Six Steps Towards Consistently Better Silage

Cut to Clamp

A **Volac** initiative

Six-step plan towards consistently better grass silage

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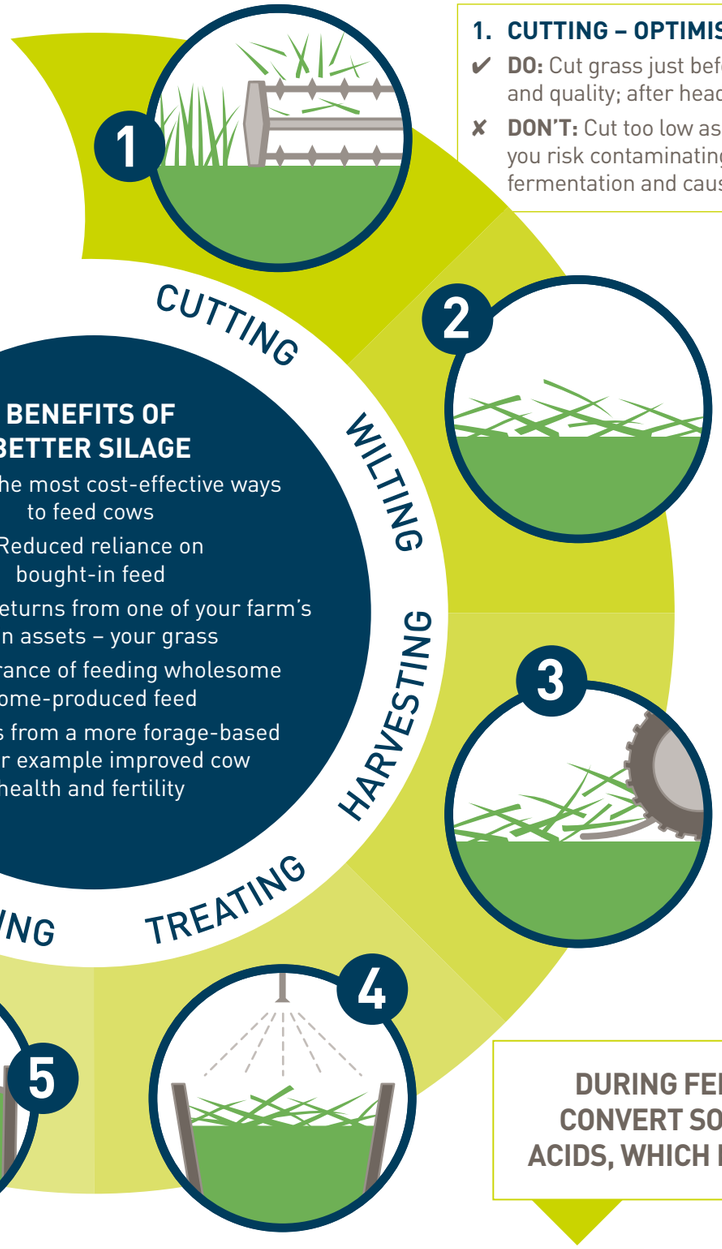

1. CUTTING – OPTIMISE YIELD AND QUALITY

✔ **DO:** Cut grass just before heading as it gives the best balance of yield and quality; after heading, digestibility falls by about 0.5%/day

✘ **DON'T:** Cut too low as the stem base has the lowest digestibility and you risk contaminating with 'bad' microbes, which could hinder fermentation and cause aerobic spoilage (heating)

2. WILTING – QUICKLY ACHIEVE THE RIGHT DRY MATTER

✔ **DO:** Wilt to 28-32% DM to reduce effluent and optimise fermentation

✔ **DO:** Wilt as quickly as possible as it minimises loss of sugar; use mower - conditioners and tedders to speed up wilting, but check machinery is not dragging in soil

