= North American Piedmontese cattle =

North American Piedmontese cattle are a breed of domestic beef cattle originating from an imported herd of select Italian purebred Piedmontese cattle (Piemontese or razza bovina Piemontese) . The foundation line of breeding stock was first imported from Italy into Canada in 1979 , and into the United States in the early 1980s . Piedmontese cattle are distinguished by a unique , naturally occurring gene identified as the myostatin allele mutation , or inactive myostatin gene . Myostatin prohibits muscle growth whereas an inactive gene has the opposite effect . Purebred Piedmontese are homozygous , (2 copy) , which means they have two identical alleles present for this unique gene . Research indicates the presence of the myostatin allele mutation produces morphological characteristics unique to the breed , such as double @-@ muscling , beef tenderness , reduced fat content and high yield . According to the North American Piedmontese Association (NAPA) , they are the first breed registry to base animal registration requirements on the presence of this specific gene which can be easily verified by DNA testing .

= = Evolution and history = =

North American Piedmontese cattle originated from a line of Italian purebred Piedmontese cattle , (Italian : Piemontese or razza bovina Piemontese) , in the region of Piedmont in northwest Italy . They continue to be cultivated in Italy as a " dual @-@ purpose animal ... having very rich milk used for specialty cheese production and beef marketed as a premium product . " There is much speculation on the breed 's evolution , but one theory by Italian professor , Silvano Maletto , is based on evidence obtained from fossil records and cave writings , and concludes that the breed descends from the ancient Aurochs cattle , and the Pakistan Zebu cattle . Reports of the first historical evidence for breeding Piedmontese cattle dates back only to the late 1800s , however , and credits the work of Italian professor , Domenico Vallada .

In 1979 , the Piedmontese Breeding Co @-@ operative , Ltd. of Saskatchewan , Canada (PBL Co @-@ op of Canada) began preparations to import the first Piedmontese cattle into North America . There had been prior attempts at importation of the breed by the PBL Co @-@ op of Canada and other cattle breeders , but until that time the Italian Association , comprising small local farmers who wanted to maintain control of this unique gene pool , were reluctant to sell any of their purebred breeding stock . Another obstacle to overcome was the range of health protocols required for international shipping . The first successful importation occurred in the fall of 1979 with the arrival of five animals into Canada . Obtaining authorization and transfers to import the first five animals was the culmination of a half decade of effort , the cost of which is estimated at $ 100 @,@ 000 per animal based on 2014 values . The following year , Canada received more Italian imports of Piedmontese cattle , including five more bulls . The next year , Italian imports arrived in the US , including three additional sire lines and two cows . It was from that genetic base that the North American breed of Piedmontese cattle first began . In 1983 , the Canadian Piedmontese Association (CPA) was formed , followed by the Piedmontese Association of the United States (PAUS) in 1984 . By the 1990s , imports of semen and embryos were more substantial . Today there are several bloodlines available to cattle raisers in North America .

= = Genetics and crossbreeding = =

Like the original Italian Piedmontese , North American Piedmontese cattle are distinguished genetically by the presence of the myostatin allele mutation which causes the breed 's hypertrophic muscle growth , or " double muscling " . Compared with normal breeds of beef cattle , North American Piedmontese cattle are more proficient in converting feed into lean muscle . They also produce a higher percentage of the most desirable cuts of meat . They average 20 % more muscle with less bone and fat . Research indicates that there is less connective tissue within the muscle of " double @-@ muscled " cattle ; this would imply less background toughness and therefore more tender meat .

= = Prevalence among United States cattle = =

There are an estimated 28 ? 30 million head of cattle currently in the United States . Of that total , nearly 70 % of all beef cattle are derived from Angus cattle . Less than one @-@ half of one percent are Piedmontese , or bred to Piedmontese cattle . As of 2014 , the number of registered Piedmontese pure @-@ blood breeding stock in the United States is estimated to be around 2 @,@ 000 head .

In the United States Piedmontese beef is regulated by the USDA , which requires that organisations involved in the sale of Piedmontese beef meet labeling and nutritional verification requirements .

= = Characteristics = =

The color of fullblood Piedmontese males is gray @-@ white with a considerable amount of black hairs on the head , most notable around the eyes , neck , shoulders , and on the distal regions of the legs . They occasionally have dark stains or spots on their hind legs or lateral faces of the trunk . The cows are primarily white with varying shades of gray or light red . Calves are born a pale fawn color which changes to gray @-@ white as they mature . Fullbloods are naturally horned , and have black pigmentation on the muzzle , eyelids , ears , tongue , tassel of the tail , anal opening , and on the outer skin of the sexual organs .

The color of Naturalean composites or crossbred cattle can be solid black or solid red with black or reddish pigmentation in the same areas as the pigmentation on fullbloods . They may be horned or polled , and homozygous (2 copy) , or heterozygous (1 copy) . Fullbloods and Naturalean bulls are often crossed with traditional beef breeds like Black Angus or Hereford cattle because of substantial benefits in the crossbred results , including a higher protein meat that is lower in saturated fat , improved tenderness , and an approximate 7 % yield increase in salable carcass . Calving problems are also reduced in the crossbreds .

= = North American Piedmontese Association (NAPA) = =

The North American Piedmontese Association (NAPA) was organized in September 2000 , and is the official breed registry for North American Piedmontese cattle . It is a member @-@ based , nonprofit breed registry headquartered in Washington , U.S. , and the first cattle breed registry with mandatory registration requirements based on the presence of the Piedmontese @-@ specific myostatin allele mutation . There are different categories of registration and recordation within the registry . Only homozygous animals (2 copy) can be registered , therefore breed true , and are eligible for registration in either the Fullblood (based on pedigree record) , or Naturalean divisions .

The Naturalean division is for Piedmontese cattle that are either crossbred or could have qualified for Fullblood registration but failed to meet the pedigree requirements , perhaps because of unregistered or unverified parentage . Prior to registration or recording , DNA testing is required to confirm the animal carries at least 1 copy of the Piedmontese @-@ specific myostatin gene . Naturalean animals that are DNA tested heterozygous (1 @-@ copy) are not registered , rather they are issued a registration number with the prefix " recorded " . The 0 @-@ copy (non @-@ carriers) cattle are ineligible for registration in any category .

According to the North American Piedmontese Cattle Association , in the last decade of the 20th century , there was a noticeable upsurge in the importation of genetic material (i.e. , embryos and semen) . Thus , it is said that " there are now a wealth of blood lines " available from which to choose .