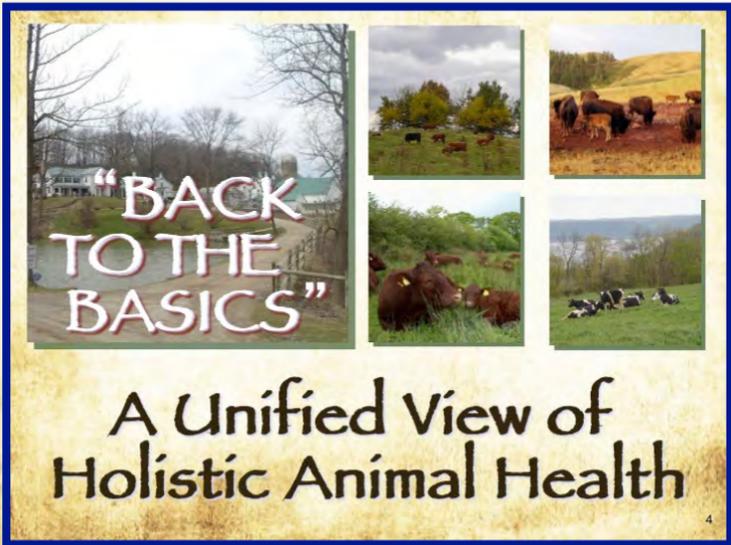


# A Commentary on the Digital Presentation:



Produced by  
Richard J. Holliday, DVM

This is a  Production



## PREFACE

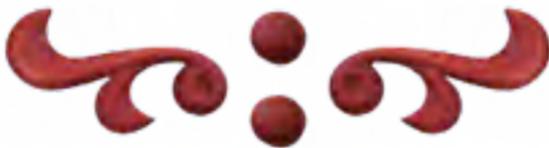
This booklet is designed to provide an approximation of the spoken commentary that accompanies the digital presentation "*A Unified View of Holistic Animal Health*", as frequently presented by Dr. Holliday. Neither this booklet nor the original presentation is about different alternative ways to treat animals nor is it filled with research data or esoteric formulas. It is, however, a compilation of experiences and opinions garnered from over 80 years of life experience and 60 years of involvement in both conventional and holistic veterinary medicine. At all times my goal has been to share with the reader the idea that anyone can prove these fundamental concepts of animal health by watching and learning from animals, who will share their secrets with us if we are attentive.

### DISCLAIMER

**The information provided herein is for educational purposes only. The author and publisher have no control over the use, misuse, or applicability of this information to your situation, and thus assume no liability. Always consult your veterinarian or other licensed animal health professional before making any changes to animal health management.**



“When you change  
the way you look  
at things, the  
things you look at  
change.”





A Pulitzer Prize winning American author and conservationist who gained international recognition for pioneering innovative scientific farming concepts.



Louis Bromfield  
1896 -1956

## “Pleasant Valley” “Malabar Farm”

In 1948, when I was in High School, I read *Pleasant Valley* and *Malabar Farm*. These books were my earliest exposure to alternative agriculture. Over the years, they have been a

**profound influence on my approach to alternative agriculture and holistic veterinary medicine.**

Bromfield was born in Mansfield, Ohio, in 1896. He studied Agriculture at Cornell University & Journalism at Columbia University. He served with the American Field Service in World War I, and was awarded the *Croix de Guerre* and the *Legion of Honor*.

After the war, he returned to New York City and worked as a reporter and writer. His first novel, *The Green Bay Tree* (1924), was an instant success. All of his 30 published books were best sellers. Several won Pulitzer Prizes. Others were made into movies.

Paris was known for its expatriate community of American writers. He and his family moved to France in 1925. They lived there for 13 years. When World War II became imminent, the Bromfield family returned to Louis’ boyhood home near Mansfield, Ohio. Many of the farms he remembered as being productive when he was a youth, were now ‘farmed-out’ and abandoned. He bought 1000 acres of land and began a soil regeneration program. He lived on his “*Malabar Farm*” from 1939 until his death in 1956.

Bromfield was an early proponent of organic and self-sustaining farming. Many of his books detailed his success in rebuilding worn-out farms. Now a State Park, Malabar Farm is located near Lucas, Ohio. It is still being managed according to his farming philosophy.

Here is a list of Bromfield’s books that apply to agriculture: *The Farm* (1933), *Pleasant Valley* (1945), *Malabar Farm* (1948), *Out of the Earth* (1950), *The Wealth of the Soil* (1952), *Up Ferguson Way* (1953), *Animals and Other People* (1955)



## Albrecht's Adage



"Observe nature  
and study  
books,  
if they don't  
agree, throw  
away  
the books."

Wm. A. Albrecht, PhD  
1888 - 1974

The Father of Modern Soil Science

In 1951, I studied soils under Dr. Albrecht. As Chairman of the Dept. of Soils at the University of Missouri, Albrecht was the foremost authority on the relation of soil fertility to human health.

He saw a direct link between soil quality, food quality and human health as well as the link between

poor quality forage crops, and ill health in livestock.

Albrecht was a prolific author and had over 170 publications, reports, books, and articles to his credit.

Albrecht attributed many common livestock diseases directly to those animals being fed poor quality feeds. He observed that : "...*Food is fabricated soil fertility*".

Albrecht was outspoken on matters of declining soil fertility, having identified that it was due to a lack of organic material, major elements, and trace minerals, and was thus responsible for poor crops and in turn for pathological conditions in animals fed deficient foods from such soils.

He opined that the use of "NPK" formulas as legislated and enforced by State Departments of Agriculture was the cause of "malnutrition, attack by insects, bacteria and fungi, weed takeover, crop loss in dry weather, and general loss of mental acuity in the population, leading to degenerative metabolic disease and early death".

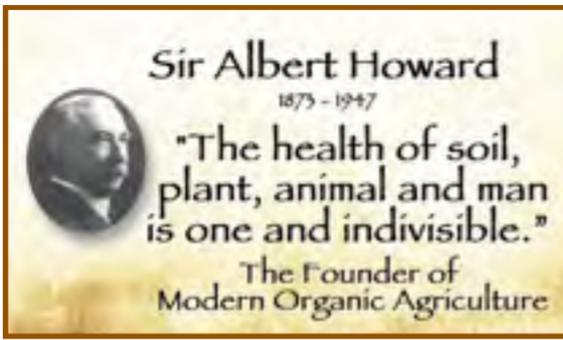
On his death, he left his research papers to his friend Charles Walters, the founder of the magazine *Acre, USA*.

Albrecht's observations were the inspiration for two good Missouri men to start *Talbot-Carlson, Inc.* — the first company to market cafeteria-style livestock mineral programs. Thus, it could be said that Albrecht was the father of the cafeteria style mineral feeding concept.

### Here are a couple of Albrecht's quotes.

"The soil is the 'creative material' of most of the basic needs of life. Creation starts with a handful of dust".

"Wild animals choose their own medicine according as the soil grows it, and thereby exemplifies better health and survival on their own than our domestic ones do under our management."



Albert Howard graduated in Natural Sciences at Cambridge in 1896. He obtained a Diploma of Agriculture in 1897.

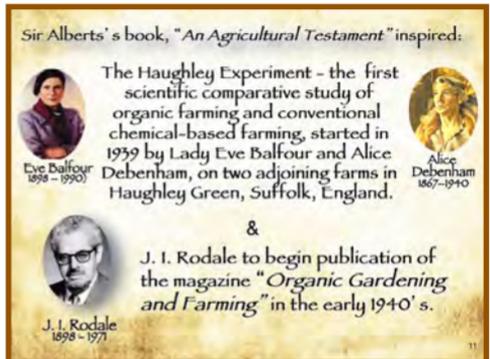
Howard was Director of the Institute of Plant Industry, Indore, and Agricultural Ad-

viser to States in Central India and Rajputana from 1924-1931. He was knighted in 1934.

Howard worked as an agricultural advisor in charge of a government research farm at Indore, India. He took notice of the connection between healthy soil and the healthy populations, livestock and crops in the villages. Howard has been called the father of the modern "Indore Method" of composting.

His 1940 book, *An Agricultural Testament*, is a classic organic farming text. He emphasizes the importance of maintaining humus, keeping the soil moist, and the role of mycorrhiza.

Howard's work influenced and inspired many farmers and agricultural scientists who furthered the organic movement, including Lady Eve Balfour, (the Haughley Experiment); and J.I.Rodale, who began publication of the *Organic Gardening and Farming* magazine in 1940.



**Sir Albert wrote: "I have several times seen my oxen rubbing noses with foot-and-mouth cases. Nothing happened. The healthy, well-fed animals reacted to this disease exactly as suitable, properly grown varieties of plants did to insect and fungus pests — no infection took place."**



Eugene M. Poirot  
1899 - 1988

"I don't know how to "cure" these many diseases - but Mother Nature does. That is why I like to give her the "tools" and keep her on my side."

