BIOTALK
Delivering forage and nutrition technologies
January 2011

Announcing the first National Forage Conference

Biotal are delighted to be the organisers of the UK's first national forage conference, a must for dairy farmers looking to re-dress the current decline in yields from forage being witnessed in the UK.

"With a tightening milk price: feed price ratio, it is vital production from forage is maximised, yet UK production from forage is declining and this is hitting profitability," stresses Biotal Managing Director Tim Pollock.

"In ten years yield from forage has fallen by over 700 litres per cow with under 30% of production in the average herd coming from forage. This means feed costs have increased by around £70 per cow. Farmers are more exposed to the increased volatility in feed prices which is a feature of the feed market. Producing more from forage is the main way farmers can offset the impact of rising feed prices."

The conference is being held at **Hartpury College, Gloucester on Wednesday 2nd March** and runs from 9.30 a.m. – 4.00 p.m., including lunch.

"The conference will help farmers develop strategies to exploit the value of forages and will focus on the various ways to increase production. An international panel of speakers will cover subjects including maximising forage production, ensiling best practice, nutritional strategies to maximise forage use and cow performance, and the economics of high forage systems."

In the afternoon, delegates can visit the College's 400-cow dairy unit and attend a number of practical briefings on various aspects of maximising yield from forage

The conference costs £30 (incl VAT) for farmers and £60 (incl VAT) for all other delegates.
For further details or to register, call Biotal on 029 2047 5570 or visit the website www.biotal.co.uk

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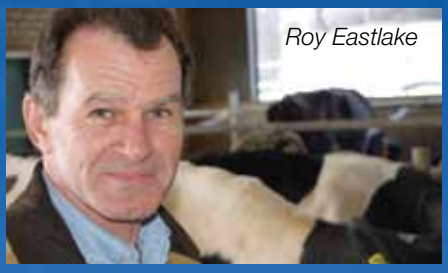

Roy Eastlake

Monitor maize diets closely to reduce acidosis risk

Changes to the way maize ferments during the winter make it important that cow performance is carefully monitored, as Biotal National Technical Support Manager Roy Eastlake explains.

The traditional thinking on starch fermentation rate is that much of the starch in maize is not fermented in the rumen and is described as slowly fermented starch. This is a problem as a shortage of rumen fermentable starch can reduce the population of rumen microflora and lead to less microbial protein being available in the lower gut, resulting in lower milk yields.

To overcome this problem and to maximise the supply of microbial protein it is necessary to add some quickly fermentable starch sources to the diet such as rolled cereals.

However, over the last few years new research shows that the way maize starch is fermented changes over the winter, directly related to the time the crop spends in the clamp.

Starch particles in maize are naturally protected by protein which cannot be broken down by rumen fermentation acids which means the starch is protected from fermentation in the rumen. Recent work from Biotal confirms that over time this protein is broken down by the action of the acids in the silage clamp.

Once the protein is broken down, the starch granules fall apart allowing the rumen bugs to degrade the starch. The longer the grains have been in the clamp, the more the protein is broken down and the greater the increase in starch degradability.

Research carried out over the last two years by Biotal confirms the extent to which maize starch degradability increases during ensiling (table 1).

The proportion of quick (rumen fermentable) starch increases while the proportion of slow starch (rumen bypass) declines.

This increase in quickly fermented starch increases the risk of Sub Acute Rumen Acidosis or clinical acidosis as the increased supply of rumen fermented starch leads to a fall in rumen pH.

It is important to take action where signs of acidosis are seen. One option is to reduce to amount of quickly fermented starch from other sources and this can also help reduce ration cost. Another would be to add a rumen specific live yeast to promote fibre digesting microflora and scavenge the lactic acid excess from rapid starch breakdown, which is often the primary cause of acidosis.

Sample Date	Total Starch % DM	Quick Starch % DM	Slow Starch % DM	Quick Starch as % of Total Starch
Early November	29.4	2.4	27.0	8.16
Late November	23.5	5.5	18.0	23.4
Late January	24.8	8.6	16.0	34.7
Early April	27.0	11.0	16.0	40.7

Ensuring quality

Dr George Payne and Sonia Roebuck

Technical Manager Dr George Payne outlines ways in which the Technical Department ensures the quality and dependability of Biotal products.

