ABC Nutrition Service
The Foundation of Sound Nutrition . . .

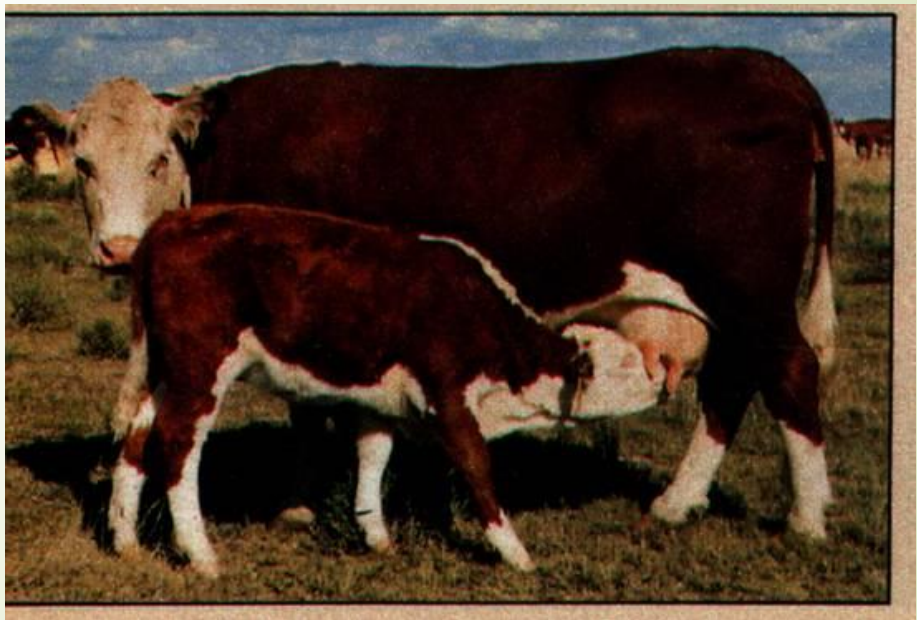
Building a Complete Nutritional Program for the Cow Herd

Stephen B. Blezinger, Ph.D., PAS

Reveille Livestock Concepts

ABC Nutrition Service, Inc.

- Animal performance is dependent on matching nutrients and nutrients sources to the animal given it's age, breed, environment, stress level, health status, etc.
- This is true for milk production, growth and development, health (immune response) and reproduction (fertility).



REVEILLE LIVESTOCK CONCEPTS

- Compromising any of the various components of your management program can severely reduce or even eliminate getting cattle bred, keeping animals healthy or showing productive gains. This becomes extremely expensive.
- The focus here is to give you an understanding of one of these very important components:

NUTRITION

REVEILLE LIVESTOCK CONCEPTS

Costs of a Compromised Nutritional Program

- Poor Reproduction
- Delayed Calving
- Depressed Growth and Development
- Reduced Health Performance
- Net effect – lower pounds of beef at a higher cost of production.

FERTILITY – THE NAME OF THE GAME!

- Fertility in the animal and nutrition are directly related
- For the cow-calf producer, fertility is ***10*** times more important in determining profitability than production traits, i. e.: size, growth rate and feed efficiency.
- Fertility is ***20*** times more important than carcass traits such as quality and yield grade.
- Similarly, dairy producers lose $2 to $5 per day per cow for every day a cow is open after 100 days post calving.

REVEILLE LIVESTOCK CONCEPTS

If you compromise on Nutrition. . .

Some Comments

A big issue many producers have with their nutrition programs is the cost. Inevitably we find many producers that are always looking to buy the cheapest thing they can find. Not a good strategy.

Feed and Grain Markets

- Feed and Grain Markets are historically somewhat volatile.
- Typically has been subject to some seasonality – not always the case.
- Unfortunately affected to a greater degree by the traders in Chicago than the producer would like.
- Can have a huge effect on your production costs AND overall operational performance.

What DOES Affect the Markets?

- Basic Supply and Demand
  - What is the grain crop?
  - What is our cattle, hog, poultry inventory?
- Weather
- Previous Markets
  - High prices for a given grain influence the plantings of that grain the following year
- Government
  - Farm Programs
  - Exports
  - Value of the Dollar
  - Energy Program

REVEILLE LIVESTOCK CONCEPTS

Strategies

Plan, Plan, Plan

- What is your hay/forage supply – quantity/quality.
- Determine how you can best supplement.
- Look at your anticipated feed/supplement needs.
- Evaluate options provided by suppliers.
- Take a close look at your herd – do you need to cull?

Building Your Nutrition Program – What are the options?

Forage Testing – Your Most Valuable Tool

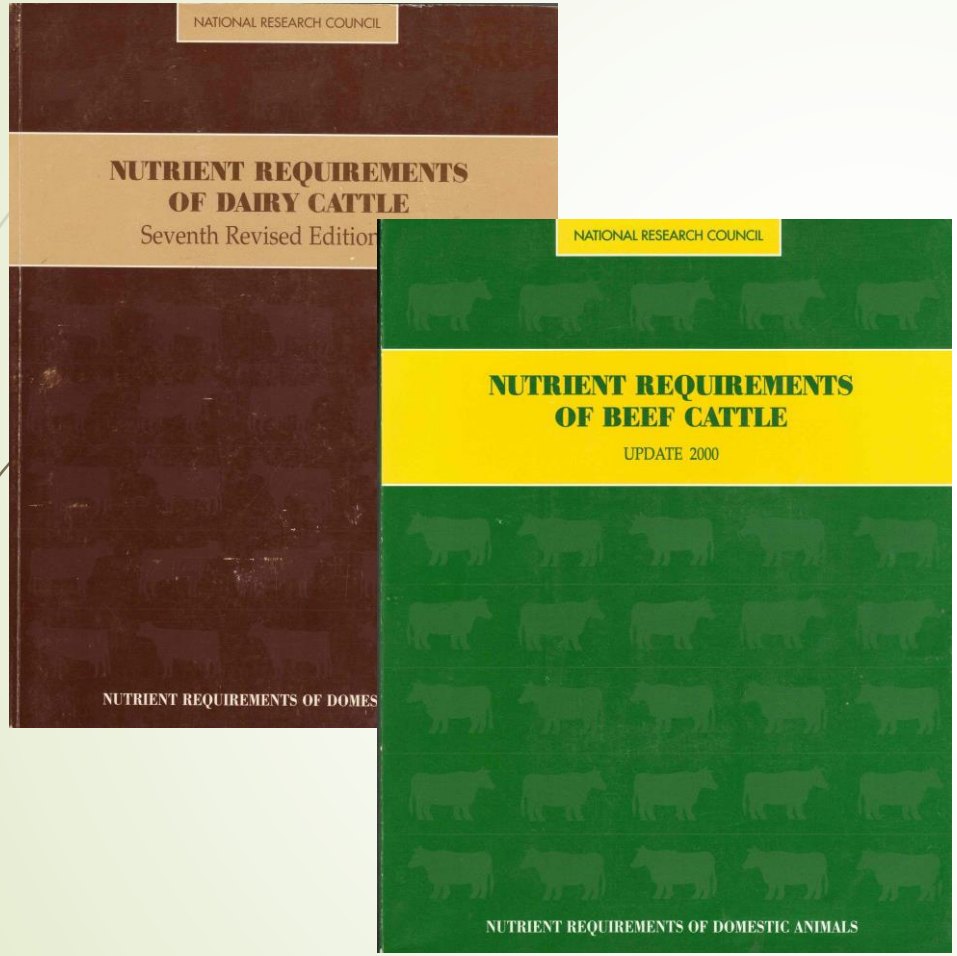
Custom Laboratory Inc.
Monty Dade • customlb@keinet.net
P.O. Box 391 • 204 C Street
Golden City, MO 64748-9989 • 417-537-8337

