Effective feed preservation

Handbook for optimum feed quality

Perstorp

WINNING FORMULAS

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Our job is to secure high feed quality

At Perstorp we feel most comfortable with our boots on. It´s on your farm and other farms like yours, that we receive proof that our products work and help towards successful silage making and preservation. We value the input we receive from you and universities around the world in further developing or making our products even better. Together we develop the market's most effective feed preservation products based on acids, salts and inoculants.

We have worked like this for over 50 years, and the result is a tried and tested, complete range of feed preservation agents for all crops and conditions. This handbook will provide you with a review of how you can succeed with all kinds of silage making, feed preservation and treatment of wet feed or milk. But that's just the start.
Why not contact one of our expert advisors or retailers, who will guide you to the solution best suited for your needs. It pays off to talk to us. Successful feed preservation consists of many processes that need to work and interact in a chain. We have expertise that we will more than gladly share with you.

Get in touch and we will gladly put our boots on!

What is ensiling?

Ensiling is a natural preservation method used for both feed and food. Ensilage occurs under airtight, oxygen free conditions, mainly using lactic acid-forming bacteria. The purpose of ensiling is to achieve a stable storage pH whereby the feed's nutrient value is retained.

Do it properly and ensure high quality

The purpose of ensiling is to preserve crops to become good quality feed with minimum nutrient losses and at reasonable cost. By decreasing the pH levels quickly, fewer nutrients are lost and the protein quality in the feed is retained. The numbers of bacterial spores and unwanted fermentation products (e.g. ethanol, ammonia, butyric acid and carbon dioxide) that can negatively affect the quality of the feed are kept to a minimum by using a good ensiling process.

Ensiling is a natural method

In an oxygen free environment lactic acid-forming bacteria, turn sugars naturally occurring in green matter, into lactic acid lowering the pH level. The combination of a low pH level and an oxygen free environment prevents unwanted microorganisms from growing and using nutrients from the silage. Microorganisms form unwanted decomposition that reduce the palatability of the feed, lower feed intake and in certain cases, can even be poisonous to the animals.

The concentration of sugars in plant tissue determines the available nutrients for the lactic acid-forming bacteria. By wilting we boost the concentration of sugar in the green plant and the pH is more easily decreased. The pH no longer needs to be as low for the feed to be stable for storage, as for a feed with lower drymatter content. The disadvantage of higher dry matter content is that the feed is more difficult to compact in bunker silos and tower silos, thereby increasing the risk of overheating when opening the silos/bales or if the plastic is damaged during the storage process.

Benefits of additives

Under favourable conditions it is possible to ensile feed without additives. To ensure the feed is of good hygienic quality with retained nutrient value and minimized dry matter losses the use of additives is recommended.

There are four main reasons for using additives:

- Retaining a high nutritional value and good protein quality.
- Minimizing dry matter losses by quickly decreasing pH that destroys plant cells and control unwanted microorganisms.
- Minimizing the risk of unwanted fermentation bi-products (e.g. ammonia, butyric acid and ethanol) and bacterial spores, which spoil feed quality.
- Counteracting overheating by retarding yeast and mold growth.

Roughage production in brief

To get good quality feed there are many parameters to take into account before, during and after the ensiling process.

Seed and fertilizing

Choose grass mixture according to type of feed that suits your animals and production the best. Choose according to type of soil, yield, protein/energy content, harvest time, climate and number of harvests.

Fertilization in the spring should start when growth starts or just before. The second fertilization should be immediately after the first harvest to give optimum benfit. Avoid fertilizing later than 4-6 weeks prior to harvest and the use of solid stable manure on growing grassland. If solid manure is used on the grassland, spread well decomposed

manure in the autumn. Avoid fertilizing too late in the autumn as there is a risk that the plant will use its stored nutrients to grow instead of hibernate.

Harvest

If possible, harvest late afternoon when the sugar content of the crop is at its highest. The recommended stubble height is 8-10 cm to minimize the risk of lifting soil and thereby the risk of contaminating crops with unwanted bacteria. To minimize the risk of incorrect fermentation and the amount of unwanted bacteria, the crop should be harvested while still at a relatively early growth stage. Early harvested crops contain tender growth material, which is easier to press, thereby minimizing the amount of available oxygen during the ensiling process. Late harvested feed crops are more fibrous and less digestible. Energy and protein content are also negatively affected, as is the soluble sugar content.

