

# GLOSSARY OF ALPACA FIBRE TERMS

By Cameron Holt  
© 2013

# GLOSSARY OF ALPACA FIBRE TERMS

Compiled by Cameron Holt © 2013

## A

**AAAL:** Australian Alpaca Association Ltd.

**AANZ:** Alpaca Association New Zealand L.

**Accuracy:** (a) The ability of the sample to correctly represent the true (correct) value of the fibre to be measured. A grid sample of the fleece or a coring of the whole fleece would enable the correct value to be assessed from the “Breeders” sample point of view.

(b) The ability of the testing machines to correctly interpret and calculate the true values of fibre being measures. (This would include controlled standard laboratory conditions, 20degrees C [+ -2 degrees] and 65% humidity [+ - 2%], as well as correctly controlled sub-sampling of the “Breeders sample” according to IWTO testing procedures).

**Airflow meter:** An instrument used to measure the average fibre diameter of wool/alpaca. A known weight of fibre is compressed into a known volume and subjected to an air current of constant pressure.

**Almeter:** The Almeter is an electronic machine used for calculating the fibre length distribution in wool slivers. The average fibre length is also calculated.

**AOBA:** Alpaca Owners and Breeders Association - North America’s largest Alpaca association.

**Apparent Length:** The length as it appears in the staple without stretching.

**Architecture:** The general structure and lay of fibres within the locks, which go on to make up the fleece as a whole. (Usually used in reference to Suris).

**ARI:** Alpaca Registry, Inc. – The largest alpaca registry in North America. Membership is required to show animals at an AOBA event.

**Apron:** The section of fibre under the alpaca's neck and chest area. Fibres here vary in size and they may be coarse with heavy guard hair. Apron fibre should not be mixed with main fleece fibre.

**Ash content:** The term used to describe the amount of dirt and mineral matter extracted from a sample of wool after the surface dirt and grease have been removed by scouring.

**Atlas:** Automatic Tester for Length and Strength.

**A.W.E.X.:** The Australian Wool Exchange. This is the body who is responsible for the administration of the registered alpaca classers' scheme in Australia.

**A.W.T.A. Ltd:** Australian Wool Testing Authority.

## B

**Backs:** Wool removed from the back section of the fleece.

**Backwashing:** Removal of the oil which has been put into worsted stock in the blending, oiling and mixing operations when the mix has been made up.

**Badly bred:** Animals that are either untrue to type, or produce wool displaying faults.

**Bale:** A wool pack containing a specified minimum or maximum weight of alpaca. Minimum weight 110kg maximum weight 150kg (superfine Huacaya minimum 90kg maximum 140kg).

**Bar bale:** A bale of alpaca fibre containing two or more types, separated by a division.

**Barrel:** Mid section of the body between the forequarters and hind quarters.

**BAS:** British Alpaca Society.

**Basic colours:** Seven of the total twenty-two natural colours of alpaca. Black, white, light fawn, fawn, silver gray, brown and rose gray.

**Basal layer:** Layer of cells separating the dermis and epidermis.

**Batt:** A sheet of carded fibre, approximately one half to one inch thick and several feet long. Strips can be torn off and spun from a batt.

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

**Beater:** A toothed or spiked metal roller that is part of a cleaning or opening machine used to process fibre into yarn.

**Belly fibre:** Fibre harvested from the belly region, usually contains increased guard hair compared to the main fleece.

**Bias:** The term is used to describe results which have been influenced by an external source rather than by random error. (e.g. incorrect sampling). Site samples taken for alpaca fleece evaluation are biased as per the definitions. Every fibre must have a chance of being selected.

**Binders:** The fibres that grow from one staple to another and hold the fleece together.

**Bins:** Compartments in which wool can be placed or stored.

**Biological type:** A classification of animals with similar genotypes. Examples: prolific wool types (sheep), large dual-purpose types (cattle), heavy draft types (horses) and tropically adapted types (many species).

**Blanket (Saddle):** Usually the highest quality of the fleece which begins at the shoulder through the full length of the back line and down each side until it changes its style and micron. Excludes neck, chest, belly, lower part of leg and rear part of britch.

**Blend:** A finished textile that is made up of two or more different fibres, variants of the same fibre or different grades and colours of the same fibre.

**Blending:** (a) For sale - uniform mixing of the same or near types for the convenience of

sale.

(b) In manufacture - mixing wools of different type or origin to produce special effects or to reduce costs.

**Bloodline:** Refers to pedigree.

**Bloom:** Term used to indicate superior expression of colour in alpaca and wool.

**Blowout factor:** How much a given animal's fibre diameter increases (thickens) with age and bodyweight.

**Board (shearing):** The floor on which sheep and alpacas are shorn.

**Bold:** Applied to a well-grown wool of good character, usually slightly broader than the standard Crimps Per Inch for that micron.

**Bradford wool counts:** These were developed in 1927 by Professor J. Duerden, from South Africa. He matched the Bradford quality count to the wools crimp frequency, micron and then allocated quality numbers to this relationship. The spinning counts were referred to as 90s, 80s, 64s, 56s, 46s etc, which reflected the number of hanks of yarn that could spun out of a pound of tops. The lengths were different between the worsted and the woollen. A standard length of a hank of thread is;

E.G.

WORSTED – 560 yards

WOOLLEN – 256 yards

Therefore a 64s count means that 64 hanks can be spun from a pound of tops.

**Break:** Distinct tenderness in wool caused by sickness, lack of nutrition, a sudden change in pasture.

**Breaking Length:** Measures the breaking strength of a yarn equal to its breaking load and equal to the tensile stress at rupture of the yarn.

**Breed:** A race of animals within a species. Same breed individuals usually have similar identifying characteristics and a common origin.

**Breed type:** The overall look of an alpaca.

**Brightness:** Term describing the expression of the colour of the fibre indicating that is free from discolouration (eg bright to dull), not lustre.

