

 **Agri • Lloyd**

THE SECRET'S IN THE SCIENCE®

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# HM INOCULANT®

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**ALL CROP BACTERIAL  
SILAGE INOCULANT**



# THE SILAGE MAKING PROCESS

AN EFFICIENT FERMENTATION PROCESS IS ESSENTIAL

Silage making is a complex process involving many different criteria which, if managed correctly, results in high quality and well fermented silage.

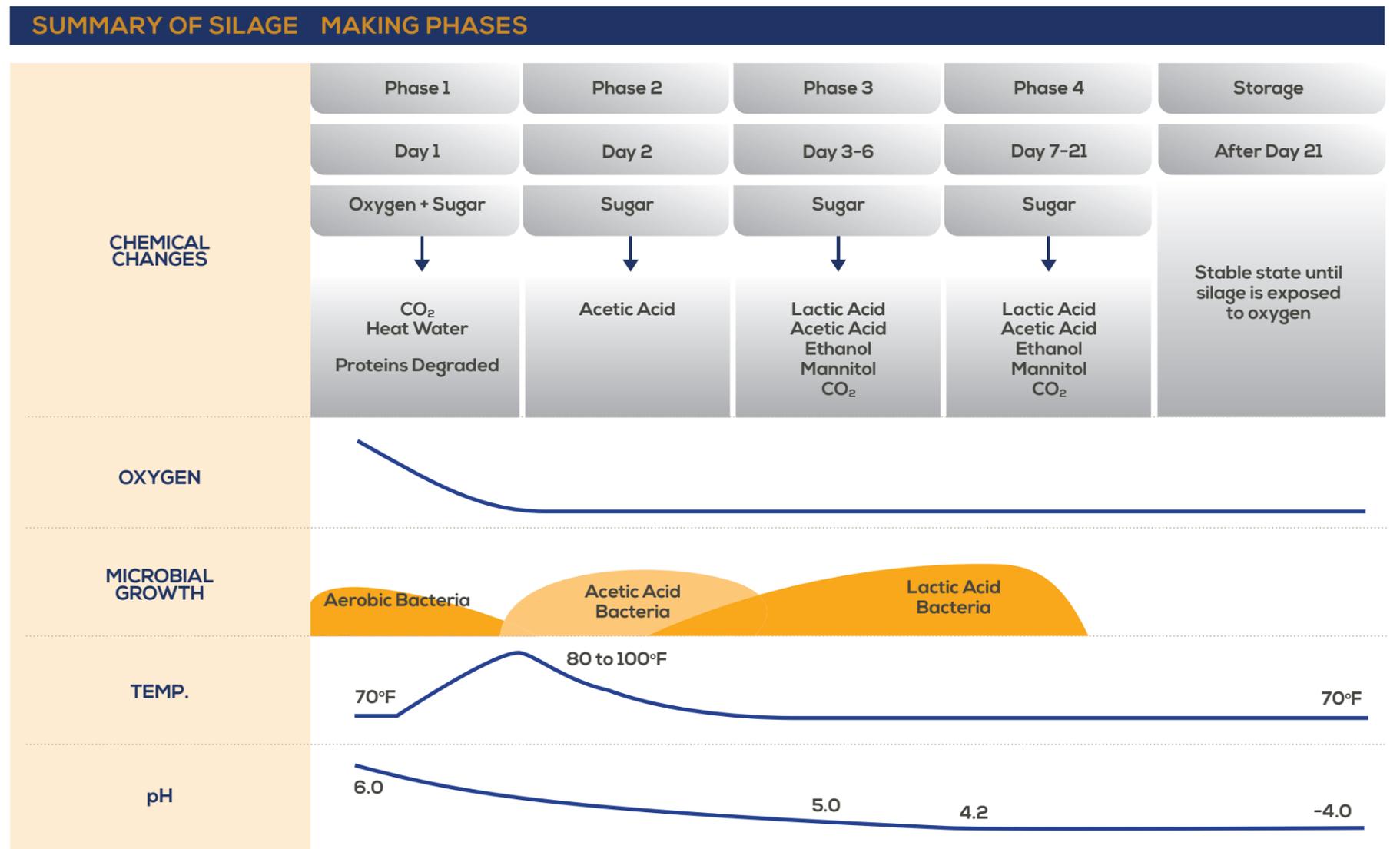
Care must be taken to ensure the grass entering the silage clamp is of the highest quality. This silage making process requires:

- Oxygen Elimination
- Heat
- Moisture
- Sugar
- Bacteria

No matter how good the fermentation process, the quality of the silage can be no better than the quality of the grass from which it is made.

