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Free Traffic in Robotic Milking of Cows through Ethological and Welfare Approach

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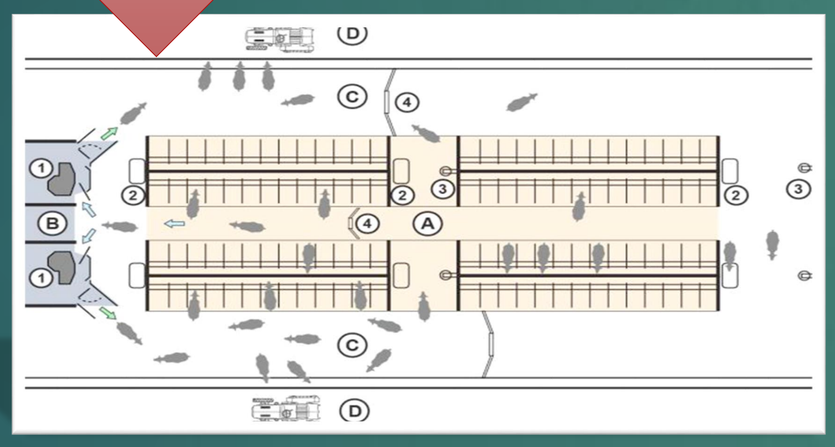
Abstract

The cow welfare it is subject to various influences, in both negative and positive ways, such as: social interactions with other cows, human-animal interactions, management systems, nutrient supply, barn design, climate, etc. Two basic behaviours that are important in ethology of animals are eating and resting. The milking was incorporated between those two needs in robotic milking, or it was given to the free will of the animal itself. Robotic milking has gained widespread acceptance, as a way to reduce labour on dairy farms, increase milk production and simultaneously improve dairy cow welfare by allowing cows to choose when to be milked. The free cow traffic is one of the variations of cow traffic strategies, where cows can access feeding and resting areas of the barn with no restriction. The basic concept for such traffic is increase the comfort of cows, and compliance with the five freedoms of animal welfare.

Key words: dairy cows, free traffic, robotic milking, ethology, welfare

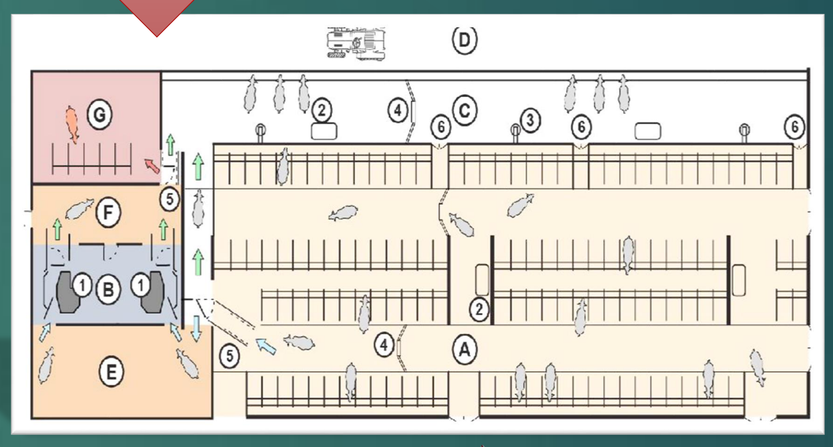
Farm design with free cow traffic with an AMS
(Unal et al., 2017)

- A-Resting area,
- B-Milking room,
- C-Feeding area,
- D-Feeding Line,
- 1-AMS,
- 2-Troughs,
- 3 Brushes
- 4-Manure scraper



Farm design with "milking first" cow traffic with an AMS
(Unal et al., 2017)

- A-Resting area,
- B-Milking room,
- C-Feeding area,
- D-Feeding Line,
- E-Waiting area,
- F-Exit area,
- G-Separation area,
- 1-AMS,
- 2-Trough,
- 3-Brush,
- 4-Manure scraper,
- 5-Smart gate,
- 6-One way gate



FREE COW TRAFFIC

- The cows can choose when they want to: eat, drink, rest and be milked
- There are no fences or separation gates
- The cows can live freely, without restrictions or constraints
- During milking, the cows are rewarded with concentrate, with the result that they are happy to be milked

The basic concept for free traffic is increase the comfort of cows. It also allows compliance with the five principles (five freedoms) of animal welfare

FIVE FREEDOMS OF ANIMAL WELFARE

- Freedom from hunger and thirst
- Freedom from physical and thermal discomfort
- Freedom from pain, injury and disease
- Freedom to express normal behaviour
- Freedom from fear and stress