Handling and Storage for Moist Feed

Good storage discipline realises greater feed value

To get the most from moist feeds it is important to l o o k after them properly, wastage will occur if stored incorrectly. Good sheeting that excludes and prevents the penetration of air is the key to success. This can be achieved easily by following the guidelines below, which should take about 20 minutes per load. Potato based products are the only exception, due to their structural nature, most types of these feeds are best left unsheeted.

Trials and farm experience have shown that, with care and attention, moist feeds can be stored for with negligible losses. Please refer to your product information sheet for the storage times associated with your product.

Selecting the storage access and site

The site must be directly accessible by the delivery vehicle, or the product will need to be tipped elsewhere and then transferred using farm-based equipment. Loads will be delivered in bulk and tipped, on either a 29 tonne articulated vehicle or a 20 tonne rigid vehicle.

An articulated vehicle is 14 metres (45 feet) long, and when tipping the trailer height reaches 17 metres (55 feet) high so ensure there is adequate room for delivery and there are no overhead cables. They also require a turning circle of 25 metres (80 feet). If you do not have enough space to tip safely, deliveries in a 20 tonne rigid vehicle may be more suitable as they require less turning and tipping space. If in doubt, contact your local KW feed specialist.

Storage areas should be clean to maintain feed hygiene and improve keeping quality. A firm, level surface, preferably concrete, is desirable and makes feeding-out, face management and handling easier.

Depending on the type of moist feed, a small amount of liquid run-off is possible, particularly from feed faces exposed to rain. It is important that the storage site is not situated close to open watercourses or drains.

Moist feeds are best stored in three walled concrete (or similar rigid secure structures) clamps as these are easier to manage because less product is exposed to the air and there is less risk of product movement. Moist feeds' dense nature means that these feeds often take up less space than you may expect; examples of these densities are shown in the table.

Product	Density per kg per m^2
Pressed Sugar Beet	800
Brewers' Grains	1000–1030
Soda wheat	780
Moist Maize Grains	750
Draff	750

Ideally clamps are best situated on the coolest parts of the farm and should be designed so that the feeding face is north facing. A long narrow clamp is preferable over a wide short clamp, as the feeding face will be smaller and less exposed, allowing you to work across the feeding face quicker which reduces the amount of time the feed is exposed to air.

If you do not have a purpose-built clamp but have some clean concrete. You can potentially store one or two loads by the following two methods:

1. Build a temporary three-sided clamp using big bales (double rowed) or other heavy portable barriers. The internal sides should be lined with plastic sheets to stop air penetration. However, if your farm suffers from rodent problems, straw bales may not be such a good idea because they can attract rodents who then can potentially damage sheets. Damaged sheets will allow air to get in which can subsequently lead to spoilage 'hot' spots in the feed.

2. To sheet a free-standing pile of moist feeds use Silostop Plastic® or other forms of high-quality oxygen impermeable plastic. These sheets should be secured in place, weighting it down with gravel bags or other suitable weights. We also recommend that the plastic sheet is protected from bird damage by using a 'Secure Cover' (heavy duty net).

Ag-bags are an alternative to clamps and are more suited to moist feeds that have a good physical structure. They are ideal to store quantities of 100 tonnes plus of moist feeds and can be placed on level concrete or smooth hardcore. Placing on a rough surface could result in the underneath of the bag being punctured which could cause a large tear in the bag that may be difficult or impossible to repair, due to the pressure in the Ag-bag. Any holes in the Ag-bag will allow air to get in which will lead to spoilage of the feed. Therefore, we recommend they are inspected on a regular basis and/or netted.

To measure the space requirement 1 tonne fits in approximately 0.3 m^2 (1 sq^2) and the bags are 5 metres (15 feet) wide. To accommodate the Ag-Bagging machine you need a site that is at least 40 metres (130 feet) long and 7 metres (22 feet) wide.

If in any doubt about the size of the proposed site, please contact us.