**"Our Margin of Life"**  
published in 1978

Eugene M. Poirot's book details his experiences in the restoration of soils and the health benefits to animals when fed crops grown on high vitality soils. His son-in-law, a veterinarian who practiced in the same town as I did, confirmed the accuracy of this account, here quoted from Poirot's

book.

"Once Bang's disease (undulant fever), which causes abortion, was so serious, and the blood test showed so high a percentage of infected cows, that the entire herd was threatened with liquidation. Fourteen years later, another test of all animals, including both the old infected cows and their offspring, more than four hundred head, failed to show a single reactor or suspect. In this case it was controlled at the soil level in some yet unknown way.

A significant part of this story is that early in the restoration period this disease was eradicated by blood-testing cows and selling all reactors and suspects. The herd was clean for a period of three years. Then the infection hit again in January, when an immediate blood test disclosed only six head of reactors or suspects. These were sold at once, but by June the infection had reached eighty percent of the cows! So none were sold, and soil restoration was continued. In two years calf crops became normal again.

Later, blood testing became required by law, but no reactors or suspects were found in any of the tests, nor has the disease reappeared after thirty-five years, even though all animals are offspring of infected cows, born on once infected pastures and living in an area where Bang's disease was present on other farms before blood testing eradicated it"



**Good  
Nutrition  
Can Cure  
Disease**





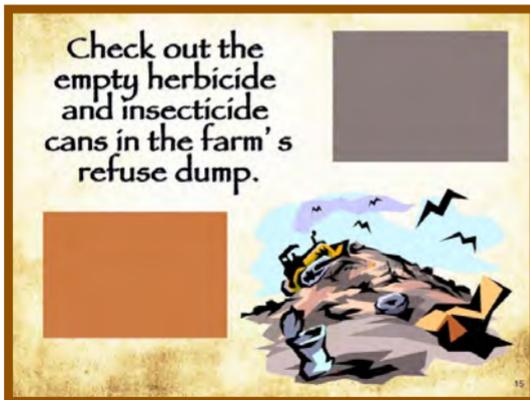
One day, one of my good "natural farming" clients took me on an impromptu field trip. We drove to an area where his cornfield joined his neighbor's. Both fields were basically the same as to soil type, corn variety and stage of growth. His neighbor's corn

was tall with dark green undamaged leaves. Kenny's corn was just about as tall and green but the plants in several rows around the perimeter of his field were severely damaged.

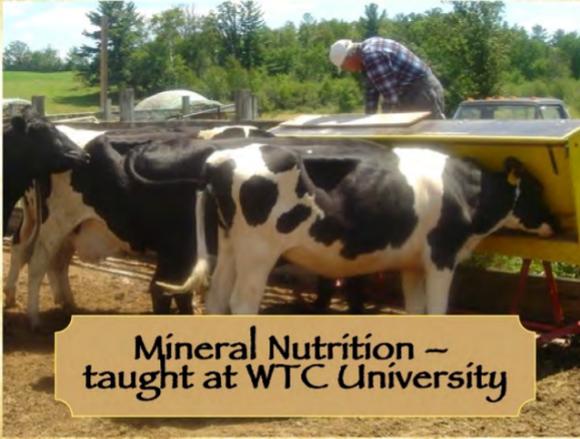
He explained; "My neighbor uses all the modern chemical fertilizers, herbicides and insecticides. I use only naturally occurring soil amendments like manure, lime, gypsum and rock phosphate. Deer will walk through miles of 'chemical' corn' without taking a bite and then feast on my corn because it is more nutritious and tastes better." We did a taste test. The sap from his corn tasted sweet — almost like sugar cane. The sap from corn just across the fence was bland, with a bitter aftertaste.



He suggested that I notice the number of empty pesticide cans in the trash dumps on the farms where I made most of my sick animal vet calls. There definitely was a difference. I treated more sick animals on farms that used a lot of chemicals.



I have never forgotten his words and I have seldom found them in error. He taught me two natural principles ... animals can recognize and will seek out healthy nutrition if available and there is an adverse relationship between heavy use of agricultural chemicals and animal health.



## Mineral Nutrition ~ taught at WTC University

16

In the early 1960's, I encountered the concept of feeding minerals cafeteria-style.

A good client had called me about two problems.

First, his dairy heifers were calving early and al-

though the calves would live the heifers would usually die. Second, he complained that his cows consumed an inordinate amount of minerals.

He decided to try a "cafeteria" mineral program in which each mineral was fed separately. His cows paid little attention as he was putting the separate minerals into the feeder until he carried a bag of zinc trace mineral mix into his cow lot. The cows tore the bag from his arms, chewed the bag open and ate the entire contents. Within a week after the mineral change, mineral consumption returned to normal and his remaining heifers calved normally.

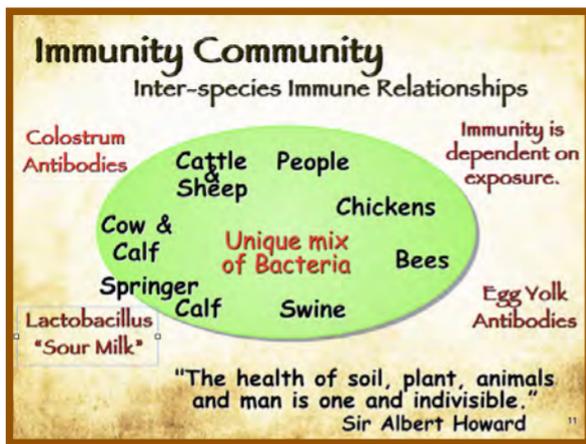
Apparently, his forage that year was deficient in zinc or perhaps high in zinc antagonists. His mineral mix was high in Calcium with only small amounts of zinc. Their quest for zinc impelled his cows to over-eat the mixed mineral. Excess calcium interferes with zinc absorption. Every mouthful they took increased the imbalance and escalated their need for zinc. Inevitably, metabolic problems began in the most vulnerable group - young, growing heifers in the last stages of pregnancy. Finally they just gave up and checked out ... all for want of a few grams of zinc.

**WTC**, in the above picture, stands for **Watch The Cow University**.



**Animals  
have  
Nutritional  
Wisdom**





This is a diagram of a multi-species, diversified farm as was common in earlier days - many similar ones still exist.

Members of each species present on the farm are subjected to the unique mix of bacteria present on the farm. This interaction has many effects on the inhabitants.

**Immunity is based on exposure. Here are some examples.**

- ◆ A resident cow, exposed to the resident bacteria, builds specific antibodies and other immune factors in her colostrum. This colostrum protects the newborn calf from exposure to the resident bacteria and the exposure of the calf with the protection afforded by the colostrum, strengthens the immune response.
- ◆ A pregnant cow added to the herd less than 2 weeks before calving, may not have time to produce colostrum specific to the new farm before calving. Thus, her calf will not receive a colostrum specific to its exposure and may suffer poor health as a result.
- ◆ Eggs from resident chickens contain specific immune factors and are thus useful in the treatment of calf scours.
- ◆ Swine and chickens benefited from the antibodies and naturally occurring lactobacilli in the soured skim milk they received — a precursor to today's prebiotic and probiotic industry.
- ◆ Eating and chewing comb honey from local bee hives is reputed to provide some allergy relief.
- ◆ My wife's mother lived most of her life on the Missouri farm on which she was born. A breakfast item for most of her adult life was a couple of raw eggs - from her own hens, combined with raw whole milk - from her own cows giving her a daily dose of location specific immune factors from two sources. We don't know if this helped her to live to 98 years old, but it couldn't have hurt.

**The immune benefits of the old time "immunity community" can be duplicated by the use of: Colostrum whey immune factors — selected strains of *L. acidophilus* — concentrated egg yolk antibodies — and selected herbs.**

**All of which are available from Advanced Biological Con-**

What's wrong with our current  
health/disease paradigm?  
How did we ever get into this  
mess we're in?



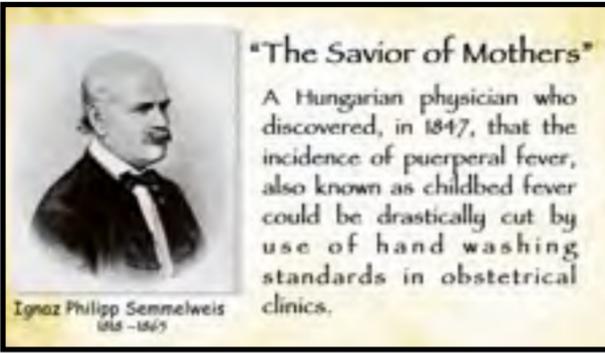
**LINEAR OR CONVENTIONAL  
VIEW OF MASTITIS**  
**Simplistic — one item — cause and effect.**



**Treats the effect — not the cause.**

The conventional approach to science is a simplistic reductionist outlook that attempts to reduce everything to its smallest common denominator and then study that part in isolation from other surrounding factors. *They seek to learn more and more about less and less until finally they know everything about nothing.*

Examine the example of mastitis in the box shown above. If a modern dairyman is confronted with a case of mastitis in one of his cows, his first reaction is to culture the milk to identify the bacteria present, if any. If bacteria are found, he regards the infection to be the cause. He considers the solution to his problem to be killing the bacteria by giving suitable antibiotics.



