

# EVALUATING GOTLAND CURLS AND FIBER

GSBANA Education Committee  
February 2023



# Table of Contents

Gotland Breed Character

Related Term Definitions

Curl Size Metrics

Curl Consistency

Curl Quality

Fiber Characteristics

Desirable and Deviations

Additional Resources



Photo from: Dr. Polly Matzinger, Amblingbrook Farm

# Gotland Breed Character

- Fleece is fine, long, lustrous and dense with clearly defined curl and staple; soft to the touch. It is typically 29 to 34 microns in diameter at 18 months of age, as measured mid-side at the last rib. Lamb's wool is typically in the low to mid 20's micron range.
- The ideal body wool on a Gotland lamb should show consistent staple at around 3.5 months.
- The Gotland curl is well defined, tight and rounded 3-dimensional curls that are elastic, flexible and evenly distributed in shape and size over the full body. The curls should "bounce" back if you put pressure on them with your hand.
- The size of curl is not as important as the consistency.

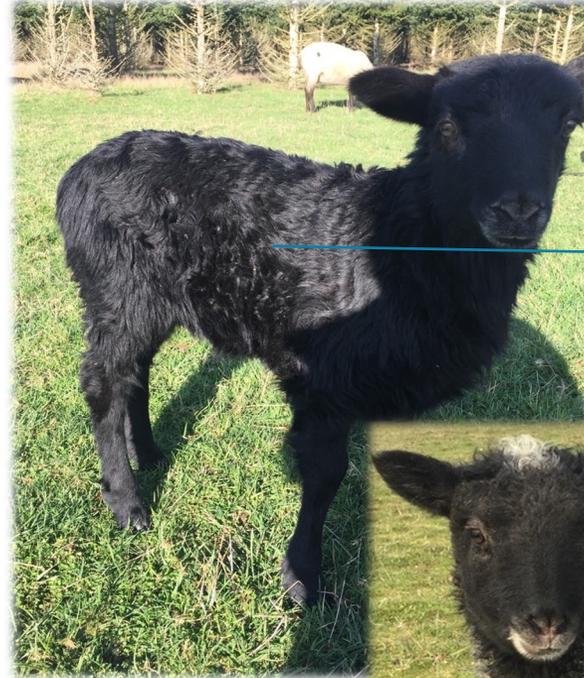
# Related Term Definitions:

- Breech/Britch: Coarse hair fibers on lower hind leg.
- Crimp: The natural waviness of the wool fiber; it varies with the diameter of the fiber.
- Hand/Handle: A term referring to the actual feel of wool.
- Kemp: Brittle, chalky white, weak fiber found as an impurity in the fleece.
- Lock: A small, approximately finger-sized bit of wool that tends to stay together when shorn from the sheep.
- Staple: Refers to the length of a lock of shorn wool; in the wool trade “staple” refers to the longer length wools.
- Staple Length: The average length of fiber within the fleece when measured from its point of origin at the shorn side or at the animal's skin to the tips of the individual fiber.

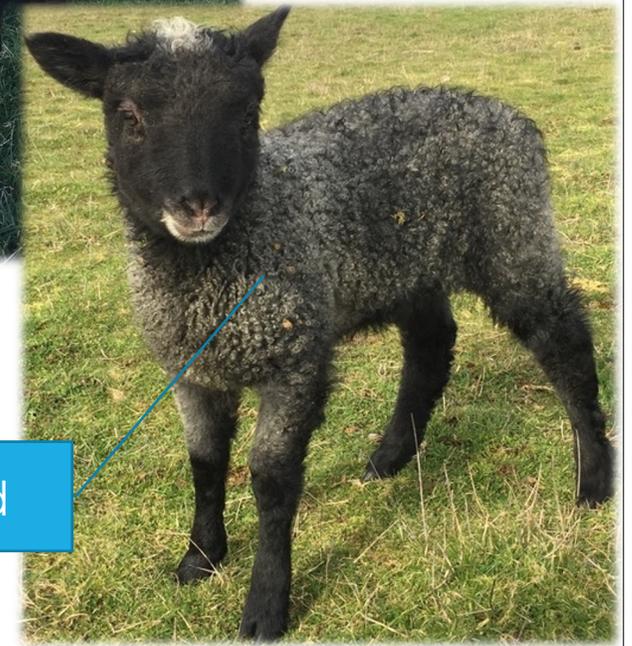
# Gotland Lamb Coats

- Gotland lamb coats can be very different and shift dramatically.
- Some variations that may be observed:
  - Consistent curls
  - "Dog Hair" – very straight hair
  - Small tight and light curls
  - Mix of fiber types and curl sizes etc.
  - Variations in color – some solid black and some light or a mix of colors.
- Avoid formally evaluating a Gotland lamb until the formal evaluation around 3.5 months.

