

Welcome to the third issue of Maximum Feed Back, our newsletter developed to update you on activities in our forage inoculant business.



BIOTAL® Forage Inoculants feature improved **Stability**

Biotal's formulation ensures the product stays viable when mixed with water for application. Once the bacteria in inoculants have been re-activated by mixing with water they begin to produce acids. In many inoculants this is uncontrolled and the bacteria can die off quickly from the effect of the build up of acids. Biotal's revolutionary new formula protects the bacteria from these potential negative effects, ensuring the bacteria remain viable for an extended period of time.

Optimize your Forage Quality through proper harvesting and feed out practices



R. Charley,
Ph. D.,
LALLEMAND ANIMAL NUTRITION

In the run up to the corn silage season, now is a good time to review some of the more important management factors that can make the difference between producing top quality forage and just having something that is "belly fill". Getting the best quality from forages is a "cradle to grave" or holistic approach: all of the small details need to be addressed. Forages are the dominant part of dairy rations and a large component of most beef rations and, as such, they are one of the key determinants of overall profitability. Once the forage has been ensiled its quality is fixed and other ration components need to be adjusted to achieve the set production targets. In some cases, poor quality ensiled forages may mean that production goals are not achievable and need to be reigned in, resulting in

Summary:

- New Biotal Forage Inoculant formula
- Optimize your forage quality through proper harvesting and feed out practices
- Ensure your silage stocks match your expansion plans
- Testimonial: **Laith Calloway**, *Custom Harvesting*
- Getting to know the LAN-NA group

significant financial consequences. Hence the importance of making sure that one of the key goals of all producers is to achieve the best possible forage quality and to maximize the retention of that quality through to the consumption of the fermented forages by their stock. Below we will briefly review the key management points that require attention.

Preparation:

Make sure that fields are well prepared: remove stones and get the surface as flat as possible to reduce the risk of equipment damage and potential for picking up soil when cutting. Soil introduced at forage harvesting increases the buffering capacity of the forage, meaning that more acid is required to reduce the pH. This can in turn increase the chances of a slow fermentation and possible clostridial fermentation, resulting in butyric silage and all the associated feeding, health and fertility issues. This is compounded by the fact that soil can contain very high levels of clostridial bacteria.



Prior to harvest, make sure foraging equipment and silos are in good repair. Downtime is costly and can seriously affect silage quality, while leaky silos can mean more air ingress and so more problems with heating and spoilage as described above. Make sure that your silo(s) is (are) sized correctly to allow you to maintain the necessary feed-out rates (fast enough to prevent heating occurring).

Crop selection, growth and harvest:

It is important to select the crop and varieties suited to local conditions and to meet the overall feeding objectives (i.e. yield, protein and energy levels). Avoid over use of fertilizer and be sure to time slurry applications correctly to make sure that all the nitrogen applied is taken up into the plant and converted into plant proteins. High levels of non-protein nitrogen in the plant increase the buffering capacity of the forage, increasing the ensiling (pH) challenge and can cause some serious issues at feedout. It is vital to cut the crop at the correct stage of growth for each forage crop, to achieve the balance of quality and yield targeted.

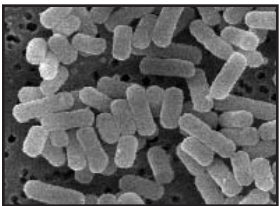


Chopping at optimum plant dry matter (DM) is also essential: for corn silage the target range is 32 – 38% DM; haylage crops are best ensiled at 35 – 40% DM: cereal silages grown for energy are best cut and chopped at 38 – 42% DM, while those taken for protein (e.g. ryelage pre-heading) should be treated like a haylage. If crops are ensiled too dry they are more difficult to pack, which may lead to more air ingress, slowing the fermentation and allowing yeast and molds to grow, causing heating and spoilage. High levels of yeasts can cause the silage to heat as it comes to the exposed surface at feedout and when mixed into a TMR. Silage harvested too wet presents more of an ensiling challenge and can be prone to clostridial spoilage, especially more highly buffered haylage crops.

