

Optimising the first cut in order to produce high quality silage

As most farmers are turning their thoughts to the new season ahead it is a good time to put a plan together for the grass silage to be produced this year. Producing high quality silage very rarely happens by accident, but taking some of these thoughts on board should help your chances of success.

The starting crop

The nutritional quality of your silage is based on that of the starting crop, not just the plant itself but also whatever else might be on it. So, if you are applying slurry, time is of the essence: with increasing grass growth, there is higher chance of leaf contamination so using a method that applies slurry to the soil rather than on to the plant helps minimise risk.

Remember that slurry contains a number of nasty bacteria that will increase the risk of a poor fermentation if they get into the clamp. Applied to the leaves followed by dry weather means the slurry will not be diluted, and the leaves may still be contaminated.

Be aware of nitrogen

Application of bagged fertiliser should have taken account of any soil and slurry nutrients already present. It is particularly important not to over-apply nitrogen (N) as an excess can lead to high nitrates at ensiling, increasing the risk of a poor fermentation.

Under normal conditions it is assumed N will be taken up at a rate of 2.5kg/ha/day but extremes of weather will reduce this significantly.

The worst situation is when uptake has been restricted and rain comes just before silaging as 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 less 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 get the grass analysed. If the nitrate-N is much above 0.1% DM 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.

Harvesting

Empty silage clamps due to a longer winter feeding period tend to push farmers towards bulk rather than quality. This is not advisable as not only will quality fall dramatically, but also under these conditions the grass tends to 'lodge' causing dramatic reduction in digestibility. You would be better silaging at the intended time, hope for a decent second cut and consider making up the shortfall with an alternative crop, like wholecrop cereals.

Aim to wilt to about 30% DM within 24 hours as usual but remember that if excellent conditions occur it can become over-dry within this period so adjust the wilting period to target this recommended dry matter.

If too dry, you will end up with higher field losses and it will be more difficult to compact in the clamp, increasing the risk of aerobic spoilage at feedout. If this occurs chopping shorter, to around 1.5-2.0cm, will help with compaction. It also might be worth direct cutting the last field to provide some extra weight and a better seal on top.

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 waxy protective outer layer (cuticle). But do not use a conditioner in wet conditions 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 under surface which 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.

Ensiling

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 get going faster, reducing fermentation losses and reducing undesirable microbial activity. It also decreases the risk of aerobic spoilage at feedout as the yeasts responsible for initiating aerobic spoilage can increase at this stage, giving them a head start at opening. It does not matter whether the crop going in is wet or dry, the same rules apply. 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 (maximum 15cm) with plenty of compaction.

Unless you have very heavy machinery it is best to use single tyres as that will maximise the pressure per unit area. If you are ensiling a wet crop, do not over-roll or it will end up mushy and the cows will not like it. It is essential you have enough machinery on the clamp to keep up with the loads coming in.

Once it is all in give it a final roll then seal it well with plenty of weight on top. Using one of the new 'cling film' type sheets as the inner layer is particularly effective.

Additives

Additives should only ever be considered as an aid to making silage; they will not make up for poor quality crops or poor clamp management. Used properly they can bring about cost effective benefits in terms of improved fermentation, increased animal performance and reduced dry matter losses.

Choose one designed to tackle the issue you are facing, be it fermentation and/or aerobic spoilage but remember it is animal performance that ultimately brings the biggest payback.

Look for a product which has independent research and a proven track record showing benefits in milk, meat production and reducing fermentation losses. ■