Sample Date + No	08/24/09-63		08/24/09-64	
Sample I.D.	GRASS HAY UNRUH		GRASS HAY BURT	
	As Is	Dry	As Is	Dry
Moisture .....%	8.248		8.499	
Dry Matter ....%	91.752		91.501	
Crude Protein .%	8.218	8.957	5.763	6.298
Adj Cr Protein %				
Avail Protein .%				
ADF-Nitrogen ..%				
Urea ..... %				
A. D. Fiber ...%	44.151	48.120	42.383	46.320
N. D. Fiber ...%				
Crude Fiber ...%				
Lignin .....%				
T D N .....%	49.790	54.266	50.966	55.700
NE Lact MCAL/LB	.333	.363	.357	.390
NE Gain MCAL/LB	.232	.253	.250	.274
NE Maint MCAL/LB	.464	.506	.483	.528
Digst E MCAL/LB	.996	1.085	1.019	1.114
Crude Fat .....%				
pH				
Ash.....%				
Salt .....%	.175	.191	.183	.200
Nitrogen .....%	1.315	1.433	.922	1.008
Calcium .....%	.358	.390	.375	.410
Phosphorus ....%	.179	.195	.128	.140
Magnesium .....%	.156	.170	.119	.130
Potassium .....%	.835	.910	.824	.900
Sodium .....%	.069	.075	.070	.077
Sulfur .....%				
Iron .....PPM	504.633	550.000	183.002	200.000
Copper .....PPM	3.670	4.000	3.660	4.000
Manganese ...PPM	128.452	140.000	260.778	285.000
Zinc .....PPM	18.350	20.000	15.555	17.000
Aluminum ....PPM				
Molybdenum ..PPM				
Chlorine .....%				
Nitrate (NO3-) %	NEGATIVE		NEGATIVE	
Aflatoxin ...PPB				
RFV/Qual Stand				

30%

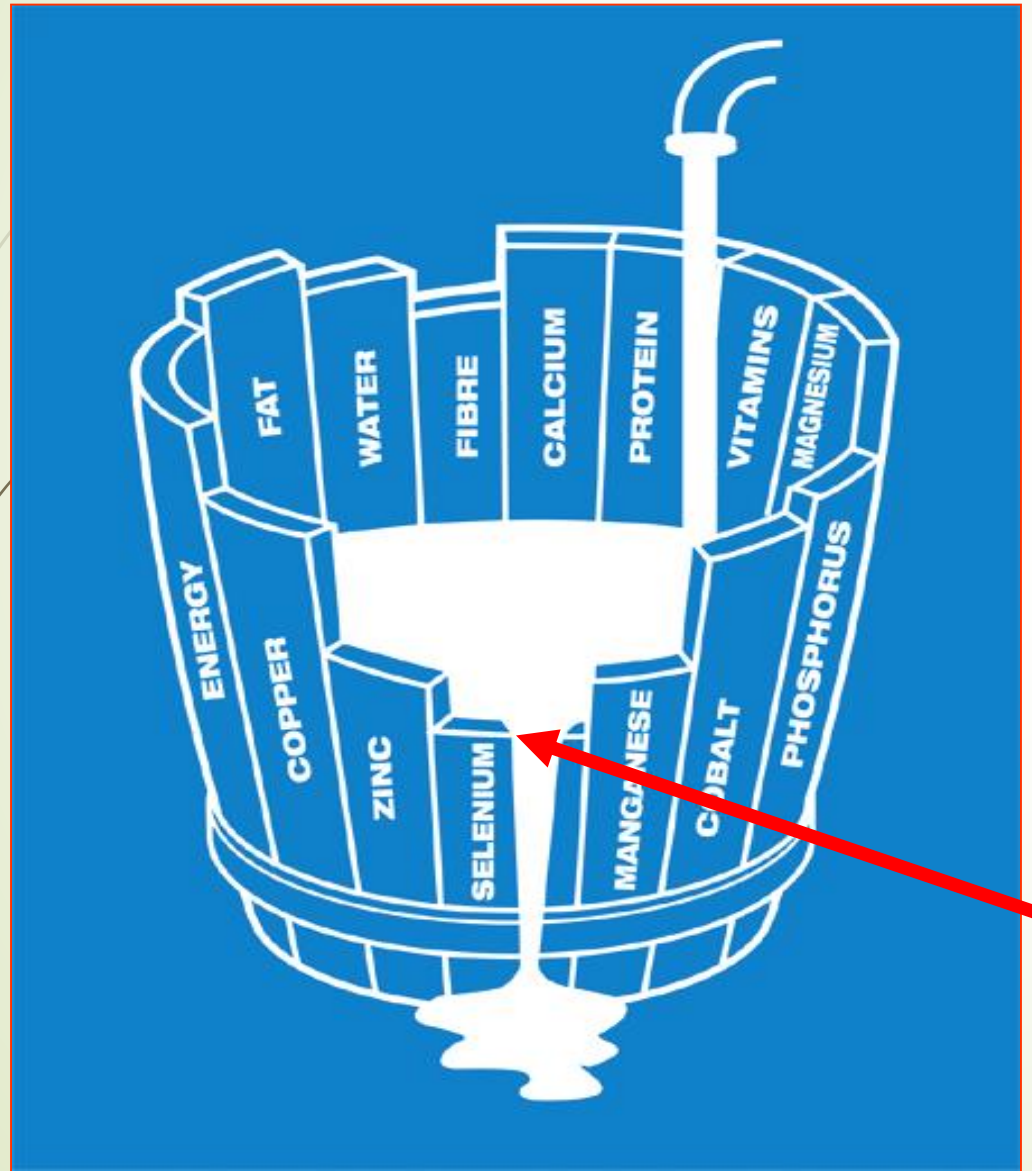
REVEILLE LIVESTOCK CONCEPTS

Where do we get nutritional information?



