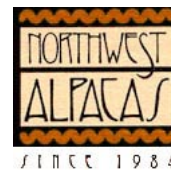




Plantel Glossary Of Genetic Terms



PLANTEL GLOSSARY OF GENETIC TERMS

AGGREGATE BREEDING VALUE. Also net merit. The breeding value of an individual for a combination of traits.

AGOUTI. Thought to be a locus on the chromosome where color occurs. Sometimes also called the wild or natural color gene (this would be vicuna color in alpacas).

ALLELE. An alternative form of a gene.

ALTIPLANO. The high plateau in southern Peru and northwestern Bolivia located around Lake Titicaca.

ARTIFICIAL INSEMINATION (AI). A reproductive technology in which semen is collected from males, then used in fresh or frozen form to breed females.

ARTIFICIAL SELECTION. Selection that is under human control.

AYLLOS. Small remote Peruvian communities of Indian shepherds.

BACKCROSSING. (1) The mating of a hybrid to a purebred of a parent breed or line. (2) The mating of an individual (purebred or hybrid) to any other individual (purebred or hybrid) with which it has one or more ancestral breeds or lines in common.

BASE POPULATION. The population of animals whose parents are either unknown or ignored for the purposes of inbreeding and relationship calculation. Typically the individuals appearing at the back of the pedigrees of the original animals in a herd or flock.

BC1. Backcross one. The first generation of crosses between hybrids and-purebreds of a parent breed or line.

BERSERK MALE. A male who was afforded too much affection by humans as a cria and shows no fear of them as an adult.

BIOLOGICAL TYPE. A classification for animals with similar genotypes for traits of interest. Examples include heavy draft types (horses), prolific wool types (sheep), large dual-purpose types (cattle), and tropically adapted types (many species).

BIOTECHNOLOGY. The application of biological knowledge to practical needs. Often refers to (1) technologies for altering reproduction, or (2) technologies for locating, identifying, comparing, or otherwise manipulating genes.

BLANKET. The highest quality fleece which begins at the shoulder, runs the full length of the back and down each side until it meets the more medulated fiber on the belly.

Excludes neck, leg, chest, belly, and britch. The term originated from the image of a horse's saddle blanket.

BLOODLINE. Breeder's term that alludes to pedigree.

BREED. A race of animals within a species. Animals of the same breed usually have a common origin and similar identifying characteristics.

BREEDING OBJECTIVE. (1) A weighted combination of traits defining aggregate breeding, value for use in an economic selection index. (2) A general goal for a breeding program -- a notion of what constitutes the best animal.

BREEDING VALUE. (1) The value of an individual as a (genetic) parent. (2) The part of an individual's genotypic value that is due to independent and therefore transmittable gene effects.

BREED TRUE. Alpacas breed true if two parents with a particular, simply inherited phenotype produce offspring of that same phenotype exclusively.

BREED TYPE. The look of an alpaca.

BUNDLED STAPLES. A grouping of microstaples that together form a larger staple. The formation of the microstaples is determined by the arrangement and density of the follicles in the skin. Bundling is said to be an indicator of a dense fleece, due to the evenness of follicle size and consistency of shape in the skin. Cameron Holt, Private Correspondence.

BURNING. Removing vegetable matter from fiber during processing through the use of chemicals.

CAMPESINO. An agrarian peasant of Peru.

CARDING. The final cleaning process, accomplished by either hand or machine, through which alpaca fiber goes before spinning.

CHACU. A vicuna drive or capture that originated with the Incas.

CHARACTERISTIC. A specific phenotypic trait, such as crimp or fineness.

CHROMOSOME. One of a number of long strands of DNA and associated proteins present in the nucleus of every cell.

CH'UMPI. Quechua word for the color sorrel.

CLOSE INBREEDING. A measure of the degree of relationship between ancestors. The more the relationship, the closer the inbreeding.

CLOSED NUCLEUS BREEDING SCHEME. A nucleus breeding scheme in which germ plasma flows in only one direction - from the nucleus to cooperating herds or flocks.

CLOSED POPULATION. A population that is closed to genetic material from the outside.