Pictures from River Birch Farms



Dog Hair



Mixed

- The lamb coat will in many cases shift to the beautiful Gotland curls we know and love.
- You may well see that ugly duckling turn into a stunning swan!

Example:  
Same ram...



22 Days



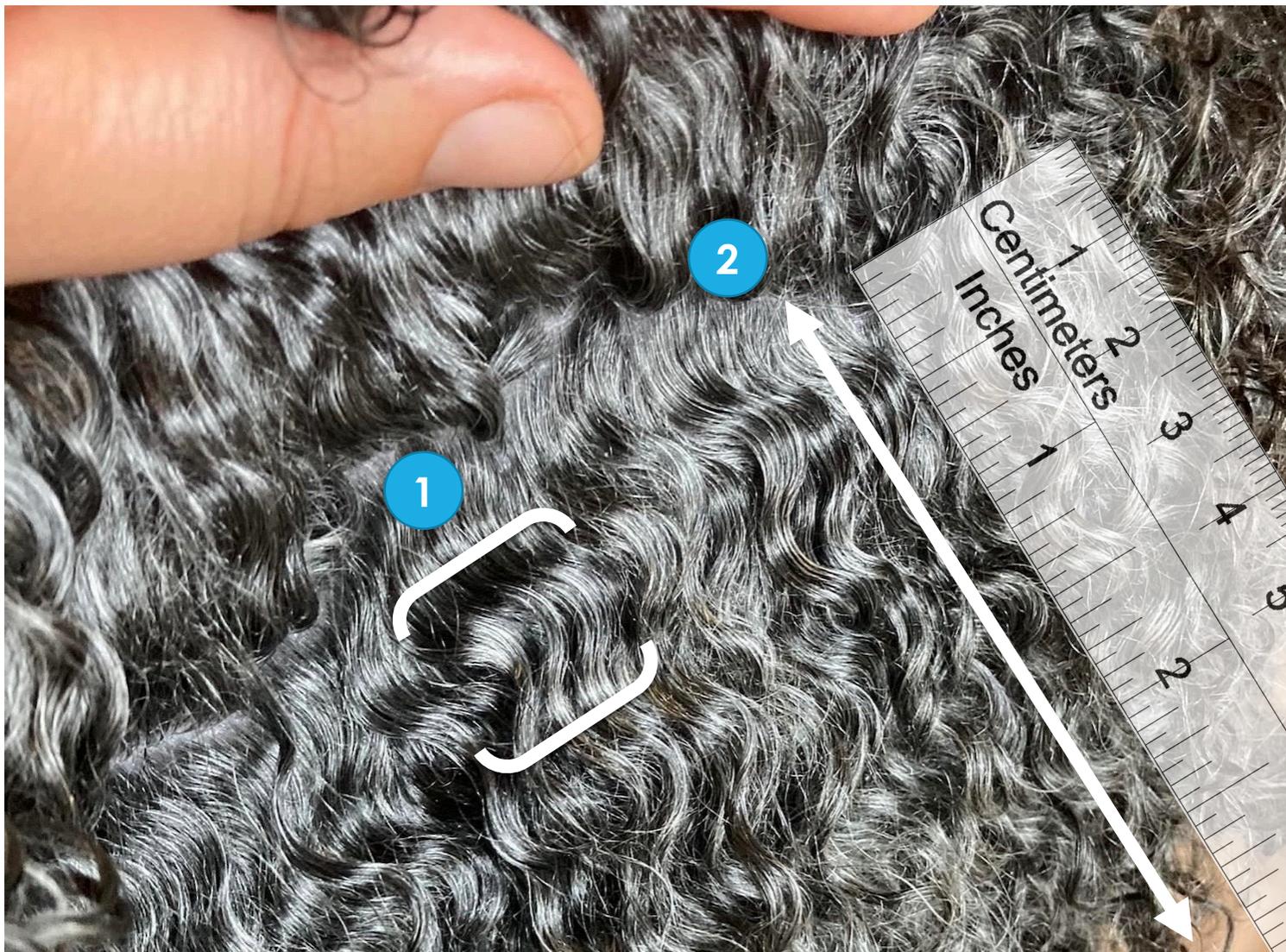
5 months



18 months

# Curl Metrics

1. Size of curl – inches/cm
2. Length of staple – inches/cm



Staple Length: The average length of fiber within the fleece when measured from its point of origin at the animal's skin to the tips of the individual fiber

Picture from Tawhai Gotland Sheep

# Curl Size

**S:** Small +/- 1/4"

**M:** Medium +/- 1/2"

**L:** Large +/- 3/4"+

**N:** No lock

**O:** Other – Crimp, etc.

# What is a 3-D Curl?

STRAIGHT



WAVE



CRIMP



3-D CURL





# Staple Length

- Typically measured from the skin to the tips of the individual fibers
- Fiber is typically stretched to measure the full length
- This image shows an example of distinct, large 3-dimensional Gotland curls.

