

Alltech and the Kentucky Goat Industry

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The Alltech Story

Who are we?
We are a global animal health company — providing natural, nutritional solutions to the feed and food industries

#12 in 2007 Animal Health Company

Leading Animal Health Company Sales 2007

Company	% Change	2007 sales in US\$ million
1 Pfizer	+14.2	2639
2 Merial	+11.6	2449
3 Bayer	+5.6	1308
4 Sherling-Plough	+37.5	1251
5 Novartis		1212
6 Fort Dodge		1012
7 Elanco	+13.7	996
8 Virbac	+9.2	601
9 Boehringer	+9.1	558
10 Ceva	+11.5	463
11 Alpharma	+5.8	367
12 Alltech	+18.0	360
13 Vetoquinol	+10.3	319

2008: our sales will be \$500 million
25% growth
we will be #10





11 HABITS of HIGH-RETURN PRODUCERS

- Below average annual doe cost
- Lower than average kid breakeven prices
- Improved feed efficiency
- Lower Interest expense
- Lower operating expense
- Higher average weaning weights
- Higher conception rates
- More lbs weaned/doe
- Higher quality genetics (bucks)
- Preventative herd health programs
- High quality pasture

Mineral Needs in Modern Diets

- Major research focus on protein and energy needs of the modern doe
- Minerals largely ignored
 - Concentrations or forms
 - Problems recognized include interferences or interactions with mineral in feed and water

Mineral Nutrition

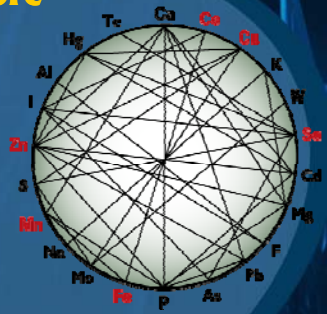
- Traditionalist
 - “Feed Minerals to Prevent Deficiency Symptoms”
- Today
 - “Provide All the Tools for Optimum Production and Health”





Why Not More Inorganics?

- Mineral interactions / antagonists
- Lower biological activity
- Environmental concerns



Sub-clinical Deficiencies

- Zinc
 - Slow healing
 - Dull hair coat, Poor hoof health
 - Low disease resistance
 - Poor breeding performance
 - Inefficient growth performance

Sub-clinical Deficiencies

- Copper
 - Dull hair coat (red tinge)
 - Tendency to bone problems
 - Low disease resistance
 - Low conception rates

Clinical Deficiencies

- Zinc
 - Foot rot
 - Hair loss
 - Increased Infections
- Copper
 - Scouring
 - Poor reproductive performance
 - Loss of hair color, Bone deformities

How Bioplex Proteinates Help Ensure Mineral Delivery

Bioplex Proteinates (Cu, Co, Mn, Zn):

- Chelated to a range of amino acids and small peptides, improved absorption and retention
- Resemble mineral bonds found in plants and feed grains
- Better adsorption and metabolism vs inorganics (oxides and sulfates)

3 Three Key Reasons for Using Organically Complexed Trace Elements

- Disease resistance: immune response
- Reproductive function
- Mineral absorption / interference

Selenium Supplementation in Goats

34
Se
78.96

Selenium Supplementation Key to Buck Fertility

- Se Impact sperm viability and structure
- High concentration Se in spermatozoa
- Se can prevent oxidative damage
- Increased sperm production and semen activity with proper Se supplementation

Effect of Selenium Deficiency on Sperm

- Low spermatogenesis
- Poor motility
- Morphology abnormal

Normal

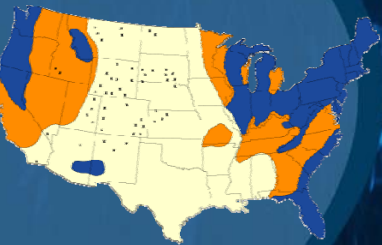
Se deficient

Selenium and the Pre-Parturient Doe

- At kidding tissue reserves at lowest
- Se deficiency can lead to poor/weak kids, depressed immune system, and thyroid problems

Kentucky-grown feeds & forages are low in Se

- Some soils are naturally low in Se
- Low soil pH prevents uptake



SELE-FLEX

Why do Goats have trouble maintaining Optimum Se status?