To achieve even drying of the crop, thick swathes should be avoided even though it is effective from a harvest perspective. In the event of a large harvest a broad spread is desirable as this speeds up the drying process, however it does increase the risk of contamination from soil, manure and unwanted bacteria when the spread crops are swathed. Rapid drying is important for retaining the sugar and protein quality of the grass crop.

Machinery for harvesting

Harvesters are normally used for wilted green forage, with some models also used being for direct cut forage like corn and whole crop if a cutting table is assembled. Harvesters´ cutting length can be set from 1mm and upwards.

Self-loading silage wagon Green forage is pressed onto spring-loaded blades with the help of a rotor. The distance between the blades can vary and affect the length cut. Some of the green forage is not pressed at correct angle to the blades and therefore provides longer cut lengths. It is more difficult to set the cut length using a self-loading silage wagon. It often provides a somewhat longer cut length compared to the harvester.

Bale presses are used for wilted green forage. The forage is either pressed through a cutting unit similar to the one used in harvesters. This provides a cut length of 40 mm or longer, depending on how the green forage is fed to the blades. The advantage of shorter cut material is that it can be more easily compacted in the bales and thereby making feeding easier, especially if a mixer wagon is used.

Good compaction

Management when filling the silo is one of the most important issues to consider when making silage. Chop length and dry matter content has effect on how well the crop can be compacted in the silo. It is of great importance that the silo is being well compacted to press out as much air and oxygen as possible. The material should be spread in thin layers when compacting.

The ensiling process

To get silage with a high nutritional value and hygienic quality it is important that the ensiling process takes place as quickly as possible. It is therefore important that wilting and storage in the silo takes place quickly with sufficient compacting of the material. The pH reduction during the ensiling process takes place using lactic acid-forming bacteria already present in the green forage. These bacteria use the sugar in the plant as substrate, in order to reduce the pH to a level stable enough for storage. During this process carbon dioxide and water is released from the silo (dry matter losses). When there is not enough sugar in the plant to reach a fast pH decrease, this allows for unwanted bacterial growth. It uses the protein as a source of nutrition, which then forms ammonia as a waste product. Optimal growth of the lactic acid bacteria requires sufficient substrate, mainly sugars (>2.0–2.5 % of dry matter), in the green forage. Good growth of lactic acid-forming bacteria controls unwanted microorganisms. The most common unwanted microorganisms are soil and gut bacteria. It is therefore important to avoid getting soil and manure into the green matter during harvest.

Tips: Good compaction?
Be careful when compacting. Correctly compacted silage helps reaching an oxygen free environment more rapidly reducing the risk of overheating.

Easy or hard to ensile?

The sugar and protein content of the crop affects how easy it is to ensile. High sugar content provides more substrate for the lactic acid bacteria, which then reduces the pH quicker during the ensiling process, making it easier to ensile. Crops with high sugar content provide more nutrition to yeast and mold. As such the crop is more prone to overheating than crops with low sugar content.

The protein in the forage acts as a buffer. It counteracts pH reduction, making ensiling more difficult. More unwanted bacteria, such as clostridium have a negative impact on pH reduction as they compete with the lactic acid bacteria for nutrients. It is therefore important to use an ensiling agent with formic acid for crops with high protein content or soil/manure contamination and propionic acid for crops with high sugar content.