CO-EFFICIENT OF VARIATION (cv). The variation around the mean expressed as a percentage.

COLLATERAL RELATIVES. Relatives that are neither direct ancestors nor direct descendants of an individual--siblings, aunts, uncles, nieces, and nephews.

COLOR GENES. Genes which determine an alpaca's coat color.

CORRECTIVE MATING. The mating of alpacas that is intended to correct faults, for example, mating a dam with a bad bite to a stud with a good bite.

CRIA. A camelid less than one year old.

CRIMP. The regular undulation along the length of an individual fiber or lock of fiber. A higher number of crimps per inch can indicate a finer fiber.

CROSSING OVER. A reciprocal exchange of chromosome segments between homologues. Crossing over occurs during meiosis prior to the time the homologous chromosomes are separated to form gametes.

CULLING. The process that determines which animals in a herd will not be bred.

DAM. A female parent.

DEGREE OF BACKCROSSING. The proportion of an alpaca's loci at which both genes of a pair trace to the same ancestral breed or line.

DILUTION GENES. A modifier gene which visibly dilutes the expression of existing pigment, i.e., a fawn-colored animal which is diluted to the point of expressing itself as white.

DIRECT RESPONSE TO SELECTION. Genetic change in a trait resulting from selection for that trait.

DNA. Deoxyribonucleic acid, the molecule that forms the genetic code.

DNA FINGERPRINTING. A laboratory method for graphically characterizing an individual's DNA, creating a unique genetic "fingerprint."

DOMINANCE. An interaction between genes at a single locus such that, in heterozygotes, one allele has more effect than the other. The allele with the greater effect is dominant over its recessive counterpart.

DYSTOCIA. Difficulty in giving birth or being born.

ECONOMIC SELECTION INDEX. An index or combination of weighting factors and genetic information - either phenotypic data or genetic predictions - on more than one trait. Economic selection indexes are used in multiple-trait selection to predict aggregate breeding value.

EFFECTIVE POPULATION SIZE. The size of a population as reflected by its rate of inbreeding.

EGG CELL. Gamete.

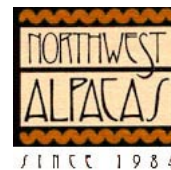
EMBRYO. An organism in the early stages of development in the shell (bird) or uterus (mammal).

EMBRYO TRANSFER. A reproductive technology in which embryos from donor females are collected and transferred in fresh or frozen form to recipient females.

ENVIRONMENTAL EFFECT. The effect that external (nongenetic) factors have on animal performance.

ENVIRONMENTAL TREND. Change in the mean performance of a population over time caused by changes in environment.

EPISTASIS. An interaction among genes at different loci such that the expression of genes at one locus depends on the alleles present at one or more other loci.



PLANTEL GLOSSARY OF GENETIC TERMS

ESTANCIA. A medium-sized farming property in single ownership, comparable to a western United States ranch.

ESTIMATED BREEDING VALUE. A prediction of a breeding value. See breeding value.

EUMELANIN. See melanin.

EXTENSION LOCUS. Thought to be a locus on the chromosome where color occurs or is modified.

F1. The first generation of crosses between two unrelated (though not necessarily purebred) populations.

F1 HYBRID VIGOR. The amount of hybrid vigor attainable in first-cross individuals.

F2. The generation of crosses produced by mating F1 (first-cross) individuals among themselves.

FAMILY. A group of related individuals within a population, most often applied to half-sib and full-sib families, but which can be applied to less related groups including all descendants of a particular ancestor.

FERTILITY. The ability of a female to conceive or of a male to impregnate.

FINENESS. A measure, in microns, of the diameter of individual fibers. Most often expressed as an average for a representative sample of fiber.

FITNESS. (1) The ability of an individual and its corresponding phenotype and genotype to contribute offspring to the next generation. (2) The number of offspring an individual produces, not just its ability to be selected.

FITNESS TRAIT. A trait selected for by natural selection. Fitness traits relate to an animal's ability to survive and reproduce.

FIXATION. The point at which a particular allele becomes the only allele at its locus in a population - the frequency of the allele becomes one.

