Automatic milking and grazing are bridgeable

Summary

Grazing is often stopped when a farmer buy a milking robot. The experimental farm of Derval proves that both can be associated. Cows traffic must be watch carefully, as much as grass shooting. The distance to pasture and the number of cows the robot has to milk are two essential points that strongly influences success. If climate enables it, the ration can go to all-grazing. The production costs are thus divided by 3.

Background

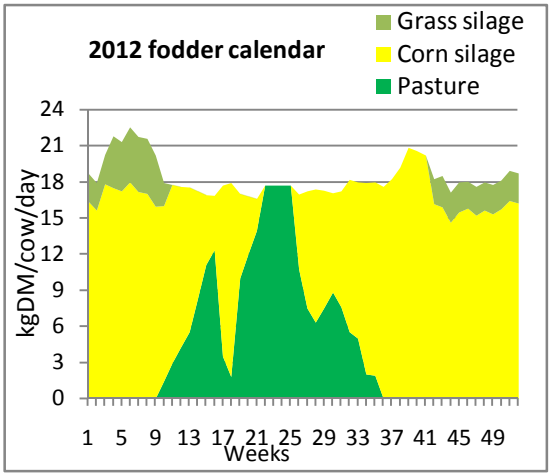
More and more farmers consider automatic milking as a revolutionary solution. Some of them find in a robot what they have been looking for and step in. Nevertheless, grazing is often reduced, even stopped, when this investment is chosen. There is no reference method to help farmers succeed in keeping a part of grazing when buying a robot: studies are costly, expansion of robots are new. This is the reason why the experimental farm of Derval, specialized in milking technics since its creation in 1973, was invested with bringing an instruction for use to breeders wishing to associate milking robot and grazing.

An efficient herd despite the capacity of the robot

741,000 litres of milk were sold in 2012 thanks to top cows, each making 9,500 kg on average. The robot is saturated, with 73 cows at any time. Calvings are spread through the year so as to keep this number constant. Every day, about 145 milkings are done, giving 2,160 litres. This situation is close to the limit capacity of the robot. Indeed, milking takes 20 hours, 1 hour is to clean the robot and the nearby area, the rest is composed of hundreds of fractions of seconds due to a cow coming in, coming out, standing in front of the robot, … In order to avoid wasting time, the traffic is guided, with a selective door that brings to the robot only cows that need to be milked.

Meadows adapted to the choices of management

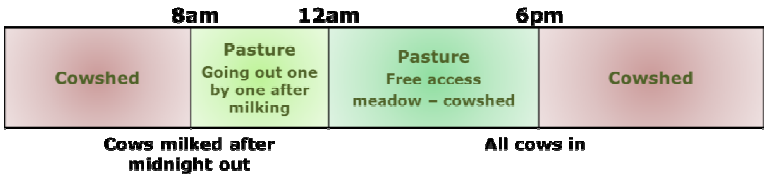
0.4 hectare is available for each cow. The total area of 28 hectares is close to the farm, with no road to cross. So as to keep a simple rotating pasture, only 3 meadows were designed: 1 of 8 hectares and 2 of 10 hectares. The cows need to walk for 400 meters to enter the most distant one. A blend of English Ryegrass and White Clover was sown to provide good grass quality. Thanks to these assets, the farm management is aimed at maximising pasture enhancement (minimum of 1 ton of grass eaten in pasture per cow per year): as long as it can be, the silo of corn silage is closed.



The two complementary objectives are thus: maximise the time that cows spend in pasture, and always have a cow in the robot. This leads to some technical hitches: assure milkings at night, compose with cows' gregarious instinct, and act on cows individually or collectively.

2 managements according to the time in pasture

Going from a 100%-corn ration to a 100%-grass ration, cows need a transition period to avoid gastric problems. They go out only during the day, for 4 weeks, as a supplement to a decreasing ration of corn silage, going from 17 to 5 kg DM per cow per day. Farmers have 2 obligations: set the cows free to go out after they are milked at 8am, and bring them all back in at 6pm.



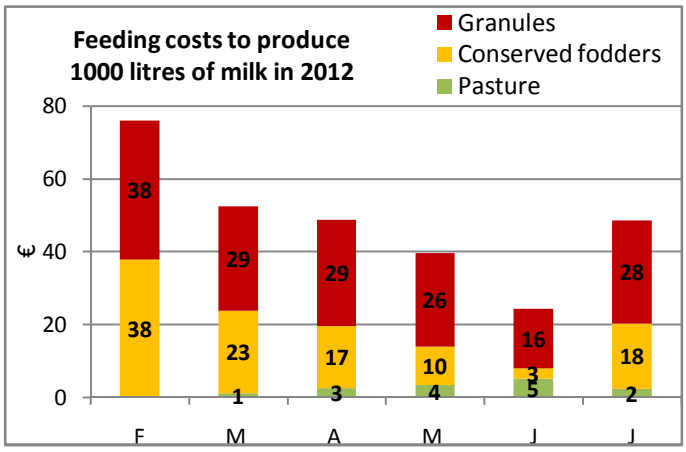
When the transition is done, cows are in pasture day and night. They just come back to be milked. In order to have cows milked at night, the farmer has to bring them back at 6pm, and they then go out one by one after they are milked. This enables to have 35 milkings between midnight and 6am, which are essential due to the capacity of the robot.

Technical and economical results satisfactory in 2012

	Cowshed (60d)	Transition period (74d)	100% grazing (32d)
Number of milkings (/d)	149	141	138
Milking frequency (/cow/d)	2.06	1.92	1.86
Production (kg/cow)	29.4	31.6	27.6
Corn silage (kgDM/cow/d)	17.1	9.4	0
Colza (kg/cow/d)	3.6	1.8	0.5
Wheat (kg/cow/d)	0.3	2.1	2.0

Milking frequency decreases as the proportion of grass increases. Indeed, cows eat and sleep in pasture; they come back only to be milked. Depending on how far the pasture is, some of them, especially those with leg problems, are not milked as often as they would if they were in the cowshed. Compared to winter results, milk production is higher during the transition period and lower during the all-grazing period.

But these differences are to be put in connection with production costs. Indeed, the more grass is included, the cheaper the ration is. The consumption of granules goes from 150g to 90g per litre of milk. Even if wheat is added, corn and colza are saved. Therefore, producing 1000 litres of milk costs 76€ in a zero-grazing period and 24€ in an all-grazing period. The production costs are thus divided by 3.



Recommendations

- Let the cows graze as soon as the soil is dry enough.
- Increase slowly the proportion of grass to avoid health problems.
- To avoid wasting, never let the silo of corn silage open if less than 5 kg DM / cow / day are given.
- Always have a quantity of grass in pasture that can be eaten by the cows in 10 to 15 days. If less, add some corn silage; if more, cut some grass to make fodder.
- In rotating pasture, put the cows in another meadow when their milk production decreases by 10% or when they have eaten 55% of the initial grass height.
- Do not forget that bringing in cows is unavoidable once a day, but that it also enables to keep an eye on grass quality, on fences condition, on water supply.