evidence of crossings with other European cattle. A herd book was established in 1919.

The Red and White Campine Today

The Red and White Campine was developed as a dual-purpose meat/milk breed. In recent years, however, greater emphasis has been placed on milk production. Recorded cows average about 9,000 lbs of milk at 3.6% butterfat.

The Red and White Campine is the smallest of the Belgian breeds. Mature cows weigh 1,200 to 1,450 lbs; mature bulls 1,900 to 2,400 lbs. Average frame score is about 5 on a 1 to 9 scale. Although its basic color pattern is red patches on a white background, coloring may range from mostly red to mostly white. The breed accounts for about 15% of the Belgian cattle population.

The Red and White East Flemish (Belgian White and Red)



Development in Belgium

The Red and White East Flemish, as the name implies, was developed in the East Flanders region of Belgium. It resulted from crossing the heterogenous red cattle population of the region with the Meuse-Rhine-Ijssel from the Netherlands and, to a lesser extent, with Shorthorn blood. Development occurred in the late 19th century, starting around 1880. A herd book was established in 1900. The breed was nearly destroyed during World War I. After the war, a rehabilitation plan was organized to collect the scattered remains of the purebred herds. There was also some introduction of Central and Upland blood following the war. Fortunately, the breed was preserved through World War II, and subsequently multiplied and improved.

The Red and White East Flemish Today

The Red and White East Flemish has been developed as a dual-purpose milk/meat breed. Average milk production of registered cows is about 9,600 lbs per lactation, which is less than the Belgian Friesian but comparable to the other dual-purpose breeds of Belgium. Butterfat content averages 3.55%. In body size, it tends to be the largest of the Belgian breeds. Mature bulls weigh from 2,600 to as much as 2,900 lbs. Mature cows weight from 1,500 to 1,650 lbs. The breed is moderate in frame size, with a frame score of about 6, but

massive in body depth and thickness. In color, the breed is predominantly white with some red on the sides of the head and neck, and a few small spots on the body. It accounts for about 15% of Belgium's cattle population.

The Belgian Red (Red West Flemish)



provided by Paul Vandamme

Development in Belgium

The Belgian Red was developed in the West Flanders region of northwest Belgium. During World War I, the pastures of West Flanders were turned into battlefields which nearly eradicated the cattle population of the region. The two main native breeds, the Cassel and the Veurne-Ambalcht, were among those whose numbers were decimated by the fighting. After the war, the breeders of the Cassel formed a new breed known as the Belgian Red. The Veurne-Ambalcht had been crossed with the British Shorthorn, whereas the Cassel contained no Shorthorn blood.

The Belgian Red herd book was established in 1919. Since 1920, selection has been for a solid red color, with only minor white markings on the underline permitted.

The Belgian Red Today

The Belgian Red is a dual-purpose breed, but with considerable emphasis on meat-producing ability. Recorded cows average about 9,000 lbs of milk with 3.7% fat. Mature bulls weight about 2,500 lbs; mature cows approximately 1,450 lbs. The Belgian Red has an average frame score of about 7. It accounts for about 10% of the cattle population in Belgium.

NETHERLANDS

The Friesian



Development in the Netherlands

The precise origins of the Friesian are difficult to determine, but it is reported that in the 18th century, herds of small black and white cattle were brought into northern Holland and Friesland from northern Jutland. Historical evidence indicated that small black and white cattle had been raised in northern Jutland before the 17th century. It is also known that both the people and the cattle of this area moved into northern Holland at that time, when disease and flooding of the early low lands had decimated the cattle population as well as causing considerable loss of human life. These cattle were crossed with the existing Dutch Cattle and formed the basis of the Dutch Friesian.

Two herd book societies in the Netherlands register Friesian cattle: 1) the Netherlands Cattle Herd book Society, founded in 1874, which handles the Friesian as well as two other Dutch breeds, the Meuse-Rhine-Ijssel (M.R.I.) and the Gronigen; and 2) the Friesland Cattle Herd book Society, founded in 1879, which register Friesian cattle only in the province of Friesland. All cattle in the other ten provinces are registered by the Netherlands Society.

Before the establishment of the two breed societies, both black and white and red and white cattle that had originated from the same base stock were in the general area. The black and white cattle became a majority, and herds of the two colors were maintained separately by their owner. With the establishment of the breed societies, the black and white type rapidly became predominant. Red and White Friesians have been selected out and propagated in Germany, Denmark, England and the United States but only in relatively small numbers.

Dutch Friesian milk production levels declined during the 1950s when undue emphasis was placed on correct color pattern. During the 1970's, Holsteins were imported from North America and used to improve milk production. This resulted in larger framed cattle with more pronounced dairy characteristics.

Introduction to North America

Dutch Friesians were first imported in the mid-1800's by WW. Chenery of Massachusetts, who continued to import Friesian cattle from Holland for many years. The first herd book was published in 1872. In the U.S., the name of the breed became "Holstein-Friesian," possibly a corruption of the word "Holland." In 1978, the name was officially shortened to Holstein. Intense selection pressure in North America has led to a much different type of animal than the original Dutch imports. As noted above, the North American Holstein is larger-framed and much more refined in its overall type (referred to as "dairy character"). The North American Holstein also far exceeds its Dutch ancestor in milk production.

The Friesian Today

The Dutch Friesian was bred for many years as a dual-purpose animal. Today it is a dairy breed with milk yields highest in the cows of North Holland (11,500 lbs), and slightly lower in the cows of Friesland (10,700 lbs). Fat content averages 4.1%. The Friesian is a medium-sized breed; mature cows weigh 1,400 to 1,500 lbs, and mature bulls about 2,300 lbs. In body type, it is much heavier-muscled than the North American Holstein.

The Friesian was evaluated in Cycle VI of U.S. MARC's Germ Plasm Evaluation program, along with cattle sired by Hereford, Angus, Norwegian Red, Swedish Red and White, and Wagyu bulls. Semen from 24 European Friesian bulls was used in the matings with Hereford and Angus cows. Percent of unassisted calvings was very high at 99.2%. Weaning weight (487 lbs) was significantly lower than all other breeds except Wagyu (459 lbs). Postweaning avg, daily gain (2.8 lbs), final slaughter weight (1269 lbs), and carcass weight (774 lbs) were significantly lower than Hereford and Angus, but comparable to the two Scandinavian breeds.

Percent of carcasses grading USDA Choice (52%) did not differ significantly from the Hereford (58%) and Swedish Red and White (59%), but was significantly lower than Angus (88%), Wagyu (85%), and Norwegian Red (71%). Percent retail product (62.8%) was significantly higher than Hereford and Angus, and similar to the other breeds. Cooked steaks from Friesian carcasses were less tender than those from Angus and Wagyu carcasses, but did not differ significantly from the other breeds.

Age at puberty (341 days) and pregnancy rate (84%) were similar to the two Scandinavian breeds. Percent of unassisted births from Friesian first-calf heifers (82.1%) was similar to all other breeds evaluated, except for the Norwegian Red, which was lower at 71.5%.

In summary, the Friesian exceeds all other continental breeds in milking production, while being moderate in most other traits.

The Gronigen (Gronigen Whiteheaded)



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Development in the Netherlands

The Gronigen's ancestry can be traced back to the Middle Ages. The breed originated in the province of Gronigen in the far north of the Netherlands from native stock whose origins were similar to those of the Dutch Friesian. In 1906, it was recognized as a distinct breed by the Netherlands Herd book Society. At that time, it was characterized as being primarily a beef breed. However, subsequent selection practices have resulted in its development into a dual-purpose milk/meat breed.

The Gronigen Today

Today, the greatest concentration of Gronigen herds is in the Rhine area of South Holland. In recent times, cross breeding with Holstein as well as German Red Angler (Rotviah) cattle has significantly increased the milk yield of the Gronigen, but it is still lower than that of the Dutch Friesian and the Meuse-Rhine-Ijssel. Butterfat content averages about 4.0%.

The usual color of the Gronigen is a nearly solid black body with some small white underline markings and a white head. However about 5% of the Gronigen cattle are red in color. The coloring of either the black or red animal covers the area around the eyes in the form of a ring. Average weight of mature cows is about 1325 lbs, and average frame score is approximately 5 on a 1 to 9 scale.

Today, the Gronigen is a minor breed in the Netherlands, accounting for only about 2% of the total cattle population.

The Meuse-Rhine-Ijssel (Maas-Rijn-Ijssel)



provided by Digiteelt

Development in the Netherlands

The Meuse-Rhine-Ijssel (M.R.I) is a red spotted breed that can be found in most countries of western Europe. It probably traces back, at least in part, to some of the same ancestors as those of the Friesian. The M.R.I. breeding industry began in earnest in the second half of the 19th century in the eastern part of the Netherlands. A mixture of red and red spotted Dutch cattle and Munster cows imported from Germany formed the basis of the breed.

Although the M.R.I. was developed as a dual-purpose milk/meat breed, breeders have been concentrating on the breed's milking qualities for many years. Since the 1970s, some Red Holstein blood has been introduced to enhance milk production. Nevertheless, the M.R.I. has retained its heavy muscling. Mature milk recorded M.R.I. cows average about 10,500 lbs of milk per lactation, which is not far below the production of the Dutch Friesian. However, butterfat content is somewhat lower than that of the Friesian (3.7 vs. 4.1%).

In 1906, the Netherlands Cattle Herd book Society recognized the M.R.I. as a distinct breed and began registering them, along with the other two Dutch breeds, the Friesian and the Gronigen.

Introduction to North America

M.R.I. cattle were brought to North America in the 1970s. However, they were preceded by other important continental breeds such as Charolais, Simmental, Limousin, Chianina, Gelbvieh, Maine-Anjou, Salers, etc. Consequently, they have not gained a foothold in North America.

The M.R.I. Today

The M.R.I. accounts for about 24% of the national herd in the Netherlands, compared to 74% for the Friesian and 2% for the Gronigen. The M.R.I. is a very rugged, massive-bodied, heavy muscled breed. It is relatively short-legged for a large breed. In weight, mature cows average approximately 1,750 lbs, and mature bulls about 2,750 lbs.

The color of the M.R.I. is red patches on white, but the markings are not as sharply defined as those on the Friesian. Bright reds are preferred over dark reds. The neck and shoulders are usually red; the face, if red, usually has a white streak from the forehead to the muzzle. Red over much of the rest of the body now predominates on most individuals.

SWITZERLAND

The Fribourg

Development in Switzerland

The Fribourg originated in three cantons (provinces) in western Switzerland. One of these was the canton of Fribourg, from which the breed took its name. It is an old black and white breed of cattle that is now extinct. The Fribourg was developed out of the same base stock from which the Simmental breed originated. Zoologically, therefore, it was a black and white relative of the Simmental. It bore no relationship to the Friesian or other black and white lowland cattle of northern Europe.

The Fribourg Today

As noted above, the Fribourg is, for all practical purposes, now extinct. In the 1950s, large numbers of Friesian cattle were smuggled into Switzerland from Germany to increase the milk production of Fribourg herds. After that, Holstein semen from North America was used to upgrade the Fribourg to a strictly dairy-type breed. The last purebred Fribourg bull was slaughtered in 1973.

The original Fribourg was developed as a triple-purpose milk/meat/work breed. It was one of the largest and heaviest breeds of cattle in Europe. Mature cows weighed from 1,765 to 1,875 lbs, and mature bulls from 2,425 to 2,650 lbs. Frame size of the Fribourg was approximately 7 on a 1 to 9 scale. Average milk yield of recorded cows was 9,100 lbs containing 3.80% butterfat.

The Hèrens (Eringer)



Provided by Pierre Bonard

Development in Switzerland

The Hèrens is an ancient breed that belongs to the *Bos taurus brachyceros* type. It derives its name from the Herens Valley area in the Alps of southwest Switzerland. The Hèrens' origins are unknown, but it is thought to have existed as early as Roman times. A bronze head of that period closely resembles the typical proportions of a Hèrens bull. The Herens was developed as a triple-purpose meat/milk/work breed.

The Hèrens Today

The Hèrens is a relatively small breed. Mature cows weigh from 900 to 1,000 lbs and mature bulls from about 1,300 to 1,400 lbs. Frame size is only 2 on a scale of 1 to 9. Average milk production is about 6,000 lbs per lactation, with an average butterfat content of 3.87%. Hair color may vary from chestnut to dark red or dark brown to almost black, often with a lighter stripe down the back.

Hèrens herds are turned out to pasture as soon as possible in the spring, usually on land at medium altitude. But, with the onset of summer, they are sent up to graze in higher mountains that are 1.0 to 1.5 miles in altitude. They remain on grass as long as possible, even to November, spending nights in the open and often in snowy conditions. The Hèrens is obviously a hardy breed to be able to thrive in such a harsh environment. The herds have declined since World War II, because there is less farming in the higher mountain regions. In 1970, there were 25,000 Hèrens cattle in Switzerland. By 1980, the number had declined to 5,000 head, accounting for less than 0.5% of Switzerland's total cattle population.

At one time, the Hèrens had been a sporting breed in which fighting the cows was a pastime for festive occasions. Admission was charged and the proceeds donated to charity. Cows selected for fighting were given special care. Selection was made for aggressiveness through the choice of daughters from good-performing cows. Bulls were never used for fighting.

The Simmental



provided by Beate Milerski

Development in Europe

The Simmental originated in central western Switzerland in the Simme River Valley, from which it takes its name. In English, the word "tal" means valley; hence, the name Simmental. This alpine region is characterized by good rainfall and productive pastures. During the late Middle Ages, from about 1250 to 1350 A.D., the cattle in this region were valued for their ability to do work and to produce milk and meat. By the early 1500s, these Fleckvieh ("spotted cattle") could be found in alpine valleys reaching into Italy, Austria, France and southern Germany. By 1550, the breed had been crossed with native German herds, producing cattle similar in type to today's red and white Simmental. The French also crossed the Fleckvieh with other breeds and produced three strains that are collectively known as Pie Rouge ("red speckled"). The three strains of Pie Rouge in France are: Abondance, a smaller strain of dairy cattle; Montbeliarde, raised for beef and dairy purposes; and the Pie Rouge de l'Est (Eastern red and white), also raised for meat and dairy. All of these strains share an ability to thrive in harsh winters and damp springs. The strain that was exported to help form the American Simmental was the Pie Rouge de l'Est, which is larger, heavier muscled, and more rugged in its structure than the other two strains. In its native country, Switzerland, Simmental cows average about 1,775 lbs in weight and bulls about 2,875 lbs.

The Swiss began maintaining a herd book in 1803. In 1890, the country amalgamated herd book statistics, probably as a result of the demand for beef products in a rapidly industrializing Europe. By the end of the 19th

century, the Swiss were exporting Simmental cattle to many parts of central and eastern Europe, to Latin America, and occasionally to the United States. The U.S. Simmentals, however, were blended with other cattle and lost their identity as a pure breed. The Simmental was a popular breed world-wide because it was so adaptable and it crossed well with existing native cattle. They were good foragers and were capable of withstanding harsh environmental conditions.

Since its origins in Switzerland, the Simmental has spread to all six continents. Total numbers are estimated at 40 to 60 million worldwide. The worldwide spread was gradual until the late 1960s. Records show that a few animals were exported to Italy as early as the 1400s. During the late 19th century, the Simmental was distributed through most of Eastern Europe, the Balkans, and Russia, ultimately reaching South Africa in 1895. Guatemala imported the first Simmentals into the Western Hemisphere in 1897, followed by Brazil in 1918 and Argentina in 1922. Among all breeds worldwide, the Simmental is second in numbers only to the Brahman.

Establishment in America

There are reports from a variety of sources indicating Simmental cattle arrived in the U.S. before 1900. They were reported as early as 1887 in Illinois; in 1895 in New Jersey; and in New York and New Mexico around the period of 1916-1920. As noted previously, these imports apparently lost their identity by being blended in with other breeds.

The Simmental made its most recent appearance in North America when a Canadian, Travers Smith, imported the famous bull, "Parisien," from France in 1967. Semen was introduced into the U.S. that same year, with the first half-blood Simmental calf born at Geysler, Montana in February, 1968. The American Simmental Association (ASA) was founded in October, 1968. The first purebred bull was imported into the U.S. in 1971. Then, in 1975, the World Simmental Federation (WSF) was formed, of which the U.S. is a member. It is also noteworthy that in 1971, the association published the first beef breed sire summary, and more recently developed the first multi-breed EPDs in the beef industry.