Ignaz Philipp Semmelweis was a Hungarian physician known as the **“Savior of Mothers”**.

He was employed as assistant to the professor of the ma-

ternity clinic at the Vienna General Hospital in Austria, where the incidence of puerperal fever, also known as childbed fever, could run as high as 30 percent.

Back then, diseases were attributed to many different and unrelated causes. Semmelweis hypothesized that there was only one cause and that all that mattered was cleanliness.

In 1847, he introduced procedures that required hand washing with chlorinated lime solutions between patients and after having performed autopsies. This practice immediately reduced the incidence of fatal puerperal fever to about 1–2 percent.

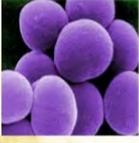
Semmelweis’ innovation was extreme at the time, and was largely ignored, rejected, or ridiculed. He was dismissed from the hospital and harassed by the medical community in Vienna, which eventually forced him to move to Budapest.

Outraged by the indifference of the medical profession, Semmelweis began writing open and increasingly angry letters to prominent European obstetricians, at times denouncing them as irresponsible murderers. His contemporaries, including his wife, believed he was losing his mind and in 1865 he was committed to an asylum (mental institution). Semmelweis died there only 14 days later, possibly after being severely beaten by guards.

Semmelweis was vindicated posthumously, when Louis Pasteur developed the germ theory of disease. Today, Semmelweis is considered a pioneer of antiseptic procedures.

### THE SEMMELWEIS REFLEX

**The Semmelweis reflex is a metaphor for the tendency to reject new evidence or new knowledge because it contradicts established norms, beliefs, or paradigms.**



**NOTE:**  
It is still called the Germ **THEORY** of disease.

## A Brief History of the Germ Theory of Disease

24

## Founders of Microbiology



F. J. Cohn  
1828 – 189



Louis Pasteur  
1822 – 1895



H. H. Robert Koch  
1843 – 1910



Ferdinand Cohn  
1828 — 1898

- ◆ Ferdinand Cohn was a German Microbiologist. His classification of bacteria into four groups based on shape (spheres, short rods, threads, and spirals) is still used today.
- ◆ He was the first to show (1876) that Bacilli's can change from a vegetative state to an endospore state when subjected to an adverse environment.
- ◆ From 1870 onward he mostly studied bacteria. He published over 150 research reports during his lifetime.



Robert H. Koch  
1843 - 1910

Robert Heinrich Herman Koch was a renowned German physician and pioneering microbiologist. As one of the founders of modern bacteriology, he is known for his role in identifying the specific causative agents of cholera, anthrax, and tuberculosis. As a result of his groundbreaking research on tuberculosis, Koch received the Nobel Prize in Physiology or Medicine in 1905.

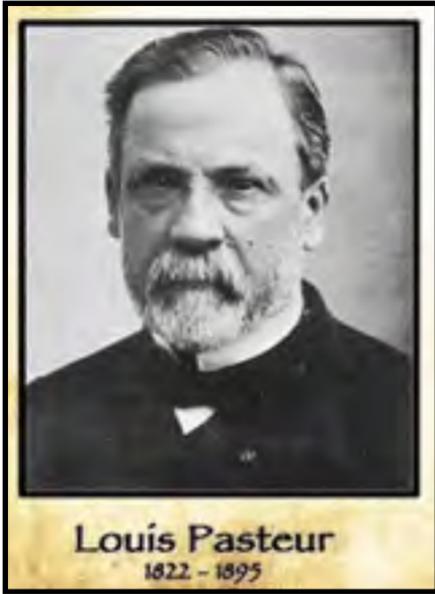
In addition to his trail-blazing studies on these diseases, Koch created and improved laboratory technologies and techniques in the field of microbiology, and made key discoveries in public health.

His research led to the elaboration of *Koch's Postulates*, four linked criterion that must be met to prove that a certain bacteria is the cause of a specific disease — still considered today as the "gold standard" in medical microbiology.

You may wonder how I can pose the question, "Do germs cause disease?", when it is so obvious that germs are involved in many diseases. A better question would be, "What is the true relationship between germs and disease." Not all organisms harboring disease causing microorganisms succumb to the disease. **What is it that allows some to become infected while others seem to be immune?**

## Koch's Postulates

- ◆ The microorganisms must be found in abundance in all organisms suffering from the disease, but should not be found in healthy animals.
- ◆ The microorganism must be isolated from a diseased organism and grown in pure culture.
- ◆ The cultured microorganism should cause disease when introduced into a healthy organism.
- ◆ The microorganism must be re-isolated from the inoculated, diseased experimental host and be identified as being identical to the original specific causative agent.



Pasteur was a French Chemist and Microbiologist who was a pioneer in the discoveries of the principle of microbial fermentation and the development of vaccinations for rabies and anthrax.

He is best known to the general public for his work in Pasteurization — the technique of treating milk and wine to stop bacterial contamination. His promulgation of the Germ Theory of Disease led to him being remembered as the Father of Microbiology.

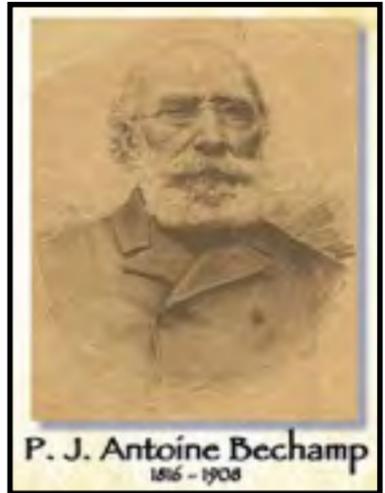
Pierre Jacques Antoine Béchamp was a French scien-

tist best known for breakthroughs in applied organic chemistry and for a bitter rivalry with Louis Pasteur.

This rivalry was initially over who first attributed fermentation to microorganisms, and eventually over the validity of Pasteur's germ theory of disease as opposed to Bechamp's cellular theory.

Pasteur proposed that germs caused disease when introduced into a healthy host.

Bechamp maintained that bacteria are not the cause of, but the result of, disease, arising from diseased tissues rather than from a germ of constant form. He claimed that when unfavorable conditions destabilized the host's environment, pathogenic bacteria spontaneously arose from what he called microzymas.



**Legend has it that, on his deathbed, Pasteur uttered;  
"Bechamp was correct, it is the terrain."**

As it turns out, there was some truth and some error in both theories.

- Pasteur did eventually prove that germs could not arise spontaneously in a sterile environment.
- Bechamp was right in the sense that the internal and external environment (the terrain) of the host was a main factor in susceptibility to disease.
- In his experiments, Pasteur could not satisfy the terms of Koch's Postulates, which mandated that the germ causes disease in a "healthy" animal. Pasteur's lab animals had to experience environmental and nutritional stress to make them susceptible.

## Virchow was right on target.



**Rudolf Virchow**  
1821-1902

German doctor, anthropologist,  
pathologist, pre-historian,  
biologist and politician.

"Germs seek their natural habitat - diseased tissue - rather than being the cause of diseased tissue."

### "If You Build It, They Will Come"

Preferential Environment of Bacteria

Some examples of Virchow's concept

- Injured Tissue - **Staph**
- High Residual Milk in Udder - **Strep**
- Excess protein, NPN or nitrates in the ration. Feeding WDGS - **E. Coli**

The acceptance of the Germ Theory of Disease paved the way for the rise of pharmaceutical companies, and we now have powerful drugs that:

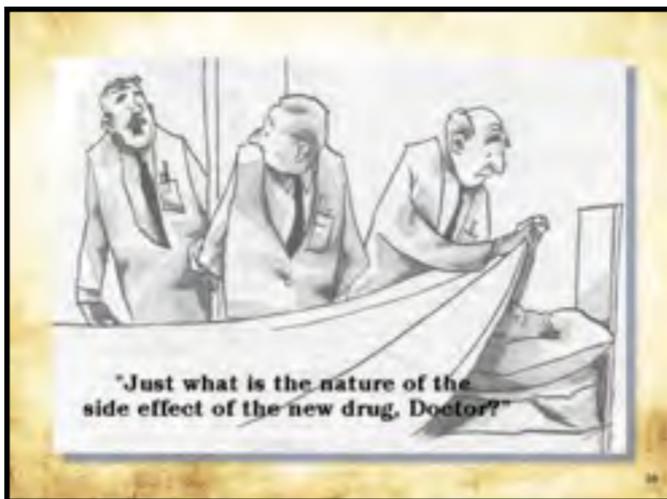
Can force the appearance of health in a sick animal.

