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March 2016 20th Edition

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Canola Beats Soybean as Protein Source for Dairy Cattle

25 February 2016 US –

USDA Agricultural Research Service (ARS) scientists in Wisconsin are helping dairy farmers weigh the merits of protein supplements available for their cattle.

When it comes to protein supplements, dairy producers have two options: soybean meal and canola meal.

Canola meal is a relatively new option - production increased rapidly in the 1990s as a cold-tolerant crop, but it was initially raised primarily for its seed oil.

“Canola only recently caught on as a protein source for cattle when new varieties were developed,” said Glen A. Broderick, a former ARS dairy scientist with the US Dairy Forage Research Center in Madison, Wisconsin.

Mr Broderick (now retired) and his colleagues divided 50 lactating dairy cows into 5 groups and varied their diets (high and low amounts of soybean meal, high and low amounts of canola meal, and a mix of low canola and low soybean meal).

Each group received a different diet every three weeks, and researchers measured the amount of milk, milk proteins and urine nitrogen produced by the cows while on each diet.

The diets were balanced to provide adequate levels of protein and included standard corn and alfalfa silages, corn grain and the usual supplementary vitamins, minerals and normal levels of neutral detergent fibre.

After 15 weeks, researchers found that the canola meal supplement resulted in more milk and milk protein production per day than soybean meal. The effects were about the same in both the high- and low-protein diets.

Specifically, cows fed canola meal produced an average 88.8 pounds of milk per day, compared with 86.6 pounds produced by cows on soybean meal, a 3-per cent difference per cow. Cows on canola meal also showed a similar increase in production of milk protein.

Many dairy producers have hundreds of cows, so every increase in yield per cow translates into a more financially viable dairy operation.

Per unit of protein, canola meal now costs about the same as soybean meal, but the findings could save costs in the long run by giving dairy producers a new option in the face of ever-changing prices, Mr Broderick said.

The study was partially funded by the Canola Council of Canada. - See more at: http://www.thedairysite.com/news/49347/canola-beats-soybean-as-protein-source-for-dairy-cattle/#sthash.NheYKkDS.dpuf

Feeding Management In Lactating Sows

Regardless of the feeding system in place, the goal is to maximize daily feed intake as soon as possible after farrowing. That ensures maximum milk production and litter growth as well as minimal body weight lost.

Feed must be kept fresh, which is a challenge in warm weather.

In general, systems able to have an intake of more than 825 lb. (375 kg) of lactation per year tend to be more productive than systems having a lower lactation diet usage.

With a 20-day lactation length, the target average daily feed usage is 15 lb. (6.8 kg) per farrowing crate, and 16 lb. (7.3 kg) per lactation day.

When longer lactations are being used and better feeder management is in place, some systems get closer to 1,000 lb. (454 kg) of lactation diet per sow per year.

Make sure the water flow rate is no less than 0.5 gal (2 L) per minute as this ensures an intake of more than 5 gal. (19 L) per day.

Lower or depressed feed intake is often the first sign of individual problems and/or issues affecting sows in farrowing. Those issues can be any of the following:

- High replacement rate (too many gilts farrowing at any given time).
- Illness in sows or litters.
- Room temperature (macro-environment) is too warm.
- Fresh water is not available.
- Feed is inaccessible or not palatable (feed is moldy).
- Hoof lesions.
- Shorter lactation.
- Retained placenta/piglet.

It is critical to identify any issues early. Monitor sows and litters closely, particularly in the first 2−3 days. Control rectal temperature for 2 days after farrowing, as anything above 104°F (40°C) during those days indicates infection. Any infection should be treated with antibiotics or antibiotics plus antipyretics to reduce fever.

Ensure every sow gets up, eats, and has access to fresh water every day.

Keep the sows' macro-environment (room temp) at 70−74°F (21−23°C) during the first 3 days and at 66°F (19°C) after that. Set fan bandwidths 1.5° to 2° per each stage as a starting point. Adjust if needed.

Calf Connection: Weaning calves

By Dr. Sam Leadley

dairybusiness.com » Calf Connection: Weaning calves

Is there an ideal time to wean calves off of milk on to a solid-feed ration? Yes! The calf is ready when:

- the calf's rumen is sufficiently mature to absorb the nutrients that come from digesting solid feeds and,
- she is eating enoWugh calf starter grain to provide for maintenance and growth.

Unfortunately, looking at the outside of a calf will not reveal her level of rumen maturity. Maturity has to be estimated by observation. Specifically, keeping track of when calves begin to regularly eat calf starter grain. A practical way to do this is to only feed about one handful of grain a day starting on day two of age. Replace the grain each day. When the grain is all gone for three or more days in a row this equals "regularly eating grain."

Most of my calves started eating calf starter grain within a three-to-five day window. To keep things simple, I just kept track of the calves that did not start eating grain in that narrow window. Since this was usually about 10% of the calves, it was fairly easy. And, as often as I could remember, I hand-fed grain to these laggards or tossed a little grain in their milk pail.

Three weeks later, assuming she continues to eat grain regularly, the papillae that line the inside of the rumen will be sufficiently mature to absorb the nutrients released from rumen fermentation. So, depending on your milk feeding program and how aggressively you coaxed calves to eat grain, somewhere around four to six weeks of age this three-week interval ends.

About this time, begin watching closely how much calf starter grain calves eat each day. When this consumption gets up to about one quart (assumes one quart of starter equals about one pound) of starter per day for several days in a row begin the weaning process. The calf's rumen is now ready to absorb nutrients and she is eating enough grain to significantly supplement her milk ration.

If you cannot be bothered with all this detail, another approach is to start the weaning process when it most likely that all the calves are ready. You wait until eight to ten weeks. Then begin the weaning process. This method is less profitable than the "three-weeks-of-grain" method described above. I do not recommend abrupt "cold-turkey" weaning even for these calves.

How to cut back on milk/milk replacer? The most rapid increase in starter grain intake will come from reducing the milk volume. Labor savings are greatest by adopting a once-a-day feeding program. Continue feeding the same product (whole milk/milk replacer) at the same rate per feeding and drop one feeding.

This method is in contrast to the "dilution" and "gradual-cutback" methods. The dilution method keeps the volume constant and waters down either the milk or milk replacer. The gradual-cutback method keeps two feedings and reduces the volume fed at each feeding. Both of these methods work. Neither of these methods will make calves sick, nor keep them from increasing their grain intake. The

point is that the once-a-day method cutting back to one-half milk volume has the advantage of driving grain intake up more quickly than the other two, as well as reducing labor costs.

The calves on once-a-day feeding will increase their time with their noses in the grain buckets. Within three to five days, grain consumption should at least double. That is, go from about 1.5 to 3 three quarts a day. Expect water intake to go up, also. Be sure they do not run out of either grain or water. In hot weather you might have to add an extra feeding of water.

During the week when I fed once-a-day it was necessary to watch grain intake carefully. If the occasional calf did not come up on grain as expected she needed to be tagged for extended milk feeding. Most farms stop feeding milk entirely five to seven days after starting the once-a-day feeding.

Many farms at this point stop milk feeding and continue free-choice starter grain feeding leaving the calves in hutch or pen housing. After one more week in individual housing the calves are moved to group pens. Some calf raisers will start adding a handful of hay in the top of the grain pail each day to condition the rumen to a forage ration. Others begin to feed a blend of starter and grower pelleted grain to shift calves to the transition pen ration.

By the way, an essential element in rumen development is feeding free-choice water. I prefer to feed warm water (80° summer, 100° cold weather) to young calves to promote higher intakes. This includes below-freezing weather when water feeding may have to be limited to once a day.

