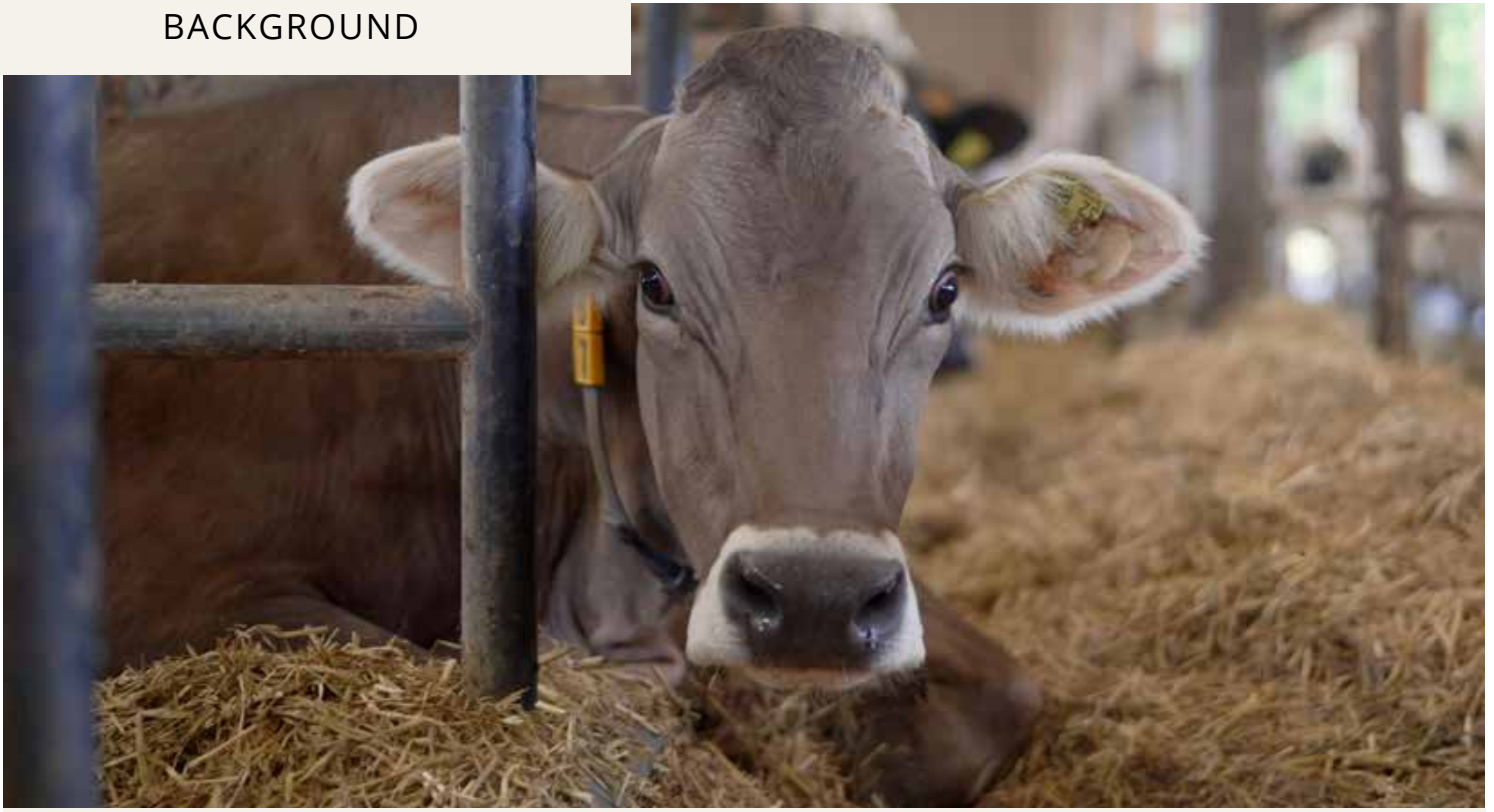




ELEVATED STALL OR DEEP BEDDED STALL

The optimal lying system for  
more hygiene in barns





Why is lying down so important for the health and performance of dairy cows? The lying position has two key advantages for cows: Firstly, the udder boasts the highest level of blood circulation, and, secondly, rumination primarily occurs lying down. It is not without reason that people say: „Milk is produced lying down.“ **There are two predominant free stall systems in dairy barns: Elevated stalls and deep bedded stalls.**

