

## 411.01

## WHY USE AN ADDITIVE?

### Introduction

The role of a silage additive is to promote a rapid and stable fermentation to preserve as much of the dry matter and nutritional quality of the ensiled crop as possible. There are a wide range of products available, all with a financial cost. This factsheet will help you decide if you should invest in an additive and how to choose one that's right for your crop on your farm.

To get the full benefit of using an additive, it is vital to pay attention to detail to all aspects of silage making from cutting date to bale and clamp management and feeding out.

### Do I need an additive?

The aim is to improve silage quality to increase liveweight gain or milk production

However, consider the following -

- Is the gain worth more than the cost of using the additive?
- Is the silage for finishing cattle or dairy cows or for sucklers or stores?

It's important that silage quality is appropriate for the class of livestock.

Compare the cost of another forage or feed; an additive costing £1/tonne to apply to 1500 tonnes of grass could buy 16 tonnes of treated wheat at £95/ tonne

### Why use an additive?

- To reduce heating and aerobic spoilage after opening the clamp e.g. maize silage at risk from moulding and producing toxins which depress intake – particularly important for dry silages.
- To reduce effluent – specific additives are available.
- To make good silage better e.g. inoculants help keep more of the soluble proteins and sugars available to the animal by ensuring rapid and effective fermentation
- Inoculants increase protein availability to ruminant microbes by reducing protein breakdown.
- Inoculants can increase forage digestibility.
- Improves fermentation quality when silage making conditions are poor with possible low sugars, low dry matters, high nitrogens and low levels of natural bacteria an additive is essential
- Don't think of additive use as an insurance policy against poor silage making! Ensure the crop is as good as it can be, before it goes into the clamp or bale - the right DM (wilted 18-24h), the right D value (high sugars); and that it is ensiled correctly.

### How to choose an additive?

- Look at independent research on similar crops to your own.
- Use an additive that meets the Forage Additives Approval Scheme (FAAS) category relevant to your crop.
- Check the farming press for forage additive updates regularly there will shortly be an EU evaluation scheme available for all additives.

## Additive types

<i>Inoculants</i>	: Bacteria
<i>Acids and salts</i>	: Formic acid
<i>Absorbants</i>	: Sugar Beet Pulp
<i>Sugars</i>	: Molasses
<i>Enzymes</i>	: Cellulose/amylase

Use those approved by the *Forage Additive Approval Scheme UKASTA* based on results of animal and silo trials.

A product can be approved for one or all categories:

- improving fermentation
  - maintaining aerobic stability
  - reducing effluent
  - reducing ensiling losses
  - improving voluntary intakes
  - improving digestibility
  - increasing energy use efficiency
  - more liveweight gain and milk production
- *Formic acid* reduces pH and can improve digestibility, intake and cattle performance.
  - *Sugar beet pulp* can help retain effluent.
  - *Molasses* supply additional sugars to naturally occurring bacteria in the silage but gives a lower fermentation response than formic acid.
  - *Inoculants* – add bacteria to drive a lactic acid fermentation from all sugars, including fructans, give a rapid pH drop and reduce protein breakdown by enzymes.
  - *Enzymes* - break down cell walls to increase the substrate for bacterial

## Using inoculants

To be effective inoculants need an adequate supply of WSC (sugars) in the crop at harvest and the inoculant needs to dominate the fermentation; apply a product that contains at least a million bugs/g of grass ensiled.

- Mix the product thoroughly through the grass; important if applying small quantities e.g. 500ml per 1000kg grass.
- Avoid using chlorinated tapwater to make up inoculants.
- Spray onto the sward at the point of baling or as the crop goes through the harvester.
- Store inoculants in a cold dark place - it's a living organism and exposure to heat, light or air drastically reduces the number of living bacteria
- Freeze dried inoculants take longer to resuscitate and start working than the instant type.

IGER research has shown a benefit of 26% in live weight gain in steers with inoculated silage over untreated silage.

Red clover should always be inoculated; the amount of nitrogen (protein) retained in lambs fed inoculated silage was 33% greater than those fed untreated red clover silage. This nitrogen is available for productive growth rather than being 'wasted' as urine and this is also better for the environment.

## FURTHER INFORMATION

Reading: Farmers Weekly/Dairy Farmer Forage supplements  
Silage; J.M Wilkinson (Chalcombe Publications, ISBN 0948617500)

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