



# *Why use a silage additive?*



**ECOSYL™**

For consistently better silage

**volac** 

Animal Nutrition



## Benefits of making good grass silage

- ✓ *Highly cost-effective feed*
- ✓ *Allows more of the animal's feed requirements to come from the farm*
- ✓ *Provides a foundation for more milk (or meat) from forage*
- ✓ *Makes efficient use of farm assets (land and slurry)*
- ✓ *Better silage makes better use of investment in fertiliser*
- ✓ *Highly sustainable and traceable*
- ✓ *Less wastage (versus poor silage)*

### Take control of the fermentation

While other steps in silage-making are relatively controllable, such as chop length, compaction and sheeting, you have no control over the bacteria present on the crop - good ones or bad ones - which will drive the fermentation.

This means the preservation of this valuable feed – and therefore its quantity and quality – is left much more open to chance.

***Taking a few moments to understand fermentation, and how to take back control of it using 'friendly bacteria', can pay dividends.***

#### **Good Fermentation** (High ratio of Lactic acid)

Faster pH fall  
Less protein breakdown  
Lower DM losses  
More palatable silage



#### **Poor Fermentation** (Low ratio of Lactic acid)

Slower pH fall  
More protein breakdown  
Higher DM losses  
Less palatable silage



**“There is a huge amount of scientific proof showing the logical sequence of benefits from using Ecosyl – from application right through to improved animal performance.”**

*Dr Mark Leggett, Volac silage scientist*

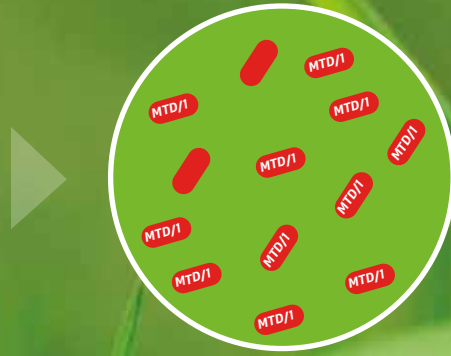
# The importance of fermentation

Key to producing good grass silage is a good fermentation. Fermentation is simply a form of pickling. In a good fermentation, desirable bacteria produce only lactic acid, which is highly efficient at preserving ('pickling') silage against losses in dry matter and quality.

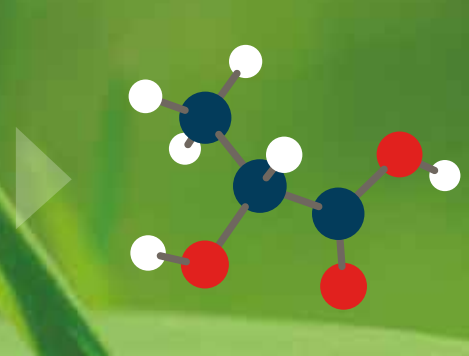
## Efficient fermentation with Ecosyl (homofermentative)



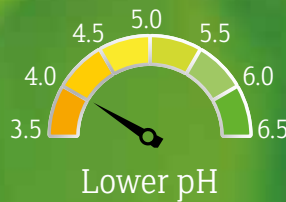
Natural plant sugars



Ecosyl's *Lactobacillus plantarum*  
MTD/1 dominates



Lactic acid  
(strongest acid)

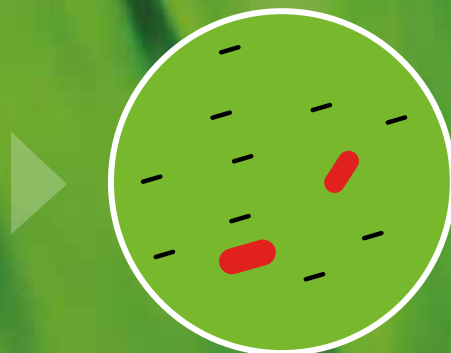


## Untreated fermentation (heterofermentative)

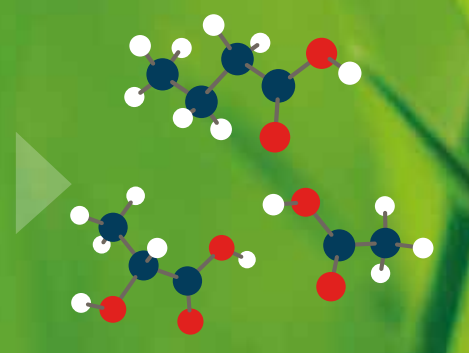
If a poor fermentation occurs due to bad bacteria, weaker acids which are less effective at preservation are produced, as well as other compounds, some of which reduce silage palatability.