FYI

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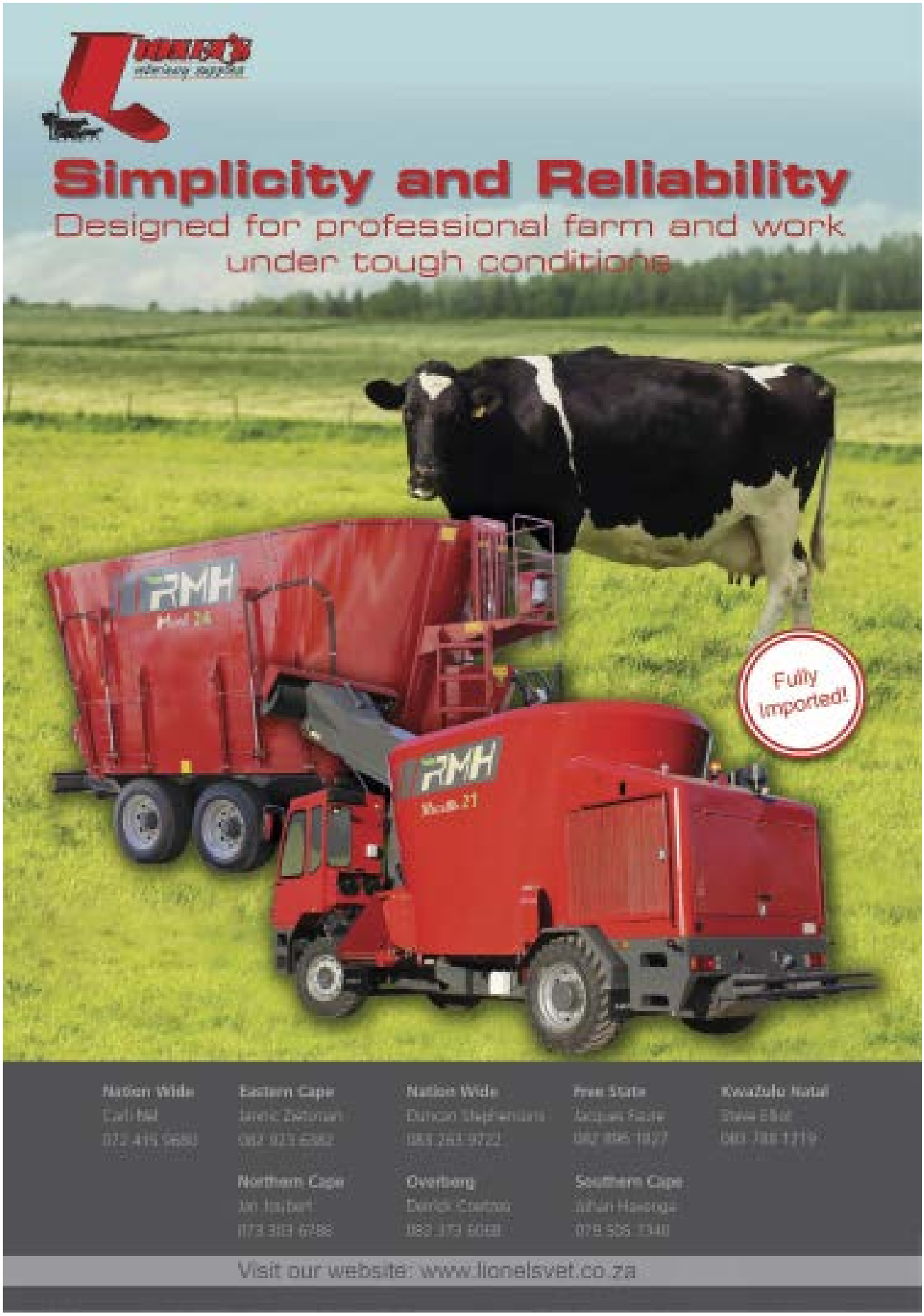
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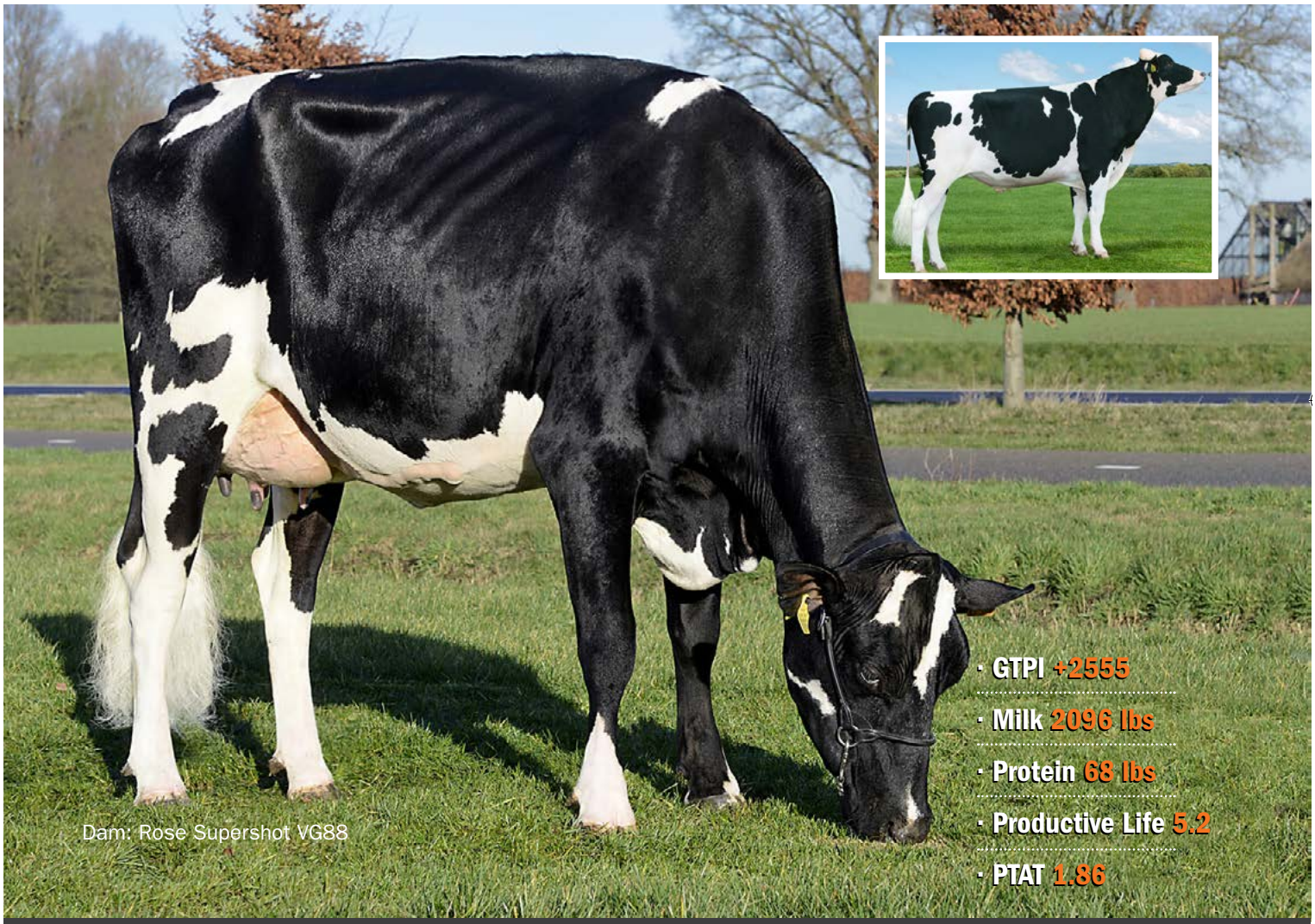

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Source: USDA - CDCB, CDN - 12/15

Update on the role of cryptosporidiosis in calf diarrhoea

The protozoan parasite *Cryptosporidium parvum* is increasingly being recognised as the primary cause of diarrhoea in young calves in the UK, with peak prevalence of clinical disease and intensity of oocyst shedding at one to 3 weeks of age. There are limited safe and effective therapeutic options that specifically treat, or prevent, cryptosporidiosis. Control on farms should be directed towards management strategies that minimise within- and between-farm transmission of the parasite. These include regular, appropriate disinfection and hygiene measures to reduce contamination of the environment and optimising calf health by a proactive approach to colostrum management and control of other enteropathogens.