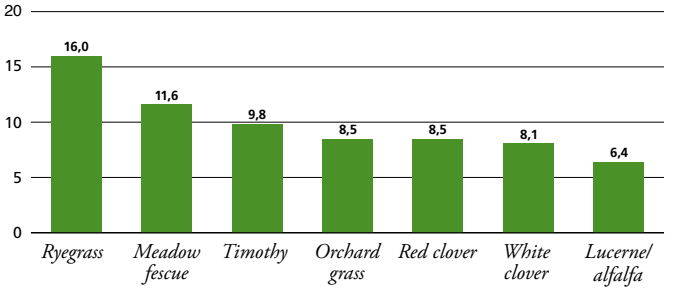
When adding formic acid to the green matter, the pH is instantly decreased with 1.0. The formic acid and the fast decrease in pH inhibits most unwanted bacterias leaving lactic acid bacteria more room to grow and produce further lactic acid. This results in a faster pH decrease compared to not using acid based additives. The addition of formic acid also stops cell respiration, this saves energy and maintains protein quality in the silage. A feed that has reached a storage stable pH fast also contains more sugars and this makes it more sensitive for overheating when oxygen comes in contact with the feed. When adding propionic acid the mould and yeasts in the green matter is inhibited, this improves the storage stability in the feed, because mould and yeast are often the reason for heating.

Farage crops	Sugar	Protein	Ensilibility
Grass	High	Low	Easy
Clover/Lucerne	Low	High	Difficult

Easy or hard to ensile.

Content of sugar in forage crops

Sugar (% of dry matter)



Critical pH in silage

pH

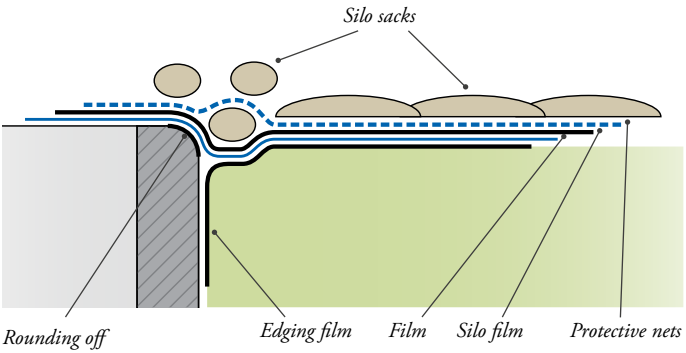
Small differences in dry matter content can be crucial for the storage stability or instability of the feed. It also affects the dry matter losses and the feed's nutritional and hygienic quality.

Storage methods

Bunker silo

Ensiling in a bunker silo is a method that provides an even, high quality feed. The method allows a high level of compaction and is the most widely used ensiling method. It is sensitive to coarse material and high dry matter levels (>35%), whereby compaction and wilting must be checked very carefully. The material should be spread in thin layers when compacting and the dry matter level should be in the range of 27-35%. If the dry matter level is <27% then you lose nutrients in the form of press water leakage. The silo should not be opened earlier than 6 weeks after it is filled and sealed, this to ensure that the ensiling process is completed and that the feed has stabilized. The minimum recommended removal rate during cold weather is 1 meter per week and during warmer weather 2 meters per week. *Crops: Ley, corn, whole crop.*

Covering bunker silos



Tips: Keep your silos clean! Successful ensiling requires good levels of hygiene. Wash your silo before you start filling it.

Tower silo

It is important to place relatively dry material at the bottom, preferably with a dry matter level of around 45% to avoid press water losses. To ensure that it is compacted well a material with a lower dry matter level than 30% should be at the top of the silo. The silo should not be opened earlier than 6 weeks after finishing filling in order to ensure that the ensiling process is complete and that the material has stabilized. There is a greater risk of overheating in tower silos compared to other ensiling systems. *Crops: Ley.*

