VETPACK®

Product / Resource Manual

VET LSD®

VETERINARY LIVESTOCK SURVIVAL DRENCH

PRODUCTS FOR THE ANIMAL HEALTH PROFESSIONALS

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INDEPENDENT VETERINARY SUPPLIES LTD. TE AWAMUTU

VET LSD®

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VETPACK®

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Introduction

VetLSD was first developed as a vitamin/trace element water soluble powder in 1998. It was developed because a need was seen for most of the ingredients, principally Iodine and Vitamin E, in ewes in late pregnancy. There were no commercial or affordable products available at that time that contained both.

The need for iodine was obvious with many lambs post mortemed at the time showing subclinical goitre. The evidence for Vit E on the other hand was less obvious and the post mortem lesions in new born lambs far more subtle. However the response to supplementation of ewes immediately prior to lambing, where Vit E deficiency was suspected, was very obvious. This was a compelling argument for looking further into a means of easily and cheaply diagnosing a likely deficiency in lambs by testing ewes prior to lambing. This work is still ongoing.

In 1996 an investigation was carried out looking at the Vitamin E status of ewes and lambs in Marlborough (1). This investigation demonstrated that the Vitamin E status of lambs could be low in some flocks grazing hill country and low land pastures in Marlborough and that low Vitamin E status could affect lamb survivability, especially in the first days of life. It also showed that whilst the serum activity of Creatine Kinase (CK) in control lambs did not suggest clinical white muscle disease, which is normally associated with values in excess of 1000 iu/l (2, 3), a significant decrease in CK activity in lambs from ewes treated with Vitamin E prior to lambing did occur. This suggested that differences in cell membrane permeability was occurring during the experimental period, even in the face of adequate selenium status. The investigation did confirm that significant transplacental transfer of Vitamin E does occur and that an oral drench to ewes shortly before lambing could influence lamb Vitamin E levels some weeks later.

While there are a number of subtle post mortem changes in newborn lambs indicating Vitamin E deficiency, being able to predict a potential Vitamin E deficiency in newborn lambs is difficult, for several reasons. This includes the cost of analysis, the poor correlation between ewe serum levels pre-lamb and that of their newborn lambs (1), and the fact that the occurrence of a Vitamin E/Se deficiency in ewes and their newborn lambs is probably influenced by many factors apart from Vitamin E and Selenium status. These may include low pasture cobalt, low environmental temperatures and other non-specific stressors including shearing, a declining plane of nutrition during late pregnancy and high PUFA concentrations in pasture or other feeds.

Such factors may make a single reference range inappropriate for all management situations. The accepted value for serum vitamin E (α-tocopherol) in sheep reflecting adequacy is 4.6µmol/l (4). It has been observed however that Vitamin E-responsive clinical disease most commonly occurs in sheep with serum concentrations of α-tocopherol being less than 2.4 µmol/l (5).

While continuing to look into the incidence of Vit E deficiency and for a means of easily and cheaply diagnosing this, the demand for VetLSD is increasing. This is because of very good anecdotal reports from many quarters and from a number of 'suck it and see' trials involving dairy calves and cows, hoggets on crops, and ewes prior to tupping as well as prior to lambing.

Formulation

Whilst we have had great results with VetLSD powder we have always appreciated the drawbacks of a powder. Many of the components of any vitamin / trace element water soluble powder have the disadvantage of being very unstable, especially when exposed to light and water.

As a result, once containers are opened or the powder is added to water they start to deteriorate rapidly. They can also be messy to mix, especially when part packs are used.

For these reasons three years were spent looking into the development and trialing of a soluble suspension. This new formulation - VetLSD Liquid has surpassed our expectations. VetLSD liquid is stable when mixed with water for at least 40 days. (Graph 1) Therefore once mixed with water it can be safely left in a backpack for some time. However it should be well shaken prior to use. Stock can easily be treated by adding VetLSD Liquid to water dispensing systems – dosatrons etc.

It is also stable when exposed to light and when added to water troughs for at least 3 days (Graph 2). VetLSD Liquid mixes readily with anthelmintics. A limited amount of work has shown that it does not significantly affect the efficacy of the Ancare drenches. Although the product tends to become 'thicker' when cold this can be remedied by warming the VetLSD containers in hot water before mixing.

How to give VetLSD?

Usually drenched on it's own. However many farmers like to mix it with worm drench. Limited work has been done to see if it can be mixed with drenches without affecting either the drench or the VetLSD. VetLSD mixes satisfactorily with oral drenches; (singles and doubles, but not triples) however users do so at their own risk. Product mixed with drench should be used in one session and not stored. VetLSD can be added to water systems, either via Dosatrons or Peta Dispensers, or directly into water troughs.

VetLSD is a unique formulation. Its stability both undiluted and after mixing with water is dependent on the balance of all the components in the product.

Ingredients	
Each 2 ml dose of concentrate contains:	
Vitamin A	5 mg (20,000iu)
Vitamin D	10,000 iu
Vitamin E	200 iu
Vitamin C	60mg
Selenium	2 mg
Elemental Iodine	200 mg
Chromium	2 mg

Mode of Action

Vitamin E and Selenium

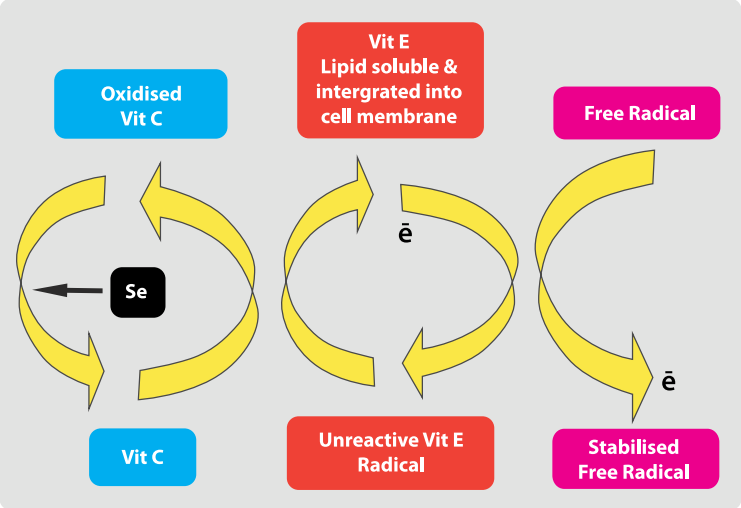
Vitamin E and Selenium are implicated in many cellular functions and have a role in fertility, the immune response and muscle function. One of the primary roles Vitamin E has is as an antioxidant inside the cell wall to prevent damage from cellular metabolism. With a diet that is low in Vitamin E; such as from hay, silage, brassicas and cereals, or rapidly growing spring pasture that can be high in polyunsaturated fatty acids, the requirement for Vitamin E is likely to be much higher than can be supplied from the normal diet. The stress associated with inadequate nutrition, inclement weather, shearing and other non specific stressors on top of pregnancy, birth and lactation can also increase the requirement for these nutrients.