# Wool and Fiber Testing

- Average Fiber Diameter (micron)
- Standard Deviation
- Co-efficiency of Variation
- Comfort Factor
- Staple length
- Histogram
- Micron Profile
- Etc.

Micron fiber diameter counts for Gotland sheep are:

- Gotland lamb's wool is typically low to mid 20's micron
- At around 18 months of age, typically 29-34 microns

Fiber/curl characteristics like micron and staple length can be professionally evaluated in a wool laboratory.

However, with the closure of Yocom-McColl testing lab in 2020, there are now only two wool testing labs in America. Demand for testing continues to grow.

To comply with international standards, growers often must send their commercial samples to New Zealand for testing prior to selling their wool.

Our domestic testing options include:

- 1) Montana Wool Lab – Bozeman, MT:  
<https://www.montana.edu/woollab/ofda.html>
- 2) Bill Sims Wool & Mohair Research Lab at Texas A&M – San Angelo, TX:  
<https://sanangelo.tamu.edu/bsl/>

GSBANA members are interested in sponsoring wool labs.



SOURCE: Gotlandsfårsföreningen Facebook page

# Gotland Lamb Evaluation in Sweden



SOURCE: Gotlandsfårsföreningen Facebook page

# Evaluating Curl Quality:

- Well defined
- Tight
- Rounded
- 3-dimensional
- Elastic/Flexible
- The curls should “bounce” back if you put pressure on them with your hand

# Quality includes Consistency:

- Consistency should be over the full body
- Evenly distributed in shape and size
- Staple length consistent
- Mark where the sheep shows curl size inconsistency: neck, mane, side, back, abdomen, breech/britch



SOURCE: Gotlandsfårsföreningen Facebook page





# Fiber Hand

- Subjective measurement
- Part the fleece and feel locks at a few spots over the length of the body.
- Feel the lock between your thumb and forefinger to assess quality.
- The fiber should be fine, long, lustrous and dense, yet soft and silky to the touch.
- Mark down for coarseness or downy/overly soft



# Luster

- Part the fleece and observe how shiny the fiber is near the skin – or how much it reflects light.
- High shine/luster is highly desirable
- Dull or matte fiber with no shine should be scored lower
- This lustrous lamb was best ram lamb in Denmark in 2022.



SOURCE: Ib Hangaard Hansen at Lykkegaarden, Denmark

## Luster

**Dull/no shine**

**High Luster/shine**

1

2

3

4

5

- Small to Medium Curls
- Very Silky / Slick soft
- Very Glossy / Shiny
- Medium to somewhat dense fiber coverage
- Every strand of wool has a home and follows along the 3-D lock

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## Desirable Characteristics

# Mark down for Deviation from ideal

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Dullness (no shine)

---

No curl or undefined lock

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Very coarse or overly downy soft

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Uncharacteristic wool (crimp)

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A loss of curl on thigh/back leg

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Straighter hair 25-75% of fiber length

