# Fibre Grading Guide

Update: April 12, 2021

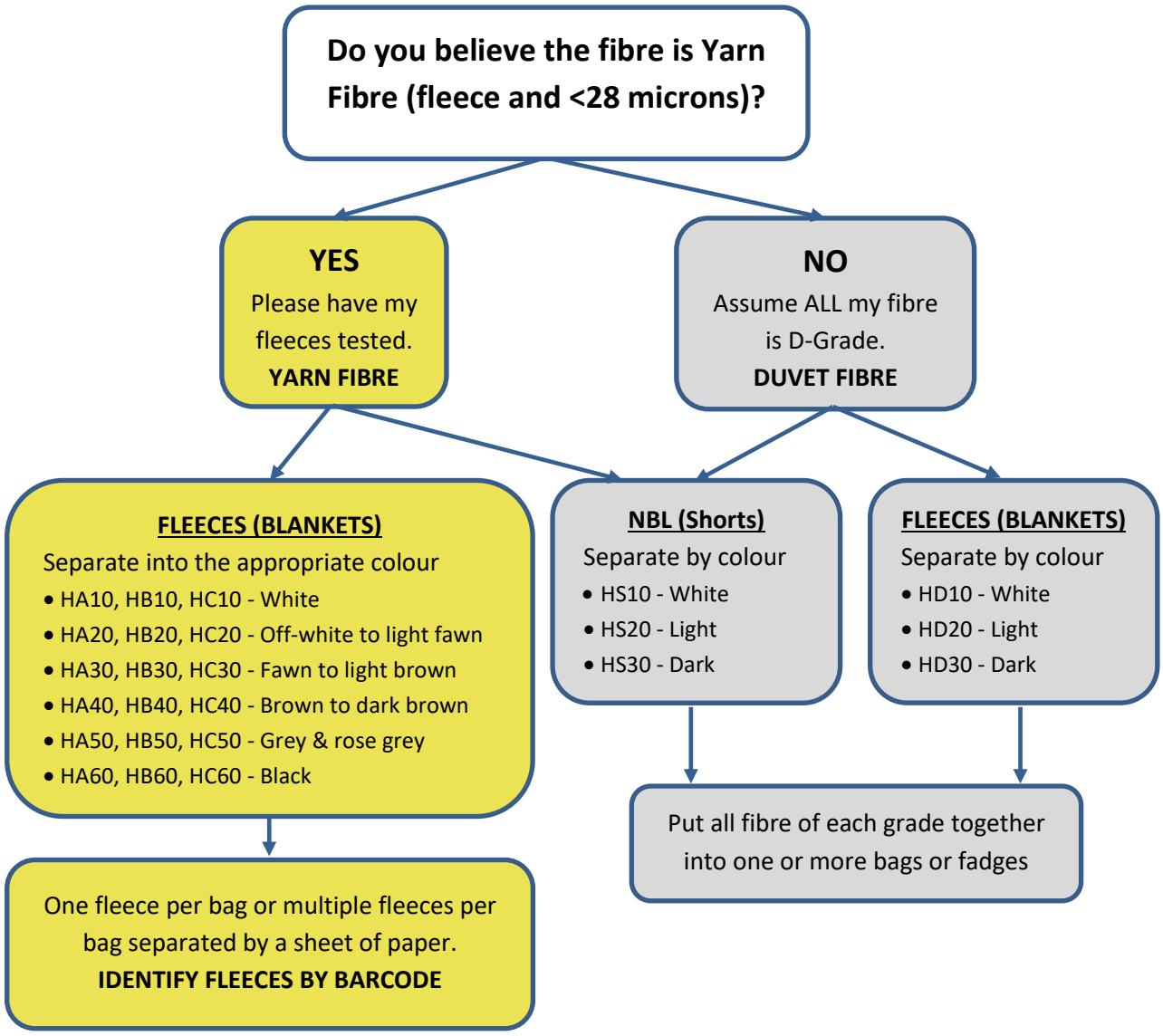
Pacific Alpacas ("PA") requires that any fibre contributed to the pool be graded by colour and by coarseness (microns). By agreeing to supply your fibre to Pacific Alpacas it is assumed you are willing to accept the grading and testing procedures setout below.

For 2020 / 2021 season, PA will only accept huacaya alpaca fibre, not suri and not llama.

At the simplest level we identify fibre into two groups by its intended end-use.

A. Yarn fibre is fibre that is less coarse than 28 microns ("µ"), has good handle and is blanket or fleece fibre as opposed to NBL (necks, bellies, legs) or 'shorts'.

B. Duvet fibre includes any ungraded fibre, fleece fibre over 28µ, and all shorts. We call this fibre D-Grade.



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## Classing by colour

Please refer to Pacific Alpacas Fibre Grades chart which is available upon request.

Pacific Alpacas sorts fibre into colours as follows:

A. Yarn Fibre - into six colour classes
   1) White
   2) Off-white to light fawn
   3) Fawn to light brown
   4) Brown to dark brown
   5) Grey and rose-grey
   6) Black

B. Duvet fibre - into three colour classes.
   1) White
   2) Light all-colours
   3) Dark all-colours

## Grading by microns

PA grades fibre according to four distinct micron bands as below:

a) A-Grade <20.0 microns
b) B-Grade 20.1 to 24.0 microns
c) C-Grade 24.1 to 28.0 microns
d) D-Grade >28.1 microns

A, B and C grades qualify as Yarn Fibre. D-Grade is only suitable for duvets.

Regardless of whether or not you have your fleeces tested and provide us the test results with your fleeces, every yarn-grade fleece we receive will be sampled and sent for testing by SGS so that we can guarantee the quality of fibre supplied to the pool's customers and used by Pacific Alpacas in product manufacture.