Even where there is selenium supplementation, without adequate Vitamin E levels, free radical production from cellular metabolism will lead to muscle damage and deaths (20, 21, 22, 23, 24, 25), poor reproductive performance or a poor immune response to disease challenge. Trials with Vitamin E and selenium supplementation have demonstrated a positive influence on

- Fertility in sheep and cattle (7, 9, 11, 12,)
- Lamb survival (7, 10, 13)
- Growth and resistance to disease (8, 4, 14, 15, 16, 17)

Vitamin A, D and C

Selenium and Vitamin E overlap in function with other nutrient antioxidants such as Vitamin C and Vitamin A. Vitamin C acts synergistically with Vitamin E and is important in the regeneration of Vitamin E.



Vitamins A and D, the other fat soluble vitamins present in VetLSD are implicated in many aspects of bone growth and the regulation of calcium and phosphorus.

Vitamin A is present in fresh green feeds such as pasture, but low in dried or cured feeds such as hay. Vitamin D is produced in the body in the presence of sunlight. Both vitamins may be deficient or at low levels during the winter months where there is little fresh pasture and low sunlight hours.

Calves born to deficient cows are often weak, unthrifty, dull, and are more susceptible to scours and pneumonia.

Iodine

The need for iodine is well known, particularly when large volumes of brassicas are being fed as winter supplement or in areas that are iodine deficient. Iodine supplementation has been shown to improve both conception rate and perinatal lamb survival. (18, 19). The use of potassium iodide or a long acting iodine injection is a recognised treatment in these circumstances. VetLSD will provide adequate supplementary levels when given on a monthly basis beginning pre-calving in cows or prior to tupping, at scanning and a month prior to lambing in ewes.

Chromium

Chromium is a micro-nutrient that is involved in the metabolism of glucose which is the prime energy source for cells. It has been called a "glucose tolerance factor" because it assists in the uptake of glucose and the partitioning of glucose to fat or muscle. The energy partitioning effect of chromium has seen it being used as a supplement to increase protein deposition and reduce fat in both humans and animals. (26)

Trials have also shown that chromium can have an effect on the immune response and may improve somatic cell counts and udder health. The humoral and cell-mediated immune response can be positively affected by chromium supplementation. (27, 28, 29)

Summaries of investigations and trials undertaken with VetLSD®

Trials using VetLSD®

VetLSD, through supplementation of the minerals; selenium, iodine, chromium and fat soluble vitamins; A, D and E has been found, where a micronutrient deficiency is suspected, to have a beneficial effect on reproductive parameters such as calving spread and total number of cows calved within dairy herds, and in sheep flocks to have a positive effects on lamb losses between scanning and tailing, and ewe fertility. It has also been found to improve the growth rate of 'bobby' calves.

Table 1.

FITT trial in North Canterbury. 2005.

Effect of three different treatments on scanning %, lambing %, tailing %, and thyroid weights in hoggets.

HEATHFIELD	Scanning %	Lambing %	Losses	Thyroid weights	Body weights	Thyroid/Bdy wgt ratios
Potassium Iodide	119	72	40	1.2	3.50	0.33
Flexidine	120	70	41	1.1	3.77	0.28
LSD	125	86	31	1.6	4.08	0.40
Control	117	77	34	4.5	3.77	1.20

Table 2.

Trial investigating the effect on scanning performance of a pre-tup drench of VetLSD®

439 2T ewes were drenched orally at tupping with 280mg Potassium Iodide while 332 were drenched with VetLSD. Both groups scanned 116%. However there was trend towards a better early conception especially with the twin bearing ewes.

% of ewes conceiving in each cycle

	Iodine	LSD
1st cycle	70.1	72.5
2nd cycle	21.2	22
3rd cycle	8.7	5.5

% of twin bearing ewes conceiving in each cycle.

	Iodine	LSD
1st cycle	68.2	73.4
2nd cycle	23.9	21.9
3rd cycle	7.9	4.7

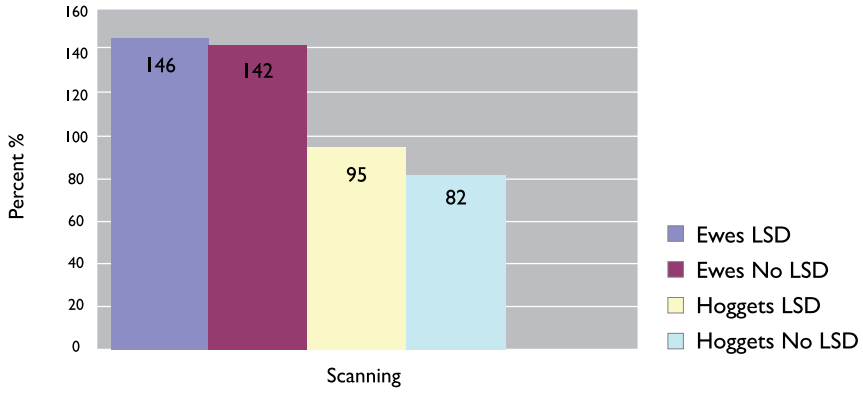
Table 3.

OptiLamb Analysis of Marlborough flocks 1993-2007

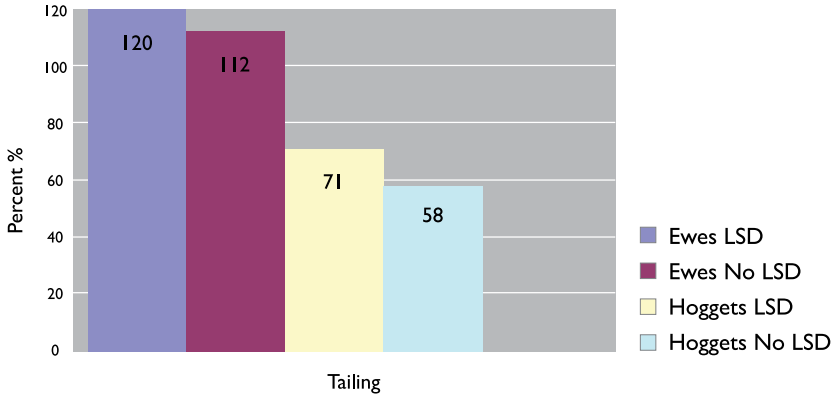
To date 80 flocks of all breeds have had their reproductive performance analysed by the OptiLamb programme. Some properties have had their performance analysed since 1993 when many first started scanning. Therefore these results are from 80 properties that have had their performance analysed yearly for up to 13 years. OptiLamb is capable of doing a univariate analysis comparing the performance of all flocks in the years that they carry out one management factor with all flocks in the years that they do not. In this case the performance of flocks in the years that they used VetLSD has been compared with those flocks when they have not used it.