**Brisket:** The area under the neck between the forelegs and immediately in front of the belly.

**Britch:** The area of fleece on the buttocks and hind legs.

**Broad:** An indication that the fibre micron and or crimp is coarser than is usual for that type of fibre.

**Brushing:** A finishing process for woven or knit fabrics in which abrading elements (often brushes) are used to raise a nap.

**Bundling:** "A grouping of micro-staples that together form a larger staple. The formation of the micro-staples 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.

**Butt:** Greasy alpaca fibre in a recognised wool pack, which weighs less than the recognised minimum weight for a bale.

## C

**Camelidae:** Camelids, including camels, llamas, guanacos, and vicunas. Alpacas are part of this larger biological family (lama pacos).

**Canary stain:** Bright yellow stain in wool which cannot be removed by the normal scouring process. It is usually caused by moist, humid conditions.

**Carbonizing:** The chemical and mechanical process for the removal of vegetable matter from raw wool. Not common for use in Alpaca.

**Card:** A mechanical or motorized device that brushes fibres into a single continuous web of fibres.

**Carding:** After wool is scoured and dried it is fed into a carding machine which opens up the wool into an even layer, removing as much vegetable matter as possible, and draws the fibres parallel to each other to some degree to form a single continuous strand of fibres.

**Carpet wool:** (a) Alpaca fibre usually with heavier guard hair. (hairy fibres)  
(b) Fibre over 32 microns

**Cast:** Term indicating wools possessing a fault which industry recommends be removed from the main fleece lines.

**Castrate:** Remove the testicles of a male alpaca.

**Character:** Evenness and definition - poor character is said to be poorly bred..

**Characteristic:** A phenotypic trait, such as crimp or fineness.

**CLAA Canadian Llama and Alpaca Association:** Canada's national alpaca (and llama) organization. This group also operates the Canadian purebred pedigree for alpacas (and llamas).

**Classing:** (a) Fibre. The lotting together of fleeces of similar fibre diameter and style, so that the lines will be even and can be sold to best advantage.

(b) The process of selecting and culling animals so that the herd will be of an even standard.

**Clean basis:** Price of scoured fibre minus costs/charges and processing loss incurred in scouring.

**Coarse:** Indicates a fibre of thick diameter.

**Coefficient of Variation (CV%)(Statistical term):** Is the percentage of variation in the measurements of a given characteristic, e.g. length, micron and is related to the mean and standard deviation. The C.O.V. enables various populations to be compared to each other. It is the standard deviation divided by the mean value, expressed as a percentage.

Both SD and CV measure the degree of variation of micron in the tested sample. The higher the percentage the more variable is the micron and vice versa.

**Colour :** There are two forms of colour expression, **Natural and District**

**Natural colours** are one of the unique attributes of alpaca fibre. These colours are created through genetics with the colour expression being contained within the fibre cells. This means that if the greasy fibre is washed the colour does not change. The colours range from white through cinnamon, various shades of fawn, brown, grey/roan to black.

**District colour** There are outside influences that effect the expression of colour. One of these is the environmental effect known as "district colour". This comes from the dirt (loam) that adheres to the fibre.

**Colour integrity:** This is just as important to alpaca as it is to any other natural fibre and is a major requirement from processors that when purchasing alpaca fibre, it is not contaminated by another colour. The exception to this of course is roan and grey.

**Colour genes:** Genes that determine an alpaca's coat colour.

**Comb:** A means of aligning alpaca wool fibres' by hand or machine combing to prepare it for spinning into worsted yarn.

**Combing:** A process performed after carding and gilling (usually by rectilinear comb) to remove most of the short fibres (Noil), neps, vegetable matter and foreign matter, leaving the longer fibres lying parallel to the direction of the sliver.

**Comfort factor:** This is a term given to the perceived sensations from contact of clothing with the skin. The main sensation is the itch or prickle that some (few) people identify as giving discomfort. Research suggests that the itch is not an allergy but a response from the pain nerve receptors in the skin to the coarse fibres (over 30 micron) protruding from yarn in the fabric.

**Condition:** (a) The amount of wool grease present in greasy wool.  
(b) The amount of moisture present in scoured wool or tops, expressed as a percentage of the clean over dry weight.  
(c) The degree of fatness of an alpaca.

**Conformation:** The shape or contour of the alpaca's body, or an appropriate arrangement, or balance of all body parts.

**Consistency:** A term to indicate uniformity throughout a fleece for a given characteristic.

**Core Sampling:** The sample extracted from a bale of wool by inserting a sharpened hollow tube through the length of the bale. The diameter of the core tube is normally 18 mm. Subsamples of the composite core sample are used for measuring yield mean fibre diameter and vegetable matter content.

**Core Spinning:** A filament (usually elastic under tension) is covered with a sheath of staple fibres' to produce stretchy yarn. This yarn (and fabric made from it) has characteristics of the sheath fibre plus the advantage of stretch and recovery.

**Cortical cells:** These are the internal cells of the fibre. Huacaya fibre has a bilateral structure (similar to wool). That is the Para-cortex and Ortho-cortex grows side by side. The bilateral formation is responsible for the crimp/crinkle in the Huacaya. Suri has a helical coil, non- bilateral structure (like mohair) making the fibre relatively straight.

**Coverage:** A term for abundant fibre growth in areas other than the primary blanket, such as on the ears (cap) and the lower legs.

**Cria:** A Camelid less than one year old, derived from Spanish terms for creation and nursing.

**Crimp:** Crimp is the natural wave formation found in the Huacaya fleece. The definition of the crimp determines excellence of character.

There are two main components of crimp;

**Frequency** is the number of times the fibre crimps (waves) per inch (CPI).

**Amplitude** is the height (deepness) of the wave. Deep crimp is said to have high amplitude. A higher number of crimps per inch often indicates a finer fibre.

**Crinkle:** A slang term introduced into the alpaca industry in 1991. Crinkle is used to describe the crimp in the individual fibre, particularly where the staple itself showed little or no regular crimp formation.

**Crossbred:** resulting from the crossing of one breed of Camelid with another (usually Huacaya and Suri).

**Crosslapper:** A mechanical carding device that lays a wide ribbon zig zag on a belt and then brushes fibres into layers of continuous web. (used for batt making).

