

# DLG Test Report 7269

Cowhouse International B.V.

## Dutch Mountain Cow Mattress

BTS Cattle (Females)



**COWHOUSE INTERNATIONAL  
DUTCH MOUNTAIN**

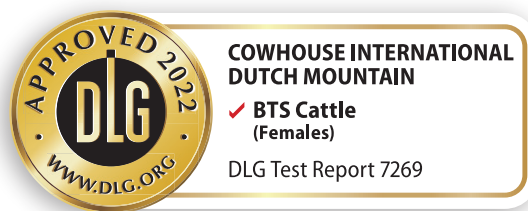
✓ **BTS Cattle  
(Females)**

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## Overview

A test mark „DLG-APPROVED for individual criteria“ is awarded for agricultural products which have successfully fulfilled a scope-reduced usability testing conducted by DLG according to independent and recognised evaluation criteria. The test is intended to highlight particular innovations and key criteria of the test object. The test may contain criteria from the DLG test scope for overall tests, or focus on other value-determining characteristics and properties of the test subject. The minimum requirements, test conditions and procedures as well as the evaluation bases of the test results will be specified in consultation with an expert group of DLG. They correspond to the recognised rules of technology, as well as scientific and agricultural knowledge and requirements. The successful testing is concluded with the publication of a test report, as well as the awarding of the test mark which is valid for five years from the date of awarding. The DLG Approved “BTS Cattle<sup>1</sup>” included joint inspections and behavioural observations during standing up and lying down in three working farms, as well as measurement of deformability on test rigs at the DLG Test Center Technology and Farm Inputs. Data was acquired and analysed in accordance with the “Requirements of the BTS Programme Regarding Deformable Mattresses for Bovine Livestock” (Swiss Ethics Programme Ordinance of 23th October 2013, Annex 6) and DIN 3763:2020-04 (Elastic floorings for cattle and dairy cows walking and rest surfaces – Requirements and testing). Other criteria were not tested.



## Assessment in brief

The Cowhouse cow mattress Dutch Mountain tested here has been tested in the DLG-Approved Single Criteria Test „BTS cattle“ tested on test rigs for comfort properties.

In three farms, joint evaluations and behavioral observations when getting up and lying down are carried out.

Requirements of the BTS Programme Regarding Deformable Mattresses for Bovine Livestock” (Swiss Ethics Programme Ordinance of 23 October 2013, Annex 6) are fulfilled.

Deformability and elasticity:  
Class 4 according to DIN 3763.

Table 1:  
Overview of results

DLG QUALITY PROFILE	Evaluation*
Animal health	✓
Deformation and elasticity**	✓

\* Evaluation range: requirements fulfilled (✓) / requirements not fulfilled (✗)

\*\* Deformability and elasticity Class 4 according to DIN 3763

<sup>1</sup> Swiss support programme for especially animal-friendly housing systems (“Besonders tierfreundliche Stallhaltungssysteme”, BTS)

## The product

### Manufacturer and Applicant

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Product:  
Dutch Mountain Cow Mattress

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### Description and Technical Data

The Dutch Mountain cow mattress tested here is an elastic floor covering for high boxes in cubicle stables

- Mattress with integrated slope, thickness front approx. 140 mm and rear approx. 100 mm
- orange top mat:
  - 3-dimensional polypropylene
  - Thickness approx. 5.5 mm
- Mattress base:  
approx. 100 mm thick white foam board with 1 mm thick rubber covering wrapped, wrapped with foil
- Installation as web goods

## The method

### Deformability and elasticity

The deformability is measured in new condition and following permanent tread load using ball penetration tests with a calotte ( $r = 120$  mm) and a penetration force of 2,000 N (corresponding to approx. 200 kg).

### Permanent tread load

The permanent tread load is measured on a test stand with a round steel foot in the standard test programme with 100,000 alternating loads at 10,000 N (corresponding to approx. 1,000 kg). The steel foot is adapted to the natural conditions as an “artificial cow foot”. The foot has a diameter of 105 mm and therefore a contact area of 75 cm<sup>2</sup>; the carrying edge of the hoof is simulated by a

5 mm wide ring on the periphery of the sole that projects 1 mm above the rest of the surface.

### Animal health

On at least 3 farms, the tarsi (ankle joints) of all cows by an independent, experienced specialist were examined and the behaviour of the animals when they get up and lay down on the flooring was observed.

In all lying boxes at least 3 months before the examination mats of the product to be tested were installed. The cows to be examined are at least 3 months before the examination kept exclusively in the barn concerned, i.e. they have no grazing.

