

# DLG-Test Report 6438

New Farms s.r.l

## Blister Sandbedmat

BTS Cattle (Females)



NEW FARMS  
BLISTER SANDBEDMAT

✓ BTS Cattle  
(Females)

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## Overview

A quality mark “DLG-APPROVED for single value-determining criteria” is awarded to agricultural products which successfully passed a smaller-scope DLG usability test according to independent and recognized evaluation criteria.

The test intends to highlight special innovations and key criteria of the test item. The test can focus on criteria from the DLG testing framework for full tests or on other individual features or qualitative criteria.

The minimum requirements, the test conditions and procedures as well as the evaluation guidelines of the test results are determined in consultation with a DLG expert group. They comply with the generally recognized technology rules as well as with scientific and agricultural knowledge and requirements.

The successful test concludes with the publishing of a test report and the awarding of a quality mark which is valid for five years following the award date.

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 25th June 2008, Annex 3).

Other criteria were not investigated.



## Assessment – Brief Summary

The New Farms sandbedmat tested here was investigated with regard to comfort characteristics on test rigs in the DLG Approved Test “BTS Cattle<sup>1</sup>”.

Joint inspections were carried out in three real-life farms, and behavioural observations were made during standing up and lying down.

The requirements of the BTS programme regarding deformable mattresses for bovine livestock (Swiss Ethics Programme Ordinance of 25th June 2008, Annex 3) are met.

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



## The Product

### Manufacturer and Applicant

New Farms s.r.l., Via Visano Nr. 2, I-25010 Remedello (BS)

Product: Blister sandbedmat

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### Description and Technical Data

The Blister sandbedmat tested here, is a system for building a lying area in cubicle barns for cows and cattle.

- Black Rubber sandbedmat with 35 quadratic chambers ca. 20 cm x 20 cm, which are filled with sand.  
The surface of the sandbedmat should be interspersed with ca. 5 cm straw litter.

- Dimension of the mat:  
length 154 cm, width 114 cm,  
high 11 cm
- weight: 50 kg each mat
- Shore A: 75
- The sandbedmat are fixed with  
13 screws plus disks and dowel  
on the anchoring supports on  
the floor.

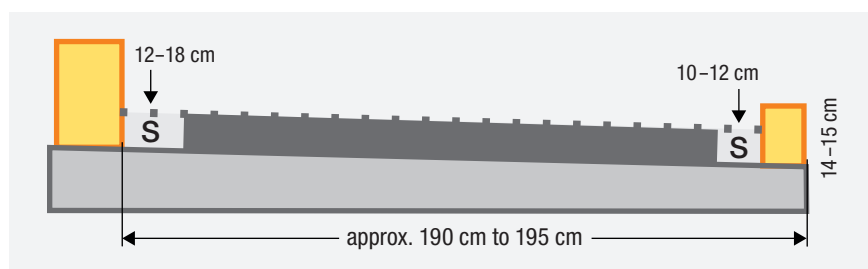


Figure 2:  
Drawing of the sandbedmat

## The Method

### Deformability and elasticity

The deformability is measured using ball-indentation tests in new condition and following permanent tread load 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 rig with a round steel foot 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

At a minimum of three farms, the tarsi (ankle joints) of all<sup>2</sup> cows held in the relevant cowsheds are examined by an independent specialist with relevant experience, and the animals' behaviour while standing up and lying down on the floor covering is observed.

Mats of the make to be tested are installed in all cubicles at least three months before examination. The examined cows are held exclusively in the relevant cowshed for at least three months before the examination; i.e. they have no access to grazing.

<sup>2</sup> Exceptions: cows in the first trimester of lactation / non-lactating cows / cows that were held in the relevant cowshed for less than three months prior to examination (e.g. purchased; see 2.4) / cows that often lie in the walkway / cows that are ill or were ill recently (e.g. recumbency after calving) / cows injured due to an accident

## The Test Results in Detail

### Animal health

At three farms, the tarsi (ankle joints) of 105 cows were examined by an independent specialist with relevant experience, and the animals' behaviour while standing up and lying down on the floor covering was observed.

The requirements relating to BTS conformity are met.