Universities, Industry, Trial and Error

The key to Fertility, Other Performance

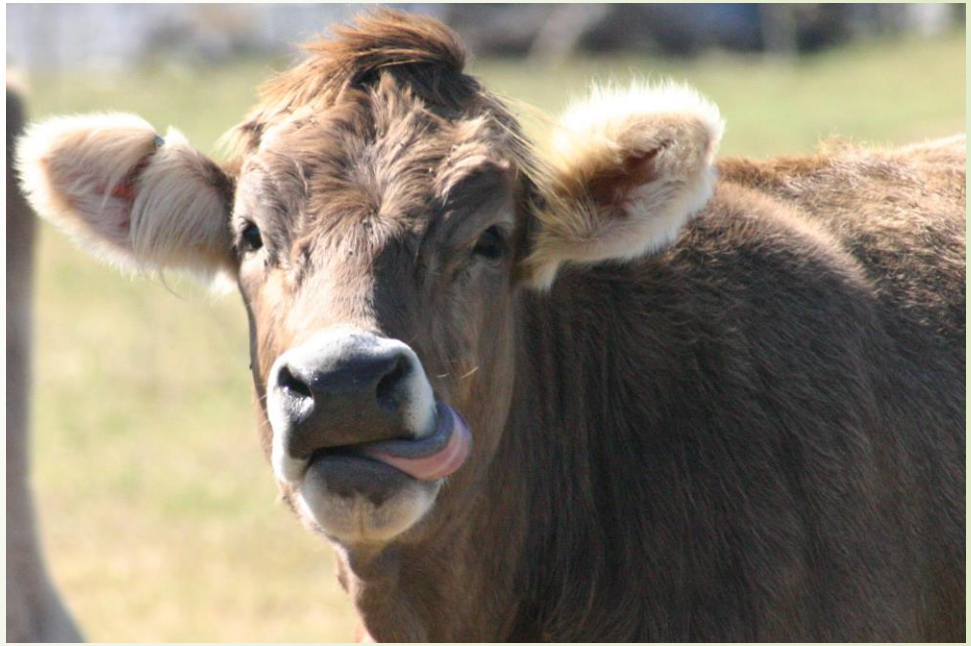


1st Limiting Nutrient – a key concept to developing a BALANCED nutrition Program

REVEILLE LIVESTOCK CONCEPTS

Determining your Feed and Supplement Program

- What do you have?
  - Forage base – information per forage test
- What are you doing?
  - Evaluate your herd
    - Cows
    - Calves
    - Heifers
    - Bulls



Evaluating Your Forage Base

- What are your forages?
  - Pastures
    - Composition – native, improved
    - Seasonality (spring/summer, fall/winter)
    - Stockpiled
    - Management
  - Hay meadows – production of stored forages
    - Dry Hay
    - Haylage
    - Silage

REVEILLE LIVESTOCK CONCEPTS

Recognize that Forage Nutrients Change

- Why do changes occur?
  - Growing plants change as they mature
    - Pastures can change as different species become more prevalent over a growing season (native pastures).
    - Change from one feeding source to another. For instance:

Summer Pastures → Hay → Haylage → Ryegrass → Summer Pastures

REVEILLE LIVESTOCK CONCEPTS

Creating the Nutritional Plan

- **Forage sampling and analysis**

Creating the Nutritional Plan

- **Forage sampling and analysis**

Forage Analyses Submission Form

Date: _____

Producer: _____
Address: _____
City/State/Zip: _____
Phone: _____
Email: _____

Sample 1
ID: _____
Sample Type: Hay Fresh Pasture Feed Supplement (circle one)
Variety/Desc: _____
Cutting: 1st 2nd 3rd 4th (circle one)
Date of cutting: _____

Sample 2
ID: _____
Sample Type: Hay Fresh Pasture Feed Supplement
Variety/Desc: _____
Cutting: 1st 2nd 3rd 4th
Date of cutting: _____

Sample 3
ID: _____
Sample Type: Hay Fresh Pasture Feed Supplement
Variety/Desc: _____
Cutting: 1st 2nd 3rd 4th
Date of cutting: _____

To submit additional sample, please attach additional pages.

Total Samples: _____
Cost/Sample: $38.00
Total Cost: _____
Amount submitted _____ **(Checks payable to Custom Labs)**

Mail Samples to: Custom Labs, P. O. Box 391, Golden City, MO 64748

The standard ABC Forage/Feed Report includes analyses of the following:
Please contact us for other options.

Moisture/Dry Matter, %
Crude Protein, %
Crude Fat (EE), %
Acid Detergent Fiber (ADF), %
Neutral Detergent Fiber (NDF), %
Total Digestible Nutrients (TDN), %
Net Energy Lactation (NEl), Mcal/lb.
Net Energy Maintenance (NEm), Mcal/lb.
Net Energy Gain (NEg), Mcal/lb
Calcium (Ca), %
Phosphorus (P), %
Magnesium (Mg), %
Potassium (K), %
Sodium (Na), %
Sulfur (S), %
Iron (Fe), ppm
Copper (Cu), ppm
Manganese (Mn), ppm
Zinc (Zn), ppm
Nitrates

ABC Nutrition Service, Inc.
667 County Road 4711
Sulphur Springs, TX 75482
info@abcnutritiononline.com
903-352-3475

10/19/17-09 MIX GRASS HAY WALLACE FIELD
TRIPLE B/ ABC NUTRITION SERVICE INC
INDUSTRY, TX

		WET	DRY
Moist / Dry Matter	**%**	**14.96559**	**85.03441**
Protein	%	7.625203	8.967198
Adj Cr Protein ...	%	6.749623	7.937519
Avail Protein	%	6.749623	7.937519
A.D.F. - N	%	.1400929	.1647485
A D Fiber	%	38.86073	45.7
N D Fiber(a)	%	58.35911	68.63
T D N	%	47.65926	56.04703
NE Lactation	MCAL/LB	.3786838	.44533
NE Gain	MCAL/LB	.2369522	.2786545
NE Maint ...	MCAL/LB	.4538206	.5336906
Digst Energy	MCAL/LB	.9529689	1.120686
Crude Fat (EE) ...	%	2.5	2.94
Nitrogen	%	1.220033	1.434752
Calcium	%	.4676892	.55
Phosphorus	%	5.952409E-02	.07
Magnesium	%	.212586	.25
Potassium	%	.8503441	1.0
Sodium	%	.0501703	.059
Sulfur	%	9.863991E-02	.116
Iron	PPM	144.5585	170.0
Copper	PPM	4.251721	5.0
Manganese	PPM	263.6067	310.0
Zinc	PPM	11.05447	13.0

