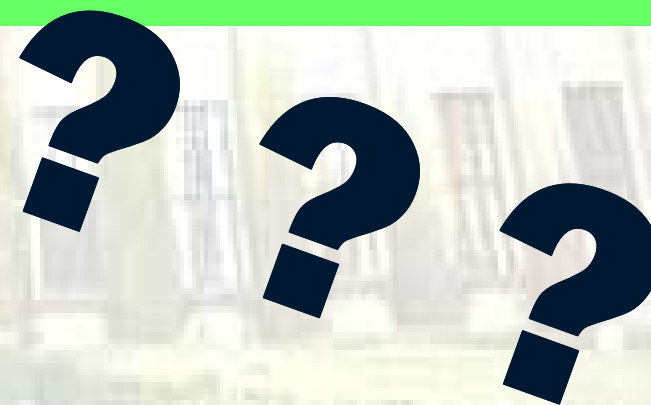




Beyond Production Nutrition: can we be Health Positive *and* Product Positive

Chris Knight

LIFE, University of Copenhagen



EAAP 2010

61st Annual Meeting of the European Association
for Animal Production

AUGUST 23rd-27th, 2010 - HERAKLION, CRETE ISLAND, GREECE



New priorities in production animal science

Global food needs

Healthy
animal

Human well-being

Quality
product

Sustainable
environment



"At Dubai dairy, camels are the new cows"

International Herald Tribune, Wed 25th August 2010

"Camelicious"

Benefit: 3X more Vit C, low lactose

Problem: salty taste

Solution: feed carrots and dates to the 700 camels





1995



"MY COMPLIMENTS TO
THE SCIENTIST"

MailOnline
Clone beef's been on sale:

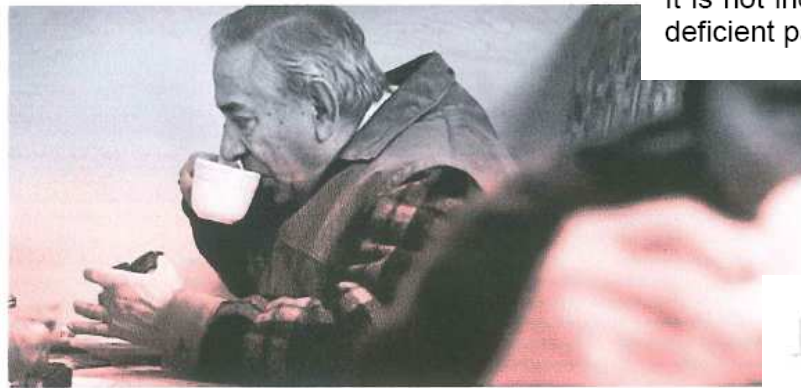
2010



ATryn, Antithrombin (Recombinant)
Lyophilized powder for reconstitution
Initial U.S. Approval: 2009

INDICATIONS AND USAGE

ATryn is a recombinant antithrombin indicated for the *prevention* of peri-operative and peri-partum thromboembolic events in hereditary antithrombin deficient patients.
(1)
It is not indicated for *treatment* of thromboembolic events in hereditary antithrombin deficient patients.



Does Hello to Welfare mean.....

.....Farewell to Quality?





The main objective of the COST Action is to develop an integrated and collaborative network of research groups that focuses on the roles of feed and animal nutrition in improving animal health and also the quality, safety and wholesomeness of human foods of animal origin.

WG1

Health

WG2

Safety

WG3

Supply

WG4

Consumer



So what is health and welfare?



"Fit and healthy"



"Healthy"



"Compromised"



"Diseased"



"Dead"

Does Hello to Welfare mean.....

...Farewell *and Farvel* to Quality?



Menu =
"Bill of Fare"

"Faring well"



"Fit and healthy"

"Healthy"



"Compromised"

"Diseased"

"Dead"





BBC NEWS

Should Halal and Kosher meat be banned?

The method of animal slaughter used by Jews and Muslims should be banned immediately, the Farm Animal Welfare Council says.



"Faring well"



"Fit and healthy"

"Healthy"



"Compromised"

"Diseased"

"Dead"





COMPASSION AND THE EVENING STANDARD UNCOVER THE VEAL TRUTH

The Connaught Hotel admits confusion over Dutch veal

Compassion in World Farming believe it's better for the farmer and calf welfare to choose British veal but, how easy is it to tell what's available in our restaurants?

Good welfare...
...or bad?

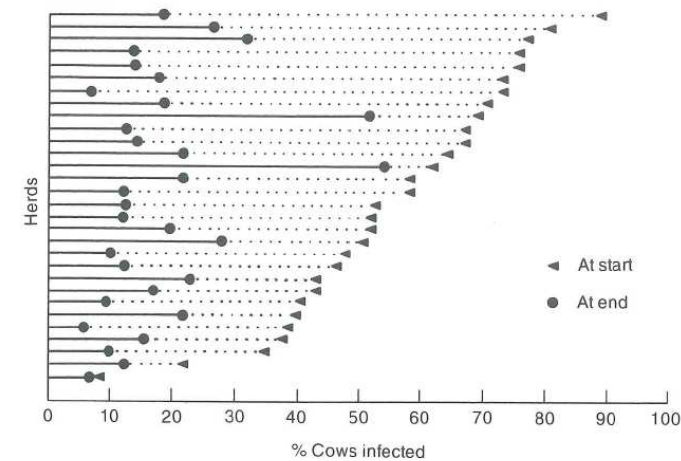
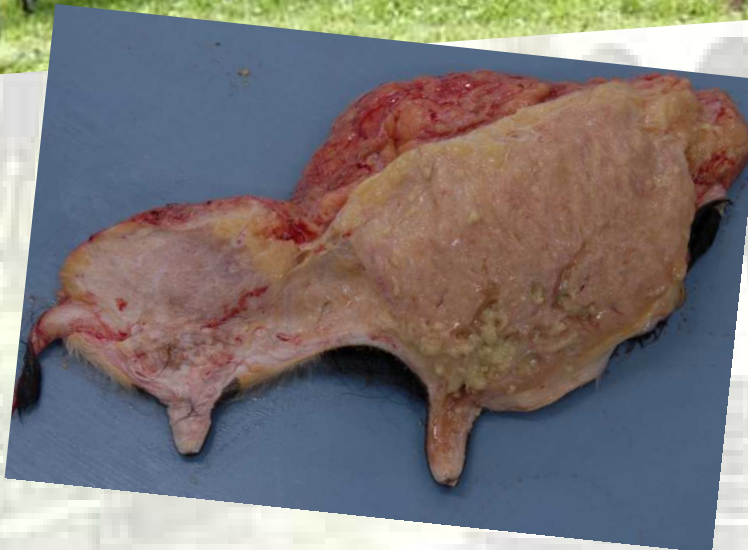
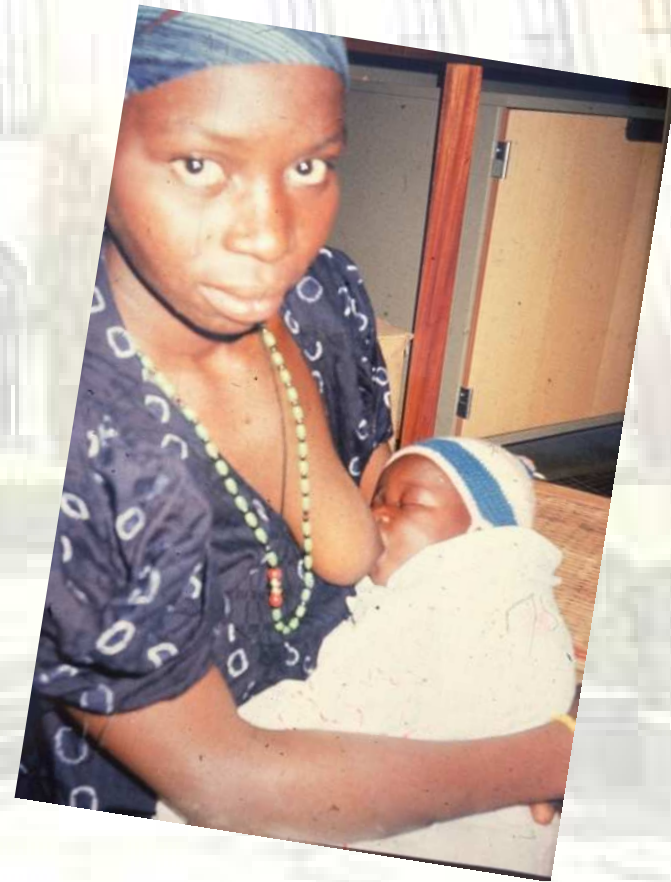
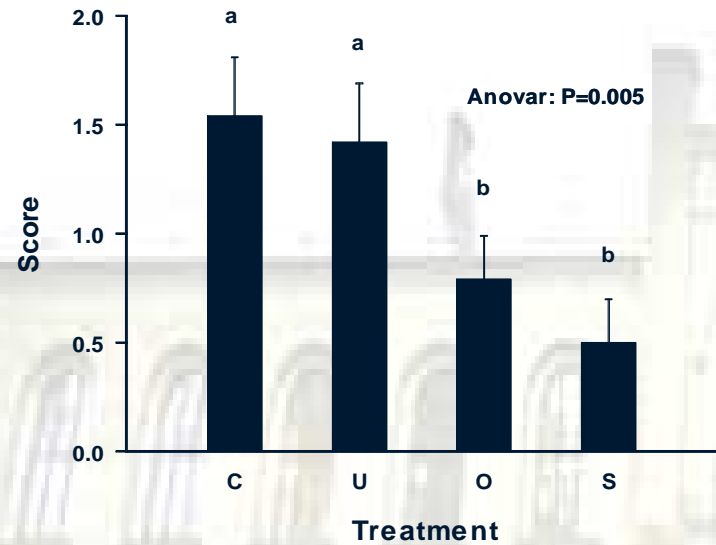


Fig. 8.15 Reduction in levels of infection in 3 years in 30 UK herds after introduction of the NIRD/CVL 'Five Point Plan' mastitis control routine (MFE3).