&

Can cause disease in a well animal.

However, it must be said that some pharmaceuticals and antibiotics do save lives. The problems arise from their misuse.

**... but, all drugs have side effects!**



**The point of all this:**

Stress and malnutrition, especially mineral imbalance, set the stage for disease.

Bacteria merely trigger disease in an already sick or stressed animal.

# A HOLISTIC VIEW OF ANIMAL HEALTH

"No problem can be solved until all its causes are understood".



"Manage the cause, not the symptom."

## A Holistic View of Mastitis

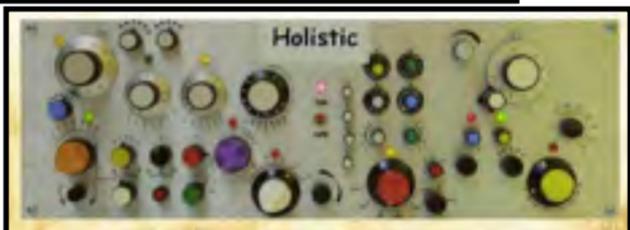
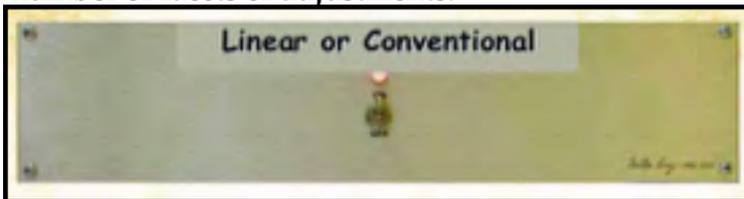
Complex — Many Causes — Many Effects



Here's another view to illustrate the difference between conventional and holistic thought.

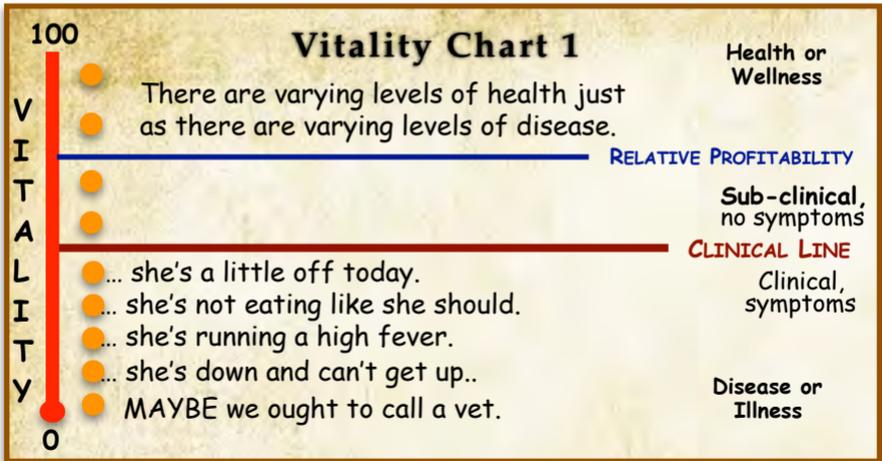
Conventional is simplistic, linear, with one switch — either on or off.

Holistic is complex, multidimensional, with an almost infinite number of facets or adjustments.

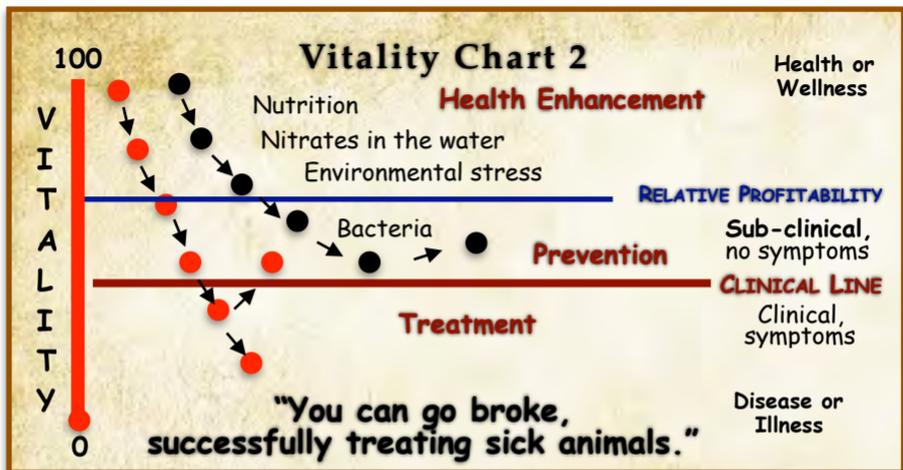


Incidentally, the conventional one could also be labelled MAN and the holistic one, WOMAN!

# LIFE FORCE OR VITALITY



- ◆ The “vitality” line on the left side (looks like a thermometer) runs from “100” (Perfect Health) to “0” (dead). Any animal’s relative health status can be plotted on this graph.
- ◆ The “clinical line” by definition separates healthy animals from sick animals, based solely on the presence or absence of symptoms.
- ◆ The “relative profitability line” indicates a relative loss of production, profitability or performance.
- ◆ We know and accept that there are differing levels of illness but our management decisions frequently seem to be based on the premise that an animal is not sick unless it is showing symptoms.
- ◆ If an animal’s health and vitality begins to deteriorate there will be a decline in productivity or performance for a variable period of time before symptoms become evident. The “relative profitability line” illustrates this possibility.
- ◆ With further loss of vitality, the animal crosses the “clinical line” when it begins to show symptoms of disease. These symptoms may be mild at first ... “a little off,” ... gradually increasing in severity until “DEAD”.



- ◆ Vitality chart 2 illustrates the journey of two cows as they are subjected to various influences that sap their vitality and set the stage for disease.
- ◆ Both cows — Red and Black — are exposed to faulty nutrition, nitrates in the water, environmental stress, both still appear to be healthy and productive but some of their reserve vitality is used up.
- ◆ Finally, they are exposed to bacteria. They both respond but to different degrees due to individual variations.
- ◆ Black is dangerously close to the clinical line but still shows no obvious symptoms although a really close observer might see mild symptoms developing.
- ◆ In the prevention mode, the only tools in the conventional practitioner's prevention toolbox are vaccinations and antibiotics.
- ◆ Black dips in vitality but does not go "clinical". She is able to overcome the infection because she had some resistance left.
- ◆ On the chart Red shows a steady decline and after crossing over the clinical line, begins to show symptoms of disease. Conventional medicine would diagnose the bacteria as the "cause" of her disease.
- ◆ We could give Red some antibiotics and hopefully kill enough germs to get her back up over the clinical line. Or, we could treat her with herbs, or homeopathy or whatever and probably help her enough to shut off the symptoms. BUT, unless we eliminate the stresses that put her at the susceptible level in the first place, we have really only installed a big Band-Aid!

◆ The above example begs the question: "Did the germs cause the disease? Or, would it be more accurate to ask: "Did the bacteria trigger a disease in an animal that was already suffering from stress-induced, low vitality?" The deciding factor was not the presence or absence of a disease organism, but the presence or absence of a strong immune system.

◆ Just because an animal shows no symptoms does not mean it's healthy.

◆ The final stress that triggers symptoms is usually not the primary cause of the illness.

I think we give germs way too much weight as the cause of problems. Obviously, microorganisms do vary in their ability to cause disease and a highly pathogenic organism may be able to cause disease in relatively stress free animals. Even in those situations, well nourished, stress free animals are less likely to succumb.

In the grand scheme of things, the "bugs" are probably only doing the job assigned to them. As "*censors of nature*" their job is to recycle plants or animals that do not meet nature's minimum requirements. In a dead animal we call it decomposition ... in a live animal we call it disease.

If one really believes that germs 'cause' disease then, by that same logic, they must believe that flies 'cause' garbage.

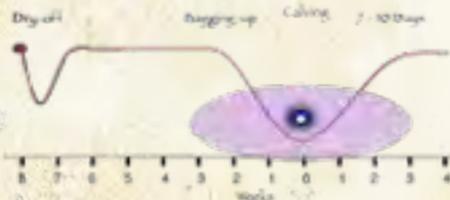
## DIAGNOSIS



The symptoms seen are usually only the tip of the iceberg. To diagnose the true cause, one must look for the "cause behind the cause, behind the cause". It's like peeling an onion. When you get to the core, the actual cause, it is almost always related to malnutrition or mineral imbalances.



The dry-cow period is a **window of opportunity** wherein one can re-program the cow's immune system to gain health and productivity for the next year and for future generations of calves.



