

**SECTION 7 – Part D**  
**North American Limousin Foundation**

# Glossary of Terms

## A

**Abomasum (True Stomach)** - the fourth compartment of the ruminant stomach, partially responsible for protein digestion.

**Accuracy** - the level of reliability of an EPD. Accuracy may be reported as a number ranging from 0.0 to 1.0 with 1.0 being the most reliable, or as either “P” or “P+”. “P” designates that only the animal’s pedigree has been used to calculate the animal’s EPD, whereas “P+” means that the animal’s pedigree and actual performance has been used. The more data used in calculating an EPD, the higher the accuracy value.

**ADF (Acid Detergent Fiber)** - measures the amount of fiber (cellulose) that is available for digestion by the rumen microbes of cattle.

**Adjusted Weaning Weight** - weight adjusted to 205 days of age and for age of dam.

**Adjusted Weight** - a weight that has been mathematically calculated to reflect what an animal’s weight would have been if the animal was raised under a standard set of conditions and measured at a given age.

**Animal Model** - the model currently used for calculating EPDs in the Limousin breed. It takes into consideration all known information on an animal, such as performance, the EPDs of close relatives, and the performance of the individual’s progeny.

**Application for Entry** - form used for registering Limousin cattle.

**Artificial Insemination (AI)** - the artificial breeding of heifers or cows with fresh or frozen semen previously collected from a bull.

**Average Daily Gain** - the measurement of daily change in an animal’s body weight.

## B

**Backcross** - the mating of an F1 hybrid with one of the parental types (breeds).

**Beef Improvement Federation (BIF)** - an organization interested in performance evaluation of beef cattle. The purposes of BIF are: to bring uniformity of procedures, develop programs, bring cooperation among interested entities, educate its members and ultimate consumers, and build confidence in the principles and potentials of performance testing in the beef industry.

**Birth group** - all animals born within a 90 day period. All animals within a contemporary group are of the same birth group.

**Breed code** - a unique, two letter designation indicating an animal’s breed makeup (i.e. LM=Limousin).

**Breeding Value** - the genetic value of an animal for a performance trait. Half of an animal’s breeding value is derived from each parent.

## C

**Calf Crop** - all calves born in a herd for a particular calving season.

**Calving Season** - the season in which a set of calves in a herd are born.

**Carrier** - a heterozygous individual having one dominant gene and one recessive gene for a given gene pair. In the case of a simple recessive (such as protoporphyria) carriers will not show outward signs of the recessive but, when mated to one another, will produce on average 25 percent affected offspring.

**Cellulose** - fibrous constituent of plants that are made available for digestion by the ruminant by micro-organisms within the rumen.

**Chromosome** - molecules of DNA that carry the genetic coding for animals. Domestic cattle have 30 pairs of chromosomes.

**Composite Breed** - a breed or type of cattle that is the result of a planned mating of two or more traditional cattle breeds.

**Conception** - the moment of fertilization of an egg cell by a sperm cell.

**Condition** - degree of fatness or fleshiness of an animal.

**Contemporary group** - refers to all animals of the same sex and percentage Limousin, that were born within a span of 90 days, managed under similar conditions, and weighed on the same day. Comparisons among animals of the same contemporary group are used in processing performance data and calculating expected progeny differences.

**Correlation** - a measure of how two traits vary with one another. Correlations range between +1.0 and -1.0. A positive correlation indicates that as one trait increases in value, so to does the other trait. A negative correlation, likewise, indicates that as one trait increases in value, the other trait decreases. The strength of the relationship is evidenced by how closely the correlation coefficient approaches the extremes of the scale (+/-1.0).

**Cow inventory** - an itemized listing of the cows in a producer's herd.

**Creep feed** - supplemental feed given to nursing calves to promote proper health, growth, and digestive tract development.

**Crossbreeding** - the mating of animals of different breeds. Crossbreeding takes advantage of hybrid vigor (heterosis).

**Cryptorchid** - a male, often infertile, that has had one or both testes fail to descend from the body cavity into the scrotum.

**Culling** - the process of eliminating less productive or less desirable cattle from the herd.

**Cutability** - the percentage boneless, closely trimmed retail cuts from a carcass. Yield grades are used to predict cutability.

## D

**Dam** - the female parent of an animal.

**Dam Summary** - a form available from NALF which lists the current EPDs available on a cow, the performance record of her progeny, the average ratios and weights of her progeny, and her MPPA.

