



# LIONEL'S

VETERINARY SUPPLIES

July 2018

38<sup>th</sup> Edition

## Lionel's News

Dear Business Partner

As our valued customer we give you access to interesting and helpful articles that will assist you in getting the most out of your farming business. In this month's issue we introduce AWS -Alternate water solutions to you. Dr Henri Spangenberg wrote an article on fattening of sheep and cattle in the feedlot. Then we look at a complete solution of automatic calf feeding from Urban. We also give you an article on how to manage metabolic welfare of your high yielding cows. Lastly, we included a Lionel's Choice article on what good nutrition does for your dog.

We hope that you also find the products advertised useful. You are welcome to contact the sales representative in your region for any further details on advertised products. All contact details are included at the end of this newsletter.

You can also read more about our sales representatives since we are putting a short description of our friendly staff at the end of every edition.

Thank you for your continuous loyalty. Feel free to contact us if you have any specific topics you would like us to cover in future editions. Your inputs are welcome.

***Many thanks to all our loyal customers. Going forward, we hope to bring you more exciting products/services and the best possible customer experience available.***

Visit our website: [WWW.LIONELSVET.CO.ZA](http://WWW.LIONELSVET.CO.ZA)

e-mail: [info@lionelsvet.co.za](mailto:info@lionelsvet.co.za) ; Tel: (021) 932 2019



### **Who we are:**

Alternative Water Solutions (Pty) Ltd. (AWS) utilises ground-breaking technology in providing the ultimate solution to remove high levels of iron from groundwater. The hydro automatic water filtration system, known as deferum, is designed for the non-reagent removal of high levels of dissolved iron (up to 50 ppm). It uses a venturi aerator for optimal iron oxidation, followed by a gravity filter filled with polymer media for filtration. The automated backwash, encompassing less than 2% of the processed water, functions through syphoning and pressure differentials. The IronOUT filter is ideal for agricultural, industrial and domestic applications as it is self-cleaning, can be totally automatic, requires minimal maintenance and has no moving parts or chemicals involved. In comparison to other systems in the market place, direct savings are accrued through labour savings, maintenance and minimal consumables utilised.

Apart from the IronOUT Clean & Green Water Filtration system, AWS's main objective is "making groundwater useable". We offer a large range of solutions to treat groundwater, including Reverse Osmosis/Desalination, Chemical Iron & Manganese removal, DMI Filtration, Ozone Water Treatment Systems, Water Softeners, UV sterilisation and Chlorine Dose & Disinfection systems, amongst other solutions. Our services include design, installation and commissioning of complete Water Treatment Plants; filter manufacturing for the local and export markets; facilitation and interpretation of water analyses, as well as Operation and Maintenance Services incorporated in a Service Level Agreement. Please visit our website at [www.awsa.co.za](http://www.awsa.co.za) for further information.

### **Keibeess's story**

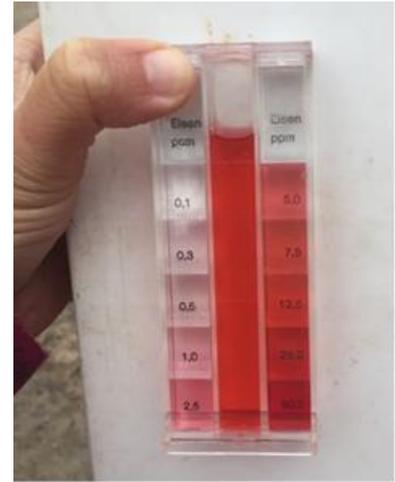
With the current water crisis in the Western Cape, the farmer at Keibeess piggery was extremely concerned with the effect the drought would have on his farrowing section and the production of the sows. The borehole, which normally supplied the piggery, ran dry during the drought, and they had to rely on water from a neighbouring borehole to supply the piggery with water. Unfortunately, the amount of iron in the groundwater from this borehole was extremely high and the 5-km long pipeline installed from the borehole to the piggery readily blocked up with iron oxide. This significantly reduced the flowrate of the water to the piggery, resulting in too little water for the pigs, especially during the hot summer days. The level of iron in the water also resulted in blocked nozzles, sprinklers, valves and solenoids, further complicating access to drinking water for the piggery. Most importantly, since the farmer knew that the high iron content would have an adverse effect on the pigs when used for drinking over time, he knew that a solution was needed urgently.



*Water Comparison*

Alternate Water Solutions (AWS) has installed an SF200 IronOUT filter at the piggery, providing up to 200 000 liters of largely iron free water per day. Pre-commissioning of the filter, the amount of iron in the borehole was 9.5 ppm, and the filter managed to lower the iron to 0.13 ppm, which is well

below levels recommended by SANS241:1-2015 for drinking water standards. It also lowered the amount of manganese, and the turbidity of the water. After the first heavy rainfall during the drought, the amount of iron in the groundwater spiked to above 40 ppm – this is an extremely high level of iron which would have immediately blocked pipelines and could have had detrimental effects on the pigs. Since the IronOUT filter is not influenced by spikes in the iron content of the water the filter still lowered the iron to less than 0.5 ppm. It is evident from the increased amount of water consumed by the pigs, that the palatability of drinking water has improved significantly after installation of the AWS IronOUT filter. With increased water consumption, the pigs are also eating significantly more, resulting in faster growth and production. The mortality rates, feed intake, growth and production rates are currently being monitored to determine the significance of the water treatment solution for the piggery. However, since the filter has been installed the farmer is no longer having trouble with blocked pipelines and nozzles, the water appears clean and the previous dark slime formed by iron-loving bacteria are also no longer present. The farmer is also enjoying the benefits of a minimal maintenance and running cost solution.