Irrespective of the system, essential points such as hygiene and maintenance must be considered in addition to comfort. Let us take a look at the key points of each lying system, including the main differences between elevated stalls and deep bedded stalls.

## Cows want to lie soft

Against the backdrop of the well-documented preference of cows for softer lying areas, the ground must provide sufficient comfort. In addition to the right ground, a sufficient amount of space in the free stall is crucial for natural lying behavior.

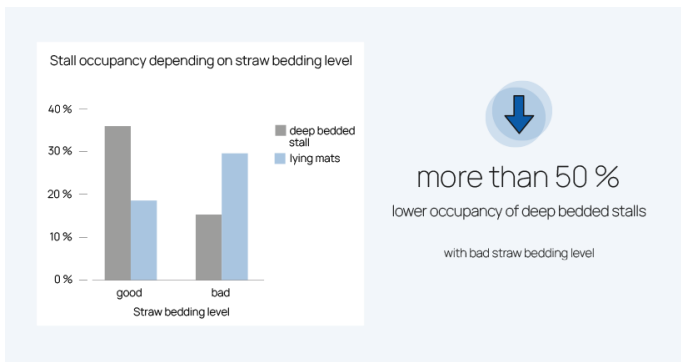
However, there are two other factors that influence the attractiveness of free stalls:

- The distance to the feeding table
- The penetration of light and air, which may not be the same throughout the barn.

The farmer usually has no chance of influencing either of these two criteria. **It is therefore paramount to ensure the same level of comfort in terms of softness and space within every available free stall in the barn, where feasible.**

## High level of comfort for deep bedded stalls

Sufficient softness and constant comfort can be achieved with both elevated stalls and deep bedded stalls. **Well-maintained deep bedded stalls** have a thick, level mattress crafted from organic materials and are **avored by cows** over alternative lying systems. **Inadequately maintained deep bedded stalls rapidly result in reduced lying times.** Moreover, insufficient bedding, heightened moisture levels and the absence of a continuous mattress further contribute to the development of carpal joint lesions. This damages the health of the animals. With the **deep bedded stall system, the straw bedding level is the decisive criterion** for softness and animal comfort.



A decline in the straw bedding level of deep bedded stalls reduces their acceptance and stall occupancy decreases.

Source: Reiter, K., Freiberger, F., Abriel, M.

A decline in the straw bedding level of deep bedded stalls influences the lying behavior of cows. The lying times decrease.

Source: Reiter, K., Freiberger, F., Abriel, M.

## High level of comfort for elevated stalls

**Elevated stalls present a different scenario:** When furnished with comfort mats that meet the softness requirements of dairy cows, **lying comfort is not dependent on straw bedding levels.** Elevated stalls with excessively hard lying mats and minimal to no bedding are frequently encountered in barns.

This combination can lead to lesions of the hock joints. It is therefore all the more important to equip **elevated stalls with elastic lying mats.** To meet animal welfare standards, modern lying mats have special lower side profiles (e. g. honeycomb structure or rubber blades) that generate softness. This is additionally supported by a partially multilayer design (e. g. a combination of rubber and foam). **As such, comfort mats can be more than 6 cm thick.** Such soft lying mats are also thinly cushioned with bedding.