10.12968/live.2015.20.6.???

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Key words: *Cryptosporidium* | cattle | control | epidemiology

Diarrhoea continues to affect the cattle industry both in the UK and worldwide, with significant impact on the welfare and productivity of the animals as well as huge time and cost implications for farmers. While the true prevalence of diarrhoeic disease is difficult to quantify, it is estimated to affect over 30% of all calves and cause almost 50% of calf mortality (Defra, 2008). Whether or not a case is reported to a veterinary surgeon or submitted for passive surveillance will depend on a number of factors including the severity of clinical signs and on the farmer's perception of the problem.

Determining the primary aetiology of an outbreak is not straight forward, with many cases presenting as mixed infections. However, analysis of veterinary investigation surveillance report (VIDA) data over a 5 year period (2007–2011) indicated that *Cryptosporidium parvum* is the leading cause of enteric disease in calves under 1 month old; detection of *C. parvum* alone, in the absence of any other enteropathogen, accounted for 37% of all diagnosable submissions (25% for rotavirus; *Figure 1*) (Hall et al, 1980). *C. parvum* was also found in conjunction with the other major enteropathogens and these mixed infections have been shown to increase severity of clinical signs. Scotland's Rural College (SRUC) reports for 2011 found *C. parvum* to be the leading cause of calf diarrhoea outbreaks, comprising 36% of diagnosable submissions (rotavirus 27%). While there will be inherent bias associated with data from passive surveillance, they confirm that *C. parvum* is a genuine and widespread primary enteropathogen, capable of causing significant clinical disease. Historically cryptosporidiosis was seen as a mild self-limiting diarrhoeal disease, a less important contributor to the calf diarrhoea complex than rotavirus, coronavirus and *Escherichia coli* K99. However, this situation appears to have changed in recent years, perhaps due to the increased awareness and farmer uptake of vaccines against the other three pathogens. The remerging role of *C. parvum* is supported by an increasing wealth of anecdotal evidence that has become impossible to ignore.

Cryptosporidium is a protozoan parasite. The infective stage is the microscopic oocyst which is thick-walled, rendering it highly resistant in the environment and to many disinfectants. Infectious dose can be as low as 10 oocysts and these are massively amplified in the intestine, resulting in potentially billions of oocysts being shed into the environment by an acutely infected calf. Transmission occurs either directly between shedding individuals via faeco-oral contact, or indirectly for example via fomites, watercourses and wildlife vectors.

[Layout - can you please use the greens for all those with Cryptosporidium, but use oter colours for the rest. It is too confusing with all the green.]

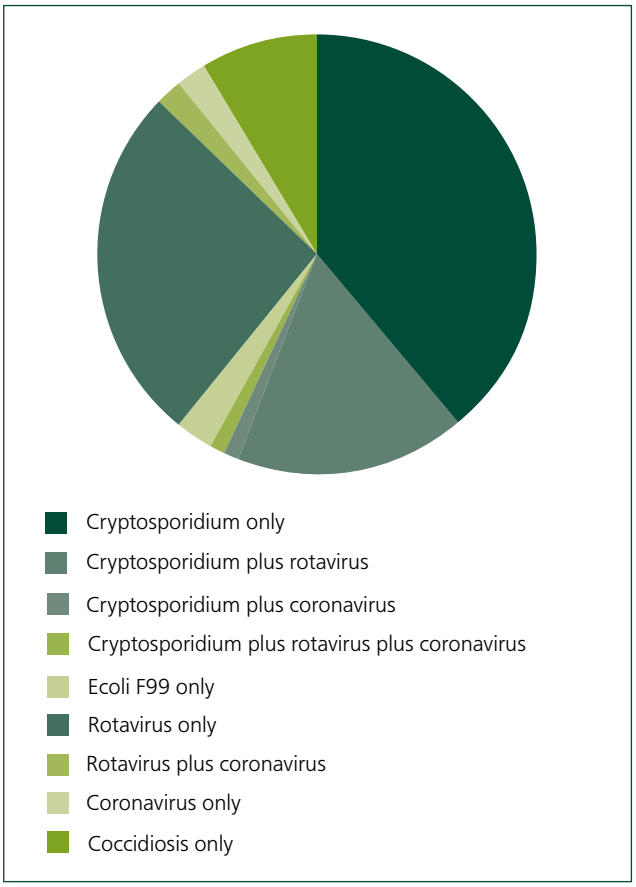

Figure 1 Pathogens causing diarrhoea in calves less than one month of age, as a percentage of diagnosable submissions to veterinary surveillance centres (VIDA, 2007-2011).

Modern molecular methods are used to study the genetic profile of this parasite and the result is that new species and genotypes are being identified; currently over 28 species have been assigned, and the parasite can infect a huge range of animals (Chalmers and Katzer, 2013). *C. parvum* is the species most commonly associated with diarrhoea in young calves; it is also an important zoonotic pathogen. Other species are also identified in cattle and are not considered to be clinically significant. These include *Cryptosporidium bovis* and *Cryptosporidium ryanae*, typically thought to occur in older, weaned calves, and *Cryptosporidium andersoni*, which is associated with adult cattle and may cause mild milk drop (Brook et al, 2009; Santin et al, 2004).

At the Moredun Research Institute there is an active research group studying *Cryptosporidium* spp. working closely with farmers to tackle cryptosporidiosis, focusing on the following areas of pathogenesis and epidemiology.

Prevalence and distribution of species/genotypes

The prevalence of shedding of *C. parvum* oocysts in calves in the UK has been demonstrated by cross-sectional surveys to be extremely high, particularly where calves under 1 month old were targeted. In a recent study, carried out in northeast Scotland by the Moredun Research Institute in collaboration with the University of Glasgow, 48% of beef calves sampled were positive for *C. parvum* and this concurs with many other similar studies (Brook et al, 2008; Smith et al, 2014). Furthermore, cohort studies suggest that 100% of calves on *C. parvum*-positive farms may shed oocysts at some point in the first few weeks of life (S Thomson, unpublished observations). However, this does not necessarily infer prevalence of clinical disease attributable to cryptosporidiosis, as apparently healthy calves can shed oocysts.

Historically the prevalence of *Cryptosporidium* in older animals has been cited as being extremely low. Where oocysts have been detected, they have often been identified as *C. andersoni*. Ongoing research at MRI focusing on the parasite in older animals has confirmed that concentration of oocysts in the stools of these animals is often very low. However, by optimising processing it has been possible to detect a much higher prevalence of oocysts in faeces compared with literature and, significantly, molecular typing has identified the presence of *C. parvum* (Wells et al, 2015). While there is no evidence of clinical disease in older animals, this impacts on potential transmission within farms, especially considering the very low infectious dose.

Routes of transmission and source of infection for calves

Within farm transmission

The source of infection for young calves is important to determine in order to break the transmission cycle. Considering adults do shed *C. parvum*, transmission could occur directly via dams around calving/suckling or indirectly via a contaminated calving area. There is evidence of calves beginning to shed oocysts at only a few days of age which suggests they were infected around the time of birth, given that the pre-patent period is around 3 days.

