Grazing with a mobile milking robot

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Introduction

Nowadays, farmers have to manage larger herds but want, at the same time, benefit from a normal social life. The milking robot can bring solutions. Its use can reduce physical labour and allow flexibility. This technology results in a reduction in grazing even though grazing appears as a natural practice which is appreciated by the consumers.
This project aims to develop strategies to use milking robots in pasture in order to benefit from advantages regarding feeding costs as well as animal welfare and health.

The mobile milking robot

A prototype of a mobile milking robot is used since the 20th April 2010 at the Experimental Farm. First used indoors, it was moved in the pasture on the 22nd June. The milking robot and equipments – compressor, milk separator, computer (Lely) – are located in a trailer that can easily be moved by a tractor and can be lowered to ground level (Figure 1, 2). The milk tank is placed on another trailer designed as a conventional trailer (Figure 3). The two trailers are allowed to the traffic road. The area where the robot is located is equipped with electric point, water and facilities to collect the washing water (Figure 4). The robot is lighted during the night allowing milking night and day. The trailer with the milk tank is easily accessible for milk collection by lorry and emptied every 3 days. The two trailers will be take back indoors in October in order to milk the cows during the Winter.

Figure 1. The milking robot trailer

Figure 2. General view of the installation

Figure 3. The milk tank trailer

Figure 4. Flexible tank for washing water

Progress at grazing

The number of cows milked by the robot varied from 47 and 50 cows between the beginning of the use of robot in April and mid August 2010. When the cows were moved to the pasture, the weather was very hot and dry after a cold and dry Spring. They grazed in a rotational system. The grass availability was insufficient to support a diet composed only by grass The cows received maïze silage (7.2 kg DM per cow) until the 10th August. So far, the cows are fetched 2 times a day, at 6:00 a.m. and 18:00 a.m. in a paddock used as a waiting room located at the robot entry.

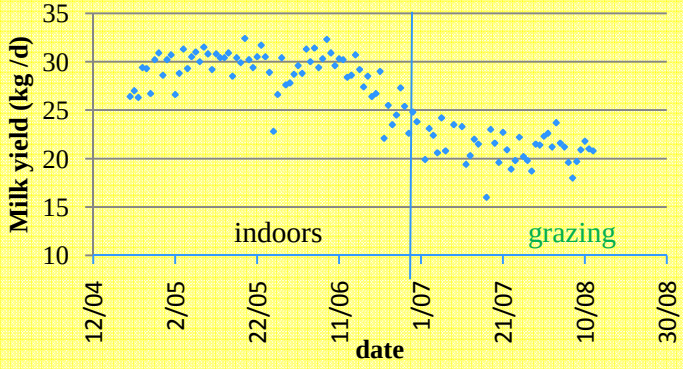

Figure 5. Milk yield indoors and at grass

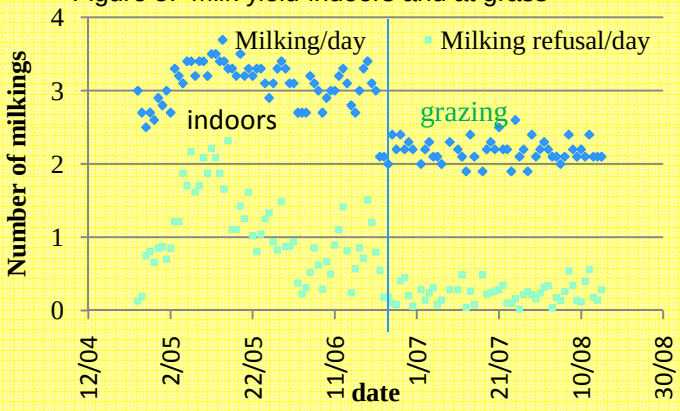

Figure 6. Milking and milking refusal indoors and at grass

First results with the mobile milking robot

The cows were easily accustomed at milking robot indoors and their milk production increased. During the indoors period (60 days), they produced 29.5 kg milk per day (173 days in milk), the mean number of milking was 3.09 and there was 1.06 milking refusal per day. During the period at grass (50 days), the daily milk production was 21.1 kg (215 days in milk), the mean number of milking was 2.12 and the milking refusal was 0.22 (Figures 5 and 6). Without distribution of maïze silage, it seemed that milking and milking refusal numbers were slightly increased while daily milk yield slighlty decreased at 20.5 kg, but this period is too short (6 days) to conclude. We noted that the cows generally like to be in group but some cows which passed more than 2 times for milking do not hesitate to come alone or in a small group during the afternoon or the night. Different effects - the distance from the paddock to the robot, the day in the paddock, the milking time in the day - on the milking frequency have to be treated at the end of the grazing season.

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