

401.01

REDUCING SILAGE LOSS

Good management practices can reduce silage loss and improve silage quality. Making grass silage on commercial farms is prone to high dry matter losses and these have been shown to average 25% although ranging from 10-70% representing a monetary loss of approximately £2500 million to European farmers. Similarly, in maize silage, average dry matter losses of 22% have been found. Silage remains cheaper than purchased concentrates, however, getting livestock to eat as much of the forage as possible is the key to a profitable livestock enterprise.

SILAGE BASICS

- Silage making is the conservation of wet forage. The process preserves a high proportion of the nutritional value of the green fresh forage at harvest and can provide a palatable and safe feed, high in nutritive value.
- The fermentation process requires anaerobic (no oxygen) conditions and has a great bearing on the final silage quality.

SILAGE LOSSES

Percentage loss of DM from original crop:

Harvesting

- Field losses 2-12%

Respiration & Fermentation

- In-silo losses 5-18%

Silage Effluent

0-8%

Aerobic Deterioration

Feed-out Losses 1-10%

REDUCING HARVEST LOSS

CONCERN	ADVICE
When & What to Harvest	Ryegrass dominant swards Dry Matter (DM): 25-30% (after wilting) Crude protein: 14-16% Metabolisable Energy (ME): 11-11.5 MJ/kg DM Sugar content in DM: 15-20% (levels rise in the afternoon)
Fertiliser	Use 90-130kg/ha (75-105 units N/acre) including slurry applied and N applied prior to grazing. (Optimum N applications should not be exceeded, refer to MAFF Fertiliser recommendations RB209 2001)
Wilting	Rapid wilting (no more than 24 hours) Mow grass leaving at least 5cm (2 ¹ / ₂ ") aftermath height Spread the grass evenly & rapidly, within 1 hour of cutting Avoid soil contamination during tedding & raking
Harvesting	Chop length of 1 ¹ / ₂ " to 3 ³ / ₄ " for crops of DM 28-35% Chop length of 3 ³ / ₄ " to 1" for crops of DM 20-28% Chop length of >1" for wet crops of DM <20%

REDUCING RESPIRATION AND FERMENTATION LOSS

Concern	Advice
Inoculants	Use quality inoculants which can improve fermentation & animal performance.
Application	Follow manufacturers instructions
Contamination	Clean out silo before filling, begin mole control in Nov. Clean tractor tyres before rolling.
Mixing	Don't use dirty or chlorinated water (leave water in an open container overnight)
Storage	Don't store in hot conditions once mixed.
Sugar	If the crop is low in sugar then apply sugar supplements, especially if the crop is wet (molasses 12 litres per tonne of grass or molassed sugar beet feed 50kg per tonne of grass).

Natural live bacteria in biological inoculants convert grass sugar to lactic acid which is the most effective naturally produced organic acid for preserving the silage. Ensuring that the grass crops has adequate sugar is essential (2-3% sugar in the fresh grass equivalent to 10-15% sugar in the dry matter).

REDUCING AEROBIC DETERIORATION LOSS

Concern	Advice
Filling	Fill the clamp rapidly. Spread silage evenly, consolidate well. (The pressure exerted on silage under the wheels of a heavy tractor will only be effective for upto a 9" layer at best).
Covering	Use two sheets of plastic. Thinner sheet next to the silage. Thicker protective sheet above. Sheet down overnight.
Rolling	Avoid rolling the following morning (This can create a vacuum & air ingress into the silage).
Sealing	Seal well. Place tyres or bales on top. Ensure that all tyres are touching each other.
Feeding	Ensure that the sheet remains close to the cutting edge of the silage. Use a sheer grab as opposed to front end loader if possible.

MORE INFORMATION

Telephone: Please see Contact details for Grassland Development Centre, IGER (below).

Reading: Wilkinson, J.M. and Stark, B.A. (1987). Developments in Silage. Chalcombe Publications.

Raymond, F. and Waltham, R. (1996). Forage Conservation and Feeding, 5th Edition.