3. HARVESTING – USING THE CORRECT CHOP LENGTH

✔ **DO:** Adjust chop length to crop DM – it is vital for good consolidation and fermentation

GRASS DM%	EXAMPLE CHOP LENGTH
>30%	15-25mm*
20-30%	25-50mm
<20%	Up to 100mm

** If being fed as part of a high maize diet, this should be increased to ensure sufficient effective fibre in the diet.*

DURING FERMENTATION, 'GOOD' BACTERIA CONVERT SOME OF THE CROP'S SUGARS INTO ACIDS, WHICH EFFECTIVELY 'PICKLE' THE FORAGE

4. TREATING – MAINTAIN CONTROL OF FERMENTATION

✔ **DO:** Look at additive results; as well as reducing DM losses, a quality bacterial additive can improve ME and D value and boost milk yield (by an average of 1.2 litres/cow/day in the case of *lactobacillus plantarum* MTD/1)

✘ **DON'T:** Leave preservation to chance; you don't know if bacteria populations on grass are sufficient for an effective fermentation; used correctly, a quality additive will supply one million 'good' bacteria per gram of forage

5. CLAMPING – KEEP AIR OUT

✔ **DO:** Consolidate properly, especially the clamp edges; trapped air reduces fermentation quality and increases risk of aerobic spoilage; grass layers 150mm deep are the maximum which can be consolidated effectively

✔ **DO:** Sheet properly to exclude air, using side sheets, an oxygen barrier film and a top sheet, with generous sheet overlaps plus good weighting all over

6. FEEDING – KEEP CLAMPS CLEAN AND TIDY

✔ **DO:** Minimise air ingress at feedout by maintaining a tidy clamp face, moving across it quickly and avoiding cutting the top sheet back too far; however, don't pull the top sheet down over the open face as it encourages aerobic spoilage

✘ **DON'T:** Allow mouldy silage to contaminate the clamp with 'bad' microbes as it reduces quality and intake

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Visit **www.cuttoclamp.com**

New initiative launched to help farmers produce better silage

With nine out of 10 dairy farmers rating better use of grass silage as extremely or very important in their goal to reduce bought-in feed costs, Volac has launched its new Cut to Clamp initiative to help. We explore its first three steps.

A recent Volac survey found about three out of four dairy farmers were extremely or very concerned about future volatility in bought-in feed costs and milk price.

Moreover, 82% were looking to reduce bought-in feed costs.

But despite 90% rating greater use of grass silage as either extremely or very important to help achieve this, the survey revealed some key shortfalls in silage-making techniques.

Volac silage microbiologist Philip Jones says: "This was something we had suspected, because, in general, silage quality does not seem to be improving. However, against a background of unpredictability in milk price and bought-in feed costs, particularly with Brexit, becoming more self-sufficient in what you feed cows makes sound business sense.

Biggest asset

"Not only is this because you are maximising your return on arguably your biggest asset – your land – but also because silage is one of the cheapest ways to feed cows. By making consistently better silage, you can potentially reduce bought-in feed costs and reduce exposure to volatility."

In line with this, Mr Jones says Cut to Clamp divides silaging into six logical steps.

"Silage is produced when beneficial bacteria ferment sugars in grass to lactic acid which 'pickles' it to preserve nutrients.

"During the process, you are looking to maximise the nutritional value of the grass you cut, but also to manage it for the best possible fermentation. This is precisely what Cut to Clamp is about."

Independent silage consultant Dr David Davies says: "Feeding a high quality silage not only increases milk from forage, it can bring other benefits."

BENEFITS OF BETTER SILAGE

- ✔ One of the most cost-effective ways to feed cows
- ✔ Reduced reliance on bought-in feed
- ✔ Improved returns from one of your farm's main assets: your grass
- ✔ Reassurance of feeding wholesome, home-produced feed
- ✔ 'Hidden' benefits from a more forage-based diet – for example, improved cow health and fertility and lower vet bills

1. CUTTING

CUTTING grass at the correct stage is crucial, agree Mr Jones and Dr Davies.

