

What steps should you be taking to help maximise silage yield and quality?

Second cut, second chance

First-cut silage has been a drawn out affair this year with some disappointing results, so it is important that nothing is left to chance for second cut. Producing high quality silage is not always easy, but we have some timely tips and advice.

text **Allison Matthews**

The nutritional quality of silage is based on that of the starting crop. "And by that I mean not just the plant itself but also whatever else might be on it," says Ecosyl Products' Derek Nelson. "If slurry was applied after first cut it was hopefully immediately and used a method that applies it to the soil, rather than on the leaves, as slurry contains a number of nasty bacteria that will increase the risk of a poor fermentation if they get into the clamp," he explains. "If it was applied to the leaves and not diluted, dry weather means that the leaves may still to be contaminated." Mr Nelson adds that application of bagged fertiliser should have taken account of any soil and slurry nutrients already present. He stresses that it is important not to over-apply nitrogen as excessive levels can lead to high nitrates at ensiling, again increasing the risk of a poor fermentation.

Weather worries

"Under normal conditions it is assumed that nitrogen will be taken up at a rate of 2.5kg/ha/day, but hot and dry weather will reduce this significantly." The worst situation for producers can be when uptake has been restricted and rain comes just before harvest. In this scenario nitrogen will be taken up rapidly, leading to a build up of nitrate in the plant, as it cannot convert it into protein fast enough. "As sugars are also used in protein formation, there will be fewer available for fermentation and the higher protein concentration will increase the buffering capacity of the grass, making it even more difficult to ensile. Ensiling high nitrate grass can also lead to the formation of poisonous silo gas in the early stages of ensiling.

"If high nitrates are suspected then get the grass analysed. If the nitrate-N is much above 0.1% dry matter, wait a day or two. Wilting and/or the use of a silage additive will help minimise the risk of a poor fermentation from either slurry contamination or high nitrates," he says.

Right time

Low first-cut yields coupled with recent poor grass growth – this time due to a lack of rain – has dashed many hopes of boosting forage stocks with second cut. This may tempt some producers to leave it a bit longer to bulk up, but this may not be the best option.

"Not only will quality fall dramatically, but under these conditions the grass itself may start to die off, reducing yield too," warns Mr Nelson. "Producers may find they are better off cutting it at the intended time and then hoping for a decent third cut. They could even consider making up the shortfall with an alternative forage like wholecrop cereals.

"Aim to wilt to about 30% dry matter within 24 hours, but remember that if your grass is already under drought stress it will dry faster than usual so be careful you do not over wilt it. If this happens field losses will be higher and it will be more difficult to compact in the clamp, increasing the risk of aerobic spoilage at feed out. Chopping shorter, to around 1.5 to 2cm, will help with compaction," adds Mr Nelson.

Grass starts to deteriorate as soon as it is cut, so the faster it wilts the better.

"A mower conditioner can increase the rate of moisture loss by up to 40% as it crushes the stems and damages the grass' waxy protective outer layer. But don't use a conditioner in wet conditions



Derek Nelson: "Cutting time and ensiling technique are key to a successful second cut"

as rain can be absorbed into the plant via these damaged areas."

"Most of the initial water loss is from the leaves via the stomata – holes on the grass leaves' under surface that only remain open for up to two hours after

cutting. Drying is fastest if you expose the maximum surface area of the plants to the sun and wind so spread it wide across the field and ted it. When swathing make sure the rake is set properly to avoid picking up soil, another source of silage spoilage micro-organisms."

In hot, dry conditions crops wilt faster so there is a risk of over-wilting, making them more difficult to compact and at greater risk of aerobic spoilage.

"So it may be worth direct cutting the last field to provide some extra weight and a better seal on top," explains Mr Nelson.

Silage fermentation is an anaerobic process, which means it takes place in the absence of air, and a lot of clamp management is aimed at keeping air out. This allows fermentation to begin rapidly, reducing fermentation losses

and reducing undesirable microbial activity. It also decreases the risk of aerobic spoilage at feed out because the yeasts responsible for initiating aerobic spoilage can increase at this stage.

Mr Nelson stresses the rules that must apply, regardless of whether the crop is going in wet or dry.

Fast fill

"Line the clamp walls with sheeting, leaving plenty of excess for overlapping on top then get the grass in quickly, filling the clamp in thin layers – no more than 15cm deep – with plenty of compaction.

"It's best to use single tyres as that maximises the pressure per unit area. If you are ensiling a wet crop, don't over-roll or it will end up mushy and the cows won't like it.

"Once it is all in, give it a final roll and then seal it well with plenty of weight on top.

Using one of the new 'cling film' type sheets as the inner layer is effective."

Mr Nelson says that additives should only ever be considered as an aid to making silage – they will not compensate for poor quality crops or clamp management.

Used properly they can bring about cost-effective benefits in terms of improved fermentation, increased animal performance and reduced dry matter losses.

Additives aimed at fermentation and animal performance are usually based on *Lactobacillus plantarum*, but these are not effective at improving aerobic stability. For that you need to use a different type of inoculant or a chemical preservative.

"Most additives are designed to deal with either fermentation or aerobic spoilage, not both, but a few, such as one range based on *L. plantarum* plus sorbate, offer both as well as improved animal performance.

"Whatever you choose, make sure you do your homework before buying and ask to see independent trial evidence to back the claims being made." |



Perfect timing: don't be tempted to delay cutting to allow the crop to bulk up as its quality may be reduced