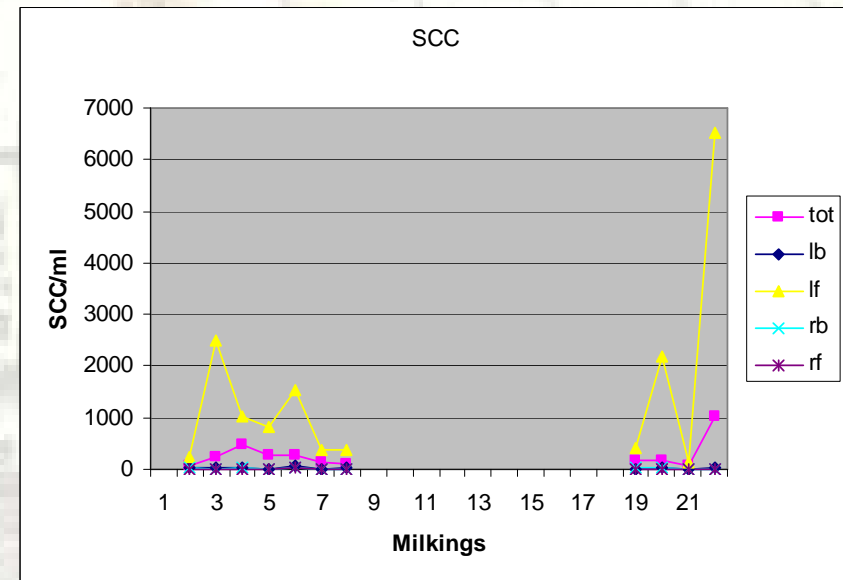
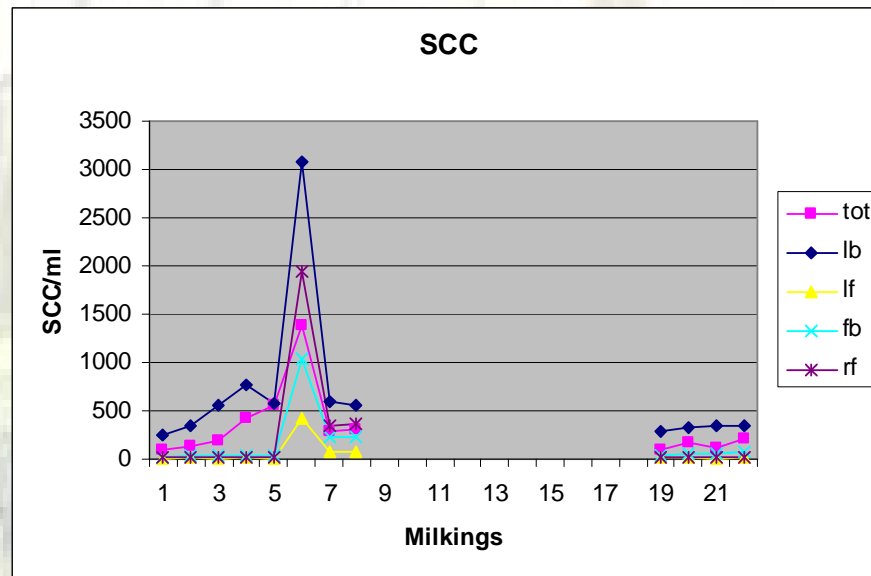
Mastitis: effects on mother

- Ω Pain
- Ω Anxiety
- Ω "Inadequacy"
- Ω Cessation of lactation

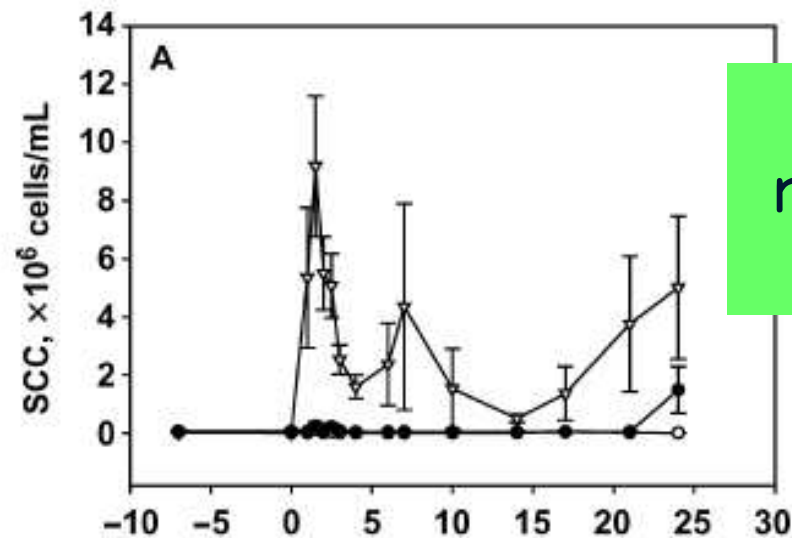




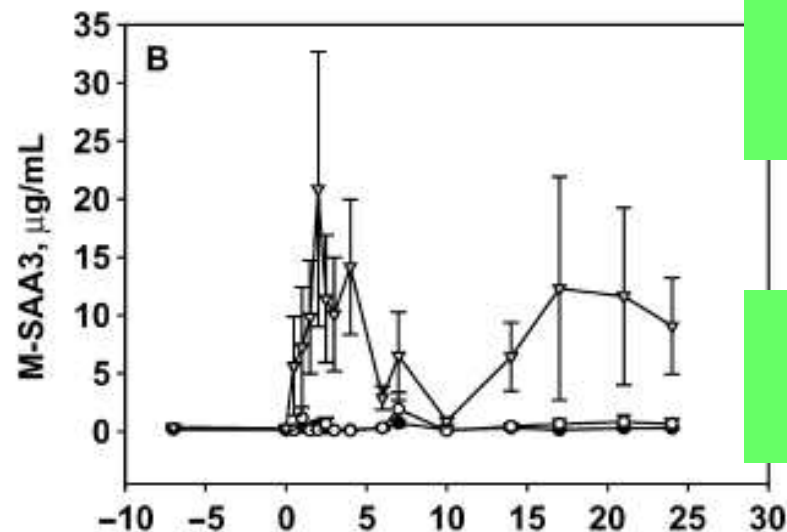
Oxytocin:
Natural mastitis therapy?
Diagnostic aid?



Mastitis: acute phase response



Acute phase proteins:
released as an early event in
infection



M-SAA3: mammary
associated serum amyloid A

Diagnostic role?
Therapeutic role?

Mastitis: antibiotic use varies

Recent reports:

Finland: 38%

Australia: 75%

USA: 86%

Sweden: 15% (mostly following bacteriology)



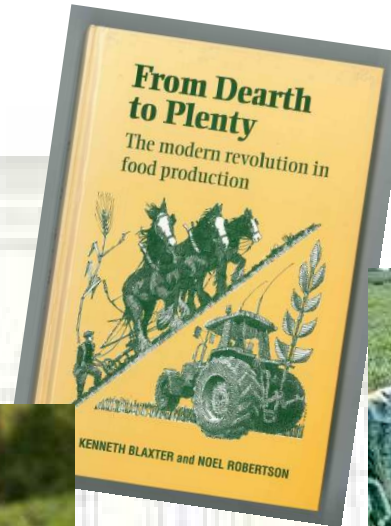
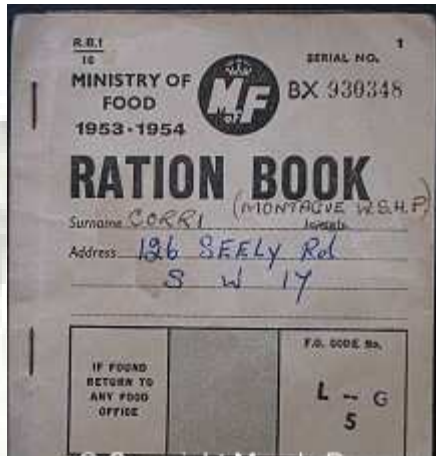
Is Good Welfare.....

...always *a Good Thing?*



An
Apple a Day
Really Does Keep
the Doctor Away

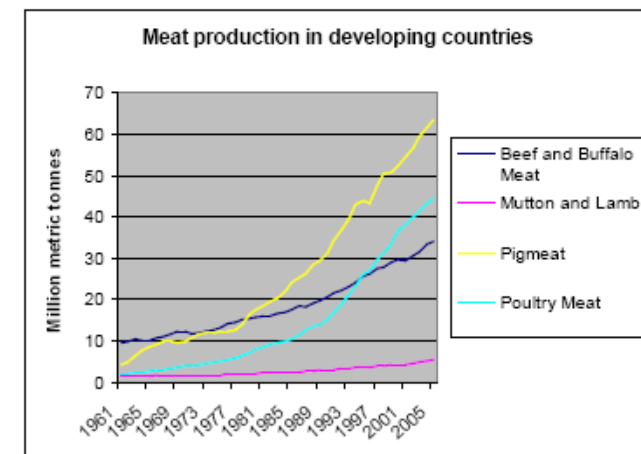




Georgia Davis weighs 210 kg at just 15 years of age, which makes her the world's fattest teenager.