Baled silage

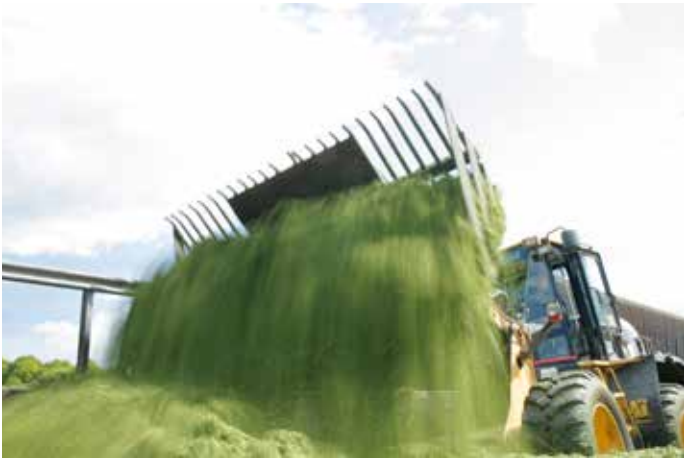
Ensiling in bales is a flexible method where each bale is its own "silo" from a nutrient and quality perspective. The dry matter level should be 45-55%. In the event of higher dry matter levels no fermentation will take place and bales become just an airtight storage of feed. Higher dry matter levels (>45%) incur greater risk of yeast and mold growth, while there is a lower risk of growth of clostridium bacteria spore. Despite this, the spore problem in bales are relatively common due to low dry matter levels (<45%). Pressing the bales causes an uneven mix of the material, which can cause wet layers where clostridium bacteria can grow. A minimum of six layers of plastic is required to achieve an airtight bale. Bales should be kept upright, preferably on a hard surface. Bales should be handled with care and preferably covered with netting to protect the plastic from damage. Damage caused by birds and other wildlife should be repaired as quickly as possible to minimize the risk of the bale being ruined.*Crops: Ley, whole crop.*

Tubes/Bagged silage

Ensiling in tubes is a method that usually provides very good silage. Tubes are a good complement to bunker silos. The tube should be placed on a solid surface without the risk of water build up and it should be covered with netting. Dry matter levels of 30-40% are desirable. When ensiling in tubes it is important that sufficient compaction is achieved to minimize the risk of air pockets as these increase the risk of incorrect fermentation and overheating. *Crops: Ley, corn, whole crop.*

Clamp/Stack silo

Ensiling in clamps is a flexible method requiring more precision than bunker silos or tubes. The clamp should be placed on a hard surface. If placed on a gravel surface then plastic sheeting should be placed under the entire bale. The method is the same as for bunker silos, but a somewhat higher dry matter level of 30-40% is desirable. The higher dry matter level is to avoid press water leaking out into the ground. The material should be laid in thin layers when compacting and in such even layers as possible to minimize the risk of the machine used for compacting tipping over. When the bale is high enough the bottom sheet and cover sheet should be sealed using a suitable material like sand. The bale should be protected using a net. The silo should not be opened earlier than 6 weeks after finishing filling in order to ensure that the ensiling process is complete and that the material has stabilized. *Crops: Ley, corn, whole crop.*



Corn silage

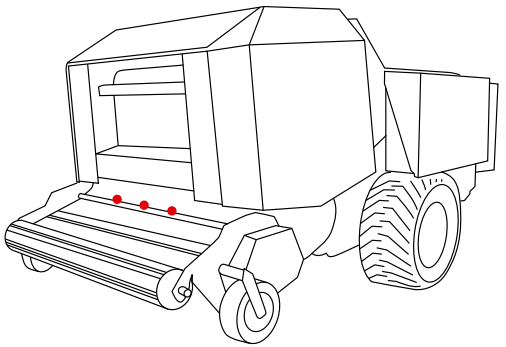
Corn's high yield and starch content makes it the most used roughage feed for high yielding dairy cows in the world. Corn is usually easy to ensile, but there is high risk of yeast growth and overheating when opening the silo. If the corn has high dry matter content when harvested the cut length should be reduced to facilitate compaction. The timing of the harvest is important for achieving the right nutrient content and dry matter content of the ensilage. It is preferable to harvest when a mark can be made in the centre of the corn with a fingernail, known as cornmeal maturity. Normal cut height is 15-20 cm and by raising the cut height the starch and dry matter content can be increased, however, at the cost of the yield amount. Corn should be chopped well and each seed processed. The recommended chopped height is 8-10 mm. Pay special attention to overheating in corn ensilage, which can occur due to difficulties in compacting, combined with the high sugar content. High sugar content often occurs in unripe corn. Early varieties often provide a lower sugar content and higher starch content.