FLEECE WEIGHT. The weight of an entire fleece measured at the same time each season.

GAMETE. A sex cell, a sperm or egg.

GAMETE SELECTION. The process that determines which egg matures and which sperm succeeds in fertilizing the egg.

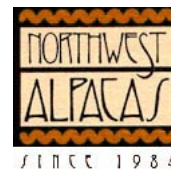
GENE. The basic physical unit of heredity consisting of a DNA sequence at a specific location on a chromosome.

GENE FREQUENCY. Also allelic frequency. The relative frequency of a particular allele in a population.

GENE LINKAGE. The occurrence of two or more loci of interest on the same chromosome.

GENE MAP. Also a linkage map or chromosome map. A diagram showing the chromosomal locations of specific genetic markers and genes of interest.

GENERATION INTERVAL. (1) The amount of time required to replace one generation with the next. (2) In a closed population, the average age of parents when their selected offspring are born.



PLANTEL GLOSSARY OF GENETIC TERMS

GENETIC CORRELATION. (1) A measure of the strength (consistency, reliability) of the relationship between breeding values for one trait and breeding values for another trait. (2) A measure of pleiotropy (the production of change in more than one trait).

GENETIC MARKER. A detectable gene or DNA fragment used to identify alleles at a linked locus.

GENETIC MERIT. The accumulative positive genotype of an individual animal or herd which can be passed onto progeny.

GENETIC PREDICTION. The area of academic animal breeding concerned with measurement of data, statistical procedures, and computational techniques for predicting breeding values and related values.

GENETIC TREND. Change in the mean breeding value of a population over time.

GENETIC VARIATION. In the context of the key equation for genetic change, variability of breeding values within a population for a trait under selection.

GENOTYPE. (1) The genetic makeup of an individual. (2) The combination of genes at a single locus or at a number of loci. Geneticists speak of one-locus genotypes, two-locus genotypes, and so on.

GENOTYPIC VALUE. The effect of an individual's genes (singly and in combination) on its performance for a trait.

GERM CELL. A sex cell; a sperm or egg; a gamete.

GERM PLASMA. Genetic material in the form of live animals, semen, or embryos.

GRADING-UP. Also topcrossing. (1) A mating system designed to create a purebred population by mating successive generations of non-purebred females to purebred sires. (2) A mating system designed to convert a population from one breed to another by mating successive generations of females descended from the first breed to sires of the second breed.

GREASY ALPACA FLEECE. A commercial term identifying unwashed alpaca fleece.

GUANACO. A wild member of the New World camelidae family, *Lama guanaimicoe*.

GUARD HAIR. Also kemp. Coarse medulated fiber. A second coat of fiber found in llamas, vicuna, guanacos, and, to a lesser degree, alpacas.

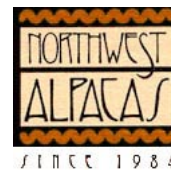
HACIENDA. A large land holding that originated with the land grant system used by Spanish conquistadores. In size, comparable to an American plantation.

HALF SIBS. Half brothers and sisters.

HEMBRA. Female alpaca or animal.

HERITABILITY. A measure of the strength of the relationship between performance (phenotypic values) and breeding values for a trait in a population. Heritability in the broad sense.

HOMOLOGUE. One of a pair of chromosomes having corresponding loci.



PLANTEL GLOSSARY OF GENETIC TERMS

HETEROZYGOUS. A one-locus genotype containing different alleles which express themselves in different ways.

HISTOGRAM. (1) The most common graphical presentation of quantitative data. The variable of interest, such as fiber diameter measured in microns, is placed on the horizontal axis and the frequency values, such as the percentage of fibers per micron, are placed on the vertical axis. (2) A micron test report that includes administrative information provided by the identification sent in with the individual sample. The histogram on such a report depicts the measurement of 2000 fibers in scale.

HOMOZYGOUS. A one-locus genotype containing identical alleles which express themselves in identical fashion.

HUACAYA. A breed of alpaca characterized by a well-crimped fleece that grows perpendicular to the skin.