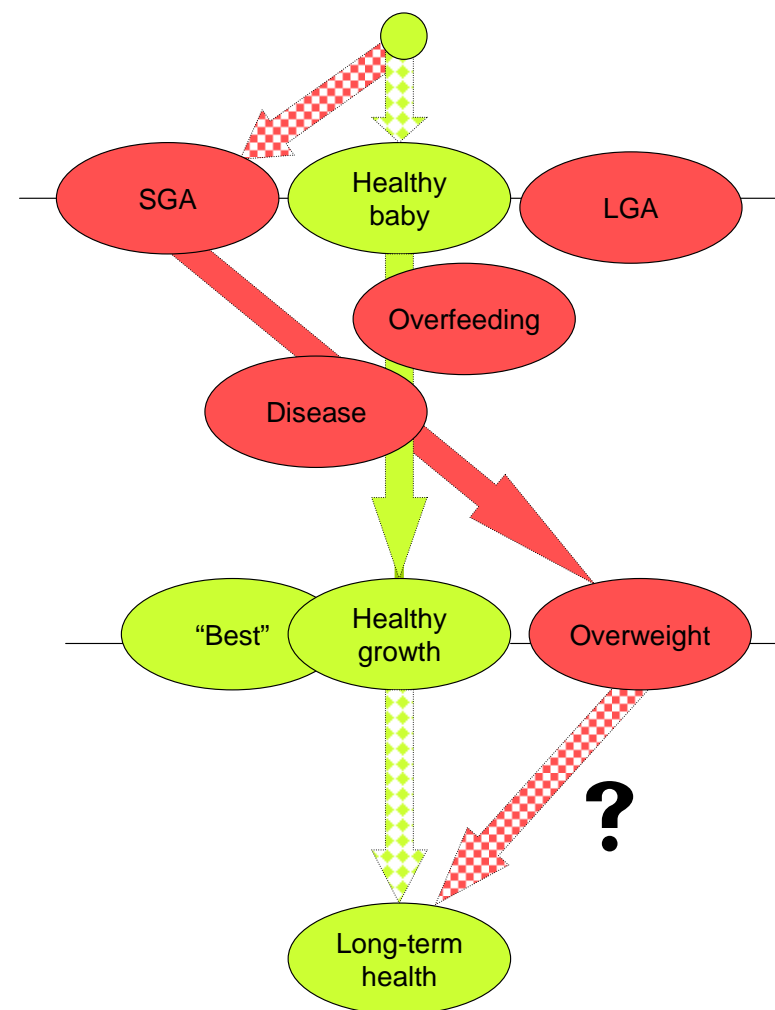


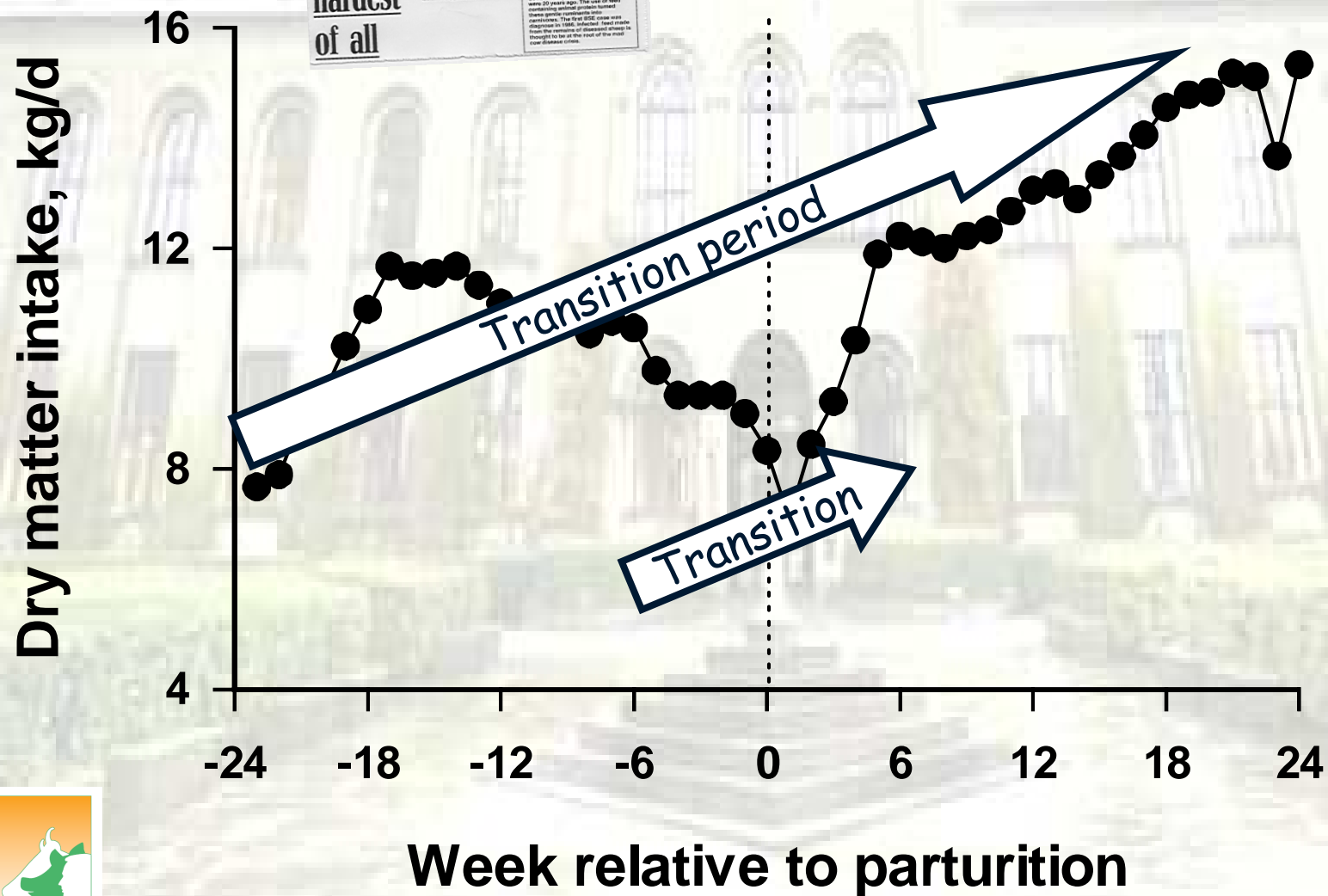
Figure 9. Meat production in developing countries.



Source: FAO, FAOSTAT

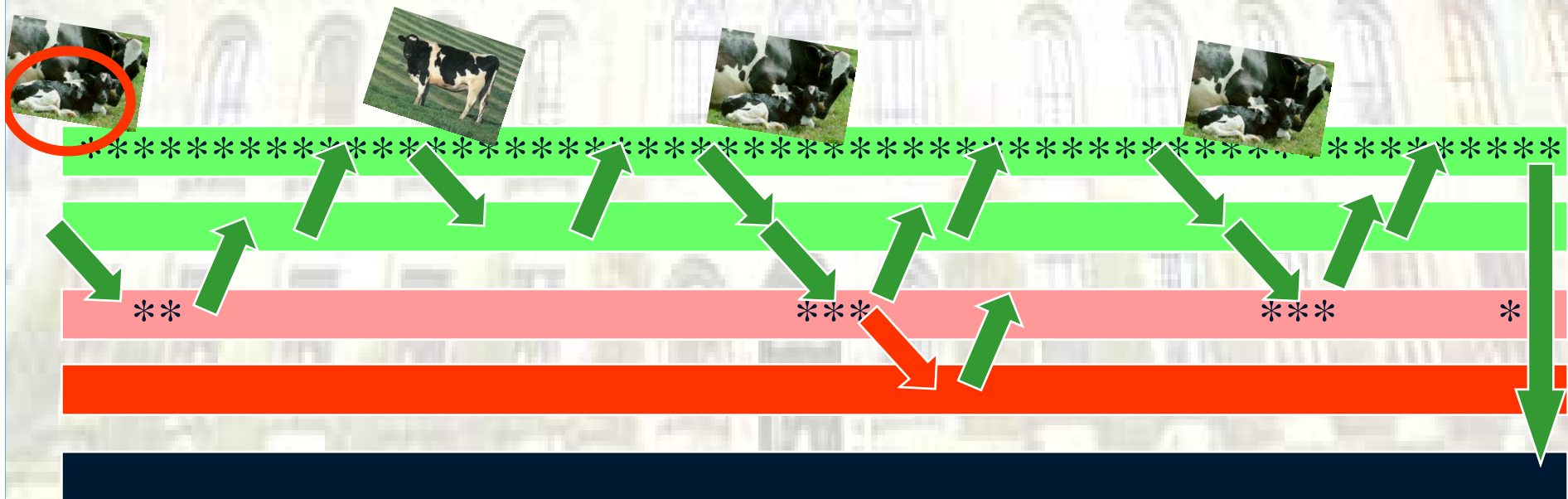
Lifetime health and welfare





"Faring well"

"Wellbeing"



PAIN

HOME SCIENCE MEDICINE HISTORY CULTURE

▼ Culture

Pain and deliberate self-harm

Pain and the erotic

► Can animals feel pain?

Laocoon and the expression of pain

About this site

Contact us

Glossary

Can animals feel pain?