**Dominant** - a gene that, when present, fully or partially masks the appearance of a recessive gene. For simple recessive traits, the recessive cannot be detected in the presence of a dominant.

**Donor Dam** - a female that is superovulated and bred to a superior sire in order to produce a number of eggs for embryo transfer.

**Disposition** - the perceived level of aggressiveness of an animal. Disposition is recorded on a scale of 1 to 6 with 1 being the most docile.

**Dystocia** - term referring to difficulties experienced during calving. Dystocia is most commonly the result of an unfavorable relationship between calf size and pelvic area.

## E

**Embryo transfer** - the procedure of harvesting fertilized eggs from the reproductive tract of one female (donor) and transplanting them to another cow or group of cows (recipients).

**EPD (Expected Progeny Difference)** - the predicted performance of an animal's progeny in relation to the breed's average performance in a trait for a defined (base) year. EPDs can be used to compare the genetic merit of animals or matings.

**Estrous** - term referring to the 21-day reproductive cycle of a normal, postpubertal female.

**Estrus** - heat period of a female where she is receptive to being bred by the bull. Heat normally lasts around 24 hours, with ovulation taking place 30 hours after the beginning of estrus.

## F

**F1** - term referring to the first generation progeny of a mating or mating system.

**Feed Conversion (Feed Efficiency)** - refers to the units of feed consumed per unit of weight gained (i.e. lbs. of feed/lb. of gain).

**Feeder Calf** - a young animal in its growing phase that does not yet show a high degree of external fat (finish).

**Fetus** - the developing unborn calf from the 30th day of pregnancy to birth.

**Finish** - term usually used in market animals to describe the degree of fatness of an animal.

**First owner** - the membership owning the cow at the time she calved the animal to be recorded. An animal may only be registered by its first owner or the lessee of the cow to which it was born.

**Flight Distance** - used in evaluating the docility of cattle. It refers to how close animals will allow you to come to them before moving away, i.e. calmer animals will let you come extremely close before moving, while more nervous animals may move away even if they see you at a great distance.

**Flushing** - term referring to the harvesting of live embryos from the reproductive tract of a cow or heifer with the intention of transplanting those embryos to another cow for the remainder of gestation.

**Foundation animal** - any animal, regardless of parentage, that is not registered with NALF.

**Founder (Laminitis)** - inflammation of the fleshy laminae within the hoof often caused by overfeeding.

**Frame Score** - a score based on an animal's hip height and age. Frame score is used to estimate the mature body size of the animal.

**Freemartinism** - abnormality of heifers born twin to a bull where 90 percent of the heifers are rendered infertile. In almost all cases, bulls are of normal fertility.

## G

**Gene** - the basic unit of heredity found on chromosomes. Genes occur in pairs and interact with one another to produce the phenotypic expression of the specific trait for which they code.

**Generation III** - NALF's system for registering cattle, reporting performance data, and tracking various aspects of productivity.

**Generation Interval** - average age of the parents when the offspring destined to replace them are born. A generation interval represents the average rate of turnover of the herd.

**Genetic Evaluation** - a summary of all the performance data of all the animals in a breed for the purpose of comparing animals within that breed.

**Genotype** - the genetic make-up of an animal.

**Gestation** - period of pregnancy from conception to birth. The average gestation length in Limousin cattle is 287.8 days.

**Grading up** - process of breeding foundation (nonregistered) animals to registered animals with the intent of increasing the percentage of purebred blood in the resulting progeny.

## H

**Halfblood** - refers to animals that are 50 percent Limousin.

**Half-Sibs** - individuals having the same sire or dam

**Heat Synchronization** - artificial manipulation of the estrous cycle of a group of cows or heifers so as to bring them into heat at the same time. Heat synchronization helps breeders facilitate artificial insemination.

**Herd prefix** - a four-letter code assigned by NALF to designate a particular herd. Herd prefixes are assigned to Founder, Lifetime, Annual, Associate, Partner, and Junior Memberships.

**Heritability** - the portion of an expressed trait that is due to an animal's genetic make-up (genotype) rather than environment.

**Heritability Estimate** - an estimate of heritability expressed in units from 0.0 to 1.0. The higher the heritability value, the higher the portion of the expressed trait is due to genetics. For example, coat color carries a heritability of 1.0.