Moist feeds need to be tipped on clean concrete prior to re-loading into the Ag-bag machine using an on-farm loading shovel.

The Ag-bag machine works best when running continually, hence two or three loads of moist feeds need to be delivered in advance, this will require additional space as close to the Ag-bagging site as possible.

The storing and ensiling process

The greater the attention to detail, the better the feed will keep.

Filling

Moist feeds are generally delivered straight to farm from the point of production. As a result, loads will often be quite hot on arrival, (30–60ºC). For this reason, it is best to let the loads cool down by leaving them for 6–12 hours prior to ensiling and sheeting. However, if heavy rainfall is likely, it is best to ensile and sheet them as soon as possible.

When filling a clamp, it is best to heap the material using a loading bucket until a height of about 1.5 metres (5 feet) is achieved. However, the height will often be dictated by the nature of the feed. Stacking higher than this can make the face more difficult to manage, especially when feeding rates are low, and is particularly important if you are planning to feed out from the clamp during the summer.

For outside clamps it is advisable to stack the back and middle of the clamp higher than the edges and the front of the clamp as this will allow rainwater to freely run.

The top layer of the load should be compacted to remove air and smoothed to ensure the sheet has close contact to the surface, minimising the quantity of trapped air as this greatly improves keeping quality.

Compacting and smoothing can be achieved using the underside of a loading bucket or simply sliding/tapping down the surface with a hand shovel.

For larger volumes, some customers prefer to compact by driving an ATV over the surface. If you wish to drive on it, exercise extreme caution and be certain that the retaining walls can take the additional weight of the vehicle. The ATV must also be scrupulously clean and preferably disinfected.

The keeping quality of the surface can often be aided by the addition of salt to the surface layer. Granular feed grade salt should be evenly distributed over the surface at 3 kgs per m^2. When applying to the shoulder of the clamp the recommended rate is 6 kg's per m^2.

Sheeting

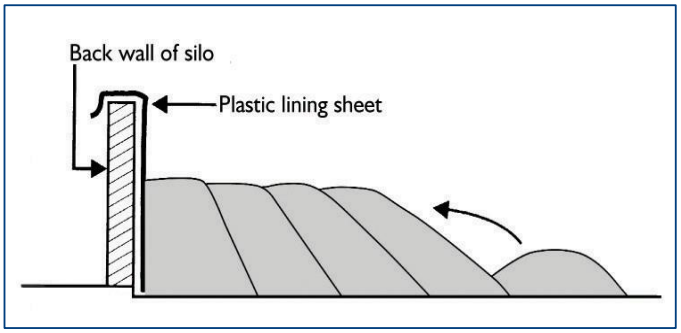
Not all moist feeds are able to be walked on whilst sheeting. There is a danger that you could sink into the moist feed if it is not able to carry your weight. If in any doubt do not walk on it because moist feeds can act like quicksand and if also hot, could cause burns to the skin.

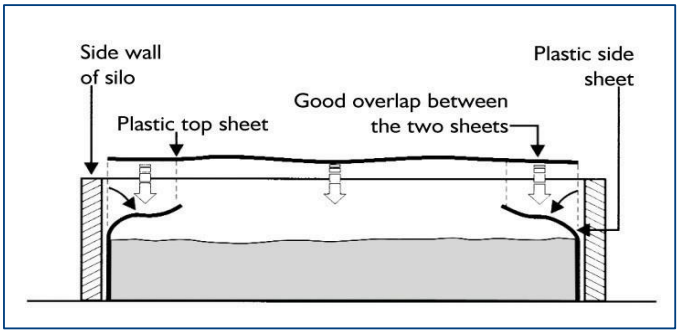
Not all plastic is the same. Most conventional (typically black) plastic allows a small amount of oxygen to pass thought it, resulting in poorer keeping quality of the feed as spoilage organisms require oxygen. The ideal plastic to use is one that does not allow oxygen to pass through it, such as Silostop Plastic® or other brands.