**Culling:** The act of removing inferior or non preferred animals from a herd.

**Culls:** Animals that are rejected from a herd.

**Curl:** Twisted ringlets along the length of Suri fibre.

**Curvature:** Fibre curvature is the measure of the fibre crimp frequency and amplitude. The curvature value is expressed in degrees per mm fibre length. Fibre curvature can be measured at all stages of processing e.g. greasy to fabric. The curvature of the fibre influences how the fibre will process, particularly during top making and spinning.

**Cuticle:** The outer layer of cells of a fibre, made evident under a microscope. They are hard, flattened, do not fit together evenly and have tips that point away from the fibre shaft, forming serrated edges. These serrated edges cause the fibres to grip together during processing and manufacturing. See also scales. (scale protrusion of wool is .8 micron, alpaca .4 -.3 micron)

**Cut per head:** Quantity of fibre per head of animal shorn.

## D

**Dag's (Tags):** Staples of wool which are heavily covered with manure.

**Dam:** The female maternal parent.

**Dead wool:** Wool removed from alpacas that have been dead for a considerable time.

**Dehairing:** The mechanical process of removing guard hair and Kemp fibres, particularly from Cashmere and Camelids.

**Density (Follicle density):** Term denoting compactness in a fleece, i.e. the closeness of fibre growing in a given area of skin. This compactness is measured by counting the fibres in a 1 sq mm of area. Results are micron affected.

**Dermis:** The inner layer of the skin into which the fibre follicle is formed.

**Diameter(Statistical term):** Mean fibre diameter (MFD) is the term used to denote fineness of a fibre sample or fleece. The MFD is calculated from a number of measurements of individual fibres which are averaged out for fineness. The unit of measure is in microns.

**Double fleece (over long):** A fleece which consists of about two years growth.

**Drafting:** The process of drawing out a strand of material by pulling it apart. Commercially, this is done between rollers and by hand in hand spinning.

**Drawing:** Operations by which slivers are blended (or doubled), levelled and by drafting reduced to the stage of a roving.

**Dual-registered:** (a) A purebred alpaca that belongs to both the Canadian (CLAA) and American (ARI) pedigree registries.

(b) A purebred alpaca that is registered on two pedigree registries, in the same country or different countries.

**Dumping:** The further compression of a bale of wool to less than half its original length before securing it by means of metal bands. Process is used for shipping bales.

**Dye:** A colorant that becomes molecularly dispersed during application to fibre and exhibits some permanence. There are many classes of dyes including; acid dyes, disperse dyes, reactive dyes, and natural dyes. Generally, they are first divided into natural and synthetic types. Natural dyes are obtained from berries, flowers, roots, bark and other naturally occurring materials. Synthetic dyes are chemical compounds.

## E

**Earmark:** The distinguishing mark of an owner which is clipped out of the ear.

**Ear tag:** A disc placed in the ear for identification.

**Elasticity:** The property of wool which enables it to return to its natural length after stretching.

**Environmental effect:** The effect that non-genetic or external factors have on animal performance.

**Environmental trend:** Change in the average performance of a population over time, caused by environmental effects.

**Epidermis:** The outer or surface layer of the skin consisting of flat, irregular cells.

**Estimated breeding value:** A prediction of breeding value. Also see breeding value.

## F

**F1:** First generation of crosses between two unrelated (though not always purebred) populations.

**Fast Colour:** A dye that is stable to colour destroying agents, such as sunlight, perspiration, washing, abrasion, and wet and dry pressing.

**Fellmongering:** The process of removing fibre from the pelt by bacterial action (sweating) or treatment with chemicals.

**Felt:** A technique that produces a non woven sheet of matted material. This is characterised by the densely matted condition of the fibres which is most frequently made from wool, hair or fur, that takes place when heat, moisture and pressure are combined. Animal fleeces are often referred to as being felted when they become matted.

**Fibre:** (a) The fleece of the alpaca, also known as wool.  
(b) The fundamental component used in making textile yarns and fabrics.

**Fibre diameter:** Is the thickness of individual fibres. Alpaca fibre is inherently variable in fibre diameter but the average fibre diameter is by far the most important characteristic in terms of processing value. fibre diameter is expressed in micrometers (microns).

**Fibre draw:** A technique used to show the length of fibres within a staple. The fibres are "drawn" from the sample and laid onto a colour contrasting board to show from long to short fibre spread.

**Fineness:** A measure, in microns, of the diameter of individual alpaca fibres., most often expressed as an average.

**First cross:** The first offspring of a structured crossbreeding system involving parents or different breeds, e.g. Suri/Huacaya

**Fleece:** The covering of an alpaca comprising clusters of fibres known as staple (Huacaya) or locks (Suri).

**Fleece rot:** Bacterial action of micro organisms on the surface of the skin under damp, humid conditions, which leaves the fibre with a wasty, yellow appearance.

**Fleece weight:** The weight of an entire fleece, measured at the same time each year, usually at shearing time.

**Fly:** Fibres that fly out into the atmosphere during the early stage fibre processing.

**Fly strike:** Condition produced by the development of blowfly maggots on alpacas.

**Follicle:** The structure from which hair or wool fibre grows.

**Follicle (Primary):** It is from this follicle that the primary fibre grows. This follicle is the first to form in the dermis. The primary fibre may either be guard hair (always medullated) or normal alpaca fibre (nearly every time will have medulla cells - Medullation). Will normally be the coarsest micron found in the staple of the fleece. The primary follicle has a structure of both wax (bi-lobed) and sweat glands as well as an arrector muscle. These follicles tend to develop in-groups of three (trio) primary and associated secondary fibres.

**Follicle (Secondary):** It is from this follicle that the secondary fibre grows. It is the second forming follicle in the dermis. The secondary fibre, the majority of the time, will have medulla cells (unless below around 20 microns). Will normally be the finest micron found in the staple of the fleece. The secondary follicle only has a single wax gland.