The Simmental Today

Today, Simmentals in the U.S. and Canada have been selected for more moderate size than was the case in the early days of the breed. In the U.S., most Simmentals are no longer spotted. Instead, they are largely solid red or black, but often with a white face. Spotted Simmental-cross cattle were being discounted by packer buyers during the late 1970s and into the 1980s because they were thought to be mongrelized cattle of uncertain breeding. Large birth weights accompanied by calving difficulty, overly-large frame size, and late maturity were also problems that were encountered in the early days of the breed in North America. These are seldom problems for the breed today.

A comparison of data from U.S. MARC shows that assisted birth from mature cows have declined from 10.8% to 2.3% over the past 25-30 years. Furthermore, Simmental-sired first calf heifers in MARC's most recent GPE evaluation (cycle VII) had the lowest percentage (14%) of assisted births among the four continental and three British breeds evaluated. This has been accomplished without sacrificing growth. Among the four Continental breeds (Charolais, Gelbvieh, Limousin, and Simmental), the Simmental ranked first in weaning cut, first in postweaning gain, and first in final slaughter wt. at 445 days of age. In percentage grading USDA Choice (65.7%), Simmental-sired steers ranked first among continentals and were comparable to Herefords for this trait. Fat thickness, ribeye area, and yield grade were similar to the other continentals. Tenderness of steaks from Simmental-sired steers, based on shear force as well as sensory evaluation, like the other continentals, was slightly but not significantly lower than tenderness of the British breeds.

Among the nine breeds evaluated for feed efficiency (live weight gain/unit metabolizable energy consumed) in Cycle VIII of US MARC's GPE program, Simmental ranked first when fed to a constant endpoint of 465 lbs of retail product.

In calendar year 2007, the American Simmental Association registered 51,166 cattle, which ranked fourth among all beef breeds and second among continental breeds.

GERMANY

The Braunvieh



Development in Europe

The Braunvieh of Germany and Austria was developed from the Brown Swiss cattle of Switzerland. These all are essentially the same breed, with only small differences between them. Literally translated, Braunvieh means “brown animal.”

Skeletal remains found in Switzerland suggest that the Brown Swiss is one of the oldest breeds of cattle in the world. They were developed from crosses between the *Bos Taurus primigenius* (Aurochs) and the later *Bos taurus brachyceros*. These crosses occurred in the Neolithic period and by 1800 B.C., a small brown beast could be found in the lake villages. During the last 1,000 years, records indicate that these short-horned brown animals had been in existence and that they were kept for meat and work. They continued in this primitive form until the 1800s, when improved management systems opened the door for breed improvement and high productivity. Once this became possible, milk production potential was exploited and a triple-purpose animal evolved. The advent of mechanization resulted in their use as a dual-purpose meat/milk breed. Modern Brown Swiss are used primarily for milk.

Today, nearly all Brown Swiss cattle are found in the more mountainous eastern half of the country, whereas Simmental cattle populate the western half. Brown Swiss account for about 47% of the total cattle population in Switzerland, while Simmentals account for about 50%. Brown Swiss milk production averages 8,800 lbs, but a few individuals exceed 22,000 lbs. Cows at lower altitudes generally produce more milk than those at higher altitudes. Mature cows range in weight from 1,325 to 1,535 lbs and mature bulls from 2,200 to 2,600 lbs.

Introduction to America

The first Brown Swiss cattle brought to the United States consisted of a bull and seven heifers in 1869. Only 15 more bulls and 111 cows were brought over before an outbreak of foot-and-mouth disease prompted the USDA to ban importations of European cattle in 1880. From these animals and only seven others which were imported via Mexico between 1908 and 1931, have sprung the large numbers of Brown Swiss in the U.S. today. The American Brown Swiss is no longer a dual-purpose breed. Rather, it is considered strictly a dairy breed.

In the late 1960's and early 1970's, dual-purpose Braunvieh cattle, along with other Continental breeds, were exported to North America. These cattle were much stouter and more muscular than the American Brown Swiss.

The Braunvieh Today

The Braunvieh has been shown to be adaptable to a wide variety of environments. Today, they can be found in over 60 countries from the Tropics to the Arctic Circle. The Braunvieh was evaluated in Cycle II of the Germ Plasm Evaluation program at U.S. MARC. Percent unassisted births of Braunvieh-sired calves (94.5%) was among highest of all 27 breeds evaluated in GPE. The same was true for percent survival to weaning (95.1%). Weight at weaning was similar to Simmental, Gelbvieh, and Maine-Anjou sired calves. Postweaning avg. daily

gain, however, was lower than these breeds, but higher than Limousin, Tarentaise, and Piedmontese. Percent grading USDA Choice (59.4%) was among the highest of the Continental breeds. Percent retail product (69.5%) was similar to most other Continental breeds, except for the Piedmontese (73.4%).

Age at puberty of Braunvieh-sired heifers occurred earlier than Hereford x Angus crosses (332 vs. 357 days of age) as well as most other Continentals. Pregnancy rate of heifers (93.0%) was among the highest of all breeds. The same was true for percent unassisted calvings of Braunvieh-sired cows (92%) and weaning wt. of their calves (534 lbs). It is obvious from these results that the maternal ability of Braunvieh-sired females is exceptional.

In 2007-08, the Braunvieh Association of America registered 3,500 cattle.

The Gelbvieh



Development in Germany

The Gelbvieh or “German Yellow” breed was developed in the Franconian area of northern Bavaria in southern Germany. They were derived from an amalgamation in the early 1900s of four breeds of triple-purpose yellow cattle—Yellow Franconian, Limburg, Lahn and Glan-Donnersberg. From around 1750, the indigenous cattle of these areas were crossed with Simmental and Brown Swiss bulls in order to improve them. Also, the Shorthorn breed was introduced during the late 1800s, which had a favorable influence on fattening and carcass quality traits.

Purebred herds and standard breeding stations began to be developed around 1870. This beginning of organized breeding led to the formation in 1897 of the “Breeders Association for Yellow Franconian Cattle, Division of Upper and Middle Franconia,” in Nuremberg. Then, in 1899, the “Breeders Association for Yellow Franconian Cattle, Division of Lower Franconia,” was founded in Würzburg. In 1905, the two associations were joined together into one organization headquartered in Würzburg.

The association’s breeding goal was to improve those characteristics that would contribute to the development of a triple-purpose meat/milk/work breed. They also aspired to develop a breed that was solid colored rather than spotted. Gelbvieh cattle today range from cream to a reddish yellow, with lighter rings around the muzzle and eyes. In Germany today, two types of Gelbvieh are bred: a dual-purpose meat/milk type and a strictly beef type. German Gelbvieh milk cows average about 8,200 lbs in a 300-day lactation. Mature Gelbvieh bulls weigh about 2,700 lbs and mature cows approximately 1,650 lbs. Gelbvieh cattle are moderate in frame size, averaging frame score 6.0 to 6.5. The weight of the Gelbvieh is a result of its heavy muscling.

Establishment in America

Leness Hall, general manager of Carnation Breeding Service, was visiting Germany in 1969 looking for new sources of Fleckvieh semen for the Simmental breed. While looking through the sire line-up at a large A.I. stud, he saw a very impressive red bull named “Hass,” who happened to be a Gelbvieh. Hall investigated the breed further in 1970 and decided to add Gelbvieh bulls to Carnation’s semen imports. The first semen arrived from Germany in 1971, the same year the American Gelbvieh Association was organized. Four Gelbvieh A.I. sires were represented in this initial importation. A total of 43,000 ampules of semen came in during 1971-72. The sires were Ufa, Uni, Universaal and Upat.

The Gelbvieh Today

The Gelbvieh was evaluated in Cycle VII of the Germ Plasm Evaluation program at U.S. MARC. Birth wt. (88.7 lbs) and assisted calvings (2.3%) were lower than the other Continental breeds (Charolais, Simmental, and Limousin), lower than Hereford, but higher than Angus and Red Angus. Weaning wt. at 200 days (534.0 lbs) was lower than Simmental and Charolais, similar to Angus and higher than Hereford, Red Angus, and Limousin. Postweaning average daily gain (3.12 lbs) was comparable to Limousin and lower than the other five breeds. The same was true for carcass wt. (800 lbs) and percent grading USDA Choice (57.7%). Fat thickness (0.35 in.), ribeye area (13.41 sq. in.), yield grade (2.60), and percent retail product (63.8%) did not differ from the other Continental breeds and were superior to the British breeds. Warner-Bratzler shear force (10 lbs) was the highest of all seven breeds evaluated.

Age at puberty for Gelbvieh-sired heifers (321 days) was the youngest of all breeds evaluated. First-calf Gelbvieh-sired heifers tended to have a higher percent of assisted births (36%) than other breeds. Weaning wt. of their calves (447 lbs) was greater than the other six breeds.

In 2007-08, the American Gelbvieh Association registered 36,222 cattle, ranking it fourth among Continental breeds and seventh overall.

The Pinzgauer



Development in Germany

The Pinzgauer is one of the oldest breeds in the world. The earliest reports state that around 600 A.D., herdsmen in the alpine region of Europe developed cattle that would thrive on small, rocky pastures. They needed a type of cattle that could withstand harsh environmental conditions and serve as triple-purpose animals (meat/milk/draft). The Pinzgauer is indigenous to the alpine regions of Bavaria in southern Germany. Some authorities consider it has resulted from crossings between Celtic and spotted cattle (Fleckvieh), while others believe it has developed from the Spotted Mountain Cattle (Bergscheck) in southern Germany. Herd books trace back to the 1600s. The breed spread throughout Europe in the 1800s, was exported to South Africa, and was introduced to North America in 1972.

In Germany, except on some lowland farms, Pinzgauer cattle are kept on pastures in the summer but are fed inside during the winter. They are dual-purpose cattle, raised for both milk and meat. The base color of the Pinzgauer is chestnut brown, with a color range from light to dark brown, and a clearly defined white stripe of variable width along the topline. This white color continues down the thighs, along the underline to the brisket. In Germany, Pinzgauer bulls weight an average of about 2,000 lbs; cows range from 1,100 to 1,300 lbs.

Establishment in America

As noted previously, the first Pinzgauer cattle were imported into North American in 1972, one of the last Continental breeds to be introduced. It has been observed that the breed is adaptable to both temperate and sub-tropical regions of the U.S.

The Pinzgauer was evaluated in cycle III of U.S. MARC's Germ Plasm Evaluation program. Pinzgauer-sired calves were similar to Hereford and Angus crosses in percent unassisted births, percent survival to weaning, and 200-day weaning wt. In postweaning avg. daily gain and final slaughter wt., they ranked below the larger Continentals, but were comparable to the smaller Continentals (Limousin, Tarentaise, and Piedmontese). The

same was true for mature wt. Like other Continentals, they had leaner carcasses and a higher percent of retail product than the British breeds. Interestingly, marbling score was comparable to Hereford-Angus crosses and higher than all other Continental breeds. Furthermore, shear force tenderness was among the best of all breeds. Age at puberty for Pinzgauer-sired heifers was the third youngest (343 days) of the 27 breeds evaluated in the total GPE program. Pregnancy rate (93.9%) ranked among the highest of all breeds. Obviously, fertility is a major strength of the breed. Percent unassisted births (87%) for Pinzgauer-sired females was similar to the British and smaller Continental breeds.

In 2007-08, the American Pinzgauer Association registered 664 cattle. The Pinzgauer is a breed that is not extreme in any one trait and is moderate in nearly all traits. This is an admirable characteristic. Therefore, it is difficult to understand why the Pinzgauer has not received greater use in North America. A possible explanation is the fact that it was introduced several years later than other Continental breeds.

The Rotbunte (German Red and White)

Development in Germany

The origins of the various cattle types, which evolved in West Germany and which were involved in the development of the Rotbunte, are lost in antiquity. During the late 1700s and well into the 1800s, the native stock were differentiated into eight separate breeds, each of which were located in eight different regions. Each breed had their own herd book. In 1934, Meuse-Rhine-Ijssel blood was introduced from the Netherlands, and the eight regional herd books were combined into one.

The Rotbunte Today

The Rotbunte is located primarily in the Westphalia area of west-central Germany and in the northwest lowland region of Schleswig-Holstein. It is the third leading breed in Germany after the Friesian and the Fleckvieh (Simmental), respectively. It accounts for about 14% of the cattle population in West Germany.

The Rotbunte was developed as a dual-purpose milk/meat breed. Average milk production of registered cows is about 10,300 lbs, slightly less than that of the German Friesian and the Meuse-Rhine-Ijssel. Butterfat content averages about 3.75%.

The Rotbunte is heavier-muscled than the German Friesian, but not as muscular as the Fleckvieh or Gelbvieh. Mature cows weigh from 1,400 to 1,600 lbs, and mature bulls from 2,200 to 2,400. In color, the red area covers a larger area than the white, which tends to be predominately in the lower part of the body. The skin under the red hair is pigmented.

The Small Spotted Highland (Vorderwald and Hinterwald)



provided by Beate Milerski

Development in Germany

These small spotted cattle have a very ancient origin. They developed from the crossing of tiny Celtic stock with a larger northern type brought in by the Alemanni during early migrations. They are indigenous to the Black Forest region in the Baden-Wurtemberg province of southwest Germany. Originally raised for work purposes, they are now used as milk/meat animals. There are two types, the Vorderwald and the Hinterwald. The Vorderwald is the larger of the two. The Hinterwald is the smallest breed of cattle in central Europe. The Hinterwald Cattle Breeder's Association was founded in 1901 and was amalgamated with the Vorterwald

Association in 1936 into the Association of Baden Cattle Breeders. In 1988, a breed society was also established in Switzerland.

The Vorderwald and the Hinterwald Today

In color, the breed is spotted and speckled. It ranges from a pale yellow to red on a white background. Mature Vorderwald cows weigh an average of about 1,200 lbs, and mature bulls about 1,975 lbs. Frame size is about 4.0 on a scale of 1 to 11. Mature Hinterwald cows weight an average of 775 lbs, and mature bulls about 1,200 lbs. Frame size of the Hinterwald is a tiny 1 to 2. Recorded Vorderwald cows produce an average of 7,700 lbs of milk per lactation with 4.1% butterfat. Recorded Hinterwald cows produce an average of 5,600 lbs with 4.2% butterfat.

Starting in 1936, the cattle have been extensively crossbred so that now few pure animals of either breed remain. The Vorderwald has largely been replaced by the Simmental and other lowland breeds and currently represent less than 0.7% of Germany's cattle population, while the Hinterwald accounts for less than 0.1% of the national herd. The Swiss Hinterwald Breeding Society now handles all of the breed's activities, including maintenance of the herd book.

ITALY

The Chianina



provided by Dr. Robert Kropp

Development in Italy

The Chianina is the oldest breed of cattle in Italy and may well be one of the oldest breeds in the world. It served as a sacrificial beast when Rome was at its height in ancient times. They were praised by the poets, Vergil and Columella, and were the model for Roman sculptures of cattle.

The breed originated primarily in the west central part of Italy and was raised in a wide variety of environmental conditions. Because of this, the cattle vary in size and type from region to region. The largest variety, the "Val di Chiana," from the provinces of Siena and Arezzo, has provided most of the foundation stock that has been used in the U.S. and Canada. The name comes from the Chiana Valley in the province of Tuscany. These cattle are the largest in the world. Mature bulls weigh 2,500 to 3,500 lbs and are nearly as tall at the withers as a small man, averaging about 5.6 feet. Mature cows weigh 1,600 to 2,200 lbs and are 5.0 to 5.5 ft tall. Chianina oxen are known to attain wither heights of 6.25 ft. The world record for cattle size was set in 1955 by the Chianina bull, Donetto, who weighed 3,840 lbs.

There is reason to believe that the Chianina, like other Italian white breeds, has been influenced by the Zebu, since there is a common blood-group factor, and because the breed shows excellent resistance to heat. The Chianina has been used to improve other Italian breeds such as the Marchigiana, Romagnola, and Maremma.