	Scanning %	Tailing/Docking %	% Lamb loss
LSD (2T & MA)	146	120	18
No LSD (2T & MA)	142	112	21
LSD (Hoggets)	95	71	25
No LSD (Hoggets)	82	58	29

OptiLamb Analysis - Scanning % (1993-2006)



OptiLamb Analysis - Tailing/Docking % (1993-2006)



OptiLamb Analysis - % Lamb Loss (1993-2006)

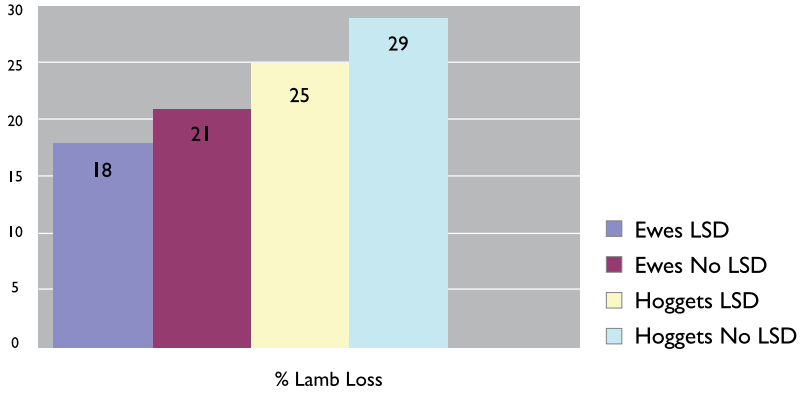


Table 4.
Bobby Calf Trial Marlborough 2001

100 calves were in this trial. On arrival they were split into even groups of 10. The calves in the treatment groups were dosed with 10mls VetLSD on arrival. This dose was repeated once weekly until weaning. The trial found that by 10-12 weeks the treated calves had on average gained an extra 3.2 kg over the controls. i.e. they gained an extra 56g / day. It was observed that the treated animals "appeared healthier, were more lively and had less scours". It was also noticeable that all the treatment groups started on the hard feed earlier and consumed far more straw and meal.

Weight gain response to VetLSD supplementation in Bobby Calves

	Week 1	Week 3	Week 8	Week 12	Gain	Dif. in LSD over Control	gm/d
LSD Group A	39.8	46.8	64.5	85.1	45.3	4.4	
Control A	39.0	49.2	63.4	79.9	40.9		52
	Week 1	Week 3	Week 9	Week 11			
LSD Group B	41.2	46.2	71	81.4	40.2	-2.4	
Contol B	39.1	45.1	71.2	81.7	42.6		-31
	Week 1	Week 3	Week 10				
LSD Group C	36.7	41.7	74.8		38.1	6	
Control C	36.9	40.4	69		32.1		107
	Week 1	Week 3	Week 10				
LSD Group D	38	44.6	77.3		39.3	4.8	
Control D	41.5	44.6	76		34.5		85
	Week 1	Week 3					
LSD Group E	37.2	42.1			4.9	1.4	
Control E	38.5	42			3.5		66

Av =3.2kg Av =56g/d

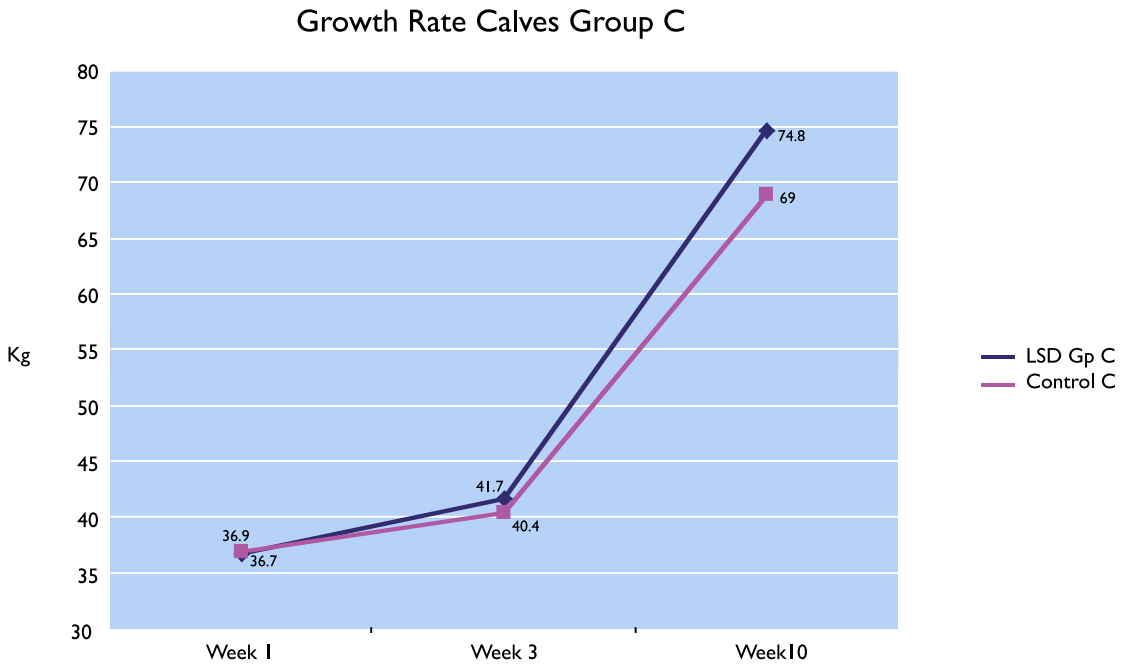


Table 5.

Summary of supplementing dairy cows with VetLSD® 2002-2003

Blenheim Trial 2002-2003 Dairy herd. Treated precalving and at monthly intervals.	LSD	Control
Total	41	46
Total held to 1st service	29	25
% Held to first service	71%	54%
Not in-calf	3	9
% Not in-calf	7%	19%
Total calving	37	35
Of those calving % held to 1st service	78%	71%

Table 6.

Summary of supplementing dairy cows with VetLSD® 2003-2004

	Blenheim Trial Repeated (2003-2004) Control			Treated		
	No	No Total	%	No	No Total	%
Oestrus D21	92	99	92.9	90	94	95.7
Oestrus D28	97	99	98.0	92	94	97.9
Conceived to 1st Service	37	90	41.1	43	86	50.0
2nd Service	32	53	60.4	25	43	58.1
Pregnant D28	45	87	51.7	56	84	66.7
Pregnant D56	62	87	71.3	73	84	86.9
Not Pregnant (Final)	19	98	19.4	7	94	7.4
PSM to 1st Service (Days)	10	1		9	1	
PSM to conception (Days)	26	4		19	1	

Treatment significantly increased final pregnancy rate (92.6% treated v 80.8% controls) and the interval from the start of the seasonal breeding programme to conception was shorter for treatment than control cows (19 versus 26 days).

Table 7.
Evaluation of Vitamin E levels

Variation of Vit E levels in herds in Southland wintered on Brassica spp and exploration of possible risk factors

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Introduction

Vitamin E levels in dairy cows are infrequently measured, due largely to the costs involved in testing and some confusion around testing protocols and acceptable serum levels.

This study was set up to:

a) ascertain whether Vit E was indeed light sensitive in collected serum;

b) determine within-herd variation in order to assess the validity of pooling samples within herds;

c) determine the within herd and between herd variation; and

d) explore potential explanatory factors associated with any variation patterns.

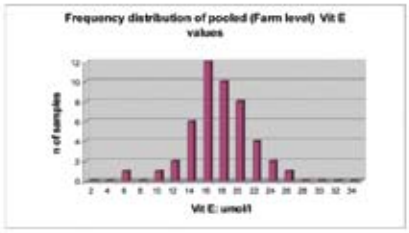
Materials and Methods

For each herd, 8 cows were randomly selected and bled. One set of samples was duplicated and assessed initially for any effect of exposure to light: bloods were either collected in aluminium foil-wrapped tubes and transported in sealed containers; or were collected normally.

A further 46 herds were tested as part of our routine pre-mating screening programme. All samples were pooled to give farm level results. Individual cow serum Selenium assays were also performed. Clients were questioned on the ration for 3 months prior to testing. BCS, calving dates and age data was collected.