Calf-to-calf transmission, either directly or via contaminated calf accommodation is likely to be an extremely important transmission route, given the high levels of oocysts shed by acutely infected calves (peak prevalence and intensity of shedding occurs at 1–3 weeks old) and also considering the low infectious dose and the resistant nature of the oocyst in the environment. Suckler herds that calve indoors often report an increase in disease as the calving season progresses due to the accumulation of contamination. For individually or grouped dairy calves, one study found that farms that regularly moved temporary, gate-style calf pens had a much lower prevalence of positive animals compared with farms with a limited number of fixed, concrete pens (Hotchkiss, personal communication).

In theory, calves could also be infected by contaminated water sources and other animals such as adult sheep and deer. The authors' recent research did detect *C. parvum* in these sources using sensitive processing methods (Wells et al, 2015), although semi-quantitative assessment of oocyst load suggested the risk was low, compared with the high intensity of shedding by young ruminants. Lambs had a high prevalence of *C. parvum* and could act as a reservoir of infection and contribute to environmental contamination.

Between farm transmission

Molecular studies can determine if farms in a local area share the same 'strains' or genotypes. In theory transmission between farms

New photo dropped in and sent to Carolyn

Figure 2. Using temporary gates can allow calf pens to be moved regularly to allow proper disinfection and reduce environmental build-up of contamination (photo Kevin McCollum).

New photo dropped in and sent to Carolyn

Figure 3. Research has shown that adult cattle can shed C. parvum *and are therefore may be potential sources of infection for neonates (photo Stephen Maley).*

can occur via on-farm movements or purchasing of shedding animals (potentially over long distances) or locally via watercourses, contiguous or shared grazing and free-roaming wildlife.

Considering biosecurity and limiting purchasing of animals, particularly youngstock, is vitally important. Farms that purchase animals are more likely to harbour multiple strains and the genotypic profile of these strains is less stable compared with closed herds (Brook et al, 2009).

Basis of variation in clinical manifestation

It is known that there is a spectrum of clinical outcome with *C. parvum* infection (ranging from asymptomatic infection to death), but the factors driving this variation are largely unknown. Research into this pathogen is technically challenging as the life cycle cannot be completed in vitro; isolates must be propagated and maintained in vivo, in animal models. This means that many fundamental questions regarding how the disease progresses remain unanswered. In particular, the biological mechanisms that determine disease severity are unknown and the multifactorial nature of the syndrome means pathogenesis is complex, with clinical outcome potentially depending on host factors (age, immune status, genetics), environmental factors (concurrent enteropathogens, other stressors) and pathogen factors (number or strain of pathogen). Identifying the relative importance of these factors is very difficult on farms; controlled conditions are required. If virulence genes or markers could be identified, then this may inform the design of vaccines in the future.

Control

Depending on the individual farm, the aim of a control strategy might be to reduce shedding of oocysts (and therefore environmental contamination), or to reduce the clinical signs of infection.

Therapeutics

Understandably, many farmers are frustrated at the apparent lack of progress towards a 'silver bullet' that will treat the signs of cryptosporidiosis. Many agents have shown promising results in vitro (Gargala, 2008), but few have given consistent efficacy against clinical signs or shedding in affected ruminant species (Shahiduzzaman and Daugschies, 2012). Currently there is one licensed product available, halofuginone lactate (Halocur: MSD Animal Health), which can be used prophylactically on problem farms and has been shown to reduce or delay oocyst shedding (and therefore environmental contamination) in some studies. Conflicting reports of the effectiveness of halofuginone lactate in reducing clinical disease are to be found in published studies and anecdotally on farms.

For prophylaxis, one study found treated calves were less likely to shed oocysts and mortality was lower, although there was no effect on the incidence of diarrhoea (Trotz-Williams et al, 2011). No effect was seen on diarrhoea in other studies (Lallemand et al, 2006) and a small delay in disease onset (of 3 days) was observed on another (Jarvie et al, 2005). Conversely other studies have reported a decrease in severity of disease (Joachim et al, 2003) and mortality (Naciri et al, 1993).

The disadvantage of this product is that is must be given orally for 7 days from birth and this is not always practical, especially on beef suckler units. In addition, it is vitally important that farmers are aware of the potential effects of overdosing as toxic effects (including diarrhoea) have been shown at only twice the recommended dose. The product is also licensed for treatment of diarrhoea due to cryptosporidiosis however it must not be given to dehydrated or inappetant animals.

When the authors have surveyed farmers, many claim to be effectively treating *Cryptosporidium* spp. with antimicrobials and products such as decoquinate (Deccox; Zoetis). While these products may improve clinical signs by treating concurrent or other enteropathogens they are not licensed to treat cryptosporidiosis; the weight of evidence suggests decoquinate is ineffective against *Cryptosporidium* spp. (Lallemand et al, 2006; Moore et al, 2003). On problem farms vaccination against rotavirus, coronavirus and *E. coli* K99 may also help the overall health of neonatal calves.

Other control strategies

While there remains to be limited licensed products for treating cryptosporidiosis, there are practical measures that farmers can implement to reduce the impact of the infection in their animals and to reduce the amount of environmental contamination.

Colostrum

The importance of colostrum cannot be understated and a proactive approach to colostrum management can have a huge impact on calf disease. Simple and practical measures, such as recording when a calf has been seen to suck or is administered colostrum via a bottle or tube have been shown to be very successful. The three Qs of colostrum management should be adhered to, namely quality, quantity and quickly. The recommendations are that 3 litres (or 10% of bodyweight) are given within the first 2 hours of life, with a second feed given within 12 hours. Few farmers check colostrum quality but this can be done fairly simply. Colostrum with less than 20 g/l IgG should not be used. There are some excellent online tutorials focusing on colostrum management (http://dairy.ahdb.org.uk/technical-information/youngstock/3-qs-of-colostrum/).

Disinfection

It is not widely understood by farmers or veterinarians that most commonly used disinfectants (such as FAM, Sorgene and lime) will not kill *Cryptosporidium* oocysts at recommended concentrations. Steam cleaning is one effective and safe option if carried out correctly. Otherwise effective agents are based on ammonia and hydrogen peroxide, although they need to be used at the correct concentration and given the appropriate contact time. Care must be taken when preparing and using many of these agents; caustic fumes preclude the use of ammonia in occupied housing. Current available products are: 2–3% KenoTMCox (Naciri et al. 2011), 2–4% Neopredisan (Keidel and Daugschies 2013), 10% Ox-Virin (Quilez et al. 2005) and 3% hydrogen peroxide.

Farm management practices

There are many practical measures that farmers can put in place to reduce within- and between-farm transmission of the parasite including individual housing for dairy calves, low stocking density in group pens and outdoor calving (or early turnout), where possible. Grouping of calves according to age may also be beneficial — in particular farmers should avoid mixing calves of 1-3 weeks of age (i.e. during peak shedding) with neonates. Strict hygiene must be adhered to in calving pens and calf accommodation, with regular and appropriate disinfection. In addition, rapid isolation of scouring individuals is crucial in preventing an outbreak of cryptosporidiosis.

KEY POINTS

- *Cryptosporidium parvum* is extremely common in UK calves.
- Most commonly used farm disinfectants do not inactivate *Cryptosporidium* oocysts at recommended concentrations.
- Older animals, as well as youngstock, can act as reservoirs of *C. parvum* infection.
- There is a real risk to public health from *C. parvum*, particularly to those not regularly exposed to the pathogen.
- Halocur may help on problem farms, but farmers should be aware of the toxic effects of overdosing.

Public health

Farmers and veterinarians should consider the real potential risks to public health from *C. parvum*. On farms, good hygiene practices should be adhered to, particularly with students seeing practice who may not have been previously exposed to the parasite (Gait et al, 2008). Immune-compromised individuals should avoid contact with young calves. Farms that regularly open to the public should also be advised that alcohol-based gels will not suffice to protect visitors and are no substitute for thorough hand washing with soap and water (Gormley et al, 2011; Hoek et al, 2008). Slurry management should be carried out according to legislation before application to fields, as contamination of drinking and recreational water is an extremely common route of large outbreaks in humans with agricultural runoff often implicated as the source of infection (Lake et al, 2007). One important aspect of ongoing work at Moredun Research Institute is working with stakeholders at water catchment level (including the water industry, farmer, landowners, gamekeepers and environmental agencies) to safeguard public water supplies (Wells et al, 2015).