**Forequarter:** The area forward of the barrel.

**Free (FNF):** This term describes fibre that is free or nearly free from vegetable fault.

## G

**Gare:** Long, hairy fibres that have very low scale protrusion. These are medullated similar to guard hair and are difficult to spin or dye.

**Gelding:** a castrated male alpaca.

**Genotype:** The entire genetic constitution of the individual animal which cannot be measured directly.

**Gestation:** The period of pregnancy (approx 345 days)

**Grading:** The sorting and classification of alpaca fibres according to colour, staple length, strength, evenness and fineness etc.

**Greasy:** A commercial term for unwashed alpaca wool.

**Greasy wool:** Wool as shorn from the alpaca in its natural state, containing yolk, moisture, vegetable and earthy matter.

**Green discolouration:** This is caused by a pigment-producing bacterium. Favourable conditions are sufficient moisture and scurfy condition of the skin. When old, the colour may change to a brownish red.

**Gritty:** Fibre carrying a considerable percentage of sand.

**Guanaco:** Lama guanaimicoe, a wild member of the New World camelidae family.

**Guard hair:** Coarse, medullated fibre. A second coat of fibre found in llamas, vicuna, guanacos and sometimes alpacas. Also called Kemp. Guard hair has a different outer scale structure to alpaca fibre. They are stiff and hollow with pointed tips. They reflect light differently to solid fibres and are hard to control when spinning. Guard hairs can have a medulla taking up as much as 80/90% of the individual fibre,

## H

**Handle:** Term used to denote softness and feel of fibre or garment. A "good handle" refers to softness whereas a "poor handle" refers to harshness. The characteristics associated with this term are difficult to measure and it is often used as a subjective measurement. A low C of V is quite often associated with the softness and handle, due to the more evenness of the fibres micron indicated by that measurement.

**Harsh:** A feeling of fibres which are not soft to the sense of touch.

**Hauteur:** Hauteur is a term used to describe the mean fibre length in the top. It is a length biased distribution. Hauteur as determined by the Almeter is widely used commercially for the specification and trading of wool tops.

**Heritability:** A measure of the strength of the relationship between performance (phenotypic values) and breeding values for a characteristic in a population.

**Heterosis:** The hybrid vigour arising from cross breeding. It occurs when the average of the progeny produced by the crossing is higher for a particular trait or traits, than the average of the parent population.

**Heterotypic fibres:** These fibres show at different parts of their length the characteristics of both hair (medullated) and non hair (non medullated fibres).

**Hind quarter:** Rear end of an alpaca - rump and legs.

**Histogram(Statistical term):** A graphical representation, similar to a bar chart in structure that organizes a group of data points into user-specified ranges. Used to quantify alpaca fibre characteristics. The histogram on such a report depicts the measurement of fibres measured (usually 1000-4000 fibres) in the scale.

**Hunger fine:** Thin wool, finer than usual, caused by lack of nutrition.

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

**Huarizo:** A mostly derogatory term most often used to describe a llama-alpaca cross. Characterized by weak, medullated fibre and poor breed type. A crossbred animal.

**Huasu:** Showing fibre traits of both Huacaya and Suri. Usually long and lustrous with a large "Huacaya like" crimp.

**Hybrid vigour:** An increase in vigour and other superior qualities arising from the crossbreeding of genetically different animals of the same species. The progeny of the crossbreeding tend to show superior qualities to both parents.

**Hygroscopic:** The ability of alpaca fibre to absorb and give off moisture.

**Identification test:** A procedure for determining variety of fibres, fabric construction, yarn construction, or finish and colouring of textiles. Physical, chemical, microscopic and other methods are used.

**Impurity:** Any undesirable or extraneous material present in a fleece or textile or a product made from fibre.

**Inbreeding:** The mating between animals that are closely related to each other than the average relationship between all the animals in the population. Breeding within small herds will automatically lead to a degree of inbreeding. Excessive inbreeding is deleterious to the improvement of production characteristics and population fitness.

**Indefinite Light:** White or beige fleece with easily recognisable dark fibres uniformly interspersed through the main fleece area. The primary colour is not grey.

**Indefinite Dark:** Coloured fleece with easily recognisable white or light fibres interspersed through the main fleece area. The primary colour is not grey.

## K

**Kemp:** A short brittle chalky white fully medullated fibre mainly found around the face and legs of animals. Kemp is sometimes found in the fleece (when short tends to be called Kemp and when long tends to be called guard hair). Kemp fibres will not spin readily together, do not absorb dye evenly and tend to indicate poor breeding.

**Keratin:** A protein substance that is the chief component of protein fibres.

**Kilotex (ktex):** Is the unit of measurement used to express linear density (or thickness) and is defined as grams per metre. The thickness of staples is measured (in Kilotex) and used in the calculation of staple strength. e.g. A staple of 100 mm in length with a clean weight of 0.1 gm has a "thickness" of 1 Kilotex. Typical range from 1 to 5 ktex. A staple of pencil thickness is equivalent to approximately 1 ktex.

**Knitting:** A method of constructing fabric by interlocking a series of loops of one or more yarns. Can be done by hand, as is traditional, or by machine.

## L

**Lama:** Scientific name for the genus including llamas, alpacas, guanacos, and vicunas. However, vicuñas are sometimes separated into their own genus.

**Lama Pacos:** The Latin name for the alpaca.

**Lamb Boards:** Two boards hinged together at one end. Used to pick up lamb's wool, but found to be very useful for picking up alpaca fleece from the shearing board.

**Lanolin:** It is the natural grease found in alpaca. Alpaca has a very low content of grease (1 - 2%) compared to sheep's wool. Lanolin is a by-product of scouring, and is used in the Pharmaceutical industry. Low grades are used as industrial lubricants and paint bases.

**Laserscan:** This machine measures the diameter of several thousand individual fibre snippets (2 mm long) and calculates both the average fibre diameter, the fibre diameter variability, comfort factor and fibres over 30 microns (main measurements). It also produces a distribution curve.