- Rumen bugs reduce selenite, leaving less than 25 % available to animal
- Inorganic Se can not be stored, leaving animal without tissue reserves

Only plants, yeast and marine algae can form Methionine or Selenomethionine

Selenate, selenite in soil

Plants incorporate Se into selenomethionine and then into plant proteins.
Very little SeCys stored

Conversion of soil Se to SeMet in plant protein by plants

Selenohomocysteine → Selenomethionine → Plant proteins

Sel-Plex®

- Selenium yeast
- Selenium in nature's form
- Allows animal to form tissue reserves



SEL-PLEX™
The only FDA-approved solution

Sel-Plex:

- Increased % of normal sperm
- Decreased % of dead and abnormal sperm
- Increased colostrum and milk Se
- Improvements in Se status leads to improved performance and health

Trace Mineral & Reproductive Problems

- Early embryonic death
- Weak, ill-thrift kids
- Disease incidence
- Long kidding intervals
- Silent heats
- Poor conception rate

Early embryonic mortality

- Occurs during the the period of CL rescue termed 'maternal recognition of pregnancy'
- All the trace minerals are known to be involved in embryonic and fetal survival

30 Zn 65.38	25 Mn 54.94
34 Se 78.96	29 Cu 63.55
	26 Fe 55.85

Kidding: Optimizing Immunity and Kid Health



Optimizing Immunity and Kid Health

European ban on antibiotics: preventative and growth promoting purposes
Natural Solution: MOS or yeast sugar!



Optimizing Immunity and Kid Health

- Bio-Mos can increase colostrum quality and Immune transfer from doe to kid
- Recommended levels for optimum passive transfer: 21 d pre-kidding at 5 g/hd/day (0.2 oz/hd/day) (\$0.03/hd/day) \$0.66 /hd/21 days
- Bio-Mos decreased incidences of E-coli, Salmonella

Finishing Goats: Maximize Weight Gain



Maximize Weight Gain

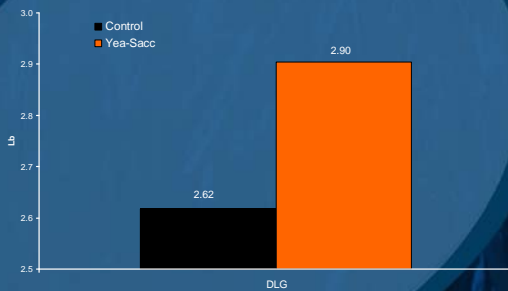
- Key to improving feed: gain ratio, or optimizing growth rate, is to improve rumen function and thereby increase DMI
- Live yeast culture can be used to increase DMI, live weight gain and profitability

Mode of Action of Yea-Sacc¹⁰²⁶

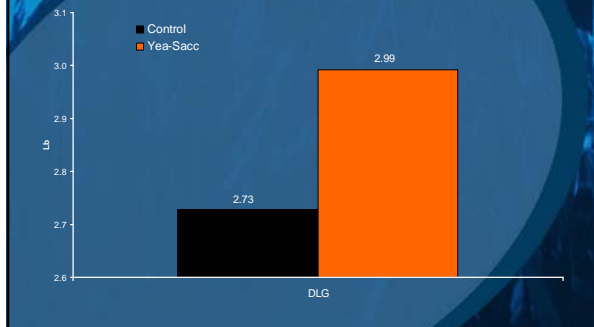
- Stabilize Rumen pH
- Improve Fiber Digestion
- Improving Dry Matter Intake

Increased daily gain by 11%!

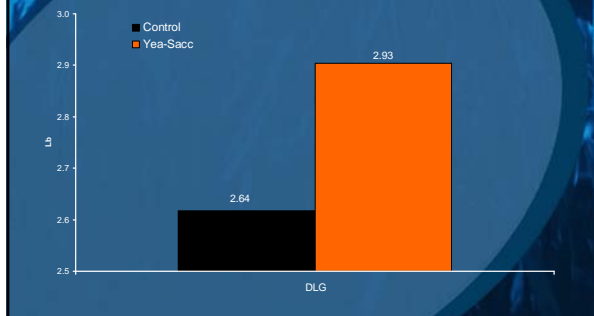
Teagasc, R. Fallon et al; 2004. Ireland



**Harper Adams University, Kneale & Marsh; 2004.
UK**



**Kepak Farms, Noel Lynch; 2004.
Ireland**



Benefits to Kids on Creep Feed

- Stimulates dry food intake through improved palatability and rumen function
- Regulates acidity to optimize growth of beneficial rumen bacteria
- Improves digestion efficiency and eases transition from milk to solid feed through creep feeding

Summary

- Organic Se, and chelated trace minerals are more bioavailable and better retain than inorganic forms
- Where trace mineral deficiencies exist, it is recommended to supply at least 50% of requirement in organic form
- Bio-Mos, fed prior to kidding, can aid in passive immunity transfer and increased kid health
- Yea-Sacc (live yeast) improves rumen health and can optimize weight gain by 11%

Healthy Animals = Healthy Returns!