Although it is a challenge, with weather and contractor availability to wrestle with, it is essential to achieve the optimum balance of yield and quality, they point out.

Mr Jones says: "As grass approaches heading, yield increases, but leave cutting too late and protein, digestibility and metabolisable energy decline. The optimum is cutting just before heading."

Dr Davies agrees farmers often delay cutting to boost silage yield. But while this might produce a heavier crop, he says because its nutritional value will be lower, it will not have the same capability to support production of milk.

Extra energy

He says: "If you cut at 11.5 ME and you have 1,000 tonnes of silage, it is the equivalent of 300,000 MJ of energy extra compared to cutting at 10.5 ME. This is approximately equivalent to 60,000 litres of milk.

"Yes, there will be a lower yield, but where you cut later, your losses are actually higher than in a lighter crop. So the yield difference is not as great as farmers think and the quality makes up for this difference.

"Also, a lot of farmers think the lower the cutting height, the higher the yield.

"But if you cut higher, you are leaving the base of the stem in the field which is the part with the lowest digestibility. So again you will improve overall quality by cutting higher."

Mr Jones says cutting too low risks introducing soil micro-organisms, such as clostridia, into silage, increasing the risk of poor fermentation and reducing its feed value, or potentially contaminating with listeria.

2. WILTING

WILTING to increase the percentage of dry matter reduces effluent. It also means silage stabilises at a higher dry matter, so less acid, hence sugar, will be required, as well as inhibiting spoilage bacteria, such as clostridia, says Mr Jones. Wilting grass to 28-32% DM is the target, he says.

Dr Davies says: "The higher the sugar content the better. It is an indicator of good silage practice.

"As soon as you have cut, sugars start declining because they are being used by the plant, because it is still living, and by undesirable bacteria. The aim should be to wilt as quickly as possible to 28-32% DM.

"Too many people wilt for a fixed window, but in good conditions the standard 24 hours could be too long.

"If you cut in the afternoon, sugar content might start off higher because the crop has been photosynthesising for longer that day, but you probably have to wilt for 24 hours.

"Over a 24- to 36-hour period, you can lose 6% of sugar which is huge, whereas if you cut in the morning and achieve a rapid wilt, you could be harvesting by 5pm, so sugar content could turn out to be higher."

To achieve 28-32% DM quickly, Dr Davies recommends silage should be conditioned and spread.

He says: "Mower-conditioners are good at improving wilting speed of grass. However, if you have clover in the sward the conditioner should be left as wide as possible because you can over-condition those crops.

"Some farmers still refuse to spread because they think they are going to get soil contamination, but if you do not spread, you will not hit the target DM."

As a guide, Mr Jones says 1% of moisture is lost per hour of sunlight in bright conditions – greater if using mower-conditioning and tedding – however, tedders and rakes must be adjusted to avoid hitting the ground.

Dr Davies says: "I recommend you check behind the machine that it is not dragging soil in. If it is wet, look for concentric rings where the rake has scraped the soil. If it is dry, you are looking to avoid clouds of dust."

3. HARVESTING

WHEN harvesting, optimum chop length is key, both experts agree, as it has a big impact on consolidation. Mr Jones says: "Fermentation starts once the air in the clamp is used up, so the quicker you can achieve this the better.

"A longer chop makes it more difficult to squeeze air out, particularly with drier crops. However, too short a chop can also cause problems. As well as keeping knives sharp, ensure they are correctly adjusted according to the crop's percentage DM.

"Above 30% DM, chop to 15-25mm to improve consolidation, although if grass silage is being fed as part of a high maize diet, this should be increased to ensure sufficient effective fibre in the diet.

"At 20-30% DM, aim for 25-50mm; if less than 20% DM, you may need to increase up to 100mm to reduce effluent and prevent clamp slippage."

