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Ferkelfeeder

A New Feeding System for Weaned Pigs

Piglet weaning is a critical phase in piglet development, characterised by various stress factors. The piglets are separated from the brood sow and are put in a completely new environment with different microflora, have contact to piglets from other origins and fight over the pecking order while forming new groups. The change in feed is also an important aspect. To minimise the negative effects, special attention must be paid to the feeding systems. The purpose of this investigation was to develop a feeding system for weaned pigs, which allowed species-specific behaviour during feed intake and furthermore promoted their health and performance.

Fig. 1: „Ferkelfeeder" - long trough variant

The Ferkelfeeder was developed into two different versions. One type is a double long trough with the animal-feeding place-ratio of 1 : 1, the other is a double short trough with an animal-feeding place-ratio of 4 : 1. Both were first tested and then used under practical conditions. The function of both versions is the same.

The Ferkelfeeder consists of an edged double trough with a centric partition to approximately 12 cm over the trough sole, which is to prevent displacements of the piglets among themselves over the trough. Feeding place dividers in a distance of 30 cm align the piglets at the trough. The width of feeding space is 15 cm.

An animal feeding place relationship of 1 : 1 at the long trough makes a rationed feeding practicable in the first days after weaning, followed by ad libitum feeding up to the end of the housing period.

Rationed feeding helps to deal with health problems caused by E. coli. It prevents diarrhoea and the piglets can obtain an optimal feed efficiency. By giving small feed portions as frequent as possible the system corresponds to the characteristic feed intake behaviour of the piglets. The balanced animal-feeding place-relationship makes also the synchronous feed intake of the animals possible.

The gradual change of rationed to ad libitum feeding takes place in the second week after weaning. Now the feeding is distributed in several blocks over the whole day.

Function of the Ferkelfeeder

The feeding times are released by a time switch clock at the feeding control. In order to adapt feeding to the actual intake of the piglets, a trough sensor is in use. Only if the sensor announces „empty", the next steps of feeding are executed.

A feeding time begins with the dosage of a defined quantity water of by a solenoid valve, afterwards the feed dose is made by the dosators. The dosators are filled over a tubing chain or a fodder spiral and flow into gutter-pipes, which are let in into the partition of the trough. One dosators supplies four or with using a Y-piece at the gutter-pipe eight feeding places. The feed is dosed directly on the water in the trough, and the piglets mix the feed mash themselves. Due to the pasty feed consistency, the piglets get fast accustomed with a good feed acceptance. By mixing the mash in the trough, a good feed hygiene is ensured.

After a freely adjustable time interval, water is given into the trough again after feeding. This water serves the trough cleaning. In

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Table 1: Performance of weaned piglets at the Ferkelfeeder compared to a mash feeder in farm 1 (n = 200)

	Ferkel-feeder	tube feeder
Daily weight increase (g)	427	404
Feed conversion (1:)	1,54	1,65
treated animals against diarrhoe (%)	2	12
Water consumption (l/ kg feed)	5,24	5,28

addition, an open water surface is offered to the piglets as auxiliary watering place, which is well accepted.

In the days of rationed feeding the feeding times are distributed over the day and also a night feeding is offered. The feeding times are at 12.00 am, 6.00 am, 9.00 am, 12.00 pm, 3.00 pm, 6.00 pm and 9.00 pm. The feeding frequency can be increased slowly.

The final change from rationed to ad libitum feeding takes place after eight to ten days. In the following time the feeding blocks begin at 6.00 am, at 10.00 am, at 3.00 pm and at 7.00 pm. Each of this blocks covers four feeding times every half an hour. An additional block with only two feeding times is at night in the time of 12.00 am to 1.00 am.

Also, the feed quantity can be changed by the increase of the feeding frequency or by the enlargement of the portion size in the dosators.

Feeding at the double short trough means ad libitum feeding during the whole keeping period.

Own investigations

The test of the feeding system took place on two farms. In both farms, the experimental groups were fed by the Ferkelfeeder and the comparing groups by tube feeders. The piglets of both feeding techniques were kept under the same environmental conditions.

The following parameters were compared on farm 1: daily gain, feed consumption, water consumption and health status. The piglets were weighed at weaning, one and two weeks after weaning and at the end of the keeping period. Also the feed consumption was registered at these times. The water consumption was determined by water-meters and the health status was characterised by the number of animals treated because of diarrhoe. For practical reasons, on farm 2 only the daily gain on the basis of weight at weaning and at the end of the keeping period (48 days) was calculated.

The number of piglets per group in farm 1 was 20 (five batches with a total number of 100 piglets per version). On farm 2 four pens with 32 piglets each were available for each round. The piglets of two of the four pens were fed at the double long trough, the double short trough respectively. The other two pens were equipped with one or two tube feeders.

The results obtained show that the Ferkelfeeder has an advantage concerning daily gain compared with the tube feeder. On both farms, the groups fed at the Ferkelfeeder (long trough version) had a higher daily gain. The lower daily gain at the short trough version of the Ferkelfeeder can be partially explained by technical problems at the beginning and by a suboptimal management of the feeding times.

In the pen with the Ferkelfeeder on farm 1, the health status and also the feed conversion were better compared with the tube feeder. But the Ferkelfeeder alone cannot prevent the morbidity and mortality caused by E. coli.

Table 2: Performance of weaned piglets at different feeding techniques in farm 2 (n =2 56)

	DWI (g)	age at start (d)	Ø weight at start (kg)	Ø weight at end (kg)	rearing time (d)
Ferkelfeeder - long trough	440	28	6,60	27,50	48
Ferkelfeeder - short trough	411	28	6,63	26,21	48
1 tube feeder (8 : 1)	425	28	6,75	26,83	48
2 tube feeder (4 : 1)	428	28	6,65	26,97	48