### Why elevated stalls - what are the advantages compared to deep bedded stalls?

For farm manager Irina Primbs, the advantages of elevated stalls are obvious - especially in terms of maintenance effort and hygiene. With the appropriate lying mats, comfort in the elevated stalls can also keep pace. **Find out more in the video.**



## A sufficient amount of space in an elevated stall or deep bedded stall promotes cleanliness

Conventional **elevated stalls have, in the past, tended to be too short**. Although cows accept the stalls, they attempt to compensate for the insufficient lying length by adopting awkward angles or lying too far back, which frequently causes their tails to hang in the walking alley. These unfavorable lying positions result in increased soiling of both the animal and the free stall. Sufficient space and effective, animal-friendly control practices effectively enhance the cleanliness of the lying area.

**With deep bedded stalls, the lying length is even more crucial for cows to accept this solution.** This is due to the typically rigid and elevated boundaries at both the front and rear edges, which are essential for the proper functioning of the organic mattress. For this reason, **deep bedded stalls are always built at least 10 cm longer than conventional elevated stalls.**



## Regular stall maintenance ensures greater hygiene

Regardless of the free stall system, the lying area must be covered with dry, absorbent bedding throughout. There are two main reasons for this: Firstly, the **number of bacteria in the free stall** is reduced, which contributes significantly to udder health. Secondly, **a dry surface prevents the formation of skin irritations at joints**. This approach largely eliminates any lying damage to joints. Hence, it is imperative to integrate free stall maintenance into daily routines. Since, the more efficient and effective the process, the better the degree of performance. The amount of effort required for **free stall management differs significantly for elevated stalls and deep bedded stalls.**



### Free stall management for deep bedded stalls

As already discussed, a **good deep bedded stall hinges on a continuous, even and stable mattress** (e. g. straw-manure mattress, lime-straw mattress). This type of system demands extensive expertise and diligent maintenance from the very start. The **high amount of bedding required to maintain deep bedded stalls must be addressed during the planning stage.**

Since deep bedded stall lying systems are labor intensive, it is prudent to assess in advance whether a farm has the **capacity needed to maintain such stalls.** This is the only way deep bedded stalls can work efficiently in the long run. Otherwise, the **disadvantages** previously mentioned, **which stem from the inadequate maintenance of deep bedded stalls,** notably reduced lying times and sub-standard hygiene, overshadow any benefits.

### Free stall management for elevated stalls

**Soft elevated stall flooring also needs to be thinly cushioned with bedding.** This is not solely due to the preference of cows for stalls with bedding, but primarily due to the effective management of moisture. **Bedding with good absorbency** promotes a clean, dry surface, thereby reducing bacteria in general. **Hygiene of the actual bedding** must not be overlooked: It is susceptible to infestations of mold or harmful fungal spores, which can pose risks to the udder. Even the most rigid stall maintenance regimen cannot rectify the situation at this stage.

#### **Bedding tip for elevated stalls:**

Milled straw pressed and packed into bedding bales is ideal as bedding for elevated stalls. In most cases and depending on the actual manufacturer, this material has been dedusted, sterilized and cleaned several times. Its easy handling and consistent quality provide clear advantages compared to home-made bedding. On most farms, additional investment in terms of higher purchase costs is quickly outweighed.

## Summary: The way both stall systems are managed differs greatly

***Free stalls should always meet the requirements of cows for softness, space, cleanliness and hygiene. Regardless of the free stall system (elevated stall or deep bedded stall), its management must satisfy these characteristics.***

*With deep bedded stalls, however, the demands placed on stall management are much higher. Elevated stalls on the other hand are much more forgiving, even during brief lapses in proper stall maintenance: In contrast to deep bedded stalls, the lying mats provide constant softness and the hygiene compromises are less drastic than those for inadequately kept deep bedded stalls. The choice of the free stall system requires careful consideration. Beside the goal of maximizing animal comfort, it is crucial to accurately evaluate the specific working conditions on the farm.*

Average procedural costs



50 % lower

for elevated stalls in comparison to deep bedded stalls

Source: Dr. Heidig, Dr. Geidel, 2015