Lynne U Sneddon

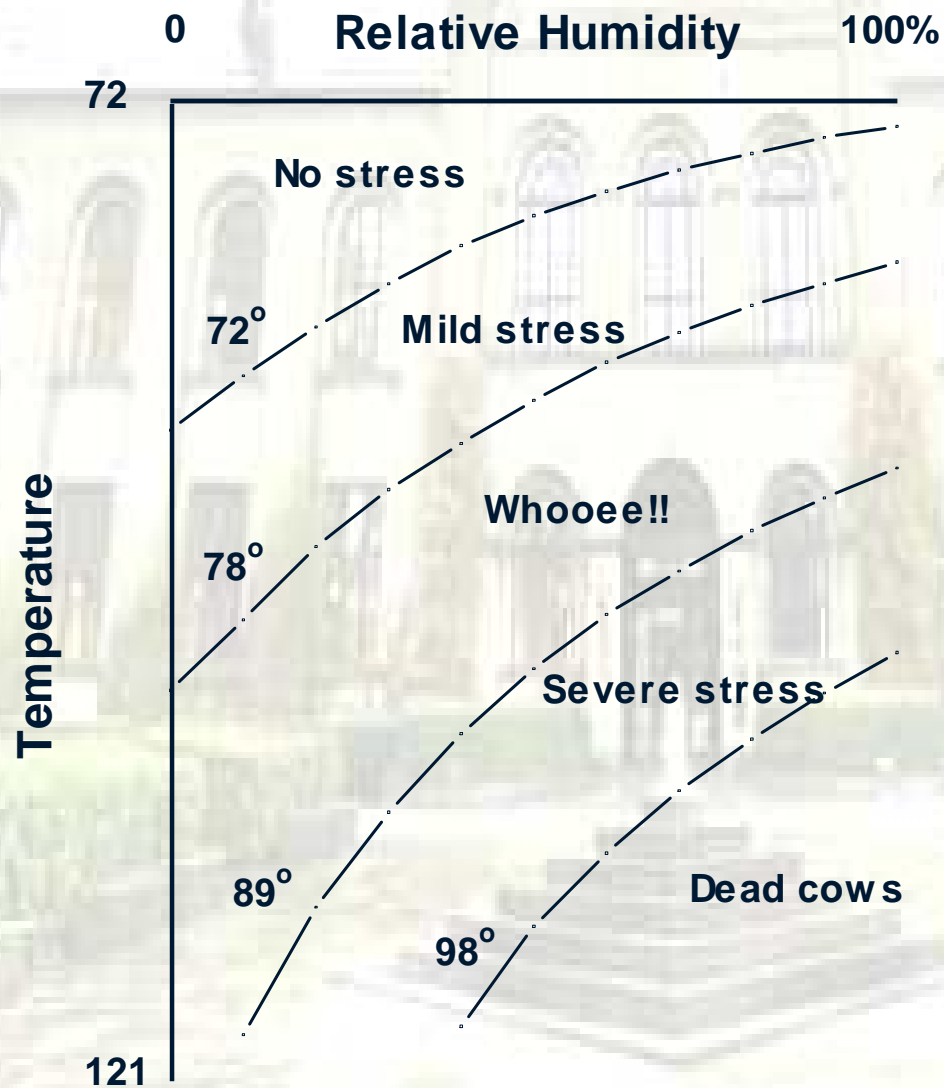
Whether animals can feel pain has been a controversial issue for many years. Animals and humans share similar **mechanisms of pain detection**, have similar areas of the brain involved in processing pain and show similar **pain behaviours**, but it is notoriously difficult to assess how animals actually experience pain.



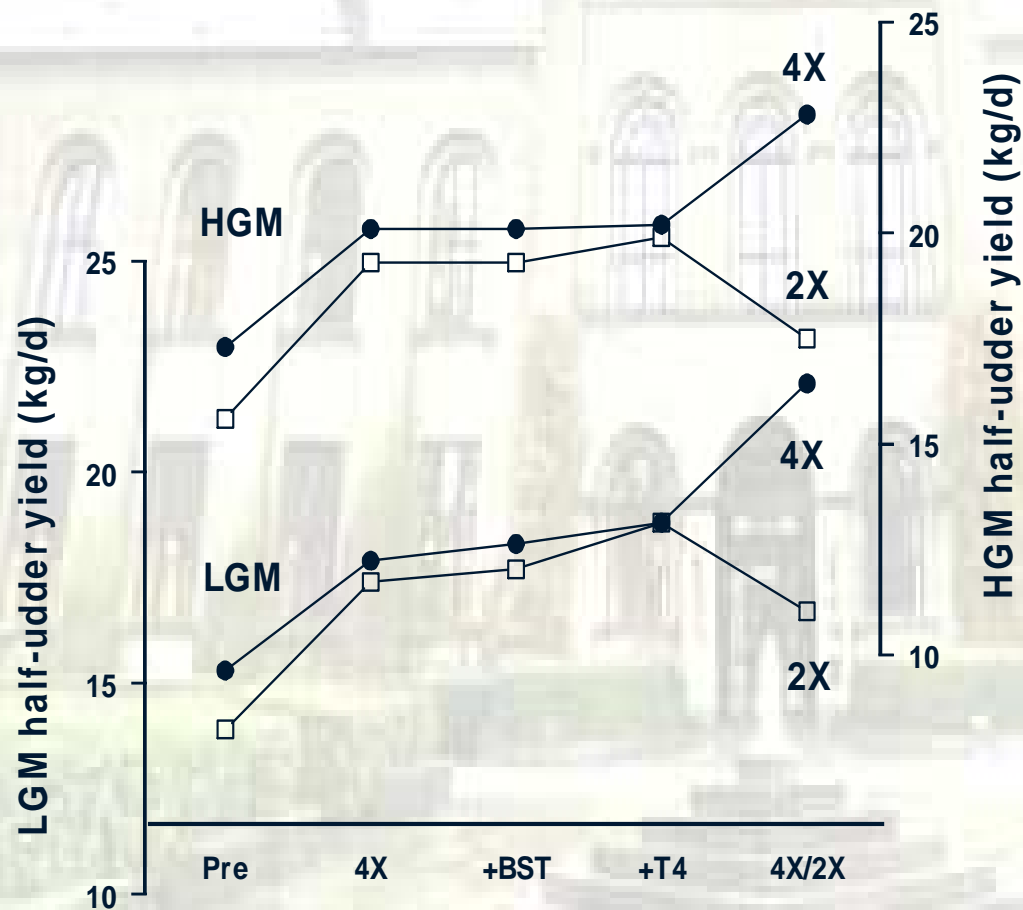


Phew!!

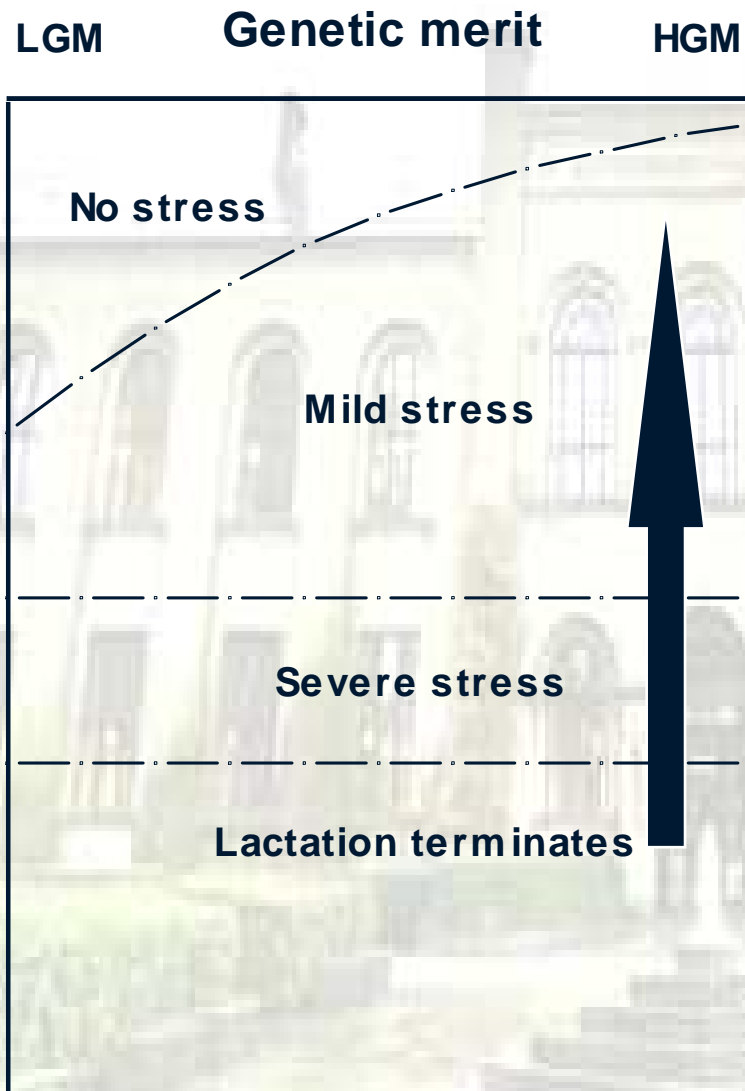
Heat stress



Metabolic stress



Management intensity



BST is a cynical abuse of both the dairy cow and the dairy farmer

Prof John Webster, Bristol Univ. Vet. School



JUST ROASTED COFFEE etc.
Organic, Fair Trade and Rainforest Alliance beans.
Organic Valley milk.