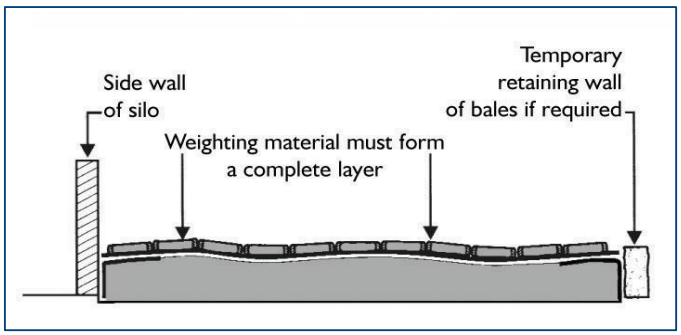
If you are intending to use conventional plastic a better, but still not impermeable, an airtight seal can be made by using two sheets (suggest a new sheet on the bottom and a re-used one on top). The better the seal the better the moist feeds will keep.

Clean undamaged plastic sheets must be used to make the top and sides both air and watertight.

To produce a clamp, side sheets must be used and folded over the top of the feed, with the top sheet then positioned to generously overlap as this will allow a safety margin during settlement. Trapped air must be removed by smoothing out creases in the sheets and then uniform weights should be placed over the top. Secure covers in conjunction with gravel bags, or small straw bales are more effective than tyres or pallets as the weight is more evenly spread. However, if your farm is prone to rodent problems then using straw may not be a good idea. Soil is not recommended as it can increase the risk of harmful contamination.







If the clamp is outside, protect it from bird damage with a secure cover.

Whatever the method adopted you must ensure that the sheet covers all the moist feeds, plus an allowance to accommodate any movement during settling and storage and that the bottom of the plastic sheet is sealed to the ground.

Ensiling with other feeds

Mixing in Sugar Beet Feed, Soya hulls or Processed Bread gives added structure and helps to stick the product together making it easier to manage. This usually allows the product to be stacked higher, if desired. As a rule, don't exceed more than 65% dry matter for the whole mix.

Feeding out

When opening the clamp, care should be taken to expose only as much of the face as is necessary. Ideally the dimensions of the clamp should be such that you are working back into the clamp at least half a metre (one or two feet) per day.

It is important to try and keep the face as compact as possible. If using a loading bucket do not push in at the bottom and lift up, as this disturbs the face greatly. Instead, use the bucket to cut down from the top and then scoop away the material. Any loose material should then be pushed together to ensure that it is used next. The cleaner and tidier the face is kept, the better the feed will keep.

When continual feeding has started, always leave the face un-sheeted and exposed to the air. Plastic that was covering the face should be rolled back and securely weighted to ensure a good seal is kept at the top and sides, as this will minimise the risk of air moving under the sheet. For this reason, it is best to expose two or three days usage at a time.

If using an Ag-bag, feeding out is easy as you have a small feed face to manage. To open the Ag-bag cut the bag open at one end and work your way down the bag disposing of the cut plastic as you go.

Cessation of feeding moist feeds

If feeding from the clamp is to stop for more than a week compact any loose material and treat the face with a propionic acid-based preservative. The face should then be sheeted with as much weight applied to the face as possible.

Introducing moist feeds to livestock

As with introducing any new feed, introduce gradually over several days, building up the quantity to the desired feeding rate, ensuring livestock have eaten their daily allocation.

Moist Feed Supplies

Most moist feeds come from one production source. If production is halted for any reason, moist feed production will cease. Depending on the storage capacity of the site, there may be no feed available to supply until production restarts. If your feeding regime needs a constant supply of moist feed, it is always best to clamp at least one load as a reserve which can then be used to bridge the gap until production restarts.

Further queries and assistance

For further assistance on all aspects of storing and feeding moist feeds please contact a member of the trident team on 0173342224