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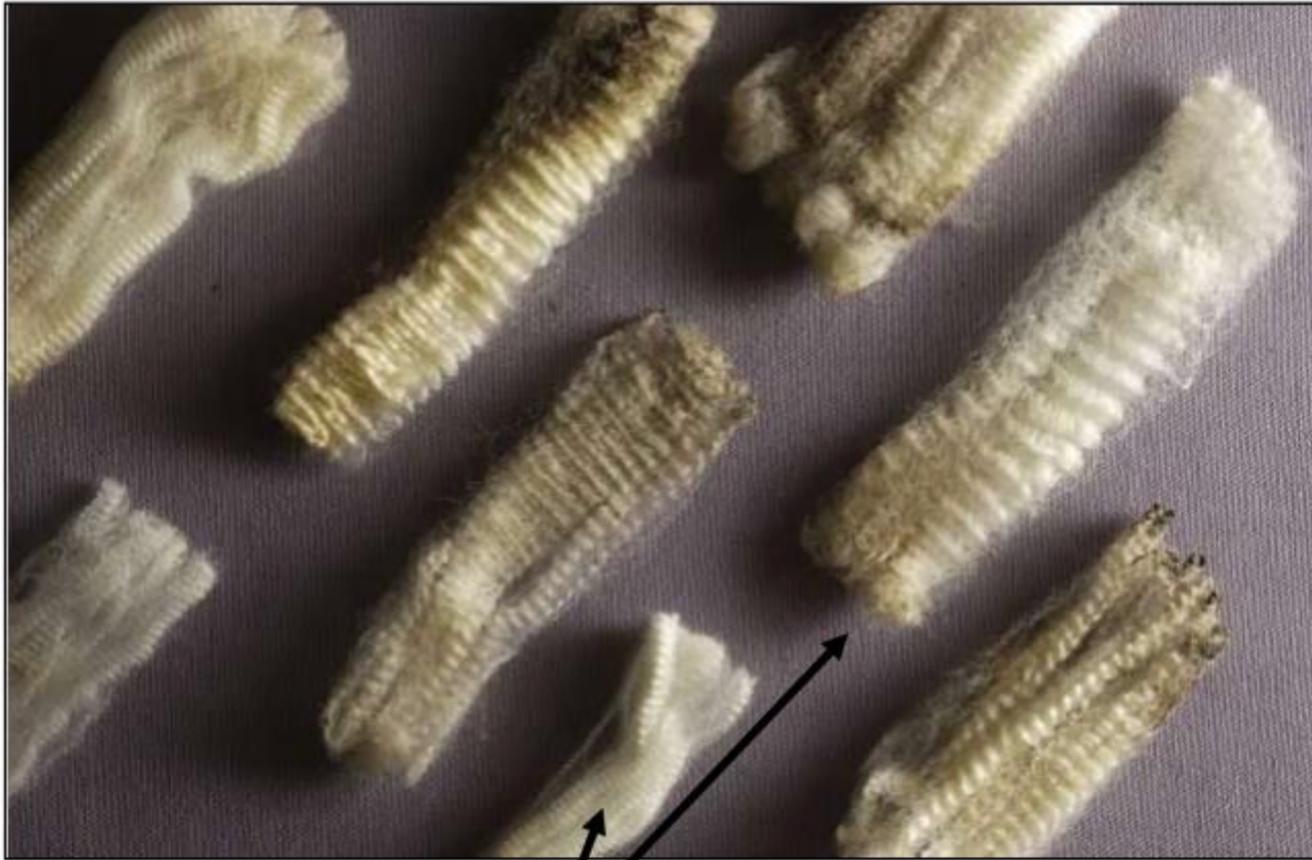
Any cross fibers or spiderwebbing

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Other type or mix of fibers –  
Kemp, "Märghar", "Dödhar" etc.

# Gotland Fiber Deviations

## Crimp



Fine wool usually has more crimp per inch than coarse (long) wool.

SOURCE: <https://www.slideshare.net/schoenian/wool-judging>



Gotland  
Fiber  
Deviations

Loss of Curl

# Cross Fibers

- Part the fleece and observe the number of stray fibers between or through locks.
- Ideally all hairs have a home in their own lock and follow along with the 3-D curls.
- The more cross fibers, the lower their score should be.



“Spindelvåv” – spider webbing



“Genomsydd” – “\$” wavy and straight

## Cross Fibers

Many Cross fibers

No Cross fibers

1

2

3

4

5



SOURCE: <https://www.youtube.com/@RISTtraining>  
<https://www.youtube.com/watch?v=5owMdBRs5WQ>

## YouTube: Fiber Deviations

1. Kemp - short, coarse hairs
2. Märghar – medullated
3. Dödhar – dead hair



SOURCE: Sabin Imhasly

# Gotland Fiber Deviations

## “Märghar”

Medullated Hair



SOURCE: Sabin Imhasly

# Gotland Fiber Deviations

## “Dödhar”

Dead Hair

- <https://www.livingwithgotlands.com/2017/04/three-distinct-phases-of-a-gotland-fleece/>
- Evaluating Gotland Color and Pattern  
(will link when available)
- Evaluating Gotland Lambs  
(will link when available)
- Marketing Wool  
(will link when available)
- Preparing Gotland Fleece and Fiber  
(will link when available)
- And much more!

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Members Learning Library on GSBANA.org!  
Please contribute your perspective on these  
topics in the GSBANA Business Group!**

## Additional Content

Related to  
Evaluating  
Gotland Curls  
and Fiber

Kirsten Simons, CPTD (Chair)

Nansi Castillo, GSBANA President

Dr. Polly Matzinger, Ph.D.

Dr. Paula Byrne RN, DNP

Lacy Dalton

## **GSBANA Education Committee Members**

We welcome other members to contribute to education for GSBANA members!  
Together we are better!