With chop length so critical for optimum clamp density, Dr Davies reckons farmers do not focus on chop length enough.

Also avoid simple mistakes like over-filling trailers, says Dr Davies.

He says: "It may only be 1-2% of grass which falls out, but the 1-2% should be in your clamp."

Six-point plan

1. CUTTING

2. WILTING

3. HARVESTING

4. TREATING

5. CLAMPING

6. FEEDING

Don't miss next month's issue for the second Cut to Clamp article examining treating, clamping and feeding. For more information, visit **www.cuttoclamp.com**

Making better multi-cut silage with latest stepwise plan

As grass silage cutting dates edge earlier and more cuts are taken per season, Volac is adding new guidance to its six-step Cut to Clamp silage-making plan for producers taking this approach.

The multi-cut approach of cutting grass for silage younger and taking more cuts in a season is gaining ground.

A recent survey of more than 150 UK dairy farmers by forage preservation and animal nutrition experts Volac, and forage seed experts Germinal, found 60% had already brought their first-cut date earlier in the past three years, and 44% had shortened cutting intervals.

Among those already taking more silage cuts per year, or intending to, 71% said this was to make better quality silage, 68% said it was to make more milk from grass silage, and 65% said it was to reduce bought-in feed costs.

While the system may not suit every farm, it can provide real benefits, agree independent silage consultant Dr David Davies and Volac silage microbiologist Philip Jones, but it is important to follow the correct steps to produce it.

Nutrition

Dr Davies says: "The average dairy farm could improve income by thousands of pounds by making better silage. If you make better silage, you will get better nutrition from it.

"You would not graze high-producing cows on stemmy grass, so why make silage from it? To me, multi-cut grass silage is anything more than three cuts per season."

Apart from the obvious benefit of younger cut grass being more digestible, from being more leafy and less stemmy, and therefore having the potential to provide more metabolisable energy for milk production, Dr Davies says it also offers other advantages.

For a start, protein is likely to be higher, he says, and silage which is more digestible will not spend as long in the rumen, so cows can eat more of it, allowing forage intakes to improve.

Additionally, frequent cutting can give a better total grass yield over the season, he says, while a hidden benefit for milk yield could come from grass being at a more uniform growth stage when cut earlier, resulting in less variability in the clamp and, therefore, in the daily ration.

Mr Jones agrees, saying the latest updates to Cut to Clamp are designed to help producers make the most of these type of benefits.

He says: "Cut to Clamp was launched last year to help producers make consistently better silage.

"Since then, it has become apparent more people are going down the multi-cut route, so we have developed some updates for those preferring this approach."

> "THE AVERAGE DAIRY FARM COULD IMPROVE INCOME BY THOUSANDS OF POUNDS BY MAKING BETTER SILAGE
>
> **Dr David Davies**

1. CUTTING

ONE of the first points to watch if cutting more frequently is to adjust fertiliser policy accordingly, says Dr Davies, whether using bagged fertiliser or slurry.

He says: "If cutting at four- to five-week intervals, regrowth will require less nitrogen fertiliser than if cutting every six or so weeks. Also, slurry should be injected or applied with a trailing shoe. It should not be surface spread."

Another point when it comes to earlier cutting is to ensure your contractor is available, says Mr Jones: "You may be cutting in April rather than mid-May.

"Clearly, if you are taking first-cut earlier, the weather can be wetter, so you need to bear this in mind, although the lower bulk should make wilting easier."

2. WILTING

JUST as with conventional silage, the aim with multi-cut silage should still be to wilt as quickly as possible to a target 28-32% dry matter, say Mr Jones and Dr Davies, ideally cutting in the morning and wilting rapidly so grass can be picked up in the afternoon.

However, because the yield of individual cuts is likely to be lower with more frequent cutting, wilting times can be much shorter, they say.

Dr Davies says: "Because you can wilt quicker, there is less loss in the field from continued respiration of grass. The longer you wilt, the more sugar you lose."

