

# Grazing and robotmilking

*Mai 2017:*

## Robots and Grazing.

For a successfully grazing policy on farms with milking robots, you have to keep a few rules in mind:

- They start learning to graze when they are young!  
Eating grass as well as learning how to handle locks and fences.  
But also continue under changing weather conditions.
- The keyword for grazing is “**Early**” : Early in year, early in the morning and early (young) learning is very important for success
- Keep in mind what is achievable, a lot of grass in the cow and feeding little in the stall, or is grass just a dessert, a meadow as a runway, play meadow and then feed a lot in the stalls.
- This really has to do with the amount of hectares grass and parcels round the farmhouse you have in relation to cows.
- If you overestimate this relationship, the smallest change in weather or the length of season will mess with your plans.
- Cows constantly need to be triggered to move: if they are in the stalls, they should also want to go to the meadow and if they are in the meadow they should want to go the robot.
- This can be achieved when you give the cows fresh grass every day and wait to add new feed in the stalls when they are outside.
- An ideal situation is one where they would go straight to the robots when they come in the stall and go to the troughs after they come out of the robot.
- A meadow selection port, Smartgate, could make it

easier.

- The path to the pasture should be wide (2-way path) to accommodate easy transportation of cows. It should be at least so wide that the dominant cows don't have the chance to stop other cows from moving.
- Drinking water during warm weather is also crucial. It would be ideal to place the water alongside the path to the stall.

"Stichting Weidegang" (Foundation Grazing), from University Wageningen Holland, has elaborated on 5 possibilities, with the correct policy added to it.

It is assumed that the average cow eats about 15KG of dry feed per day.

Possibility 1 is the maximum grazing grass, which means 13 KG Dry Matter of grass and 2 kg of roughage in the stable.

Possibility 5 is the minimum grazing grass which means 2KG DM grass and 13KG roughage added in the stall.

The possibilities 2,3 and 4 includes policies gradually feeding less grass and adding more feed in the stall.

From nature behavior the cow prefers to eat most when she finds herself in the meadow in the morning and at dusk. And then, safely hidden, ruminating under a tree.

Finding ways to play with these times by giving more fresh grass or picking the cows up at certain times makes grazing more fun.

The tree has now been replaced by the roof of the barn.

If the weather is hot than you can use these times by having the cows graze in the mornings and evenings instead of during the day.

**August 2018:**

***Is grazing cows while having milking robots an disadvantage?***

Maybe, after all, always cows have to be milked all day long.

But as the great soccer player Johan Cruyff once said: "Every disadvantage has its advantage" which is also clear with milking and grazing with milking robots, especially when it's as hot as it is.

In nature, the cow ate before and during sunrise, filling up its rumen and then, sheltered on a safe place, e.g. under the shade of the trees ruminating the harvested grass.

At sundown, the cow did the same and then ruminated while being sheltered, to escape the wild animals. In the evening the grass is the tastiest and the cow eats the most, in the morning the grass with dew is slightly less tasty and sweet.

With this behavior, she produced enough milk for her calf and enough energy to maintain herself.

But nowadays the cow has to give 4 to 5 times as much milk as before.

The advantage: this natural behavior, these times, can be perfectly imitated with robotic milking!

At non-robotic farms, the most productive grazing times are often the milking times....

Adjust the times at the selection gate to a time before sunrise.

So in the spring, that would be around 6 am. During the longest day and/or during warm weather adjust the time so that the first cows can go outside again at 4 am!

Then the feeding fence may be "empty" so they want to go out. If it is getting warm again, instead of 1 pm, start feeding the cows in the barn earlier: for example, 10 am/11 am since that is now the sheltered, cool and safe place.

The barn must, of course, have fresh air.

And then you can perform the cow-control job.

The same goes for the evening, send the cows outside when the warmest hours are over, usually after 4 pm but in the high-summer head towards sending them outside at 5-6 pm, and once it gets dark place new feed at the trough or adjust the existing feed (with some noise ? ).

Always adjust feed quantities and protein supplementation with the amount of grass they can eat.

With the heat and drought this year, the grass intake will not be much but the number of hours pleasant outside is more important.

This way, you still get a lot of feed in the cow while having the minimal effect of the warmth so that the production and stamina stay consistent.

***Mai 2021:***

**Meadows: Sum: How big should the pasture plots be?**

**Or how long can cows last with a parcel or part?**

*You can now request an Excel for the calculation below at [harry@harrytuinier.nl](mailto:harry@harrytuinier.nl)*

*This can be a useful tool for both the farmer and the trainee. Obviously keep the Hectares a little wider.*

If it grows nicely in the spring, it will grow at least 100 kg dm. Per hectare per day.