Future

Funding has recently been secured to study more closely the host–parasite interaction with the neonatal gut, in order to better understand early response to infection. In addition, the authors are interested in farmer behaviour, especially in terms of risk perception. From the authors' own research and from personal experience as a veterinarian, it is clear that different farmers will accept very varying degrees of morbidity and mortality in young calves. Schemes that allow benchmarking of calf health performance can be very powerful in changing attitudes and this is a potential area that can be driven by the veterinary practice.

Conclusion

While there is unlikely to be a novel licensed therapeutic product or vaccine in the near future, there is much that can be done to control cryptosporidiosis on farms. Veterinary advice should be targeted at minimising the build-up of environmental contamination and reducing the clinical impact by optimising the neonatal environment and controlling other enteropathogens. Veterinarians concerned about potential *Cryptosporidium* problems are welcome to contact the research team at the Moredun Research Institute. LS

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Another anti-AGP article? Yes, we insist. Because we should.
Turbo Tox: 1 product 5 effects

Within all livestock animals, poultry is one of the species with the most advanced genetic progress in means of yield and efficiency. The improvements obtained along the years by leading breeding companies have brought standard guidelines of broilers, to be raised in less than 40 days, with feed conversion ratios lower than 1,60. However, this expected genetic perfection also requires a more integral approach of feeding, management, biosecurity, and disease control measures. Not only for the animal, but also for the sake of consumers.

According to the WHO, diarrhoeal diseases are the most common illnesses resulting from the consumption of contaminated food, causing 550 million people to fall ill and 230.000 deaths every year (as stated in Fact sheet N°399 from December 2015):

"Antimicrobials, such as antibiotics, are essential to treat infections caused by bacteria. However, their overuse and misuse in veterinary and human medicine has been linked to the emergence and spread of resistant bacteria, rendering the treatment of infectious diseases ineffective in animals and humans. Resistant bacteria enter the food chain through the animals (e.g. Salmonella through chickens). **"Antimicrobial resistance is one of the main threats to modern medicine."**

Anything brought to perfection is sensitive and fragile. As is poultry. All genomics and advanced selection applied to poultry has brought us an animal that is capable of delivering optimum quantity of meat/eggs/chicks in exchange of lesser cost. But, the genetically superior animals are also more susceptible to any flaw that may result from management, biosecurity, or disease control applications.

Nutrition is still the biggest cost factor that also directly influences animal health and performance. Within this scope, the main pillar of growth raises as the digestive system and its integrity. Especially the establishment and balance of the beneficial flora is a crucial factor in means of healthy mucosa/villiae formation, proper absorption of nutrients, building up resistance, and enhancing protection against diseases.

Along the years, many diverse types of additives have been used for this purpose, being AGPs' (antibiotic growth promoters) the most extended one, because of certain effectivity and cost reasons. But due to the abuse of AGPs, and inclusion of human antibiotics into this concept, the ideal of "farm-to-fork" safe animals has been altered, resulting in considerable risks for consumers. The biggest of them is antibiotic resistant bacteria, and their impact on human health.

Although not entirely covering the purpose, one very effective method to help to close these gaps is the use of diverse feed additives. The main idea behind the intestinal integrity is changing the microbial balance in favour of the animal, hence decreasing as much as possible the colonization and multiplication of transient pathogens. Infeed acidifiers, probiotics, prebiotics, immune modulating factors, or a balanced combination of these can be a valuable alternative in the path of eliminating antibiotics for growth enhancement purposes.

Under the light of this approach, a research* has been carried out in the National University of Trujillo, Faculty of Agroscience, Academic school of professional Zootecnics at Trujillo-Peru in 2015. The performance of a combined Non-Antibiotic growth enhancer **(Turbo Tox-XVET GmbH Germany)**

XVET GmbH
Hamburg – Germany
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info@xvetgermany.com

has been evaluated in different application dosages, and the results have been compared with a positive control group with Zinc Bacitracin.
Also as to see the possible potential effects, the combination of Zinc Bacitracin and Turbo Tox has been included as an experimental group.

400 comercially known breed of chickens have been divided under a completely randomized design into four treatment groups:

- T0: 0,5 kg/ton zinc bacitracin,
- T1: 1 kg Turbo Tox + 0,25 kg / ton zinc bacitracin,
- T2 Turbo Tox: 1 kg / ton
- T3 Turbo Tox: 1,5 kg / ton of feed.

The addition of Non-Antibiotic growth enhancer Turbo Tox improved ($p < 0,05$) the final body weight and weight gain of the broilers. The best results were obtained with 1,5 kg/ton inclusion rate (T3), followed by 1 kg inclusion rate (T2). The third best result was obtained by (T1) with 1 kg Turbo Tox + 0,25 kg Zinc Bacitracin, and finally (T0) only 0,5 kg Zinc Bacitracin. (Figure 1)

Turbo Tox at the highest inclusion rate improved significantly the feed consumption.

The treatments with Turbo Tox obtained the best feed conversion ratios ($p<0,05$) and the results were significantly better than the control group. There was no significant difference of mortality between treatment groups. (Figure 2)

Treatment 3 had the best productive efficiency, followed by treatment 2, treatment 1 and treatment 0. Treatment 3 delivered an improvement of +14,51%, treatment 2 +12,30% and treatment 1 +6,34% in comparison to the control group. (Table)

The relation of cost/benefit was 1,50; 1,48; 1,47 and 1,43 for the treatments 2, 3, 1 y 0 respectively.

The research suggests, that It can be concluded that the best production parameters were obtained by 1,5 kg/ton inclusion rate of only Turbo Tox, where as the best cost/benefit ratio has been obtained with 1 kg/ton inclusion rate of only Turbo Tox.

The results can be linked to the fact that, using synergic, balanced and proven combinations of feed acidifiers, prebiotic yeast extract, and other regulating ingredients provides a greater success in means of intestinal integrity, on the rough path of elimination of AGPs' opening the horizons to a sustainable production and safe, farm-to-fork animal-origin food products.

*Full research is available in Spanish on demand.

Attachments:

Figure 1. Average final weight of the chicken at the end of rearing

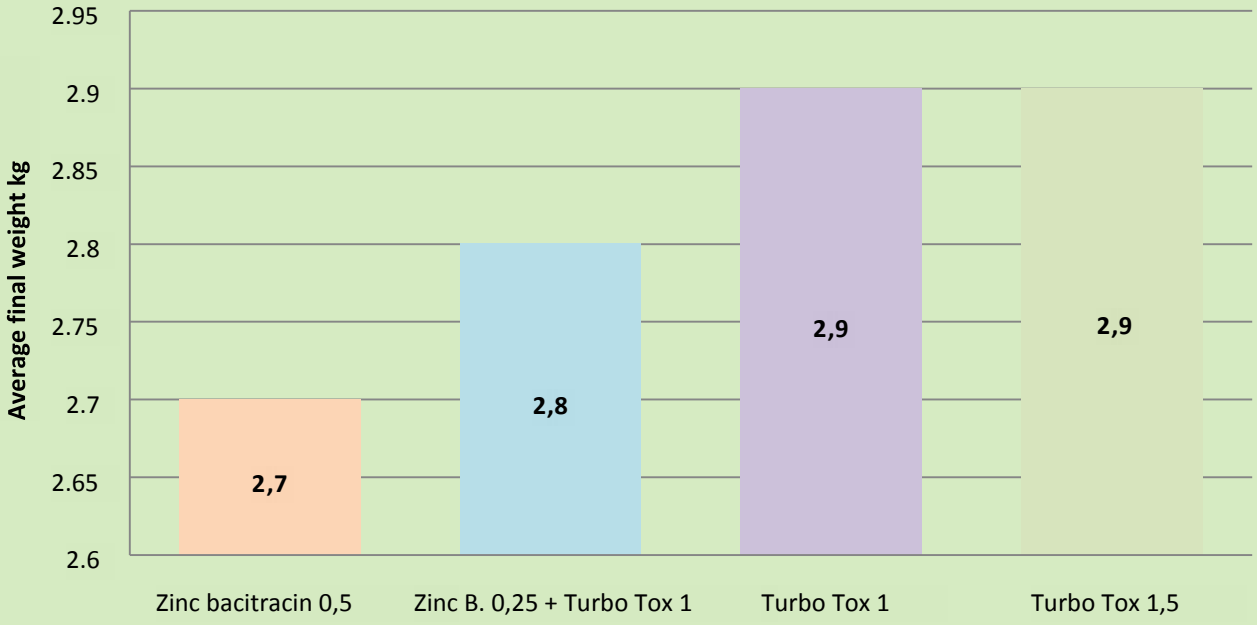

Figure 2. Feed conversion ratio of all treatment groups

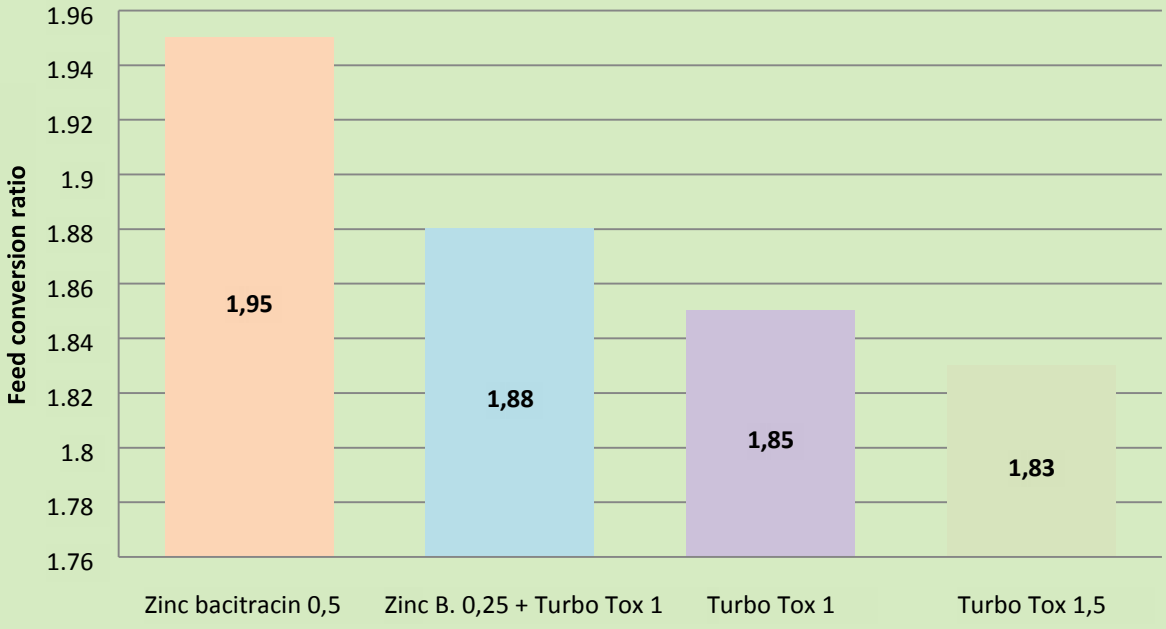

Table 21. Productive efficiency index for each treatment group

treatments / **variables**	**Zinc bacitracin 0,5 kg**	**Zinc B. 0,25 kg + Turbo Tox 1 kg**	**Turbo Tox 1 kg**	**Turbo Tox 1,5 kg**
Livability	98	99	99	99
Average final weight	2,7	2,8	2,9	2,9
Age	42	42	42	42
FCR	1,95	1,88	1,85	1,83
PRODUCTIVE EFFICIENCY INDEX	**328,3**	**349,1**	**368,7**	**376,0**
Difference to that Zinc Bacitracin only	--	+6,34	+12,30	+14,51

Growth Enhancer

Turbo Tox

1 Product 5 Effects

Performance Enhancer

Control of Mycotoxins

Control of Bacteria

Control of Moulds

Control of Insects

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Made in Germany

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info@xvetgermany.com

Growth Enhancer

Turbo Tox

Non-Antibiotic growth promoter control of mycotoxins, bacteria, moulds, and insects

Composition:

MOS	Formic acid
Inact. Saccharomyces Cerevisiae	Citric acid
Diatomaceous earth	Propionic acid

Species:

Poultry, cattle, pigs, sheep, and aquaculture

Product features:

Turbo Tox is the balanced combination of Mannan Oligo Saccharide (MOS), inactive Saccharomyces Cerevisiae (SC), short chain organic acids and Diatomaceous Earth (DE). MOS is related to pathogen absorption, intestinal integrity, improved immunity and the binding of big molecule mycotoxins. The beneficial properties of SC added to these characteristics lead to a highly effective normal gut/rumen flora and optimum digestion. Short chain organic acids and their salts improve the feed digestibility by lowering the intestinal pH and also have an anti-fungal and anti-bacterial effect both in the feed and in the digestive tract of livestock. Organic acids also repel insects preventing them from laying eggs or larvae on feed. Additionally, DE is a highly absorbent silica compound that binds some pathogen bacteria and harmful aflotoxins that can be found in feed raw material. The well-designed formulation of all these ingredients improves FCR values and daily weight gain thus making Turbo Tox a highly effective non-antibiotic growth promoter.

Administration & dosage:

Blend homogeneously with the feed raw materials at the mixing unit. Add before the extrusion or granulation process.

As performance enhancer:

Poultry:	1 kg/ t
Milking cows:	100 g/ day/ animal
Sheep and goats:	30 g/ day/ animal
Piglets and sows:	1 kg/ t
Fattening pigs:	0.5 kg/ t

Contamination level of the feed:

Low risk contamination: 1 kg/ t
High risk contamination: 1.5 – 3 kg/ t
In particular cases the dosage can be increased.
Aqua: 1 kg/t

For cattle and pigs the same dosages can be administered mixed with the feed inside the feeders.

Presentation:

1kg, 10 kg, and 25 kg bags

This product is a feed additive and not intended as a medicine for therapeutic use!

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Eco Cid
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Belangrikheid van Kruipvoeding aan Lammers

Geskryf deur: Raché Stofberg

Elke skaapproduksieonderneming streef daarna om lammers te speen wat gesond en in ‘n goeie liggaamskondisie is. Ooie produseer nie voldoende hoeveelhede melk om aan die voedingsbehoeftes van lammers te voldoen nie. Dit is as gevolg van ‘n baie lae liggaamskondisies (‘n kondisie van minder as 2) by lamtyd. Dus is dit veral ‘n groot uitdaging om ooie te laat lam in die droë seisoen. Lammers wat in hierdie toestande gebore word, sal baie lae speengewigte hê, asook swak oorlewingsvermoë en na-speen prestasie. Probleme soos swak speen gewigte en oorlewing kan voorkom word, deur die aanvulling van kruipvoer aan lammers.

Kruipvoeding is ‘n eenvoudige manier om aan sogende lammers toegang te gee tot hoë kwaliteit aanvullende voeding, terwyl ooie verhoed word om by die voer uit te kom. Dit beteken dat die lammers nog steeds aan die ooie sal suip, maar ook ekstra aanvullende voeding sal hê om op te maak vir enige tekortkominge in hul dieët. Ongespeende lammers het ‘n baie goeie voeromsetverhouding 3:1 tot 4:1, dit wil sê vir elke 3-4kg voer wat die lam vreet, neem die massa met 1kg toe. Dus is dit meer effektief om die lam direk te voer, eerder as om die ooi te voer vir melk produksie.