*Iron content in BH water*



*Waste product after Filtering*





*Before*



*After*



*Before*



*After*

# VETMESTING VAN SKAPE EN BEESTE IN DIE VOERKRAAL

## -DEEGLIKE BEPLANNING VERHOOG WINSGEWENDHEID-

Deur Dr Heinri Spangenberg

Vir meer inligting, skryf aan [heinrispangenberg@gmail.com](mailto:heinrispangenberg@gmail.com)

### INLEIDING

Boere staan dikwels voor die keuse om kalwers of lammers op die plaas, in 'n voerkraal, op veld of aangeplante weiding, af te rond vir die mark eerder as speenkalwers of -lammers te verkoop. Met goeie marktoestande kan goeie winste behaal word met die opsie vir 'n permanente voerkraal as boerderyvertaking. Die winsgewendheid van 'n voerkraal is egter soos meeste boerderyvertakking siklies en word onder andere deur voer- en prysmarges bepaal. Vir 'n betreklik lang periode is die mielieprys wat voermarge beïnvloed positief, maar dit is nie noodwendig die geval met prysmarges nie omdat stoorlam- en speenkalfpryse hoog is.

Baie kalwers en lammers word jaarliks op plase afgerond omdat dit die boer instaat stel om self waarde tot sy mielies en/of speenkalf en lammers toe te voeg. Myns insiens gaan die afronding van kalwers en lammers toeneem in belangrikheid as vertakking van boerderyondernemings, veral in die tradisionele mielieproduserende gebiede. Dit is dus noodsaaklik om voer- en prysmarges en alle addisionele faktore wat op die winsgewendheid van 'n voerkraalonderneming sou impakteer deeglik te bereken. In enige besigheid is dit belangrik om die diens van spesialiste te gebruik om 'n winsgewende sukses te maak. Dit is hoogs aan te beveel dat huidige en voornemende voerkraaleienaars spesialis voerkraalkundiges en nuwe tegnologieë sal inspan om maksimale wins te genereer.

### MARGES

Die volgende eenvoudige maar handige vergelyking kan gebruik word om winsgewendheid, margekomponente en gelykbreekpunte van bees- of skaapvleisproduksie in die voerkraal te bereken.

BM	=	$A(B-C) + D(B-E) \times V$
BM	=	bruto marge per dier (R/c)
A	=	massatoename (kg)
B	=	verwagte inkomste (R/c per kg lewende massa)
C	=	voerkoste (R/c per kg toename)
D	=	begin liggaamsmassa (kg)
E	=	waarde of koopprys van die dier (R/c/kg)
V	=	verliese (diere bemark as % van diere ingesit)

$A(B-C)$  = VOERMARGE, d.w.s. hoeveel kry ek meer vir die gewig aangesit teenoor wat die voer gekos het.

$D(B-E)$  = PRYSMARGE, d.w.s. hoeveel het die waarde van die massa van die dier waarmee ek begin het, toegeneem.

$AB/\text{voer}$  = maks prys/ton wat vir voer betaal kan word.

$AB/(A \times c/\text{kg voer})$  = wydste voeromset

Verskeie faktore bepaal die winsgewendheid van afronding. Die belangrikste faktore naamlik aankoopprys, verkoopprys en mielieprys word hier vir 'n skaap- en beesvoerkraal aan die hand van sekere aannames geïllustreer. Vir die skaapvoerkraal is volledige afrondpille teen verskillende pryse gebruik en vir die beesvoerkraal 'n selfgemengde TGR met mielies teen verskillende pryse. **Hierdie aannames geld nie noodwendig in alle omstandighede nie en daarom is u welkom om Nupro Veevoere te skakel vir kundige advies.**

#### AANNAMES VIR SKAAPVOERKRAAL

◆ Beginmassa	28 kg
◆ Eindmassa	47 kg
◆ Staandae	50 dae
◆ Droëmateriaal inname	1.35 kg per dag
◆ VOV	3.98
◆ Uitslag persentasie	48 %
◆ Mortaliteit	1.0 %
◆ GDT	0.375 kg per dag
◆ Koste	R102.00 per lam vir die periode
◆ Rente	10%
◆ Afval en huid	(Gebruik as slagkoste)

#### INVLOED VAN VLEIS- EN VOERPRYS OP MARGES IN SKAAPVOERKRAAL

Afrondpille = R3900 per ton

##### AANKOOPPRYS (per kg op hoof)

VLEISPRYS	R36	R 38	R40	R42
R68.00	R108.27	R50.39	-R6.40	-R63.74
R70.00	R153.15	R95.81	R38.48	-R18.86
R72.00	R198.03	R140.69	R83.36	R26.02
R74.00	R242.91	R185.57	R128.24	R70.90

Afrondpille = R4000 per ton

##### AANKOOPPRYS (per kg op hoof)

VLEISPRYS	R36	R 38	R40	R42
R68.00	R100.74	R43.41	-R13.93	-R71.26
R70.00	R145.62	R88.29	R30.95	-R26.38
R72.00	R190.50	R133.17	R75.83	R18.50
R74.00	R235.38	R178.05	R120.71	R63.38

Afrondpille = R4200 per ton

##### AANKOOPPRYS (per kg op hoof)

VLEISPRYS	R36	R 38	R40	R42
R68.00	R85.69	R28.35	-R28.98	-R86.32
R70.00	R130.57	R73.23	R15.90	-R41.44
R72.00	R175.45	R118.11	R60.78	R3.44
R74.00	R220.33	R162.99	R105.66	R48.32

Uit hierdie gegewens is dit duidelik dat aankoopprys en verkoopprys die grootste effek op marges het. Die effek van prysveranderinge van die afrondpil is weliswaar klein vergeleke met skommeling in lam- en vleispryse. Vir die genoemde aannames en R4000.00 per ton pille is die gelykbreek vleisprys R71.18 vir aankoopprys van R42.00 OF met 'n vleisprys van R68.00 is die gelykbreek aankoopprys R39.45. Met 'n aankoopprys van R42.00 en vleisprys van R68.00 moet 'n GDT van 425g en VOV van 3.64 bereik word om die verlies van R71.26 per kop op te hef. 'n Verbetering in GDT van 50g of VOV van 0.35 punte verbeter dus die marge met R71.50. Indien uitslagpersentasie met 2% verbeter sou die verlies van R71.26 beperk kon word tot R7.68.