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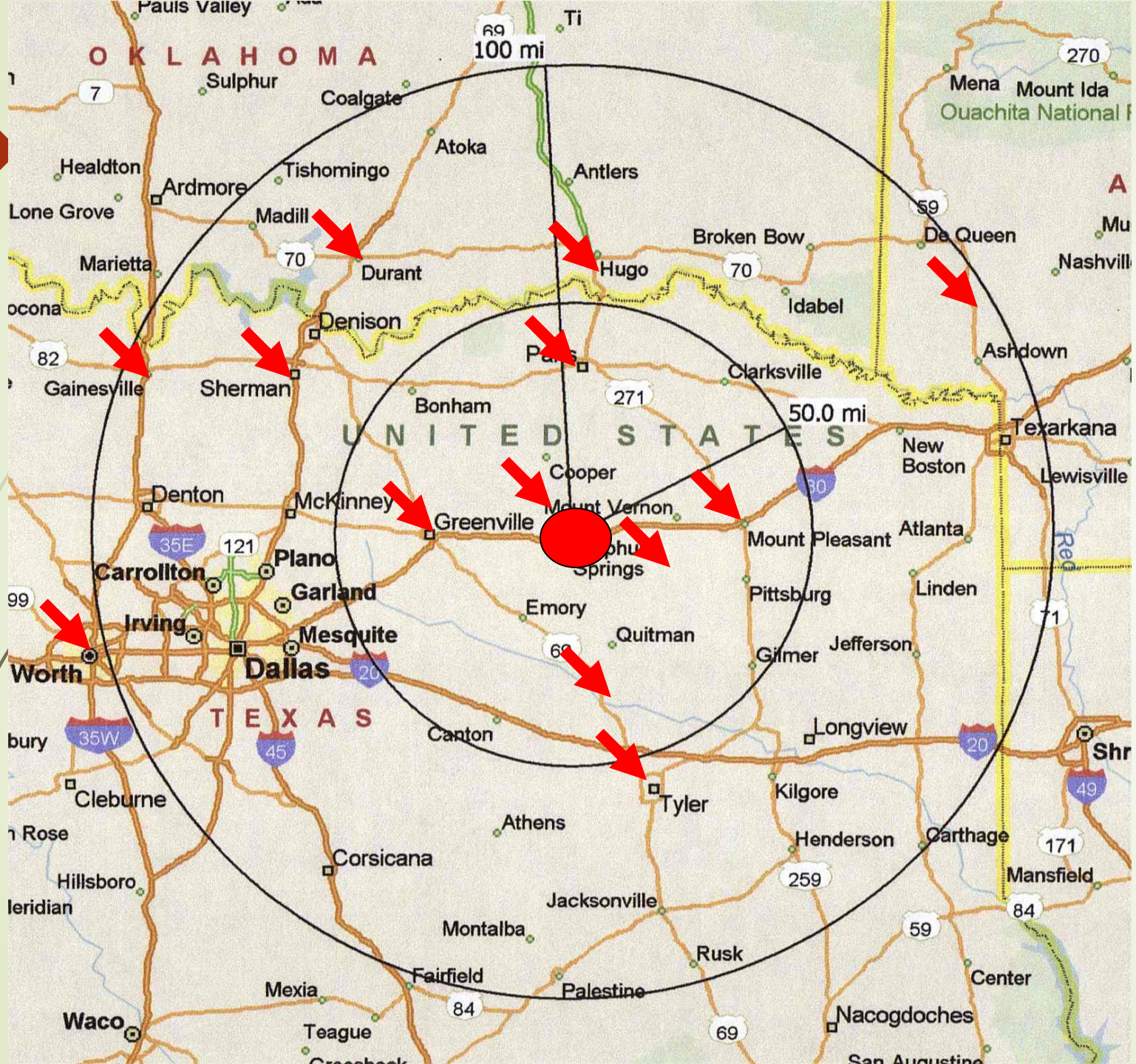
Aflatoxin ...PPB				
RFV/Qual Stand				

Determining your Feed and Supplement Program

- What are your resources?
  - Storage, Labor, Equipment, MONEY??
- Who are your suppliers or potential suppliers?



Feed Mnfgs?

REVEILLE LIVESTOCK CONCEPTS

Feeding and Supplementation Options

- Range Cubes – typically 20% Protein
- Commodities
- Other Feeds
  - Pellets
  - Loose or textured mixes
  - Meals
- Intake Limiting
  - Salt
  - Advanced intake limiting technologies

Feeding and Supplementation Options, continued

- Blocks and Tubs
- Liquid Feeds

Generally, products that save labor are more expensive.

Commodities - **$**

Range cubes, other basic feed - **$$**

Liquids - **$$**

Blocks/Tubs - **$$$**

Intake Limiting (depends on type) - **$$$$**

Supplement Options

REVEILLE LIVESTOCK CONCEPTS

What Affects the Cost of Feed/Supplements?

- Grain Markets
- Formulation
- Form/Type
- Bagged or Bulk - $25-30
- Transportation
- Company/Supplier
  - Margins – required to cover their costs, profits
  - Grain/commodity buying/contracting
  - Technical staff or lack thereof
  - Facilities

Supplements Include. . . .

Protein

- Required in significant amounts in the animals diet (lbs.)
- Required for growth and development (muscle and bone).
- Largest component of enzymes (catalysts for all reactions in the body).

Supplements Include. . . .

Energy

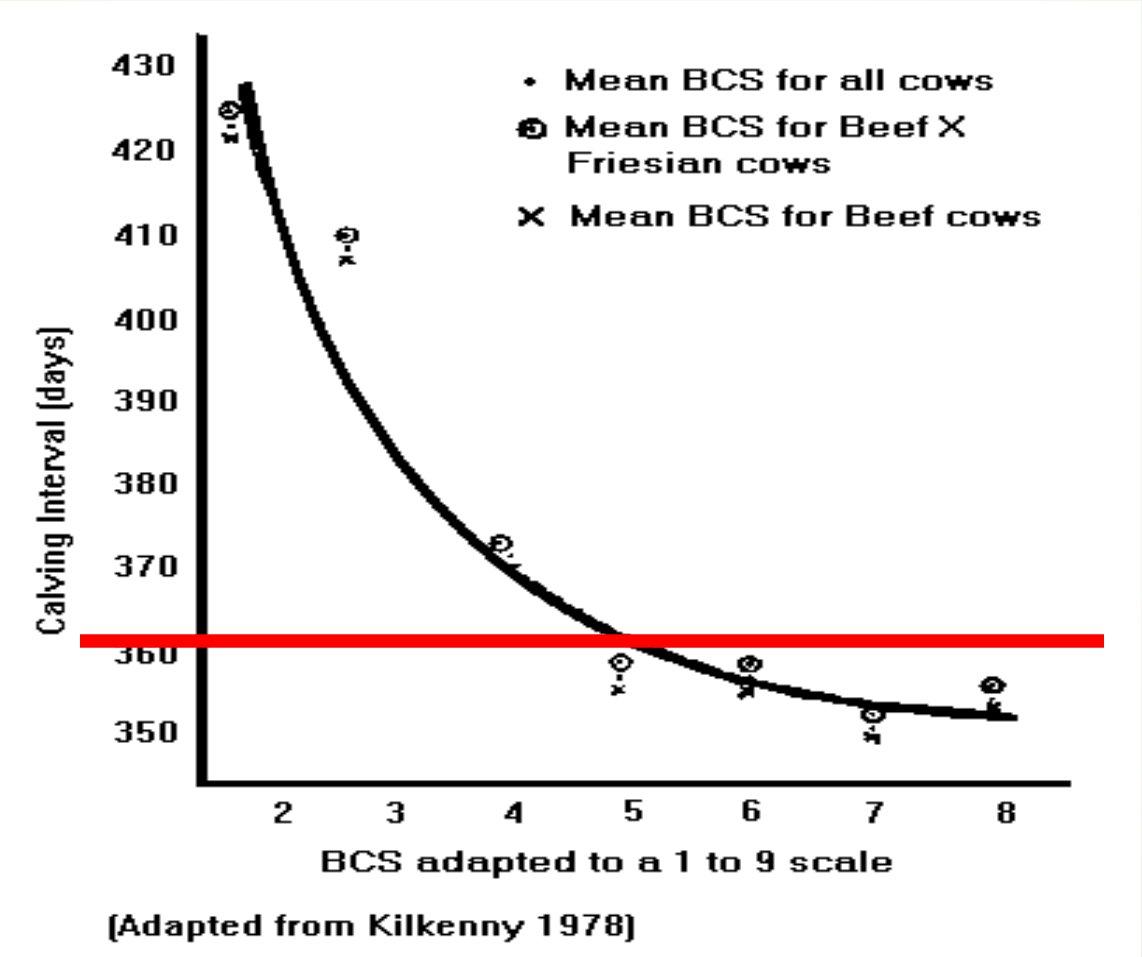
- Energy is the fuel that runs the body – required for all life processes.
- Energy is measured in calories, kilo calories or mega calories.
- Also defined in terms of total digestible nutrients (TDN), Digestible Energy, Net Energy (maintenance, gain, lactation), etc.