**Length:** The length of the staple will determine the method of manufacture of the Alpaca into yarn. The two methods are: Worsted - for the longer fibred fleeces, 3"-5.5", 75-140mm, Woollen - for those fleeces whose length is 2"-3", 50-75mm. The mean (average) length in the top contributes to yarn strength. The longer the mean length the greater the strength by increasing adhesion of fibres during spinning. It is most important in processing that length is relatively even. Length also has an influence on yield. The shorter staple compared to a longer staple of the same micron, grease content etc grazed in a similar area, will usually be lower in yield.

**Lightweight Bale (Butt):** A bale of Alpaca fibre containing less than the stipulated minimum weight, i.e. 110kgs (90kgs Superfine).

**Limit:** The highest price an alpaca fleece buyer is prepared to pay for a particular parcel of fibre. The limit is usually inclusive of all costs incurred by the buyer in the purchase of this fibre.

**Line:** A group of related animals within a breed.

**Lines:** The various grades of classed alpaca fibre created at shearing time or in a classing facility.

**Linebreeding:** The mating of individual animals within a particular line designed to maintain a substantial degree of relationship to a highly regarded ancestor or group without causing high levels of inbreeding.

**Line crossing:** (Crossbreeding) Mating of herd sires of one line or line combination to dams of another line or line combination.

**Live Birth:** many alpaca sale contracts involving a bred female guarantee that the cria will be alive and survive for a stated minimal amount of time, often 48 hours.

**Llama:** A domesticated species of South American Camelid raised for fibre production, meat and packing.

**Locks:** Usually second cuts and small pieces which fall from the fleece during shearing.

**Loft:** The springiness in alpaca fibre. The term can be used as an indication of bulkiness in fabrics, e.g. blankets. Refer Resistance to compression.

**Lot:** Any parcel of fibre catalogued and offered for sale.

**Lot building:** The placing together of butts of similar micron and type belonging to various owners to form large even bales.

**Loom:** A device or machine for weaving cloth.

**Lustre (Brightness):** The Lustre (Suri) and Brightness (Huacaya) is an important characteristics in alpaca fibre. Lustre is created by the ability of the alpaca fibre to absorb and reflect light, enabling a sheen is seen not only in the greasy state but right through to the finished product. Lustre for Suri is probably the main characteristic of this Breed. In Huacaya a brightness or bloom is desired.

## M

**Mode (Statistical term):** The most commonly occurring value.

**Matted (Cotted):** Fibre naturally felted on an animal's back.

**Mean(Statistical term):** This usually implies "arithmetic mean" and is the same as "average". The arithmetic mean of a set of values is their sum divided by the number of individual tests.

**Mean fibre diameter(Statistical term):** The average diameter or thickness of a group of fibres from an alpaca as calculated by scientific instruments.

**Medulla:** Fibres with a air-filled cells. Found in alpaca usually 20 microns and broader. The higher the micron the greater the medulla content.

**Medullation:** A term to describe fibres that have medulla cells within the structure of the individual fibre.

**Medullated fibres:** These fibres generally look like normal wool fibres and have cells which are hollow and found along the main axis of the fibre and may be in small pockets or run continuously from end to end of the fibre. **Guard hairs** (medullated fibre) are true hair fibres, do not have the same cuticle structure and therefore do not have the same spinning and dyeing properties as the "wool like fibres".

**Melanin:** The pigment in skin that determines coat and skin colour.

**Mendelian inheritance:** Refers to the inheritance of characters controlled by single genes (of qualitative characteristics) that follow the laws discovered by Gregor Mendel nearly 120 years ago.

**Metrology:** Science of measurement. In the wool and specialty fibre industry often applied to fibres.

**Micron(Statistical term):** A measurement of fibre diameter, equal to 1/25,000 of an inch, or 1/1000th of a millimetre, that refers to the fineness of a fibre. The smaller the micron, the finer the fibre.

**Mohair:** The fleece of an Angora goat.

**Moisture content:** The amount of moisture in a given amount of fibre or material determined under prescribed conditions and expressed as a percentage of the weight of the moist material.

**Moisture equilibrium:** The condition reached by a sample when it no longer takes up moisture from, or gives up moisture to, the surrounding atmosphere.

**Moisture regain:** The amount of moisture in a given amount of raw fibre or material determined under prescribed conditions and expressed as a percentage of the weight of the moisture free specimen.

**Mother hair:** Long hairy fibres found on cria or lambs at birth.

**Mushy:** Fibre which is badly weathered, thin and very waxy or oily.

**Mustering:** A collection of animals into a herd.

**Multicolour:** (General definitions, refer breed societies). An individual that incorporates more than one colour in its fleece. eg

**Appaloosa:** Must have 6 or more evenly sized spots (not patches) thru the main fleece area. The primary colour is not grey.

**Fancy:** (NZ) Any alpaca which is not grey and has more than 10% of non-dominant colour/s.(US) Exhibits three or more distinct colours of which the primary colour is not grey.

**Pattern:** The main fleece will display a distinct secondary solid patch of colour. this patch is greater than 6 inches (120mm) in any direction. The primary colour is not grey.

**Piebald:** There are many definitions of piebald. The main fleece area has two colours which are displayed as patches. These are normally white and black. The primary colour is not grey.

**Pinto:** The main fleece area has two colours. The base colour is usually white with large patches of the second colour, black or brown. (USA, white with medium fawn or darker). The primary colour is not grey.

**Skewbald:** The main fleece area will display patches of two colours of white and another colour other than black.

**Mycotic Dermatitis:** A fungus condition of sheep or alpaca skin which discharges and leaves waste matter in the wool.

## N

**NATA:** National Association of Testing Authorities. This association oversees quality control of all NATA registered laboratories.

**Natural Dye:** Dye obtained from substances such as roots, bark, wood, berries, lichens, insects, shellfish and flowers.

**Natural Fibre:** Fibre obtained from animal, vegetable or mineral sources, as opposed to those regenerated or synthesized from chemicals.

