

Precision Calf Feeding: History – Components – Potential

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It is no exaggeration to state that the development of automated calf feeding is a prime example of Precision Dairy Management. Förster-Technik, German manufacturer of drinking and feeding systems for calves, has been playing a major part for more than 30 years in shaping this development.

History

By the end of the 1960s the rise of automatic calf feeders gave special priority to the ease of work, by the beginning of the 1980s the computer-controlled feeders with individual identification better fulfilled calves' nutritional requirements thanks to an animal-specific feed supply. From then on this technology spread in Europe for rearing calves and led to significant labour savings and livestock-friendly feeding.

As of the mid-1990s, the automatic feeders started to be networked with machines for automatic concentrate dispense. In addition, further sensors were integrated to monitor the performance and health of the animals. Integrated feeding and management systems for "Precision Calf Feeding" developed with the objective of recording these data in detail, evaluating them automatically and exercising direct influence on feeding. Further ease of work and cost savings in calf rearing were the result of it.

Components

Figure 1 shows the components of a modern system for Precision Calf Feeding.

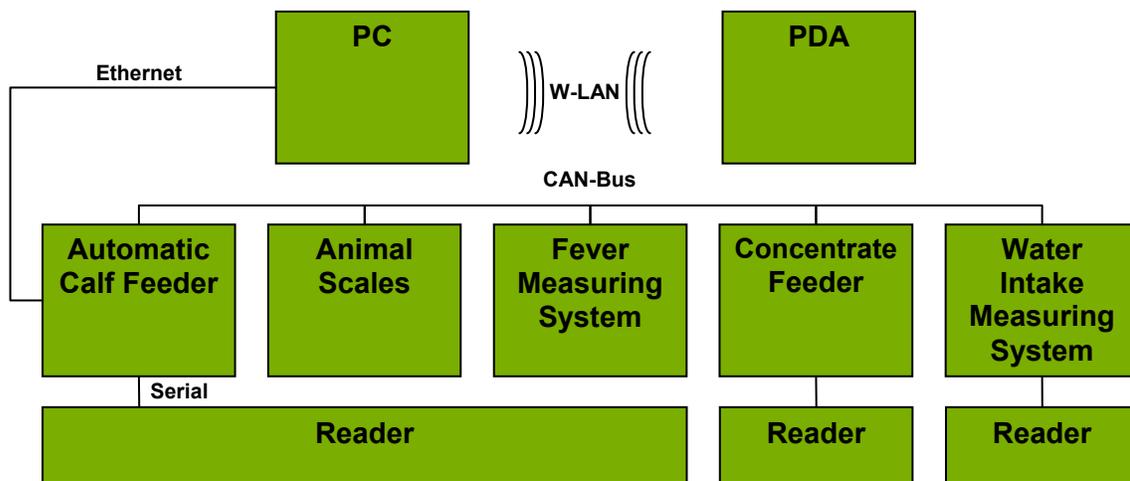


Figure 1. Components of a calf feeding system.

The automatic feeder as the central component facilitates the individual and controlled dispense of cow's milk and milk replacer and water to young calves already a few days after birth. A

processor which is integrated into the automatic feeder ensures thereby via feeding plans that the feed quantity is allocated according to age and dispensed over several feeding intervals per day. The animals are identified electronically in the feeding station by a reader via RFID.

The concentrate feeders allow for controlled and automated concentrate dispense. The electronic animal scales and the automatic fever and water intake measuring systems provide additional information on animals' performance and health. These data are made available to the farmer for management purposes or to keep records of the product and process quality. In addition, they can also be used in integrated systems to control feeding directly.

On the PC monitoring of calves and feeders is possible even from outside the barn. Furthermore there is data exchange to herd management applications from various suppliers. Several calf feeders and peripherals can be networked via PC and mobile devices can be integrated.

Potential

Besides the automated concentrate dispense, the concentrate feeders enable an accurate recording of the consumed quantities, thus providing valuable information on the rumen functioning and calf's development to a ruminant. The concentrate intake can be directly and automatically used to control the feed quantity and the duration of feeding in order to wean individually (see figure 2). This is particularly important as the development into a ruminant may differ considerably from calf to calf as far as the starting time and the dynamics are concerned.

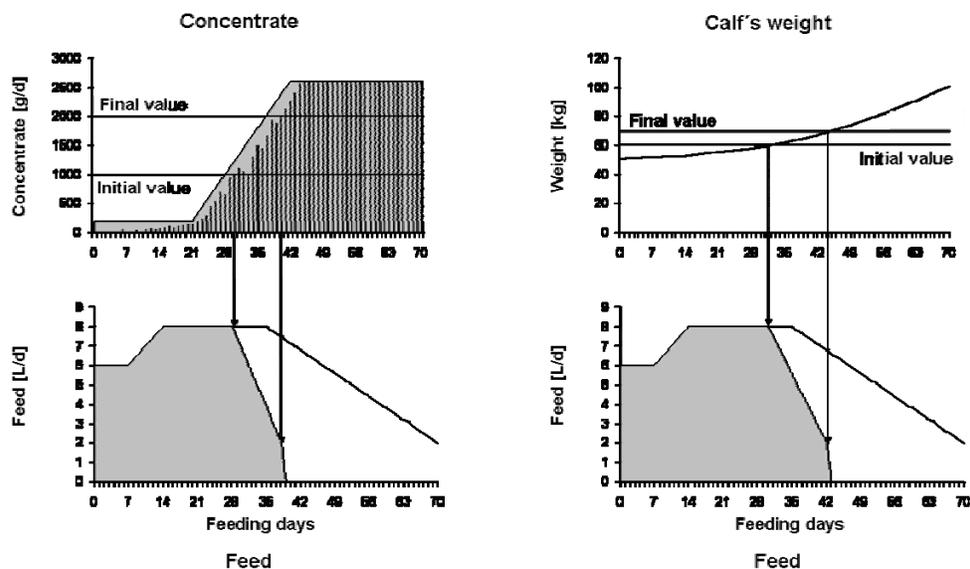


Fig. 2: Individual feed dispense according to concentrate intake or calf's weight (schematic diagram)

The same applies to feeding according to calf's weight. Like the data of concentrate intake, the weight of the animal is also used for the integrated control of the feed quantity and the duration of feeding with the aim of adapting the feed supply to the demands. If the weight of the animal exceeds a threshold value, the weaning phase starts automatically and ends at its final value individually for each calf.