Voordele van Kruipvoeding:

- Lammers wat kruipvoer ontvang sal groter daaglikse gewigstoenames hê, dus kan hul vroeër gespeen word (op 60 dae in plaas van 90 dae.)
- Meer lammers kan direk vanaf die ooi bemark word, wat ‘n hoër uitslagpersentasie verseker en dus groter profyt.
- Kruipvoeding verlaag die stres wat gepaard gaan met speen, omdat lammers reeds aangepas is en gewoond is aan ‘n droë dieët.
- Wanneer lammers vroeg gespeen word, kan die ooi vinniger herstel en die nutriënte vir re-produktiewe funksies gebruik, dus sal die teel seisoen vinniger kan begin. ‘n Verhoogde liggaamskondisietelling van ooie sal ook ‘n beter konsepsietempo verseker, wat tot ‘n hoër lam persentasie in die volgende lam seisoen sal lei.

- Kruipvoeding help ook om die ontwikkeling van die rumenfunksie aan te help, want die rumen van ‘n jong lam is nog nie ten volle ontwikkel nie.
- Minder druk word op die weiding geplaas weens die feit dat beide ooie en lammers minder vreet.

Samestelling van ‘n Kruipvoer

Die kruipvoer rantsoen moet hoogs smaakvol en fyn gemaal wees met ‘n klein partikel grootte om hoë innames te verseker. Groeiende lammers het ‘n hoë behoefte aan essensiële aminosure, dus is dit noodsaaklik dat hoë kwaliteit deurvloei proteïene ‘n deel uitmaak van die kruipvoer. Dit is belangrik om te onthou dat NPN (nie-proteïen stikstof) bronne nie gebruik moet word in die formulering van ‘n kruipvoer nie, omdat die jong lam se rumen nog nie ten volle ontwikkel is nie. (NPN word in die volwasse rumen omgeskakel deur rumenmikrobes na bruikbare proteïen.)

‘n Kruipvoer rantsoen moet ongeveer 16% ru-proteïen bevat, asook ‘n hoë vlak metaboliseerbare energie, om aan die voedingsbehoeftes van ‘n jong lam te voldoen. Dit is belangrik dat daar genoeg ruvoer in ‘n kruipvoer is, omdat dit die ontwikkeling van die rumenfunksie aanhelp, asook help om asidose te voorkom. Boere kan gerus hul naaste voedingskundige kontak vir enige advies rakende kruipvoeding.

Voorgestelde Rantsoene

Kruipvoer kan uit tuisgeproduseerde roumateriale saamgestel word om dit ekonomies te maak. Tabel 1 gee twee voorbeelde van kruipvoerrantsoene wat in die behoeftes van ‘n jong lam sal voldoen.

Tabel 1 Twee voorgestelde tuismeng kruipvoere

ROUMATERIAAL	RANTSOEN 1 INSLUITING (%)	RANTSOEN 2 INSLUITING (%)
Geelmielies	44	47
Soja oliekoek	0	8
Canola oliekoek	10	0
Lusern hooi	40	39
Melassemeel	5	5
Voerkalk	1	1
NUTRIENT WAARDES		
ME (MJ/kg)	**11,8**	**11,7**
CP (%)	**15,9**	**16,2**

Wesfed se Lamkruippille is ideaal geformuleer om aan al die voedingsbehoeftes van ‘n sogende lam te voldoen (sien tabel 2). Hierdie pille is hoogs smaakvol aan lammers en met hul klein deursneë (4mm), verseker dit ook hoë innames. Dit bevat ook hoë kwaliteit deurvloei proteïene, het ‘n minimum van 16% ru-proteïene en 12MJ/kg metaboliseerbare energie om aan die

voedingsbehoeftes van die jong lam te voldoen. Wesfed Lamkruippille kan vanaf 10 dae na geboorte van die eerste lammers, gevoer word.

Tabel 2 Nutriënt samestelling van Wesfed se Lamkruippille

WESFED LAMKUIPPILLE			
SAMESTELLING			
NUTRIëNT	MIN	MAX	EENH/UNIT
Vog		120	g/kg
Proteïen	160		g/kg
Ru-vesel	75	150	g/kg
Ru-vet	25	70	g/kg
Fosfor	3		g/kg
Kalsium	8	10	g/kg

Die groei tempo van die lammers moet gemonitor word. As die groei tempo minder as 300g/lam/dag is, moet daar seker gemaak word dat lammers se inname van die kruipvoer genoeg is. Die gemiddelde kruipvoer inname is ongeveer 200 tot 400g/lam/dag. Die sukses van kruipvoer hang af van die inname, dus moet die inname genoeg wees om enige positiewe resultate te sien. Innames sal varieër na gelang van die hoeveelheid weiding, ras en kondisie van die ooi en aantal lammers per ooi. Die totale kruipvoer inname kan wissel tussen 25 tot 30kg/lam, afhangend van die speengewig van die lammers.

Dit is ook belangrik om seker te maak dat die voerspasie van die lammers genoeg is, om positiewe resultate van kruipvoeding te sien. ‘n Groot persentasie van lammers sal nie die kruipvoeding eet as daar nie genoeg kripspasie is nie. Die voorgestelde kripspasie is ongeveer 5cm/lam.

Die korrekte en strategiese gebruik van kruipvoer as aanvulling by lammers kan dus vir ‘n skaaponderneming groot voordele inhou. Dit is nie net voordelig aan die lam en sy toekomstige prestasie nie, maar help ook die ooi om vinniger te herstel. Dus is dit ‘n belangrike maatstaf om ‘n winsgewende skaaponderneming op te lewer.

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Protect your herd from bovine brucellosis

Afgriland - Dr Sewellyn Davey

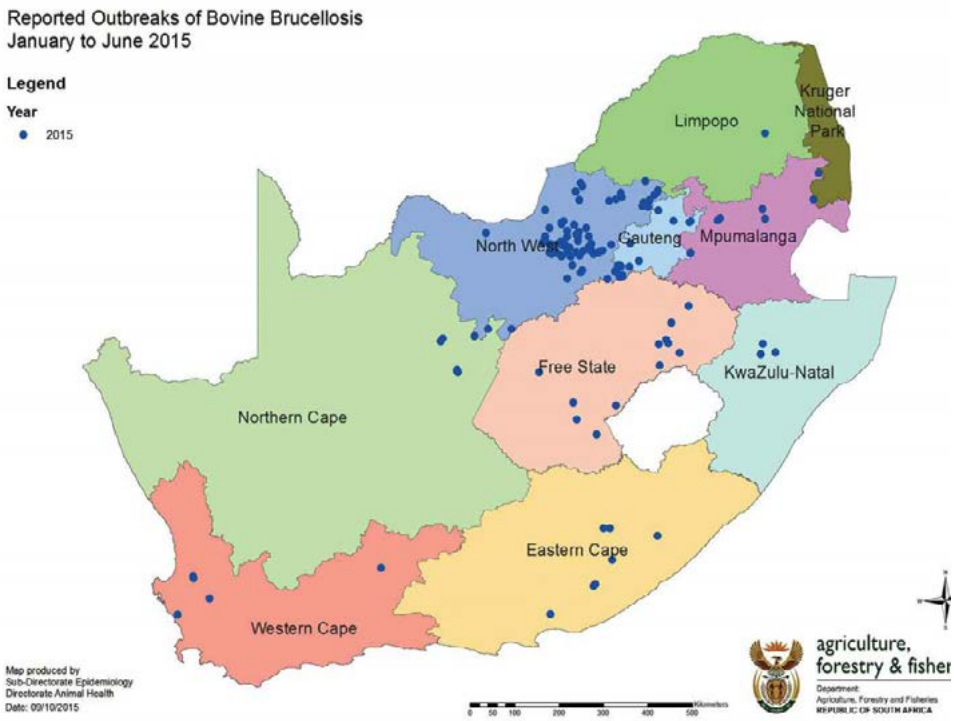
http://www.agtag.co.za/view_shared_post/10237

Brucellosis is primarily spread between herds through the movement of infected cattle and within herds when infected heifers or cows calve normally or abort, when millions of infective organisms are shed in the amniotic fluid and afterbirth (placenta). The main method of transmission is through the mucous membranes of the mouth, nose and eyes. Cattle are inquisitive animals and will sniff and lick the aborted foetus or calf, and so ingest millions of bacteria and become infected.