Biotal is an R&D based business and the laboratory is at the heart of all that we do for customers. It accommodates a fully equipped ISO 9001 accredited R&D and Quality Control laboratory, both functions being vital if we are to deliver outstanding products to customers.

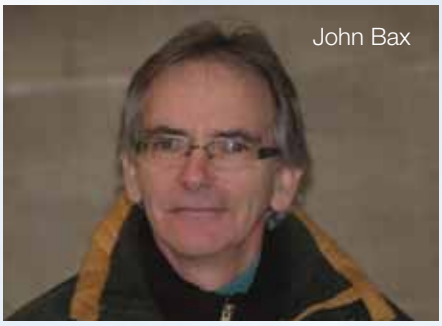
Since it was established in 1983 the laboratory has played its part in developing the extensive range of specialised micro-organisms for use in our forage inoculants and rumen specific yeast products. Through research we have been able to identify those strains which benefit farmers to greatest effect. R&D support has resulted in products now approved as zootechnical feed additives for use in dairy, beef, sheep, pig and poultry systems. Work is on-going and we are currently involved in the development of environmentally friendly products that further improve farm productivity.

Having developed the strains it is essential that product quality is maintained via an extensive range of quality checks. The laboratory maintains feed assurance certifications from UFAS, FAMI-QS, Soil Association and Organic Farmers and Growers.

Increasingly our work focuses on ensuring products meet the requirements on EU legislation, including zootechnical probiotic live yeast and bacteria as well as organic selenium nutritional feed additives in animal feeds. The latest legislation under EU 1831/2003 which covers all silage additive products required dossiers to allow our products to gain approval. Silage additive products not notified to the EU by 8th November 2010 can no longer be sold on farm.

We liaise closely with our technical team in the field to provide a range of forage analyses for farmers to help them get the most from their forages including advice on problems such as mycotoxin contamination.

If asked to summarise our role in one sentence, it would be that we provide an assurance that Biotal products deliver exceptional performance on farm.


John Bax

Take a strategic look at forage utilisation

John Bax, International Technical Support Manager with Biotal believes improving yields from forage needs to be a strategic objective for all dairy farmers.

"Faced with increasing purchased feed prices, greater price volatility and uncertain milk prices, it makes absolute business sense to maximise the use of the feeds you grow.

"The starting point when utilising forage is the rumen environment and we now know far more about the factors influencing the efficiency of rumen fermentation. There is no point making good forages if the cows can't use them."

Mr Bax stresses the importance of managing the rumen environment to promote higher intakes which are essential if forage use is to be increased. It is also vital to avoid the sub-acidotic conditions which reduce fibre digestion.

"All the principle fibre-digesting microflora species in the rumen are adversely affected by low pH, so maintenance of a suitable pH is key to getting the best from forages.

"Well-fermented and palatable forages are an aid to improving the rumen environment as they reduce selection in diets and so reduce acidosis resulting from diet sorting. It is also well worth considering adding live yeast to diets."

"Trials with **Biotal SC** gold *live yeast show an improved rumen pH in well managed conditions, with even bigger responses in stressed animals, and this has a big impact on the population of fibre degrading micro-organisms leading to an increase in fibre digestion."*

New research shows that the impact of adding **Biotal SC** gold live yeast is greatest when high NDF forages are fed. When low fibre grass silage was fed, **Biotal SC** gold increased fibre digestibility by 9.8%, but when a higher fibre forage was fed the increase was 18.6%. The improvement with maize silage was even more pronounced (see table 1).

In the slightly longer term Mr Bax believes that improving the efficiency of nitrogen utilisation is another area where increasing forage use will have a big role to play.

"By 2050 we will need to produce 70% more food globally and there will be increased competition between the human population and animals for protein sources. There are compelling economic and environmental reasons for looking to reduce the protein content of dairy diets."

Environmentally any excess nitrogen in the diet is excreted and as dietary protein content rises so the proportion excreted increases."