Until recent times, the Chianina was used primarily as a draft animal in its native country. With the advent of mechanized farming, selection emphasis has been placed on the ability to produce beef. The earlier selection for draft animals had produced a very large mature size breed with heavy muscling. Recent selection for beef production has maintained the size of the breed while improving early growth. Chianina cows have small udders and are not noted for milk production. This is not surprising as they were originally valued for draft and later for meat.

Introduction to America

U.S. servicemen stationed in Italy during World War II discovered Chianina cattle. In 1971, Chianina genetics were introduced to the U.S. when the first semen was imported from Italy. “Diaceto” was the first Italian fullblood to be collected. The first Chianina calf born in the U.S. was a black half-blood Chianina X Angus/Holstein bull calf born on Jan. 31, 1972.

For the first few years, Chianina genetics were available only through semen. A private quarantine station was established in Italy where semen was collected and shipped to U.S. breeders. Another avenue for securing fullblood Chianina semen was from Canadian breeders.

The Chianina Today

Chianina half-bloods were evaluated in Cycle II of the Germ Plasm Evaluation program at U.S. MARC. Percent of unassisted births of Chianina-sired calves (88.4%) was similar to that of other large Continental breeds. The same was true for percent survival to weaning. Weight at weaning was similar to the other large Continentals, except for Charolais which was significantly heavier. Postweaning average daily gain (2.63 lb/day) was greater than the Limousin and Piedmontese and similar to the Gelbvieh and Braunvieh. Percent grading USDA Choice (27.5%) was the lowest of all 27 breeds evaluated in GPA. Except for the Piedmontese, the Chianina was the leanest (0.32 in backfat) of all 27 breeds.

Age at puberty of Chianina-sired heifers (400 days) was later than that of other European breeds, but earlier than Brahman-influenced breeds. Pregnancy rate (84.0%) was intermediate among all breeds evaluated. Weaning percentage of half-blood cows (86%) was among the highest of the Continental breeds. Weaning wt. of their calves (523 lbs) was also among the heaviest of the Continentals.

Today, the Chianina is a totally different breed than it was when first imported from Italy. The breed needed to be “Americanized,” so to speak, because fullblood Chianina cattle did not fit market specifications for the North American beef cattle industry. Today, there are relatively few fullblood Chianinas in the U.S. Instead, most registered Chianina cattle today consist of a relatively low percentage of fullblood breeding. The remainder is largely Angus. These hybrid (composite) cattle contain from 1/8 to 1/2 Chianina blood. The average is estimated to be about 1/4 Chianina.

These Chianina/Angus hybrid cattle are referred to as “Chiangus.” The Angus and Chianina breeds are quite complementary to one another, because of the marbling ability of the Angus and the lean retail yield of the Chianina. This is verified by research at U.S. MARC. Furthermore, data on thousands of cattle harvested by Swift and Co. reveals that a blend of 1/4 Continental and 3/4 British breeding is near-optimum in feed conversion and cost of gain.

Today, the American Chianina is moderate in frame size and black in color in contrast to its extremely large-framed porcelain-white Italian ancestor. In 2007-08, the American Chianina Association registered 9,270 cattle.

The Marchigiana



Development in Italy

After the fall of the Roman Empire in the 5th century, barbarians settled in the hilly area of Ancona, along the Adriatic coast in the province of Marche. They brought with them the gray-white cattle from which the Marchigiana is believed to be descended. The cattle spread to surrounding provinces in southern Italy. The area is characterized by rough terrain and the available feed is often less than ideal.

Improvement of the breed began in 1850 with the infusion of Chianina, Romagnola, and some Apulian blood, but since the herd book was established in 1933, pure breeding has been practiced.

Introduction to America

The Marchigiana was introduced to North America a bit later than the Chianina. It did not attain the popularity of the Chianina, because at that time, the U.S. was placing a great deal of emphasis on size. Consequently, the larger breed won out. Later, it may not have turned out that way.

The Marchigiana Today

Today, the Marchigiana can be found throughout much of the southern half of Italy. Among the 26 breeds of cattle in Italy, it is one of the more important, accounting for 8% of the country's total cattle population.

The Marchigiana was once classed as a dual-purpose meat/draft breed. Except for size, it very closely resembles the Chianina in color and general conformation. It is a short-haired breed that varies from light gray to almost white. The skin is pigmented and the tongue, muzzle, and external orifices are black. The tail switch is dark, and they are usually dark around the eyes. Their musculature is very similar to the Chianina. For all practical purposes, they are a smaller version of the Chianina. Mature bulls average about 2,550 lbs in weight and 63 inches in height at the withers. Mature cows average about 1,450 lbs in weight and 57 inches in height.

In the U.S., Marchigiana cattle are registered by the American International Marchigiana Society.

The Maremma (Maremmana)



Development in Italy

The origins of this ancient breed is lost in antiquity, and scholars debate whether its ancestors were derived from Podolic stock that immigrated from the Asiatic steppes or whether it has developed in Italy from pre-Roman times. The Maremma has for thousands of years been found in the lowlands and on the hilly areas in the regions of Maremma, Tuscany, and Latium in west central Italy.

Until the 20th century, Maremma cattle ran semi-wild, driven by mounted herdsman called Vaccari. These rough-shod cattle breeders, often men with criminal backgrounds, used snares to capture Maremma bulls, which were then worn down in a grueling struggle. The more docile bulls were castrated and used for work, while bulls that proved difficult to tame were pitted against Corsican dogs in bull fights.

The Italian Ministry of Agriculture established breed standards of achievement and opened a herd book in 1935.

The Maremma Today

Today, the Maremma is a relatively minor breed, accounting for only about one percent of Italy's cattle population. Originally used as a draft animal, the breed is now used for meat production. Mature cows average

about 1,325 lbs in weight; mature bulls approximately 1,925 lbs. Frame size is relatively large, ranging from 7 to 8 on a scale of 1 to 10. Hair color is gray in varying shades, from light gray to nearly black, and the skin is pigmented. The horns of the Maremma are very long and distinctively lyre-shaped.

The Piedmontese



Development in Italy

Twenty-five thousand years ago, a migration of Zebu (Brahman) cattle from Pakistan made its way into northwestern Italy. Blocked by the Alps Mountains from moving further, these cattle stayed and intermingled with the local native cattle, the Aurochs. This blend of *Bos taurus* (Aurochs) and *Bos indicus* (Brahman) evolved in this harsh terrain over thousands of years of natural selection to become the Piedmontese breed. There are several breeds from Italy which also show the influence of this Brahman migration; these are the so-called Italian “white breeds.” All Italian white breeds, Piedmontese included, are born fawn or tan and change to the gray-white color, with black skin pigmentation.

In 1886, the appearance of double muscling in Piedmontese cattle attracted the attention of breeders, who had the foresight to recognize the potential of this trait. The first herd book was established in 1887. Systematic improvement of the Piedmontese began around 1920, and a new herd book was set up by the Breeder’s Association in 1958.

The Piedmontese was developed as a triple-purpose meat/milk/work breed. Today, however, it is used primarily for beef production, but some cows are still milked. The milk is very rich in solids and is used for specialty cheese production. The majority of Piedmontese cattle in Italy are of the double-muscled type which produces up to 10% greater retail meat yield than conventional cattle. Mature cows weight an average of 1,250 lbs, and mature bulls about 1,875 lbs.

Introduction to America

The first Piedmontese in North America arrived in 1979 through an importation made from Italy by the PBL Cooperative of Saskatchewan, Canada. Additional importations throughout the 1980s added to the Piedmontese lines in North America. By the 1990s, importation of additional genetic material (semen and embryos) had dramatically increased, and there is now a wealth of bloodlines from which to select.

The Piedmontese Today

The Piedmontese was evaluated in Cycle IV of the Germ Plasm Evaluation program at U.S. MARC. Birth wt. (80.2 lbs), unassisted births (92.5%), and survival rate to weaning (91.1%) of half-blood Piedmontese calves were similar to Hereford x Angus cross calves. The same was true for 200-day weaning wt. Postweaning gain, however, was somewhat lower (2.49 vs. 2.74 lb/day) and was comparable to the smaller Continental breeds. Dressing percentage (62.7%) was the highest of all Continental and British breeds. Fat thickness (0.31 in.) was the lowest of all 27 breeds evaluated in GPE and ribeye area (13.19 sq in.) was the largest of all breeds. Percent retail product (73.4%) was the highest of all breeds and wt. of retail product (485 lbs) was second to the Charolais. Percent of carcasses grading USDA choice (41.7%) was the lowest of all breeds, except for Brahman (39.7%). In spite of low quality grade, tenderness as measured by shear force did not differ significantly from the average of Herefords and Angus. Research has shown that double-muscled cattle, such as the Piedmontese, have a mutation in a gene known as “myostatin.” This mutation is related to improved tenderness of the muscle.

Age of half-blood Piedmontese heifers at puberty (348 days) was among the youngest of all breeds. Pregnancy rate of heifers (95.5%) was second highest of all 27 breeds. Percentages of calves born (93%) and weaned (84%) for Piedmontese cows were higher than for Hereford x Angus cows (88% and 79%, respectively). However, percent of unassisted calvings were slightly lower (84% vs. 87%). Calf weaning wt. (498 lbs) was similar to Hereford x Angus cows (504 lbs).

In fiscal 2007-08, the North American Piedmontese Association registered 1,768 cattle.

The Pisana (Pisa)

Development in Italy

The Pisana originated in the provinces of Pisa and Lucca in western Italy. It was developed in the mid-1800s from crossing of the Brown Swiss and the Chianina. The Pisana was developed as a dual-purpose meat/work breed.

The Pisana Today

The Pisana declined in numbers to a point that by 1980 only 50 purebred animals remained. However, Tuscany established a program to preserve the breed.

The Pisana ranges in color from a light chestnut to a dark brown or nearly black. It has a reddish-colored line along the back. In size, the Pisana is nearly as large as the Chianina. Mature cows weigh 1,700 to 1,800 lbs. Mature bulls range from 2,700 to 3,300 lbs. Average frame size is about 8.5 on a scale of 1 to 11.

The Red and White Valdostana (Aosta Red Spotted)

Development in Italy

The ancestry of the Valdostana goes back to the 5th century. They are descendants of red and white cattle brought to the Aosta valley by the Allemanni. The breed is found throughout the northwest of Italy. Smaller numbers are also present in central and southern Italy. The Valdostana is primarily a mountain breed, adapted to grazing sparse pastures at high altitudes (1.25 to 1.50 miles).

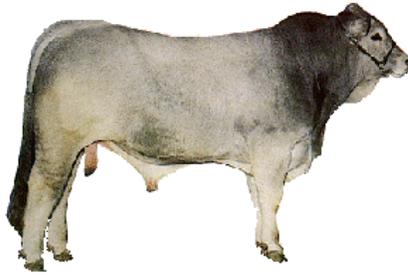
The Valdostana Today

The Valdostana is a dual-purpose meat/milk breed. Average milk production of cows in the mountainous regions is only about 5,100 lbs. However, cows raised on better nutrition on the plains produce as much as 9,000 lbs per lactation. In body size, the Valdostana is considerably smaller than its Simmental relative. Depending upon the nutritional environment, mature cows range in weight from 880 to 1,270 lbs, and bulls from 1,430 to 1,875 lbs. Frame size of the Valdostana is about 4.5 on a scale of 1 to 9. It is a fairly muscular animal.

Hair color ranges from red to yellowish red or violet. The head is white and the ears are red. The top of the neck is white as are the abdomen, the lower part of the legs, and the tail brush. Additionally, white patches of varying size are found on the body.

Like so many other local breeds in Europe, Valdostana numbers have declined. They account for less than 1.5% of Italy's total cattle population. In addition to the Red and White Valdostana, there is also a Black and White variety of the breed; however, very few of them are in existence.

The Romagnola



Development in Italy

The Romagnola is believed to be descended from a blending of the *Bos primigenius podolicus*, a wild ox which lived on the Italian peninsula, and from the *Bos primigenius nomadicus*, the distant ancestor of the Zebu. The Romagnola, therefore, combines the characteristics of both subspecies of the Aurochs, which were the forbears of the modern *Bos taurus* and *Bos indicus* cattle. These primitive cattle gave rise to several breeds having similar characteristics throughout Italy, which included the Chianina and Marchigiana as well as the Romagnola.

The Romagnola originated in three provinces in northeastern Italy. This region was known as Romagna, from which the breed acquired its name. Since its origin, it has spread to other provinces in the northeast of the country. The breed was initially developed for use as a draft animal.

Improvement of the Romagnola started at the beginning of the 19th century, with greater selection for beef production rather than draft qualities. The man largely responsible for this change in direction was Leopoldo Tosi, who developed the first heard of selectively bred Romagnola cattle in the mid-1800s. This became the standard for the entire breed. Such great progress was made that by the year 1900, the Romagnola tied for first prize with the Hereford as best breed at the Paris International Agricultural Fair.

Introduction to America

The Romagnola was introduced to North America in the early 1970s, when many other breeds were imported from the Continent of Europe. However, the breed has not achieved the popularity of its sister breed, the Chianina.

The Romagnola Today

The Romagnola is one of the largest breeds of beef cattle. Mature bulls average about 2,750 lbs, and mature cows approximately 1,650 lbs. It is a heavy muscled breed that is heavier-boned, shorter-legged, and deeper-bodied than the Chianina. Compared to the Chianina and Marchigiana, it tends to have more loose hide between its front legs and along its underline. Like the Chianina and Marchigiana, the skin is black pigmented and the haircoat is white. This coloration is an adaptive response to the hot climate of Italy.

SWEDEN

The Swedish Red and White



provided by Anette Eriksson

Development in Sweden

Native cattle, which were mostly a solid brownish red, existed in central and southern Sweden until the beginning of the 19th century. These animals were then mixed in varying degrees with Ayrshire cattle imported from Britain in large numbers between 1800 and 1870. To a lesser extent, they were also mixed with Milking Shorthorn cattle imported from Britain. Ayrshire herds were also maintained in a pure state both during and after the time of these importations.

In 1928, the Red and White Cattle and the pure Ayrshire cattle were combined in one herd book and named the Swedish Red and White breed. Later, an Ayrshire herd book was established and now separate herd books are maintained. Swedish Red and Whites make up nearly 60% of the Swedish national herd. In recent years, semen from North American Holstein bulls has been used to increase milk production in the breed.

Introduction to America

Semen from Swedish Red and White bulls has been introduced to North America, but no live cattle have been imported from Sweden.

The Swedish Red and White Today

Color of the Swedish Red and White is predominantly brownish red, but may vary from a tan shade to medium dark-red. White spots are commonly found on the underline, legs, and tail. The animals are of a dual-purpose type, more like the Milking Shorthorn than the Ayrshire or Holstein. Mature cows weigh from 1,100 to 1350 lbs, mature bulls from 1,700 to 2,200 lbs. Average milk production from recorded cows is 10,000 to 11,000 lbs with 4.1% fat content. Unrecorded cows produce somewhat less.

The Swedish Red and White was evaluated in Cycle VI of U.S. MARC's Germ Plasm Evaluation program along with five other breeds (Hereford, Angus, Norwegian Red, Friesian, and Wagyu). Calves sired by Swedish Red and White bulls had a very high unassisted calving rate (99.1%). Calf weaning weight was slightly lower than the average of Hereford- and Angus-sired calves (497 vs. 504 lbs), but higher than the Friesian and Wagyu (487 and 457 lbs respectively). Postweaning avg. daily gain (2.89 lbs/day), final slaughter weight (1,281 lbs), and carcass weight (777 lbs) were significantly lower than the two British breeds, but similar to the Norwegian Red and Friesian.

Percent of carcasses grading USDA Choice (59%) was similar to the Hereford (58%) and Friesian (52%), but markedly, lower than the Angus (88%) and Wagyu (85%). Fat thickness (0.31 in.) was significantly lower and percent retail product (62.8%) significantly higher than the British breeds. Cooked steaks from Swedish Red and White carcasses were significantly less tender than Angus and Wagyu, but similar to the other breeds.

