standing or walking, such as the cross-over areas between walking lanes, the entrance to the milking parlour or the drinking area. Rubber experts say that feeding alleys should be exempted from rubber flooring, because the time the individual animals spend here varies significantly.

**The mats are 24mm thick and feature 5mm nubs on the underside to provide the softness.** The interlocking mats are laid out like the pieces of a puzzle. They suit both plane and slatted floors. The new system allows users to combine rubber flooring with existing flooring in a modular system, so that the new system is also beneficial for the existing flooring. The price for pediKura P (suitable for plane flooring) is € 76/m² – which is basically a €30.50 premium per square metre over the traditional Kura P mat; whereas pediKura S (for slatted floors) is listed at €96/m². The regular price for Kura S is €65.50/m² (all pricing excluding VAT). Product sales started in March for delivery in October this year.

*The manufacturer says that the drinking area is a suitable area for installation of pediKura mats to achieve a 20% coverage.*

*Kraiburg markets pediKura at a €30 price premium over the standard system and for plane and slatted floors.*

**Does the investment pay?** – Let's put it this way: Kraiburg recommends trimming hooves twice a year for environments where the new system has been installed. These trimmings, however, do not focus on restoring claw lengths or correcting posture as experience show. Instead, hoof care now centres rather on the ball of the hooves, the wall between the claws and the hollow area. A trimmer who was involved in the R & D process says that trimming is faster now, albeit lesions occur less frequently on rubber floors than on concrete floors. We reckon that trimming intervals for cows exposed to rubber matting should be once or twice a year, which is a typical interval for grazing cattle as well. The bottom line is not so much saving on trimming costs but the fact that farmers are now able to postpone a trimming date when they or the trimmer are sick or when harvest is in full swing, without risking a drop in milk production levels.

**Summary:** The new pediKura rubber mats for livestock walkways are soft and slip-proof and provide gentle and constant abrasion to cow hooves. The product adds a crucial piece to the Kraiburg product range. After all, initial experience suggests that the system allows farmers to concentrate on hoof trimming rather than correcting posture or bandaging hooves. Yet, despite all the benefits of the new technology, the mats do not do away with recurring trimming effort and cost. This is what potential buyers need to bear in mind. Moreover, there is yet another important point to consider soft rubber flooring is not a cure-all unless other weaknesses elsewhere in the livestock management system are eliminated.

*Martin Zäh*

## PLUS AND MINUS

- ✚ Selective and controlled hoof abrasion
- ✚ Soft and hoof-friendly surfaces
- ✚ Reasonable non-slip quality
- ✚ Modular installation concept
- ✚ High investment cost

Brief explanation: Corundum

## Artificial gems

Corundum is aluminum oxide (Al2O3), a mineral that is readily available everywhere in the world. Measuring a hardness of 9 on the Mohs scale, it is the second hardest mineral after diamonds. It forms granular and lengthy, sometimes prismatic and columnar or barrel-shaped crystalline structures. Corundum is available in a range of different colours, which are accounted for by the amount of foreign elements embedded in the compound. For example, the colourless aluminum oxide is referred to as sapphire, whereas Chromium impurities make it a red ruby. Although Corundum is readily available around the world, it has been industrially produced for more than 100 years. A noteworthy detail is the fact that it does not react with acids and bases, a property that makes it suitable for use in slurry environments. Its melting point is at 2,050 °C, its density approx. 4g/ccm. Thanks to its enormous hardness, Corundum is the most popular material in the tool manufacturing industry for abrasive applications. It is used as an additive in concrete and engineering ceramics, where it helps to create hard-wearing and non-slip surfaces.

*This is Corundum before it is spread and vulcanized to the rubber. Photos: Zäh*

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Introducing the new Kraiburg pediKura mats – rubber flooring for walking surfaces

# An abrasive system

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Introducing the new pediKura rubber flooring for walking surfaces from Kraiburg:

# An abrasive system

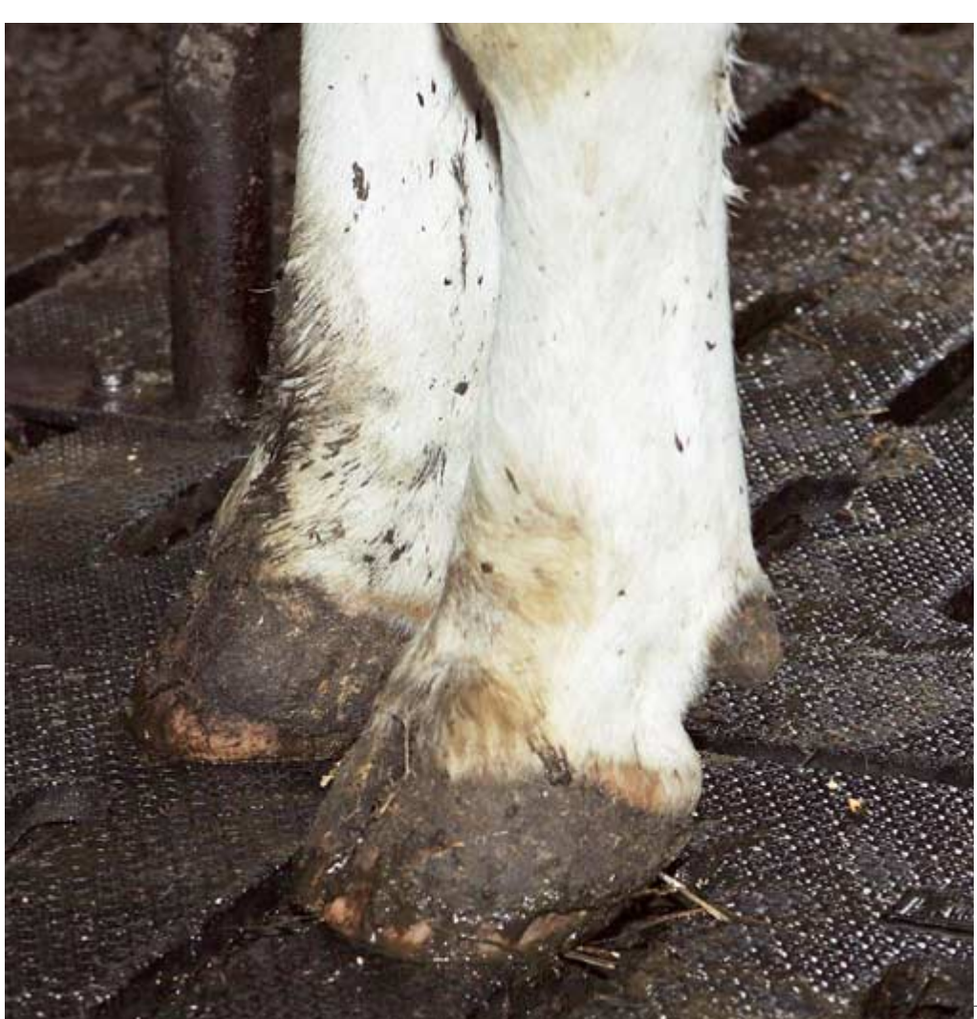
Kraiburg claims that claw wear in cows that are housed on the new pediKura rubber flooring is similar to the degree of claw wear in pasture environments. The new rubber mats incorporate abrasive material and are suitable for both plane and slatted-floor livestock housings. profi reports on the introduction of the system to on-farm applications.