If there are reasons to suspect high nitrates in a corn silage crop, e.g. due to drought, setting the cutting height to 18” will significantly reduce the amount of nitrates in the silage, since nitrates preferentially accumulate in the lower parts of the plant. When chopping forage, it is important to get the right chop length: long enough to have plenty of

good, effective fibre but short enough to give good compaction. For unprocessed corn silage, the theoretical length of cut (TLC) should be ¼ to ½”:

if the corn silage is processed (increasingly cost effective as DM goes above 30%) the TLC should be set to ¾”. For all other crops, a TLC of 3/8” is recommended, though that should be stepped up to ¾” if the silage is bagged, due to the additional mechanical processing going through the bagger.



All forages should be treated with an inoculant proven effective at delivering the results targeted.

Inoculants:

Inoculants are used for two primary reasons: (1) to stimulate or ensure a rapid fermentation (fermentation aids) and (2) to inhibit aerobic spoilage (spoilage inhibitors).

Fermentation aids generally contain efficient (homofermentative) lactic-acid-producing bacteria (LAB) and are mainly used on low dry matter forage crops that can have low concentrations of fermentable carbohydrates and high buffering capacities (e.g. grass, alfalfa, clover). Inoculants designed to inhibit spoilage may contain specific LAB, e.g. *Lactobacillus buchneri*, or propionic-acid-producing bacteria. These products are designed for use on materials more prone to aerobic spoilage such as drier haylages (more than 35% DM), corn and cereal silages, high moisture corn and cereal grains, and baleage. There are also products that combine homofermentative LAB with aerobic spoilage inhibitors to cover both the up-front fermentation and feedout stability.

Things to consider when **COMPARING** Silage Inoculants:

- ◆ Is there ample data for the specific product in the target crop from trials conducted at independent research facilities, such as universities, verifying their claims?
- ◆ Is the product manufactured to quality control standards and does the manufacturer have accreditation to show that manufacturing procedures are independently reviewed?
- ◆ Is the product packaged appropriately? The use of high barrier foils is preferred to exclude air and moisture, as is the use of specific preservation agents, e.g. moisture scavengers, in the product formulation.
- ◆ Shelf life and storage conditions should be read, understood and followed.
- ◆ Do not use expired inoculant: check for expiration date!
- ◆ Does the type of product match your expectations? Do you need a fermentation aid and/ or a spoilage inhibitor?
- ◆ Check application rates several times a day.

SILO filling to feedout:

Forage dry matters should be checked throughout the filling process to ensure feed is being chopped at the appropriate dry matter as discussed above. Compositing the samples to check DM throughout filling and then submitting a sub-sample for laboratory analysis will remove much of the mystery about the quality of the contents of the silo.

Fill the silo as quickly as possible and do not leave forage sitting in wagons overnight. Bunkers and piles should be filled in 6" layers using a progressive wedge, with an angle of approximately 30°, consolidated thoroughly, with every load packed properly. The optimum amount of packing vehicle weight needed can be calculated by multiplying the estimated tons of crop delivered to the silo in an hour by 800. Target a minimum packing density of 15 lb DM/ cubic foot.



of the face and minimize air ingress, reducing heating. Keep the exposed surface smooth and tidy and do not allow silage to sit in piles for extended periods (go straight from the face to the feed truck or mixer wagon). Any spoiled silage should be discarded, since it has been shown to negatively affect intakes and total ration digestibility even when fed at low rates. Badly spoiled silage can also lead to serious health and fertility problems, along with production losses. Finally, make sure you have a nutritionist balance the ration properly around your silage(s). Remember, once produced, the quality of your silage is fixed; the rest of the ration can and should be adjusted to give you the best performance possible from the ration you produce with them!