**Necks:** Fibre shorn from the neck region of the alpaca. Tends to be shorter than the main fleece (saddle/blanket).

**Neps:** Small "balls" (or aggregations) of entangled fibres ranging in size from "pin points" to approximately 2 mm in diameter which are created during processing. These are mostly removed from the "top" in the combing process.

**Newton(N):** The unit used to express the amount of force of "pull" placed on a particular object. 10 newtons (N) is equivalent to the force exerted by a 1 kilogram (kg) weight. For wool it is used to measure the force required to break a staple. The force used when subjectively appraising staple strength by the "flick test" is equivalent to approximately 30 newtons (N)>

**Noil:** Short and broken fibres extracted from the long fibres during the combing process.

## O

**Objective measurement:** Refers to the measurement of a particular characteristic as opposed to the subjective appraisal of that characteristic.

**OFDA:** Optical Fibre Diameter Analyser, a machine for measuring fibres (models 100 and 2000).

**Oddments:** A trade term referring to the classification of locks, lambs, crutchings and stain fibre.

**Oven dry weight (ODW):** The weight of fibre obtained by the oven drying the scoured dub-samples at 105 degrees C, corrected for the moisture content of the drying air.

**Overlong or overgrown:** Fibre longer than is usual for a specific micron. 140mm is regarded as overlong.

## P

**Paco vicuña:** A crossbred or hybrid vicuna and alpaca mix.

**Papilla:** A formation at the base of the follicle from which the fibre grows.

**Passed in:** Fibre lots offered for sale at auction but not sold owing to bids not reaching the reserve price of the grower.

**Pelt:** Alpaca skin with little or no fibre on it.

**Pet Male:** A male alpaca whose genetic characteristics are not considered desirable for breeding. Often gelded at between nine and twelve months old.. Also called “fibre boys.”

**Picker up:** A person employed to pick up shorn fleeces and place them on to a skirting table.

**Pieces:** Fibre that is removed from the fleece on the skirting table is sorted into its matching types.

**Phenotype:** As determined both genetically and environmentally, the entire physical, biochemical, and physiological makeup of an individual alpaca (Genotype + environment).

**Pin-drafting:** During drafting, fibres are oriented relative to one another in the sliver and controlled by rolls of pins between the drafting rolls. Primarily used for long fibres in the semi-worsted and worsted spinning systems.

**Plain:** Straight Huacaya fibre lacking in crimp and character.

**Ply:** One of any number of single yarns twisted together to form a yarn or to twist together two or more single yarns to form another yarn or cord.

**Position of break:** Indicates the location of the weakest part of the staple. Position of break is measured in conjunction with the staple strength by weighing the two sections of each broken staple. The distance from the staple tip to the point at which the break occurs is calculated and then converted into values to indicate whether the staple broke in the tip, middle or base region. The percentage of staples which break in these three regions is then reported in sale catalogues.

**Precision:** The ability to provide a test result that is repeatable (using the same sampling technique and testing machine would help achieve this). The degree of precision is often expressed in terms of confidence limits.

**Prem shorn:** Short fibre shorn prematurely with only a few months growth.

**Pre potency:** The ability of an individual alpaca to impress its own characteristics or likeness upon a large proportion of its progeny.

**Primary/Secondary(fibre) difference:** The gap between the primary and secondary fibre diameters. Currently for alpaca the secondary fibre is on average 70% of the diameter of the primary fibre.

**Private sale:** Fleece sold by private agreement, not by auction.

**Projection microscope:** A microscope that projects the image of prepared fibres (2mm) onto a frosted screen to facilitate the measuring of these individual fibres.

**Protein Fibre:** An animal fibre composed of protein, including naturally occurring animal fibres as alpaca, wool, silk, llama and other hair and fur fibres.

**Purebred:** Entirely of one recognized breed or line. Not crossbred.

## R

**Reclassing:** The classing of unclassed or badly classed clips; usually carried out in a wool store.

**Rectilinear combing:** Is also known as a Schlumberger or French Combing. It is the continental system of combing which is now used universally (as opposed to Noble Combing).

**Resilience:** The ability of fibre or yarn or a garment to recover to its original shape and size after removal of the force that caused the deformation. Fibres exhibit the quality to spring back to its original state after being crushed or wrinkled. Also sometimes referred to as memory.

**Regain:** Wool like fibres absorb up to 33% of their own weight of moisture before becoming "wet". Regain is the amount of moisture in the fibres, expressed as a percentage of the clean oven dry weight. Alpaca has a laboratory regain of 15/16%.

**Registry:** An alpaca information storage and retrieval centre. Registries record and maintain pedigree data, registry numbers, blood typing, and other vital information on registered alpacas.

**Residuals:** Small amounts of dirt and fatty matter remaining in washed samples, and measured as part of the standard method for determining yield or wool base.

**Resistance to compression and bulk:** Resistance to compression is the resistance offered by a known mass of wool when compressed to a known volume (it is like squeezing a handful of wool, some will offer no resistance, some will offer a lot.)

**Roving:** A loose assemblage of fibres drawn or rubbed into a strand with very little twist. In spun yarn systems, the product of the stage or stages just prior to spinning.

## S

**Scouring (a):** Refers to the mechanical removal of mineral matter, suint (sweat) and wax by either aqueous or solvent methods. Scouring is the first stage in processing, followed by drying and carding.

**(b):** The frequent purging of the bowels generally caused by parasites or infection.

**Sebaceous gland:** Are the glands in the skin that secrete wax (lanolin) which is associated with each follicle.

**Second cut:** Short pieces of fleece staples which result from a shearer going twice over the same area.

**Serrations:** Edges of the cuticle scales, invisible to the naked-eye, which project from the body of the fibre.

**Shafty:** Long, sound, deep staples; wide and thick.

**Shearer:** A person who shears the fibre from an alpaca.

**Shearing:** The once-a-year harvest of alpaca fibre. Shearing is normally done in mid-spring in order to help cool the alpaca through the summer and allow the coat time to grow back before the cold winter.

**Shear:** To remove an alpaca's fleece (preferably in one large piece or blanket). The fleece should be shorn close to the skin.