HUARIZO. A crossbred animal. A term most often used to describe a llama-alpaca cross. Characterized by weak, medulated fiber and poor breed type.

HYBRID. An individual that is a combination of species, breeds within species, or lines within breeds.

HYBRID VIGOR. An increase in the performance of hybrids over that of purebreds, most noticeably in traits such as fertility and survivability.

IDENTICAL BY DESCENT. Two genes that are copies of a single ancestral gene.

INBREEDING. The mating of relatives.

INBREEDING CO-EFFICIENT. The measure of the level of inbreeding in an individual determined by (1) the probability that both genes of a pair in an individual are identical by descent, or (2) the probable proportion of an individual's loci containing genes that are identical by descent.

INBREEDING DEPRESSION. The reverse of hybrid vigor. A decrease in the performance of inbreds, most noticeably in traits such as fertility and survivability.

INDEPENDENT ASSORTMENT. The independent segregation of genes at different loci during gamete formation.

INDEPENDENT CULLING LEVELS. Minimum standards for traits undergoing multiple trait selection. Animals failing to meet anyone standard are rejected regardless of merit in other traits.

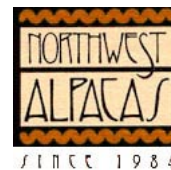
INDEPENDENT GENE EFFECT. The effect of a gene independent of the effect of the other gene at the same locus (dominance) and the effects of genes at other loci (epistasis).

INDICATOR TRAIT. A trait that may or may not be important in itself, but is selected for as a way of improving some other genetically correlated trait.

INDIRECT SELECTION. Selection for one trait as a means of improving a genetically correlated trait.

KEMP. Guard hair or medulated fiber.

LAMA. Scientific name for the genus containing llamas, alpacas, guanacos, and vicunas; vicunas are sometimes separated into their own genus.



PLANTEL GLOSSARY OF GENETIC TERMS

LINE. A group of related animals within a breed.

LINEBREEDING. The mating of individuals within a particular line. A mating system designed to maintain a substantial degree of relationship to a highly regarded ancestor or group of ancestors without causing high levels of inbreeding.

LINECROSSING. The mating of sires of one line or line combination to dams of another line or line combination.

LINKAGE. The occurrence of two or more loci of interest on the same chromosome.

LINKAGE ANALYSIS. A mathematical procedure that uses information from pedigreed populations to determine whether two loci are linked and, if so, how closely.

LOCUS/LOCI. The specific location of a gene on a chromosome.

MACHO. Male alpaca used in a breeding program.

MAJOR GENE. A gene that has a readily discernible effect on a trait.

MATERNAL HYBRID VIGOR. Hybrid vigor for the maternal component of a trait.

MATERNAL TRAIT. A trait especially important in breeding females. Examples include fertility, freedom from dystocia, milk production, maintenance efficiency, and mothering ability.

MATING. The process that determines which (selected) males are bred to which (selected) females.

MATING SYSTEM. A set of rules for mating.

MEAN. An arithmetic average.

MEDULLA. The hollow core found in coarse guard hair or kemp fibers, often found in the chest and underbelly portions of the fleece.

MEDULLATION. The degree to which a fleece contains medullated hair.

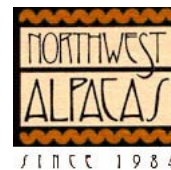
MEIOSIS. The process of germ cell formation.

MELANIN. Pigment in skin which determines skin and coat color. Melanin is found in two chemically different forms: eumelanin (which produces brown and black) and pheomelanin (which produces yellow and red).

MELANOCYTES. An epidermal cell that produces melanin.

MENDELIAN SAMPLING. The random sampling of parental genes caused by segregation and independent assortment of genes during germ cell formation, and by random selection of gametes in the formation of the embryo.

MERIT. A praiseworthy quality.



PLANTEL GLOSSARY OF GENETIC TERMS

MIGRATION. The movement of individuals into or out of a population.

MILLO. Quechua word for the color light fawn.

MODIFIER GENES. Genes that affect the expression of a primary gene or trait, often progressive in effect with a wide range of expression.