**Heterosis (Hybrid Vigor)** - the increased performance or superior qualities resulting from the crossing of two breeds.

**Heterozygous** - when genes of a specific pair are different in an individual.

**Homozygous** - when genes of a specific pair are alike in an individual.

**Horned** - having two recessive genes for horns causing natural horn growth.

**Hypertrophy** - growth due to an enlargement of the cells of a tissue.

**Hyperplasia** - growth due to an increase in cell numbers.

## I

**Inbreeding** - the mating of two closely related individuals in order to maintain certain traits of the parents in the resulting progeny.

## L

**Lactation** - the secretion and let down of milk from the udder of nursing or milking cows.

**Linebreeding** - a form of breeding program that is designed to maintain the inheritance of a certain desirable individual in the pedigree.

## M

**Management codes** - letter codes that refer to the means by which an animal or group of animals was managed from birth to weaning. The codes are: C = Dam with creep for 6 weeks or more; F = Foster dam, no ratios. These codes are used to assign animals to contemporary groups.

**Marbling** - intramuscular fat used to determine the USDA quality grade of a beef carcass.

**Metabolic Body Size** - the weight of an animal in kilograms raised to the .75 power. Metabolic body size is a figure used to estimate the maintenance requirement of an animal.

**Microbes** - micro-organisms in the ruminant stomach that break down cellulose and other nutrients to produce volatile fatty acids for energy use by the animal. These microbes include bacteria, protozoa, and fungi.

**Milking Ability EPD** - the pounds of calf weaned that is due to the dam's milk. In bulls, milking ability EPD predicts the potential for that sire's daughters to wean heavy calves due to their ability to produce milk.

**Most Probable Producing Ability (MPPA)** – an estimate of a cow's future productivity for a trait based on her past productivity. MPPAs are valid for comparison within the herd only.

**Multiple Application for Entry Form** - form designed for Limousin breeders to register and report data on a group of animals at one time.

## N

**Notification of Paperwork Delay** - *pink letter* sent out to those who have made an error or left out information when applying for registration. The notification of paperwork delay letter must be signed and returned with the necessary corrections or missing information for the application for registration to be further processed.

## O

**Omasum (manyplies)** - compartment of the ruminant stomach responsible for water retention.

**Ovulation** - the rupture of a mature follicle on the surface of the ovary resulting in the release of the egg (ovum). Ovulation typically occurs 30 hours after the onset of estrus.

## P

**Parent Verified** - refers to animals that have had both parents identified by blood or DNA type. Parentage verification is required of all embryo transfer calves and sires born after July 1, 1987 to be used for AI.

**Parturition** - refers to the process of calving.

**Pasture Exposed (P.E.)** - having been exposed to the bull for natural mating.

**Pedigree** - a record of the ancestors of an animal.

**Pelvic Area** - measured area of the birth canal used to estimate a female's risk of having difficulty calving. It is calculated by multiplying the vertical and horizontal dimensions (measured in centimeters) of the pelvic girdle. Pelvic area may also be measured in bulls.

**Pelvimeter** - device used to measure pelvic area.

**Percentage animal** - the registration classification of all bulls greater than 50 percent but less than 93 percent Limousin and all females greater than 37 percent but less than 87 percent Limousin.

**Performance Data** - the record of an individual animal for specific traits such as birth weight, weaning weight, yearling weight, etc.

**Performance Record** - a form available from NALF which lists the animal's individual performance, ratios, EPDs, and its pedigree.

**Phenotype** - all of an animal's physical characteristics that may be influenced by both environment and genetics.

**Polled** - term referring to cattle that are naturally hornless. Cattle that are scurred may also be polled as these traits are controlled by separate gene pairs.

**Postpartum** - after calving.

**Postpartum Interval** - period of anestrus between calving and the first heat after calving.

**Postweaning Average Daily Gain** - the average daily gain of an animal between weaning and yearling weights.

**Prepotency** - refers to the ability of an animal to transmit its own characteristics to its offspring.

**Progeny** - the offspring of an animal.

**Progeny Testing** - the evaluation of the genotype of an animal based on a study of its progeny.

**Prolapse** - the expulsion of the uterus or rectum of an animal typically due to stress. Uterine prolapse is most common shortly after calving.