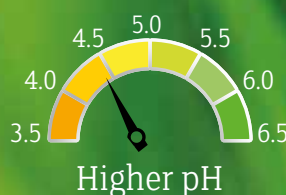
Natural plant sugars



Bacteria already on the plant,  
including low numbers of less than  
ideal types of Lactic Acid Bacteria



Acetic acid (weak acid), Ethanol  
(not an acid), CO<sub>2</sub> (lost as gas),  
Butyric acid, Lactic acid



# Better silage in 6 simple steps:



## **Cutting**

Timing is key. Aim for optimum balance of yield and quality



## **Wilting**

A rapid wilt will maximise silage quality, minimise fermentation losses and improve animal performance



## **Harvesting**

The correct chop length is crucial as it affects clamp consolidation as well as animal performance & health



## **Treating**

Applying a proven silage additive such as Ecosyl is quick and easy to do and will pay dividends later in improved silage quality and reduced DM losses



## **Clamping**

Good consolidation and effective sealing to minimise exposure to air are key



## **Feeding**

Good clamp management is vital to reduce aerobic spoilage and DM losses

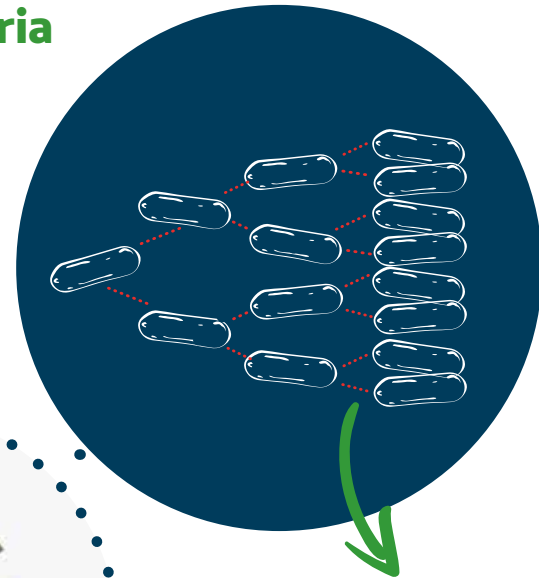
# Preserve your silage with Ecosyl – the proof

1

**Ecosyl contains the MTD/1 bacteria** for greater control over how well your silage turns out



**1 gram**  
of chopped grass



**Ecosyl applies 1 million of the MTD/1 bacteria per gram of forage helping to drive an efficient fermentation**

Using Ecosyl 100 puts you in the driving seat of silage preservation. It applies 1 million (1,000,000) beneficial *Lactobacillus plantarum* strain MTD/1 to each gram of forage treated\*.

The MTD/1 strain was specially selected as a highly efficient fermenter, capable of working in multiple crops over a wide range of conditions.. A special manufacturing process also ensures MTD/1 bacteria are produced in peak condition, so they are able to start working straightaway.

*\* when applied correctly.*

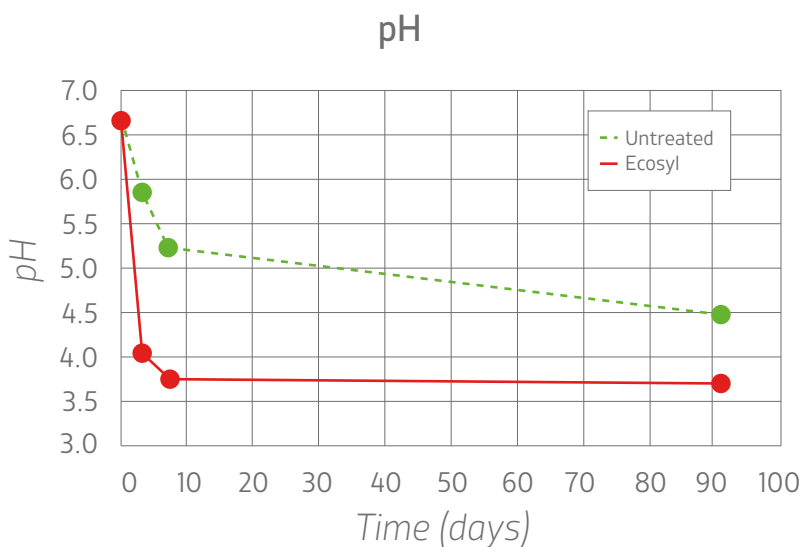
# 2

## More efficient fermentation

Efficient fermentation with Ecosyl results in rapid production of lactic acid to quickly inhibit undesirable bacteria