Percent of Swedish Red and White heifers expressing puberty (94%) was significantly higher than Hereford- and Wagyu-sired heifers (78 and 80%, respectively), but similar to the other three breeds evaluated. Percent of unassisted births (85.2%) for first-calf heifers was the highest of all breeds. Average weaning weight of their calves (511 lbs) was comparable to the Norwegian Red (509 lbs), and significantly higher than the other breeds.

In summary, the Swedish Red and White is a typical dual-purpose breed, somewhat similar to the British dual-purpose breeds, Milking Shorthorn and Red Poll.

NORWAY

The Norwegian Red



Development in Norway

The Norwegian Red was formed by the amalgamation of a number of breeds. This movement was initiated in 1935 through government sponsorship. The first three breeds used to develop the Norwegian Red population were three native breeds: the Norwegian Red and White, the Red Trønder, and the Red Polled Eastland. In 1963, the native Døle breed was absorbed into the breed, and in 1968 the South and West Norwegian breeds were added. Other breeds that contributed to the gene pool included Swedish Red and White, Finnish Ayrshire, and Friesian. By far the greatest contribution was made by the Swedish Red and White.

In 1961, approximately 60% of the cattle in Norway were of the Norwegian Red breed. By 1975, 98% of the Norwegian national herd consisted of the Norwegian Red. In Norway, the breed is used primarily for dairy purposes. Milk yields average about 12,800 lbs per lactation with 4.2% fat. In size, mature cows weigh about 1100 lbs, mature bulls about 1,975 lbs. Coat color is red or red with white markings.

Introduction to America

A few Norwegian Reds were brought to North America in the 1970s. However, they were not widely accepted by American producers.

The Norwegian Red Today

The Norwegian Red was evaluated in Cycle VI of U.S. MARC's Germ Plasm Evaluation program along with five other breeds (Hereford, Angus, Swedish Red and White, Friesian, and Wagyu).

There were virtually no differences between the Norwegian Red and the Swedish Red and White in any traits—growth, reproduction, or carcass. This is not surprising because, as U.S. MARC researchers noted, they are for all practical purposes, the same breed. For a considerable period of time, the two breed associations have had an open herd policy with one another.

SPAIN AND PORTUGAL

The Asturian



provided by Alfonso Villa

Development in Spain

There are two types of cattle found in the province of Asturias in northwestern Spain, the Asturian Mountain and the Asturian Valley. The mountain or “Casina” variety is located in the eastern mountains of the province. The valley or “Carrenana” variety is located on the western plains of the province. The Asturian is a dual-purpose meat/milk breed.

Asturian Mountain

The mountain variety belongs to the Cantabric branch of very ancient origins and was perhaps somewhat related to the Asturian Valley breed. For centuries, Asturian Mountain breeders selected for higher milk yields for the purpose of cheese production. Both varieties are of a single red color which varies from dark red to clear chestnut. The mountain variety tends to be darker in color than the valley. In both varieties, the bull's coat is usually darker than the females, especially at the back of the head, the neck, and the dewlap. In these areas, it is nearly black. The Asturian Mountain is about 30% lighter in body weight than the Asturian Valley. However, in recent years, the two varieties are coming closer together because mountain cows are being crossed with valley bulls. In fact, about 95% of Asturian cattle are now of the Valley variety. An Asturian herd book was established in 1933.

Asturian Valley

Mature cows of the valley variety average about 1,325 lbs in weight. Mature bulls average nearly 2000 lbs. Frame size is 5.0 to 5.5 on a scale of 1 to 9. In body conformation, the Valley is more desirably proportioned than the Mountain, because it is trimmer in the throat and dewlap, and heavier-muscled in the hindquarter. Valley cows are fair milkers, averaging about 6,500 lbs per lactation, with 4% fat.

In recent decades, a considerable amount of Brown Swiss and Friesian blood has been infused into the breed. This is expected to result in the extinction of the Asturian cattle.

The Brava (Fighting bull or Toro De Lidia)

Development in Spain and Portugal

A subspecies of the Aurochs, *Bos taurus Ibericus*, is believed to be the ancestor of all the dark colored breeds found on the Iberian Peninsula, including the Brava or fighting bull. Breeders of the Brava select primarily for aggressiveness, strength, and vigor. They are found not only in Spain and Portugal, but also in those South and Central American countries where bull fighting is organized. The Brava is raised in many parts of Spain as well as the southern provinces of Portugal.

Brava breeders are the elite cattlemen of Spain. The Spanish attitude toward the bull fight is that it combines both a spectacle and ceremony in a skilled sport, something of a world series game and a symphony in one afternoon. It has evolved from the 15th century practice of mounted noblemen with lances fighting cattle in an exhibition put on for the king and enjoyed also by the people. Herd books were established in Spain in 1980, and in Portugal in 1986.

The Brava Today

Color, which is not an important trait in the selection process, is usually black but may range from gray to white-patched, brindled, roan, red, or chestnut. Mature bulls range in weight from 1,100 to 1,600 lbs. Heavier bulls have been developed in parts of northern Spain, which are said to bring a somewhat higher price, because their size makes a more impressive appearance in the ring. However, they are not as dangerous as the smaller 1,100 animals of central Spain. Both types have the same external characteristics.

The males that possess the necessary vigor and aggressiveness are destined for the bull fight ring. The more timid and docile animals of both sexes are culled out after special tests and eventually sold for beef. The carcass yields are often surprisingly good and may reach 60%. However, the carcass contains a disproportionately high percentage of fore-quarter cuts which are of lower quality.

The Galacian Blond (Rubia gallega)



provided by Professor Ricardo Rodríguez Iglesias

Development in Spain

This breed is indigenous to the Galacian region in the far northwestern corner of Spain. It was first used as a draft animal, later as a dual-purpose meat/milk breed, and is now used primarily for beef production. It was the only breed in this part of Spain until the end of the 19th century. Since that time, the breed has been crossed first with Shorthorn, Barroso and Brown Swiss, and later with South Devon and Simmental. In 1965, there were 180,000 animals of this breed, but very few were purebred. The 1978 Census, however, registered 400,000, making it the second most numerous breed in the country next to the Retinta. A herd book was established in 1933.

The Galacian Blond Today

As its name implies, the breed is blond in color, ranging from cream to golden red, with darker colors found among the mountain strains. In body type, the Galacian Blond is very muscular. Average weight of mature cows is about 1,425 lbs. Mature bulls average 2,200 lbs. Frame size is about 5.5 on a scale of 1 to 11. Average milk production of Galacian Blond dairy cows is about 4,500 lbs a year, with some individuals producing as much as 10,000 lbs.

The Mirandesa (Miranda or Ratinha)



provided by Ricardo Mena

Development in Portugal

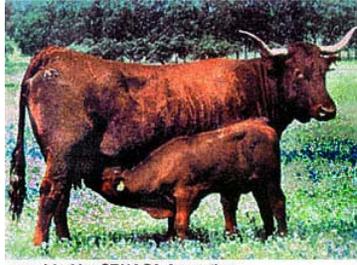
The Mirandesa is indigenous to the mountainous regions of Mirando do Douro in central Portugal but has spread to northeastern Portugal and to southwestern Orense in Spain. It is thought to have originated from the Iberian stock from which many cattle types, in countries both north and south of the Mediterranean, are believed to have originated. A herd book was established in 1977.

The Mirandesa Today

The Mirandesa is the most widely distributed native beef breed in Portugal. It accounts for almost one-fourth of the country's cattle population. It was originally used as a draft animal, but it is now raised primarily for meat production. It has not been used as a dairy breed.

Mature cows average about 1,200 lbs in weight. Mature bulls average slightly under 2,000 lbs. Frame size averages about 5.0 on a scale of 1 to 11. Males are brown in color, while females are a lighter brown, approaching beige. Both sexes have short, very broad heads with large horns that grow outward and bend down and then forward, with the point upward.

The Retinta



provided by SENASA Argentina

Development in Spain

The Retinta is the most numerous breed in Spain. The highest concentrations are found in southern Spain in the provinces of Extremadura and West Andalusia, where the breed originated. The Retinta was developed from a union of the Andalusian Red, Extremadura Red, and Andalusian Blond breeds of the region. A herd book was established in 1933.

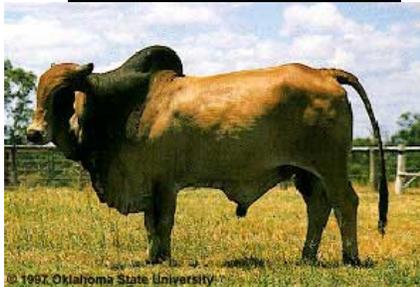
The Retinta Today

“Retinta” means dark red, which refers to the typical mahogany red color of the breed. It is solid in color, with no other markings except for black nose and feet. The horns are lyre-shaped and yellow or greenish yellow with dark ends. Body size varies greatly with environmental conditions from region to region. Mature cows range in weight from 850 to 1,300 lbs; mature bulls from 1,450 to 2,200 lbs. Frame size ranges from 5 to 6 on a scale of 1 to 9. The largest variety is the “Tamerone,” which is bred in the region of Cadiz in the extreme south of Spain.

The Retinta was originally developed as a work animal, but is now predominantly a meat breed. It has fair beef conformation, but is relatively light-muscled in the hindquarters. Retinta cattle are now being crossbred commercially with Santa Gertrudis, Charolais, and Friesians.

HEAT TOLERANT BREEDS

The American Brahman



Development in India

The cattle of India are referred to by the names of Zebu or Brahman. The Zebu is said to have had its origin on the edge of the Indian desert. It is likely that the Zebu descended from an Asiatic form of the Aurochs, *Bos primigenius namadicus*. The Zebu is considered to be of a different species (*Bos indicus*) than cattle of European origin (*Bos taurus*). Zebu cattle spread throughout India and Pakistan, and as far west as the Caspian Sea. They also spread throughout Asia and to the south across that portion of Africa that lies below the Sahara Desert.

Within the Zebu species, there are more than forty different breeds. The physical differences between the Zebu and European cattle are striking. All Zebu cattle are characterized by a prominent hump over the top of the shoulder and neck. The hump is chiefly made up of muscle tissue, so it is not a fat reserve as it is in camels; its function is unknown. Another distinguishing characteristic is in the Zebu's loose skin which hangs along the neck in folds that form a large dewlap. The function of this characteristic is said to be that the loose skin provides more surface area for radiating the Zebu's body heat back into the atmosphere, thereby helping the animal maintain a constant internal temperature in an intensely hot climate. Other notable features include: a

long head; oblong eyes; large, often pendulous ears (except for the Nellore breed, which has small ears); a quick, light gait; and a unique voice.

Introduction to America

There are four principal Indian breeds that came to the U.S. and contributed to the development of the American Brahman. They are the Guzerat, Nellore, Gir (Gyr), and to a lesser extent the Krishna Valley. The names of these Zebu breeds represent the names of the provinces from which they originated. There has been no special effort to keep these breeds separate; instead, they have been blended into one breed, the American Brahman.

The first importation from India came to South Carolina in 1849, but the identity of these cattle was lost during the Civil War. Other Indian importations were made in 1854, 1885, and 1904-06. During 1923-25, a total of 228 cattle of the Guzerat, Gyr, and Nellore breeds were imported to Texas from Brazil. In 1946, eighteen more Brazilian cattle were imported. In total, there are records of less than 300 Zebu importations, and most of these were bulls. Therefore, it follows that other breeding provided most of the foundation females for this rapidly expanding American breed. By 1910 to 1920, it is reported that many cattle in Southwest Texas and the coastal country of the Gulf of Mexico showed evidence of Brahman breeding.

The American Brahman Today

The bull, "Manso," became the most important foundation sire of the breed in America. He was bred by Sartwelle Bros. of Palacios, Texas, one of the most prominent herds in breed development. Manso became the property of J.D. Hudgins, Hungerford, Texas, where he sired large numbers of outstanding progeny that were used widely at a time the breed was undergoing favorable acceptance and expansion. A high percentage of cattle in the breed can be traced back to Manso.

Today's American Brahman is superior to any of the original Indian breeds that contributed to its development. The best specimens of the modern Brahman are moderately deep bodied and very thick and muscular throughout. Brahman cows are good milkers and mothers. Over time, American Brahman breeders have improved the reproductive efficiency of the breed. They have also cleaned up the pendulous sheaths and prepuces that were problems in some bulls. Steel-gray is the most common color of the American Brahman, but solid red cattle are also prevalent. A nervous temperament that is characteristic of some Brahman cattle has been improved through selection for quiet dispositions.

Due to their heat tolerance and insect resistance, Brahman crossbred cattle have contributed immeasurably to profitable beef production throughout the gulf coastal region of the U.S. Because of their relatively wide genetic differences, crosses of the Brahman with European breeds can result in a very high level of hybrid vigor. Following is a summary of research conducted at Texas A & M Univ. on Brahman-Hereford crossbreds: "Crossbred cows dropped more calves than did purebred cows, and more crossbred calves survived until weaning. The crossbred calves were heavier at weaning and gained slightly more in the feedlot than did the purebreds. With respect to the total amount of beef produced, the combined advantage over the better of the two parents was about 25%." The advantaged offered by Brahman crossbreds resulted in the formation of several Brahman-influenced breeds which will be discussed in subsequent sections. In 2007-08, the American Brahman Breeders Association registered 8,300 cattle.

The Barzona



Development In the United States

Development of the Barzona began in 1942. F.N. Bard, and his wife, at their ranch in the intermountain desert region of Yavapai county in central Arizona, wanted to develop a breed that would be adaptable to their region, which was rugged and rocky, with extreme temperatures, sparse rainfall, and limited feed. Bard said, "I want to find a breed, or make a breed of cattle, that with the same number of cattle, on the same range, will produce more pounds of saleable beef."

In 1946, E.S. "Jack" Humphrey joined the Bard's and took over management of breeding operations. He combined the genetics of the Africander, Hereford, Shorthorn, and Angus breeds. It is estimated that the Barzona carries all four breeds in approximately equal proportions. Production records were maintained, and rigid selection was carried out for fertility, rate of gain, and mothering ability. The best cattle in the developing breed were moved to Bard Kirkland Ranch in 1948, and in 1959 the entire operation was moved to that ranch. In 1974, the ranch was sold and the herd dispersed. Most of the cattle were sold to breeders in Arizona, but some were sold to other regions of the country.

The Barzona Today

The Barzona is medium in frame size. Mature weight varies greatly with the environment in which the cattle are raised. Mature cows range from 1,100 to 1,375 pounds, mature bulls from 1,325 to 1,975 lbs. It is generally medium red in color, but it may range from light to dark red, with occasional white on the underline or switch. The Barzona may be either horned or polled. Muscle expression would be slightly less than that of the British breeds.

The infusion of Africander blood into the Barzona has resulted in a breed that is exceptionally hardy. Development of the Africander dates back to the 15th century in Africa. It has a sound skeletal structure that enables it to travel over rough country. It has an ability to utilize a high level of browse and it is known for its heat tolerance, insect and disease resistance.

It is reported that Barzona calves exhibit outstanding vigor at birth and the cows have good maternal ability. Pinkeye and cancer eye are reported to be almost non-existent in the breed because of their dark pigmentation and deep eye set.

Barzona cattle are registered by the Barzona Breeders Association of America, Prescott, Arizona. The association was formed in 1968.

The Beefmaster



Development in the United States

The Beefmaster breed was developed by Lasater Ranch, formerly of Falfurrias, Texas, and now of Matheson, Colorado. The breeding program that led to their establishment was initiated by Ed Lasater in 1908, when he purchased Brahman bulls to use on his Texas commercial herd of Hereford and Shorthorn cattle. In his selection program, Lasater placed special emphasis on milking ability. In 1930, Lasater died and the breeding program came under the direction of his son, Tom Lasater. The younger Lasater took the Brahman-Hereford and Brahman-Shorthorn and crossed them back and forth. After several generations of crossing combined with rigid culling, Lasater felt a superior line of cattle had been developed and decided to call them "Beefmaster."

His culling program was based on six traits: disposition, fertility, weight, conformation, hardiness, and milk production. Stress was placed on the production of pounds of beef. Lasater paid no attention to traits that do not affect the production of carcass beef, such as horns, hide, or color. In 1961, a breed association was established in San Antonio, TX, under the name of Beefmaster Breeders Universal. Since then, the name was changed to Beefmaster Breeders United.