### Steps in the Dry-Cow Program

#### At Dry-Off

1. Milk out a 4 quarters, then quit milking (After cessation of milking, it takes 5 or 6 days for the hormonal system of a cow to get the message to actually quit producing milk. During that time, if the cow is milked to relieve the tight udder, the clock starts again - and it takes another 5 or 6 days. The only valid reason to milk a cow during this critical period is if she shows signs of an udder infection.)
2. Administer a natural immune stimulant. After 5 - 6 days, when the swelling in the udder begins to recede, check the milk and milk out completely.
3. If milk is normal, dip the teats. The transition from a lactating cow to a dry cow was successful.
4. If milk is of questionable appearance, repeat steps 1 to 3 above until the milk appears normal.
5. Restricting feed and water at this time will hasten the dry-off process.

#### 2 Weeks Before Freshening

1. Administer a natural immune stimulant.
2. Pre-Partum Milking. Check the milk in each quarter. If pre-fresh secretion is of questionable appearance, start pre-milking all 4 quarters, twice a day.
3. The colostrum is produced when the cow starts to calve. Save the milk right before and right after calving and give it to the calf.

## Fresh Cows

1. If indicated, for extra support, administer a natural immune stimulant.
2. Avoid letting the fresh cow eat the placenta.
3. Seven days after calving, infuse the uterus with a natural uterine flush.
4. Check for elevated temperature daily for 10 to 14 days to get a head start on any problems that may be developing.
5. Check for sub-clinical milk fever.

## Fresh Cow Uterine Support

1. Immediately after calving, give cows all the warm water they will drink.
2. Make sure cow is not suffering from low blood calcium - sub-clinical milk fever.
3. If the placenta is not passed by 6 hours, give 50 ml Colostrum whey product and repeat if necessary every 2 days until she cleans.

## Udder Support

1. Strip out udder secretion frequently, if indicated
2. Administer 30 to 50 ml Colostrum Whey Product daily for 3 to 5 days.

Applied  
Common  
Sense

## CALF PROGRAM

- A healthy calf depends on a healthy cow. Manage the dry cow for health. Pay particular attention to nutritional balance and mineral balance.
- After calving, let the cow clean off the calf but do not let the calf nurse. Milk the cow and feed the colostrum to the calf.
- Iodine the navel.
- As soon as the calf is dry, remove it to a properly constructed and installed hutch for 8 to 12 weeks.
- Administer a source of beneficial micro-organism and immune factors.
- Feed your best quality whole milk to your heifer calves.





# EPIGENETICS



- Epigenetics is the study of changes produced in genetic expression without changes in the underlying genes or DNA sequence.
- Stress, diet, behavior, toxins, and other factors activate chemical switches that regulate gene expression.
- These changes can be inherited by future generations.
- If you think of a computer as a collection of genes (hardware), then epigenetics would be the computer program (software) that runs the computer.



These mice have identical genetics, but their parents had different nutrition or environment before and during pregnancy. One researcher stated. "If you are of reproductive age, whatever you eat, drink, breathe, or otherwise take into your body can affect the health of your future progeny for several generations.

## A Generational Timeline

... tracing the health of embryos over many generations

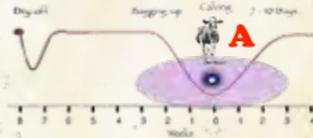
 Grand-Mother

 Mother

**A**  Bossy

**B**  Daughter

**C**  Grand-Daughter



Consider the cow, Bossy, (**A**) in the last stage of pregnancy. The ovaries of her female unborn calf (**B**), contain rudimentary ova, one of which will eventually end up as Bossy's granddaughter, (**C**). Thus , anything you do to or for this cow will affect her health as well as the health of the next three or four generations

Continued on next page.

Continued from previous page.

Also consider that Bossy's health problems, if any, could have been passed down to her by her ancestors. It takes a while to remedy the genetic damage done by previous generational malnutrition, but it can be done.

Most livestock owners notice an immediate increase in health and vigor in their animals after switching to the superior nutrition in organic feed.

Many herdsman also observe better vitality as each succeeding generation benefits from the improved genetic expression of epigenetics.

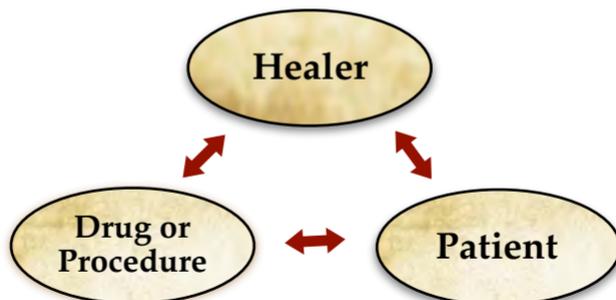
## THE HEALING TRIANGLE

Dr. Marvin Cain, a noted Equine Acupuncturist said  
"THOUGHTS ARE THINGS"

In **Double Blind Testing**, only the effect, if any, of the drug or procedure can be evaluated. It does not take into consideration the probability of patient variability.



In a healing situation, there are interactions between the patient and the healer, between the patient and the medication, and probably even between the healer and the medication.



Similar relationships exist between a farmer, his soil, and his crops and between a herdsman, his animals, and his feed.

## RESEARCH

### "Reductionist Thinking"

Discovering more and more about less and less, until finally, they know everything about nothing.



Valid research has been conducted at Sanborn Field since 1888: contrasting to Monsanto's 10 rats- 90 day trial of glyphosate safety.

In 1977 a study was done at South Dakota State University entitled: "*Cafeteria Style Free-Choice Mineral Feeder for Lactating Dairy Cows*" by L. D. Miller, L. V. Schaffer, L. C. Ham, and M. J. Owens. 1977 J Dairy Sci 60:1574-1582.

The summary stated: "Little evidence was found that dairy cows offered minerals and vitamins free choice consumed to a specific appetite or need under the two nutritional regimes."

The 16 week trial consisted of 2 groups of 10 mid-lactation cows - one group fed a ration based on corn silage the other one based on alfalfa. All supplemental minerals and vitamins were fed free-choice and measured weekly. Included were: Calcium, Phosphorus, Potassium, Magnesium, Sulfur, Iodine mix, Trace Minerals, Vitamins A & D, Bicarbonate of Soda, Sodium Bentonite, and Sodium Chloride.

**Comment: This would have been a much better trial if it had involved more cows over a longer period of time. Mineral balance plays a big role in reproduction. To show a 'generational effect' a trial would need to run for a couple of years, minimum.**

The study went on to say; "*Intake of phosphorus, potassium, and vitamins differed between rations. A higher free choice intake of phosphorus by cows fed alfalfa was not expected. ... Cows could possibly have been consuming more P to narrow the wide Ca:P ratio, due to high Ca intake from alfalfa*".

**Comment: This reminds me of the lyrics from an old song — "first you say you do and then you don't." First, they say cows can't self-select minerals and then they say one group did consume more than the other — but they didn't expect it. Then they say the consumption of more P on the alfalfa ration may have been to compensate for the high Ca in alfalfa. They can't have it both ways — either they did or they didn't.**

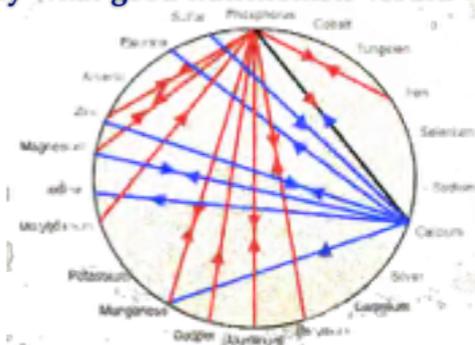
*“Cows fed corn silage consumed more potassium free-choice, but additional intake still was needed to meet requirement.”*

*Comment: The corn silage group actually ate 27 times more K than the alfalfa group. (Alfalfa usually has high levels of K). The authors could not explain why the group's milk production exceeded the alfalfa group even with their assumed K deficiency. One of the symptoms of a lack of K is low milk production.*

In conclusion, the study stated; *“Little evidence was found in these two short trials that lactating dairy cows have a specific appetite for individual minerals ... only in the cases of potassium and vitamins did cows fed corn silage consume large amounts possibly to compensate for a dietary deficiency.*

**Bottom Line. Both groups of cows met their mineral needs. Each group ate appropriate amounts of K. The alfalfa group ate more Phosphorus to balance the critical Ca:P ration. All in all, both groups did exactly what good nutritionists would have expected them to do.**

Calcium and Phosphorus, available and in proper balance, are essential to the utilization of the majority of the other elements as shown at right.



Fred Provenza, Ph.D.

## An Excellent Researcher

Dr. Fred Provenza has a Ph.D. in Range Science and is Professor Emeritus in the Department of Wildland Resources at Utah State University.