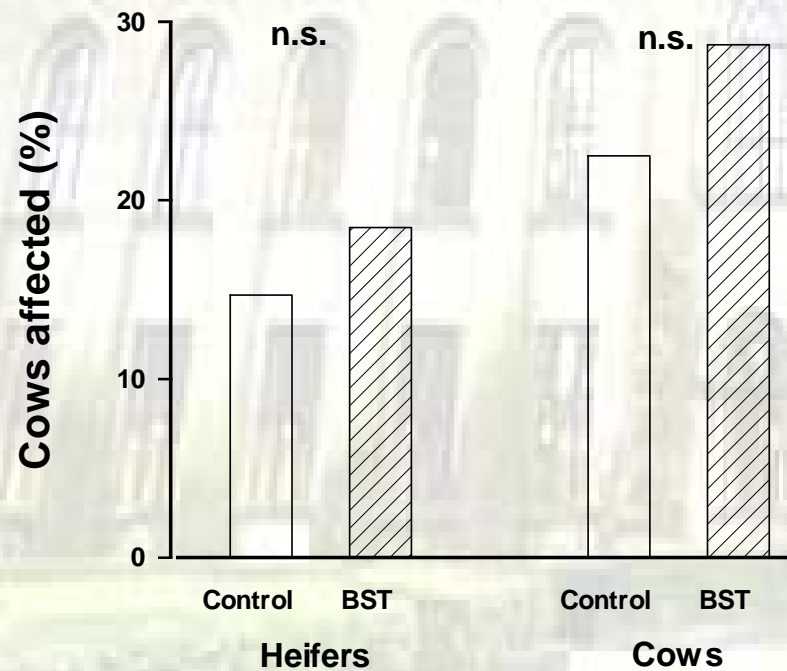
	REGULAR	LARGE
'JUST ROASTED' CAPPUCCINO (with chocolate sprinkles or naked)	\$2.79 60cal	\$3.09 79cal
'JUST ROASTED' LATTE (with steamed organic milk)	\$2.79 99cal	\$3.09 153cal
'JUST ROASTED' ESPRESSO (big flavor, small cup)	\$1.69 5cal	\$1.89 10cal
'JUST ROASTED' MOCHA (organic coffee, chocolate)	\$2.79 169cal	\$3.09 293cal
ORGANIC HOT CHOCOLATE (chocolate, steamed organic milk)	\$2.79 263cal	\$3.09 379cal
ORGANIC MASALA CHAI (with steamed organic milk)	\$2.79 62cal	\$3.09 84cal
ORGANIC WHOLE LEAF TEA (English Breakfast, Earl Grey, Green or Herbal)	\$1.59 0cal	\$1.79 0cal

Calories listed reflect beverages made with skimmed milk.
For a richer option ask for whole milk. Soy milk available at no extra charge.

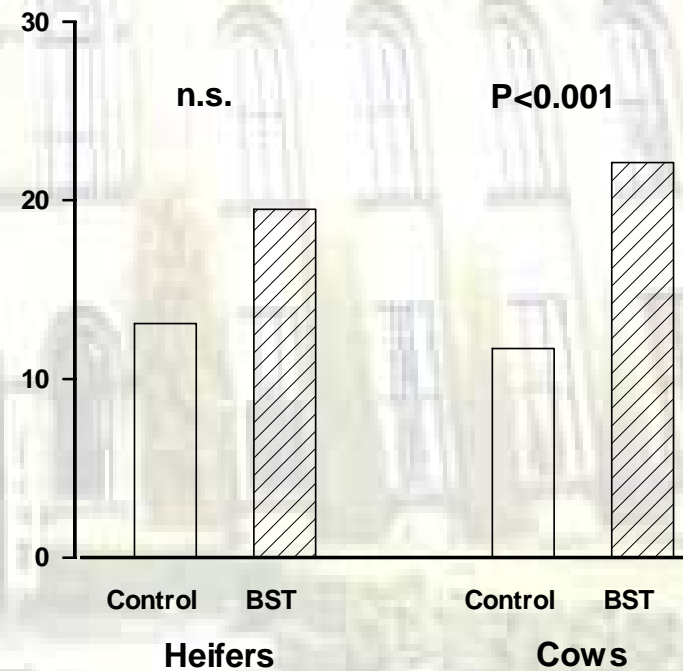
Our coffee beans are ground and brewed within 21 days of roasting (nobody else does this).
TODAY'S BEANS WERE 'JUST ROASTED' ON 04/07/09

The milk Pret uses is
"Just Organic"
No Growth Hormones. No Antibiotics.