REVEILLE LIVESTOCK CONCEPTS

Energy Intake directly affects Body Condition Score (BCS)

- Proper body condition is critical to reproductive performance.
- Reflects fat stores on the body.
- Inadequate condition (< BCS 4) will depress reproduction
- Excessive condition (>BCS 8) will depress reproduction
- Proper BCS for Breeding (including AI) = 5 to 7

Relationship of Body Condition Score to Calving Interval



(Adapted from Kilkenny 1978)

BCS 3

BCS 4

BCS 5

BCS 6

BCS 7

Suggested breed-specific birth weights and peak milk production.

Breed	Birth Weight (lb)	Peak Milk (lb/d)
Angus	68.3	17.6
Braford	79.4	15.4
Brahman	68.3	17.6
Brangus	72.8	17.6
Braunvieh	86.0	26.5
Charolais	86.0	19.8
Chianina	90.4	13.2
Gelbvieh	86.0	25.4
Hereford	79.4	15.4
Holstein	94.8	33.1
Jersey	68.3	26.5
Limousin	81.6	19.8
Longhorn	72.8	11.0
Maine Anjou	88.2	19.8
Polled Hereford	72.8	15.4
Saler	77.2	19.8
Santa Gertrudis	72.8	17.6
Shorthorn	81.6	18.7
Simmental	86.0	26.5

Creating the Nutritional Plan

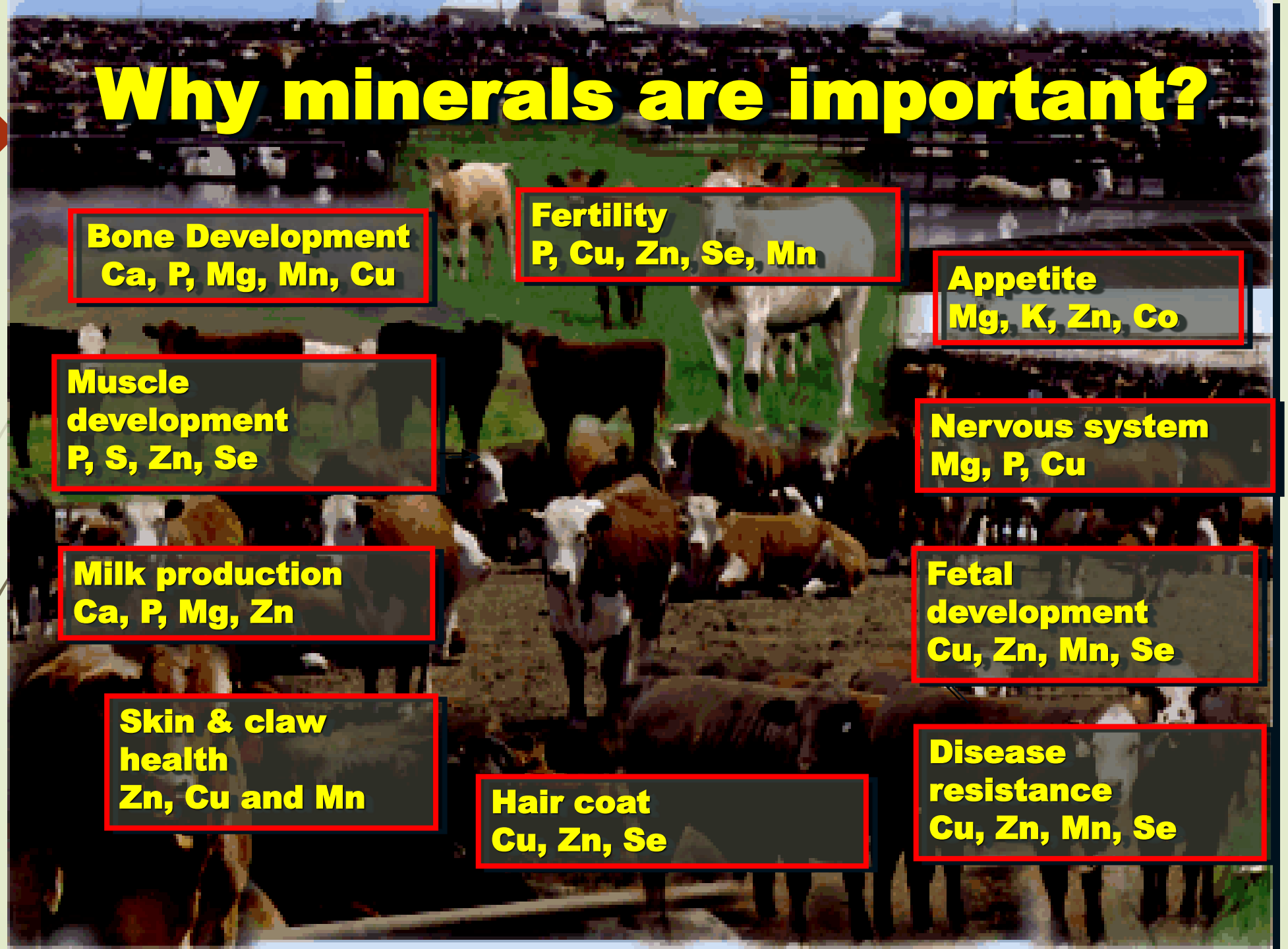
A Quick Example

Winter feeding program

- Feeding the hay from the analysis shown (DM)
- 1100 lb crossbred cows with 30 day old calves, average milk production
- Dry Matter Intake = 21.0 lbs, As Fed 24.25 lbs

	Hay Supply	Cow Requirements	Def/Excess	Suppl 2 lbs	Suppl 4 lbs
Dry Matter	86.5	-.-	-.-		
Protein,%	8.62	-.-	-.-	39.5%	19.75%
Protein, lbs.	1.81	2.6	-.79	.395/lb	.1975/lb.
Suppl AF Levels%				**44.88%**	**22.44%**
TDN%	56.05	-.-		112.0%	55.8%
TDN, lbs	11.77	14.0	2.23	1.12	.558
Suppl AF Levels%				**127.27%**	**63.4%**

Why minerals are important?