He is the author or co-author of over 200 publications, including “The Web of Life”, in peer-reviewed journals and books. Check it out at:

[www.grassfednetwork.com/wisdom-body-with-dr-fred-provenza-april-2016](http://www.grassfednetwork.com/wisdom-body-with-dr-fred-provenza-april-2016)

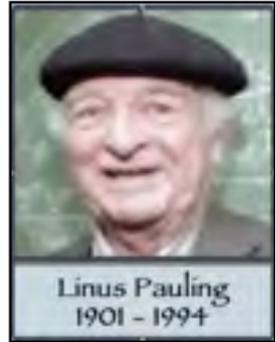
<http://extension.usu.edu/behave/>

## The Need for Mineral and Trace Mineral Supplementation



- Why do some cows eat dirt?
- Why do some cows chew on wood?
- Why do some cows drink their own urine?
- Why do some cows suffer from milk fever?

Linus Pauling, (1901-1994), the only person to win two unshared Nobel prizes, said, "You can trace every disease and every infection to a mineral deficiency from un-equally yoked energy fields."



**Could that really be true ?**

Consider this: All domestic animals today suffer from **four main problems** that affect mineral balance.

1

Soil Depletion

... which results in lower nutritional value of crops.

2

Varying degrees of confinement.

... which allows less nutritional diversity.

3

College Educated Feed Company NUTRITIONISTS

... who recommend excess protein and force-fed minerals.

4

Contamination of our soils, crops, and feeds

... with toxic GMO's, insecticides and herbicides such as glyphosate.

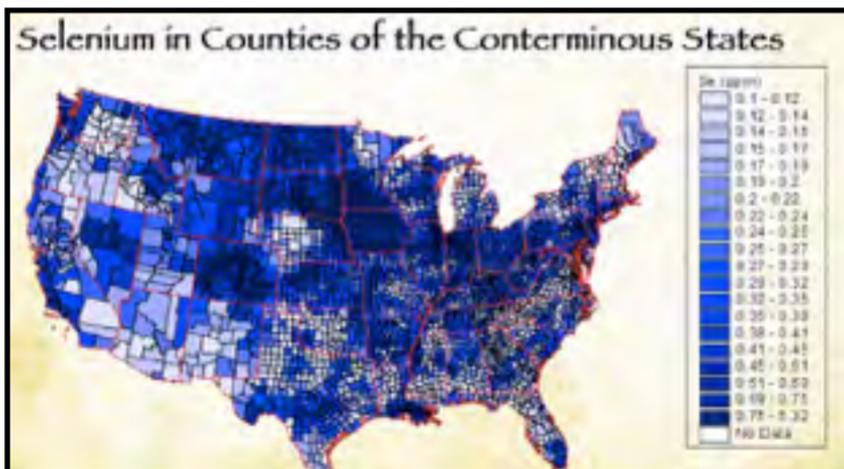
## Minerals in Animals and Soils

Pick up almost any farm or livestock magazine and you are likely to find articles about mineral needs for domestic animals. The following excerpts from an article by Dr. Herell Phillips, DVM, in *The National Cattleman* in February of 2008 are typical.

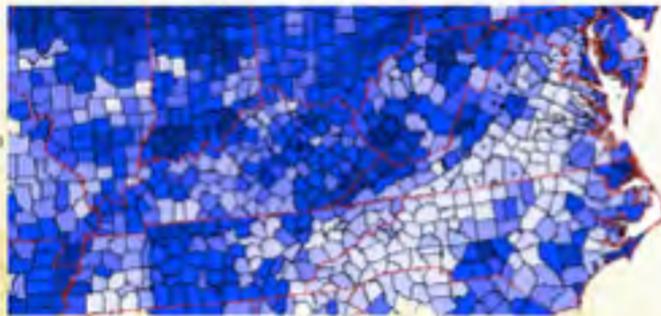
- ◆ "The most important thing for a successful calving season is to have a good, balanced vitamin and mineral program".
- ◆ "Appropriate mineral supply does more for the cow and calf than anything else.""
- ◆ "Often times through, even a slight mineral deficiency, the immune system doesn't perform at peak levels, resulting in disease outbreaks even with proper vaccination protocols".
- ◆ "Mineral deficiency affects animal performance shortly after mineral deprivation, but it may take several months before showing clinical signs. *Cutting minerals in a cow's diet is actually setting a timer for production and reproductive failure*".
- ◆ "Different minerals at different concentrations are needed for different parts of the country."

Building on the last quote it's only a little jump then to see that different concentrations are needed, not only for each individual farm, but also for each individual pasture plot.

**There is a great variation in mineral concentration in soils across the country. Using selenium as an example ..**



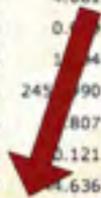
## Selenium in Counties of the East-Central US



## Average concentrations of elements in Fulton County, Illinois

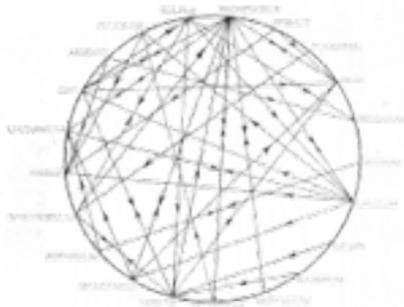
| Element  | Symbol   | Mean    | Std. dev. | Minimum | Maximum |
|----------|----------|---------|-----------|---------|---------|
| Aluminum | Al (wt%) | 3.611   | 0.508     | 2.736   | 5.557   |
| Arsenic  | As (ppm) | 7.719   | 2.439     | 3.424   | 12.371  |
| Calcium  | Ca (wt%) | 1.275   | 0.294     | 0.727   | 2.357   |
|          |          |         |           | 5.269   | 18.917  |
|          |          |         |           | 1.522   | 4.081   |
|          |          |         |           | 0.010   | 0.010   |
|          |          |         |           | 0.385   | 1.044   |
|          |          |         |           | 25.881  | 245.090 |
|          |          |         |           | 0.585   | 0.807   |
|          |          |         |           | 0.031   | 0.121   |
| Lead     | Pb (ppm) | 17.361  | 0.373     | 8.284   | 14.636  |
| Selenium | Se (ppm) | 0.476   | 0.272     | 0.107   | 1.390   |
| Titanium | Ti (wt%) | 0.288   | 0.035     | 0.185   | 0.426   |
| Zinc     | Zn (ppm) | 127.384 | 100.929   | 28.853  | 536.057 |

Note that even in the same county there is a 13 fold difference in the amounts of selenium present.



92

**Remember, this is only one element. Consider how the interactive complexity increases with the addition of each**



All soils differ in their mineral content.

No two animals have the same needs.

Mineral imbalances are difficult to correct.

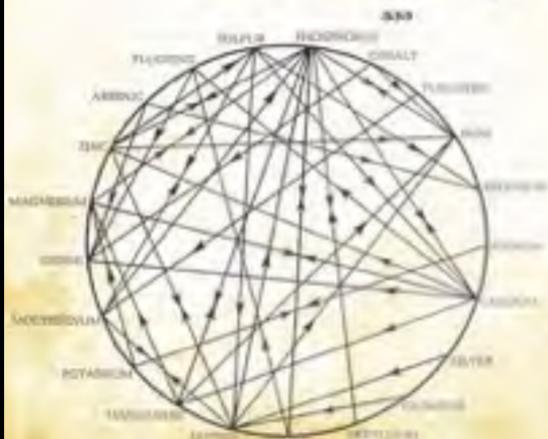


**Note that both cows in the cartoon are satisfying their individual needs from different sources.**

**This diagram illustrates the complexity of mineral relationships.**

## Mineral Wheel

Mineral Interrelationships in Animals



How to Interpret the Mineral Wheel

If a mineral has an arrow pointing to another mineral, it means a deficiency of that mineral or interference with its metabolism may be caused by excesses of the mineral from whence the arrow originates.

- Feed a variety of feedstuffs, this minimizes toxins and maximizes feed intake.
- In the wild animals had 100's of feeds to choose from vs 4 or 5 today.
- Average is a myth. A TMR negates the ability of an animal to select for individual needs.

**STEP**  
**# 1**

**Feed an effective prebiotic/probiotic/enzyme product. "Feed the rumen bacteria and the rumen bacteria will feed the cow".**

1/4 oz of D.U.A. per head per day feeds the microbes of the rumen to allow the maximum Digestion, Utilization and Absorption of your grain and forages. The individual free choice mineral products contain recommended amounts of D.U.A.

D.U.A. increases digestion of Fiber. Fiber sources contain major and micro minerals in a natural chelated form. Why buy minerals when your feedstuffs —hay , grass, and grain — can supply them.

D.U.A. increases protein conversion. There is less need to purchase off-the-farm-protein sources.

Applied Common Sense

### Fiber Digestion

|                  |   |               |
|------------------|---|---------------|
| Cell Wall        |  | Cell Center   |
| - Minerals       |   | - Amino Acids |
| - Sugars (Carbs) |   | - Sugars      |
| - Protein        |   | - Starch      |

Prebiotics at work

Enzymes at work

Applied Common Sense

### Don't Forget Water!

**Water stands alone as the most important nutrient.**

For every 1 lb. of dry matter,  
3 lbs. of water should be consumed.

