Benefits, Function And Operation Of Computer-Controlled Calf Feeders

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The success in calf rearing primarily depends on feeding and management apart from housing. This is why high demands are made on both the farmer and the feeding technology. Calves do not only require a maximum of regular and careful monitoring during the first weeks of life, but also their requirements to feeding do change fundamentally in this period.

Considering these physiological reasons as well as the reasons in terms of labour efficiency and profitability, European farmers have been using computer-controlled automatic feeders for group-housed calves for many years. This system meets the high feeding requirements of the animals by individual feed supply and the increased demands of animal welfare in equal measure. Recently, these systems have become increasingly popular also in North America.

Benefits of Computer-Controlled Calf Feeders

From farmers' perspective the benefits in terms of labour costs are decisive for the use of automatic feeders. Surveys carried out in Germany show that the labour time required to feed the calves can be reduced to 1/3rd using an automatic feeder instead of bucket feeding. Larger dairy farms rearing more than 60 calves, need less than 1 min per calf and day covering all labour for preweaned calves. Heifer farms in the USA, which changed over from calves in hutches with bucket feeding, to group housing with automatic feeding, reduced the labour requirement by almost 50%. In addition, they appreciate the improved labour conditions. The effect is that within some years the additional investment costs for automatic feeders are more than counterbalanced by considerably lower labour costs.

From calves' perspective the advantage of automatic feeders is the multiple feeding of always fresh prepared feed several times a day. If calves of different age are fed at one calf feeder young calves are privileged in feeding due to priority control. But also during the gradual weaning period over several days, the automatic feeders score with constant weight gains particularly during and after weaning.

Fig. 1: Computer-controlled calf feeder with feeding station

A computer-controlled automatic feeder (see figure 1) allows you to connect up to 4 feeding stations. Each of these feeding stations can supply approx. 25 calves with feed. Consequently in the case of continuous calving 600 calves per year can be fed with one automatic feeder assuming a feeding period of 60 days. The calves are identified

electronically in the feeding station via RFID. Routine work like cleaning is CIP and of course automated.

Function and Operation

The automatic feeders allow few-days-old calves to be provided with cow´s milk or milk replacer and water individually and in a controlled way. 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 feed quantity per visit automatically adapts to calves' development: Young calves receive more and smaller portions than older animals. The maximum quantity per visit is limited, too. Figure 2 exemplifies a feeding plan for rearing calves with a 46 day feeding period. If the milk replacer concentration is 165 g/L (156 g/quart), each calf will receive 48 kg (106 lbs) of milk replacer.

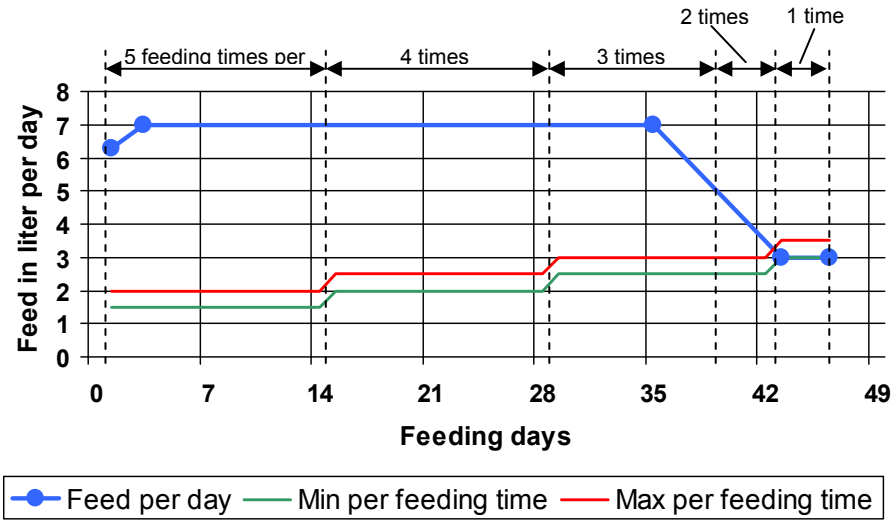

Fig. 2: Feeding plan of computer-controlled calf feeder

Apart from the feed quantity also the milk replacer concentration can be adjusted individually and according to plan. If cow´s milk is dispensed via the automatic feeder, also the milk ratio of the portion can be predefined in the plan. The same applies to liquid or powder feed additives used to e.g. to treat sick animals individually and in realtime.

Weaning takes place automatically and gradually according to age. If the automatic feeder is connected to a computer-controlled concentrate feeder, the calves are weaned in accordance with concentrate intake. Irrespective of animals' age the milk quantity is reduced as soon as the calf consumes a sufficient amount of concentrate. If the feeding station is equipped with scales, weaning happens according to weight.

Fig. 3: Display of processor with feeding data

In addition, the processor records important data relating to animals' feeding behaviour to support the daily visual monitoring and to keep record of the dispensed feed and medicines (see figure 3). The daily feed consumption and the drinking speed e.g. provide valuable information on calf´s well-being and health.