Whole crop silage

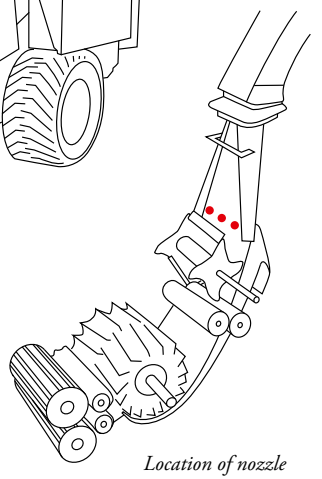
The point at which one harvests whole crop can be chosen from earing to dough maturity, and in this way adapted to the other feed agents in the feed ration. Relatively late harvests are often preferred for producing a structurally rich feed with high starch content. Whole crop is generally a good strategy for ley establishment and can, if harvested early, also provide a second harvest in the form of regrowth of the ley. Early harvests are often high in sugar content and low in fibre content and usually results in a low harvest yield. Early harvests must be wilted. Late harvests will be high in fibre and starch content and usually result in a high harvest yeild. Meanwhile, the fibres are harder to digest. Late harvests can be easily harvested without prewilting with cutting tables assembled on the cutter. This reduces the risk of pod shatter. Late harvest crop ensiled into bales increase the risk of pod shatter, because the baler thrashes the grains out of the crop. The risk of overheating is greater in late harvested wholecrop silage compared to early harvested wholecrop silage.

Location of nozzle

To achieve full effect of additives in the silage it is important that the overall amount added is mixed well into the feed. Nozzles should be next to the pickup or by the accelerator, so all additives come into contact with the green matter. It is only then that the full effect of additives is achieved. Common problems include nozzles placed in front of the pickup and not aimed at the machine and green matter. This leads to large amounts of additives either ending up on the ground or blowing away in the wind instead of ending up in the green matter. Nozzles placed at the top of the cutter result in most of the additives being blown into the wind. So, be careful where you place the nozzle for best application!



Location of nozzle



Location of nozzle

Grain preservation

There are many advantages of acid preservation of grain. Investment costs are low with a high treatment capacity, especially if using 6-inch (or larger) transport screw conveyor. The feed value of treated grain remains high with improved taste and structure, while at the same time possible mold and yeast growth is controlled and blocked. The method is not really weather-dependent and also reduces the risk of dust problems that often arise when handling grain. Grain preservation using propionic acid is a tried and tested method used on large scale in many countries since the 1960s

Properties of propionic acid

Propionic acid is an organic acid which occurs naturally and is very similar to formic acid. When treating grain, peas or beans, the acid seeps into the kernel, protecting them against growth of unwanted microorganisms (mold, fungi and yeast). In preservation products Perstorp also use propionic acid glycerol ester that gives a high preservation effect, low evaporation of the preservative and better corrosive properties. Carrying out the acid treatment properly provides protection with retained quality for over one year. Propionic acid is approved for grain preservation in organic production.

Storage

Storage space can be fairly simple, but must be clean and dry. Make sure that it is cleaned before you start preservation and that there is sufficient protection against rain and damp. Floors, walls and beams made of of concrete or steel, should be protected using protective paint or plastic film.

Equipment

Required equipment for acid preservation includes a screw conveyor, acid pump with flow meter and two or three nozzles. The nozzles

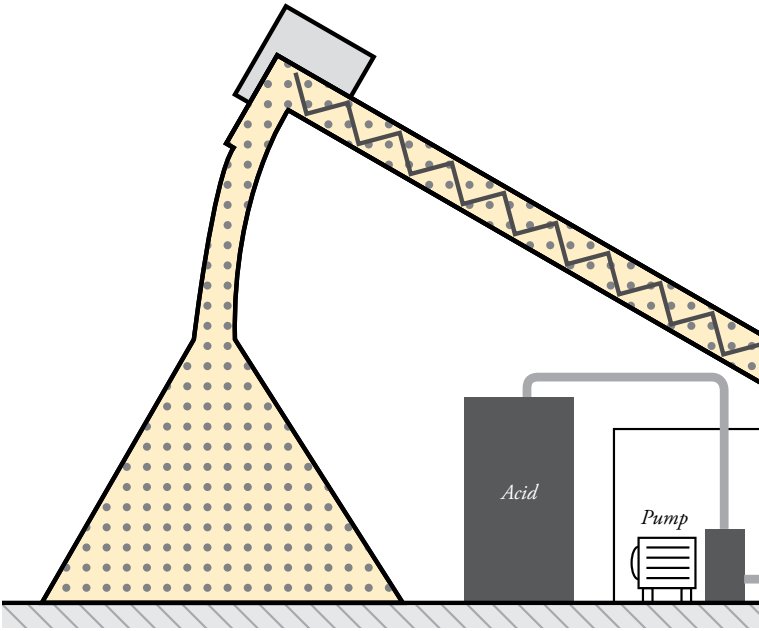
should be located in the lower part of the conveyor so that the grain is transported three to four metres after the acid has been applied. This allows the acid to be spread between the kernels as these are transported upwards in the conveyor. The pump can also be complemented with equipment that automatically sets off the flow of acid when grain is on the conveyor. (See image on page)