MULTICOLOR. An animal that incorporates more than one color in its coat.

MULTI-GENES. Genes that affect multicoloration in alpacas.

MULTIPLE ALLELES. More than two possible alleles at a locus.

MULTIPLE-SIRE PASTURE. A breeding pasture (or pen) containing more than one sire at a time.

MULTIPLE-TRAIT SELECTION. Selection for more than one trait.

MUTATION. Specifically point mutation. The process that alters DNA to create new alleles.

NATURAL SELECTION. Selection that occurs in nature independent of deliberate human control.

NATURAL SERVICE. Natural mating (as opposed to artificial insemination).

NEGATIVE ASSORTATIVE MATING. The mating of dissimilar individuals.

NO DOMINANCE. A form of dominance in which the expression of the heterozygote is exactly midway between the expressions of the homozygous genotypes.

NON-RANDOM MATING. Any mating system in which males are not randomly assigned to females.

NORMAL DISTRIBUTION. The statistical distribution that appears graphically as a symmetric, bell-shaped curve. In animal breeding, the values along the horizontal axis represent the levels of performance, breeding value, etc., that are being examined in a population; the height of the curve at any point represents the relative frequency of that value in the population.

NUCLEUS BREEDING SCHEME. A cooperative breeding program in which elite animals are concentrated in a nucleus herd or flock and superior germ plasm is then distributed among cooperative herds or flocks to the nucleus.

OUTBREEDING. Also outcrossing. The mating of unrelated individuals.

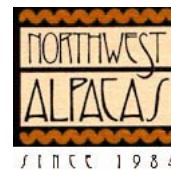
OUTCROSS BY PEDIGREE. The mating of individuals that are not related by pedigree; often called outcrossing.

OVERDOMINANCE. A form of dominance in which the expression of the heterozygote is outside the range defined by the expressions of the homozygous genotypes and most closely resembles the expression of the homozygous dominant genotype.

OWN PERFORMANCE DATA. Information on an individual's own phenotype.

PACO VICUNA. A crossbred or hybrid vicuna and alpaca.

PACCO. Quechua word for an Indian priest.



PLANTEL GLOSSARY OF GENETIC TERMS

PARTIAL DOMINANCE. A form of dominance in which the expression of the heterozygote is intermediate to the expressions of the homozygous genotypes and more closely resembles the expression of the homozygous dominant genotype.

PATERNAL BREED. A breed that excels in paternal traits.

PATERNAL TRAIT. A trait especially important in market offspring. Examples include rate and efficiency of gain, meat quality, and carcass yield.

PATH METHOD. A method for calculating inbreeding and relationship co-efficients that simulates the paths taken by identical genes as they flow from ancestors to descendants.

PEDIGREE. A recorded list or genealogy of an alpaca's ancestors. A registered or recorded known line of descent.

PEDIGREE DATA. Information on the genotype or performance of ancestors and/or collateral relatives of an individual.

PEDIGREE RELATIONSHIP. Relationships between animals due to kinship, such as full-sibs, half-sibs, and parent-offspring relationships.

PHAEOMELANIN. See melanin.

PHENOTYPE. An observed category or measured level of performance for a trait in an individual.

PHENOTYPIC CORRELATION. The measure of the strength (consistency, reliability) of the relationship between performance in one trait and performance in another trait.

PHENOTYPIC SELECTION. Selection based solely on an individual's phenotype.

PHENOTYPIC SELECTION DIFFERENTIAL. The difference between the mean performance of those individuals selected to be parents and the average performance of all potential parents, expressed in units of the trait.

PHENOTYPIC SELECTION INDEX. A form of economic selection index used with phenotypic selection. In the classic form of phenotypic index, the traits in the index are identical to the traits in the breeding objective.

PIEBALD. Pinto; in the New Zealand color study, an alpaca with white and black patches.

PINTO. A two-colored animal characterized by large patches of color.

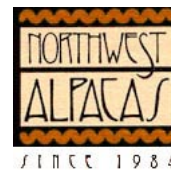
PLANTEL. The best of the plantation. Often used to refer to the finest of the herd or the best breeding stock.