The Beefmaster Today

Today, it is estimated that the breed is composed of slightly less than one-half Brahman breeding and slightly more than one-fourth each of Hereford and Shorthorn breeding. Colors vary greatly and include red, reddish brown, brown, dun, and black. Some are solid colored; many have some white markings. With the current commercial demand for black-hided cattle, more breeders are producing black Beefmasters. Even though a breed association was formed, the original concepts of Tom Lasater in developing the Beefmaster have been continued.

The best specimens of the breed today are thick, muscular, easy-fleshing cattle that can perform well under harsh range conditions. Their body conformation is similar to that of the Brangus. However, they tend to be a bit larger than the Brangus. In 2007-08, Beefmaster Breeders United registered 19,017 cattle, ranking them tenth among all beef breeds in number of cattle registered.

The Braford



Development in the United States

The Braford breed was developed by Alto Adams, Jr. on his ranch in St. Lucie county, Florida, which is located in a sub-tropical environment on the southeast coast of Florida. Working with a base herd of commercial Brahman cows that were primarily of Hudgins and Partin breeding, he began using Hereford bulls in 1947. The resulting calves were outstanding, but the Hereford bulls required to produce these calves had problems with feet, eyes, and general livability. Adams soon realized that using Hereford bulls that were not adapted to South Florida was simply not economically feasible, and he began experimenting with various types of Brahman-Hereford cross bulls. Eventually, he was able to identify “Braford” bulls that were siring calves which met his needs. He used these bulls and their progeny to form what is now recognized as the foundation herd of the Braford breed in the U.S.

By basing bull selection on weaning and yearling weights and allowing natural selection to eliminate calving problems, the Brafords on Adams Ranch improved to the point that the ranch began to consider breed development and recognition. The International Braford Association (IBA) was chartered in 1969 to begin registering Brafords. The IBA operated an office in Fort Pierce, FL, until moving its headquarters to Nagadoches, TX, in 1991. The American Hereford Association formed a second Braford organization, the American Braford Association (ABA), in 1985. Subsequently, in 1994, the two organizations joined forces to form the United Braford Breeders (UBB).

The Braford Today

The UBB recognizes and registers cattle of various Brahman and Hereford percentages, but records the $\frac{3}{8}$ Brahman- $\frac{5}{8}$ Hereford blend as a purebred Braford.

The modern Braford resembles the Brangus in size and type, but tends to be a bit more variable, perhaps because its development began somewhat later (1947 vs. 1932), and fewer generations have been involved in stabilizing its type. The Braford's color pattern is similar to that of the Hereford – a red body with a white face. The Braford's popularity has spread from its Florida origins to other regions throughout the southern U.S. The Braford's red color is of value in the south because it absorbs less heat than black-coated cattle. In 2005, the United Braford Breeders registered approximately 1,800 cattle.

The Brangus



Development in the United States

In 1932, USDA scientists at the Jeanerette, Louisiana Research Station starting crossing Brahman and Angus cattle. They reported many of the same advantages of crossbreeding that had been observed in the Brahman-Shorthorn cross cattle at the King Ranch in Texas. Cattle producers in the region had already expressed an interest in a black polled breed that combined the environmental adaptability of the Brahman and the carcass quality of the Angus. The breed eventually became stabilized in a manner similar to the Santa Gertrudis in that it was composed of three-eighths Brahman and five-eighths Angus breeding. In 1949, a breed association was established as the American Brangus Breeders Association. The name was later changed to International Brangus Breeders Association.

The Brangus Today

Except for a few subtle differences—such as a longer ear and a bit of extra throat, dewlap and sheath—today's Brangus is relatively similar to its Angus counterpart. Compared to other Brahman x European crossbreds, Brangus are generally smoother fleshed and more moderate in their frame size. Based on U.S. MARC data, the Brangus is slightly lower in postweaning average daily gain than the Santa Gertrudis (2.49 vs. 2.62 lb/day). However, there are no significant differences between these two breeds for other economically relevant traits in the U.S. MARC data set. In 2007-08, the International Brangus Breeders Association registered 25,097 cattle, which ranked them eighth among all beef breed associations.

The Corriente



provided by North American Corriente Association

Development in the Americas

The Corriente can be traced back to the first cattle brought to the new world by the Spaniards as early as 1493, when Columbus put cattle ashore on the Caribbean island of Hispaniola. For the next 30 years, every Spanish ship that sailed for the Americas carried a few Corriente cattle. By 1525, more than 1,000 cattle populated the Caribbean colonies. Some were also brought to south Florida. From the Caribbean, these Spanish cattle spread to the mainland – Central America and South America, with the exception of Brazil, to which the Portuguese began exporting their own cattle in 1531.

In Central and South America, the various descendants of the early Spanish and Portuguese cattle are generally referred to as “Criollo.” In parts of Northern Mexico, they are often called “Corriente,” although this term is normally used for any small cattle of indiscriminate breeding. “Corriente” became the most common term used at the Mexico/U.S. border to refer to cattle purchased for rodeo use.

The Corriente Today

Descendants of the original Spanish cattle that have remained pure are now seen in only remote regions of Central and South America, and in very limited numbers in some areas of the southern U.S. In Florida, the few remaining small, native cattle – descendants of the Mexican Corriente – are called Florida Scrub cattle or Cracker cattle; similar cattle in Louisiana are called Swamp cattle.

The Corriente is a very hardy, heat-tolerant animal that can survive in harsh environments where feed conditions are sparse. They are small, slender-bodied, fine-boned cattle. Mature cows range in weight from 500 to 875 lbs, and mature bulls from 825 to 1,110 lbs. Hair color is quite variable, with tan and grayish tan being the most common. Occasionally there is a white underline or a black-and-white pattern, and sometimes a solid or nearly solid black.

There is a breed organization representing the Corriente – the North American Corriente Association in Kansas City, Missouri. In 2007-08, 3,575 Corriente cattle were registered.

The Florida Cracker (Florida Scrub)



Development in the United States

The Spanish colony of St. Augustine, Florida was stocked with cattle from Cuba when the colony was established in 1565. These cattle became the ancestors of the Florida Cracker. The Texas Longhorn, Florida Cracker, and various other breeds of Central and South America, known collectively as Criollo cattle, are all descended from the original cattle brought to the Americas by the Spanish.

Despite the importations of northern European breeds during the 1800s, large numbers of Florida Cracker cattle could still be found until the mid-1950s, but they were then nearly wiped out by crossbreeding with these tropically unadapted breeds. Fortunately, several herds of Cracker cattle in Florida and other southeastern states were preserved by families that appreciated the breed’s hardiness, heat tolerance, and heritage. The state of Florida has been involved in preservation programs for Florida Cracker Cattle since 1970. In 1989, the Florida Cracker Cattle Breeders Association was established to promote the preservation of the breed; over 400 animals were evaluated to serve as foundation cattle.

The Florida Cracker Today

Florida Cracker cattle are similar in appearance to the Texas Longhorn. However, they are smaller in size and do not have the extreme horn length of the Texas Longhorn. The limited feed resources available to these essentially feral cattle for several centuries and the thick scrub in which they lived would not be favorable to the survival of a larger, longer-horned type of animal.

The Florida Cracker is a small breed with a narrow build and a large middle because of the unusually large amount of coarse roughage in the diet. Mature cows weight from 500 to 700 lbs, and mature bulls from 700 to 950 lbs. Colors and spotting patterns are very similar to those of the Texas Longhorn.

The Indo-Brazilian (Indubrasil)



Development in Brazil

The Indo-Brazilian is a Zebu type breed that was developed in Brazil from 1910 to 1930. The breed was developed from unplanned crossings between the Gyr and Guzerat breeds and later with some infusion of the Nellore breed. A herd book was established in 1936. Scientific breeding of Indo-Brazilian cattle began near the city of Uberaba in the state of Minas Gerais in southeastern Brazil. A breed society was formed in 1939.

Introduction to America

By 1946, Indo-Brazilian cattle were being exported to the United States. Some sources suggest that they contributed to the development of the American Brahman. Greater use was made of Indo-Brazilian blood in the American Brahman during the 1980s, when undue emphasis was placed on greater frame size in virtually all U.S. beef breeds.

The Indo-Brazilian Today

The Indo-Brazilian is larger-framed, more loosely built, and lighter-muscled than the American Brahman. The breed is distinctive for its very large pendulous ears, similar to those of the Gyr breed but much larger. It probably has the largest ears of any breed of cattle in the world. The Indo-Brazilian is white to dark gray in color.

The Romosinuano



Development in South America

The name of this polled breed comes from the word “romo,” which refers to the hornless trait and from Sinú, the region in northern Columbia that is home to the breed. They are of the Criollo type which, over a period of four centuries, evolved from the original cattle of the Spanish settlers.

It is thought that the Romosinuano itself was brought from Spain in the 1600s and is of the same stock that produced the Galega breed found in Spain today. While there is a resemblance in general characteristics, the Galega is not polled and is not mentioned as having a polled tendency. It is not known how the Romosinuano lost its horns, but Angus or Red Poll influence is one possibility; mutation is another.

The Romosinuano Today

The Romosinuano is generally reddish-brown in color, but some are black. The cattle are small in size; mature cows average about 800 lbs, and mature bulls about 1,100 lbs. It is a single-purpose beef breed. Their temperament is quite docile.

U.S. MARC scientists evaluated the Romosinuano along with eight other heat-tolerant breeds as well as the Hereford and Angus. Percent of unassisted births for Romosinuano-sired cattle was nearly perfect (99.7%). Growth traits were significantly greater than the Texas Longhorn, tended to be greater than the Boran and Tuli, but were lower than the two British breeds, as well as the Brahman, Nellore, Brangus, Beefmaster, and Bonsmara. Age at puberty of heifers (385 days) was significantly later than British and Longhorn heifers, significantly earlier than Brahmans, and similar to the other breeds. Heifer pregnancy rate was significantly higher than the Brahman (92.7 vs. 82.8%) and comparable to all other breeds. Percent of unassisted calvings for first-calf Romosinuano-sired heifers (83.8%) was among the highest of the breeds evaluated. However, average weaning weight of their calves (388 lbs) was the lowest of all breeds.

In summary, the Romosinuano is a heat-tolerant breed that is high in reproductive traits, acceptable in temperament, but quite low in growth traits.

The Santa Cruz



Development in the United States

Early in 1987, officials at the King Ranch, Kingsville, Texas, saw the need for developing an animal that would have greater market acceptability and still possess the environmental adaptability of the Santa Gertrudis breed. Top producers in the beef industry as well as university scientists and climatologists were consulted to and in the project.

After much study, it was decided to develop a composite breed consisting of $\frac{1}{2}$ Santa Gertrudis, $\frac{1}{4}$ Red Angus, and $\frac{1}{4}$ Gelbvieh. The Red Angus would provide early sexual maturity, calving ease, marbling, and the polled trait. The Gelbvieh would provide high growth, improved milk production, and increased muscling and cutability. The first step was to cross Santa Gertrudis cows with Red Angus and Gelbvieh bulls to produce half-blood progeny. These half-bloods were then crossed back on each for several generations to fix the traits desired and to produce the finished product, which was named the “Santa Cruz.”

The Santa Cruz Today

The Santa Cruz produces both polled and horned individuals. They are solid colored cattle that range from a light red or honey color to a Santa Gertrudis cherry red. Mature cows range in weight from 1,100 to 1,200 lbs, and mature bulls from 1,800 to 2,000 lbs. Fertility is high in both males and females, and sexual maturity is reached at an early age. The Santa Cruz has proven to be very heat tolerant and well adapted to the harsh environment of South Texas. Furthermore, they have proven to perform well both in the feedyard and in the packing plant.

The Santa Gertrudis



Development

The Santa Gertrudis breed was developed by the King Ranch at Kingsville in south Texas. This is the largest ranch in the U.S. and one of the largest in the world. In the early 1900s, the ranch became interested in using Brahman breeding to improve range cattle in the region. In 1910, they secured an extremely growthy half-blood Shorthorn-Brahman bull from Tom O'Connor of Victoria, TX, and began mating him to their purebred Shorthorn cows. The resultant offspring did so well that King Ranch became seriously interested in crossbreeding Shorthorns and Brahmans. Around 1918, they purchased 52 of the best 3-yr.-old bulls that they could secure from the Borden Brahman herd. These bulls were primarily three-fourths blood Brahman, because very few purebreds were available at the time. The Borden bulls were then mated to their Shorthorn cows which resulted in $\frac{3}{8}$ Brahman, $\frac{5}{8}$ Shorthorn progeny. From these matings, the best red heifers were mated to the best red bulls to propagate the $\frac{3}{8}$ - $\frac{5}{8}$ line. After about three year of such matings, an outstanding red bull named "Monkey" appeared. Monkey is recognized as the foundation sire of the breed, and all present day Santa Gertrudis trace to him. The breed was named Santa Gertrudis because it was developed on the Santa Gertrudis land grant, which was originally granted from the Crown of Spain.

The Santa Gertrudis Today

Today, the popularity of the Santa Gertrudis is being challenged by two other Brahman derivatives, the Brangus and the Beefmaster, which were developed after the Santa Gertrudis. It would appear that all three of these Brahman derivatives have an important role to play in the environment of the southern U.S. The Germ Plasm Evaluation (GPE) study at the U.S. Meat Animal Research Center shows that the Santa Gertrudis is similar to the three major British breeds (Angus, Hereford and Shorthorn) in growth rate, percent retail cuts, and reproduction traits. They do, however, have a significantly lower percentage of carcasses that grade USDA Choice (59% vs. 72%). In 2007-08, Santa Gertrudis Breeders International registered 7,500 cattle.

The Senepol



Origin in the Virgin Islands

In 1860, a shipment of sixty heifers and two bulls of the West African N'Dama breed was imported to the Caribbean Island of St. Croix from the French colony, Senegal, West Africa. This was the nucleus from which a number of N'Dama herds were established on St. Croix.

One of the largest N'Dama (Senegal) breeders on St. Croix was Bromley Nelthropp, manager of the Grenard Estate, with over 250 head in 1889 maintained as purebred. Nelthropp wanted to develop a strain of cattle that was more productive yet still adaptable to the tropical environment of the Virgin Islands. He maintained a pure N'Dama herd until 1918, when he started a limited crossbreeding program using a Red Poll bull named "Douglas," which had been imported from England to the island of Trinidad. Subsequently, two of his best sons out of N'Dama cows were also used in the herd.

Nelthropp maintained this nucleus as a closed herd until 1942, when a second Red Poll bull and two Red Poll cows were introduced into the herd. After that, the herd was again closed for a number of years. The cattle that resulted from the crossing of the Red Poll and N'Dama came to be known as Nelthropp cattle and had a wide acceptance among cattle producers on St. Croix. They showed uniform characteristics and bred true. Later they became known as Senepol rather than Nelthropp cattle. Selection by the early breeders was for a beef-type conformation, a solid bright red color, and the polled characteristic.

The pure N'Dama is a small, hardy, tan-colored breed, usually with horns, but some individuals are polled. It is heat tolerant and unusually fertile under tropical conditions. The N'Dama is one of the very few African breeds which carries a strong tolerance to the disease, trypanosomiasis, carried by the tsetse fly.

Introduction to the United States

In 1976, Senepol breeders on St. Croix adopted an on-farm performance testing program through the U.S. Department of Agriculture and the College of the Virgin Islands Extension Service. In 1977, the first plane load of Senepol cattle were sent to the U.S. mainland. Since its introduction, the Senepol influence has spread across the southern United States.

The Senepol Today

The Senepol is a strongly polled breed of medium frame size. Mature cows weight 1,100 to 1,300 lbs. Mature bulls average about 1,750 lbs. The cows are good milkers, and bull calves weaned at 8 months of age will weigh up to 550 lbs. The Senepol is light solid red in color with only very minor white undermarkings on some individuals. Its beef-type conformation is generally better than that of most other heat-tolerant breeds.