It was hard to believe and we checked back with the visiting hoof trimmer, a recognised expert, who confirmed our perception that the claws of this herd were in excellent condition ¬ although their last pedicure had been four months before and although the cows walked on soft rubber mats that covered the entire slatted floor. The dorsal wall had grown only a few millimetres since the last trimming and now measured 8cm. The moderate growth was attributed to a new product from Kraiburg, a rubber mat that is compounded with Corundum, an extremely hard mineral with abrasive effects. We agreed with the trimmer that, if it had not been for the new technology, claw growth would have been one centimetre greater. But let's start at the beginning.

**Cows in pasture environments walk about 4–6km per day.** They don't mind walking, which in any case enhances the blood circulation in their hooves and the supply of nutrients. In addition, as they walk on soft ground it deforms under their hooves, thereby spreading the weight of the animal evenly and damping the pressure as well as providing good grip. On top of that, grass, sand and embedded stones have a cleaning effect on the claws and the rough surface provides for natural trimming.

**By comparison, cows housed indoors are exposed to different conditions, because concrete or cast iron flooring provides anything but soft treading.** These factors have a major impact despite other factors that are conducive to hoof health, including feeding conditions, cubicle design and availability as well as herd production levels. Locomotion behaviour of cows in housing systems is very different from their behaviour on the pasture, because walking on hard flooring is less comfortable and may even be painful for them. As a result, leaping is a rare sight and licking while standing on three legs is observed hardly ever. Above all, walking a mere 1,000 metres or so per day, the animals are far less active on concrete flooring – with the corresponding negative effects on blood circulation, which leads to defined deterioration in horn quality, as revealed by a number of trials.

**It is generally accepted that there is a correlation between flooring quality and animal locomotion** as well as related animal behaviour and conditions. Many dairy



*Incredible yet true – these hooves have been exposed to rubber flooring all year round and were trimmed four months ago – and still look good.*

*Cows leaping like spring lambs in buildings or licking while standing on three legs – these are typical scenes in livestock buildings that are laid out with rubber flooring.*

farmers have responded to these findings and invested in new rubber flooring. This explains why Kraiburg has been able to sell 1.9 million square metres of rubber flooring since the product was introduced in 2002 and despite the fact that the investment means quite a bit of spending. Yet, it would be presumptuous to refer to the flexible rubber mat as a panacea. Despite the fact that the incidence of sore hooves has declined and that overall hoof health has improved, the mats have also received criticism that focuses on horn growth due to lack of abrasion. Admittedly, most dairy farmers who invested in matting still carry out two pedicures per year, which is still the same interval as before the rubber flooring has been installed. Many farmers report that the number of hoof bandages has declined, which saves treatment costs and financial loss due to a drop in milk production. On the other hand, removing the extra horn growth, even if this is very minor, is time consuming – time that is not available and that farmers wouldn't want to pay the trimmer for. Besides, if trimming intervals are as long, it will not be possible to postpone an upcoming treatment because any deferral may involve extra trimming.

**This is the situation Kraiburg designed its 'pediKura' system for, which is claimed to reduce claw growth on rubber flooring**. Developed over a period of five years and tested in dairy farming environments, the mats feature the following technology: Crude rubber is covered with a mix of Corundum and granules of rubber. Initially, when the mats are still new, the Corundum particles are not visible. Corundum is made from aluminium oxide and is used as an abrasive agent in grinding discs, for example. The small sapphires embedded in the mats are exposed over time as the material wears and produce the desired abrasive effect on the hooves. To counter potential user concerns, Kraiburg offers the assurance that the abrasive effect is not excessive and will not affect the hooves. The manufacturer says, it is essential that the new rubber mats do not cover the entire pen flooring and recommends installing the mats on only 20% of the walkway area. Rubber flooring has proven most beneficial when laid out in selective areas, in which cows spend a significant time

*The copper coloured Corundum in this prototype mat was added manually two years ago.*