## THERE ARE TWO MAIN OBJECTIVES WHEN PRESERVING AND MAINTAINING THE CROPS GROWN FOR SILAGE

- 1 A RAPID DROP IN THE pH OF THE CROP
- 2 AEROBIC STABILITY FOR PROLONGED CLAMP LONGEVITY



# WHAT CAN GO WRONG IN THE SILAGE MAKING PROCESS?

SILAGE QUALITY LOSSES ARE ECONOMIC LOSSES

Low sugar levels, high nitrate levels, over wilting and poor clamp management are some of the main and commonly found factors contributing to poor quality and unpalatable silage.

## WHAT CAN GO WRONG

PROBLEM	CAUSE
■ Rancid, fishy odour, slimy sticky texture	High butyric acid levels due to soil contamination, high manure levels, low dry matter crop under 30%
■ Mouldy silage with musty odour	Presence of oxygen, poor clamp filling and sealing, high dry matter above 50% or poor feedout management
■ Smell of vinegar	Acetic acid fermentation due to high levels of air reaching silage
■ Sweet smelling silage	High levels of ethanol produced by moulds
■ Ammonia odour	Due to excessive protein breakdown, clostridial fermentation and high pH levels
■ Smells burnt or tobacco	Due to excessive heating which is caused by secondary fermentation, also excessive wilting



# MEASURING SILAGE NUTRITIONAL VALUE THROUGH FORAGE AUDITS

**DETAILED FORAGE ANALYSIS REPORT WITHIN 48 HOURS**



Agri-Lloyd provide industry leading forage audit services as part of our science based approach to rumen health and nutrition.

In 2012 Agri-Lloyd invested in a state of the art Forage Analytical Assurance Group (FAA) approved laboratory, which enables us to deliver detailed forage analysis reports.

The analysis is conducted by our in-house Research and Development team and a full written report is provided with a 48 hours turn around time, setting the standard for the industry.

## FORAGE AUDIT SERVICES



### SILAGE

Includes grass silage, big bale, maize and wholecrop

### ANALYSIS

1. Dietary component (NIRS)
2. Minerals (ICP-OES)



### FRESH GRASS FOR GRAZING

### ANALYSIS

1. Dietary component (NIRS)
2. Minerals (ICP-OES)



### FRESH GRASS PRE-CUT

### ANALYSIS

1. Dietary component (NIRS)
2. Minerals (ICP-OES)



# HOW DOES HM INOCULANT® SUPPORT THE SILAGE MAKING PROCESS?

CONTROL OF THE FERMENTATION PROCESS IS KEY

HM Inoculant® supplies a concentrated and complex mix of three specifically selected strains of lactic acid producing bacteria that function at different pH levels within the silage making process to give a more rapid and efficient fermentation process.

Lactic acid is a strong but safe acid which lowers the pH in the clamp creating a pickling effect.

Well preserved crops will have a lactic acid level of 80-100g/kg Dry Matter where as poorly fermented crops will have as little as 50g/kg.

HM Inoculant® induces a rapid and cool fermentation which reduces loss of energy components in the forage.

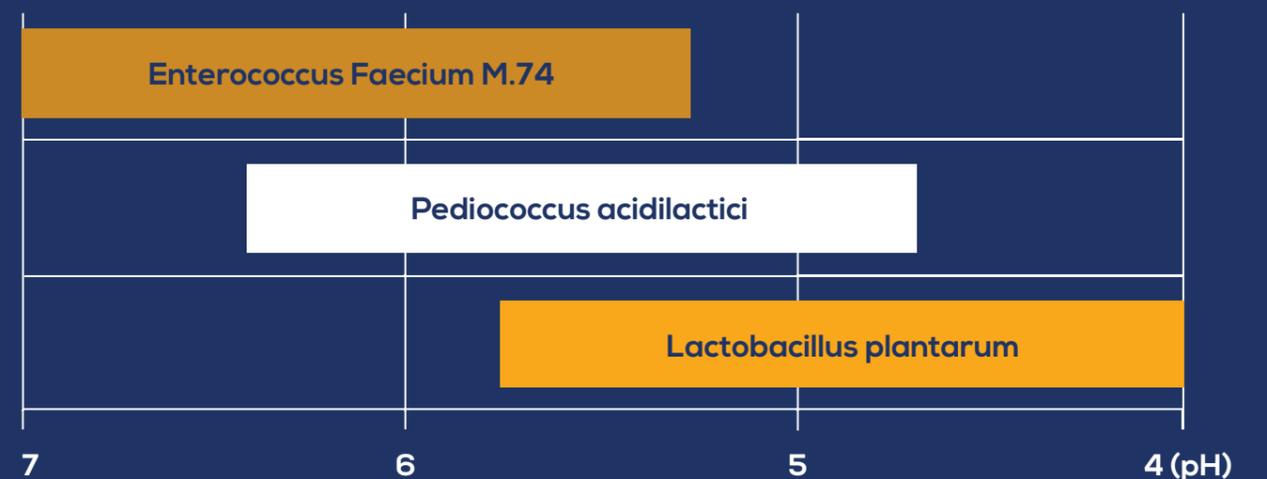
This not only reduces silage losses but HM Inoculant® treatment also preserves energy and digestibility of the forage.