In die geval van 'n spesifieke voerkraal in die Weskaap is lammers aangekoop teen R36.00 en verkoop teen R70.00 met 'n gemoduleerde wins van R145.62 (middelste tabel). 'n Verbetering in GDT (435g) en VOV (3.57) het wins opgestoot na R234.28. Hierdie is die resultaat van uitstekende bestuursvernuif en deskundige advies deur Afgri Veevoere se voerkraal tegnisi.

Dit is belangrik om die regte tipe lammers te selekteer. Voer is duur; daarom kan hy nie met lammers opgeskeep sit wat swak groei nie.

#### AANNAMES VIR BEESVOERKRAAL

- ◆ Beginmassa 230 kg
- ◆ Eindmassa 446 kg
- ◆ Staandae 120 dae
- ◆ Droëmateriaal inname 10.14 kg per dag
- ◆ VOV 5.63
- ◆ Uitslag persentasie 56%
- ◆ Mortaliteit 1.0 %
- ◆ GDT 1.8 kg per dag
- ◆ Koste R912.00 per bees vir die periode
- ◆ Rente 10%
- ◆ Afval en huid (Gebruik as slagkoste)

#### INVLOED VAN VLEIS- EN MIELIEPRYS OP MARGES IN BEESVOERKRAAL

**MIELIEPRYS = R2000 per ton**

##### AANKOOPPRYS (lewend)

VERKOOPPRYS (karkas)	R30.00	R32.00	R34.00	R36.00
R43.00	-R68.82	-R548.70	-R1028.57	-R1508.45
R45.00	R430.70	-R49.18	-R529.05	-R1008.93
R47.00	R930.22	R450.34	-R29.53	-R509.41
R49.00	R1249.77	R949.86	R469.99	-R9.89

**MIELIEPRYS = R2200 per ton**

##### AANKOOPPRYS (lewend)

VERKOOPPRYS (karkas)	R30.00	R32.00	R34.00	R36.00
R43.00	-R254.34	-R734.22	-R1214.09	-R1693.97
R45.00	R245.18	-R234.70	-R714.57	-R1194.45
R47.00	R744.70	R264.82	R215.05	-R694.93
R49.00	R1244.22	R764.34	R284.47	-R195.41

**MIELIEPRYS = R2400 per ton**

**AANKOOPPRYS (lewend)**

VERKOOPPRYS (karkas)	R30.00	R32.00	R34.00	R36.00
R43.00	-R439.86	-R919.74	-R1399.61	-R1879.49
R45.00	R59.66	-R420.22	-R900.09	-R1379.97
R47.00	R559.17	R79.30	-R400.57	-R880.45
R49.00	R1058.70	R578.82	R98.95	-R380.93

Weereens is dit duidelik dat aankoopprys en verkoopprys die grootste effek op marges het. Die effek van prysveranderinge van op mielies is ook klein vergeleke met skommeling in speenkalf- en vleispryse. Vir die genoemde aannames en R2 200.00 per ton mielies is die gelykbreek vleisprys R49.78 vir aankoopprys van R36.00 OF met 'n vleisprys van R43.00 is die gelykbreek aankoopprys R28.63. Met 'n aankoopprys van R36.00 en vleisprys van R43.00 sou 'n GDT van 2.52kg en VOV van 4.54 bereik moes word om die verlies van R1 693.97 per kop op te hef. 'n Verbetering in GDT van 700g of VOV van 1.09 punte verbeter dus die marge met R1 701.95. 'n Uitslagpersentasie 65% moes realiseer om om die verlies van R1 693.97 uit te wis.

Die algemene duimreël is dat 1kg vleis meer as 12kg mielies (dalk eerder 14kg) vleis moet kan koop en die speenkalfprys ongeveer 65% van die vleisprys moet wees om wins te toon. Hoe wyer hierdie verhouding hoe groter die wins. 'n Verhoogde GDT teen konstante DMI of verbeterde VOV verbeter winsgewendheid dramaties.

Hierdie is die tipe berekening waarvan boere, wat beplan om speenkalwers af te rond, hulle deeglik moet vergewis. Prysmarge, voermarge, voeromsetdoeltreffendheid, staandae en mortaliteite is kritiese faktore vir voerkraal winsgewendheid.

- Begin met 'n goeie kwaliteit kalf of lam wat dus die vermoë het om voer effektief om te skakel in vleis.
- Gebruik kundige advies vir die formulering van die TGR met 'n top kwaliteit Voerkraal HPK.
- Voldoende koel skoon drinkwater is van kardinale belang en meer so tydens hittestress periodes.
- Ligging van die voerkraal t.o.v. die mark het uiteraard 'n impak op winsgewend.
- Kwaliteit van die fasiliteite kan 'n weselike impak op diereprestasie hê. Goed ontwerpte voerkrale is altyd eerste prys, maar sukses kan ook behaal kan word met eenvoudige stelsels soos kleiner kampe met voerbakke en voldoende water.
- Mortaliteite moet tot die minimum beperk word deur goeie kwaliteit diere reg te prosesseer vir die voerkraal met die nodige entings, doserings, inplantate en behandelings.





