

Special Reprint

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Field report: Kura S mats from Kraiburg for slatted livestock buildings

Leaping on concrete floor

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Gummiwerk **KRAIBURG**
Elastik GmbH

Göllstraße 8
D-84529 Tittmoning
Tel: 0049-(0)8683-701-0
Fax: 0049-(0)8683-701-126
e-mail: info@kraiburg-elastik.de
internet: www.kraiburg-agri.com

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On their first day out, livestock behaviour takes on another dimension: Lame animals suddenly learn to walk – and gallop – again, others chasing around with their tails held high, leaping like spring lambs to put fresh air between hoof and deck. Believe it or not, this was exactly the scene when we herded up a herd of dairy cows inside a slatted building that was laid with rubber floor mats. But more on this later.

The reason why cows are not always so active is because they are usually afraid of slipping on slippery and hard floor. As if walking on eggshells, they avoid taking large strides. Bulls are afraid of mounting because of a fear of slipping. Although there are ways of restoring floors in animal buildings (profi 12/02), these efforts usually do not produce lasting results.

Besides, the methods described in profi 12/02 do not deal with the basic problem – the hard floor itself, a surface that causes abnormal horn growth and excessive abrasion. Though hoof abrasion may be desirable on the one hand, it is not uniform and

Animals move about with confidence on Kura S slatted floor mats from Kraiburg. Photos: Tovornik, Záh



Customised to demand: Though looking identical, the mats are cut individually.



leads to longer outer claws and deterioration of the hoof wall, a condition that results in painful bruises, soring soles and the dreaded laminitis.

A special rubber mat, called Kura S, has been developed by the German rubber factory Kraiburg, which claims that its material makes a slatted floor soft and non-slip. The rubber mats are 2.4 cm thick, with 90% of their contents coming from recycled rubber waste from the tyre reconditioning industry. What seems like a clever way of recycling waste actually takes advantage of the hardwearing quality of the material. After all, tyres last an enormous amount of kilometres. In addition, the fibre-type structure of the recycled material creates a special compound that would be difficult to achieve by using new rubber. This is why the mat does not “wave” and maintains its shape after many years of

use”. As the animal walks on the mat, it presses the manure under the mat and forces it around the edges.

Each Kura S mat is tailored to suit the type and age of the existing slatted floor building in question. A Kraiburg representative comes to the farm to take the measurements at the site and then feeds the data into a computer system. The data are then

Though this is not a Kura S with a tread pattern, the picture shows how the slots are cut and the clippings removed.



The shape of each individual slot is recorded, marked and entered into the computer. Then the slots are cut by a waterjet cutter.

use – even though no fabric ply is incorporated. The theory has been verified in extensive lab tests, which exposed the material to pressing, rolling and squeezing stresses. However, the key incentive for farmers is arguably the five-year warranty provided by the manufacturer for its matting systems.

The mat surface is plain with 1 mm slots, a design that was adopted in early 2003 and which provides improved traction over the previously used hammer-blow profile. The undersides of the mats are covered with a tread pattern to allow claws to sink into the material, providing both a soft and non-slip surface that softens stock sole impact. Another advantage of a nubbed underside is the fact that it allows the mats to “bre-



The tyre reconditioning industry provides 90% of the raw materials used in the construction of the rubber mats.

PLUS AND MINUS

- + Non-slip and soft surface
- + Suitable for all slatted floors
- + Tailored manufacturing keeps a relatively high number of the slots in use
- + Robust and durable rubber mix
- + Quick, float-mounted installation
- Not yet approved for general scraper cleaning
- The total amount of manure openings may decrease and contamination of exercise area may increase

Improving walkways:

One step at a time



There is considerable interest in the concept of putting rubber mats on top of concrete floors. Before buying, ensure the manufacturer has approved the mat for cleaning by your specific scraper.

The slatted floor mat from Kraiburg is a good alternative when looking to improve grip on slippery slatted floors, even if the floor edges may have broken off. However, the floor sections should show no serious signs of weakening on their undersides to avoid the situation that the floor base breaks up soon after completing an expensive re-surfacing job. So, check underground first.

As an aside – there is no need to cover the entire shed floor with these mats. Farms that just surface the main traffic zone in the feeding and milking areas should also notice a benefit after only a short period of time.

By the way – Kraiburg is also now offering a scraper system for its Kura P mats for concrete floors. These mats are not slotted. The company is currently testing a number of scraping systems to assess a possible warranty for such applications and over the coming months, we will report on which makes have been approved and what the farmer needs to bear in mind for installing.



The rubber is very resistant to deformation.

checked back in the building again to eliminate any errors. Only after the dimensions have been verified and confirmed to be correct, the manufacturer gives the go-ahead to cut the slots in the mats, which is done with a waterjet cutter. The largest mat size is 3.50m by 1.30m.

Though this is a very time-consuming process, it does produce precision-fit mats, where each slot matches a specific opening in the floor, hence maintaining the quality and effectiveness of the original slats.

Worth bearing in mind, though, is that because the manufacturer adds ribs to strengthen the mats, the overall number of slots may still drop by 20 %, in particular on mats with long slots. As another drawback, floor openings in front of the pens may be covered by the mat so that cows step into the manure heap as they leave the pen. Kraiburg says that it is possible to use scrapers in some situations, but farmers need to check with the manufacturer first.