This decreases further in the growing season, about 80 kg per day and in autumn or during drought it can drop to less than 40 kg per day.

If you do "Standweiden" (on one parcel for a longer time), it

is sufficient for grazing when there is 800 – 1000 kg dm. on a hectare. (Is about 10 cm.) Otherwise the last grass will quickly become too long and the cows too selective.

Suppose you have 100 cows and you want them to eat 6 kg per day of grass. That is 600 kg of dm. grass.

You want to let them graze for ten days on that plot. That means  $10 \times 600 = 6000$  kg dm. in total.

You placed them in 1000 kg of dm. per hectare grass what was on it.

In those ten days, 80 kg dm. per day also grows = 800 kg  
 $1000 \text{ kg present} + 800 \text{ kg growth} = 1800 \text{ kg present grass.}$

When the cows are removed, there may still be 1000 kg dm. per ha. So the growth, 80 kg per day for example, is to eat.

The requirement is  $100 \text{ cows} \times 6 \text{ kg dm. grass intake} \times 10 \text{ days} = 6,000 \text{ kg dm.}$

6,000 kg of grass required divided by 800 yield means that you need 7.5 ha of grassland for this. It is safe to take a little more.

### **Sum:**

$100 \text{ cows} \times 6 \text{ kg dm.} \times 10 \text{ days} = 6000 \text{ kg dm.}$

$10 \text{ days growth} \times 80 \text{ kg} = 800 \text{ kg dm.}$   $6000 : 800 = 7.5 \text{ ha}$

### **Your situation:**

..... cows x ... kg dm. X ... days = ..... kg dm

... days of growth x ..... kg = ..... .. kg. dm. ....: ..... = ..... ha

If you do “Roterend Standweiden”, so called “New Dutch Grazing”, or in other words a fresh part of pasture every day, you can start when the grass is slightly higher at, for

example, 1500 kg ds. When it is “finished” there is still 600 kg ds. 900 kg has been eaten. An additional 80 kg of growing is added = 980 grass to eat.

100 cows x 6 kg DM intake = 600 kg DM per day required. 980 kg dry matter per ha crop yield divided by 600 is a bit more than 0.6 ha per day.

So then you need blocks of a bit more than 0.6 ha per day. For a round of “Rotating Stand Grazing” , for example, 15 days:  $15 \times 0.61 = 9.2$  ha. Here too, if possible, take a little more when possible.

### **Sum:**

100 cows x 6 kg DM x 1 day = 600 kg intake: 980 kg grass yield = 0.6 ha per day x number of days = a block of 9.2 ha.

### **Your situation:**

... cows x ... kg DM x 1 day = ..... kg intake: ... kg grass yield = ... ha per day x ..... days = a block of ... ha.

With your growth estimates, this will mean fewer surprises and a more constant supply of grass for the cows.

So grazing more successfully.

Remember that a cow eats about 1 kg per hour. Especially in the evening before sunset and in the morning after sunrise, the cows eat the most.

Robot milkers have no problems with that ?

**May 2022**

### ***Milk permission for grazing.***

When you use a separation gate for grazing or use the milking

robot to select the cows to go to the pasture it can be wise to set the Milking Permission slightly lower, so that more cows are milked before going outside. We prefer to do this than blocking cows for example 2 hours before milking permission to go outside, while they are also not allowed to be milked.

Make sure that they have enough milk in their udders for good milking.

### ***July 2022:***

#### ***Increase feed supply in stable on time.***

Despite the beautiful growing season, the quality of grass is slowly deteriorating. Where you could count on 13 – 15 kg of DM with more than 1000 VEM this spring, this is now a full kg less with often more than (> 100) less VEM. And certainly when cows also have to be outside during the day with warm weather, the intake is often much lower. The desired grass intake of 1 kg ds per hour is therefore no longer achieved. Maybe some hours in the evening.

That means now, July, there is just another 2 – 3 kg ds of high-energy feed extra needed in the stable!

And do not feed this before about 11 o'clock. This ensures that cows find it too hot to graze on time go to the stable, shade, robot, and still eat and visit sufficiently.

### ***April 2023:***

#### ***Start grazing.***

Starting early in the spring is especially important when combining robotic milking and grazing.

And not the amount of grass but the carrying capacity of the

soil should be decisive.

If there is not much grass yet, this mainly means that the cows learn the cycle faster:

barn – milking robot – pasture – barn / feeding fence –  
milking robot – pasture – and so on.