

Maize Harvest Guide – Ensiling and Preserving

The key to ensuring that you preserve good quality maize silage all through the winter is not simply a case of harvesting at the right time.

Harvesting at the correct dry matter will aid good consolidation – crop too dry will make the material 'springy' and difficulty to consolidate – crop too wet and there will be effluent 'run off'.



It is imperative to ensure that all material is spread in thin layers and properly consolidated to remove all air to avoid aerobic spoilage.

With the size of modern forage harvesters there can be large amounts of material being delivered from the field very rapidly therefore it is vital that there are enough machines working the clamp and enough weight to ensure adequate consolidation.

An indication of how much weight is needed is:

TARGET PACKING TRACTOR WEIGHT = Delivery from field (t/hour) x 0.25

i.e. if 100t/hour is being delivered then you would need a minimum 25t rolling the clamp.



Once the crop is properly consolidated it must be sealed to ensure no air can penetrate and spoil the silage.

We recommend using **Silostop®** oxygen barrier sheets to minimise losses in the clamp due to spoilage. **Silostop® orange** is a complete oxygen barrier sheet but has no UV protection so still requires the use of a standard black top sheet. **Silostop® black** is 45 microns thick and contains a UV barrier and so can be used on its own. **New Silostop Max®** is thicker at 80 microns and is ideal for field clamps or where rough handling of film during application is expected. All **Silostop®** sheets should be covered with a protective mesh cover and gravel bags to give the ultimate protection against clamp losses and get the most from your silage.



Secure Covers

We recommend using Secure Covers which are high quality, finely knitted, UV stable polyethylene mesh. Use over **Silostop®** sheets to preserve the quality of your maize silage and keep losses to a minimum. Used in conjunction with Secure Covers gravel bags this gives an easy to use and very long lasting (guaranteed for 10yrs) way of protecting your clamp from bird damage and minimise surface waste without the need for tyres and the problems which these cause.



MAIZE HARVEST GUIDE



HORIZON SEEDS

Maize Harvest Guide - Cob Ripeness and Dry Matter

To estimate your harvest date you need to be able to determine crop dry matter and have an idea of drydown rates. Harvest date can be estimated fairly accurately up to a month in advance, as most crops increase in DM at a rate of 2-3% per week in the 5 weeks leading up to harvest. This is obviously affected by the weather conditions during this period and also the fact that different varieties will perform very differently in the run-up to harvest time. Cob ripeness is the field indicator farmers use to assess if their maize crops are ready to harvest and is more likely to aid safe harvesting than using any other methods of crop assessment.

To maximise the digestibility and feed value of your maize silage you should aim to harvest when the cob is firm with only the slightest drop of moisture able to be squeezed out of the grain with the plant itself still having some green leaf present.

Chop Length

Chop length can have a big influence on the performance of maize in the diet as well as the stability of the silage in the clamp. Many factors such as dry matter and percentage of maize as forage in the diet will determine what length you should chop your maize.

Decide with your nutritionist what chop length is best suited to your system (typically 16 - 20mm) and consult your contractor to ensure that they can meet your requirements.

Remember that many contractors chopping maize for biogas will be using a very short chop length (6 - 8 mm) which is not suitable for feeding livestock.

Check the chop length of the first load into the clamp is to your satisfaction to ensure that you get the most from your maize silage. Ensure that a corn cracker is used to utilise the starch in the grain effectively.



The Thumb-nail Test






DM Description of grain

- 20% At this stage juice squirts out and is normally of watery consistency.
- 25% The grain is soft, but no juice squirts out. (At this point it is a good time to check with the contractor, as it is generally two weeks to harvest).
- 30% The grains are generally cheesy, with the grains at the top of the cob being of a soft cheese consistency whilst those at the bottom are more like a hard cheese. (At this stage the cob should be about 50% dry matter, which relates to about 30% whole plant dry matter).
- 40% If the grain has become too dry, then the base of the grain normally become black.

The MGA Microwave / AGA test

- Choose representative plants from 5 areas of the field and cut 6-8 inches from the ground.
- Chop plant into inch (2.5cm) long sections.
- Cut the cob down its length before cutting into inch (2.5cm) sections.
- Mix the chopped maize thoroughly in a bucket.
- Weigh out all the contents of the bucket into a microwave safe bowl and record the initial weight.
- Put a bowl of maize in the microwave along side half a glass of water to avoid it over heating.
- On a setting of 600 watts, heat the maize for 10 minutes. Stir and then repeat. Stir again and then heat for a further 5 minutes. At this point weigh the sample. Heat the sample for a further 2 minutes and weigh again. Keep going with this 2 minute heat / weigh cycle until the sample stops losing weight. Keep a close eye on the maize as it dries out it will start to smoulder.
- Alternatively you can place the maize sample in a tin in the bottom of the AGA overnight.
- Remember that the more mature the crop is, the less time it will need to be heated.
- The dry matter of the sample is the final weight of the dried maize as a percentage of the original weight. (Final weight (g) / Initial weight (g) x 100 = DM%)

Cob Ripeness

Grain Description	Clear Grains	Milky Ripe	Soft Dough	Firm Dough	Hard and Mature
Starch Level	No Starch	Starch Kernel can be found	Good Gritty Starch	Smallest drop of moisture can be squeezed from grain	Floury Starch
Approx. Time until Harvest	1 month+	2-3 weeks	7-10 days	Harvest for Forage now	Combine
Appearance of Grain/Cob					
Approx. Whole Plant DM%*	Less than 18%	18-25%	25-28%	Approx. 30%	More than 35%



*This is only a guide as whole plant DM% will vary depending on how green or how senesced the stem and leaves are.