Table 2 shows the proportions of dietary Nitrogen retained and excreted at different overall crude protein contents. Field trials in the US have successfully produced daily yields of over 41 litres from diets of around 14.3% CP.

"The US work shows that it is possible to feed high yielding cows on lower protein diets. In this work milk nitrogen efficiency (the proportion of dietary nitrogen retained in the milk) was 36% which is substantially above average results.

"To achieving these sorts of results forage quality needs to be very good and the diet must be consistent to avoid daily variations in forage intakes.

"Dairy farmers will be well advised to consider the role forages are playing in their herds and what can be done to exploit this resource more," Mr Bax concludes.

Table 1 Effect of **Biotal SC** gold on NDF degradation in high and low fibre forages

	Grass silage		Maize silage	
	Low NDF	High NDF	Low NDF	High NDF
NDF Content (%DM)	43.0	66.9	38.5	58.2
Increase in NDF degradation (%)	9.8	18.6	4.3	23.9

Table 2 Protein nitrogen utilisation in dairy diets

Ration CP%	13.5	16.5	19.4
N intake (g/day)	483	605	711
N retained in milk (g/day)	173	185	180
N excreted (g/day)	310	366	457
Milk N as % N intake	36.5	30.8	25.4

Competition winners

The winner of the 42" TV from the prize draw at the **Dairy Event and Livestock Show** at the NEC in September is **Mr Boffey of Green Farm in Staffordshire.**

The lucky winner of a flat screen TV from the **South West Dairy Show** prize draw is **Mr Radford of Buttermore Farm in Devon.**

Congratulations to you both!

Yeast underpins top performance


From Left Paul Broad, Charlie Reeves and Neville Morrow

Diet consistency and a focus on rumen health are the foundations of success for one leading Cornish family dairy farming business

Neville and May Morrow run the 230 head Maymor herd near Ladock with their son Irwin, daughter Wendy and son-in-law Paul Broad. The herd was the top Holstein herd in the UK for fat and protein production in 2008/2009 and currently averages 10,500 litres at 4.17% fat and 3.23% protein.

The calving interval is 403 days with 47% conception to first service.

At the heart of the system is breeding with the aim of producing cows with a good top line, good legs and feet and excellent udders and the capability to produce good yields. *"We want to milk good cows and this gives us great job satisfaction,"* comments Neville Morrow. *"we not only breed for milk, but feed for it aswell."*

The all year round calving herd graze by day during the summer and have access to silage or TMR at night. According to Neville Morrow the key to good production is consistency. *"The basic diet has remained unchanged for three years and we target a high dry matter percent and good quality forages. We try and keep the daily routine consistent as well since this helps the cows."*

Over winter the milking cows are housed as one group and are fed twice daily to encourage high intakes and ensure fresh feed is in front of the cows. Troughs are cleared out regularly as required.

The diet comprises grass and maize silage, sugar beet pulp, a protein blend and a C16 fat and the ration is formulated to give M+20 litres. A 22% cake is fed for yield above this through the parlour. High yielders also have access to out of parlour feeders. The overall fed rate is 0.35kg/l.

Biotal SC live yeast had been included in the diet along with the farm minerals. *"We want to ensure that rumen pH is controlled and a live yeast helps improve the effectiveness of fibre digestion,"* comments Robin Hawkey of Cornwall Farmers.

Four years ago the decision was made to change to **Biotal SC toxisorb**, which combines live yeast with a mycotoxin binder. *"Some particularly dry silage had been made and we had concerns about heating and mycotoxins so Robin recommended* **toxisorb**,*"* explains Paul Broad.

"Adding **toxisorb** *we saw no negative impact from the dry silage and have kept it in the diet ever since, adding 25g/cow/day to the TMR. We are confident it helps keep the rumen settled and this is vital if we are going to achieve our target yields.*

"We see little variation in dung quality which is a good sign. We have discussed taking it out of the diet but our view is that while we may see no effect for a few weeks, it would take a long time to correct any problems we did see in yield, fertility or cow condition.

Cornwall Farmers' Charlie Reeves comments: *"Live yeast helps digestion while the MOS inclusion in the* **toxisorb** *is a really good 'safety net' against any mycotoxin challenges that might occur."*

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