**Shed hands:** Persons employed in the shearing shed other than the shearers and classer for the handling and sorting of the fleece.

**Sheer ultra:** An Australian term used to describe microns in the range of 16 and finer.

**Shrinkage:** A reduction in width or length of a material caused by some treatments, especially washing.

**Shive:** Fine grass seeds and certain vegetable matter (not bur) found in fleeces.

**Shorn:** The term used to describe an alpaca that has had its fleece removed by shearing.

**Skein:** Yarn wound into a loose, thick coil used for knitting or crochet.

**Sinkage (machine):** The term used to describe fibre or weight loss during de-hairing and general processing.

**Skirted fleece:** Fleece with skirtings removed.

**Skirtings:** Inferior wool removed from the fleece so as to leave the remainder uniform and even.

**Sliver:** A continuous strand of loosely carded fibres in an untwisted condition.

**Softness:** Refers to handle. Generally, the finer the micron, the softer the handle. Low C of V adds to softness.

**Sound:** Fibre that has the necessary tensile strength and length to undergo the combing process.

**Snippet:** A small section of 2mm length fibre cut from the main fibre sample for measurement in a laboratory.

**Speciality:** (a) Stylish fibres with superior characteristics. Usually of superfine microns.

(b) Fleece and fleece products of the goat and camel families. Mohair, cashmere, angora, alpaca, vicuña, guanaco, llama, and camel.

**Specification:** Detailed classer's report on the preparation and contents of the classed alpaca clip.

**S/P Ratios:** The ratio of secondary follicles to primary follicles in the skin of an alpaca or other fleece bearing animals. It is expressed as S/P Ratio with the value of the ratio always being Sx/P1. This term is also used for the comparison of primary and secondary fibres.

**Spinning:** The entire process of making yarn from fibre. The final step in the production of yarn. Also the twisting of the sliver or roving.

**Spinning fineness(Statistical term):** This is a measurement (using micron and C of V%) to estimate the performance of fibre when it is spun into yarn. It has been shown in the sheep industry that if you can reduce your C of V by around 5% then you achieve a yarn that performs like a yarn one micron finer (spinning fineness) The reverse also applies.

**Spinning:** The process of twisting fibre into yarn either with a spinning wheel, drop spindle or through the use of high-tech commercial machinery.

**SRS ®:** The SRS ® Breeding System was developed by Dr Jim Watts around 1986. It was based on research by Dr Philip Moore et al, on pre -papilla cells, working on the hypothesis that the wool follicle formation and fibre growth is determined genetically by the number and activity of the pre -papilla cells in the foetal skin.

**Stained fibre:** Any fibre which will not scour white. Some common stains include urine, canary, dip, drench and water-rot stain.

**Standard Deviation (SD) (Statistical term):** This indicates how the fibre diameter in the sample varies around the mean. The smaller the standard deviation the less the variation around the mean.

One standard deviation (+1, -1 either side of the mean), will represent 68% of the fibres measured.

**Staple:** An organized group or cluster of individual fibres of alpaca fibre. A large number of staples make up a fleece.

**Staple length:** The length of the staple measured from tip to base.

**Staple measurement:** Refers to the measurement of staple length (mm), staple strength (N/ktx), staple length variability (CV%) and position of break (POB).

**Staple strength:** Alpaca is generally strong in tensile strength although this can change and become weak if the animal is stressed e.g. sickness, lack of nutrition etc. Research (Holt /Stapleton 1993) has shown Australian Alpacas have a tensile strength range of 22-104 N/Ktex.

**Steely:** Fibre lacking character and possessing a "steely" or glassy sheen. Such fibre is produced on pasture deficient in certain trace elements, notably copper.

**Strong:** Term referring to wool which has a comparatively broad fibre diameter for its breed.

**Stud:** A male alpaca used for breeding progeny.

**Style: (a) (Classing Style)** Term referring to the subjective appraisal of a combination of attributes of the fleece including brightness, density, character and tip shape.

**(b) (AWEX Style)** As above but including dust penetration and vegetable content damage.

**Suint (Sudoriferous gland):** A natural impurity, which is secreted from the Sudoriferous gland, onto the primary fibre. These glands produce differing degrees of sweat in various animals.

**Super:** Fleece of superior to choice style irrespective of micron.

**Superfine:** A term used to describe microns in the 20 - 18 micron range.

**Suri:** An alpaca type, known for long "pencils" of non-crimped fibre resembling dreadlocks. Its locks of fleece lay close to the body, twisting vertically toward the ground.

## T

**Tags:** See Dag's.

**Tare:** The weight of a wool pack. Polythene packs 2kg tare.

**Tear:** The ratio of top to noils (short fibres removed during combing). e.g. A tare of 10 to 1 would mean that in a sample of 22kg of scoured fibre there would be 20 kgs of tops and 2 kgs of noils.

**Tender Wool:** A fibre staple containing weak areas that can only be used for carding and not combing. It is caused by an alpaca's illness, excessive exposure to weather, or poor nutrition.

**Tensile Strength:** The amount of pulling force a fibre can withstand before it stretches and breaks.

**TEX:** Universal Metric System for weighing yarns (most common) TEX = Weight in grams per 1000 metres.

**Textile:** A wide classification of materials that can be used in constructing fabrics. Also the fabrics made with those materials.

**Tippy Wool:** Badly weathered ends of fleece, can contain amounts of dirt and other debris. Undesirable because the tips dye differently from the rest of the fleece.

**Top Knot:** Wool on the alpaca's head and between its ears. Considered a desirable aesthetic quality; also known as the wool cap and sometimes the bonnet.

**Tops:** A continuous ribbon of untwisted fibres which have been combed to lay parallel with the short and weak fibres (noils) removed.

**Trio Group:** Primary fibres being identified separately from secondaries are assessed in follicle groups (trio group) to create SP Ratio's. These groups on average are approximately three quarters of the square 1 mm measuring frame.