Results

There was no significant difference between light exposed and non-exposed sera. There were wide farm variations in the standard deviations of individual sample groups (1.92 umol/l to 12.38 umol/l), suggesting that pooling may in some cases mask significant within herd variations.



The highest pooled herd value was 24.35umol/l; lowest was 4.8umol/l (mean 16.52, SD 3.652, median 16.4). Virtually all herds fed varying levels of *Brassica* spp prior to calving, with the small number of herds with no *Brassica* input having no significant difference in pooled Vit E levels.

One herd was housed during winter, with no difference in Vit E levels. Age of animal and BCS appeared to have no correlation with Vit E levels, although this was difficult to determine at a herd level.

Conclusion

Very little data exists on Vit E levels in dairy cows. The large number of samples collected here demonstrated a wide variation in between-farm levels and in within-farm levels. Furthermore, there appears a marked difference in within-farm variability.

However, we were unable to link these variations with any postulated risk factors such as age, feeding or BCS. Further work would be of value in determining the importance of potential risk factors.

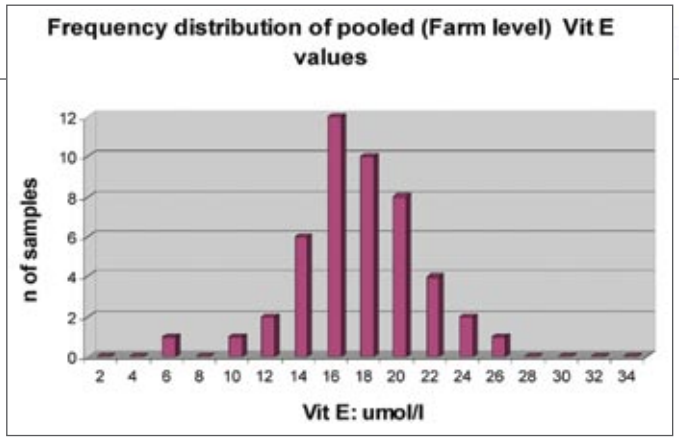


Table 8.

VetLSD® & Colostridial vaccine responses

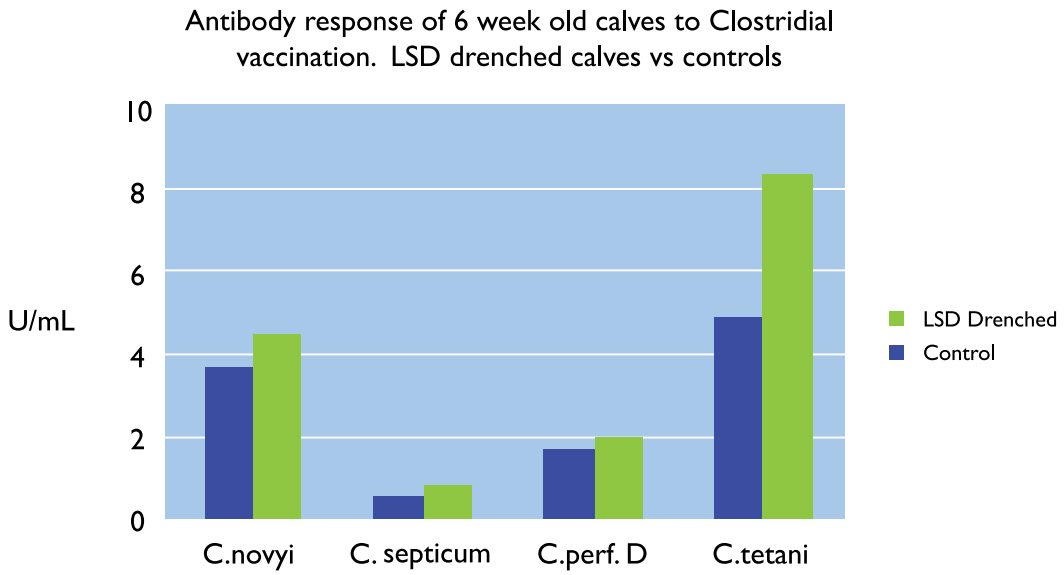
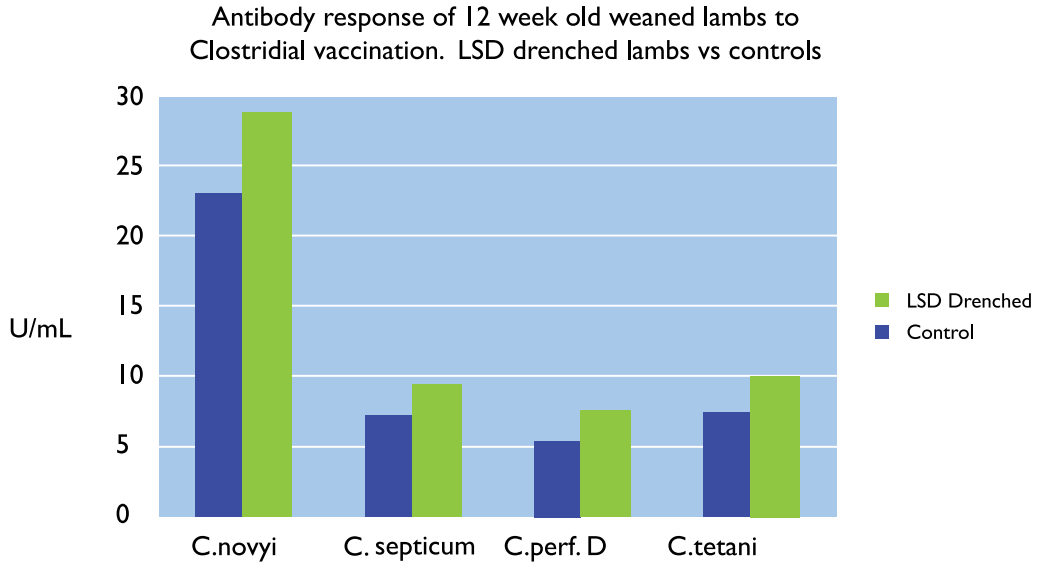


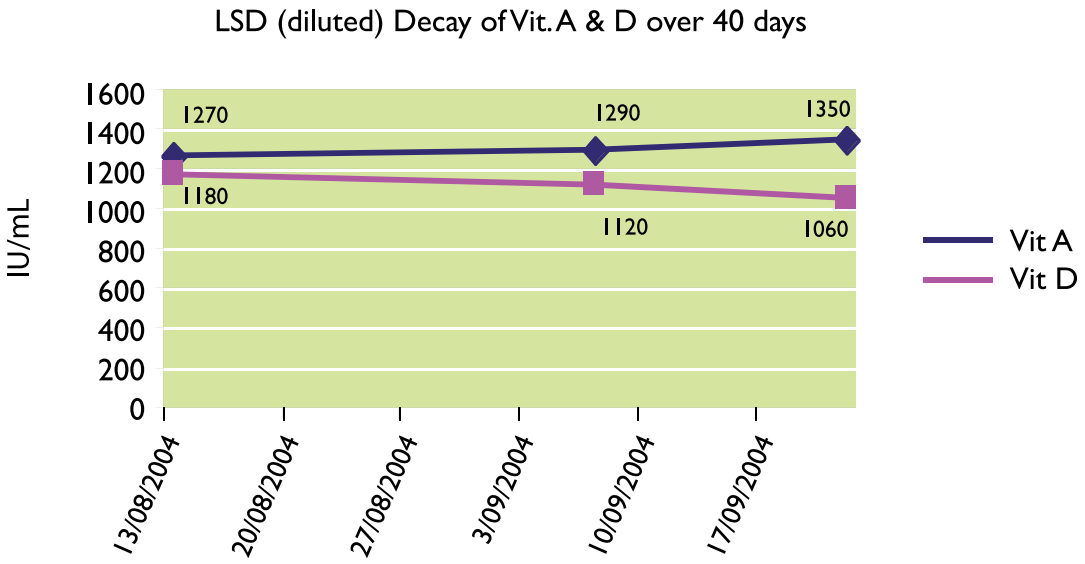
Table 9.