REVEILLE LIVESTOCK CONCEPTS

Supplements Include. . . .

Minerals and Vitamins

- Critical nutrients required in the smallest dietary concentrations.
- Involved in virtually every tissue and reaction in the body.
- May be the most challenging of all the nutrients to provide accurately
- Can have significant effects on all stages of reproductive and immune response process.

FERTILITY – THE NAME OF THE GAME! CONTINUED

- Different minerals have been identified as playing key roles in fertility.
- Phosphorus has long been known to influence conception rates, estrus cycles, anestrus and ovarian activity.
- Other minerals likewise play an important role.

FERTILITY – THE NAME OF THE GAME!, CONTINUED

A 1988 study demonstrated that supplementing range cows with Zinc, Copper and Manganese can pay significant returns with small changes in fertility.

Treatment	***Avg Days to Conception***
No supplementation	42
2.2 lbs grain/urea mix	35
Grain mix + 15 grams P	29
Grain mix + P + Trace Minerals	22

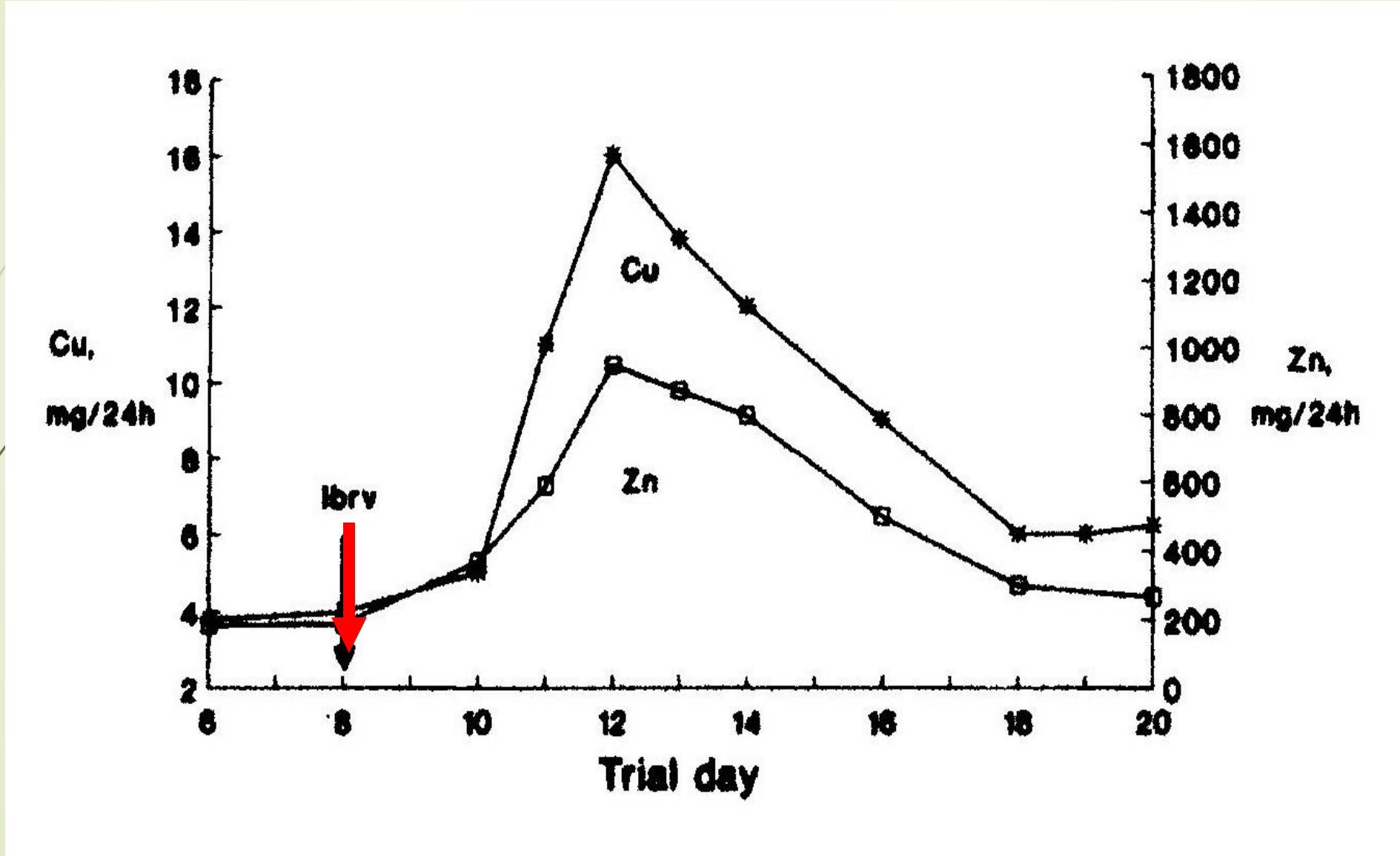
Interactions between Mo, S and Mo + S on Cu absorption

	% Reduction in Cu Absorption
Basal Diet (0.1% S, 0.5 ppm Mo	---
+ 4 ppm Mo	-0.5%
+ 0.3% S	-31%
+ 4 ppm Mo and 0.3% S	-62%

1) Cu and Mo – formation of cupric molybdate?
2) Cu and S – formation of CuS
3) Cu-S-Mo interaction – thiomolybdate formation (mono, di, tri and tetra)

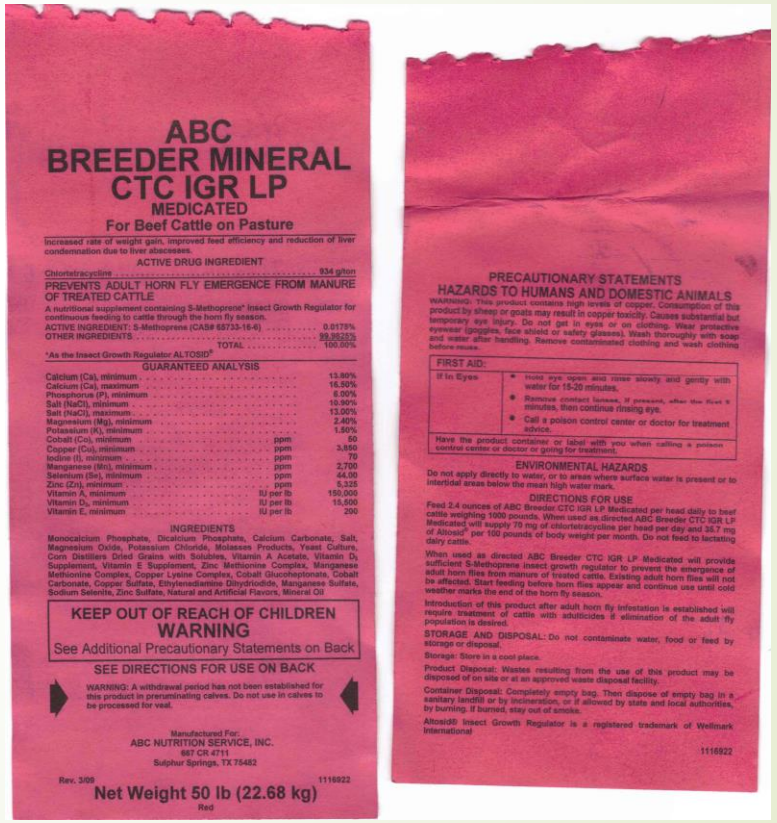
Adapted from:
Gooneratne *et al.*, 1989.
Suttle, N. F. 1991.