Dosage adapted to the moisture content

The table provides information on the amount of propionic acid, in liters, per ton of grain, peas or beans in relation to the water content and storage time.

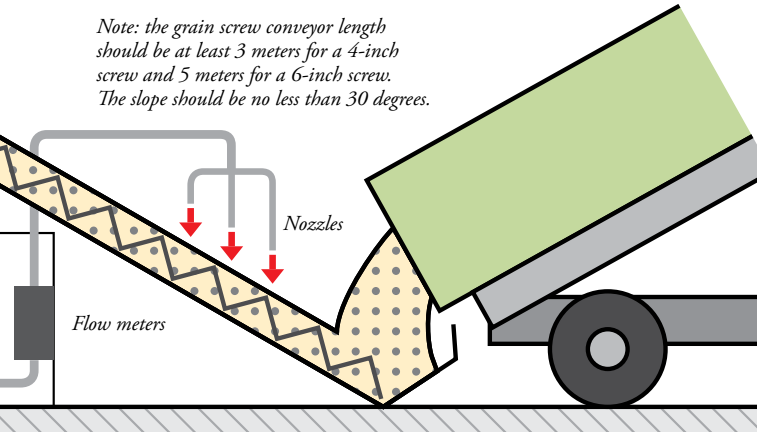
Moisture	Dosage (l/ton), conservation time	
%	6–8 months	12 months
15	5.0	6.0
17	5.5	7.0
19	6.0	7.5
21	7.0	8.5
23	7.5	9.0
25	8.0	10.0
27	9.0	11.0
29	9.5	12.0
31	10.5	13.0
33	11.0	14.0
35	12.0	15.0
37	13.0	16.0
39	13.5	17.0
41	14.5	18.0

Instructions for acid treatment



One acid treatment for grain.

Two acid treatments for peas, beans or mixes of legumes and grain, with a water content of over 25%. Half of the recommended dosage shall be used in each treatment. The treatment is repeated at intervals of 2-3 days. This is done because the outer part of the legumes is thicker, and therefore absorbs the acid more slowly than grain.



Check temperature

The temperature of preserved grain or legumes must be checked daily for the first few weeks. Checks should be made at different measuring points and at least one meter from the top. After this it will be sufficient for checks to be made just a few times a week. A temperature increase of more than 4°C indicates microbe growth and that the acid dose was insufficient or poorly mixed.

Limitations

Malt barley cannot be treated because germination ceases. Growing seeds shouldn't be acid treated either. Buyers of treated grain should always be informed that the grain has been acid treated.

Storage methods and treatment

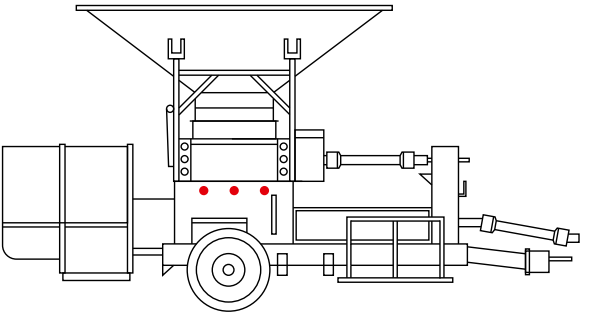
Moist rolled grain, also named crimped grain provides a very palatable feed, reduces incidences of dust problems and preserves the nutrient value of the grain. When using this method the grain is harvested with a water content of 30-40% and stored in an oxygen-free environment. Lactic acid fermentation (ensiling) then takes place which protects against unwanted microorganisms. Grain can also be rolled and stored in silage bags under drier conditions (moisture <39 %). In this case there is no actual ensiling process, but rather oxygen-free storage. Acid treatment of crimped grain guarantees hygienic feed with much improved storage qualities during the feeding period.