### Deformability and elasticity

A penetration depth of 12.9 mm was determined in ball-indentation tests in new condition with a calotte ( $r = 120$  mm) and a penetration force of 2,000 N (corresponding to approx. 200 kg). A bearing pressure of 21.1 N/cm<sup>2</sup> was calculated from this, indicating a relatively small load on the carpal joints when lying down and standing up.

The elasticity was measured following a permanent loading test with 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 decreased from 12.6 mm to 10.6 mm. The

bearing pressure increased from 21.1 N/cm<sup>2</sup> to 25.0 N/cm<sup>2</sup> (see Figure 2). This corresponds to a decrease in deformability and elasticity. The requirements relating to BTS conformity are met.

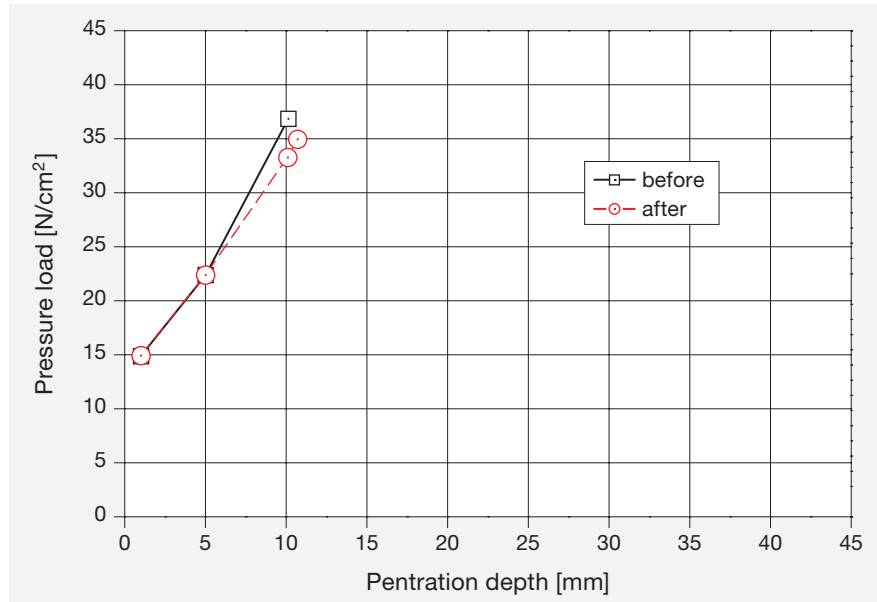


Figure 3:  
Deformability, penetration depth of the calotte ( $r = 120$  mm)  
as function of bearing pressure

### Permanent tread load

No noticeable wear was observed at the base of the honeycomp following permanent tread load with a steel foot (contact area 75 cm<sup>2</sup>) on a test rig with 100,000 alternating loads at 10,000 N (corresponding to approx. 1,000 kg). No permanent deformation was observed.