The Senepol was evaluated along with the Brahman and Tuli breeds in a multi-state Southern Regional Research Project (S-1013) designed to study tropically adapted breeds. At birth, Senepol-sired calves were 6.5 lbs lighter than Brahman-sired calves, and 5.5 lbs heavier than Tuli-sired calves. At weaning, Senepol-sired calves were 41.6 lbs lighter than Brahman-sired calves, but there was no significant difference between Senepol- and Tuli-sired calves. The same was true for heifers at 1.5 and 2.5 years of age. However, from 3.5 to 8.5 years, Tuli-sired females were significantly lighter in weight than either Senepol- or Brahman-sired females. Lifetime production efficiency was then evaluated for 73 Senepol-, 93 Brahman-, and 86 Tuli-sired females that were maintained on south Texas rangeland. As first-calf 2-year-olds, Senepol-sired females had calves that were 5.3 lbs heavier at birth than calves from the other two breeds. They also experienced greater calving difficulty, having 29.2% assisted births compared to 16.7% and 5.6% for Tuli- and Brahman-sired heifers. Weaning weights of calves from Senepol-sired females were significantly lower than calves from Brahman-sired females until their 7th parity, when there was no significant difference. Weaning weights of calves from Senepol-sired females did not differ from calves out of Tuli-sired females at any parity, from 1st through 7th.

Brahman-sired heifers had the lowest pregnancy rates of 2-year-olds. Thereafter, except for the 3rd parity, Senepol-sired females had the lowest pregnancy rates through the 7th parity. Senepol-sired heifers also had the lowest number of live calves at birth and lowest percent weaned until the 6th and 7th parity.

Production efficiency as measured by lbs of calf weaned/ 100 lbs of cow exposed was lowest for the Senepol in the 1st, 2nd, 3rd, 4th, and 6th parities, but highest in the 7th parity. For the average of seven calf crops, Tuli had the highest efficiency, being 1.6% greater than Brahman, and 3.6% greater than Senepol.

The authors concluded that in the south Texas environment, the Tuli crosses compared favorably and in most circumstances were more productive and efficient than Brahman and Senepol crosses, even though Brahman crosses produced consistently heavier calves. They went on to say that the Senepol crosses were the least adapted to south Texas and only began to perform comparable to the Brahman and Tuli crosses in later parities.

The Simbrah



Development

In the late 1960s, shortly after the introduction of Simmental to North America, a few southern cattlemen began to act upon the idea of a Brahman derivative breed that could thrive in the sub-tropical environment of the Gulf Coastal region of the U.S. and still meet the needs of other segments of the beef industry—stocker, feeder, packer, retailer, and consumer.

These producers wanted to develop a breed that would complement the Brahman in the areas of muscling, growth, temperament, early sexual maturity, and fertility. The Brahman would in turn provide strengths in heat tolerance, insect resistance, longevity, grazing ability, and calving ease.

Although the experimentation of combining Simmental and Brahman began in the late 1960s, the actual registration of the first Simbrah animal occurred in 1977, the year that Simbrah registration was approved by the membership of the American Simmental Association (ASA). The first year, 700 Simbrah cattle were registered. The second year, 1,100 head were registered, and after five years, and the herd book approached 10,000 animals. Since then, Simbrah cattle have spread beyond the Gulf Coast area to other regions of the country.

The Simbrah Today

The basic requirements for Simbrah cattle are as follows: 1) a minimum of $\frac{3}{8}$ Simmental; 2) a minimum of $\frac{1}{4}$ Brahman; 3) a maximum of $\frac{3}{8}$ combination of other breeds. The following criteria must be met to qualify as a purebred Simbrah: 1) $\frac{5}{8}$ Simmental; 2) $\frac{3}{8}$ Brahman; 3) both parents must be ASA registered. The Simbrah herd book is maintained by the ASA, and all procedures and performance requirements applying to Simmental cattle also apply to the Simbrah.

In size, the Simbrah is a moderate to large breed with most cows in the range of 1100-1500 lbs and bulls in the range of 1,800-2,500 lbs. It is the largest of the Brahman derivative breeds. Cattlemen in the warmer climates prefer red color and eye pigmentation. In cooler environments, black Simbrah are quite popular. Simbrah have fine sleek hair in the summer, but usually grow enough hair in the winter to thrive up into the central plains of the U.S. Polled Simbrah are popular and becoming more numerous.

In 2007, the American Simmental Association registered 2,020 Simbrah cattle.

The Texas Longhorn



Development in Mexico and Texas

The ancestors of the Texas Longhorn were the first cattle to set foot on North American soil, about 500 years ago in Mexico. These cattle gradually migrated north and crossed the Rio Grande River into Texas. Early on, they were used as “meat on the hoof” to feed the armies of Spanish explorers.

Texas Longhorns were very hardy and well adapted to the rigors of life in the southwestern range country. The breed also thrived on the grassy range of the southern plains, reaching its peak in the latter half of the 19th century, when the westward expansion of the railroad and invention of the refrigerated rail car made it possible to transport many thousands of Longhorns to meat packing centers in Kansas City and Chicago. From these centers, the carcasses were shipped to the heavily populated cities in the east.

The era of the long trail drives, when cowboys drove large Texas Longhorn herds over paths that led to “cow towns” along the railroad, lasted until late in the 19th century when the open range was carved up by settlers. Furthermore, the earlier-maturing British breeds had been imported to improve the fattening qualities of the native cattle. At the beginning of the 20th century, the Texas Longhorn was in danger of extinction. Then, in 1927, a small herd was established by the U.S. government on the Wichita Mountain Wildlife Refuge in order to preserve the breed. The Longhorn was further perpetuated by formation of the Texas Longhorn Breeders Association of American in 1964, headquartered in Fort Worth, TX.

The Texas Longhorn Today

Interest in the Texas Longhorn has spread throughout the U.S., and breeders may now be found in virtually every state. In order to preserve the basic characteristics of the breed, strong selection pressure is placed on length and shape of horn, and coat color pattern. A highly speckled pattern with varying colors is preferred. Breed average horn length is 50 inches, although many individuals have horns that are much longer. The Longhorn is relatively light-muscled, but in recent years some breeders have selected for greater muscling. Mature cows range in weight from 725 to 825 lbs. Bulls range from 1,100 to 1,750 lbs.

The Texas Longhorn was evaluated in Cycle IV of U.S. MARC’s Germ Plasm Evaluation program. Birth weight of half-blood Longhorn calves (73.5 lbs) was the lowest of all beef breeds, and the percent of unassisted calvings was 100%. Weaning weight, postweaning average daily gain, final slaughter weight, and carcass weight were the lowest of all breeds. Percent of carcasses grading USDA Choice (57%) was lower than the British breeds, comparable to many of the Continental breeds, and higher than the Zebu breeds. Backfat thickness and percent retail product were also similar to the Continental breeds. Reproductive traits of half-blood Longhorn females were among the best of all breeds in the U.S. MARC GPE program. Weaning weight of calves from half-blood Longhorn cows were the lightest of all breeds except for Galloway.

The U.S. MARC data show that the Longhorn excels in fertility and ease of calving. In addition, they are tolerant to extreme heat, much like the Zebu breeds. All in all, the Texas Longhorn is a fertile, very hardy and relatively trouble-free breed that is adaptable to sparse feed resources and harsh environments.

INDIA AND PAKISTAN

The Cholistani



Origin in Pakistan

The Cholistani cattle are found in the Cholistan desert in Bahawalpur in eastern Pakistan. They are a *Bos indicus* breed. The Cholistani is a triple-purpose meat/milk/draft breed. They are of relatively recent origin, and are believed to have been developed by crossing the Sahiwal with the local cattle of the region. In color, the Cholistani is usually white with red, brown, or black speckling. There is no indication that the Cholistani has been exported to other countries.

The Guzerat (Kankrej)



provided by Joe C. Paschal

Development in India

The Guzerat or Kankrej breed is of the Zebu type. It originated in the state of Gujerat on India's west coast many centuries ago. The Guzerat has spread beyond its original breeding area to become one of India's most important milk/draft breeds.

Introduction to the Americas

The importation of the Guzerat from India to Brazil, where it is still bred pure, began in 1890. A Brazilian herd book was established in 1938. The Guzerat was exported to the United States, where it was the most important breed in the formation of the American Brahman.

The Guzerat Today

The Guzerat is among India's largest and heaviest breeds. Preweaning growth of Guzerat purebreds is among the highest of the *Bos indicus* breeds but lower than that of the larger *Bos taurus* breeds. Similar results have been reported for post-weaning gain, yearling weight, feedyard gain, and feed efficiency. Carcass quality grade is lower when compared to *Bos taurus* breeds, but similar to other *Bos indicus* breeds. Color of the Guzerat varies from light gray to black. The midsection is generally lighter in color than the remainder of the body, especially in bulls. The bulls tend to become darker than cows or steers. In India, Guzerat cows produce an average of 2,500 lbs of milk, but superior cows yield as much as 6,500 lbs per lactation.

The Gyr (Gir)



provided by Dr. R. E. McDowell

Development in India

The Gyr originated in the state of Gujerat on the west coast of India, and has spread to the neighboring states of Maharashtra and Rajasthan. It is one of India's foremost dual-purpose milk/meat breeds. The Gyr has been used in India to improve local breeds, including the Sahiwal and Red Sindhi.

Introduction to the Americas

From 1890 to 1921, Gyr cattle were exported to Brazil, where they were used for beef production. The largest shipments were made from 1918 to 1921. Most of the Gyr cattle introduced to the United States came from Brazil. The Gyr played a role in the development of the American Brahman.

The Gyr Today

The Gir is distinctive in appearance with an unusually round, bulging forehead, long pendulous ears, and horns that point backward and bend spirally up. The Gyr ranges from white to red, with many of them being mottled in color. It is a relatively small breed. Mature cows average about 850 lbs; mature bulls about 1,200 lbs. Average milk production of Gyr cows is 3,500 lbs per lactation, with a record production of 7,000 lbs. Butterfat content is about 4.5%.

The Krishna Valley



provided by A.R. Patil

Development in India

The Krishna Valley is a breed of recent origin. During the last two decades of the 19th century, some of the Rajas (Hindu noblemen) of the South Mahratta country, which lies in the watershed of the Krishna and other rivers, wanted to develop a powerful bullock for agricultural purposes in the sticky, black soil of the region. It is reported that the Krishna Valley developed from local Zebu cattle mixed with Gyr, Nellore, Guzerat, and Mysore blood. Massiveness of size was the primary factor in the selection process.

Introduction to the Americas

Krishna Valley cattle were exported to the United States and Brazil, where they were crossed with other Zebu breeds in developing regionally adapted *Bos indicus* cattle in the two countries. As a result of these crossings, none of the Krishna Valley cattle retained their identity in the Americas.

The Krishna Valley Today

The cattle of this breed are very large in frame size, but rather loosely-built in their skeletal make-up. A grayish-white is the preferred color, with a darker shade on the forequarters and hindquarters of the bulls. Adult females appear more white. The forehead has a distinct bulge. The Krishna Valley has small curved horns that usually emerge in an outward direction and curve slightly upwards and inwards. The ears are small and pointed; breeders prefer that they not droop too much.

Krishna Valley oxen are good workers, but they cannot be used on hard ground because their hooves are relatively soft. The cows produce some milk for human consumption after suckling their calves. However, milking ability is extremely variable in the breed.

The Nellore



Origin in India

There has never actually existed a breed in India known as the “Nellore.” The name refers to a district of the old Presidency of Madras, now belonging to the new State of Andra by the Bengal Sea. It was in Brazil that some writers began to use the name Nellore as a synonym for “Ongole,” the Indian breed that contributed most to the development of the Nellore.

The origin of the Ongole goes back 2,000 years before Christian times. It was Aryan people that brought the ancestors of the Nellore to India, where they were submitted to very extreme weather conditions--the arid land of Belushistan, the cold winter of Punjab, the alluvial lands of Ganges, and torrid heat by the Bengal Sea. These stressful environments provided the Ongole breed the adaptability genes that are now expressed in the Nellore.

Development in Brazil

Two Ongole cattle were brought to Brazil in 1868, and two more came in 1878. Another importation came in 1895. The Nellore expanded gradually in Brazil during the late 1800s and into the 1900s. In 1938, the Nellore herd book was created and breed standards were established. In 1960, an additional 20 animals were imported from India. In 1962, the last and most important purchase of cattle from India was made, when 84 Ongole were imported, and became the foundation of the most influential breeding lines. These lines contributed greatly to the rapid expansion of the Brazilian cattle population. In 1965, the national herd consisted of 56 million. By 1995, there were 160 million cattle in Brazil, of which 100 million were Nellore.

Introduction to America

Nellore cattle were introduced to the U.S. for the first time during 1923-25, when 228 cattle of the Guzerat, Gyr, and Nellore breeds were imported to Texas from Brazil. In 1946, eighteen more cattle were imported to the U.S. from Brazil. These cattle were of the Indu-Brazilian breed, which is made up of some Nellore breeding as well as Gyr and Guzerat.

The Nellore Today

The Nellore is among the largest of the purebred Indian breeds. In India, Nellore bulls are used for plowing. Cows produce an average of about 3525 lbs of milk per lactation, but record yields of over 7,770 lbs indicate excellent dairy potential for the breed in their native land.

U.S. MARC evaluated the Nellore along with a number of other tropically adapted breeds as well as two British breeds, Angus and Hereford. Nellore-sired calves were lighter at birth, required less assistance, and had a higher survival rate (95.5 vs. 88.1%) than those sired by American Brahman bulls. There were no significant differences in weaning weight, postweaning average daily gain, or final slaughter weight. Both Zebu breeds were significantly lower in postweaning gain and final slaughter weight than the two British breeds. Percent grading choice was 44.0 and 39.7% for Nellore and Brahman, respectively, compared to 70.7% for Hereford x Angus cross steers.

Percent of Nellore-sired heifers expressing puberty at 550 days was only 52.1% vs. 87.4% for Brahman. However, final pregnancy rate was in favor of the Nellore (92.1 vs. 82.8%). As first-calf 2-year-olds, Nellore-sired females had a remarkable 100% unassisted birth rate. Calf weaning weight was similar to Brahman-sired females and significantly heavier than Angus and Hereford. Performance of mature (3 to 7 years of age) Nellore-sired females was similar to their 2-year-old performance when compared with the British breeds.

Based upon the U.S. MARC data, it would appear that the Nellore contributed much of the weight gain found in the American Brahman.

The Red Sindhi



Development in Pakistan

The Red Sindhi is a humped Zebu breed that originated in the Pakistani state of Sind. Due to its hardiness, heat tolerance, tick resistance and milk production, it has spread to many regions of India and to at least 33 countries in Africa, Asia, Oceania, and the Americas.

The Red Sindhi Today

The Red Sindhi is a dual-purpose milk/meat breed. Under reasonable management conditions, Red Sindhi cows average about 3,750 lbs of milk after suckling their calves, but under optimum conditions there have been milk yields of over 7,500 lbs per lactation. It is a very small breed of cattle. Mature cows average only about 750 lbs in weight, and mature bulls about 925 lbs. Frame score averages only 2.5 on a scale of 1 to 9. Color is normally a deep rich red, but this may range from a yellowish brown to a dark brown. Bulls are darker than cows, and when mature, can be nearly black on their extremities.

Red Sindhi cattle were exported to Australia in 1954. They have been used quite successfully in crossing systems with British breeds to produce tropically adapted beef cattle. The Australians established a herd book and a breed society shortly after the Red Sindhi's importation.

The Sahiwal



Development in India and Pakistan

The Sahiwal (pronounced Si-Wall) breed had its origins in the dry Punjab region that straddles the Indian-Pakistan border. They were once kept in large herds by professional herdsmen called “Junglies.” Once irrigation permitted the expansion of agriculture in the region, it became possible for local farmers to keep Sahiwal cattle in smaller numbers, using them as dairy and draft animals.

The Sahiwal is one of the most productive dairy breeds in India and Pakistan. Cows average 5,000 lbs of milk during lactation while suckling a calf, but much higher yields have been recorded. Due to their high heat tolerance and high milk production, the Sahiwal has been exported to other Asian countries as well as Australia, Africa, and the Caribbean. As oxen, they are generally docile and rather lethargic, making them more useful for slow work.

The Sahiwal is small in size. Its color can range from reddish brown to the more predominant red, with varying amounts of white on the neck and underline. In males, the color darkens towards the extremities. The Sahiwal is the heaviest milker of all Zebu breeds, and displays a well-developed, capacious udder. They are among the hardiest of breeds under unfavorable climate conditions.