Excretion of Copper and Zinc post-stress



Orr, et al, 1988

Building A Complete Mineral Program



ABC
BREEDER MINERAL
CTC IGR LP
MEDICATED
For Beef Cattle on Pasture

Increased rate of weight gain, improved feed efficiency and reduction of liver condemnation due to liver abscesses.

ACTIVE DRUG INGREDIENT

Chlortetracycline	834 g/ton

PREVENTS ADULT HORN FLY EMERGENCE FROM MANURE OF TREATED CATTLE

A nutritional supplement containing S-Methoprene* insect Growth Regulator for continuous feeding to cattle through the horn fly season.

ACTIVE INGREDIENT: S-Methoprene (CAS# 65733-16-6)	0.0175%
OTHER INGREDIENTS	99.9825%
TOTAL	100.00%

*As the Insect Growth Regulator ALTOSID®

GUARANTEED ANALYSIS

Calcium (Ca), minimum		13.50%
Calcium (Ca), maximum		16.50%
Phosphorus (P), minimum		6.00%
Salt (NaCl), minimum		10.90%
Salt (NaCl), maximum		13.00%
Magnesium (Mg), minimum		2.40%
Potassium (K), minimum		1.50%
Cobalt (Co), minimum	ppm	50
Copper (Cu), minimum	ppm	3,850
Iodine (I), minimum	ppm	70
Manganese (Mn), minimum	ppm	2,700
Selenium (Se), minimum	ppm	44.00
Zinc (Zn), minimum	ppm	5,325
Vitamin A, minimum	IU per lb	150,000
Vitamin D_3, minimum	IU per lb	15,500
Vitamin E, minimum	IU per lb	200

INGREDIENTS

Monocalcium Phosphate, Dicalcium Phosphate, Calcium Carbonate, Salt, Magnesium Oxide, Potassium Chloride, Molasses Products, Yeast Culture, Corn Distillers Dried Grains with Solubles, Vitamin A Acetate, Vitamin D_3 Supplement, Vitamin E Supplement, Zinc Methionine Complex, Manganese Methionine Complex, Copper Lysine Complex, Cobalt Gluconheptonate, Cobalt Carbonate, Copper Sulfate, Ethylenediamine Dihydriodide, Manganese Sulfate, Sodium Selenite, Zinc Sulfate, Natural and Artificial Flavors, Mineral Oil

KEEP OUT OF REACH OF CHILDREN
WARNING
See Additional Precautionary Statements on Back

SEE DIRECTIONS FOR USE ON BACK

WARNING: A withdrawal period has not been established for this product in preruminating calves. Do not use in calves to be processed for veal.

Manufactured For:
ABC NUTRITION SERVICE, INC.
667 CR 4711
Sulphur Springs, TX 75482

Rev. 3/09 1116922

Net Weight 50 lb (22.68 kg)
Red

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING: This product contains high levels of copper. Consumption of this product by sheep or goats may result in copper toxicity. Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield or safety glasses). Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

FIRST AID:

If in Eyes
- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.

DIRECTIONS FOR USE

Feed 2.4 ounces of ABC Breeder CTC IGR LP Medicated per head daily to beef cattle weighing 1000 pounds. When used as directed ABC Breeder CTC IGR LP Medicated will supply 70 mg of chlortetracycline per head per day and 36.7 mg of Altosid® per 100 pounds of body weight per month. Do not feed to lactating dairy cattle.

When used as directed ABC Breeder CTC IGR LP Medicated will provide sufficient S-Methoprene insect growth regulator to prevent the emergence of adult horn flies from manure of treated cattle. Existing adult horn flies will not be affected. Start feeding before horn flies appear and continue use until cold weather marks the end of the horn fly season.

Introduction of this product after adult horn fly infestation is established will require treatment of cattle with adulticides if elimination of the adult fly population is desired.

STORAGE AND DISPOSAL: Do not contaminate water, food or feed by storage or disposal.

Storage: Store in a cool place.

Product Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Completely empty bag. Then dispose of empty bag in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Altosid® Insect Growth Regulator is a registered trademark of Wellmark International

1116922

REVEILLE
LIVESTOCK
CONCEPTS

Designing and Implementing a Quality Mineral Program

Why do producers fail to use a sound mineral program?

1. Lack of proper understanding of need/value
2. Resistance to change
3. Concern over cost
4. Negative experience based on past efforts or recommendations.

REVEILLE
LIVESTOCK
CONCEPTS

Issues/Misconceptions with Minerals

- A ***white*** salt block and a ***yellow*** salt block is NOT a mineral program.
- If you have a well balanced mineral you do not need to keep out salt seperately.
- One of the primary problems – consistent or adequate intake.
- Free-choice feeding lends itself to huge intake variation.
  - From 0 to excessive – often depends on the animal.
  - Targeting low intakes to begin with (ounces/head/day).
  - Intake variation based on forage quality/quantity, availability of other feeds/supplements, management.
- Consistent effective development and formulation is critical.
- Misconception of appropriate intake levels – many companies sold low intake (1-2 oz/hd/day) because customers resisted the cost.

Developing a Quality Mineral Program

- Evaluate forage base (Pasture, Hay, Silage, other). Forage and soil test.
- Evaluate other supplements (cubes, blocks, liquids, range meals, grain, etc.). Tag or detailed nutrient analysis.
- Compare to what the cow needs.

Developing a Quality Mineral, Cont.

- The various minerals in question can be derived from a variety of sources.
- Availabilities of the macro minerals is related to a large degree to the digestibility of the base forage/feed it is found in.
- "***Bioavailability***" is a significant concern when developing or evaluating a mineral product
- Bioavailability is the percent of the actual mineral in question that is absorbed from a given source.

Developing a Quality Mineral, Cont.

- A wide range exists in the bioavailability of different sources of minerals as we have seen.
- Inorganic sources are by-and-large less available than organic sources.