# BLACK ANGUS



## FINAL EXAM



Angus



REGN.#: SA 0083898619  
DOB: 02/01/2013

Sire: S A V Final Answer 0035  
**OSU Final Exam 3139**

Dam: OSU Empress 1105

\* Add Substance and Capacity \*Calving Ease

As of 06/01/2018															
Production								Maternal							
CED Acc	BW Acc	WW Acc	YW Acc	RADG Acc	DMI Acc	YH Acc	SC Acc	Doc Acc	HP Acc	CEM Daus	Milk Acc	MkH MKD	MW Acc	MH Acc	\$EN
+9	+1.0	+64	+117	+22	+58	+3	+1.77	+15	+5.7	+8	+12		+51	+1	+2.63
.48	.65	.59	.45	.29	.29	.39	.48	.35	.26	.34	.33		.36	.39	

Carcass						\$Values					
CW Acc	Marb Acc	RE Acc	Fat Acc	Carc Grp	Usnd Grp	\$W	\$F	\$G	\$QG	\$YG	\$B
+48	+32	+47	+055		4	+48.29	+80.32	+21.09	+22.80	-1.71	+129.58
.44	.39	.39	.37		6						

## BOSS BOSSMAN



Angus



REGN.#: SA 0083897678  
DOB: 09/01/2011

Sire: Boss Hoss 8132  
**Boss Bossman 139**

Dam: CFC Ellnora 741

\* Low Maintenance \*Fertility Matters

As of 05/14/2018															
Production								Maternal							
CED Acc	BW Acc	WW Acc	YW Acc	RADG Acc	DMI Acc	YH Acc	SC Acc	Doc Acc	HP Acc	CEM Daus	Milk Acc	MkH MKD	MW Acc	MH Acc	\$EN %
+3	+3.2	+48	+83	+21	-.03	+0	+1.17	+21	+6.2	+4	+14	1	+13	+0	+13.41
.30	.51	.45	.36	.18	.18	.32	.34	.28	.13	.26	.28	1	.24	.29	

Carcass						\$Values					
CW Acc	Marb Acc	RE Acc	Fat Acc	Carc Grp	Usnd Grp	\$W	\$F	\$G	\$QG	\$YG	\$B
+27	-.12	+41	-.017			+32.83	+40.47	+4.98	-2.65	+7.63	+73.73
.35	.30	.30	.26								



# RED ANGUS



## EVOLUTION



REGN.#: SA 0083082339  
DOB: 07/01/2014

Sire: Red Lazy MC Cowboy CUT 26U

**Mosshall Red Evolution P353**

Dam: Neterthon Red Essence H483

*\* Excellent Growth*

### May 2018 Aberdeen- Angus BREEDPLAN

	Calving Ease DIR (%)	Calving Ease DTRS (%)	Gestation Length (days)	Birth Wt. (kg)	200 Day Wt. (kg)	400 Day Wt. (kg)	600 Day Wt. (kg)	Mat Cow Wt. (kg)	Milk (kg)	Scrotal Size (cm)	Carcass Wt. (kg)	Eye Muscle Area (sq cm)	Fat Depth (mm)	Retail Beef Yield (%)	IMF (%)
EBV	-2.8	-0.6	+0.2	+4.4	+4.6	+78	+97	-	+12	+1.5	-	+5.1	-0.7	+1.1	+0.2
Acc	41%	30%	34%	67%	57%	56%	53%	-	37%	42%	-	33%	43%	34%	33%
Breed Avg. EBVs for 2016 Born Calves															
EBV	-1.7	+0.2	+0.7	+3.2	+38	+67	+83	+79	+11	+0.9	+52	+3.5	-1.2	+1.0	+0.1

## SIN CITY



REGN.#: SA 0084061829  
DOB: 23/01/2007

Sire: Red Northline Atlantic City

**Red Wheel Sin City 43T**

Dam: Red Wheel Pride 16M

*\* Polled*

*\* Balance and Power*

*\* Muscle*

### Based on June 2018 EPDs Red Angus

	Birth Weight	Weaning Weight	Yearling Weight	Milk	Total Maternal	Scrotal Circ.	Calving Ease	Mat Calving Ease	Yield Grade	REA	Carcass Weight	Marbling	Fat	Stay	HPG
EPD	+2.5	+48	+91	+20	+44	-	-0.9	+0.6	+0.07	+0.17	+29	+0.10	+0.001	+8	+13
Acc	71	63	62	54	-	-	54	52	16	9	49	10	13	25	8

## MAROON FIVE



REGN.#: SA 0080529647  
DOB: 11/05/2012

Sire: Red Haycow Cutting Edge 055

**Red Flying W Maroon Five 155Z**

Dam: Red RCRA Loma 829

*\* Explosive Muscle and Thickness*

*\* Lots of Milk*

### Based on June 2018 EPDs Red Angus

	Birth Weight	Weaning Weight	Yearling Weight	Milk	Total Maternal	Scrotal Circ.	Calving Ease	Mat Calving Ease	Yield Grade	REA	Carcass Weight	Marbling	Fat	Stay	HPG
EPD	+5.3	+74	+115	+26	+63	-	-3.4	+2.7	+0.38	-0.16	+46	+0.55	+0.056	+5	+14
Acc	53	47	46	35	-	-	37	34	19	14	38	16	23	8	8

JD MARAIS

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076 638 8609



## **Complete solution of automatic calf feeding: The new calf feeder Urban Alma Pro feeds up to 1.000 calves**

Originally posted on [www.urban-feeder.com](http://www.urban-feeder.com)

Researchers agree: Feeding little portions several times a day is important for the calf in order to reach optimal growth rates. It supports also the development of the calf to become a healthy and productive dairy cow.

With the Urban Alma Pro, you can combine intensive rearing with labour saving:

you can customize the amount of work in calf rearing economically, without sacrificing the animal welfare. Cleaning buckets, mixing portions and transporting milk are tasks that can be saved with the use of an automatic feeder.

The Urban Alma Pro knows the individual daily requirement of your calves: Every calf gets exactly the individual entitled amount of milk.