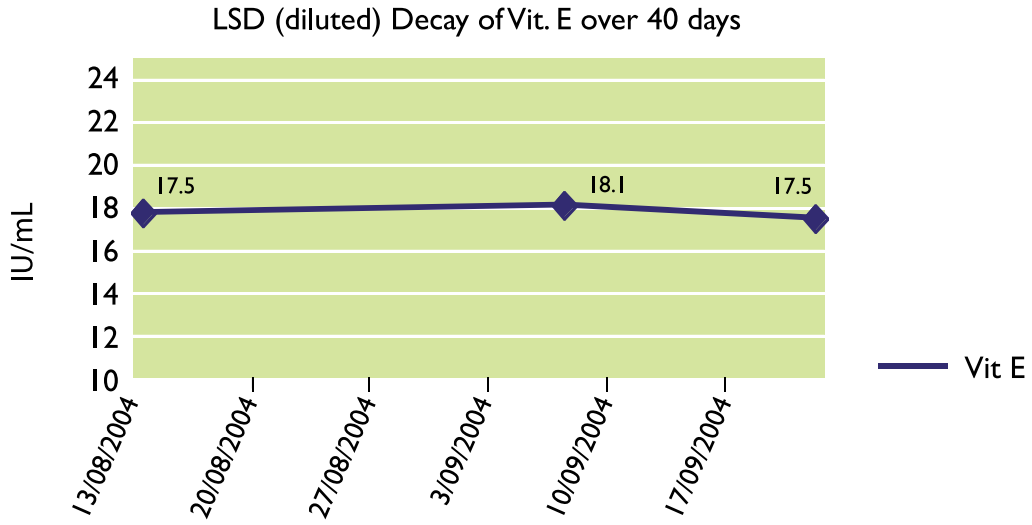


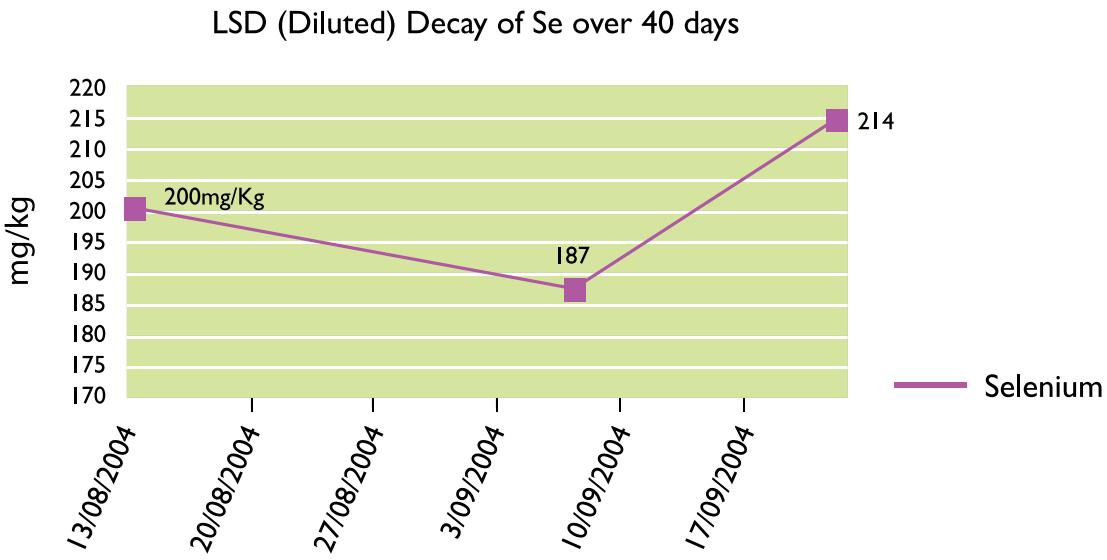
The antibody response of lambs and calves was greater for all components of the Clostridial vaccines when treated with VetLSD.

Graph 1.

Decay rates of VetLSD® (Vitamins ADE &Se) diluted in water and kept in a container (drench pack)

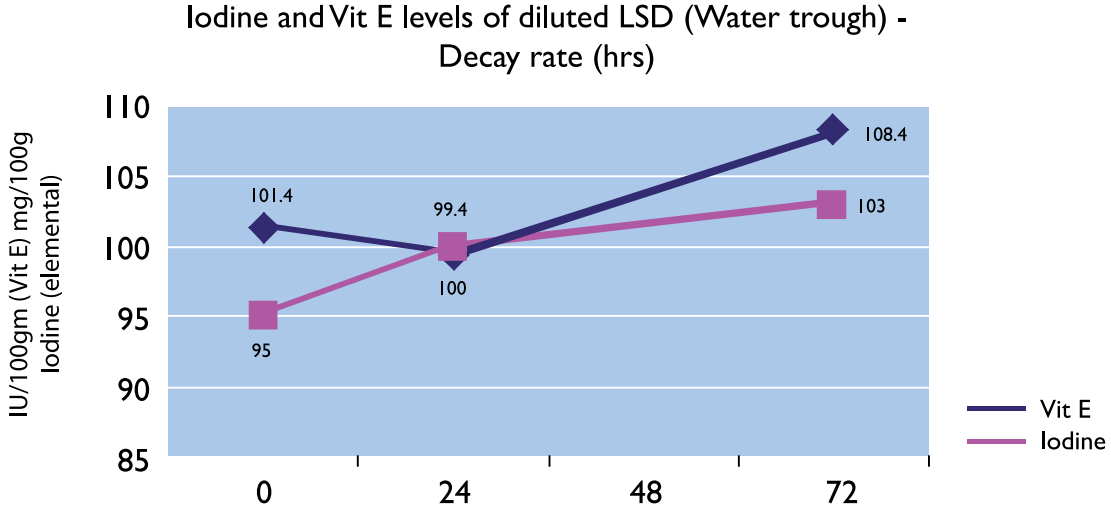






Graph 2.

Decay rates of Vit E and Iodine in an open concrete water trough.



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Vet LSD Editorials

Introducing a liquid asset

Want the ultimate test market for any animal health input?
Try pleasing several thousand New Zealand farmers.
It's no easy job. But when it's done properly, the result can be better than anyone expected.

Here's a case in point.

A specialised vitamin supplement for sheep, beef and dairy cows performs so well as a powder, the company that makes it comes under ever-increasing pressure from farmers to formulate it as a liquid.