Impact of rbST on incidence of mastitis and lameness



Mastitis



Lameness



FOOD OF LIFE
The Science of Animal-Derived Foods



Erasmus Mundus



Education and Culture

NOVA
UNIVERSITY NETWORK

CoLact

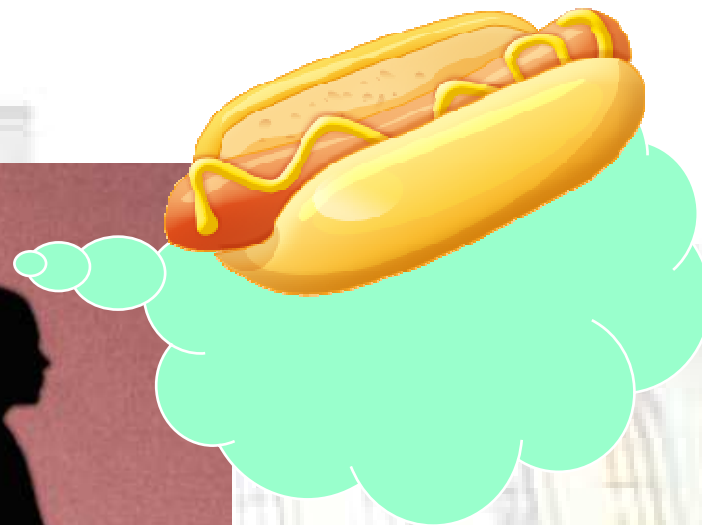


norden

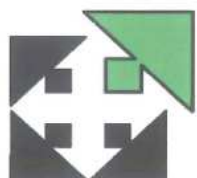
NordForsk

Fe-W





Elite Erasmus
Mundus MSc
CU SLU
HU UAB

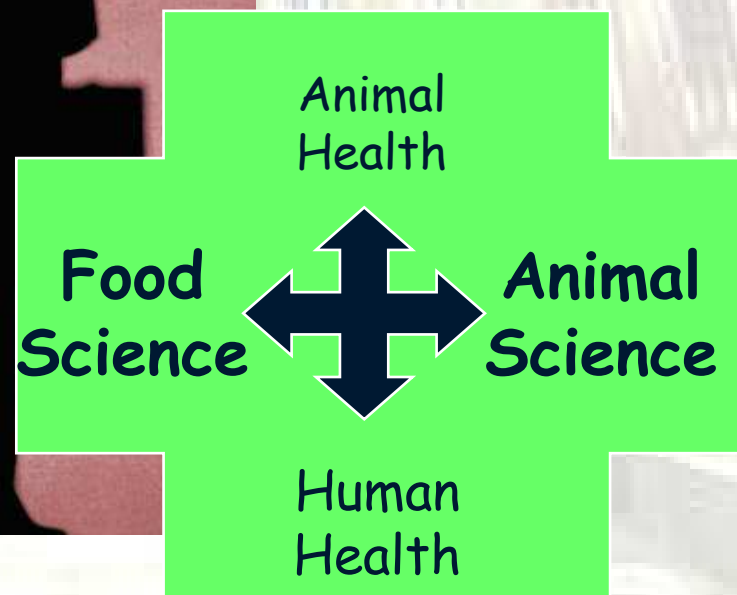


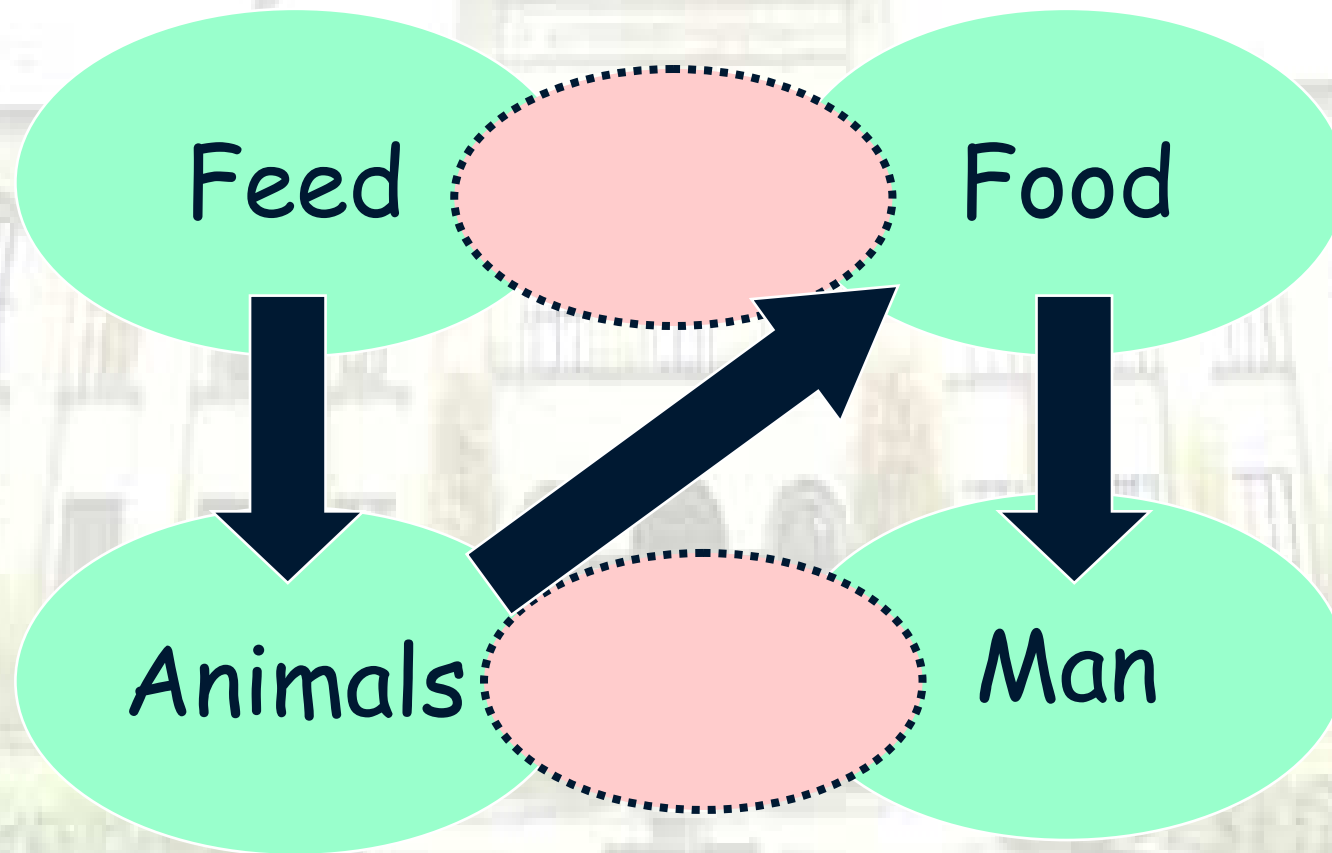
FOOD OF LIFE

The Science of Animal-Derived Foods



www.emfoodoflife.eu







Animal
Scientists

Food
Scientists

CoLact

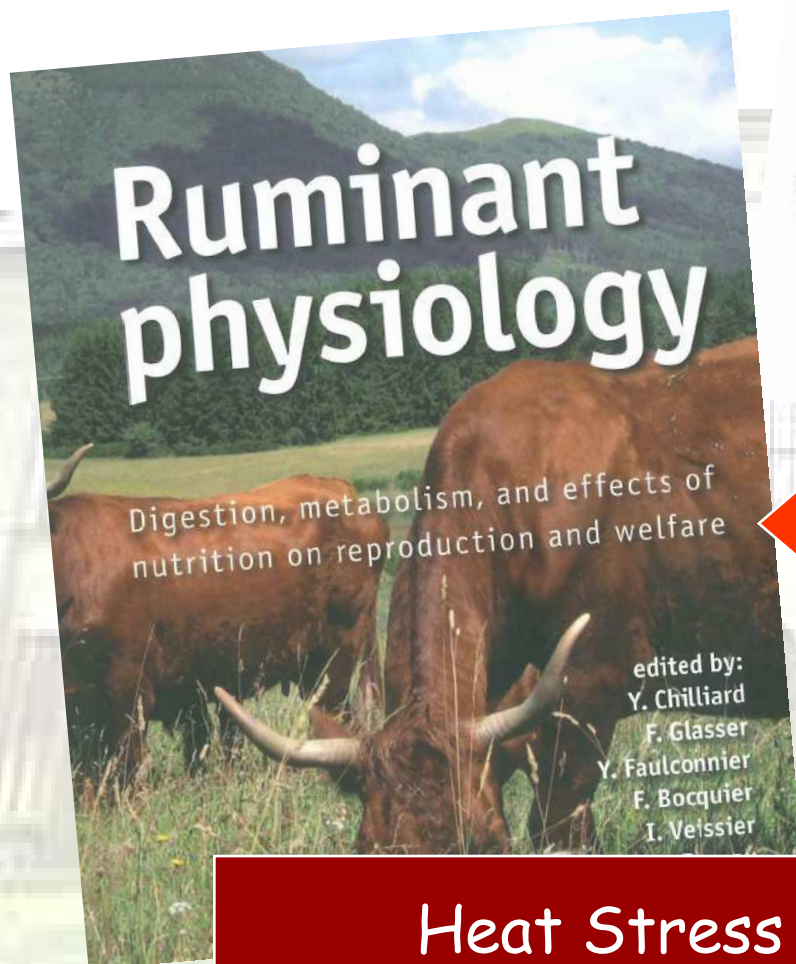


Human
Nutritionists

Vets







5th EUROPEAN WORKSHOP ON
EQUINE NUTRITION
'Nutrition in relation to health and
welfare'
21st September 2010
The Royal Agricultural College

Heat Stress
Pollutants
Nutritional Factors
Feeding Behaviour
Microbial Endocrinology

Laminitis

Colic/ Gastric
Ulcers

Obesity

Stable vices

Nutritional
supplements



5th European Workshop on Equine Nutrition

Applied day;; Hear the latest on:

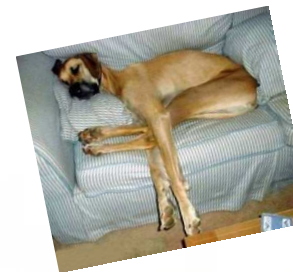
21st September 2010

9.00	Coffee/Tea		
	WHAT IS ALL THE FUSS ABOUT : METABOLIC SYNDROME AND LAMINITIS ?		Sponsor 
	CHAIR: Catherine Hale		
9.30	Laminitis - latest news?	RAY GEOR & PAT HARRIS	
10.30	Tea/Coffee		
	NUTRITION, COLIC AND GASTRIC ULCERS : CAUSE OR CURE ?		
	CHAIR: Veronique Julliard		
11.00	Colic - preventable?	ANDY DURHAM	
	Gastric Ulcers - avoidable?	NANNA LUTHERSSON	
12.30	Lunch		
	ROLE OF NUTRITION IN WEIGHT MANAGEMENT AND ABNORMAL BEHAVIOUR		
	CHAIR: Annette Longland		
13.30	Obesity - manageable?	GEERT JANSSEN & CAROLINE ARGO	
	Stereotypies - feeding related?	ANDREA ELLIS & ANDREW HEMMINGS	
15.00	Tea/Coffee		
	DO NUTRITIONAL 'SUPPLEMENTS' HAVE A ROLE TO PLAY IN MY HORSE'S DIET?		
	CHAIR: Pat Harris		
15.30-	Nutritional 'Supplements' - necessary?	ANNETTE ZEYNER & CATHERINE DUNNETT	

Additional sponsorship by:

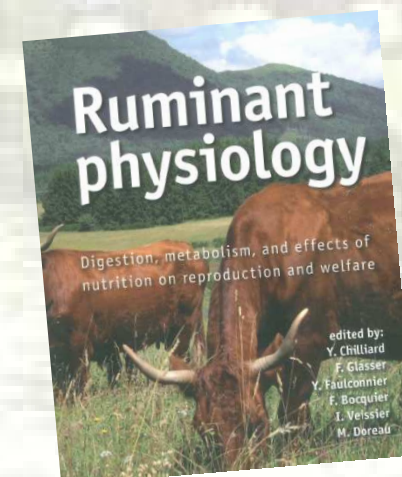


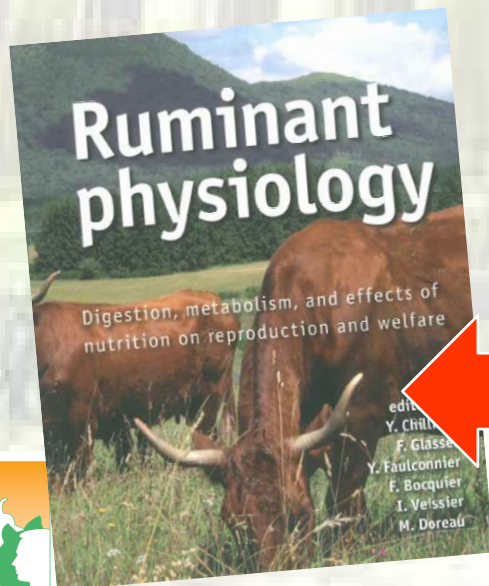
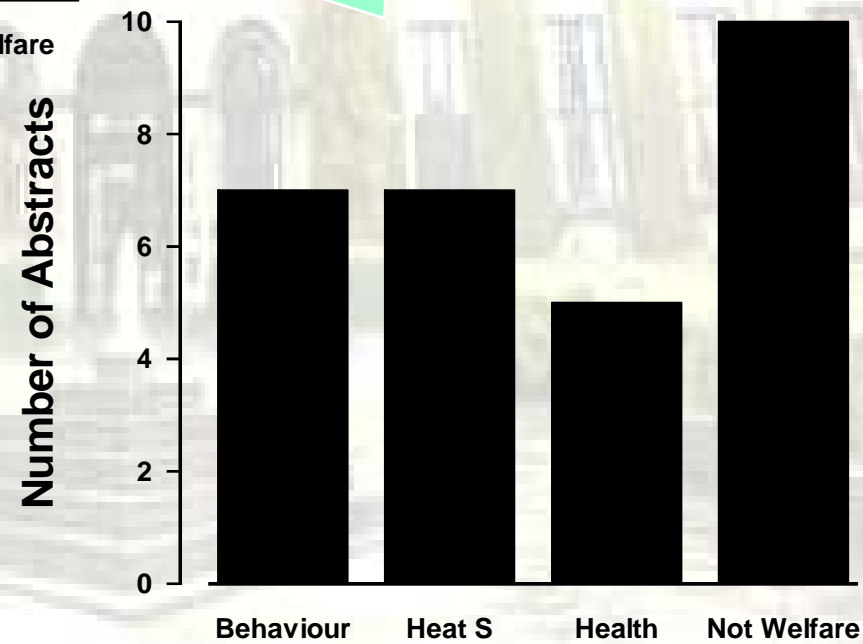
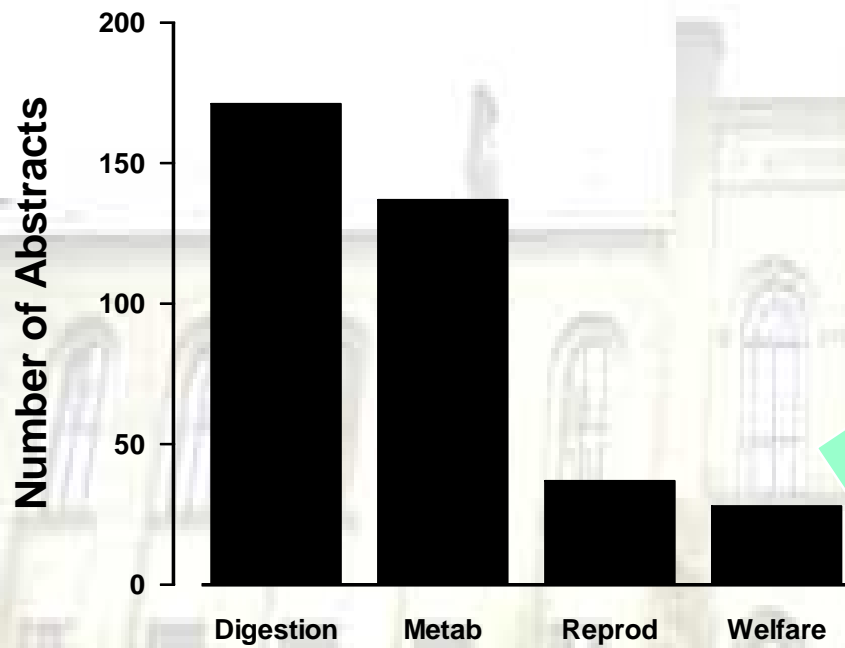
Produced by Aberystwyth University which offers: HND, Foundation degree, BSc, MSc and PhD's in Equine Science