### Why is lactic acid so important?

The MTD/1 bacteria in Ecosyl ferment plant sugars to only lactic acid. As well as being highly effective at conserving silage, lactic acid retains more than 99% of the energy contained in the original fermented sugar. This compares with fermentations by undesirable bacteria such as enterobacteria where more than 16% of the energy in the fermented sugar is lost.

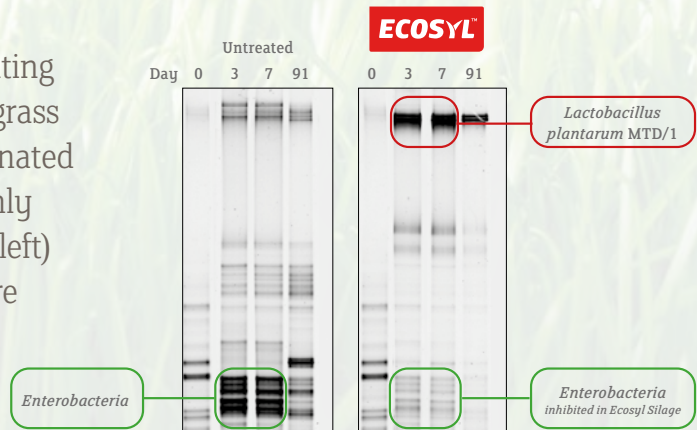


**Research shows a much faster production of beneficial lactic acid (and lowering of the pH) in the early stages of ensiling when using Ecosyl. This is an important timescale for stopping bad bacteria from becoming established in silage.**

### This is no idle claim...

Scientific research using DNA fingerprinting (a technique used in forensics) showed grass silage without an additive became dominated by undesirable enterobacteria (commonly found in slurry) within days of ensiling (left) – compared with Ecosyl treatment where enterobacteria numbers were up to 100,000 times lower (right).

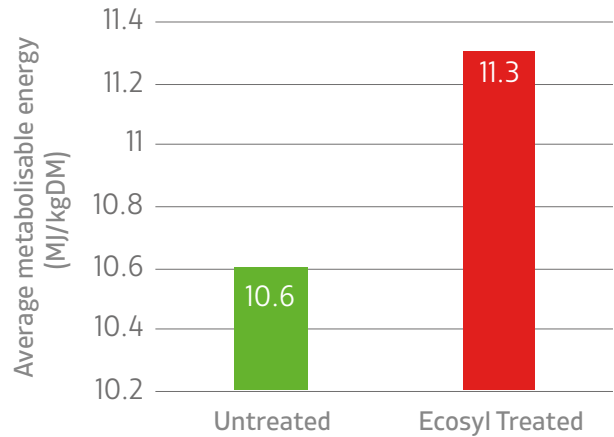
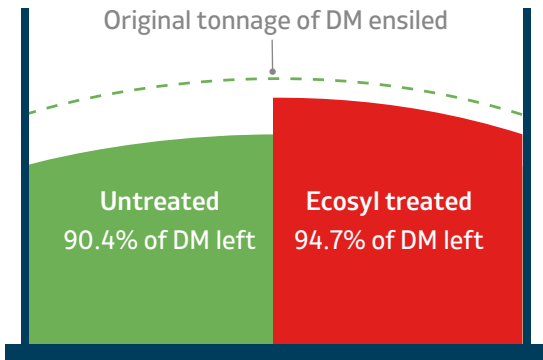
Horizontal bands represent DNA of different bacteria. Darker bands indicate more of that bacteria present.



# 3

## Reduced silage losses

With undesirable bacteria inhibited, this reduces the amount of dry matter (DM) and nutrients they can consume



In trial work on grass ensiled at different %DMs, Ecosyl roughly halved DM losses (average of 94.7% of the original DM ensiled retained versus only 90.4% in the untreated).

Based on a 1,000 tonne clamp ensiled at 30% DM (i.e. 300t of DM ensiled) this equates to having 13t more DM available to feed with Ecosyl (284t versus 271t).