User-friendly feeding via touchscreen: Easy use and data retrieval via the new touchscreen, smartphone or PC. Unique monitoring and convenient setting and adjustment of feeding curves allow you to feed the animals appropriate to their individual needs and to make calf rearing more efficient and profitable.

Calf health at a glance: Measurement and control of the consumed amount of milk as well the remaining milk – on the millilitre.

Fitness and feeding condition of the animals are constantly. The grading

system is visually supported by colours. If a calf does not drink enough, the calf feeder Urban Alma Pro will trigger an alarm immediately. That way you can react quickly.

With the Alma Pro you are flexible in feeding milk replacer, whole milk or a combination of both. The Urban Alma Pro calf feeding system offers you almost unlimited possibilities of extensions. The feeders can be expanded into a centrally controlled feeder network, managing up to 1.000 calves. With the parallel system, one feeder can feed up to four calves at the same time. So, no waiting times at the drinking station, thus increased machine capacity. With the Urban powder hopper extension, you can extend the powder capacity to from 35 to 55 kg. With the Urban Alma Duo, you can even extend it to 110kg, or use it to feed two different CMR's. As a standard Urban offers a fully automatic cleaning program cleaning all milk carrying parts with 2 different detergents alternately.

With the new automatic feeder Alma Pro offers a complete solution of automatic calf feeding. The Urban Alma Pro is an investment, which pays off.



Please click on the link below to see more about the Urban Alma-Pro that has been installed on Maryka Boerdery.

<https://youtu.be/xcl1XTCqgM>



# Calf feeding?

**MAKE IT EASY FOR YOURSELF!**



## Feed easy – with the **MILKSHUTTLE**

- Physical ease of work: relieves your back
- 3 big wheels for any terrain
- Strong electric drive
- Exact and simple dosing out of the milk
- Four practical sizes



## The top model – **URBAN ALMA PRO**

- Latest technology with a user friendly touchscreen
- Future proof
- Calf health reports round the clock
- Only model with a closed loop system
- Milk temperature is controlled by 3 sensors
- Fully automatic cleaning system



**LIONEL'S**  
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# MANAGE METABOLIC WELFARE OF YOUR HIGH YIELDING COWS – MANAGE NEB

Pieter Conradie & Willem Schultheiss – Ceva Animal Health

Over the last year many articles were published, and workshops held on Negative Energy Balance (NEB) and metabolic problems associated with high yielding dairy cows. Acronyms like NEFA (Nonesterified Fatty Acids), BHB ( $\beta$ -hydroxybutyrate), BUN (Blood Urea Nitrogen), etc were used, laboratory techniques were implemented, samples analysed, and discussions took place. The question we need to ask is: What measures did we implement to address the problem. Let's just recap on the basics and find practical ways to address NEB.

## Negative Energy Balance:

NEB can be defined as the negative energy balance a cow experiences due to a sudden increase in energy demand for milk production, maintenance, foetal growth, etc. and a lag in energy supply from dry matter intake (DMI) (See figure 1). Cows usually peak between 30 and 50

days after calving, while the dry matter intake capacity reaches its maximum between 60 and 90 days after calving. It is normal for lactating dairy cows to experience a period of NEB during the early postpartum period. During the last trimester of pregnancy, the fast-growing foetus and accumulation of abdominal fat further limit the physical capacity of the rumen and decrease DMI<sup>1</sup>. It is clear that cows can experience a lower DMI and therefore NEB from approximately 3 weeks before up to 7 weeks post partum. **The management of DMI during the transition period (close up and fresh cow groups) is therefore one of the most important aspects to manage in order to alleviate excessive NEB.**

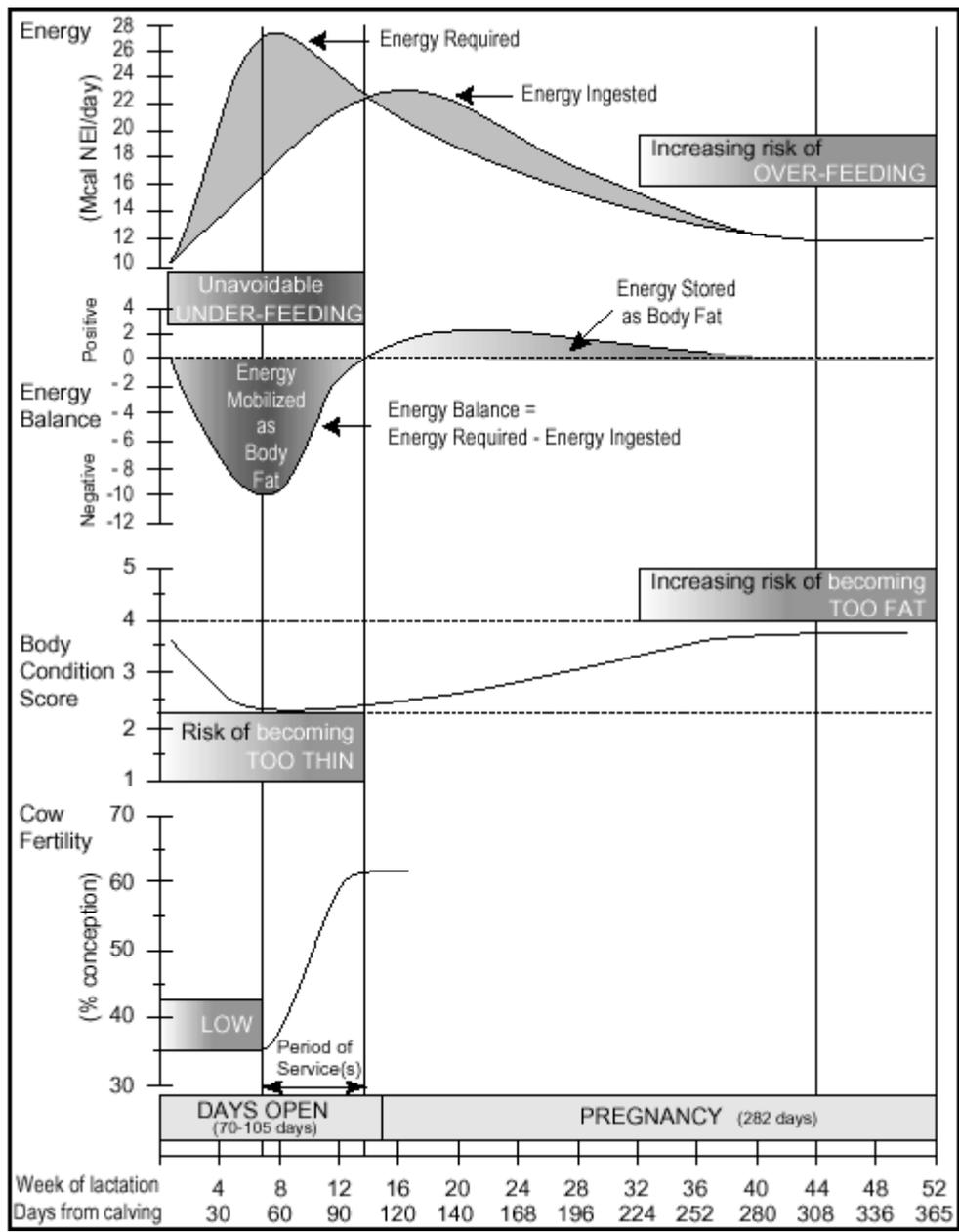
In addition to factors related to nutritional management and diet formulation, there are clearly effects of facilities and other environmental factors on DMI, and likely cow to cow variation in DMI in particular. Other management considerations should include managing stocking density, pen moves, and housing facilities for transition cows. Heat stress management, internal parasites (Brown stomach worm) and separate cow and heifer groups are other key factors that affect DMI and transition period outcomes.