Remember:

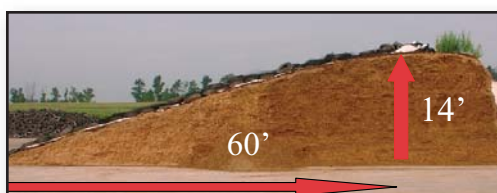
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A summary check list is proposed on the clipboard below:

Remember it is the attention to all those small details that will make the difference in the quality of the silages you have and the production you get from them. A summary check list:

- Preparation:**
 - fields
 - timing of use of fertilizers
 - equipment
 - silos
- Crop and variety selection:**
 - suitable to local conditions
 - matches overall objectives
- Harvest timing:**
 - optimum stage of growth
 - optimum plant moisture level
- Cutting and chopping:**
 - cutting height
 - optimum TLC
 - processing (corn silage <30% DM)
- Inoculant:**
 - proven to deliver desired results
 - fermentation enhancement/ aerobic stability
 - applicator calibration
- Filling & packing:**
 - quick fill
 - maximum 6" layers
 - progressive wedge (bunkers & piles)
 - run: rise 4:1 (drive over piles)
 - packing weight adequate for forage delivery rate
 - packing time adequate
 - packing density at least 15 lb DM/
 - seal silo quickly and effectively
- Feedout:**
 - rate adequate to prevent heating
 - discard spoiled silage
 - balance ration properly to silage quality

If making a pile, aim for run: rise ratio of no less than 4:1 along the sides to allow for continued effective and safe packing as the silo fills and pack in all directions (not just front to back!).



For bunkers and piles, the packing tractors should be running throughout filling, putting emphasis on the sides as much as the middle.

As soon as filling is completed, the silo should be sealed effectively to exclude air. In bunkers, this is best achieved using side sheets that overlap at the top of the silo, covered with a fresh top sheet. Recently a covering plastic with increased air barrier properties has been made available in the North American market and should be considered for ensuring minimal top spoilage losses. On bunkers and piles make sure that the top sheet is adequately weighted down using tires (touching!), bales or mesh bags filled with pea gravel.

At feedout the silage needs to be fed at a rate sufficient to prevent heating. On bunkers and piles, using a face shaver or lateral shaving with a bucket will minimize disturbance



'The Best Inoculant on the market'
according to
Laith Calloway,
Custom Haversting, Idaho

Providing a good service for a fair charge is the motto of **Laith Calloway**. For 10 years he and his crew have been providing custom harvesting services to regional dairies and farms.

Last year, Laith and his team put up 100,000 treated tons of corn silage, 10,000 treated tons of triticale, for three local dairies. Laith's crew uses two 6-row and two 8-row choppers.

Laith hand samples every 10-15 loads with a Koester tester. He recommends farmers ensile at a maximum of 70% moisture. In addition to careful management of crop maturity and chop length, Laith recommends Biototal forage inoculants to his customers. *"We've used different things in the past but Biototal works the best,"* said Laith. Not only does the inoculant help preserve the valuable dry matter and quality of the ensiled forages, it is easy to use. *"It rinses right off. We don't have a fly problem."*

The inoculants are applied with a Dohrmann applicator located on the chopper right at the time of cutting.



This applicator helps ensure thorough distribution of the inoculant across the chopped crop.

Dohrmann applicator

Through careful management of processing and inoculant application, Laith tries to help his customers produce the best forages possible.

"I feel that this is the best inoculant on the market. I've been going to seminars for years and I've learned and tried many different things," he comments. *"It gets back to the key elements of good management: Chop at the correct length and correct moisture. Pack and cover,"* he adds.

BUCHNERI™ 500 OU (Organic Use)

BIOTAL® PLUS II OU (Organic Use)

Getting to know the LAN-NA group



Kerri Ast
Marketing Communications Manager.

Located in the Milwaukee office, Kerri manages the product literature, advertising, and brand marketing. She has 10 years of agrimarketing experience. Kerri previously worked for a regional premix distributor and, before coming to Lallemand 3 years ago, an international farm machinery company.

She is a graduate of the University of Iowa and grew up on a diversified farm operation in Iowa where her family still farms.



Yolanda Davis
Logistics/Forecasting Manager

The next time you call in to place an order, you might be speaking with Yolanda Davis, Logistics/Forecasting Manager. Yolanda has been with Lallemand Animal Nutrition since 2004 and has more than 15 years of experience in inventory management and customer service. Some of her duties include managing and tracking product inventory, completing customer orders, and forecasting. She is currently working to complete her degree in Business Management from University of Phoenix.