POLLED. Hornless.

POLYDACTYLISM. Having many toes, or more than the ordinary complement of toes.

POLYGENES. Multiple genes that affect the same trait.

POLYGENIC TRAIT. A trait affected by many genes, no single gene has an over-riding influence.



PLANTEL GLOSSARY OF GENETIC TERMS

POPULATION. A group of intermating individuals. The term can refer to a breed, an entire species, a single herd or flock, or even a small group of animals within a herd.

POPULATION GENETICS. The study of factors affecting gene and genotypic frequencies in a population.

POPULATION MEAN. The average phenotypic value of all individuals in population.

POPULATION MEASURE. Any measure applied to a population as opposed to an individual.

POSITIVE ASSORTATIVE MATING. The mating of similar individuals.

PREPOTENCY. The ability of an individual to produce progeny whose performance is especially like its own and/or is especially uniform.

PRODUCING ABILITY. The performance potential of an individual for a repeated trait.

PROGENY DATA. Information on the genotype or performance of descendants of an individual.

PROGENY DIFFERENCE. Also transmitting ability. Half an individual's breeding value. The expected difference between the mean performance of the individual's progeny and the mean performance of all progeny (assuming randomly chosen mates).

PROGENY TEST. A test used to help predict an individual's breeding values involving multiple matings of that individual and evaluation of its offspring.

PUNA. The high barren tundra zone of the Andes mountains.

PUNNETT SQUARE. A two-dimensional grid used to determine the possible zygotes obtainable from a mating.

PUREBLOOD. An animal of unmixed ancestry; bred from members of a recognized breed or strain without a mixture of other blood over many generations.

PUREBRED. Wholly of one breed or line (as opposed to crossbred).

PUREBREEDING. Also straightbreeding. The mating of purebreds of the same breed.

QIEILU. Quechua word for the color yellow.

QUALITATIVE TRAIT. A trait in which phenotypes are expressed in categories.

QUANTITATIVE TRAIT. A trait in which phenotypes show continuous (numerical) expression.

QUINTAL. Hundred weight (metric system).

RANDOM MATING. The joining of animals on an entirely random basis without regard to pedigree or phenotype.

RECESSIVENESS. See DOMINANCE.

RECOMBINATION. The formation of a new combination of genes on a chromosome as a result of crossing over.

REFERENCE SIRE. These sires leave offspring in several, possibly all, of the cooperating flocks. The offspring of the reference sires can then be compared with the offspring of any other sires used in the same flock. Thus, the best males in the whole of the group breeding scheme: 1) can be identified, with the help of appropriate statistical programs; 2) can become available to the scheme as a whole; and 3) can be used to breed the next generation of males.

REPEATABILITY. (1) A measure of the strength of the relationship between repeated records (repeated phenotypic values) for a trait in a population. (2) A measure of the strength of the relationship between single performance records (phenotypic values) and producing abilities for a trait in a population. (3) In dairy publications, accuracy of prediction.

REPEATED BACKCROSSING. A mating system used to incorporate an allele or alleles existing in one population into another population. An initial cross is followed by successive generations of backcrossing combined with selection for the desired allele(s).

REPEATED TRAIT. A trait for which individuals commonly have more than one performance record.

REPLACEMENT RATE. The rate at which newly selected individuals replace existing parents in a population.

REPLACEMENT SELECTION. The process that determines which individuals will become parents for the first time.

ROAN. Animal coat color determined by a fairly uniform mix of colored fibers, for example, the coat of a silver alpaca is actually made up of intermittent black and white fibers.

ROUND LOT. Standard, historical sale unit of raw alpaca fiber which was made up of several colors in agreed-upon percentages. The term is no longer used.

SEEDSTOCK. Breeding stock; animals whose role is to be a parent or, in other words, to contribute genes to the next generation.

SEGREGATION. The separation of paired genes during germ cell formation.

SELECTION. The process that determines which individuals become parents, how many offspring they may produce, and how long they remain in the breeding population.

