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Kombifeeders with groupwise locking

A new housing- and feeding technique for pregnant sows

The EU directive 2001/88/EC requires that by 31 December 2012 pregnant sows be kept in groups as of the fifth week after covering until one week before farrowing. The choice of the feeding system is a crucial question arising when sows are kept in groups. At the Euro-Tier 2002, kombifeeders with groupwise locking were presented as a new technique.

Self-locking feeding stalls with a common, swivelling back door (kombifeeders) allow sows to be kept in groups with the possibility of temporarily fixing the animals in the stalls.

They are not designed for sow housing over longer periods and therefore feature a width of just 45 to 50 cm for adult sows. For young sows, a clear width of 40 to 45 cm is sufficient. Length is 200 to 210 cm (with the trough folded up). These stalls thus require less space than self-locking feeding stalls. Despite the small stall width, the sows also use them for resting.

Generally, the kombifeeders remain open so that they are freely accessible for the sows (*fig. 1*). If some or all sows of a group need to undergo pregancy examinations, treatments, or blood sampling, the back doors of several stalls can be closed simultaneously for feeding (*fig. 2*). For this purpose, a back door for the stalls was developed which can be tilted manually using bars and closes three, four, or five feeding places. If the weight of the back door is assumed to be low, a common mechanism allows even more stalls to be opened or closed together. These features can be individually adapted to the farm-specific conditions in cooperation with the stall equipment provider.

At the same time, the back grid was designed as an insemination door so that access to the sows is guaranteed far better than in conventional crate stalls or self-locking feeding stalls. In each back door, a locked crossbar can be opened so that the sows can be reached easily through the u-shaped, curved pipe. The width of the entrance was set at 30 cm so that the heads of sows which walk around freely behind the locked stalls cannot get caught.

Two opposing rows of kombifeeders and the paddock in between can form a group pen limited by pen grids. Stalling up in one row is possible as well.

The pen grids can be set such that groups of sows can be driven longitudinally through the stall (during stalling in and -out). However, the grids can also be opened such that a rotation group can be put together for a limited period of time in the paddock between the two rows of kombifeeders (fig. 3). In this case, the kombifeeders containing the pregnant sows remain closed. The paddock then serves as a stimulation pen for the group of sows which have just been weaned. After the group has been put together, the sows can use this area for their dominance fights. This enables the space for a rotation group to be saved (area per sow: 2.25 m^2).

The kombifeeders are pinned on or fixed with split anchors. The front part of the kombifeeder is level concrete with a slight inclination towards the perforated back part of

Fig. 1: Combi-feeder with opened rear door

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Fig. 2: Combi-feeder with closed rear door

the stall. Troughs can be clay shells or V2A troughs. The stainless steel trough can either be designed as a half round or a bent trough. The trough wall which faces away from the stall should be 350 mm high. When eating, sows throw feed up with their snouts. If the trough edge is too low, the feed is pushed over the edge, and feed losses grow. This applies to all sow troughs and is no peculiarity of the kombifeeder. As a drinker, a water-level valve in the continuous trough is used. For feeding, volume metering devices are employed. Above each feeding place, a volume hopper is installed, or just a volume metering device with a downpipe is arranged between two feeding places each.

Kombifeeders allow for group housing even in the insemination centre so that sows can be continuously stalled up in groups after the weaning of the piglets until one week before the next farrowing. In the future, professional covering centres (or professional insemination centres) can be equipped with kombifeeders.

After weaning (generally on Thursday), the sows are housed groupwise in kombifeeders, whose back doors remain open. Dominance fights among the sows last approximately two days until the hierarchy has developed [1]. If required, the kombifeeders can be closed hourwise as of Monday when oestrus begins so that sows in heat do not mount each other. Thanks to the special form of the back wall, insemination in these stalls is easy. For oestrus control „in front of the sows' heads", the boar can run in the approximately 60 to 70 cm wide aisle and be fixed immediately in front of the sows during insemination if the aisle features intermediate doors. After the termination of the insemination period (Wednesday afternoon or Thursday morning), the back walls can be opened again, and the sows can move freely. Since they already know each other, no new dominance fights occur, which has a positive effect on the implantation of the fertilized egg. In group housing, repeatedly breeding sows are easily detected and can again be briefly locked in the stalls for insemination. In principle, these sows, which have become pregnant after repeated breeding can remain in the pen until the group is stalled out. Then, however, they must be put in different stalls (e.g. in a collecting pen) because they farrow only three weeks later.

The kombifeeder provides the following advantages:

- Continuous group housing of sows due to the combination of a stimulation pen, a professional insemination stall, and a waiting stall
- For beginners in group husbandry, this is a very secure technique for the stalling up of non-pregnant and pregnant sows
- Good protection for eating sows and retreat for resting animals
- Temporally synchronous, species-typical eating by the sows is possible
- Low worktime requirements due to fast fixation of the animals
- Very good access to the sows for insemination, pregnancy examination, vaccinations, treatments, and blood sampling
- Good animal control and overview of the herd
- Sows can choose between group- and crate housing
- Lower investments as compared with the self-locking feeding stall
- The area standards of the EU directive (2.25 m^2/sow) are met.

Fig. 3: Combi-feeder with combination of stimu-pen and single crate

Summary

Kombifeeders are a kind of stall equipment combined with a new housing method, which allows for the continuous group housing of non-pregnant and pregnant sows after the weaning of the piglets until one week before the next farrowing date. If necessary (e.g. for insemination, pregnancy examination, treatment), the sows can be temporarily fixed groupwise using a common back wall swivelling over several stalls. The specially designed, patented back wall as an insemination door facilitates access to the sows. The kombifeeder enables the stimulation pen as well as the insemination- and waiting stall to be combined.

Literature

[1] *Bauer, J. und St. Hoy*: Zur H ufigkeit von Rangordnungsk mpfen beim ersten und wiederholten Zusammentreffen von Sauen zur Gruppenbildung. Proc. 34. Internat. Tagung Angewandte Ethologie, Freiburg i.Br., 21. bis 23. 11. 2002, im Druck