

Contents

Spring grass quality	1
Why is grass quality so high in spring?	2
Chemical composition of spring grass	2
Is there too much protein in spring grass?	2
When will sward quality decline?	3
Dry matter intake.....	3
What is the intake of a cow post calving?	4
Intake at grass-on off grazing.....	4

Spring grass quality

Grass quality is greatest during the spring period. Typically high quality grazing swards with a high proportion of perennial ryegrass would have an organic matter digestibility of 800-850 g/kg. This means that 80-85% of the organic matter in the sward is digestible and compares favourably against summer and autumn grass from similar swards (750-800 g/kg OMD). When calculated, this means that spring grass has a feed value 1.05-1.08 UFL/kg DM when herbage mass is 1000 kg DM/ha. At higher herbage mass (1800-2000 kg DM/ha) sward quality is still high at 1.03-1.05 UFL kg DM. This compares favourably against high quality summer and autumn grass which has a UFL of 0.90- 1.0 UFL kg DM. So high covers are not a problem nutritionally for the first and second rotation, the key issue is the utilisation of grass and the subsequent effects on sward quality later on in the grazing season.

Why is grass quality so high in spring?

Grass has greater feeding value in spring as there is a greater concentration of protein, which is invariably completely digestible, compared to other times of the year. In addition, the digestibility of fibre in grass is greater at this time of year compared to summer and autumn. The slow growth rate of grass over winter helps to avoid reduction in fibre digestibility. The net result is high UFL grass that we get in spring.

Chemical composition of spring grass

	1000 kg DM	1800 kg DM
UFL	1.05-1.08	1.03-1.05
OMD	800-850 g/kg	750-800 g/kg
CP (fertilised)	240-300 g/kg	210-260 g/kg
PDIE	100-110 g/kg	95-105 g/kg
PDIN	155-165 g/kg	145-155 g/kg
NDF	370-450 g/kg	400-470 g/kg
ADF	180-250 g/kg	200-270 g/kg

Is there too much protein in spring grass?

The short answer is yes, but before we draw any conclusions we need to put it in context.

Lactating cows (22 kg milk @ 3.4% protein) have a protein requirement for 1522 g PDI/ day. If cows are consuming 15 kg of grass at 160 g PDIN and 105 g PDIE, the intake of PDI would be 1575g which will meet requirements; however, the PDIN intake would be 2400 g/day. As a result, there is 825 g/ PDI which is in excess. Some of this can be utilised to form protein if a low PDIN/ CP feed is offered or else it will be excreted via urine and milk. This is why milk urea levels in milk can be high when grazing high CP grass.

However given the value of spring grass and the cost of supplementary feedstuffs, it would not be economical to balance the diet for PDI. While some non-protein nitrogen is lost from the system, the high energy spring grass is comparable if not superior to concentrate feedstuffs and should be utilised as efficiently as possible on farm. The lost protein is just a unfortunate side issue and should not detract from the importance of feeding cows as much spring grass as we can afford to.

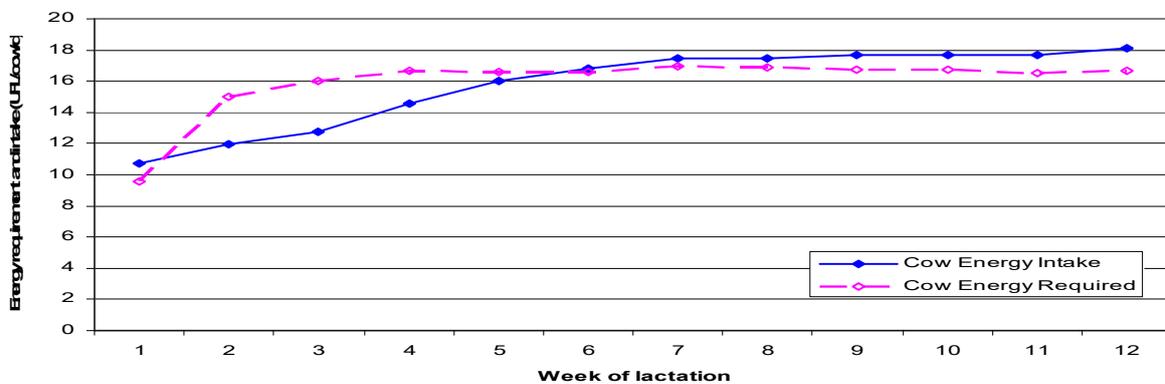
When will sward quality decline?

When high herbage mass (1800 kg DM+) swards are carried through the winter into the spring, they should be grazed as soon as possible in the spring. Digestibility of these swards will decline at a faster rate than lower herbage mass swards, as the rate of leaf senescence is higher and the proportion of dead material greater in high herbage mass swards. Once cows are used to grazing (3-4 paddocks or 10 days grazing) and conditions are suitable, these high covers should be grazed.

Dry matter intake

The transition from a dry cow to a lactating cow places a huge nutritional demand on cows. This is further exacerbated by the reduction in dry matter intake up to the point of calving. The net result is that cows will invariably have greater demand for nutrients, especially energy, than what is consumed by the cow. Thus it is imperative to know what the dry matter intake of cows is so they can be fed accordingly.

The average gap between the energy demand of a mature dairy cow (600 kg LW, allowing 20 kg LW loss, peak yield = 2.0 kg MS) is 2.2 UFL. This 2.2 UFL is AFTER allowing for 0.4 BCS loss. How do we fill this gap?



As the graph outlines, there is a period of 5-6 weeks at the start of lactation where cows are in negative energy balance and are losing condition. It is imperative to increase intake to meet demand as soon as possible, to avoid excess mobilisation of BCS and the subsequent impact of fertility. Correct allocation of feed stuffs and calculation of intake is important as if intake is low due to poor grazing conditions or under allocation of grass, the proportion of concentrates in the diet may approach 50% and may lead to increased risk of digestive health problems.

What is the intake of a cow post calving?

The table below outline the predicted DMI for a 550 kg cow. Heifers will typically consumer 2-2.5 kg DM less than a mature cow, while larger cows will consume more. This should be factored in to grassland management decision. Meals fed in the spring are expected to have a low substitution rate as there is such a demand for energy during this time, but this dependent on quantities being fed.

Week of lactation	Mature (600kg) cow intake (DM)	Heifer intake (DM)
1	10 kg	8 kg
2	11 kg	8.75 kg
3	12 kg	9.5 kg
4	13 kg	10.25 kg
5	14 kg	11 kg
6	15 kg	11.75 kg
7	16 kg	12.5 kg
8	17 kg	13.25 kg

Intake at grass-on off grazing

On off grazing has been shown to allow cows to consume up to 90% of the grass that would be consumed in a 24 hour period in two 3 hour grazing bouts after both morning and afternoon milking. This is dependent on cows grazing intensively for the duration that they are out. In order for cows to consume this much feed in a restricted time period, they need to be trained to do so. Tailoring silage feeding (if it is required and not too much) when cows are on off grazing can help achieve this. One possibility would be to offer silage after the evening grazing so that the longest duration between feeds is utilised so that cows are maximising the opportunity to graze and not full when returning to pasture and lying down shortly after.