SELECTION ACCURACY. Also accuracy of breeding value prediction. The measure of the strength of the relationship between true breeding values and their predictions for a trait under selection.

SELECTION CRITERIA. Phenotypic values or other pieces of information that form the basis for selection decisions.

SELECTION DIFFERENTIAL. The difference between the mean selection criterion of those individuals selected to be parents and the average selection criterion of all potential parents, expressed in units of the selection criterion.

SELECTION INDEX. A linear combination of phenotypic information and weighting factors used for genetic prediction when performance data come from generally similar contemporary groups. See also economic selection index.

SELECTION INTENSITY. (1) A measure of how particular breeders are in deciding which individuals are selected. (2) The difference between the mean selection criterion of those individuals selected to be parents and the average selection criterion of all potential parents, expressed in standard deviation units.

SELECTION RISK. The risk that the true breeding values of replacements will be significantly poorer than expected.

SELECTION SYSTEM. The method a breeder chooses to select breeding stock.

SELECTION TARGET. A level of breeding value considered optimal in an absolute or practical sense.

SIMPLY INHERITED TRAIT. A trait affected by only a few genes.

SINGLE-TRAIT SELECTION. Selection for one trait.

SIRE. A male parent.

SIRE SUMMARY. A list of genetic predictions, accuracy values, and other useful information about the sires in a breed.

SKEWBALD. Pinto; in the New Zealand color study, an alpaca with white and brown patches.

SLIVERS. A continuous, untwisted strand or rope of parallel alpaca fibers approximately uniform in cross-section, produced by the carding and drawing process. Carded slivers are blended prior to combing in the manufacture of worsted yarn.

SOLES. Peruvian currency.

SPERM CELL. Gamete.

SPOTTING GENES. A gene which may control spots or color pattern on an alpaca. The existence of a spotting gene has not been scientifically verified.

STANDARD DEVIATION. A mathematical measure of variation that can be thought of as an average deviation from the mean. The square root of the variance.

STAPLE LENGTH. The length of a lock of shorn alpaca fleece.

STAPLE. A group or cluster of individual fibers. A large number of staples constitute a fleece. Cameron Holt, Private Correspondence.

SURI. A breed of alpaca characterized by lustrous locks of fleece that lay close to the body, twisting vertically toward the ground.

SYNDACTYLISM. Having two or more toes fused together.

TEMPORARY ENVIRONMENTAL EFFECT. An environmental effect that influences a single performance record of an individual but does not permanently affect the individual's performance potential for a repeated trait.

TERMINAL SIRE. A paternal-breed sire used in a terminal sire crossbreeding system.

TEST CROSS. Also test mating. A mating designed to reveal the genotype of an individual for a small number of loci.

TOPCROSSING. Grading up.

TOPS. A continuous, untwisted strand of combed alpaca fibers from which the shorter fibers have been removed by combing.

TRAIT. Any observable or measurable characteristic of an individual.

TRAIT OF THE DAM. A trait in which each progeny record is attributed to the dam, not the offspring.

TRAIT OF THE OFFSPRING. A trait in which each record is attributed to an offspring, not to its dam.

TUI. An eighteen-month-old alpaca.

VALUE. Any measure applied to an individual as opposed to a population. Examples are phenotypic value, genotypic value, breeding value, and environmental effect.

VARIABILITY. The differences between animals within a given population.

VARIATION. In most animal breeding applications, the differences among individuals within a population.

VICUNA. Native South American camelid, thought to be the ancestor of the domesticated alpaca. Vicunas, which exhibit the finest natural fiber in the world, can cross-breed with alpacas.

YARA. Quechua word for the color black.

WOOLEN. Yarn made from fibers that are one to three inches in length and that have been carded only. Fabrics of woolen yarn are characterized as being fuzzy, thick, and bulky.

WORSTED. Yarn spun from fibers three inches in length or longer that have been carded, combed, and drawn. Combing machines straighten alpaca slivers, making the individual fibers lie parallel.

YURAQ. Quechua word for the color white.

ZYGOTE. A cell formed from the union of male and female gametes. A zygote has a full complement of genes - half from the sperm and half from the egg.