3. HARVESTING

ALTHOUGH high D-value grass from earlier cutting is beneficial, its lower fibre content can make it more prone to slipping in the clamp, says Dr Davies. In response, he says chop length when harvesting may need lengthening compared with more fibrous grass.

Dr Davies says: "If you have a 75 D-value silage at 30% DM, maybe look at a 5cm chop length. Firstly to help hold it in the clamp, but also to help it stay in the rumen a bit longer to get better value from it."

4. TREATING

THERE is an added argument with a multi-cut system that you need a good additive because sugar levels will be lower, says Dr Davies, since sugars accumulate during plant growth.

He says: "Protein will be higher because the plant has assimilated nitrogen into protein, but it has not grown as much, so the protein has not been diluted.

"Higher protein increases buffering, so you need to get the pH down quickly. If you do not have a good silage additive, protein breaks down and you need more acid to counteract this."

Mr Jones agrees, and says without an efficient fermentation to convert sugars into beneficial acid to 'pickle', and therefore preserve the silage, some of its higher nutrient content risks being lost.

He says: "You need a proven additive capable of delivering highly efficient homo-fermentative bacteria. This is what Ecosyl has been developed to do."

5. CLAMPING

DR Davies and Mr Jones agree that a useful practical benefit of cutting grass while it is younger and contains less stem material is easier consolidation in the clamp.

Dr Davies says: "The best equipment for moving silage into the clamp is a push-off buckrake. As you drive up the clamp, it maintains an even layer, making it easier to consistently achieve the correct 15cm layer depth for filling.

"With a consolidator, it can be a single-pass job because grass should contain less stem material. It can also speed up filling of the clamp and help you keep pace with the contractor bringing silage loads."

Multi-cut: Example watch points

- Ensure you do not over-wilt lighter cuts
- Protein could be higher
- Sugar could be lower
- Stronger case for additive to improve fermentation
- May need to feed supplementary fibre
- May need longer chop to avoid clamp slippage

6. FEEDING

ONE of the key points with multi-cut at feeding, says Dr Davies, is to be mindful of the extra protein it can deliver. Also, there is a slight risk there could be higher nitrate content in silage because it is cut sooner.

Dr Davies says: "Protein may be higher than you think. If you feed excess protein, it is shipped out of the animal in urea, which takes energy, and fertility can drop.

"High nitrates in silage and, therefore, in the cow, could be exacerbated if feeding urea-treated cereal."

In response, Dr Davies advises having a wet silage analysis conducted, so protein levels in the ration can be accurately balanced.

Also, although less stem material can help with consolidation, it can mean extra fibre has to be added to the ration with multi-cut silage, says Mr Jones, but fibre is relatively cheap.

For more information on Volac's Cut to Clamp initiative, visit **www.cuttoclamp.com**

Cut to Clamp
A Volac initiative

New initiative aims for maximum silage nutrients for milk

Continuing our exploration of Volac's new Cut to Clamp initiative, which is aimed at helping producers insulate businesses against milk and feed price volatility by making consistently better silage, we examine the last three steps.

The first three steps of Cut to Clamp – cutting, wilting and harvesting – are all about capturing maximum feed value from grass and preparing it for conservation, says Volac silage microbiologist Philip Jones.

The next three steps – treating, clamping and feeding – are all about ensuring you preserve as much feed value as possible, so it is available for cows in the final ration.

Mr Jones says: "By doing this, you are ensuring you get the best possible return on the huge asset of your home-produced grass and hopefully reduce requirements for bought-in feed."

Independent silage consultant Dr David Davies agrees. He says: "By making high quality silage, more of the animal's nutrient requirements will be fulfilled from silage.

"This will reduce costs of milk production, reduce concentrate input and maintain a healthier rumen, therefore reducing metabolic disease. All in all, it makes profitable milk production far more likely."