Cattle can also become infected by feeding on contaminated pastures or drinking contaminated water. Flies can play a minor role in mechanical transmission by transferring Brucella organisms from an infected foetus, calf or afterbirth to the mucous membranes (conjunctiva, for example). Calves can become infected by drinking colostrum or milk from infected heifers or cows. A calf of an infected animal may become infected in-utero and be a 'latent carrier' - only testing positive and spreading infection once she becomes pregnant and aborts or calves normally. The incubation period of this disease is highly variable and may be as short as two weeks or more than two years (as in a latent carrier).

Symptoms of brucellosis in a herd

Infected pregnant heifers or cows may abort. This normally occurs only once after infection, where after the animal may calve normally, while still spreading the infection. Abortions normally occur from five months of gestation onwards. Calves born at full term may be small and weak and may die soon after birth. Normal full term calves may be born, but can be latent carriers.



The afterbirth may be retained in infected heifers or cows. There may also be a drop in milk production, and bulls may develop an orchitis and become infertile. In chronic cases, cattle can develop large swellings of their joints (hygromas), especially the

knee joint. Otherwise, cattle infected with brucellosis look deceivingly normal.

Brucellosis 2010 to 2014

Herd disease

Brucellosis is a herd disease and once the diagnosis has been made, the herd is quarantined to prevent the spread of infection to other farms. A diagnosis is made through culturing the bacteria from an aborted foetus or afterbirth, or on serology (blood tests). Animals infected with brucellosis cannot be treated successfully and have to be slaughtered at an abattoir under cover of a red-cross permit to remove them as a source of infection to other cattle. Samples should then be taken at the abattoir for culture to confirm the disease.

Infected cows should not be allowed to calve on the farm as they are the main source of infection and contamination. An infected herd will have to go through a series of negative blood tests before it can be declared negative and the quarantine lifted (animals that test positive need to be removed from the herd through slaughter to achieve this).

Neighbours must be informed that the herd is infected and should be tested to determine their brucellosis status. Because of the variable incubation period, cows may be infected, but initially test negative on blood tests (false negative). For this reason cattle are quarantined, tested several times and may only leave the quarantined farm for slaughter purposes.

Brucellosis January to June 2015

Prevention

Brucellosis is rife in South Africa. How does a farmer protect his cattle from the disease?

- There are two highly effective vaccines available, but they cannot be used in isolation to prevent the disease from occurring on a farm without other biosecurity measures. Both vaccines are live and must be handled with care and according to manufacturer's instructions.
- Strain 19 can be used to vaccinate heifer calves once only between the ages of 4 and 8 months. Mark the calves that have been vaccinated, as a second or late vaccination could interfere with serological tests. Dedicated syringes should be used for Strain 19 vaccinations, and for no other purpose.
- RB51 can be used to vaccinate heifers and cows of any age, but should be avoided one month before breeding the heifer or cow, whether using a bull or artificial insemination, and in pregnant cows or heifers as it can cause abortion. RB51 may be used more than once as it does not interfere with serological tests.
- Keep fences intact to prevent stray cattle from wandering onto your property with the risk of bringing infection. Keep a closed herd if at all possible. If not, ask the seller for proof that his or her entire herd had been tested routinely with negative results.
- After buying new cattle from a known negative herd, it is ideal to keep them in quarantine or an isolation camp on the farm. Test the animals for brucellosis (and other infectious diseases) and treat them for internal and external parasites. Once the cattle have tested negative for disease, they can be introduced into the herd. Test your herd at least every two years for brucellosis. If possible, promptly submit all abortions to a laboratory for testing (consult your veterinarian).

If you are in doubt about the brucellosis status of your herd, contact your nearest veterinarian (private or state) or animal health technician. Working together with veterinary services will help to speed up the eradication of the disease. Ignoring the disease will only lead to long-term problems and continuous spread.

SA National Holstein Championships

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Congratulations to all Breeders!

Charlie & Sarè

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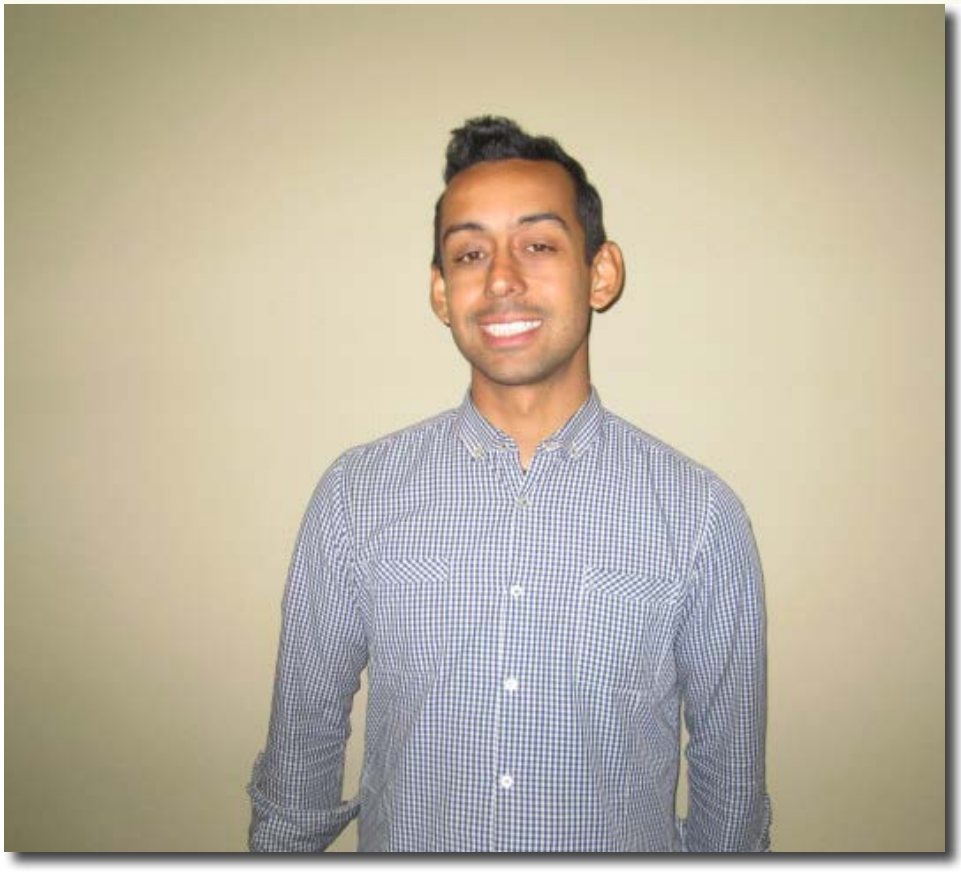

Alex Leonard – Receiving Clerk (he replaced Eric Henn)

Jolene Cloete – Bookkeeper for Goodhope Cheese

Eric Henn – Despatch Manager (he replaced Graham Absolom)

Jolene de Waal – Telesales Department

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