Storage methods:

The most common storage method of crimped grain is in tube, but wetter material can also easily be stored in bunkersilos. Smaller amounts can be stored in big bags (with inner sacks of the same plastic quality as trench silo film).

Crimped grain should be treated with 4 liters of an acid based additive designed for crimping, irrespective of water content. If slow feeding the dose should be increased by 2 liter/tonne, with a further 2 liter/tonne added if feeding is carried out during the warmer months of the year.

Location of nozzles



Handling TMR feed

It is common today to work with total or mixed feed, known as TMR (Total Mixed Ration). This means that you work according to the feed analyses available of the silage and concentrated feed and mix it using a mixer wagon to achieve the nutrient value desired for the animals. This is a functional feeding method for larger herds and allows the animals to get the desired feed with less risk of selective feed behaviour. Mixing grain and silage into TMR feed provides excellent feed but requires precision in order to avoid the risk of yeast and mold growth.

Daily checks should be made to monitor the temperature. Overheating indicates that yeast and mold growth has begun. Mycotoxins can form if overheating has occurred without visible mold. This is more detectable on warm days or between longer mixing intervals. For the animals there is always an increased health risk of bad quality feed if overheating of the feed has started.

Propionic acid or propionic acid-based products for TMR feed inhibits mould and yeast and also counteract overheating. Follow the recommended dosage (usually 4 liters/ ton of) further deteriorating when immediate overheating problems are resolved. In most cases TMR feed are kept stable when a dosage of 2 liters /per tonne is applied during normal air temperature and a normal mixing interval of once a day.

Acidification of wet feed and milk

Liquid feed for pigs

When using wet feed stations, or similar, for pigs to retain good intestinal microflora, the correct pH levels in feed is a key factor. Acidifying feed is done to support the right bacteria culture and improve absorption of amino acids, plus inhibit the breakdown of for instance lysine in feed. When pH levels in feed rise it supports the growth of yeast and mold, causing bad quality feed. This can lead to poor milk production among sows and poorer growth among finishers.

Formic acid is used to reduce and regulate pH levels in wet feed. The ideal pH level is 4.0-4.5 (pH under 4.0 often makes the feed less appetising).

With problems of feed fermenting in tubes (often due to yeast build-up) or if growth of yeast fungi is extensive in the station, then products that are a mixture of formic acid and propionic acid might be a better alternative than pure formic acid, because apart from lowering pH levels they also inhibit the growth of yeasts and fungi.

Note! Never provide feed or milk without first measuring pH levels if formic acid has been used. The easiest way is to use litmus paper or pH sticks.

Milk treatment

Acidifying milk/milk replacer for calves has health benefits and reduces the risk of intestinal problems by keeping pH levels down in the fourth stomach. The desirable pH level in acidified milk is between 4.2-4.5. Do not use acidified milk with a pH below 4.2 as this might affect the milk intake. Acidified milk should not be used to replace the fresh colostrum immediately after birth because the vital antibodies are negatively affected by acidification.

Formic acid is used to reduce and regulate pH in milk/milk replacer. The recommended mix is 3 ml per liter of milk/milk substitute and 4.5 ml per liter of colostrum (not new born calves), to achieve a desirable pH of 4.2-4.5. Before feeding the pH should always be checked, see pH table.

To make the acid safer during handling it can be diluted, 1 part acid to 9 parts water. The dosage then is 30 ml per liter of milk/milk replacer or 45 ml per liter of colostrum. The dosage might have to be adjusted depending on the protein content of the milk. Milk powder often needs a higher dose of formic acid compared to cow milk. Casein, the protein in the milk, stays in the solution when the pH is above 5.2-5.3. When pH is lower the casein might flock out therefor it is important to mix the milk before feeding. Acidified milk can be stored in plastic containers up to three weeks
in a cool environment (not above 15°C).

pH table

The easiest way of measuring pH is with litmus paper or pH sticks. Electronic pH measuring devices are also available. Many electronic pH-measuring devices are made of glass, consisting of small holes to protect the measuring devices. These holes often get blocked by the proteins in the feed or milk, resulting in the device provides an incorrect reading.