4. TREATING

IF you are aiming for high quality silage, there is no question that using a silage additive can help significantly, says Dr Davies.

He says: "Do not think of a silage additive as solving all your management issues. It is there to improve fermentation and quality, but you still need to do your bit.

"There are lots of additives in the industry, so seek independent advice and ask for independent trial results to highlight animal performance benefits. You want to spend on an additive which will improve animal performance."

Philip Jones echoes this. He says: "By applying a proven additive at this stage, you are putting yourself in greater control of the fermentation process.

"To improve fermentation, you want to ensure maximum numbers of beneficial bacteria are present, such as Lactobacillus plantarum, which produce mainly lactic acid from the crop's sugar, so the pH drops rapidly to inhibit growth of undesirable bacteria and moulds.

"Although fresh grass will contain some beneficial bacteria, they tend to be in low numbers and are not the best types for achieving a fast, efficient fermentation.

Beneficial bacteria

"A good inoculant should provide bacterial strains specially selected to be highly efficient at fermentation and can supply as many as one million beneficial bacteria per gram of forage treated when used correctly.

"However, do not just think of a silage additive as preserving forage. While the proven silage additive strain of Lactobacillus plantarum MTD/1 has been shown to preserve dry matter, it also goes much further than that.

"There are trials which show treating with MTD/1 also improves silage metabolisable energy, digestibility, animal dry matter intake and, most importantly, leads to higher milk yield. Across a range of forages, milk yield was improved by an average 1.2 litres/cow/day."

THE IDEAL FERMENTATION PROCESS

Sugars in grass → Converted by beneficial bacteria in air-free conditions → Lactic acid

Brings about a fast, efficient fermentation with minimum dry matter losses, inhibiting undesirable bugs which could spoil the fermentation

5. CLAMPING

THERE are many actions which can improve silage quality in the clamp and at feedout, both experts agree. Mr Jones says: "Begin with a clean clamp and repair any cracks."

Additionally, Dr Davies highlights one of the biggest issues as being silage density. He says: "We are not consolidating enough because trailers are arriving at the clamp too quickly.

"If you trap too much air in the clamp when you ensile grass, you reduce fermentation quality and increase aerobic instability problems at feedout.

"You can only efficiently consolidate the top 15cm. You want to load silage into the clamp in even layers no more than 15cm deep, compact the layer and repeat. I know it is a challenge, but then rolling only once is often enough to achieve a target density of 250kg of DM/cu.metre."

For machinery, Dr Davies advocates consolidation with a compacter rather than a tractor.

He says: "With a full width compacter, you are rolling the whole width of the tractor, not just individual wheel widths.

"Another thing we often see is clamp overfill. As soon as we fill above the walls, silage density drops by 10%. If you go over the top of the walls, you should consider putting that silage into bales."

Mr Jones says farmers should pay particular attention to consolidating clamp edges, which are more difficult to compress.

Once fully consolidated, it is essential the clamp is sealed properly to prevent oxygen ingress during storage, he says.

Dr Davies adds: "For this, I view side sheets as essential. Ideally, use oxygen barrier film for the top and the walls, with a minimum overlap of preferably 1.5m. This will give you a much better seal than standard sheets, although you will still need a standard sheet over the top of the film. Finish off with plenty of weight to maximise the density of the vulnerable top area."

Dr Davies says another key area to get right is the ramp: "Too many farmers cut the silage sheet too short. We should ensure at least 500mm of extra silage sheet at the front with gravel bags all around the edge to seal carbon dioxide in.

"If we allow carbon dioxide to fall out of the clamp, we create a vacuum, which sucks oxygen in.

"Ideally, every grass silage clamp should be sealed for a minimum of two months. During those two months, you reduce the yeast population which initiates aerobic spoilage and heating at feedout."

6. FEEDING

WHEN it comes to feedout, cleanliness is everything, Mr Jones and Dr Davies say.