## THE MAJOR BENEFITS OF HM INOCULANT®

- Reduced Dry Matter losses
- Improved animal performance and feed efficiency
- Rapid pH drop
- Improved D Value
- Pathogen suppression
- Improved fermentation characteristics
- Higher intakes and palatability
- Less secondary fermentation
- Improved utilisation of soluble sugars

## HM INOCULANT'S® UNIQUE FORMULATION



Three bacteria strains provide activity over a wider range pH.

# THE SCIENCE BEHIND HM INOCULANT®

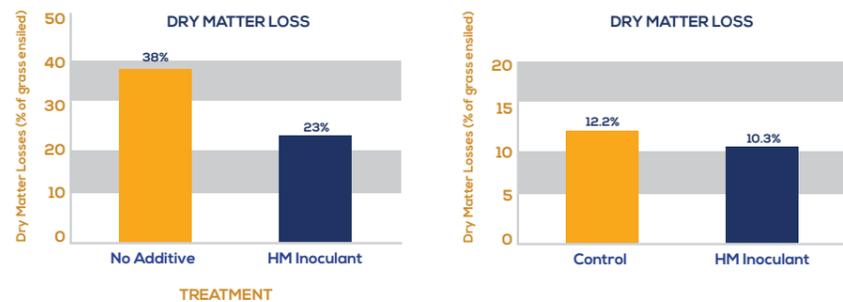
HM INOCULANT®  
- A PROVEN PERFORMER

With 40 years of evolving technology HM Inoculant® has been tried and tested by global institutions around the world.

Over 30 independent trials have been carried out which show consistent improvements in silage quality and animal performance.

You can find a selection of trials in this section. A more detailed understanding of our trials can be found on our website.

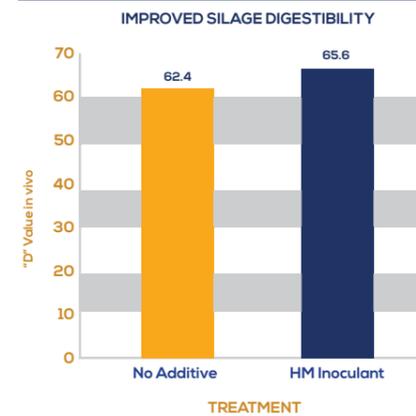
fig 1. REDUCED DRY MATTER LOSSES



Source: KINGSHAY Farming Trust

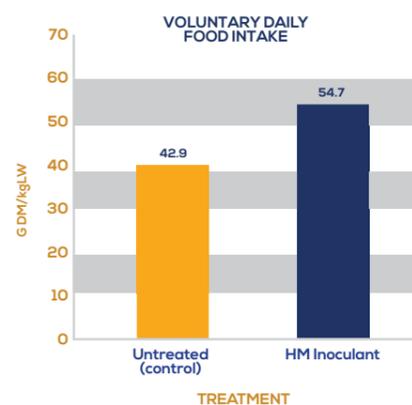
Source: JD Lloyd, IGER

fig 2. IMPROVED D VALUE



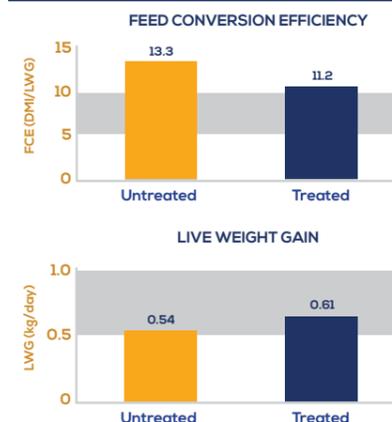
Source: University of Newcastle Department of Agricultural Biology and Nutrition

fig 3. HIGHER INTAKES AND PALATABILITY



Source: University of Newcastle Department of Agricultural Biology and Nutrition

fig 4. IMPROVED PERFORMANCE AND FEED EFFICIENCY



Source: North of Scotland College of Agriculture - Aberdeen

fig 5. PATHOGEN SUPPRESSION

	CONTROL (NO ADDITIVE) RANGE OF 3 SAMPLES	HM INOCULANT® RANGE OF 4 SAMPLES
FINAL pH	4.44 - 4.65	4.20 - 4.27
CLOSTRIDIA C10 <sup>4</sup> /g	0.43 - 1100	0.004 - 0.75
COLIFORM/g	6,500 - 48,000	Less than 10
BUTYRIC ACID M.MOLE/Kg	28.5 - 97.3	Nil
LACTIC ACID g/Kg DRY MATTER	77 - 136	84 - 160

Source: Spoelstra, Lelystad Institute (Holland)

fig 6. RAPID pH DROP



Source: North of Scotland College of Agriculture



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