<sup>2</sup> Exceptions: Cows in the first third of lactation / considered cows / cows that were placed for less than 3 months before the examination have been kept in the barn in question (e.g. purchased ones; see also 2.4) / Cows that are lying in the walkway / Cows that are sick are or have recently been (e.g. stuck after calving) / cows that are injured due to accidents.

## Detailed account of the test results

### Animal health

On 3 farms became the Tarsi (ankle joints) of 105 cows by an independent, experienced specialist in this regard examined and the behavior of the animals when getting up and lying down on the flooring.

The requirements regarding BTS compliance is met

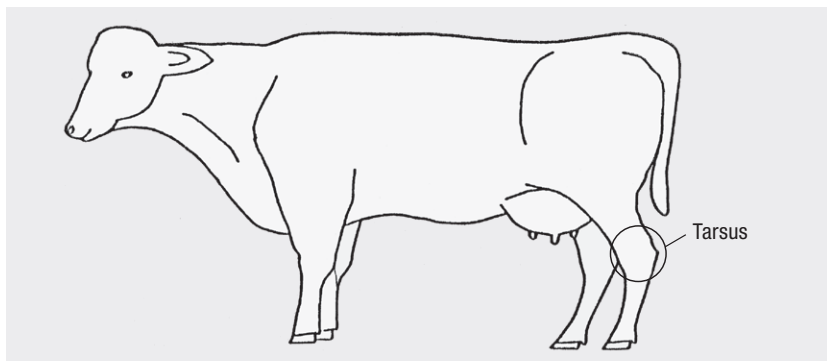


Figure 2:  
The area shown was examined

### Deformability and elasticity

In the ball penetration tests in new condition with a calotte ( $r = 120$  mm), penetration depth was 77.7 mm. The resulting calculated bearing pressure of 3.4 N/cm<sup>2</sup> indicates a low load on the carpal joints when lying down and getting up.

Elasticity was measured following a permanent tread load exerted by a steel foot (contact area: 75 cm<sup>2</sup>) with 100,000 alternating loads at 10,000 N. Following the endurance test, the penetration depth of the calotte increased from 77.7 mm to 88.0 mm. The bearing pressure decreased from 3.4 N/cm<sup>2</sup> to 3.0 N/cm<sup>2</sup> (see Fig. 3). This means that deformability and elasticity slightly increase.

The requirements regarding BTS compliance is met

### Permanent tread load

Wear at the surface and little wear on the foam was observed following exposure to permanent tread load on a test stand with 100,000 alternating loads at 10,000 N. No lasting deformation was observed.