They say they want continued access to the benefits of the supplement, particularly in terms of improved animal reproductive performance. But they also want it in a more stable and convenient form so it's easier to mix and use.

Three years of R&D later, that's exactly what has happened, with the launch of VetLSD Liquid. Like the VetLSD powder, the Liquid formulation has been developed by veterinarians to help farmers maximise the performance of their sheep and cattle.

It contains several vitamins and minerals positively associated with conception and reproductive performance, increased newborn vigour and survival, growth, and resistance to disease. These include Vitamins A, C, D, and E plus Selenium, Iodine and Chromium. All ingredients are included in one concentrate solution with the liquid formulation of VetLSD.

This has been specifically developed to dissolve readily in water and thus can be administered to stock through an existing dispenser, e.g. a Dosatron or a Peta dispenser.

Alternatively you can use it as a normal drench treatment, or through trough treatment. Stock seem to find the taste relatively palatable.

Unlike dry vitamin and mineral powders, which have a very short shelf life once mixed, this formulation is stable in water for 40 days after it's been mixed, so as well as being more convenient it is potentially less wasteful.

It's also more stable than any powdered formulation if stored in the containers provided.

Both vets and farmers have been heavily involved in the development of VetLSD Liquid. Those who have trialled it say it delivers the best attributes of the original formula with greater practicality and versatility.

Performance throughout New Zealand shows drenching ewes with VetLSD can improve ewe scanning performance as well as early lamb vigour and survival, leading to increased lambing percentages.

In commercial flocks with adequate mineral status, farmers have reported reductions of up to 8% in the number of lambs lost between scanning and tailing following such treatment.

A limited number of dairy herd trials show very significant improvement in pregnancy rates (19% dry cows in controls vs 7% treated), with treated cows conceiving on average a week earlier.

If you'd like to follow up on this new opportunity to improve your herd or flock performance this season, phone us or ask at the clinic.

A better mix for survival

Lamb deaths cost New Zealand sheep farmers more than $600 million a year, according to a recent media report. Even a 2% improvement in lamb survival would improve average farmer returns by $4000, it said.

Which is all the more reason to look closely at ways of improving stock reproductive performance this season. And the good news here is that one of the supplements that seems to be helping some farmers cut their wastage rates is now available in a much more convenient and stable formulation, so it's easier to mix and administer.

After three years of R&D, and in direct response to farmer feedback, the team behind the VetLSD powder has now come out with VetLSD Liquid.

Like the powder, the new formulation has been developed to help farmers maximise the performance of their sheep, beef and dairy cows.

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Summer 2007

Benefits for lambs/hoggets over summer

- Better immune response against diseases like pneumonia
- Improves antibody response to vaccines
- Corrects low Vitamin E levels created by grazing brassicas or supplementary feed
- Helps set-up hoggets for a successful mating

Drenching with VetLSD is an easy way to ensure young stock are getting their Vitamin E, A and D and Selenium, Chromium and Iodine requirements.

The science:

Vitamin E is low in crops such as brassicas and in stored supplements such as hay, silage, baleage, grain and peas. As a double-whammy some of these feeds and especially fast-growing green grass are also high in PUFA's (polyunsaturated fatty acids). These PUFA's can turn nasty when oxidised by free radicals to become free radicals themselves and attack cell membranes in the body. PUFA's can only be safely protected from free radical damage by anti-oxidants, especially Vitamin E.

The hard data to back it up:

Vitamin E is a proven immune stimulant. Research on lambs or ewes in 1979 (Stephens, UK), 1983 (Tengerdy, UK), 1984 (Ramisz), 1988 (Reffett, Spears, Brown UK), and 1988 (J.Anim) all show that Vitamin E significantly increases the animal's antibody response to viral pathogens (including pneumonia).

(1) Improved weight gain in lambs when Selenium/Vitamin E given with the anthelmintic treatment (BZ), Ramisz A. Blauen Hefte fur den Tierarzt 68: 366-368, 1984.

	Weight gain above controls	% Increase
BZ + Vit E + Se	5.48kg	17%
Vit E + Se	3.5kg	11%
BZ	3.38kg	10.7%

(2) Improved recovery of Vitamin E treated lambs that have been experimentally infected with intratracheal Chlamydia (pneumonia). Stephens LC, McChesney AE, Nockels CF., British Veterinary Journal 135: 291-293, 1979.

In Chlamydia-inoculated lambs, those supplemented with Vitamin E had less extensive pneumonia and greater feed consumption and weight gains than unsupplemented lambs. Chlamydia was isolated from lungs of 40% of unsupplemented lambs but not from lungs of supplemented lambs.

(3) Trials in Marlborough found a significant antibody response in three month old lambs and 2-4 week old calves when vaccinated with a Clostridial '5 in 1' vaccine in conjunction with LSD.

Why not just give Selenium?
The problem is no extra amount of Se will compensate for low levels of Vitamin E if the levels of Polyunsaturated Fats (PUFA) are high in the diet. Vitamin C and Se are both necessary for regenerating Vitamin E. Vitamin A has been found to be important after prolonged periods of drought feeding. Research showed lambs given Chromium grew better and had better immune responses (trial on 24 Suffolk lambs by Louisiana State University Agricultural Center)

What benefits can I expect to see?
VetLSD does not claim to increase growth rates. However, it follows that with a more active immune system stock are less likely to suffer from disease or will recover more quickly. This is especially true for 'tail end' lambs that are more vulnerable.

Extreme Se and Vitamin E deficiency causes White Muscle Disease. If you see this you have a major problem. As well as these 'obvious' deficiencies, VetLSD addresses sub-clinical effects. Testing for Vitamin E deficiency is expensive (over $100/test). It is better to base the decision to supplement on gauging the 'risk factors' for the flock.

How to use it:
VetLSD for HOGGETS Dose when drenching for parasites and/or before the pneumonia risk period (usually February/March). Expect better recovery from parasites and infections. Dose at tupping time.
For ease of use add Liquid VetLSD to water troughs directly or via a 'dosatron' or 'peta dispenser'.
Cost: *Around $0.20/head.*

Are other products cheaper? Check the ingredient list. You will be shocked how little active ingredients are in some competing products to VetLSD. We use the highest quality imported vitamins and minerals. All water soluble powder based products start losing their efficacy once mixed. Liquid VetLSD is stable for a significant period following mixing.

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Veterinary LSD® and competitors

One of the crudest forms of compliment is to have others copying you. I guess we expected to see this happening sooner or later. At first we saw products being pushed as having everything in them that VetLSD Powder had but in reality they were nothing like VetLSD Powder. Now we are seeing closer copies of VetLSD Powder.

We would like to remind you of a few facts.

1. VetLSD Powder was not developed overnight. The formulation was developed with expert assistance over several years before we had a stable product. Nevertheless no vitamin-mineral mix is stable unless it is kept out of sunlight and in airtight containers. If these new products are kept in sacks or bags they will not be stable.
2. We accept that powders are not the most 'user friendly' products to use and they have their limitations and are at times inconvenient. No vitamin/mineral mix in an aqueous solution is stable for more than a few hours and that applies to VetLSD Powder once mixed as well.
3. We tried with several different formulations to mix Iodine with the rest and have a 'one bag' mix. Despite some reasonably good results we were still not happy with any form of Iodine and the effect it was having on the other vitamins in the mix. That is why we have kept it separate.
4. Efficacy has been paramount. We have tested batches after two years and found them to be all 'above spec'.
5. All the vitamins and minerals are of the highest grade and highest quality and the most available form possible. Quantity per pack is above what is stated.
6. All products in VetLSD Powder are water soluble, dissolve easily, and flow easily through a drench gun. Does this apply to the others?
7. Have they done trial work on their product?
   Have they tested the ingredients and are they up to spec?