Due to the NEB the cow mobilises body fat reserves to attempt to supply the needs for milk production. The liver captures and esterifies the NEFA where it is stored as triglycerides (TG). The excessive rate of fat mobilisation results in increased hepatic triglyceride accumulation, which can develop into fatty liver syndrome. The release of free fatty acids is important as a source of energy. The liver is also responsible for the production (glyconeogenesis) of **glucose – the primary source of energy of body cells**. Glucose is transferred to cells under the influence of insulin. The mammary gland and developing calf have preference to the available glucose reserves and other tissue become insulin resistant to save glucose for milk production and foetal growth. Increased resistance of adipose tissue to insulin would predispose to the cow to mobilize fat to address the glucose deficiency. More NEFA's are produced, hence

creating a vicious cycle of increasing DMI reduction during the late gestation period<sup>2,3</sup>. In the udder glucose is converted to lactose (milk sugar). During the transition period the glucose demand is extremely high and low blood glucose levels (hypoglycaemia) lead to ketoses.

**An excess of the NEFA and (BHB) causes a lower DMI - resulting in various metabolic disorders, has a negative effect on the innate immune system and severely compromises fertility.**

**Figure 1:** Energy balance of dairy cows in early lactation (Michel A. Wattiaux<sup>12</sup>)



### **Metabolic Disorders:**

Metabolic disorders of cattle are a group of diseases that affect all dairy cows after calving. **The most frequent ones are the following: sub- acute and acute rumen acidosis and bloat, laminitis, ketoses, milk fever, fatty liver, left displaced abomasums (LDA), downer cow, retained placenta, liver abscesses, metritis and mastitis.** From the list it's evident that it doesn't only mean a production loss at the time of the disease but a loss over the whole lactation and it normally carry a huge cost to treat these animals. In the case of clinical ketosis for example the average production loss can be 25% per lactation lactation<sup>4, 5</sup>. Even with subclinical ketosis, there is a loss of 1-1.5kg/day of milk production<sup>6</sup>.

Some of the blood-based markers of energy metabolism (e.g., prepartum NEFA; postpartum NEFA and BHB) provide us with opportunities to assess energy issues in transition cows and implement pro-active management measures. **This can be done in conjunction with your veterinarian at a laboratory like Vetdiagnostics** (See Dairy Mail: October 2012- Spotlight on NEB profiling).

### **Immuno Incompetence:**

Increased fat mobilization as reflected by an increased NEFA value leads to impaired metabolic and immune cell function<sup>7, 8, 9</sup>.