Installation is straightforward. Each mat covers only one or two slatted sections. Weighing 70kg on average, the individual elements are easy to handle and fit butt to butt. They are made with such a precision that even on 20 m long mats the slots still match the slat openings.

Claiming that their weight ensures the mats do not lift or move on the slats, the manufacturer does not provide floor fixings. Instead, to withstand side forces, the mats are secured with 13cm mushroom-type rubber studs, which are smacked in with a hammer. That's it.

There are three studs on each square metre, knocked into pre-cut holes to leave a smooth surface – the most recent design. Previously (until spring 2003), the mats left their studs sticking out 13mm. Not only did this impede scraping, but over time the cows pressed them into the mats and eventually out, so that they ended up in the muck heap. The manufacturer refuses to screw the mats



The plain surface provides good grip.

A tread pattern on the underside gives added grip and softness.



mat may come loose when a cow comes to an abrupt stop. This is not too much of a problem, though, because the mats are so easy to slot back into place.

And while on experience with the product,

we have never seen cows walking around with such confidence in a slatted floor shed. The mats had been on the dairy farm in question for three years so that the cattle were now familiar with them and their feet were in good condition. To give a demonstration of the non-slip quality of the mats, the farmer's wife herded the 60-odd cows around the shed. Though running at a considerable pace, none of



The individual mats are installed without screwing them to the floor. The studs are knocked in with a hammer to hold the mats in place and prevent them moving sideways on the floor. Matching studs are supplied with the mats.



Healthy hoof walls and claws – thanks to soft matting.

the animals slipped and the mats showed no signs of moving. Two cows enjoyed this so much that they started leaping like spring lambs, running the walkway up and down with tails held high.

Another obvious benefit is that the rubber mats eliminate the problem of cows slipping on the slats when on heat and riding other animals.

Further benefits include reduced abrasion and longer claws.

The farmer told us how his foot trimmer was already ribbing him about raising his fees for excessive horn growth. However, trimming is actually a much faster job now. Gone are the times

when the trimmer had to bandage claws and fit blocks. Serious claw diseases have become an exception on the farm. Our dairy farm used straw bedding, and we noticed that floor contamination was heavier than usual. The manufacturer says this is because of increased animal exercise. As animals move around more often, they press more manure into the slots and the floor openings, and this is why it is so critical to cut the mat

slots to match the slatted floor. Where one of the mats did not match, the level of muck contamination was noticeably higher.

To validate our own impression, we surveyed some of the 250 German farmers who have installed Kura S mats. About 75 % of all mats sold in 2003 (30,000 m²) were installed on large-scale farms in East Germany. Keeping 100 to 1,000 cows, these farmers can clearly boast considerable experience with the product.

As a brief round-up of the gathered views, all farmers were full of praise for the system and confirmed our positive assessment, commenting on the easy installation, non-slip quality and improved claw health. Best results were achieved on the otherwise extremely slippery cast-iron slatted floors – a common design on East German farms – even though significantly more manure accumulated on the manure passages. The farmers also praised the system itself, voicing some criticism on mats working loose, but all said that when this happened the offending mats were very easy to replace.

DATA SHEET

„Kura S“ matting from Kraiburg

Mat:	2.4 cm full rubber, manufactured from 90 % recycling material
Max. size:	3.50 x 1.30 m
Weight:	Ca. 14 – 18 kg/m ²
Perforation:	Tailored to any slatted floor
Installation:	Float-mounted by individual mats
Attachment:	Ca. 3 wedges/m ²
List price:	ca. Euro 60/m ² (excl. VAT)

Manufacturer information

One owner of 250 cows gave an idea of the potential he reckons the system offers. He anticipates that milk production will increase by 300 l to 500 l on average. After all, only four months after the mats were installed the cows began to move around mo-

Although the customised Kura S mats provide a high number of slots, walkway contamination may increase.



Cornering at high speed: There is no sign of nerves as this cow rounds a bend.

re, basic rations have increased by 1/2 kg on average and animals start their lactation in much better condition. The fear of injuries to on-heat, riding cattle is a thing of the past. His only headache is that cows that tend to lie on the comfortable rubber in the exercise area, resulting in dirty udders in the parlour.

As for price, the slatted floor mat Kura S from Kraiburg is listed with Euro 60 per square metre (excl. VAT) – provided the minimum order quantity is 25 m². Calculating a traffic area of about 4m² per cow, costs increase to considerable Euro 240.

There is little prospect of this price coming down in the near future because, to our knowledge, Kraiburg is the only manufacturer who sells these tailored mats.

Lengths of rubber matting may seem like a lower-cost alternative, but then their slots are punched in at random and they do not match the slatted floors. That means less muck is trodden through and results in dirtier surface. In effect, it is this match of mat to floor that the farmer is paying for when he buys the Kraiburg mat.

Summary: Fitting slatted floors with Kraiburg mats may seem an expensive option – initially. Yet most of the farmers we

interviewed said that the investment had paid off within five years of installation and that, in particular, they had saved on the costly vet products previously needed to deal with slat-related feet problems.

Livestock farmers who invest in time, will certainly gain a profitable advantage in the long run. Or is there a better alternative out there?

Martin Zäh



There is less cause for injury concern when in-heat females start to ride. The mats give more grip.

