

Section 6

Making Silage

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Introduction

Excellent silage will support animal performance over the winter and reduce concentrate costs. Choosing the right time to harvest the grass and minimising the loss of feed value are the key goals when making silage.

- ① What is meant by digestibility?
- ② How do I make high DMD silage?
- ③ What influence do grass varieties have?
- ④ How do I ensure good preservation?
- ⑤ How do I maximise yield per hectare?
- ⑥ How much silage does my herd need?

Making Silage

① What is meant by digestibility?

The higher the digestibility (DMD) of a grass silage, the more efficiently animals will use it and the greater the amount of milk or meat they will produce. Grasses with a lot of stem, seed-heads or dead vegetation are much less digestible than those with a greater proportion of leaf. The importance of highly digestible silage is greater when the price of concentrates is high.

② How do I make high DMD silage?

1. High yielding ryegrass crops are easier to manage, especially when varieties in the sward have similar heading dates; it's easier to identify exactly when to cut. Ryegrasses naturally have high levels of sugar and preserve easily.
2. Avoid old or dead herbage accumulating at the base of a crop as it can reduce digestibility by 5-6% units – this means that a crop that should have been 75% DMD would be 69-70% DMD instead.
3. Take full account of the mineral and slurry nitrogen applied for early grazing and silage because excess nitrogen can cause heavy-yielding crops to lodge in wet windy weather. The DMD of a normal crop of grass would be expected to decline by about 3 percentage points per week in late May/June (e.g. 78%-75%). A lodged crop lying under wet conditions can decline by up to 9 percentage points (e.g. 78%-69%) during the same week.
4. Monitor the silage fields from late April and book the contractor in time, monitoring weather forecasts. Intermediate-heading ryegrasses are at around 75% DMD when their first seed heads start to peep from the grass plants but geographical location, soil type, sward type and previous management will alter the optimum harvest date.
5. Control weeds such as docks - even leafy docks in silage only have a digestibility of around 65% DMD.

③ What influence do grass varieties have?

1. Late-heading ryegrasses can be harvested eight days later than intermediate-heading varieties, with both types of crops having similar yield and ensilability. The later heading crops will have slightly higher digestibility. There is more flexibility in harvest dates with the later heading crop as its rate of digestibility decline at this stage is slightly slower than for intermediate-heading ryegrasses.

2. Once the categories of ryegrass are identified, select varieties mainly on yield (spring, autumn and annual) and persistence. If independent information is available on grass digestibility or sugars, consider these after the above. Select grass varieties from the recommended list of varieties for Ireland produced by the Department of Agriculture, Food and the Marine.

3. If reseeding, invest the effort in seed-bed preparation, sowing, etc., that such a long-term investment warrants.

④ How do I ensure good preservation?

Poorly preserved silage could lose up to 5% units of DMD and have low intake characteristics. Therefore:

1. Only attempt to wilt a crop if it will be genuinely drying while on the ground. A successfully wilted crop will preserve properly.
2. If using an additive, ensure the full rate of an appropriate product is applied evenly.
3. Harvest the grass free of contamination by dirt.
4. Fill the silo quickly and seal perfectly (or wrap bale perfectly) in order to achieve the air-free conditions that are necessary for good preservation and to prevent mould growth.
5. Ensure any effluent can quickly escape from the silo and is safely collected.

Pit management

1. Seal grass carefully beneath 2 sheets of black 0.125mm polythene.
2. Cover completely with a layer of car tyres, placed edge-to-edge. Seal the edges with a layer of sandbags, silt, etc.
3. As the silage sinks in the silo during the following week or two, check the plastic seal to ensure air is not getting.
4. Inspect the plastic cover frequently and immediately repair any damage.

Manage the silage appropriately during feedout to prevent heating losses, as any such losses will reduce silage digestibility.

5 How do I maximise yield per hectare?

1. Minimise soil compaction during silage making, slurry and fertilizer spreading, grazing, etc.
2. Ensure appropriate soil P, K, and pH levels. Soil test each field once every four years.
3. Apply a total of 125 kg N/ha from the combined input of inorganic fertilizer (e.g. CAN, urea, etc.) and slurry.
 - If rolling the silage fields in spring, complete the job before the grass starts to elongate, as late rolling can crush the stems and impair growth.
 - Decide on the amount of silage needed and the land required to deliver it. It is wise to have a modest surplus of silage in reserve.
4. Apply a total of 100kg N/ha from a combined input of inorganic fertilizer and slurry for second cut silage.



Table1. Grass¹ yield and digestibility

Harvest date	1 May	8 May	15 May	22 May	29 May	5 June	12 June	19 June	26 June	3 July
Yield (t DM/ha)	2.92	3.99	4.98	5.96	6.79	7.82	8.48	8.93	9.50	9.83
DMD%	79.9	77.9	77.5	76.6	74.6	69.2	67.9	64.3	63.5	58.2

¹Silage yields and digestibilities (DMD) will be lower than these values

6 How much silage does my herd need?

This will depend on:

- Number of cows.
- Length of winter.

100 cows x 150 days x 10kg DM = 150t dry matter

At a yield of 5t/ha for first cut, this will require the equivalent of 30ha of first cut silage. Second cut yield will typically be 80% of first cut yield.

Estimated monthly feed requirements for various stock categories

	tonnes fresh weight/month
Dairy Cows	1.65
In-calf heifers/550-660 kg store	1.35
200-250 kg weanling	0.7
400-450 kg store	1.25