**Protoporphyrin** - genetic disorder caused by a simple recessive gene that produces heightened sun sensitivity. As a result, the skin on the ears, nose and tail of diseased animals may show signs of lesions, weeping sores, and/or scabs. Affected animals may lose their appetite and eventually starve themselves to death.

**Proven Sire** - a sire who has a number of recorded progeny and whose EPDs have reached a high level of accuracy.

## Q

**Quality Grade** - USDA grade applied to a beef carcass based on the age of the carcass and the marbling in and appearance of the lean of the ribeye muscle.

**Qualitative Trait** - those traits for which there is a sharp distinction among phenotypes (i.e. coat color, sex, polledness).

**Quantitative Trait** - traits that do not have a clear distinction among phenotypes and can be measured in terms of units. Examples include weaning weight, hip height, and average daily gain.

## R

**Random Mating** - system of mating wherein every male has an equal opportunity to mate with every female.

**Ratio** - numerical comparison of an animal's individual performance with that of his/her contemporaries. It is calculated by dividing the animal's performance by the average of its contemporary group and multiplying by 100.

**Recessive** - a gene that only appears phenotypically when paired with a like recessive gene. Examples include the gene for horns in cattle.

**Recipient cow** - any cow implanted with a live embryo from a separate mating in order to give birth to and raise the resulting calf.

**Reference Sire** - a bull designated to be used as a benchmark in progeny testing other bulls. Progeny by reference sires in several herds enable comparisons to be made between bulls not producing progeny in the same herd or herds.

**Reticulum (honeycomb)** - compartment of the ruminant stomach similar in function to the rumen but also used for churning and grinding feed.

**Rotational Crossbreeding** - system of crossing two or more breeds or types of cattle where the crossbred females are mated to the breed or type representing the least percentage of that female's genotype. The purpose of rotational crossbreeding is to maintain a high level of heterosis.

**Roughage** - high fiber feed stuff such as hay or silage that maintains the health and integrity of the rumen.

**Rumen** - The fermentation vat of the digestive tract where microbes digest forages. The rumen makes it possible for sheep and cattle to utilize grass whereas humans or pigs cannot.

## S

**Scrotal Circumference** - measurement of testicle size in centimeters used to predict the relative fertility of a bull and the age of puberty of his related heifers.

**Scurs** - incompletely developed horns that are often loose and moveable beneath the skin. Genes for scurs are separate to those for horns. Thus, scurs may appear in both polled bulls and females.

**Selection Differential** - the difference between the average for a trait of the selected cattle and the average of the group from which they were selected. As the selection differential for a trait increases, so too does the expected response to selection for that trait.

**Single Trait Selection** - the practice of selecting for maximum improvement in a single trait.

**Sire** - the male parent of an animal.

**Sire Verified** - any animal that has had its sire identified by blood or DNA typing. To be verified, an animal's sire must have an identification blood or DNA type on file.

**Synchronization** - process of coordinating the estrous cycles of a group of females. Synchronization is used to better take advantage of AI and to condense both the breeding and subsequent calving season.

## T

**Tattoo** - a permanent identification mark placed in the inside of the ear of all registered Limousin cattle. Tattoos include the herd prefix, individual ID number (up to 4 digits) and the year code.

**TDN (Total Digestible Nutrients)** - refers to the percentage of a feedstuff that is digestible.

**Terminal Sire** - a bull that is used in a crossbreeding system where all progeny are marketed.

**Three-Way Rotation** - system of mating wherein three breeds or types of sires are used in rotation. Females in a three-breed rotation are mated to bulls representing the breed or type to which they are the least related.

**Transfer** - process of transferring the registration papers of an animal from one owner or partnership to another.

## V

**Variance** - the variation seen in a trait.

## W

**Weaning group** - all contemporaries weaned on the same date. A weaning group should not include animals older than 250 days or younger than 160 days.

**Weight Per Day of Age** - refers to the weight of an animal divided by the age.

## Y

**Year Letter Code** - single letter used to designate the year of birth of an animal. The year letter code is incorporated into the tattoo of all registered Limousin cattle.

**Yearling** - calf approximately one year of age.

**Yearling Group** - all contemporaries weighed on the same date. A yearling group should not include animals older than 450 days or younger than 330 days.

**Yield Grade (USDA)** - an estimate of the percentage of boneless, closely trimmed retail cuts from a carcass. Yield grades range from 1 to 5 with yield grade 1 carcasses having the highest percentage of lean meat yield.