Establishment in Australia

The Sahiwal was introduced to Australia by way of New Guinea in the early 1950s. It was used in the development of two Australian tropical dairy breeds, the Australian Milking Zebu and the Australian Friesian Sahiwal. Today, however, the Sahiwal is primarily used in Australia for beef production. Crossing the Sahiwal with *Bos taurus* breeds can produce a lean carcass with desirable quality attributes.

Introduction to America

It is unclear when the Sahiwal was brought to America. Because there is no official Sahiwal breed association in the U.S., it is difficult to determine if or how many animals remain.

Evaluating the Sahiwal

The Sahiwal was evaluated in Cycle III of the Germ Plasm Evaluation program at U.S. MARC. Sahiwal-sired calves had a higher percent of assisted births (8.7%) than might be expected for a small breed. Weaning weight,

postweaning gain, slaughter weight, and carcass weight were similar to the smaller British breeds (Red Poll, Devon, and Galloway). Percent grading USDA choice (42.8%) was comparable to the Brahman and Nellore. The same was true for percent retail product at 69.2%.

Pregnancy rate of Sahiwal-sired heifers was a remarkable 100%. Percent assisted births of Sahiwal-sired cows was only 2%, similar to the Brahman and Nellore. Weaning weight of their calves (502 lbs) was lower than the Brahman and Nellore, but similar to Hereford x Angus crosses.

In summary, the Sahiwal would appear to be an ideal low-maintenance, dual-purpose meat/milk breed for harsh tropical and sub-tropical environments.

AFRICA

The Africander (Afrikander)



Development in South Africa

The Africander is a native South African breed. It belongs to the Sanga type, which in turn was a result of interbreeding between the Longhorn Zebu and the Egyptian Longhorn. Sanga type cattle were owned by the native Hottentot people when the Portuguese first reached South Africa in 1486. It is claimed that these cattle were progenitors of today's Africander.

Sanga type cattle, in huge herds, were owned by the Hottentots when the Dutch established the Cape Colony in 1652. These cattle were obtained by the Dutch colonists who improved them for use as draft animals. It was Africander oxen that pulled the wagons which carried Boer farmers and families on the "Great Trek" of 1835-36 from the Cape of Good Hope to the Orange Free State, Natal, and the Transvaal to escape British rule.

The Africander herd book was established in 1907, followed by formation of the breed society in 1912.

Introduction to America

In 1931, the King Ranch in Texas imported 16 Africander bulls and 11 cows from South Africa for experimental breeding during the time the Santa Gertrudis breed was being developed at the King Ranch. It was thought that the Africander might be useful in fixing the deep red color that was desired in the Santa Gertrudis. However, a satisfactory red color was fixed from red genes contributed by the Shorthorn and the Brahman. Consequently, the Africander was not used in the development of the Santa Gertrudis.

A neighbor of the King Ranch obtained some of the Africander cattle, as did a few other breeders in the area. Later, the USDA Experiment Station at Jeanerette, Louisiana, used two of the bulls for crossingbreeding research on British beef breeds. The incorporation of the Africander into the Barzona Breed is the only known contribution the breed has made to United States cattle.

The Africander Today

The Africander is South Africa's most popular native beef breed, accounting for about 30% of the nation's cattle population. It has good heat tolerance and a high level of tick resistance. It has a quiet temperament and a satisfactory level of fertility under harsh environmental conditions. Although the Africander cow is not noted for its milking ability, it can produce enough to raise a thrifty calf.

Mature cows weigh 1,150 lbs to 1,325 lbs, and mature bulls, weight from 1,650 to 2,200 lbs. Frame size is about 6.5 on a scale of 1 to 11. The Africander tends to be a late-maturing animal and yields a carcass with relatively low fat cover. The preferred color is a deep dark red; yellow animals are bred separately. Although most Africander cattle are horned, there is a herd of polled cattle in South Africa. The Africander was used with the Shorthorn in developing the Bonsmara breed, and with the Holstein in developing the Drakensberger breed. Through the use of bulls and frozen semen, the Africander has been used in up-grading indigenous cattle in a number of tropical countries.

The Ankole



provided by Dr Alberto Zorloni, DVM

Development in Africa

The original Ankole cattle are believed to have been brought to northern Uganda by Homitic tribes sometime between the 13th and 15th centuries. The Ankole's susceptibility to the tsetse fly forced the tribes and their cattle further south. The Bahima tribe settled on the shores of Lake Victoria in Uganda, Kenya, and Tanzania. The Watusi or Tutsi tribe continued on to Rwanda and Burundi with their cattle, some of which have spread to Zaire. Selection in all the tribes is based on horn size and shape. They frequently measure 5 feet in length, 6 inches in diameter at the base of the skull, and as much as 6 feet between tips.

The Ankole Today

Ankole cattle are of the Sanga type (Longhorn Zebu x Egyptian Longhorn). The color is often red, but brown, black, or spotted cattle are not uncommon. They are long-legged, fine-boned animals with a narrow body, and are quite light-muscled. The hump is small and barely visible on the cow.

Even though the small-uddered Ankole cows yield only a meager amount of milk, milking is nevertheless an important ritual in some tribes. Bloodletting is a common practice. A few tribes use the cattle for work, but more use them for meat. In general, the animals are highly valued as status symbols for ceremonial functions, and not for their productivity. In good condition, a mature Ankole cow may weigh 600 lbs, a mature bull 900 lbs. These weights are reached only at seasons when good grass is available. Average weights are typically lower because of inadequate nutrition. There are three main strains of the Ankole: 1) Bahema strain, found in Northern Kivu; 2) Bashi strain, found in Southern Kivu; and 3) Tutsi (Watusi) strain, found in Burundi and Rwanda. The horns are smallest in the Bahema and largest in the Tutsi strain.

The Ankole-Watusi



Development in Africa

The Ankole-Watusi is one of three strains of the Ankole, as discussed previously.

The tall, stately Watusi or Tutsi people arrived in Rwanda and Burundi around the 14th century, bringing with them the massive-horned Ankole cattle. These cattle so impressed the native Hutu people that the Watusi devised a way to exploit the situation. They loaned cows to the Hutu farmers who were allowed to look after them, milk them, and sometimes keep the bull calves. Heifer calves were returned to the Watusi owners. For these “favors,” the Hutu farmers cultivated the Watusi land and performed other services. In this way, the Watusi avoided what they regarded as menial work, and dominated the Hutu people for centuries.

The Ankole-Watusi Today

Traditionally, Watusi cattle were considered sacred. They provided milk to their owners, but were only rarely used for meat production because an owner’s wealth was measured in number of live animals. Within the breed, by far the longest horns are those of the Inyambo sub-type, which are regarded as sacred animals and kept only by tribal chiefs and kings. The general run of Watusi cattle are of the Inkuku sub-type, which has shorter horns. For the Watusi people, milking carries a ritual meaning. Cattle and milk are given a special place in ceremonial rites.

Milk yield of Watusi cows is very low, with a typical cow producing only 2 lbs of milk per day, although an exceptional one may produce up to 8 lbs per day. However, butterfat content is extremely high at 10%. The lactation period is short. In recent years, the national government has attempted to select for cattle that produce more milk and have better meat production. Famine and disease, as well as conflicts with traditional practices, have slowed this effort.

In body type, the Ankole-Watusi is similar to the Ankole. While the color of the Ankole varies, the Watusi strain is predominantly red.

The Ankole-Watusi in North America

In January, 1983, North Americans interested in the Ankole-Watusi met in Denver, Colorado, and established the Ankole Watusi International Registry. Many of these people had been raising the breed since before 1978. Within 5 months, the Registry had 74 members. These members shared a strong commitment to the breed, although they had different priorities for it. Some simply wanted to concentrate on preventing extinction of the breed. Some were involved in the production of superior crossbred roping cattle. Others championed the low-fat characteristics of the meat. In 1989, the Registry adopted standards for the breed.

The Bonsmara



Development in South Africa

During the years prior to World War II, a need was felt in South Africa for a beef breed that could produce economically in the subtropical regions of the Transvaal and Natal. The native Africkander cattle were adapted to the climate, but they lacked growth potential, were relatively late in reaching sexual maturity, and many of the cows failed to calve regularly. The European breeds performed well in the more temperate regions, but could not maintain the same production in a hotter environment because they were more susceptible to the tick-borne diseases which were prevalent in the subtropics.

To develop a productive beef breed for the subtropical climate, Dr. Jan Bonsma at the Mara Research Station in Transvaal in 1947 began crossing selected Afrikaner cows with bulls of five British beef breeds, and then performance tested the progeny. After pilot trials, it was decided to continue only with the better performing Hereford and Shorthorn crossbreds. The initial results were encouraging; weaning weights of calves from the crossbred cows averaged about 20% higher than the average of the three parent breeds. Likewise, calving percentages were appreciably higher, and calf mortality was much lower than in the British breeds. Within 20 years after the initial crossbreeding trials, a superior beef cattle breed for the environment had been established. The final result consisted of approximately 3/16 Hereford, 3/16 Shorthorn, and 5/8 Afrikaner. The name “Bonsmara” was derived from “Bonsma,” the scientist who played the major role in developing the breed, and “Mara,” the research station at which the animals were bred.

Introduction to North America

Although the Bonsmara has not been exported to the U.S., it nevertheless has had an indirect effect as a result of the many lectures conducted by Jan Bonsma himself throughout the Americas. As a result of his long-time research, he had observed that certain conformation traits were related to various functional traits (reproduction, growth, etc.). In other words, “form related to function.” His theories were often challenged by members of the audience, but Bonsma’s strong rebuttals usually carried the day.

The Bonsmara Today

Bonsmara calves represent about 45% of all births recorded by beef and dual-purpose breeds in South Africa. The conformation of the Bonsmara is an improvement over the Afrikaner. The sloping rump has been somewhat leveled, and the hump has been reduced in the bull and made almost nonexistent in the cow. Bonsmara cattle are reddish brown in color. Mature cows weigh about 1,100 lbs; mature bulls about 1,775 lbs.

The Bonsmara was recently evaluated along with eight other heat-tolerant breeds, as well as the Hereford and Angus, in U.S. MARC’s Germ Plasm Evaluation program. Percent of unassisted births (98.3%) was similar to the Romosinuano and the Longhorn, and significantly higher than the Brahman (89.4%). Final slaughter weight (1,218 lbs) was significantly higher than the Boran, Tuli, Romosinuano, and Longhorn, similar to the Brahman and Nellore, but significantly lower than the British breeds and the Brangus and Beefmaster. Age at puberty of Bonsmara-sired heifers (380 days) was significantly later than British and Longhorn heifers, significantly earlier than Brahman, and comparable to the other breeds. Heifer pregnancy rate (87.9%) was intermediate among all breeds. Percent of unassisted calvings for first-calf Bonsmara-sired heifers (55.6%) was the lowest of all breeds. Average weaning weight of their calves (428 lbs) was significantly higher than the Romosinuano, significantly lower than the Brahman, and similar to the other breeds.

In summary, the Bonsmara is a heat-tolerant breed that is similar in many respects to the Beefmaster and Brangus and could be used as an alternative in a crossbreeding program in hot climates.

The Boran



provided by Dr Alberto Zorloni

Development in Africa

The Boran was developed by Kenyan ranchers from the cattle of the Borana people of southern Ethiopia. The breed can now be found in southwestern Somalia as well as southern Ethiopia and northern Kenya. The Boran belongs to the East African Shorthorned Zebu type and is raised primarily for meat production. In 1990, there was an importation of Boran cattle to Australia.

The Boran Today

The Boran is small to medium in size; mature cows range from 875 to 1,050 pounds and mature bulls from 1,200 to 1,475 pounds. They are generally white or gray in color, but some are red and others are spotted. Boran bulls often have black points. U.S. MARC scientists evaluated the Boran along with eight other tropically adapted breeds as well as the Hereford and Angus. Percent of Boran-sired calves that were unassisted at birth was 94.6%, similar to the Nellore, and higher than the American Brahman (89.4%). Weaning weight (505 lbs) ranked eighth out of the eleven breeds evaluated. Final slaughter weight (1,126 lbs) was the lowest of all breeds except for the Tuli. Percent of carcasses grading USDA choice was 47%. Warner-Bratzler Shear force showed that Boran steaks were intermediate in tenderness between the American Brahman and the British breeds.

Pregnancy rate of Boran-sired heifers was significantly higher than that of Brahman-sired heifers (90.6 vs. 82.8%) and comparable to the British breeds. Percent of unassisted calvings from first-calf heifers was significantly lower than that of the Brahman (70.2 vs. 83.6%), but similar to the British breeds. Percent calf crops weaned from mature cows did not differ among breeds. Weaning weights of calves out of Boran-sired cows were significantly lower than those out of Brahman-sired cows (498 vs. 527 lbs), but significantly higher than those out of Hereford-sired cows (498 vs. 483 lbs).

There is no breed association for the registration of Boran cattle in America. Given the availability of other heat-tolerant breeds, it seems unlikely that the Boran will gain a foothold in the U.S.

The Masai



Provided by: Drew Conroy

Development in Africa

The Masai cattle are those developed and owned by the Masai tribe of Kenya and Tanzania in eastern Africa. The life of the tribe revolves around cattle. Virtually all social roles and status are derived from the relationship of individuals to their cattle. Cow's milk, along with blood, is the staple food of the Masai, who eat no grain or fruit. Once a month, blood is taken from the animals by shooting a small arrow into the neck. The blood is then mixed with milk in a gourd prior to consumption. Masai cattle are of a Zebu-Sanga type.

The Masai Today

There is a significant amount of variation in Masai cattle due to the centuries-old practice of stealing cattle from other tribes. This is supported by the Masai legend which relates that Ngai (God) sent them cattle at the beginning of time and gave them the sole right to retain cattle. Compared to calves belonging to neighboring tribes, Masai calves are the largest and in the best condition. This is due mainly to the generous amount of milk the calves receive. In general, the Masai have so many cows that only a portion of the milk is needed for human consumption, leaving an abundant supply for the calves.

Masai cattle are relatively small in size. Mature cows average about 790 lbs, and mature bulls about 880 lbs. Frame score ranges from 3.5 to 4.5 on a 9 point scale. The breed has an unusually small, narrow, head. They are reasonably well-muscled. Coloration is quite variable, although the Masai people prefer brindle colored animals.

The Mashona



Provided by Jim Weaver

Development in Zimbabwe

Mashona cattle originated from the Shona people of eastern Zimbabwe. Natural selection over the centuries resulted in a hardy breed that was tolerant of the disease and parasites of the dry area where it was raised. Like the Tuli, the Mashona is of the Sanga type.

Improvement of the Mashona began in 1941, when F.S.B. Willoughby secured some of the best cows and a few of the bulls that he could convince the chiefs of the Mashona tribe to part with. A herd book was established in 1954. For registration, the Mashona Breed Society requires the following: 1) All cattle must meet the beef conformation standards established; 2) Cows must have calved at least twice in three years and have produced two progeny meeting breed conformation standards; and 3) Bulls must have produced an entire season's progeny, of which 90% and a minimum of 18 calves must meet the breed conformation standards.

The Mashona Today

The breed is raised primarily for meat production, although it is reported that they can also be used as work animals. The cattle are either solid dark red or solid black in color. Most of them are polled, but horns are not discriminated against. When horns are present, they are relatively small, growing outward and upward from the head. The improved Mashona is a thickly muscled animal. In size, they are quite small, with mature females weighing only 600 to 775 lbs. Today, the Mashona is being bred in a widely spreading territory covering most of the eastern half of Zimbabwe and an adjoining region of Mozambique.

The N'dama



provided by Campagnie J. Van Lancker

Development in Africa

The N'Dama is a humpless *Bos taurus* breed that originated in west Africa in a mountainous region of the country of Guinea. From there, N'Dama cattle spread or were exported to nearly every country of west Africa and to parts of central Africa. The breed's expansion is primarily due to its resistance to nagana, the usually fatal cattle disease caused by tsetse fly.