vets' no.1 choice™

Clinically proven
therapeutic nutrition
for 13 different conditions



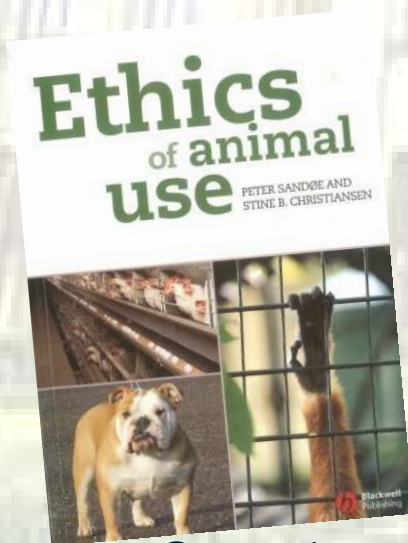


Animal
Profession

Animal

Client

Society



©Sandøe & S Christiansen



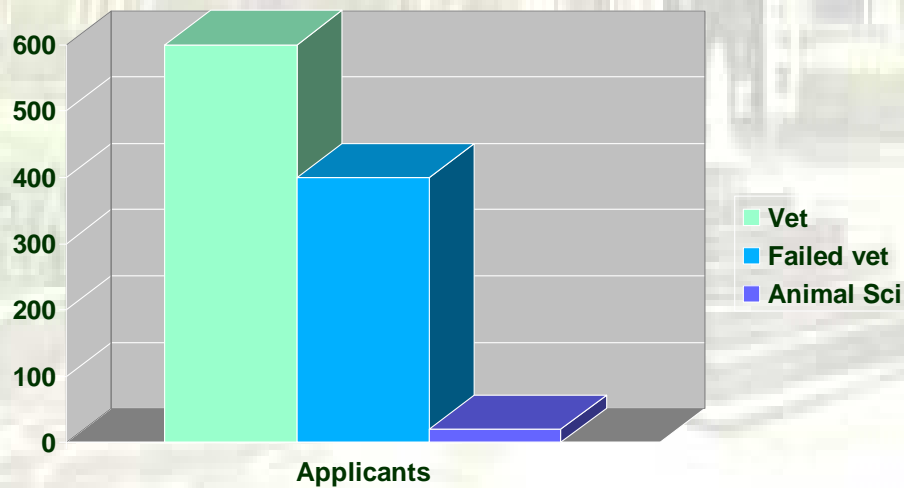
Veterinarian

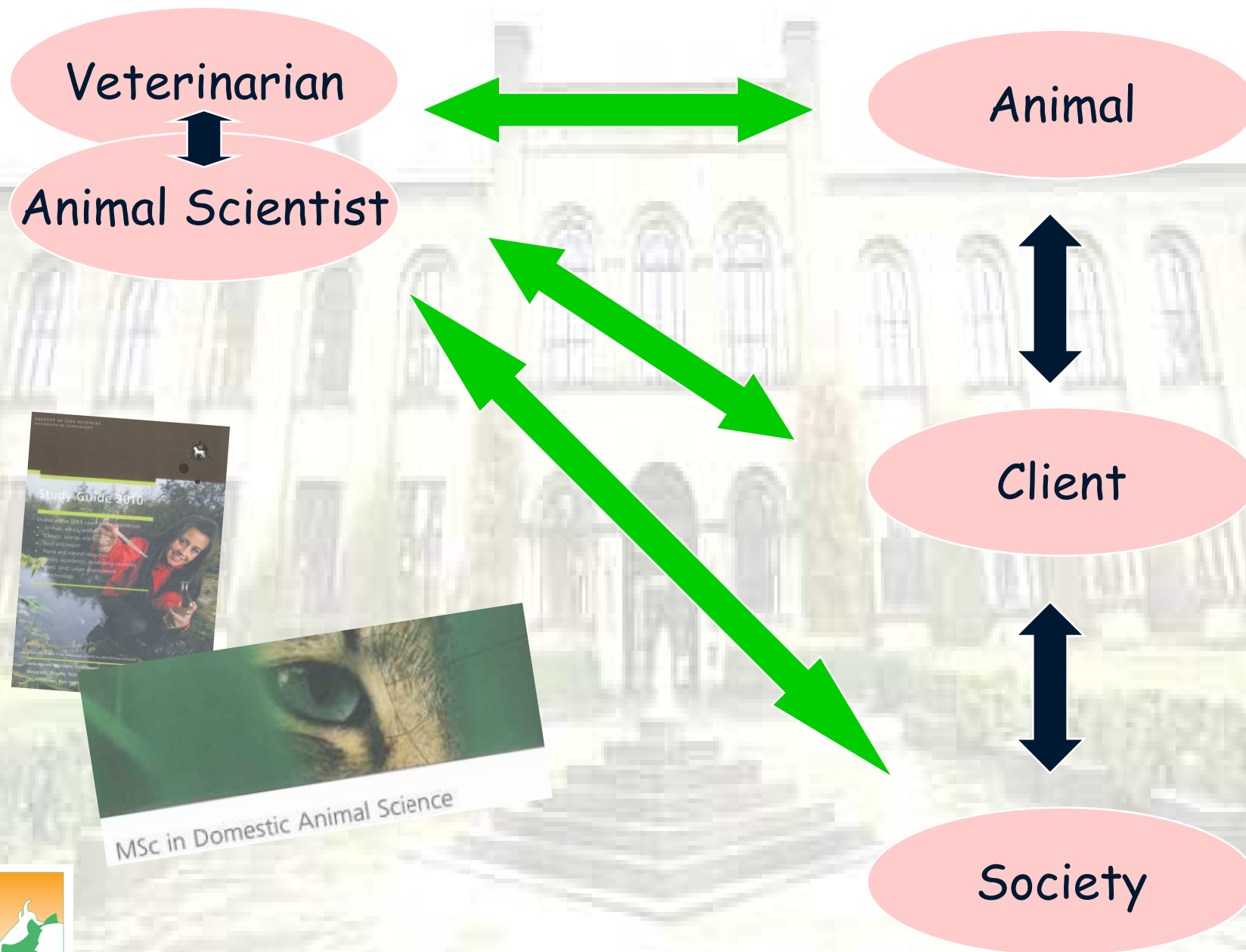
Animal

Animal Scientist

Client

Society







PUPPY FARM EXPOSED

Inside Out Extra uncovers the misery behind the puppy farming trade, and asks why council officials did not act sooner to stop a puppy farm near Farnham.

There are a number of disreputable dog breeders out there who are in the business just for the money.



From The Sunday Times

February 28, 2010

'Battery' dairy of 8,000 cows sparks protests



Half empty

Half full



From The Sunday Times

January 31, 2010

Back-garden pig boom brings home the bacon

John Mooney





Technology.... Good or Bad?



Extending cows' lactation pays

'All cows remained healthy throughout the extended lactations'



[illegible]



**American
Red Cross**



**XXY
Vets
Inc**





Contents lists available at ScienceDirect

Journal of Neuroscience Methods

journal homepage: www.elsevier.com/locate/jneumeth



Development of a mechanical stimulator and force measurement system for the assessment of nociceptive thresholds in pigs

Dale A. Sandercock^{a,*}, Ian F. Gibson^a, Harry M. Brash^b, Kenneth M.D. Rutherford^c,
E. Marian Scott^d, Andrea M. Nolan^a

Evaluation of Stress Systems by Applying Noninvasive Methodologies: Measurements of Neuroimmune Biomarkers in the Sweat, Heart Rate Variability and Salivary Cortisol

Andrea H. Marques Marni N. Silverman Esther M. Sternberg

National Institute of Mental Health/NIH, Rockville, Md., USA





We focus on
new tech...