8. VetLSD Powder is and will always remain a 'Vet Only' product. OTC people are starting to hurt. Lets get VetLSD Powder out in front of the public before the cheaper less effective products wreck the market and the product.
9. We now have VetLSD Liquid. This is a truly unique oil based suspension (to protect the integrity of the vitamins it must be oil-based), which has been developed after much laboratory and field research. It is easily water soluble (very difficult to achieve) and we have proved the stability of all ingredients up to 40 days after mixing.
No other formulation has these attributes. This is also 'Vet Only' and offers veterinarians a massive advantage in the market.

Short summary for your practice newsletter

Is it really Veterinary LSD®?

There are some products now being pushed on the market that claim to be cheap VetLSD equivalents. We would like to remind you of a few very important facts about VetLSD Powder that differentiates it from others.

- VetLSD Powder was developed by Vets for their clients because all other commercial preparations, and with only some of ingredients required, were 3-4 times the price.
- All the vitamins and minerals in VetLSD Powder are water soluble, mix and flow easily through a drench gun, and stock like it. It works.
- Many field trials over a number of years have been done with VetLSD Powder checking its efficacy.
- VetLSD Powder uses the very highest grade vitamins and minerals to ensure full efficacy.
- No vitamin-mineral soluble powder mix is stable for more than a few hours once mixed with water.
- The same applies if a powder gets damp.
- Iodine is kept in a separate sachet because it attracts water.
- Vitamin-mineral powder blends therefore have to be kept in air-tight containers.
- Most vitamins are unstable if exposed to sunlight.
These need to be kept in light-proof containers.
- Be very wary of any vitamin- mineral blend that is not sold in an airtight-lightproof container.
- Upgrade your purchase to another unique, easy to use product, VetLSD liquid, for your convenience and longevity of a stable solution.

Cost-benefits

Counting the cost of lamb wastage

As many as one in five lambs conceived in New Zealand sheep flocks die before tailing each year. Even at current projected lamb schedule rates, that's a significant potential loss of income.

Some would say especially at current projected lamb schedule rates, it's a significant potential loss of income!

Lamb wastage rates of 16-20% between scanning and tailing are not uncommon in our industry. At $3 kg carcase weight, a 16 kg lamb is worth about $48 at the moment. No-one knows for sure what the price will be come weaning time.

But even so, it's safe to say that that one dead lamb out of five (or six) is worth more to us alive and kicking, especially since we've already 'paid' for it to be conceived.

Reducing wastage is a complex issue, because so many different factors are involved, including (but not limited to) management, animal genetics, behaviour, weather, and disease.

One new strategy that's making a difference for some farmers, however, is supplementing ewes pre-lamb with anti-oxidant vitamins and minerals.

In commercial flocks with adequate mineral status, supplementing Vitamins A, C, D, and E along with selenium, iodine and chromium has been associated with better lamb survival.

Farmers have reported reductions of up to 8% in the number of lambs lost between scanning and tailing following such treatment.

Veterinary research both here and overseas indicates this comes from improved lamb vigour at birth as well as stronger immune response and disease resistance, and better growth rates.

Investigation continues as to why this would be the case in New Zealand sheep flocks.

But one explanation is that it has to do with intensified production. As per animal performance has increased, so has demand for the right nutrients and vitamins and minerals. At the same time we have also become more heavily reliant on feed inputs that are not naturally high in certain vitamins.

The result, some vets believe, is a sub-clinical vitamin deficiency that suppresses production without necessarily waving a big red flag for easy identification.

Regardless of the science, the economics of such vitamin treatment deserve a second look.

At $0.22 c/head/dose, it would cost you $220 to treat a flock of 1000 ewes, plus the time and effort of administration.

At current schedule rates of $3/kg for a 16 kg grade lamb, it would take just 4.5 extra lambs (or 0.5% better survival) to pay for this.

If you'd like to know more, call us and ask about VetLSD. This is a veterinary-formulated vitamin and mineral drench specifically designed to improve the performance of your flock.

The Case for Pre-Tup VET LSD®

Vet LSD®
2007 Newsletter

Inside This Issue

In the past two years, an increasing number of farmers have realized the additional benefit of Pre-tup drenching with VET LSD®.

Veterinarians and farmers have been involved in VET LSD® supplementation for several years now.

Most have supplemented prior to lambing, where there is a clear and positive response in lamb strength and lamb survival.

In the past two years, an increasing number of farmers have realised the ***additional benefit of Pre-Tup drenching*** with VET LSD®, based on a fair amount of overseas and New Zealand data.

It has long been accepted that Vitamins A and E prior to tupping can:

1 Increase ram libido and semen volume.

2 Improve conception rates in ewes. (In New Zealand and in Russia, ewes being AI'd with frozen semen have increased conception rates of up to 20%.)

Research work of our own using VET LSD® to pre-tup ewes showed similar trends.

One North Canterbury Trial gave a clear advantage in scanning and overall lambing rates over the use of oral iodine, or injectable iodine.

Another Marlborough trial showed significantly increased conception rates in the first cycle, a clear advantage in getting more lambs weaned earlier.

In particular, ewes flushed on grain, silage, hay or baleage will almost certainly benefit from VET LSD as a pre-tup drench. These feeds are known to be low in Vitamin E & A.

But it appears from our AI and on farm data that all ewes are likely to receive some benefit even if flushed on grass. A small increase in conception rates coupled with a moderate increase in survival rate can equate to significant increase in final lambing percentage.

Most farmers yard ewes pre-tup for sorting in to mating mobs. A drench of VET LSD® Liquid at this time may be very beneficial.

If this is not feasible, remember that VET LSD® Liquid has proven to be stable in water troughs, and enabling VET LSD® to be reliably dispensed by Peta Dispensers or other pipeline dispensers.

Lamb Growth Rate in Dull Summer

The development of VET LSD® Liquid gives clear advantages over powder.

At this stage it is fair to say that this is a dull summer. Sunlight hours are generally diminished.

Farmers have long believed that lamb growth rate is poor in such summers.

Interesting work was done by John Smart in Balclutha in the 1980's during a string of such years.

Supplementing lambs with Vitamin A, D and E, approximately doubled the growth rate of lambs.

We believe this is a further situation in which your farmer clients can put money in the bank by drenching lambs with VET LSD at the same time as anthelmentic drenching.

Competitor Products

The LSD Company does not believe that the copies can be sold cheaper than we can make the powder without compromising quality and efficacy.

We are aware of products which claim to have copied VET LSD® powder.

None of these products have done any animal testing or trials to back up their claims that we are aware of.

The only product even close in claimed contents uses a form of iodine which The LSD Company rejected as being insufficiently available to the animal.

We tested one competitor product for Vitamin E efficiency, a key component. The product contained Vitamin E at ***one-fourteenth*** of the claimed level.