**True length:** The length of alpaca fibres when stretched.

**Tui:** A six to eighteen-month-old alpaca, or its fleece. The most high quality fleece an alpaca will ever produce.

**Twist:** The number of turns about its axis per unit of length in a yarn or other textile strand. It is usually indicated as turns per inch (tpi).

**Twisting:** Is the process in which two yarns are combined to make a twofold (2 ply yarn) by inserting a twist.

## U

**Ultra fine:** A term used to describe microns in the range of 17 - 16.

**Unskirted:** Fleece wools with skirtings intact.

**Unsoundness:** Any condition that prevents an alpaca's body from functioning well.

**Urine stain:** Stained fibre normally found in the crutch of females. Caused by urination, and stain will not scour out.

## V

**Variation (a) Fleece:** Variation of micron throughout the fleece (C of V and SD)  
**(b)** The differences in characteristics between individual alpacas in a herd.

**Vegetable matter content (VMC):** A breakdown of vegetable matter type calculated by the testing house and displayed on the certificate.

**Vicuña:** A small, South American Camelid with an extremely fine cinnamon and white coat. Some scientists consider the vicuña to be the direct ancestor of the modern alpaca. Vicuñas possess one of the finest natural fibres in the world.

**Virgin fibre:** Completely unprocessed wool or fibre. This term is a misnomer when used in advertising or on labels.

## W

**Wasty tip:** A weak, weather-beaten tip caused by detrimental tips of sunlight and dust.

**Water rot:** Usually found in the backline and is normally thin, yellow and spongy, particularly in the region of the wither.

**Water stain:** Yellow stain caused by excessive exposure to moisture.

**Water washed:** Alpaca fibre with a very high yield due to most of the impurities having been washed away by heavy rain. This is common in a high rainfall pastoral district. This is not to be confused with preparation of an animal but is a natural phenomenon.

**Wax:** A clear substance which is secreted from the Sebaceous gland around the follicle, onto the fibre.

Required to lubricate and protect the fibre.

**Weanling:** A weaned alpaca less than one year old that is no longer nursing.

**Weave:** To form a fabric by the interlacing of warp and weft threads.

**Weaving:** Making cloth by interlacing yarns at right angles according to a pattern.

**Wether:** A castrated male alpaca.

**Wither:** Point between the two shoulder blades.

**Wool:** The fibre from the fleece of any sheep. Sometimes used with other fibre producing animals that grow fibre similar to sheep, e.g. alpaca (Huacaya).

**Wool base:** The oven dry weight of alpaca fibre, free of all impurities, expressed as a percentage of the weight of the greasy sample. It is the basis from which commercial yields are calculated.

**Wool blind:** Alpacas that are unable to see due to excessive growth around the eyes.

**Wool broker:** An agent who sells wool or specialty fibres on behalf of a grower.

**Wool buyer/ Exporter:** A person engaged to buy wool either for themselves or on behalf of a client, usually a processor.

**Wool classer:** A person employed to class alpaca fibre either in the shearing shed or in a classing establishment.

**Woollen:** (a) Yarn made from fibres that are one to three inches (75mm) long that have been carded but not further processed. Woollen fabric is characterized as being bulky, fuzzy and thick.

(b) The section of the industry that uses the shorter fibres unsuitable for the worsted trade.

**Wool sorter:** A person employed in a shearing shed on the skirting table to skirt the fleece prior to classing.

**Worsted:** (a) Worsted yarn is made from a top that is combed laying the alpaca fibres more parallel and is usually spun tighter than woollen yarns. The worsted yarns are normally smoother and stronger than those from the woollen system. Products from the worsted system include suiting cloth and knitwear. In the alpaca industry the worsted tends to use 3 inch (75mm and longer).

(b) A process of manufacture which only uses those wools which are capable of being combed.

## Y

**Yarn:** A generic term for a continuous strand of textile fibre, filament or material in a form suitable for knitting, weaving, or otherwise intertwining to form a textile fabric.

**Yield:** The amount of clean fibre, at a standard regain, that can be obtained from the greasy wool. There are four yields commonly used for the trading of alpaca fibre that are calculated on the test certificate.

IWTO Schlumberger Dry Top Noil Yield (SCH DRY)

IWTO Scoured Yield 17% Regain (SCD 17%)

Japanese Clean Scoured Yield (JCSY)

Australian Carbonising Yield 17% Regain (ACY)

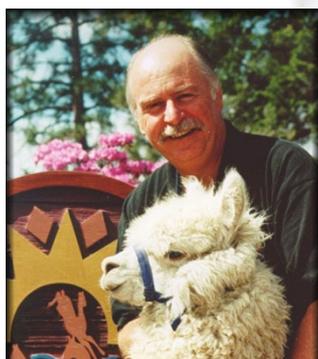
**Yolk:** A natural impurity, which is secreted from the glands around the follicle, onto the fibre. This impurity is a combination of **wax and suint**, which is commonly called yolk. These impurities are essential in the growth and protection of the fibre.

## GLOSSARY CONTRIBUTORS

Bianco Johnston, M.	Glossary of Alpaca terms Meyla Bianco Johnston, Copy Editor, Alpaca Culture, 2013.
Couchman, R.	Cashmere terms (1986).
Harmsworth, T. Day, G.	Wool and Mohair (1979).
Hauge, J.	Wool & sheep Technical Terms (MIT 1996)
Holt, C	Glossary of Specialty Fibre terms (1987).
Safley, M.	Glossary of Alpaca terms
Hoffman, E. Fowler, M.	The Alpaca book, " Glossary " (1995)

*Copyright ownership of this article is retained by the authors Cameron & Joy Holt Australia © 2013*

*This article may not be reproduced either in part or full without written permission of the authors*



### AUTHOR - CAMERON HOLT

**Cameron, who has had some 40 years in the fibre industry as a wool broker, judge, educator and also in his semi retirement continues with alpaca research. He is currently judging for the Australian Alpaca Association and in his role as Senior Fleece Judge and trainer for AOBA, has been involved in the training of their judges as well as judging. Cameron, a leading alpaca fibre expert, continues his educational clinics and lectures throughout the world.**