An
Apple a Day
Really Does Keep
the Doctor Away



... but do we ignore
novel use of old
tech?



Baggage hall
Arrivals hall

Lift  





o Glasgow Airport "Arrivals Hall" features a number of Scottish inventors:

- Alexander Graham Bell
- John Logie Baird
- John Loudon McAdam
- James Watt
- *Magnetic Resonance Imager*
- (Jim Hutchison)

Fe-W

will not solve Phew!!!, nor will

Fe-rtPCR

Think out of the box!!



Qatar

Animal welfare



Robotic jockeys
Indoor racetracks



Animal welfare



Hai, PV et al (2009)

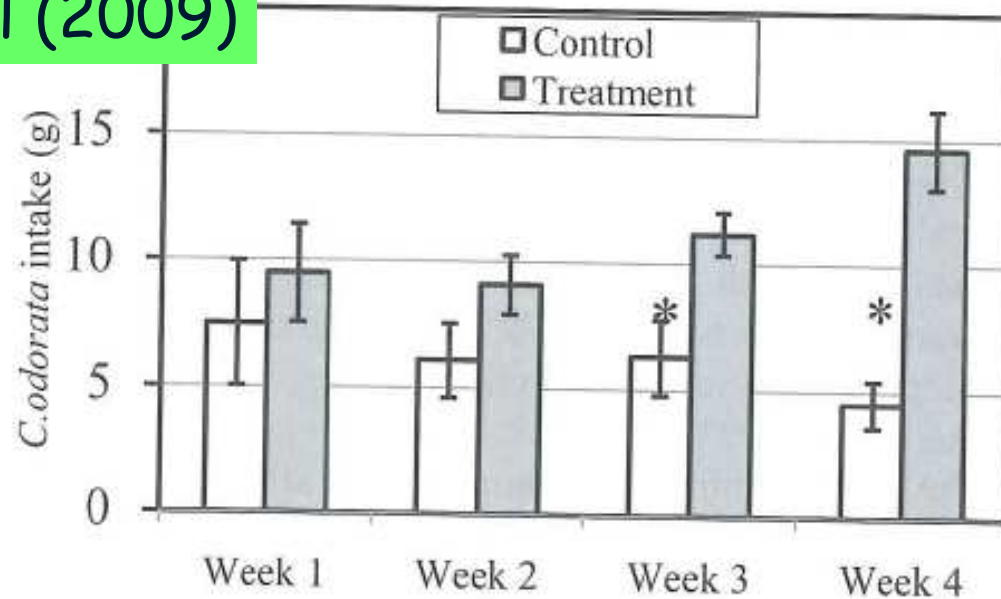
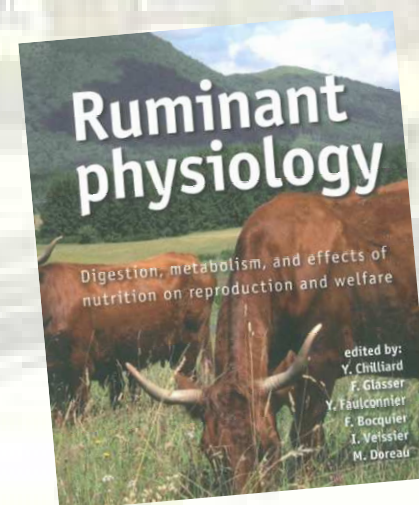


Figure 1. *C. odorata* intake during 15 min (mean \pm SD) in 3-mo old goat kids born to control goats or to goats fed *C. odorata* for the last 3 mo of pregnancy. * shown the significant differences between groups within a week.

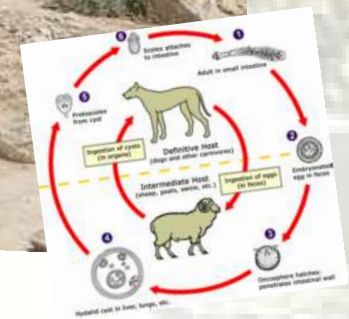
Encouraging dietary diversity:
Good welfare...
...or bad?





We want to understand interaction of nutrition and metabolism...

...but do we ignore the experts?





We want to understand
control of metabolism...



...but do we ignore
the experts?



M&S Health & Nutrition

Search results

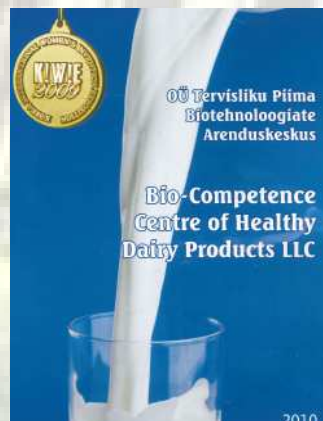
No results for 'soft butter'



Butter Soft

Our stylist has put this look together with Autograph Weekend. Full of luxurious sophisticated casualwear, this is week's finest.

Are there useful 'natural experiments' waiting to be exploited?



Conclusions

❧ Can we be Health *and* Product Positive?

- *Yes!*

❧ Do we know how to do it?

- *(No)!*

❧ Where is the knowledge gap?

- *Recognising well-being*



When it comes to wellbeing,.....

..is chronic pain worse than acute disease?



Robot Cow Moos and Gives Milk

Small text describing the robot cow and its features, including mentions of 'Hidden Motors Give Exhibit for World's Fair the Movements of a Living Animal'.



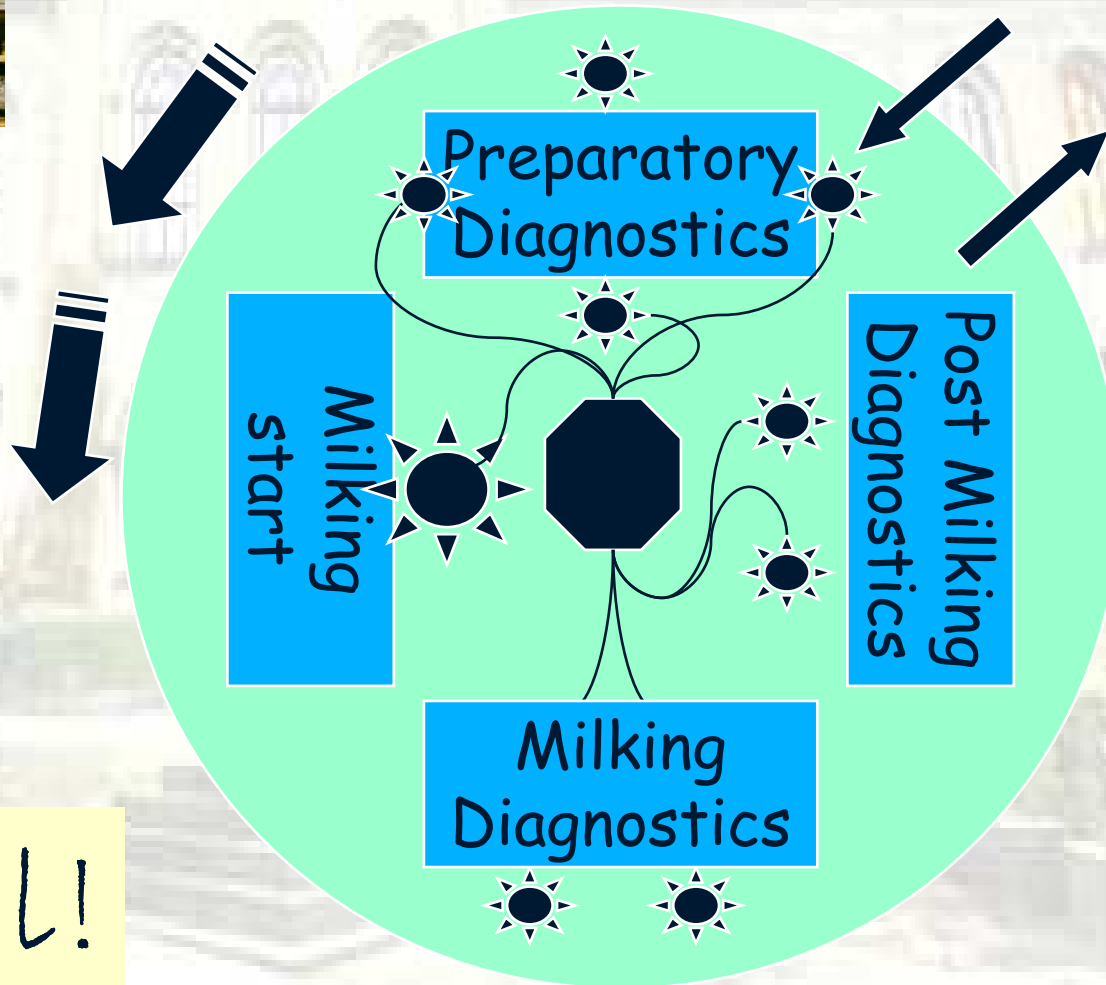
An Apple a Day Really Does Keep the Doctor Away



Skål!



Draft design for the 8,000 cow rotary Cow Comfort Centre



Do we need a non-ruminant milk?



EAAP 2010

61st Annual Meeting of the European Association
for Animal Production

AUGUST 23rd-27th, 2010 - HERAKLION, CRETE ISLAND, GREECE



Session 06. Equine milk for human health

Date: 23 August 2010; 08:30 - 12:30 hours
Chairperson: Salimei (IT)