Beware of cheap copies. We have spent many years researching, developing and manufacturing VET LSD®.

The LSD Company does not believe that the copies can be sold cheaper than we can make the powder without compromising quality and efficacy.

We await the trial data, efficiency data, stability data, and animal performance data from these individuals or organisations.

We don't believe you make a silk purse from a sow's ear.

VET LSD® Liquid vs. Powder

With the development of VET LSD® Liquid, which has clear advantages over VET LSD® Powder, we intended to greatly reduce the amount of powder produced.

Advantages of VET LSD® Liquid are:

1. Much easer to mix.
2. More convenient to mix smaller volumes.
3. Much more stable once mixed (at least 40 days vs. 2 days for powder.
4. A unique, world first mix of vitamins and minerals.
5. Mixes with many drenches (but check with the drench company first).
6. Not prone to false claims by competitor products that theirs "is the same as LSD".

Point of Sale Material

For further information, point of sale brochures and orders please contact **Vetpack** on (07) 870 2024 or email info@vetpack.co.nz.

VET LSD®
VETERINARY LIVESTOCK SURVIVAL DRENCH

Newsletter May 2007

COWS & SHEEP

Winter Feed Crops- The Ideal Time for VET LSD® In Hoggets and Ewes

Vet LSD®
2007 Newsletter

Inside This Issue

There are a number of nutritional facts surrounding the feeding of brassicas and pasja which you may not know.

Brassicas – there are a number of nutritional facts surrounding the feeding of Brassicas and Pasja which you may not know.

Forage brassicas have become New Zealand's most widely cultivated crop.

Every year farmers and contractors plant up to 250,000 ha of brassicas to supplement sheep, beef and dairy cows through periods of feed deficit.

Chances are your clients have some of those 250,000 ha on their farms.

And why not? Annual forage/fodder brassica crops can have high nutritive values.

Well managed and correctly grazed, they produce high yields, and are typically very digestible, with good ME levels (12-13 MJME/kg DM) and relatively high protein content.

In recent seasons they have also proved to be quite profitable for many farmers.

One thing they are not, however, is full of vitamins. They are low in Vitamin E in particular as well as Vitamin D.

Nor do they usually provide optimal mineral nutrients for the animals grazing them, especially when it comes to iodine.

In fact brassica crops contain substances called goitrogens which effectively cause iodine deficiency in the animals grazing them.

So in one sense the more we feed forage brassicas, the less we supply a small number of essential dietary nutrients to our stock.

Winter Feed Crops cont.

There are many references in NZ literature (*Surveillance*) of Vitamin E-induced poor performance and WMD of stock, especially hoggets in the winter, grazing swedes or turnips.

More recently it's been reported that hoggets grazing Pasja in the summer/autumn period have low Vitamin E levels, normal levels of Selenium, and WMD.

These animals are showing typical WMD after a stress period, e.g. going down in the yards or paddocks after a cold snap, or during handling or transport.

Vitamin D deficiency meantime results in unthrifty stock, susceptibility to parasitism, a dull fleece, and stiff or lame animals with reduced appetite.

Iodine deficiency is associated with reduced lamb survival as a result of low metabolic rate, impaired sucking behaviour and an inability to control heat loss.

Forage brassica crops with high nitrate levels are well-known to cause nitrate poisoning. But those same nitrates can also interfere with an animal's ability to utilise Vitamin A and on top of this they also increase the requirement for Vitamin E.

Vitamin A deficiency leads to lambs with poor growth rates and increased susceptibility to scours and pneumonia. It is also associated with reduced lambing performance.

No one is suggesting we do away with our brassica feed crops.

But veterinary research increasingly indicates it may be well worth balancing brassica intake with vitamin supplementation.

Vet LSD® is a special formulation of Vitamin E, A, D and C, plus selenium, iodine and chromium. It has been specially developed to help counter vitamin and trace element deficiencies in New Zealand livestock.

If your clients are feeding brassica crops this season, encourage the use of Vet LSD® Liquid to improve stock health and performance.

Veterinary LSD® is a special formulation of Vitamin E, A, D and C, plus selenium, iodine and chromium. It has been specially developed to help counter vitamin and trace element deficiencies in New Zealand livestock.

Scanning, a Time of Stress and Vitamin Iodine Requirements

How to get the best out of scanning

It is time to start paying close attention to the nutritional requirements of your clients in-lamb ewes and hoggets.

Scanning time is approaching fast.

And that means it's also time to start paying close attention to the nutritional requirements of your clients in-lamb ewes and hoggets.

Or, in this case, the micro-nutritional requirements, because scanning typically coincides with a critical period of development of the lamb foetus.

It's at this stage that many of the lamb's organs are being formed, including its heart and lungs, which (obviously) are critical for its survival after birth.

At the same time its nervous system is developing, along with its skin and wool follicles.

All of these physical developments have one thing in common – each one requires adequate levels of iodine to be present in the ewe's body.

If it's not, chances are you won't know until too late, once the lambs are born.

A severe iodine deficiency will result in stillborn, hairless, small, weak new lambs with goitre.

Even subclinical iodine deficiency is enough to reduce lamb survival. We can confirm this measuring thyroid and lamb body weights of newborn dead lambs.

Affected lambs are born with a low metabolic rate, impaired sucking behaviour and little or no ability to control heat loss from their bodies.

Hence the increasing focus on ensuring adequate levels of iodine during pregnancy as part of efforts to minimise wastage in our high performing sheep flocks.

But what does this have to do with scanning in particular?

For a start, the timing is right to start iodine supplementation. The end of the third month of pregnancy is a critical time.

Scanning, a Time of Stress and Vitamin Iodine Requirements cont.

Beyond that, the feed management decisions you make in response to your scanning results can have a direct impact on how much iodine is available in the diet of your ewes and/or hoggets.

If you put multiple-bearing ewes onto forage brassica crops, for example, you do so in the expectation that increased quality feed will support their increased lamb production.

However, many forage brassicas contain substances (goitrogens) which physically inhibit iodine from being utilised in the ewe's body.

Similarly high quality pastures can also be low in iodine.

Feedback from both farmers and veterinarians alike suggests supplementing ewes and hoggets at scanning time with a purpose-made vitamin and iodine drench helps reduce the cost of sub-clinical iodine deficiency.

We know that timing is fairly critical and it fits well with scanning and at set stocking pre-lamb.

We know that timing is fairly critical and it fits well with scanning and at set stocking pre-lamb.

In commercial flocks with adequate mineral status, farmers have reported reductions of up to 8% in the number of lambs lost between scanning and tailing following such treatment.

Scanning time can also be the right time to start supplementing with the extra vitamins A D E and C.

Ewes typically face high stress at this time of the season. Shearing, increased demand from a belly-full of lambs, poor nutrition, and parasitism are all common. So are supplementary feeds that are low in vitamins (hay, baleage, brassica crops) and high PUFA diets, namely winter-active short-rotation ryegrasses.

A deficiency in critical vitamins now will impact on ewe and lamb survivability through to after lambing.

Vet LSD® is veterinary-formulated and contains Vitamins A, C, E and D as well as iodine, chromium and selenium.

For further information, point of sale brochures and orders please contact Vetpack on (07) 870 2024 or email info@vetpack.co.nz.

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