Dr Davies says: "I like to see a clamp you could eat your dinner off the floor in front of. In particular, mouldy silage in front leads to mould spores contaminating the exposed face, increasing the rate of aerobic spoilage.

"Spoiled silage, whether due to a poor fermentation or aerobic spoilage, will upset rumen fermentation. Do everything you can to avoid producing it. If you have it, discard it.

"Too much of it ends up getting mixed in with the good silage and has a disproportionately large negative effect."

To take silage out of the clamp, Mr Jones urges the use of a shear grab. He says: "This maintains a tidy, tight clamp face, which reduces air ingress, reducing risk of aerobic spoilage causing loss of nutrients, reduced palatability and potentially production of mycotoxins.

"For the same reasons, move across the face quickly to reduce the time silage is exposed, avoid pulling or cutting the top sheet back too far once the clamp is opened and keep the front edge of it weighted down.

"It is important to avoid pulling the sheet down over the clamp face itself during feedout. This is because it creates a microclimate, which encourages yeasts and moulds, increasing risk of spoilage and heating.

"Remember to scrutinise your silage analysis. It will tell you how good a job you did last season and help pinpoint ways this year's silage production can be improved."

Six-point plan

1. CUTTING

2. WILTING

3. HARVESTING

4. TREATING

5. CLAMPING

6. FEEDING

Would you like to know more about how Cut to Clamp could help you? Visit **www.cuttoclamp.com**

On-farm consulta tions offer a route to better silage

With interest in more milk from forage, Volac is offering free consultations to help improve silage-making under its Cut to Clamp initiative.

Aimed at helping producers get more milk from silage, animal nutrition and forage preservation company Volac is offering a number of free consultations to help farmers produce consistently better silage.

Darran Ward, one of Volac's nationwide experts conducting the consultations, says: "There is a huge amount to be gained from making better silage.

Cow health

"Benefits can include spending less on bought-in feeds, improvements in cow health from a more forage-based diet, and the satisfaction of making your business more self-sufficient by feeding more of what you grow.

"The consultations provide practical pointers to improve silage quantity or quality at various stages of the silaging process, including cutting, wilting, treating, harvesting, clamping and even feeding."

In essence, Mr Ward says consultations involve three steps.

1. Silage sample analysed and results interpreted
2. Visual inspection of the clamp
3. Detailed understanding of the silage-making process

He says: "By combining all three elements, a comprehensive picture is built up to unearth areas for improvement."

> "THE CONSULTATIONS PROVIDE PRACTICAL POINTERS FOR IMPROVING SILAGE
> **Darran Ward**

Improvements

BY conducting the consultation, Mr Ward says it is possible to pinpoint areas for improvement for making next season's silage, but it can also provide tips to get more from silage already in the clamp.

He says: "The more milk produced from silage and forage, the better."

1. SILAGE ANALYSIS INTERPRETATION

ALTHOUGH farmers are used to seeing silage analyses, the Cut to Clamp consultation goes further by simplifying results into a summary in two key areas, says Mr Ward.

- Nutrient quality: For a picture of what the animal can take from the silage nutritionally, based on factors such as digestibility, energy content, sugar and crude protein.
- Keeping quality: For a picture of the efficiency of the preservation, based on factors such as fermentation quality and ammonia production, and others.

Nutrient quality

Mr Ward says: "If the silage scored low for digestibility, we would ask about quality of grass to begin with.

"Is more regular reseeding needed? We would look at cutting date, because after heading, digestibility of grass falls by about 0.5%/day.

"Similarly, protein content of grass will decline as the season progresses, giving an indication of plant maturity when cut. Additionally, a breakdown product of protein, ammonia, gives a useful measure of keeping quality."

Keeping quality

Explaining this, Mr Ward says a high ammonia content is an indicator of a poor fermentation, because protein has not been fully preserved.

"We want a high sugar content, as low sugar can be an indicator of a poor fermentation by the wrong type of bacteria. These produce the wrong acids, as well as carbon dioxide, from sugar, which wastes energy.

