Grass is an ideal ruminant feed but is too often undervalued

Have faith in grass

Packed with nutrients and useful fibre, grass is a balanced feed that, when well managed, can support high milk production. We spoke to some leading nutritionists to find out more and to rekindle producers' passion for grass.

text **Sara Gregson**

Cows can extract the energy, protein, minerals and vitamins found in grass due to the digestive activity of billions of microbes that live in their highly active rumens.

It is these microbes that allow cows to break down useful carbohydrates, such as cellulose, which non-ruminant species like humans can't. The end-products of microbial digestion are absorbed into the blood stream or propelled into the small intestine. The nutrients are then used by the cow to maintain her life processes, to produce milk and maintain pregnancy.

Grass fibre also plays a key role in maintaining rumen and cow health. The whole process of rumination is stimulated by the presence of course, fibrous material. Some of this is passed back up into the mouth for further processing – before being re-swallowed for further attack by the microbes.

The vast amount of saliva produced in the mouth while chewing keeps rumen pH at an optimal level. Healthy cows spend at least a third of their day cudding.

The ease with which the microbes can access the grass fibre differs according to how digestible the cell wall is. The more digestible, the greater the release of useful energy for production.

Breeding grasses with digestible cell walls has been one of the primary goals for grass breeders DLF Trifolium for more than 20 years.

"Having fibre in the diet is incredibly important for all cattle," says DLF's agricultural sales director Tim Kerridge. "But what is more important is whether the rumen bugs can get in to work on it easily.

Tim Kerridge: "Cows are designed to eat grass – not soya, barley or starchy maize"

Hefin Richards: "Most producers could produce more more milk from grass"

"Research has shown that a 1% increase in cell wall digestibility is associated with a 0.17kg increase in dry matter intake, and a consequent 0.25 litre increase in milk per cow per day – purely because the nutrients in the feed could be more easily accessed.

"The release of cell wall sugars is slow and even, occurring throughout the passage of material through the rumen. Energy derived from water soluble carbohydrates found in the cell contents is very rapidly released and is good for kick-starting the digestion process. But it is structural sugars in the cell walls that sustain the microbial populations, allowing them to make full use of all the nutrients in the feed," he says.

Unique feed

"Grass is unique in having both a high nutritional value and fibre content. Cows are designed to eat grass – not soya, barley or starchy maize. Acidosis is increasing in herds where the proportion of grass in the ration has fallen. Many producers are advised to include straw to remedy this, but adding some second-cut silage instead could provide fibre and nutrients, and will invariably be cheaper."

While grass has huge potential as a ruminant feed its quality can vary widely. Choosing grasses that have high value feed and digestible cell walls is a good starting point. But what happens out in the field, and when they are harvested and stored, has a major impact on how well they feed out.

"Grass is the most flexible feed on the farm, but can also be the most variable,' admits Profeed Nutrition Consultancy's independent advisor Hefin Richards.

"But variation can be managed. Some producers make the same quality of silage from every cut they take, although on most farms no two cuts are usually the same. This is due to all the other factors, like the weather at mowing, that come into play."

While one-harvest crops, such as maize, can produce a more consistent conserved forage, the difficulties of growing the crop, particularly on marginal sites, is making some producers think about growing more grass instead.

Forage stocks

"Maize is great in the good years," says Mr Richards. "But if the yield or quality isn't there it can be expensive. It could be better to boost forage stocks for the next couple of years by reseeding with a highly productive short-term ley."

Increasing the grass area can also offer more opportunities for manure dispersal than maize, where the application window is limited. Injecting slurry into swards throughout the summer is efficient and environmentally friendly, as well as a money saver.

"Most producers could produce more grass in their fields and more milk from their grass," says Mr Richards.

"I know producers with fully housed, high yielding herds where grass is the only conserved forage. But their attention to detail when it comes to silage making is phenomenal.

"Grass has to be valued and regarded as a crop to take it to the next level. Everything has to be thought about and done well – from ensuring soil structure and nutrition is correct, through to harvesting at the right time and storing properly and with care," he says.

"Grass is its own worst enemy – it will grow and look green even if nothing is done to it. This lulls people into thinking it is performing even when it isn't. If a crop of maize fails it is much more obvious."

Mr Richards adds that now is the ideal time to weigh up the forage crop options for this year and to write a forage plan. Work out target milk production and how much grass and other crops are needed to achieve this, he advises.

"Work with agronomists to decide which grasses and mixtures will serve the farm best – don't just pick anything left on the merchant's shelf.

"Plan the silage making operations meticulously and identify a preferred cutting date.

"Decide what additive to use, MOT the mower and clean out the clamps as soon they are empty, so that everything is ready to go when the ideal cutting opportunity comes." |

Grass facts

At a cellular level, grass, like all plants, is made up of cell contents and cell walls. Inside sit the oils and lipids (mainly healthy unsaturated fatty acids) and water soluble carbohydrates.

The biggest component, particularly in young leafy grass, is protein.

The cell walls are made up of structural sugars. As the plant grows and matures the amount of these sugars increases.

Not only important for keeping the plant upright as it grows taller, they also make a significant contribution to the cows' diet. In fact, nearly two thirds of the energy the microbes extract from grass comes from sugar found in the cell walls.