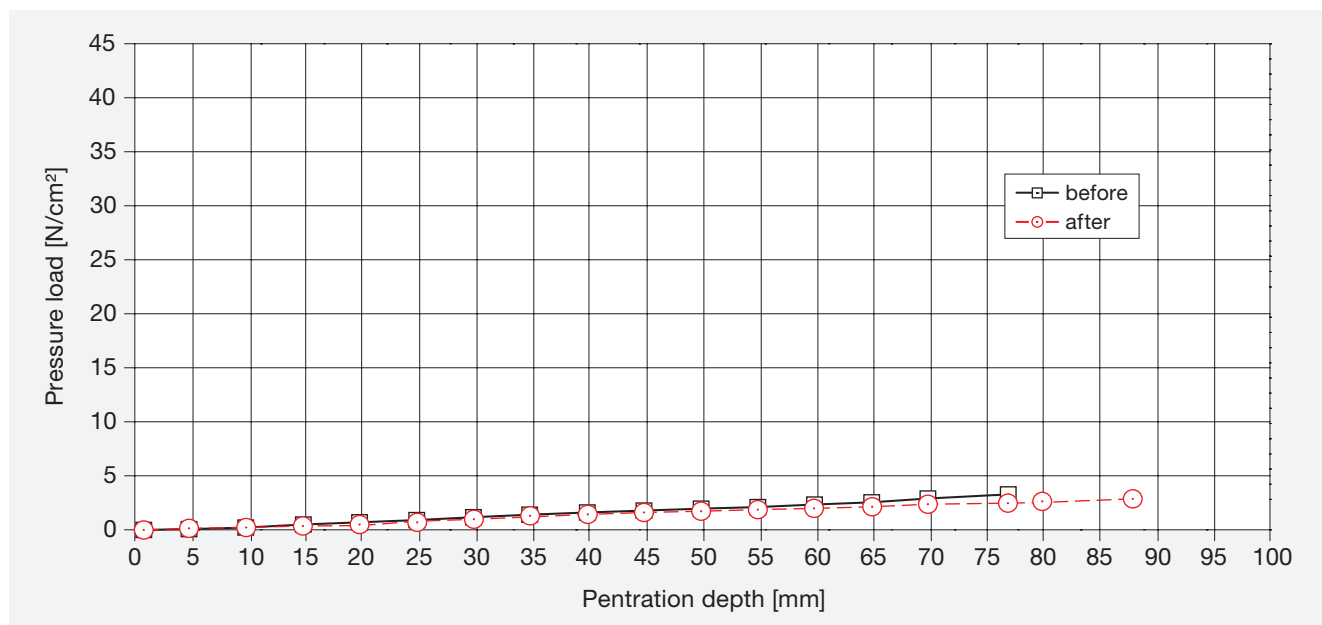


Figure 3:  
Deformability, penetration depth of the calotte ( $r = 120$  mm) as a function of the contact pressure

Table 2:  
BTS Compliance Requirement<sup>3</sup> – Test Results – Assessment

	Requirement for the BTS Compliance <sup>3</sup>	Test results	Evaluation
<b>Animal health</b>			
1. Tarsi (ankle joints) with crusts or open wounds in % of tarsi examined	max. 25 %	16.7 %	request fulfilled
2. Tarsi with larger (> 2 cm) crusts or larger (> 2 cm) open wounds as % of Tarsi examined	max. 8 %	3.8 %	request fulfilled
3. Tarsi with a different, serious change (e.g. increase in circumference) in % of the Tarsi examined	max. 1 %	0 %	request fulfilled
4. Further, serious physical damage on the animals that pass through the mat could be caused	none	none	request fulfilled
5. Behavioral abnormalities caused by the mat	none	none	request fulfilled
<b>Deformability and elasticity</b>			
6. Penetration depth into the mat in new condition	at least 10 mm	77.7 mm	request fulfilled
7. Penetration depth into the mat after permanent tread load	at least 8 mm	88.0 mm	request fulfilled

## Summary

The tested Cowhouse cow mattress Dutch Mountain meets the requirements of the BTS program regarding deformable mats for the animals of the cattle genus (Swiss Ethoprogram Ordinance of the 25 June 2008, Annex 3).

<sup>3</sup> in accordance with the requirements of the Swiss Federal Office for Agriculture, Bern, of March 2004

## Further information

### Testing agency

DLG TestService GmbH,  
Gross-Umstadt location, Germany

The tests are conducted on behalf of DLG e.V.

### DLG test framework

DLG-Approved Test „BTS Rindvieh“<sup>1</sup> –  
BTS Programme „Regarding Deformable  
Mattresses for Bovine Livestock“ (Swiss Ethics  
Programme Ordinance of 23th October 2013,  
Annex 6)

### Department

Agriculture

### Head of Department

Dr. Ulrich Rubenschuh

### Test engineer(s)

Dr. Harald Reubold<sup>2</sup>

1 Swiss support programme for especially  
animal-friendly housing systems

2 Author

## DLG – the open network and professional voice

Founded in 1885 by the German engineer Max Eyth, DLG (Deutsche Landwirtschafts-Gesellschaft – German Agricultural Society) is an expert organisation in the fields of agriculture, agribusiness and the food sector. Its mission is to promote progress through the transfer of knowledge, quality standards and technology. As such, DLG is an open network and acts as the professional voice of the agricultural, agribusiness and food sectors.

As one of the leading organisations in the agricultural and food market, DLG organises international trade fairs and events in the specialist areas of crop production, animal husbandry, machinery and equipment for farming and forestry work as well as energy supply and food technology. DLG's quality tests for food, agricultural equipment and farm inputs are highly acclaimed around the world.

For more than 130 years, our mission has also been to promote dialogue between academia, farmers and

the general public across disciplines and national borders. As an open and independent organisation, our network of experts collaborate with farmers, academics, consultants, policymakers and specialists in administration in the development of future-proof solutions for the challenges facing the agriculture and the food industry.

### Leaders in the testing of agricultural equipment and input products

The DLG Test Center Technology and Farm Inputs and its test methods, test profiles and quality seals hold a leading position in testing and certifying equipment and inputs for the agricultural industry. Our test methods and test profiles are developed by an independent and impartial commission to simulate in-field applications of the products. All tests are carried out using state-of-the-art measuring and test methods applying also international standards.

Internal test code DLG: 2202-0295

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