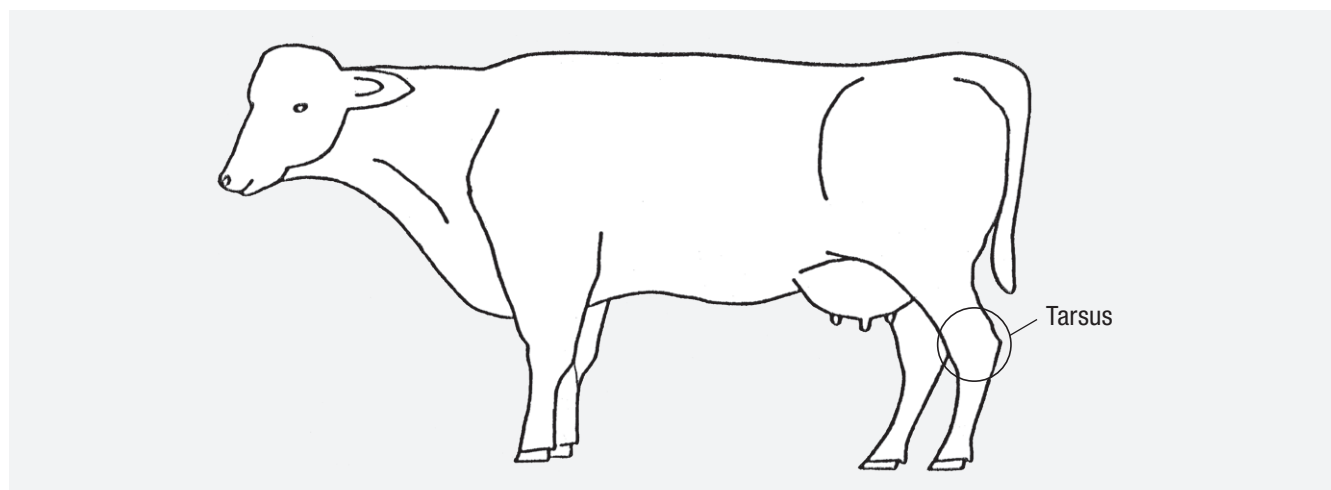


Figure 3:  
The shown joint was examined

Table 2:

Requirements for BTS conformity – test results – evaluation

	Requirement for BTS conformity <sup>1</sup>	Test results	Evaluation
<b>Animal health</b>			
1. Tarsi (ankle joints) with scabs or open wounds as % of examined tarsi	max. 25 %	4.3 %	requirement met
2. Tarsi with larger scabs (> 2 cm) or larger open wounds (> 2 cm) as % of examined tarsi	max. 8 %	1.4 %	requirement met
3. Tarsi with another serious change (e.g. change in size) as % of examined tarsi	max. 1 %	0 %	requirement met
4. Other serious physical harm to the animals that could be caused by the rubber mat.	none	none	requirement met
5. Behavioural abnormalities that could be caused by the rubber mat.	none	none	requirement met
<b>Deformability and elasticity</b>			
6. Penetration depth into the rubber mat in new condition	min. 10 mm	12.6 mm	requirement met
7. Penetration depth into rubber mat following permanent tread load	min. 8 mm	10.6 mm	requirement met

## Summary

The tested New Farms sandbedmat meets the requirements of the BTS programme regarding deformable mattresses for bovine livestock (Swiss Ethics Programme Ordinance of 25th June 2008, Annex 3).

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

## Further Information

Further test results for cubicle flooring are available to download at [www.dlg-test.de/stalleinrichtungen](http://www.dlg-test.de/stalleinrichtungen). The relevant DLG committees have published various instruction leaflets on the topics of animal welfare and cattle farming. These are available free of charge in PDF format at: [www.dlg.org/merkblaetter.html](http://www.dlg.org/merkblaetter.html)

### Test performed by

DLG e.V.,  
Test Center Technology and Farm Inputs,  
Max-Eyth-Weg 1,  
64823 Groß-Umstadt  
Germany

### DLG test scope

BTS programme regarding deformable mattresses for bovine livestock (Swiss Ethics Programme Ordinance of 25th June 2008, Annex 3)

### Department

Indoor operations

### Head of Department

Graduate engineer. agr. Susanne Gäckler

### Test engineer(s)

Dr. Harald Reubold \*

\* Author

## The DLG

In addition to being the executing body of well-known tests for agricultural engineering, farm inputs and foods, the DLG is also an open forum for the exchange of knowledge and opinions in the agricultural and food industry.

Some 180 full-time employees and more than 3,000 volunteer experts are developing solutions to current problems. The more than 80 committees, working groups and committees thereby form the basis of expertise and continuity for the professional work. At the DLG, a great deal of specialist information for agriculture is created in the form of information leaflets and working papers, as well as articles in journals and books.

DLG organises the world's leading professional exhibitions for the agriculture and food sector. This contributes to the transparent presentation of modern products, processes and services to the public. Secure the competitive edge as well as other bene-

fits, and contribute to the expert knowledge base of the agricultural industry. Further information can be obtained under [www.dlg.org/mitgliedschaft](http://www.dlg.org/mitgliedschaft).

### The DLG Test Center Technology and Farm Inputs

The DLG Test Centre Technology and Farm Inputs in Groß-Umstadt is the benchmark for tested agricultural products and farm inputs, as well as a leading testing and certification service provider for independent technology tests. The DLG test engineers precisely examine product developments and innovations by utilizing state-of-the-art measurement technology and testing methods gained from practice.

As an accredited and EU registered testing laboratory the DLG Test Center Technology and Farm Inputs offers farmers and practitioners vital information and decision support for the investment planning for agricultural technology and farm inputs through recognized technology tests and DLG testing.

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