What does this mean to you as a grower?

i. If you believe any fleeces you supply are A, B or C grade they MUST be bagged separately or at least separated by paper within a fadge or bag so that they can be **easily** identified, tracked, and tested. It is our intent to introduce some smaller, one-fleece-sized, collection bags for the 2021/2022 season for fleeces that are to be tested but unfortunately, we will not have them this year.

ii. Use the Fine Fibre Tracing Sheet to record information relating to all fibre you want to be tested.

iii. Growers who have indicated that they want to be part of Pacific Alpacas Fine Fibre Programme will be provided with sheets of sets of four barcode labels like this; each barcode referring to one fleece.

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Please attach the LARGE barcode to the bag containing the fleece, or if there are multiple fleeces separated by paper inside a large bag or fleece then attach this label to the divider paper **ABOVE** the fleece it refers to. The barcodes use a special high-strength adhesive and will not readily come off the woven grower bags or fadges.

Attach one of the small labels to a **Fine Fibre Tracing Sheet** (we will provide these, or you can download them from our website) and record the details of the animal it came from. If possible, please use a unique identifier, e.g., ear tag or microchip number, to identify your animals as opposed to names.

The final two barcode labels are for our use during the sampling process and must be provided with your Bag Weights Sheets when you send your fibre for collection. Please DO NOT put these additional barcodes inside the bag with the fleece.

**PLEASE NOTE:**

1. **If you do not send back the final two labels with your fibre UNUSED (i.e., still on their factory backing) then your fibre will be automatically classed as D-Grade and not sampled.**
2. **If you put more than one fleece in bags to be tested but do not clearly separate and identify them by barcode labels, we will not test them and will treat them as D-Grade.**

To recap, for the barcode labels:

i. Large label on the bag or fleece separators where there are multiple fleeces in a fadge.

ii. One small label on the Fine Fibre Tracing Sheet.

iii. Two labels, unused, to be returned to Pacific Alpacas with your fibre but NOT in a bag with it. Keep them separate.

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## What will happen with the test results?

You will get an email with the test results sorted by your animal numbers, with the following information:

| Name | Optimal | Description |
|---|---|---|
| Mic Ave | 20 | Average width in microns from the base to the tip of the fibre sample, i.e. Mean Fibre Diameter (MFD). |
| SD Mic | < 4.5 | Standard Deviation in microns of the dispersion of fibre diameter either side of the average fibre diameter, where 66% of the fibre diameters lie. |
| CV Mic | < 20.0% | Coefficient of Variation (CVD) is the standard deviation expressed as a percentage of average fibre diameter. A CVD below 20% is desirable. |
| CEM | Lower is better | Coarse Edge Micron (CEM) is the number of microns above the average diameter where the broadest 5% of fibres lie. |
| <15 % | Higher is better | Is the percentage of fibres less than 15.0 microns. |
| CF % | Higher is better | Comfort Factor (CF) (vis a vis “prickle”) is the percentage of fibres ≤30 microns. |
| SF Mic | Lower is better | Spinning fineness in mm. Represents spinning quality. |
| SL mm | 70 - 90 | Staple length in mm. |
| FPFT mm | Lower is better | Finest Point from Tip (FPFT) (AUS) or Butt (NZ) is a measure in mm of the finest micron point along the staple. |
| Fibre Ends | Lower is better | Mean Fibre Ends (MFE) is the average fibre diameter of the fibre ends (tip and based) expressed in microns. |
| SD Along | Lower is better | Standard Deviation along the fibre, from butt to tip. In general, a lower SD along infers greater fibre strength, and hence processing potential. |
| CRV Dg/mm | Lower is better | Fibre Curvature (CRV) is the mean curvature of all fibres in a fibre staple. It is relative to crimp frequency, and expressed in degrees per millimeter (Dg/mm) |
| SDC Dg/mm | Lower is better | Standard Deviation (SD) of the fibre curvature expressed in degrees (Dg/mm). |
| C. Hauteur mm | 70 - 90 | Average length of fibres (e.g. 50 to 90 mm) in a Top (a bundle of fibres ready for spinning into yarn) |
| NZ Bulk | > 32 | Loose fibre bulk is a measure of the space filling capacity of a fibre mass, expressed as (cm3/g). NZ Bulk is calculated from micron and curvature to give an estimate of loose fibre bulk. Higher bulk infers greater resilience. Low 20.0 - 23.9, Medium 24 - 27.9, High 28 - 31.9, Very high > 32, Higher bulk infers greater resilience. |

In this way we will be able to develop a database of animals and fibre grades that can be used to assist you with a breeding programme to produce better fibre if you wish. You will be able to know by ANIMAL how your fibre has been graded.

**While there is no upfront cost to you to do this the cost of testing will be deducted at time of payout based on how many fleeces you submit.**

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## What happens if your test results are different from the ones we get?

To avoid any confusion or disputes, if you independently use a testing service and get test results for the same fleeces that are different from the ones we get from SGS, Pacific Alpacas will use the results we get from SGS, an independent laboratory, as the basis for grading your fibre.

We will not enter any discussion on this.

**PLEASE NOTE:**

Pacific Alpacas' sampling will involve taking one sample from as close to the centre of a fleece as we can. We will not be testing from four corners and the middle of each fleece.

If you look in the 2nd column of the fleece results you will see the Standard Deviation can be 4 – 5 microns. Also, the micron result is the AVERAGE of the fibre from the base to the tip. It is somewhat of an inexact science in its application, but this is the best cost-effective way we have of achieving empirically defensible results at scale.