Undesirable bacteria don't just feed on the least nutritious parts of the DM. They consume the most nutritious parts – the sugars and proteins. So the DM that remains in untreated silage is lower in feed value.

By reducing bad bacteria, and therefore the nutrients they consume, Ecosyl has been shown to deliver silage higher in metabolisable energy and higher in true protein.



### Calculated overall ME benefit from using Ecosyl in a 1,000 tonne clamp ensiled at 30% DM

More tonnes of a more nutritious silage available to feed

	Untreated	Treated
Dry matter (tonnes)	271	284
Energy (MJ/kg DM)	10.6	11.3
Total energy (MJ)	2,872,600	3,209,200

A difference of 336,600 MJ

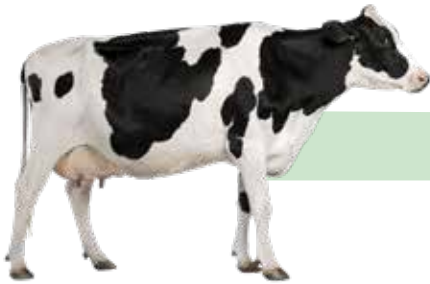
# 4

## Improved animal performance

By conserving a more nutritious silage, with fewer nutrients 'lost', Ecosyl is able to deliver improved animal performance

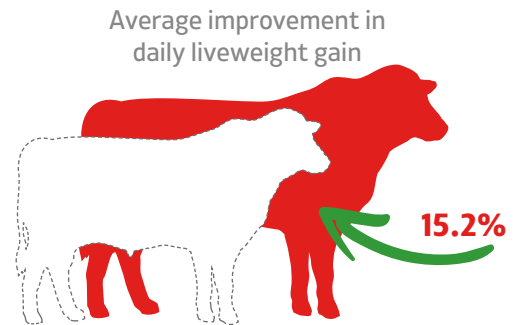
### Improved milk yield from silage in dairy

In 15 independent dairy trials, cows fed a range of silages conserved with Ecosyl yielded an average of an additional 1.2 litres of milk per cow per day compared with feeding untreated silage.



### Improved liveweight gain in beef

In beef trials, grass silage made with Ecosyl resulted in an average improvement in daily liveweight gain in growing cattle of 15.2%.



Growing Cattle (5 trials)		
Silage DM Intake (kg/d)	Liveweight Gain (kg/d)	Feed:Gain
+5.5%	+15.2%	<b>-11.3%</b>
Fattening Cattle (9 trials)		
Silage DM Intake (kg/d)	Carcass Gain (kg/d)	Feed:Gain
+3.7%	+9.1%	<b>-6.6%</b>



## Summary of benefits of Ecosyl treatment based on research

### **Improved fermentation\***

Faster production of beneficial lactic acid in clamp (rapidly 'pickling' the forage against undesirable bacteria that otherwise 'feed' on it)

### **Improved silage quantity\***

Dry matter loss halved in trials

### **Improved silage feed value\***

Improved true protein preservation, improved digestibility, improved ME

### **More silage available to feed**

### **Improved animal performance\***

1.2 litres/cow/day extra milk yield and improved liveweight gain in beef

\* Compared with no additive used

## What about multi-cut?

While cutting grass younger and more often in a multi-cut system offers multiple benefits – including higher ME and protein content and potentially a higher overall DM yield over the season – the higher protein content of younger grass can contribute to buffering of the fermentation. Also, shorter intervals between cuts mean less time for slurry bacteria to decline. High buffering and the action of slurry bacteria can lead to DM and nutrient losses.

In research without an additive, multi-cut suffered twice the DM loss as when ensiled with Ecosyl, which reduced DM losses on all four cuts. Results also indicated better protein preservation with Ecosyl and reduced number of enterobacteria.

### **Features**

- Ecosyl 100 is available for a liquid or dry application
- One bottle/bag treats 100t of forage
- Versatile liquid application:
  - Any applicator – standard to ULV
  - Apply from 20 ml/t to 2 l/t
- Tank mix life: 48 hours. The ULV tank mix can also be stored for up to 10 days in a fridge
- Dry application at 200 g/t
- Shelf life (unopened): 24 months in a cool, dry place.
- Easy mixing and versatile use
- GMO free and suitable for organic use

**MTD/1™**

