

High Moisture Corn Silage Management – for farm and animals' benefits.

High Moisture Corn Grain (HMCG) has become a popular option for storing maize grain globally for many reasons. It can be defined as corn harvested at a moisture content (MC) above 24%, and ideally in the range of approximately 24 – 33% MC, but up to a maximum of 40% (harvesting above 40% can lead to a yeast driven fermentation that has negative impact on intake....high alcohol levels and high losses)

Bunkers / Piles / AgBags			
Maize Kernel Moisture (%)			
	Minimum	Desired	Maximum
Ear Corn (whole cob)	26	32 – 36	40
Shelled Corn (grain removed from cob)	26	28 – 32	36

Field inspection of the growing corn defines whether the corn can be shelled at point of harvest. If when the crop is field inspected the growing corn is contaminated with field mold, harvesting as shelled corn may reduce (but not stop) the risk / severity of mycotoxins (by removing mycotoxin associated with the cob).

HMC is harvested differently depending on the exact nature of the final product (HMC and HMEC harvested via combine, snaplage with a snaplage header on a forager). Physiological maturity of the corn is dependent on the hybrid of the corn grown and the season, but is shown by the formation of a black line at the base of the kernel –indicating maximum starch deposition

(%)	High Moisture Corn	High Moisture Ear Corn	Snaplage
Corn	100	84 – 90	75 – 80
Cob	0	10 – 16	10 – 15
Husk, Shank, Leaf	0	0	5 – 10
Crude Protein	9.5	9	8.5



HMCG is processed and treated prior to storing in order to aid its stability. The processing is achieved via rolling or grinding, and the degree to which processing occurs is dependent on the DM, the intended storage method and the processing method.

- Roller Mill – all kernels broken into at least 4 pieces
- Hammer Mills (Tub Grinder) – less than 5% whole kernels / less than 20% fines

If kernel moisture is lower than 25% then the processing should be increased and water added to the grind to allow an effective fermentation – approximately 13 litres of water are required to increase 1T of HMC by 1% moisture content (eg from 25 to 26% MC). Excessive grinding of HMC can lead to higher levels of 'fines' which have markedly faster digestibility and may lead to acidosis in the animal.

Treating of HMC adds value by reducing the fermentation losses associated with the restricted fermentation. HMC ferments more slowly than corn silage, and to a more limited level than corn silage even though it contains higher relative amounts of starch. This high starch level in turns promotes aerobic deterioration through growth of yeast – the use of Sil-All Maize + aids the preservation of HMC by turning the environment anaerobic very rapidly, driving the fermentation rapidly and then by the production of anti fungal acids that reduce yeast levels. Similarly, when the challenge is greater or the HMC will be fed out rapidly, the use of Sil-All Fireguard will allow the rapid preservation and stability of the HMC through the unique combination of fermentation drivers (bacteria), enzyme and anti-fungal chemicals that work in combination to preserve and protect all forms of HMC rapidly.

There are distinct differences and advantages to the processing method that should be considered with regard to the farm management and feeding systems. It is strongly advised that this is discussed with the farm nutritionist. Rolled HMC is simpler to manage than ground HMC as there is a lower level of fines, and generally leads to a higher dry matter intake and average daily gain, but feed efficiency is generally higher with ground HMC.

Harvesting corn in any of the HMC formats provides various advantages:

- Reduced field losses (reduced by up to 6%) compared to dry corn
- No drying charges
- Flexible harvest window
- Earlier stalk grazing
- Energy is estimated to be 5 – 10% higher than dry corn

But there are also a series of considerations the farm must recognise

- HMC ferments faster in the rumen than dry corn
- Digestibility of HMC significantly increases through storage which must be considered within the ongoing ration.
- The storage system adopted by the farm must be sized appropriately to the herd to allow a feed out rate of at least 10cm per day to avoid heating during warmer months

HMC can be stored equally well in bunkers and bags – but always with consideration to an appropriate "face size" to allow 10cm feed out per day. If using bags, consideration should be given to the location

of the bags, ensuring the bag is on hard standing and away from trees. Damage to the plastic during storage can lead to very high localised losses. Any punctures / rips should be immediately repaired.

For High Moisture Corn Silage types, Sil-All recommends:



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