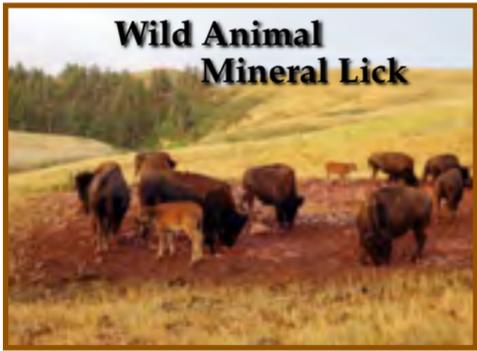
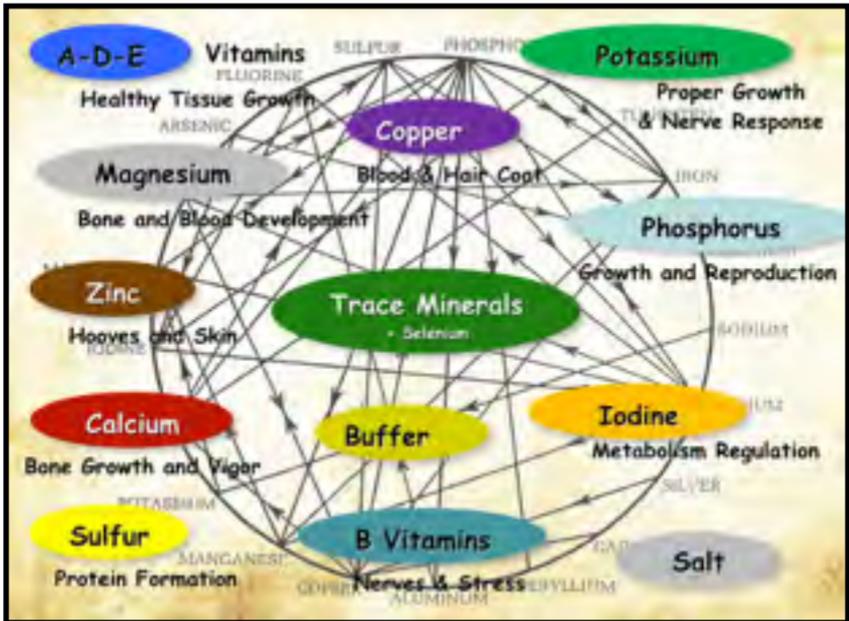
Milk is 87% Water

**STEP**  
**# 2**

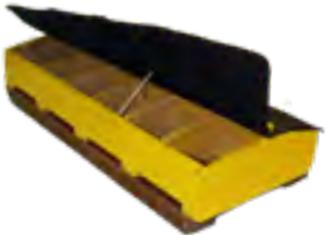
**Offset the effects of soil depletion and animal confinement by providing a free-choice source of individual minerals.**

Today, imbalances (deficiencies or excesses) of major, minor, and trace minerals are one of the major factors underlying reduced animal health, production and reproduction.

The following items are basic to an individual free-choice mineral program.



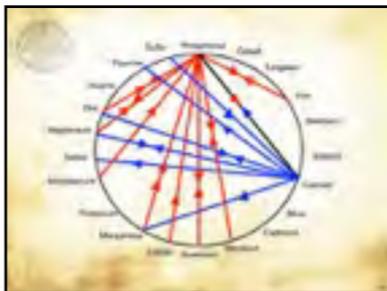
**Precision Tools for Balanced Mineralization**



Pay particular attention to the Calcium / Phosphorus ratio.

The Calcium/Phosphorus ratio is the keystone for mineral metabolism!

An incorrect Ca/P ratio affects the absorption and utilization of all other mineral elements.



## Milk Fever

During the dry cow period and especially in the last three weeks before calving, if the calcium-phosphorus ratio is 1:1 or even higher in calcium, there is a relative deficiency of phosphorus. The circulatory system only contains 3.5-5 grams of calcium. First milk and colostrum need 20-30 grams of calcium.



To compensate for this deficit, the body sets up to reject calcium and to absorb phosphorus. After calving, it takes 72 hours for the metabolism to readjust to absorb adequate amounts of calcium.

As the cow approaches calving, large amounts of calcium are drained from the blood reserve to form colostrum (high in calcium) and to begin milk production.



At calving, the sudden increased demand for calcium by the mammary gland, depletes blood calcium faster than it can be replenished from other body reserves, and thus the stage is set for peri-parturient hypocalcemia or milk fever.

Although there are other factors involved in some cases of milk fever, most can be prevented by providing free choice Ca and P — to let the cows balance this critical Ca:P ration.

## Apparent Excess Consumption

Excess minerals in TMR. For example, if there is excess Ca in the ration animals will eat excess P to balance the Ca/p ratio. Consumption of P will go down if some Ca is removed from the force-fed ration.

Vitamin A consumption goes up if there are high nitrates, excess protein or basic deficiencies in the feeds or ration, e.g. consumption goes up as hay and forages age and deplete in vitamin content.

BVC and Vitamin C intake increases with stress.

Iodine consumption increases if nitrates are high or if there is stray voltage or geo-magnetic fields.

Animals will eat to compensate for previous deficiencies, E.g. replace bone mineral loss or liver reserves.

## Some Things to Notice

Calcium consumption may go down in summer and up in winter.

Magnesium consumption increases when on spring Grass.

Copper consumption goes up in young stock or with moldy feed. Copper deficiency causes a red tinge to the otherwise black hair on affected animals.

Zinc is associated with feet/hoof health.

Sulfur is involved in hair and hoof growth.

Animals will often drastically alter their mineral consumption within one day of ration changes and will often take more minerals in advance of imminent weather changes.

Potassium may be a cellular detoxifier; if consumption goes up you may want to change rations.

Sheep will not overeat copper in a free-choice mineral system.

## All Minerals Are Not The Same

Cheap sources of some minerals are not as readily available to the recipient animal.

Some minerals contain consumption limiters to limit consumption of the more expensive items.

Some minerals contain flavor enhancers to force consumption of some items so that they conform with University Standards for mineral consumption.

Some cheap sources of minerals imported from foreign countries are more likely to be contaminated with toxic heavy metals.

## Benefits of Cafeteria-Style Minerals



Provides a safety-net or early warning system if nutrition changes.



Feed costs go down as animals utilize feedstuffs better.



Animals stay in herd longer.



Reproductive efficiency improves.



Health care & Veterinary costs go down.



Allows animals to adjust minerals for seasonal changes & reproductive cycle changes

**STEP  
# 3**

Minimize the toxic effects of  
GMO's and glyphosate by  
feeding ABC's

**G. R. P. Products**

# Glyphosate

... the NEW AGENT ORANGE

South American research links glyphosate use to genetic birth defects in animals and humans. Check out the following links.

<http://www.pdazzler.net/2010/10/19/the-new-agent-orange/>

<http://www.mindfully.org/Pesticide/Roundup-Glyphosate-Factsheet-Cox.htm>

The major side effect of feeding glyphosate contaminated feeds to animals is an impaired immune system resulting in secondary diseases that actually kill the host animal.

Unmanageable diseases include; Johnes, Foot and Mouth, B S E ... and the list goes on.

Over 50% of dairy cows calving in the U. S experience a metabolic condition or an infectious disease.

(Dairy Herd Management, March 2011)



**D.U.A. G.R.P.™**

Dietary Nutritional Supplement for Dairy Cattle, Beef Cattle, Sheep, Goats, Swine, Poultry, and Lambs



| GUARANTEED ANALYSIS                   |              |
|---------------------------------------|--------------|
| Crude Protein (min).....              | 18.5%        |
| Lysine (min).....                     | 0.85%        |
| Methionine (min).....                 | 0.08%        |
| Crude Fat (min).....                  | 3.5%         |
| Crude Fiber (max).....                | 7.5%         |
| Acid Detergent Fiber (ADF) (max)..... | 27.0%        |
| Cellulose (max).....                  | 2.0%         |
| Calcium (min).....                    | 0.15%        |
| Sodium (min).....                     | 0.15%        |
| Sodium Phos (min).....                | 0.18%        |
| Copper (min).....                     | 400 PPM      |
| Copper (max).....                     | 400 PPM      |
| Zinc (min).....                       | 2,500 PPM    |
| Vitamin A (min).....                  | 10,000 IU/LB |

**INGREDIENT STATEMENT**

This product contains only certified organic agricultural products or ingredients that conform to the NOP's national list of materials acceptable for organic livestock production.\*\*