The N'dama Today

The N'Dama is used primarily for producing meat, because it is not a good milker. N'Dama cows yield only about 1,000 lbs of milk in a 7 to 8 month lactation. The word N'Dama means "small cattle." It is indeed a very small breed. Mature cows weigh only 460 to 660 lbs, and mature bulls 550 to 800 lbs. Frame score is barely 1 on a 1 to 9 scale. Color of the N'Dama varies from region to region. In general, it is beige or light yellow to deep brown. However, some animals are red to nearly black, and a few are gray or white. The N'Dama is a

very hardy breed that thrives better than most other breeds on the low-protein grasses and rough vegetation of tropical Africa.

The Tuli



Development in Africa

In 1942, Mr. Len Harvey, a farmer in the lowveld region of Zimbabwe, noticed that there appeared to be a distinct type of yellow Sanga cattle amongst the ordinary native stock. These cattle seemed to be better adapted to the harsh local environment, and were superior to other stock. As a result of Harvey's observations, the Zimbabwe government decided to purchase some of these cattle to determine if they could be further improved and whether they could breed true to type.

During 1945, 3000 acres were set aside in this same region for the establishment of a cattle breeding station, and Mr. Harvey was employed as full-time officer in charge. The objective of the then named, Tuli Breeding Station, was to assist in improving the cattle in the outlying areas of Zimbabwe.

The commercial cattle raisers soon appreciated the potential of the Tuli, and for many years, breeding stock was sold to them. The breed can now be found throughout Zimbabwe. The potential of the Tuli was also recognized by South African cattle breeders, and numerous imports have resulted in an ever-increasing Tuli population in South Africa. In 1961, the Tuli Breed Society was established, which included development of a constitution and rules for registration.

The Tuli is a small- to medium-sized breed. Mature cows average about 1,100 lbs. in weight, and mature bulls about 1,750 lbs. Most Tuli cattle are naturally polled and most of them are golden brown in color, but some are white, pale gray, or red. The Tuli Breed Society recognizes all unicolored animals except black.

The Tuli Today

The Tuli was evaluated in Cycle V of U.S. MARC's Germ Plasm Evaluation program. Percent of unassisted calvings (97.1%) of Tuli-sired calves was not different from Hereford x Angus calves. Weaning weight, final slaughter weight, and carcass weight were the lowest of the breeds evaluated. Percent of carcasses grading USDA Choice (63.8%) was the highest of the other breeds, except Hereford x Angus crosses (77.4%).

Age at puberty for Tuli-sired heifers was significantly later than Hereford x Angus crosses (365 vs. 351 days), but there was no difference in final pregnancy rate. Tuli-sired cows were similar to Hereford x Angus cross cows in all reproductive traits. However, average weaning weight of their calves tended to be lower (471 vs. 483 lbs.).

In summary, the Tuli provides an opportunity for producers to use a heat-tolerant breed that does not compromise carcass quality.

AUSTRALIA

The Belmont Adapteur



Development in Australia

The Belmont Adapteur was developed by the Commonwealth Scientific and Industrial Research Organization's (CSIRO) Division of Animal Genetics at the Belmont Station near Rockhampton in Queensland, Australia. Development began in 1953, the same year as development of the Belmont Red breed began. The Adapteur is the result of crosses between Herefords and Shorthorns. Selection has been primarily for increased tolerance to heat and resistance to ticks. The foundation female of the breed was a cow with zero ticks.

The Belmont Adapteur Today

Adapteur cattle are early maturing and no more than medium in size. They are low maintenance cattle that require relatively little care. They are mostly red in color with some white on the head, underline, and legs. Their eyes are well pigmented. When Adapteur bulls are mated with Brahman cows to produce F₁ progeny, a substantial degree of hybrid vigor is expressed. The F₁ progeny grow faster and are more fertile than Brahmans, but have similar resistance to ticks and internal parasites. They are about 10% more efficient than Brahmans, and have the carcass qualities of the *Bos taurus*. Some Adapteurs have an extremely high resistance to cattle ticks as they carry a gene that has a major impact on resistance. The frequency of the gene is being increased by embryo transfer and assortative mating.

The Belmont Red



Development in Australia

The Belmont Red was developed by the Commonwealth Scientific and Industrial Research Organization (CSIRO) Division of Animal Genetics at the Belmont Station near Rockhampton in Queensland, Australia. Its breed composition is approximately 50% Africander, 25% Hereford, and 25% Shorthorn. The breed was developed to improve the fertility of the *Bos indicus* component (Africander), while still retaining the traits of heat tolerance and tick resistance. Development began in 1953. By 1968, it had become a recognized breed. A breed society was established in 1978.

The Belmont Red Today

Research trials in Australia and Africa have shown that the Belmont Red has higher fertility than pure *Bos indicus* breeds and better than most other *Bos indicus* x *Bos Taurus* composites. Heat tolerance has remained remarkably good. Tick resistance, while lower than that of pure *Bos indicus* cattle, is still high. As the name

implies, the coat color is red. Regarding frame size, the Belmont Red lies somewhere between the Africander and the British breeds.

OTHER BREEDS

The Amerifax



Development in the United States

The Amerifax was developed during the 1970s by combining Angus with the Beef Friesian. A breed association was established in 1977.

The Amerifax Today

The Amerifax today is 5/8 Angus and 3/8 Beef Friesian. It is a polled breed. Most Amerifax cattle are black in color, but some are red. The cows produce an abundance of milk, resulting in heavy calves at weaning time. Amerifax carcasses are well-marbled, resulting in a high percentage that grade USDA Choice or higher.

In spite of its merits, the breed has not flourished in the U.S. This is likely due to the fact that it was preceded by the heavy influx of the European Continental breeds during the late 1960s and early 1970s.

The Beefalo



Development in the United States

The Beefalo is a species cross between the American Bison (buffalo) and domestic cattle. The objective of the species cross was to blend the qualities of the Bison with the attributes of the bovine. Many people had tried to cross the Bison with the bovine, but it was not until the 1960s, that a major breakthrough was made by D.C. Basalo, a breeder in Tracy, California. Basalo's mating resulted in an animal that was 3/8 bison, 3/8 Charolais, and 1/4 Hereford.

The Beefalo Today

Today's Beefalo combines the hardiness, foraging ability, and carcass leanness of the Bison along with the fertility, milking ability, and calm temperament of the bovine.

The Beefalo is registered by American Beefalo World Registry. A fullblood Beefalo is defined as an animal that is exactly 3/8 Bison and 5/8 bovine. There is no stipulation on the breed or breeds that make up the 5/8 bovine, so any of the beef breeds may be used.

The Beefmaker



Development in Australia

The Beefmaker was developed, starting in 1972 by the well-known Wright family on their New South Wales properties of “Wallamumbi” and “Jeogla.” Its development involved the infusion of Simmental blood with specially selected base Herefords from the Wright herd. The objective of the breeding program was to develop cattle with faster growth rates, heavier carcass weights, a higher ratio of lean to fat in the carcass, maximum fertility, and greater stress tolerance compared to the two contributing breeds.

The Beefmaker Today

After eight generations of breeding, the Beefmaker was stabilized at 75% Hereford and 25% Simmental breeding. It established a national reputation for high feed conversion efficiency, high carcass yields, and relatively low maintenance costs.

The Hays Converter



provided by Canadian Hays Converter Association

Development in Canada

In 1952, Senator Harry Hays of Calgary, Alberta, a senator in the dominion government began selecting the individuals that were used in developing a highly productive beef animal. His goal was to breed an animal that would efficiently convert feed to lean meat and reach a desirable market weight of 1100 lbs at 12 months of age. Selection would be based only on performance.

Hays started by selecting a group of Hereford heifers from the reputation heard of a neighboring rancher in the Turner Valley in southern Alberta. As a former dairyman, he was impressed with the growth potential of the Holstein. He proceeded to select eight sons of Spring Farm Fond Hope, a Holstein bull weighing 3,120 lbs whose progeny were known for their large size, strong constitution, and excellent feet. These bulls were from stock that had exceptional udders and were better fleshed than the typical Holstein cow. Fond Hope himself, having well-fleshed hindquarters, tended to be more of the type of the European Friesian than the Canadian Holstein. The Fond Hope cows were mated to the Hereford females to produce ½ Holstein x ½ Hereford progeny. From these progeny, 159 heifers were selected as the foundation cow herd of the new breed.

The second step was a backcross to the Hereford. The 159 heifers were bred artificially to the Hereford bull, Silver Prince 7P, a Certified Meat Sire who weighed 2,640 lbs. From the resulting progeny, five of the fastest-gaining bulls were selected to go back into the foundation herd of 159 Holstein x Hereford females.

The third step was the introduction of Brown Swiss influence. Four bulls, all from dams weighing 1,800 lbs each and which were great-grandsons of the Brown Swiss cow, Jane of Vernon, famous for having the world's most perfect udder, were bred to 100 selected Hereford cows. For several years, the best females from the resulting Brown Swiss x Hereford progeny were introduced into the original foundation herd, which at the time was approximately 2/3 Hereford, 1/3 Holstein. The highest gaining bulls from these combined crosses were then bred to the females with the best udders. At that point, the herd was closed. Subsequent selection strategies emphasized weaning and yearling weights and, especially, the udders on replacement females. No attention was paid to color. In 1975, the first purebred certificate of registration was issued for Hays Converters.

The Hays Converter Today

Hays Converters are a large, rugged, well fleshed type of cattle with sound feet and legs. The cows are noted for their excellent udders. The body is usually black, with white markings much like a Hereford. There are some animals that are red and white rather than black and white. Mature cows in breeding condition weigh 1300 to 1400 lbs. Mature bulls weigh up to 2,800 lbs in breeding condition. Steers put on a finishing diet after weaning weigh about 1,100 lbs at 12 to 15 months of age.

The breed registry association is located in Calgary, Alberta, and is known as the Canadian Hays Converter Association-Hays Ranches.

The RX3



Development in the United States

Development of the RX3 was started in the state of Iowa in the early 1970s. "RX3" stands for the synthesis of three different red breeds into a new composite. The three breeds were Hereford, Red Angus, and Red Holstein. Pioneer beef cattle Co., Johnston, Iowa, initiated the breeding program.

The first step was to cross Red Holstein sires from the Larry Moore herd, Suamico, Wisconsin, with Hereford females at the USDA Livestock and Range Research Station, Miles City, Montana. The first cross was conducted under range conditions in eastern Montana. The next step was to mate the F₁ female population with the highly regarded Red Angus sire, Choctaw Chief 373 and his sons and grandsons from the Pioneer Beef Cattle Co. herd, to complete the three-breed merger. This resulted in a composite breed consisting of ½ Red Angus, ¼ Hereford, and ¼ Red Holstein. A herd book was established in 1974.

The RX3 Today

Molding of the RX3 has continued through the use of tough and disciplined testing together with systematic selection for the traits of greatest economic importance to the beef industry. The RX3 combines the meat quality, early sexual maturity, and polledness of the Red Angus, the efficiency and range adaptability of the Hereford, and the milk production, and growth of the Red Holstein.

The Wagyu



Development in Japan

The word Wagyu refers to all Japanese beef cattle. “Wa” means Japanese or Japanese-style, and “gyu” means cattle. The original cattle of Japan were Turano-Mongolian animals, an ancient type of Asian cattle that are believed to have been imported from Korea.

During the late 19th century, British and Continental breeds were imported to increase the size and draftability of the native Japanese cattle. The Devon, Shorthorn, Jersey, and Guernsey were the first breeds to be imported. Later, the government sponsored a program for cattle improvement, and Simmental, Brown Swiss, and Ayrshire were brought in. There was no planned program for crossbreeding when this was done. The results of all this miscellaneous interbreeding were considered unsatisfactory, and in 1918 a government program was initiated for selection in accordance with recognized standards established for the Wagyu. Selection for specific traits was dependent upon region, and extensive linebreeding was used to achieve these traits.

Three breeds evolved out of this program: 1) the Japanese Black, which accounts for about 80% of the Wagyu population; 2) the Japanese Brown, which makes up close to 20% of the population; 3) the Japanese Polled, which accounts for less than 1% of the Wagyu population and is black in color. However, another “breed” of Wagyu was developed on the island of Kyushu that is red in color.

Introduction to America

The first Wagyu cattle were imported to the U.S. in 1976. They consisted of two Black Wagyu and two Red Wagyu bulls. That was the only importation of Wagyu into the U.S. until 1993, when two male and three female Black Wagyu were imported. Then, in 1994, 35 male and female cattle consisting of both black and red genetics reached the U.S.

The Wagyu Today

The Wagyu is lighter-muscled and smaller in size than most British or Continental breeds. Mature cows weigh about 950 lbs., and mature bulls about 1400 lbs.

The Wagyu was evaluated in Cycle VI of the Germ Plasm Evaluation program at U.S. MARC. Seven from 19 bulls obtained through cooperation of the American Wagyu Association was used in the program. Even though gestation length (286.9 days) was significantly longer than for the other five breeds evaluated, birth weights were significantly lower (80.3 lbs) and unassisted calvings were 99.3%. Weaning weight (459 lbs), postweaning average daily gain (2.69 lbs/day) and final slaughter weight (1,196 lbs) were significantly lower than all other breeds.

Percent of carcasses grading USDA Choice (85%) was significantly higher than all other breeds, except for Angus (88%). External fat thickness (.36 in.) was significantly lower than the average of the Hereford and Angus (.49 in.), and percent retail product was significantly higher (62.5 vs. 60.8%). Warner-Bratzler shear force of cooked steaks (7.82 lbs) was comparable to Angus, but significantly lower than the other breeds.

Age at puberty was younger for Wagyu-sired heifers than the average of Hereford and Angus-sired heifers (353 vs. 362 days), but final pregnancy rate was not different.

In summary, the Wagyu produces a high quality beef product, but lacks the growth rate of the European breeds.

SUMMARY OF MEAT TENDERNESS

Tenderness is economically important because it is the palatability trait that consumers rate highest when evaluating meat quality. An accurate objective measure of tenderness is the Warner-Bratzler shear force. It is measured in pounds of force required to slice through a core sample of cooked steak. Tables 1, 2, and 3 are summaries of shear force values for sire breeds evaluated in Cycles V, VI, and VII of U.S. MARC's Germ Plasm Evaluation program.

Table 1. Sire Breed Means for Shear Force of Rib Steaks From Steers in Cycle V of GPE.

Sire breed of steer	No. of steers	Warner-Bratzler shear force, lb
Hereford	106	10.6 ^b
Angus	101	8.9 ^a
Average	207	9.7 ^a
Brahman	119	13.2 ^d
Boran	138	11.3 ^c
Tuli	158	10.1 ^b
Piedmontese	35	10.1 ^b
Belgian Blue	143	10.7 ^b

^{a,b,c,d} Different superscripts denote significantly different values (P<.05).

As shown in Table 1, steaks from Brahman- and Boran-sired steers were significantly tougher than those from other sire breeds, and Brahman-sired steaks were significantly tougher than Boran-sired steaks. Steaks from Angus-sired steers were the most tender of all sire breeds.

Table 2. Sire Breed Means for Shear Force of Rib Steak From Steers in Cycle VI of GPE.

Sire breed of steer	No. of steers	Warner-Bratzler shear force, lb
Hereford	86	8.38 ^b
Angus	88	7.87 ^a
Wagyu	125	7.82 ^a
Norwegian Red	82	8.35 ^b
Swedish Red and White	74	8.69 ^b
Beef Friesian	132	8.70 ^b

^{a,b} Different subscripts denote significantly different values (P<.05).

Table 2 shows that steaks from Wagyu- and Angus-sired steers do not differ from one another, but are significantly different from all other sire breeds.

Table 3. Sire Breed Means for Shear Force of Rib Steaks from Steers in Cycle VII of GPE.

Sire breed of steer	No. of steers	Warner-Bratzler shear force, lb
Hereford	86	9.1 ^b
Angus	83	8.9 ^b
Red Angus	82	9.2 ^b
Simmental	80	9.5 ^{a,b}
Gelbvieh	81	10.0 ^a
Limousin	73	9.5 ^{a,b}
Charolais	85	9.6 ^{a,b}

^{a,b}Different superscripts denote significantly different values (P<.05).

As Table 3 shows, there are no statistically significant differences among breeds except for steaks from Gelbvieh-sired steers which were significantly different than those from Hereford-, Angus-, and Red Angus-sired steers.

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