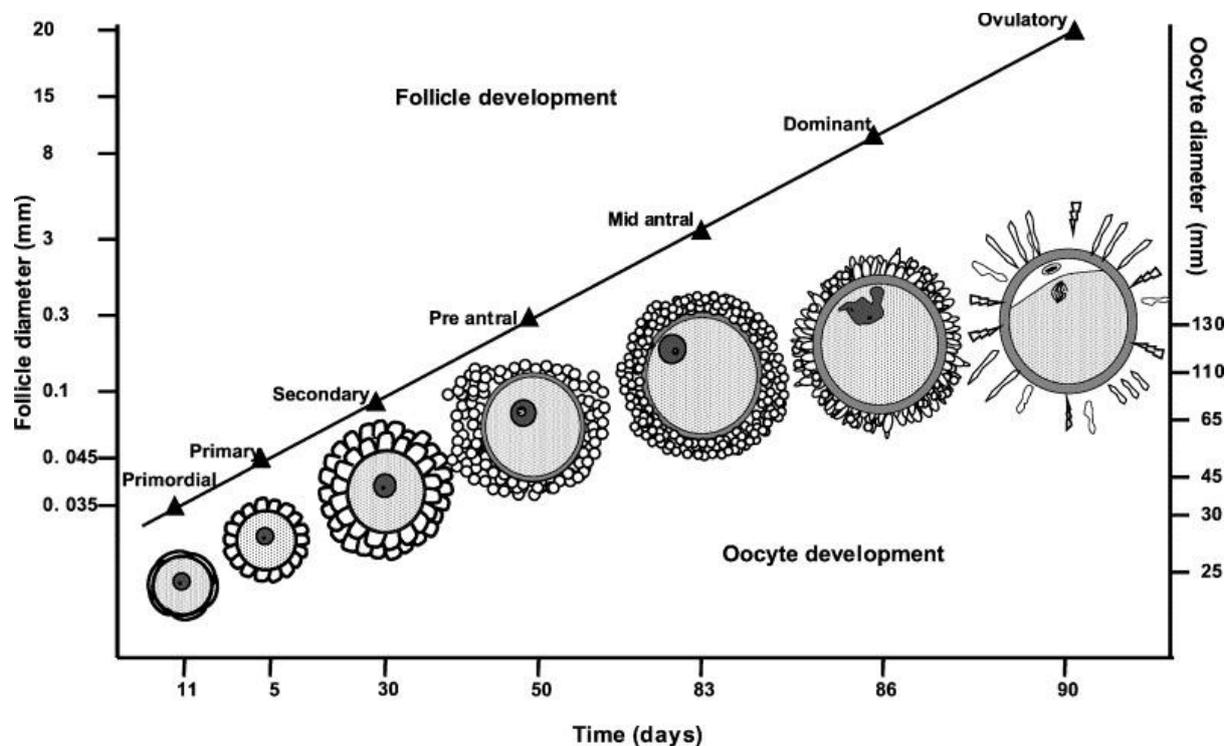
### **Oocyte Quality:**

During late pregnancy elevated plasma levels of steroid hormones (estradiol and progesterone) suppress the release of pituitary gonadotropins (LH and FSH) and ovarian follicular activity. Following calving, steroids are reduced and increased secretion of FSH and LH pulses become re-established to stimulate development of large ovarian follicles and ovulatory ovarian cycles. The liver plays an important role as a site of NEFA metabolism and as the primary source of insulin-like growth factor-I (**IGF-I**) that stimulates development of ovarian follicles and alveoli in the udder.

*In vivo*, conditions in the follicle determine oocyte quality. During the follicular growth phase of the oocyte, maternal genes are transcribed, and the resulting mRNA and protein molecules are synthesized and accumulated in the oocyte<sup>10</sup>. The latter is crucial to guarantee the survival of the early embryo prior to embryonic genome activation. During this process, the embryo starts using its own, newly formed DNA for making transcription factors. This is a highly sensitive step in pre-implantation embryo development. **In other words, although a perfect fertilization took place, adverse follicular conditions during oocyte growth and maturation may have detrimental consequences for the viability of the embryo.** The developmental competence of the oocyte and the steroidogenic capacity of the follicle in high yielding dairy cows are determined by their biochemical environment during the long period (up to 90 days) of follicular growth prior to ovulation (Figure 2). Thus, primary follicles exposed to adverse conditions associated with the metabolically challenging period of NEB early postpartum may be less capable of producing adequate amounts of estrogens and progesterone (after

ovulation). Such follicles would be doomed to contain an inferior oocyte, which will then ovulate approximately 60-80 days postpartum.

Figure 2: Follicular oocyte growth and development<sup>13</sup>.



So, what does this mean and how can we use it in practise?

1. Ensure highest possible DMI in the transition period by providing a **PALATABLE** and **DIGESTABLE** ration!
2. Use available technology (ie rBST) and scientific knowledge to optimise DMI and the metabolic functions in the cow.
3. Remove, 3 weeks before expected calving date, any sub-clinical existing liver fluke burden with triclabendazole (milk withdrawal time is 14 days)
4. Remove, at calving, any sub-clinical roundworm infestation with Eprinomectin Eprecis 1% injectable (Reg no. G3917, Act 36/1947). A bulk tank ELISA test is available to assess the impact that brown stomach worm has on herd milk yield.

To make point 2 more practical we can evaluate the results from a study done at the Pennsylvania State University of which the results was published in the Journal of Dairy Science, 1999 82:982 – 955. “Metabolic and production responses to dietary protein and exogenous somatotropin in late gestation dairy cows. (Putnam, Varga & Dann)<sup>11</sup>.

Forty-three multiparous Holstein cows were used to evaluate the effect of protein supplementation and the use of somatotropin (r-BST) in late gestation on animal metabolism and productivity in the periparturient period. Treatments started 28 days before expected calving date and either 0 or 500mg r-BST was injected every 14 days until parturition. Production measurements were recorded until 42 days in milk. A summary of the results from this study indicated the following:

- The use of r-BST, prior to calving, increased plasma glucose and decreased plasma NEFA and BHB.
- Calves born to cows treated with r-BST during late gestation were 2.1kg heavier at birth with no difference in calving difficulty measured on a five-point scale.
- More cases of mastitis for the control cows existed than for the r-BST treated cows.
- No differences existed between control and r-BST treated cows for body condition change prepartum or postpartum.
- Cows treated with r-BST ate more on a DM per unit of body weight basis following parturition.
- The use of r-BST had no significant impact on prepartum or postpartum plasma urea N concentrations.
- The treated cows produced 4.6 kg milk per day more during week 6 of lactation than the control cows.

The changes in metabolism and production noted in this study with the use of r-BST in late gestation clearly suggest an opportunity to substantially improve transition cow health and consequently welfare with the use of exogenous BST in late gestation. Healthy cows are more efficient producers.

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## **WHAT DOES GOOD NUTRITION DO FOR YOUR DOG?**

The proper balance of nutrients is essential when feeding your dog. Animals (and humans) need a certain combination of protein, carbohydrates, fats, vitamins, minerals and water every day in order to function normally. Balanced nutrition is no accident – pet food manufacturers work hard to determine the exact formula that goes into their products so that they provide everything your dog needs daily.