"We want to produce lactic acid to 'pickle' grass into silage. This uses less sugar and is more efficient. So, as well as pH, we look at proportions of lactic acid to less desirable acids, such as acetic, propionic or butyric.

"Good silage would have five times as much lactic acid as other acids. A bad-scoring silage could have a ratio as low as 1:1."

2. CLAMP INSPECTION

AS well as silage analysis, a lot is gleaned by inspecting the clamp, Mr Ward says.

Tidiness/temperature

"We look at how uniform and tidy silage is in the clamp. An untidy silage face increases chance of air penetrating, resulting in wastage from aerobic spoilage, characterised by heating. We check the temperature at several points with a probe.

"How tidy is the floor? It should be clean right up to the edge of silage to avoid contaminating the face with old silage."

Colour, texture and smell

Visually, Mr Ward says colour will be checked, with olive green an indicator of good grass silage, while brown could mean a poor fermentation.

"We look at the amount of stem and leaf. You want mainly leaf, as stems are less digestible. Excess stem can mean cutting date was too late. You don't want it to smell like vinegar or sickly sweet, but have a nice, clean smell."

Consolidation

To assess consolidation, Mr Ward says straight horizontal lines showing in the layers of silage are a good sign. Wavy lines indicate uneven consolidation.

"The degree of difficulty pushing the temperature probe into the silage also indicates how well it has been consolidated, while the shoulders, which are harder to consolidate, will be visually checked."

Sheeting and sealing

Mr Ward says: "We check whether side sheets have been used, and check how many layers are on the top.

"Many farmers think they do not need side sheets in a concrete clamp, but porous concrete is not as good as plastic for keeping air out.

"Ideally, we would look for an oxygen barrier film on top, with side sheets overlapping as far as possible over the top, then at least one black plastic sheet on top, and the whole thing properly weighted.

"It is important sheets are rolled back from the clamp face once opened to divert rain water from the top of the clamp from penetrating into the face."

3. SILAGE PRODUCTION ASSESSMENT

THE final piece of the jigsaw is to discuss with the farmer how silage is currently produced.

Cutting

Mr Ward says: "Starting with cutting, we review cutting date and height to see if there is anything out of order, and whether a mower-conditioner has been used to help speed up wilting.

"This is because the faster you wilt to the target 28-32% dry matter, the less sugar is used up by the plant continuing to respire."

Wilting

He says: "We review the full wilting process. For example, has a tedder been used? Most moisture is lost through pores in grass leaves, the stomata, which can lose up to 100 litres of water per tonne per hour. But they only stay open for two hours after cutting. Tedding within two hours of cutting gives better quality."

Harvesting

Mr Ward says: "You need to use the right chop length for the stage of cutting and your target percentage DM, so you get the best consolidation in the clamp.

"We consider harvest machinery: was it a rapid forage harvester, or a slower trailed harvester or forage wagon? All these affect how long it takes to get the crop in the clamp."

Treating

Mr Ward says he examines whether the right type of additive has been used: "Some people using a silage additive can suffer heat and mould in silage, but have applied a fermentation-only additive with no effect on aerobic stability. Ensure you use the right product for the correct outcome.

"Often, an additive is used as a type of insurance. But think of it more as proactively managing the preservation process."

Clamping

"We check whether the clamp was filled in thin layers to aid consolidation, and was it rapidly sheeted?"

Feeding

"We look at how silage is fed. For example, are you using a shear grab? Do you roll the top sheet back, rather than leave it hanging? The latter encourages spoilage from yeast and moulds."

For more information on Volac's Cut to Clamp initiative, visit **www.cuttoclamp.com**

Cut to Clamp

A Volac initiative

The Ecosyl range of silage additives

Developed over a period of 30 years, the range is based on the high performance *Lactobacillus plantarum* strain MTD/1.

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