Comparative Bioavailabilities

Inorganic Sources **Organic Sources**

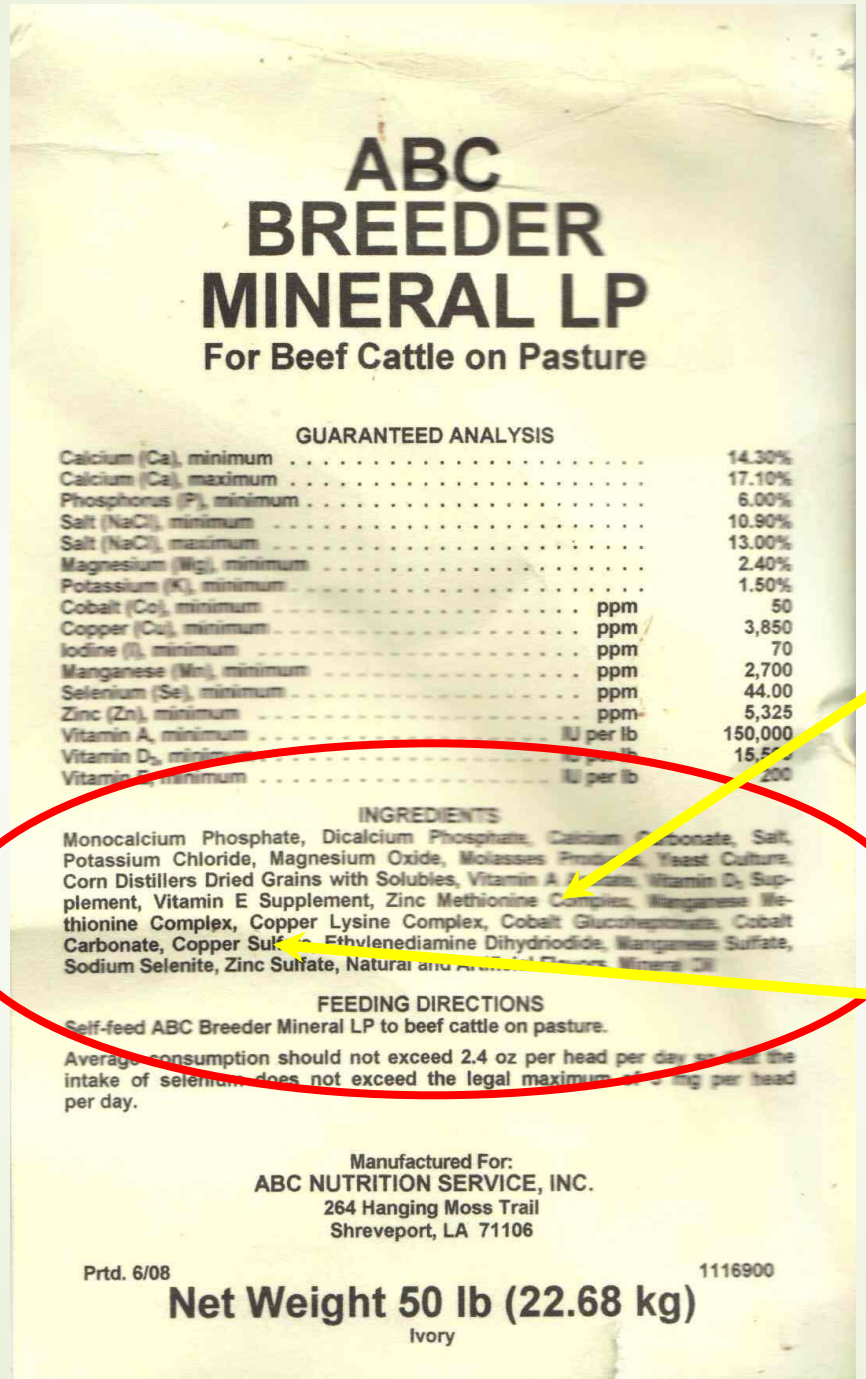
Oxides < Carbonates < Sulfates < Protienates < Amino Acid Complexes

Trace Mineral Absorption in Mature Cattle

Copper	1 to 5 %
Manganese	0.5 to 1%
Selenium	up to 35%
Zinc	5 to 15%

Organic or chelated sources have shown improved levels of absorption. Varies from 100 to 200%+. Responses have been variable.

(Dairy NRC 2001)



ABC BREEDER MINERAL LP

For Beef Cattle on Pasture

GUARANTEED ANALYSIS

Calcium (Ca), minimum		14.30%
Calcium (Ca), maximum		17.10%
Phosphorus (P), minimum		6.00%
Salt (NaCl), minimum		10.90%
Salt (NaCl), maximum		13.00%
Magnesium (Mg), minimum		2.40%
Potassium (K), minimum		1.50%
Cobalt (Co), minimum	ppm	50
Copper (Cu), minimum	ppm	3,850
Iodine (I), minimum	ppm	70
Manganese (Mn), minimum	ppm	2,700
Selenium (Se), minimum	ppm	44.00
Zinc (Zn), minimum	ppm	5,325
Vitamin A, minimum	IU per lb	150,000
Vitamin D_3, minimum	IU per lb	15,5[illegible]
Vitamin E, minimum	IU per lb	200

INGREDIENTS

Monocalcium Phosphate, Dicalcium Phosphate, Calcium Carbonate, Salt, Potassium Chloride, Magnesium Oxide, Molasses Product, Yeast Culture, Corn Distillers Dried Grains with Solubles, Vitamin A [illegible], Vitamin D_3 Supplement, Vitamin E Supplement, Zinc Methionine Complex, Manganese Methionine Complex, Copper Lysine Complex, Cobalt Glucoheptonate, Cobalt Carbonate, Copper Sul[illegible] Ethylenediamine Dihydriodide, Manganese Sulfate, Sodium Selenite, Zinc Sulfate, Natural and [illegible] Flavors, Mineral Oil

FEEDING DIRECTIONS

Self-feed ABC Breeder Mineral LP to beef cattle on pasture.

Average consumption should not exceed 2.4 oz per head per day so that the intake of selenium does not exceed the legal maximum of 3 mg per head per day.

Manufactured For:
ABC NUTRITION SERVICE, INC.
264 Hanging Moss Trail
Shreveport, LA 71106

Prtd. 6/08 1116900

Net Weight 50 lb (22.68 kg)

Ivory

Organic, chelated, complexed, etc.

Sulfate sources

REVEILLE LIVESTOCK CONCEPTS

Issues/Misconceptions with Minerals

- Cattle are NOT capable of balancing their own mineral requirements.
- Mineral intake must be evaluated on an ongoing basis, over a period of time.
- Active management is required – movement of feeders, keeping mineral in feeders
- Gimmicks, bells and whistles are not always useful and may only add cost.

Factors to Consider When Selecting a Quality Mineral

- Mineral Sources
- Other Ingredients – carriers, tag dressing
- Manufacturing Parameters
- Ingredient Turn-Over
- Other Services – delivery, packaging, nutritional assistance, financing, etc.

Completing the Mineral Program

- In many cases, simple oral mineral supplementation is not adequate to meet the cows needs.
- Trace minerals are poorly absorbed to begin with.
- Status varies greatly with nutritional plane, time of year, stress level.
- Injectable trace mineral technologies have found new acceptance with more recent developments and can be a part of a complete program.

Summary – Tools for Building A sound Nutritional Program

- Planning
- Body Condition – Cows must be in proper condition prior to initiating program
- Balance – Make sure all nutrients are provided
- Forage Test – know what is in forage base
- Supplement accordingly

No More Bull !

Thanks for coming!

Questions???????