Note! Never provide feed or milk without first measuring pH levels if formic acid has been used. The easiest way is to use litmus paper or pH sticks.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Tips if…

…Overheating in tower silo

Indicates that the material in the silo is too dry for this storage method. Finish off filling with a wetter material to improve the degree of compaction when filling the silo next time. The higher water content in the upper layer effectively inhibits air from penetrating down into the lower levels of the silo. Increase removal rate to counteract overheating.

…Overheating in bunker silo

Indicates too low compaction of the green matter, often combined with material that is too dry. Increase removal rate and spray the surface with the recommended propionic acid-based product or propionic acid mixed with water (1 to 1).

…Mold build-up under plastic in bunker silos

Indicate air leakage in the silo. Improve the silo cover, weigh down the plastic better and make sure birds and other animals can't access it.

…Poor silage (discoloured) in the centre of the bunker silo

Indicates delays without surface protection during filling of the silo. For longer periods of interruption, such as overnight or when raining, the silo should be covered with plastic to reduce cell respiration and growth of unwanted microorganisms.

…Spores in the silage

Spores occurring during the correct use of ensiling agents are rare. If the problem does arise it is probably due to the incorrect ensiling agent being used (for the conditions) or incorrect dosage.

…High ammonia levels in the silage

High ammonia levels often indicate a drawn out ensiling process or activity of unwanted bacterias. High ammonia levels often occur in combination with other unwanted decomposition products. Prevent this by ensiling relatively quickly and careful compaction. The use of the correct ensiling agent will lower ammonia levels to a great extent.

…High butyric acid levels in the silage

Butyric acid in the silage indicates clostridium activity. Use of the correct ensiling agent with formic acid kills most clostridium bacteria before they sporulate, minimizing the risk of butyric acid and clostridium spores in the silage/milk.

…High ethanol levels in the silage

High ethanol levels indicate that there is/has been yeast activity in the silage. Yeast uses lactic acid as a nutrient, leading to raised pH levels in the silage and spores from unwanted microorganisms beginning to grow, initializing overheating. Yeast can be killed by using ensiling agents containing propionic acid

Silage additives can never replace good management

In order for the silage additive to work, you must always follow the recommended dosage rates and ensure the dosing equipment is calibrated correctly prior to use. The use of silage additives cannot be expected to overcome adverse weather conditions, poor feeding-out procedures, incorrect dosing rates, poor compaction, poor or inadequate sealing and soil or slurry contamination and is therefore not warranted against these poor practises and conditions. If unsure of applications rates or methods, please seek advice.


ProMyr™


ProSid™

Five reasons for ensiling using ProMyr™ and preserving using ProSid™ from Perstorp

Ensure excellent animal health and product quality with minimum levels of molds and toxins.

Inhibit unwanted microorganisms and prevent bio-chemical decomposition.

Feed tastes better, leading to higher feed intake.

Ensure hygiene quality and storage stability.

Reduced dry matter losses help towards a better environment by optimizing pasture use, reduced ammonia and higher feed quality.

Perstorp
WINNING FORMULAS

Notes

50 years experience

Making silage is an art that requires knowledge and experience. In Perstorp we have plenty of both. For over 50 years, we have developed highly effective feed additives for farm animals. In the 1960´s we were one of the pioneers to launch acid-based silage additives on the market and today we are one of the world leaders in the field. We constantly aim towards creating sustainable solutions. We work continuously with the development of our products in collaboration with Universities and farmers. The high quality and result of using our feed additives help to increase the profitability of your business.

When you choose Perstorp as a supplier, you can be sure that we always seek the best outcome of your investment.

Your partner throughout the process

Talk to us! We will be glad to share our expertise, or why not visit our website.

When you choose a Perstorp product you can be sure that we always strive to provide the best possible outcome for your investment. That's how we see it – you secure and preserve your feed quality, which will pay dividends in your day-to-day work with your animals!

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