**INGREDIENTS:**  
 Dead Lactobacillus Acidophilus Fermentation, Organic Oat Grains, Rind Solids, Peat, Diatomaceous Earth, Dicalcium Phosphate, Calcium Carbonate, Amorphous Clay, Organic Algal Meal, Monocalcium Phosphate, Organic Sorghum DS, Organic Rice Bran, Organic Dried Kelp, Bromine, Salt, Choline Chloride, Organic Lined Meal, Magnesium Oxide, Yeast Culture, Ferrous Sulfate, Sodium Sulfate, Zinc Sulfate, Potassium Chloride, Manganese Oxide, Ascorbic Acid, Vitamin E Supplement, Manganese Sulfate, Organic Garlic, Organic Fenugreek, Nettle, Citric Acid, Sulfur, Folic Acid, Riboflavin, Vitamin A Acetate, Organic Dried Feed Grade Milk, Copper Sulfate, Calcium Hydroxide, Organic Lecithin, Organic Egg Product, Potassium Hydroxide, Organic Clover, Organic Barley, Vitamin D3, Acetic Acid, Calcium Hydroxide, Vitamin B12, Borax, Thiamine Mononitrate, Organic Dicalcium Phosphate, Organic Lactobacillus, Organic Parsley, Magnesium Chloride, Organic Alfalfa Root, Organic Dried Tomato Powder, Yucca Schottigera Extract, Organic Homestead, Organic Lecithin, Organic Sweet Orange Peel, Organic Aloe Vera Gel Concentrate, Organic Peppermint, Organic Calendula, Organic Cayenne Pepper, Organic Citrus Organic Coconut Oil, Organic Sage, Organic Coriander, Organic Thyme, Organic Lemon Grass, Organic Eddi Flowers, Organic Peppercorn, Organic Basil, Organic Yoghurt Cultures, Organic Coconut Flour, Organic Juniper Berries.

**DIRECTIONS FOR USE:**

**DAIRY CATTLE:**  
Top Dress or Add Mix:  
1/2 ounce (14.17 g) per head per day.

**CATTLE:**  
Top Dress or Add Mix:  
1/2 ounce (14.17 g) per head per day.

**BEEF CATTLE:**  
Top Dress or Add Mix:  
1/4 ounce (7.09 g) per head per day.

**RECEIVING:**  
Top Dress or Add Mix:  
1/2 ounce (14.17 g) per head per day for 14 days.

**SHEEP & GOATS:**  
Top Dress or Add Mix:  
1/8 ounce (3.54 g) per head per day.

**SWINE:**  
Enriching:  
Add 3 Pounds Per Ton of Complete Ration.  
Grower and Lactation:  
Add 5 Pounds Per Ton of Complete Ration.  
Slaughter and Cull:  
Add 7 Pounds Per Ton of Complete Ration.

**POULTRY:**  
Slaughter:  
Add 4 Pounds Per Ton of Complete Ration.  
Complete Feed:  
Add 2 Pounds Per Ton of Complete Ration.

**LLAMAS / EMUS / ALPACAS:**  
Top Dress or Add Mix:  
1/4 ounce (7.09 g) per head per day.

Manufactured by:  
Advanced Biological Concepts®  
P.O. Box 271 • One Illinois • 618-211-0127  
Phone: 800-373-5971 • Fax: 815-770-6755  
http://www.ab-concepts.com • www.abghp.com  
Certified Organic by: ECOCERT S.C.I. L.L.C.      FFD680-13

A101      Net Weight 25 Pounds (11.36 kg)

Overcomes  
glyphosate  
chelation toxicity.

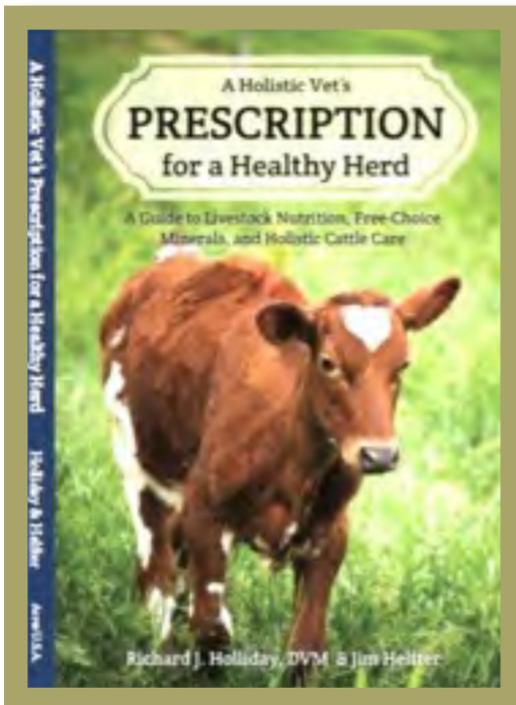
Increases  
utilization of  
supplemental  
minerals.

Protects against  
possible toxic  
effects to the  
food chain.

## Applied Common Sense - Manage the Cause - Check List

1. Fertile, highly mineralized, biologically active, high organic matter soils. Soils and crops free from herbicides, insecticides, antibiotics, and GMO contamination. Go beyond Organic.
2. Nutritious, high forage diet for ruminants. Use only feeds that are inherently "natural" to the species — feeds that are appropriate to the species, age, and intended production. Avoid urea animal fats, cottonseed, and excess protein.
3. Provide an environment or lifestyle as close as possible to one inherently natural to the species.
4. Free-choice individual minerals, trace minerals, white salt, and kelp.
5. Immune support at critical stress periods. Focus on the pregnant female and the newborn.
6. Regular, frequent checks of water quality, stray voltage, production equipment, and handling procedures. Avoid stress.
7. Genetics — avoid inbreeding and cull vigorously.
8. Believe in what you are doing. Trust your own powers of observation.
9. Be skeptical of bought-and-paid-for research.
10. Ponder on the wisdom of our pioneers - Bromfield, Albrecht, Howard, Poirot, and others.

If you don't feed a balanced mineral program,  
your animals may have to eat dead rabbits  
to satisfy their mineral needs!



Dr. Holliday and Jim Helfter's book was published by Acres, USA in 2014

It is available from:

Advanced  
Biological Concepts  
Osco, IL

Acres, USA

Online at  
[Amazon.com](https://www.amazon.com)

# About the Author



**Richard John "Doc" Holliday** graduated from the University of Missouri College of Veterinary Medicine in 1959 and has worked in veterinary medicine for over fifty years. Holliday was profoundly affected by reading Louis Bromfield's books *Pleasant Valley* and *Malabar Farms* in high school. He credits these works as being his earliest exposure to alternative agriculture and holistic veterinary medicine. Holliday studied the **relationship** between soil fertility and animal health under the renowned Dr. William Albrecht before conducting his own private mixed veterinary practice in northwest Missouri. During this time Holliday began to work with the

concept of feeding self-regulated individual minerals to animals, with great success. Holliday became certified as a veterinary acupuncturist in 1988 and served as the president of the International Veterinary Acupuncture Society from 1992 to 1994. Holliday is currently employed as the senior veterinary consultant for Advanced Biological Concepts, Inc of Osco, IL.

Holliday has been married for 62 years to his childhood sweetheart, Ruth; with whom he has three daughters, fourteen grandchildren, and ten great-grandchildren.



## In Memoriam

### James "Jim" Helfter

June 6, 1942 — October 26, 2014



Jim was born in Osage, Iowa. He graduated from St. Mary's Academy in New Haven in 1960. On December 30, 1988, he married Gwen Eileen Pike in Cedar Falls, Iowa.

Jim's evolution into holistic thought began when he was an aerospace researcher for the Martin Corporation, Aerospace Division in Colorado. Jim spent a lot of time studying animals in relation to his research on interplanetary travel. He was concerned about the long term, widespread use of antibiotic and hormones in animals

to treat symptoms and make livestock grow faster.

Jim's years of hands-on experience taught him that animal health problems are due to nutritional deficiencies from single source diets and related environmental conditions such as confinement. Jim's focus was always on the cause of a disease or problem, not the symptom. The company's mission to *"Improve the quality of life for mankind by improving the quality of life for animals through nutrition"* is a reflection of Jim's total commitment to this concept.

Jim was a member of the American Endurance Riders Association. His experience with long distance endurance horses added another dimension to his understanding of nutrition and mineral balance in performance animals as well as food producing livestock.

Helfter Feeds, Inc. was the first organic company certified under the USDA/National Organic Program. "Advanced Biological Concepts® produces organic and GMO-free feeds and supplements for horses, dairy and beef, sheep, goats, swine, poultry, canine, as well as fish.

For over 43 years, the quality of all these products and the experience and philosophy involved in their formulation has made the names Jim Helfter, Advanced Biological Concepts® and Helfter Feeds, Inc. recognized worldwide.

Jim passed away October 26, 2014 while out riding a horse — a fitting exit for a great man who loved horses. Jim is survived by his wife, Gwen Helfter, who is now the CEO of Advanced Biological Concepts®. Gwen is doing a great job carrying on the tradition of excellence started by Jim many years ago





**Advanced Biological Concepts®**  
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Osco, Illinois 61274-0027  
Phone: 1-800-373-5971  
[www.abcplus.biz](http://www.abcplus.biz)

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