There are foods designed for specific stages of life (such as for puppies or geriatric dogs), while some provide hypoallergenic nutrition and other formulations are developed to control specific health conditions like heart disease, kidney disease, etc.

Each nutrient in your dog's food has a purpose. Without adequate nutrition, your dog would not be able to maintain muscle tone, build and repair muscles, teeth, and bone, perform normal daily activities with ease or fight-off infection. Proteins provide a source of energy and help with muscle function and growth. Fats provide energy, help the brain function, and keep the skin and hair coat shiny and healthy. Carbohydrates supply a source of quick energy that allow your dog to be active and energetic. Vitamins and minerals are necessary for muscle contraction and nerve conduction and they work to prevent disease.

### **MUSCLE TONE AND BODY CONDITION**

Every single cell in the body is made up of protein. It is integral in building skin, hair, muscles, organs and other tissues. Protein is necessary to repair damaged cells and make new ones. Protein is especially important for young, growing and pregnant animals. The protein in your dog's diet ensures that he/she is able to build and maintain strong muscles. Therefore, one of the first few ingredients on a dog food label should be a protein source (chicken, beef, etc.).

### **SKIN AND HAIR COAT HEALTH**

Everyone knows that a dog with a rich, shiny hair coat is most likely in good health. This is because dogs eating the proper balance of omega-6 and omega-3 fatty acids will have skin that is healthy which produces hair with a nice sheen. Skin that is dry will lead to hair that easily splits, breaks, and falls out easily. Foods with adequate omega-3 fatty acids have an anti-inflammatory effect to reduce itching and other irritations caused by allergies or environmental conditions (like low humidity levels in the winter).

### **DIGESTION AND ELIMINATION**

Carbohydrates provide fiber that helps aid digestion and elimination. Dog foods are formulated so that the needed nutrients are readily available to your dog's digestive system and thus easily absorbed by the body. Digestibility is important, so your dog can use all the nutrients in his food and easily rid his body of waste products. Your dog's food should provide all the nutrition he needs while producing only a minimum of stool to be picked up as the result.

### **IMMUNITY AND PREVENTION OF DISEASE**

The vitamins and minerals found in every bag of dog food work together to keep your dog's immune system and metabolism functioning normally. Vitamins work to reduce the damage done to body cells on a daily basis. Minerals promote the normal function of the cells that maintain health. Vitamins and minerals come from both plant and animal sources in the diet. Without adequate levels of vitamins and minerals, your pet would eventually become ill.



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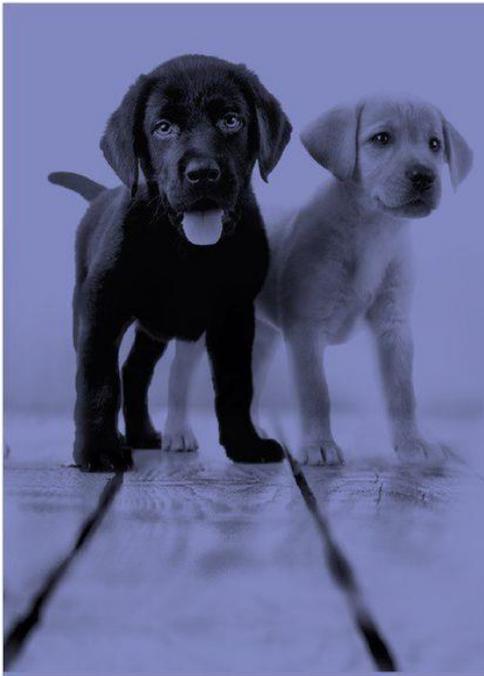


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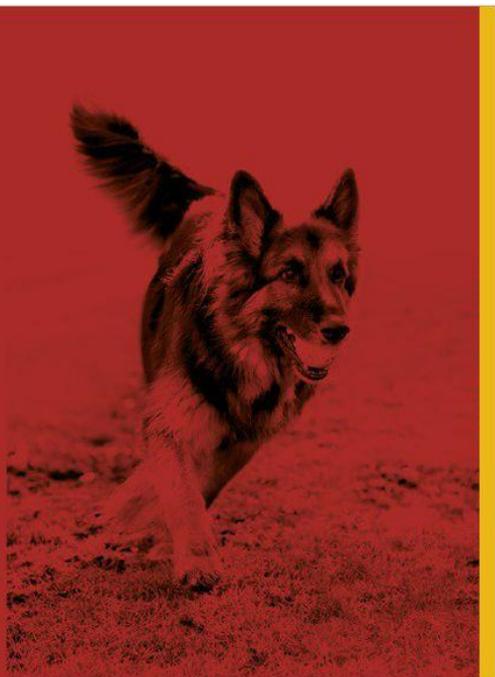
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# Meer oor ons

## Verkoopsverteenwoordigers



### **Ontmoet vir JD Marais.**

Ontmoet vir JD Marais.

JD is in Bothaville in die Vrystaat gebore en woon tans in Bloemfontein. Hy het aan die Hoër Volksskool in Potchefstroom gematrikuleer en is werksaam by Lionel's Vet vanaf Januarie 2018. Voordat hy by ons span as verteenwoordiger aangesluit het het hy vir die Ayrshire Beestelersgenootskap gewerk en die "husbandry audits" vir Woolworths behartig. Hy het oo B.Agric (veekunde) studeer. JD is getroud, maar het nog geen kinders nie. Sy belangstelling is in die veebedryf en hy is geïnteresseerd in die vooruitgang van genetiese teelmateriaal met die beste moontlike tegnologie. Hy het ook 'n groot liefde vir die natuur, vriende en sy familie. JD geniet enige avontuur en het 'n passie vir 'n prag-bees.

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